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INDEX TO VOLUME SIXTY-NINE

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EDITORS

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ISADORE DYER, M. D.

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PAUL G. WOOLLEY, M. D., University of Cincinnati.

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EDITORIAL

By Way of Notice.—This number of the Journal begins the sixty-ninth volume of the publication. At the same time it marks a period of change in the method of presentation of material to its readers. Not only will the same official relation to the Orleans Parish Medical Society be continued, but an added function will be served by the incorporation of the *American Journal of Tropical Diseases and Preventive Medicine*, which has become a part of the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

The close relation in the administration of the two Journals has made this arrangement possible and the American Society of Tropical Medicine has seen the way to continue its official relation to the new combination.

The Journal of Tropical Diseases has served the useful purpose of presenting the necessity for a closer study of the diseases its title has covered, and it will go in with the older publication adding the material spirit and aid which the work of the Society of Tropical Medicine and its members will bring to the JOURNAL, which already for nearly three-quarters of a century has been the largest exponent of tropical medicine in the United States.

The editors of the combined Journals bespeak the continued support of the friends of both in the assurance that the combination can only add material benefit to all concerned, while it especially emphasizes the importance of the field of Tropical Medicine and of its presentation from this part of the world, where particular opportunity is afforded for its study and investigation.

The encouragement to contributors of material in a wider circulation of their product, and to an audience which is worldwide, should continue to attract to the pages of the new JOURNAL the best of American work in Tropical Medicine, and to such these pages are always open.

The importance of New Orleans as a medical center, with a great university as a stimulus and with one of the leading medical colleges and its staff largely interested in the material within the JOURNAL's pages, promises a future of considerable interest to the readers of this publication. So much of original material comes out of Tulane and out of New Orleans through the pages of the JOURNAL that the contingent which is supplied should be interested in our future progress and welfare.

The combination of the membership of the Orleans Parish Medical Society and of the American Society of Tropical Medicine means a variety of effort from the best of local intellect and the very best of contributing support abroad.

We are sure of our own desire to make the new JOURNAL ail our readers wish it and we are hopeful that they will help us to that end.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

SYMPOSIUM ON BLOOD DYSCRASIAS, ASSOCIATED WITH SPLENOMEGALY.

I.

The Etiology and Pathology of the Blood Dyscrasias Associated with Splenomegaly.*

By J. A. LANFORD, M. D.,

Assistant Professor of Surgical Pathology, Tulane College of Medicine, New Orleans.

The subject assigned is so stupendous that it is impossible in a brief paper to consider anything more than the salient points.

The blood dyscrasias associated with splenomegaly may be easily divided into two classes:—

1st. Those in which the red blood cells are primarily and chiefly affected.

2nd. Those in which the white blood cells first show abnormal changes.

It must not be forgotten, however, that neither of these conditions can long exist without the other cellular elements of the circulating blood showing pathological changes.

In class one (1) will be considered two different conditions:—

1st. Pernicious anemia, which is a disease primarily of the bone marrow in which the red cells of the circulating blood first show characteristic pathological changes.

2nd. Several conditions in which the changes in the blood are secondary to some pathological process elsewhere.

Pernicious Anemia.

The etiology of this unfortunate condition continues to elude the vigilant search of many capable workers and remains hidden.

Many theories have been advanced to explain the disease and an etiological relationship claimed for certain factors, but the observations suggesting the theory were never confirmed by other than the original worker.

*Read before the Orleans Parish Medical Society, March 13, 1916. [Received for Publication April 22, 1916.—Eds.]

Among the first ideas advanced was that of Quincke, who attributed the gradual but constant destruction and diminution of the red blood cells to a poison absorbed from toxic substances in the alimentary tract.

He based his theory on the fact that, at autopsy, in almost every case, there is a marked decrease in the glandular elements of the mucosa of the entire alimentary tract and the absence of these glands meant the absence of the necessary enzymes for digesting the food, allowing intestinal putrefaction to take place. The absorption of these putrefactive toxins produced the symptom complex of pernicious anemia.

These observations were followed by animal experiments and it was soon proven that extracts from the intestinal contents of patients suffering with pernicious anemia produced no different lesion when injected into animals than similar extracts from healthy persons.

Because of the fragility of the red blood cells and their rapid disappearance from the circulation at times it is evident that some hemolytic agent is at work. The origin of this hemolytic agent is not known and, although some authorities locate it in the spleen or lymph node, it is a fact that there is no more evidence of hemolytic action in the blood of the portal vessels than in other parts of the circulation. From reports of improvement following splenectomy, however, it is suggestive evidence that the spleen is either the principal offender, or at least a contributory factor.

In this connection it is interesting to consider the work that has recently been done in pernicious anemia of horses. Autopsies on eighty-one horses dead of pernicious anemia, showed in the stomach several varieties of fly larvæ. Extracts from these fly larvæ, when injected into other horses produced a type of anemia which clinically resembled the spontaneously occurring disease. This suggests that there is some chemical substance derived from some part of the alimentary tract which, on absorption, produces the marked anemia clinically spoken of as pernicious anemia.

Such a substance is derived from the decomposing bodies of bothriocephalus, which produces a clinical picture quite similar to pernicious anemia and which for some time was not separated from this disease. Whatever its origin, the distinguishing fea-

ture is the fact that the anemia is entirely disproportionate to any apparent cause and when once established tends to progress to a fatal issue.

The principal pathology is the progressive anemia and destruction of red blood cells.

The circulating blood shows a marked decrease in the numbers of its cellular elements. The red cells vary markedly in shape, size, and staining reaction and many of them are embryonal in character. The iron content is proportionately increased.

The destruction of red cells results in the deposit of iron salts in many of the organs of the body, principally spleen, liver, kidney and heart. Fatty degeneration of the glandular and muscular structures is a striking picture. Hemorrhages into the various body cavities are a frequent occurrence because of fatty degeneration of the vessel wall and diminution of the coagulation of the blood, as well as the unknown hemolytic substance.

The spleen is enlarged in only about 50% of the cases, and is never a striking finding. It occasionally is smaller than normal, but the decrease in size is probably due to some previous inflammatory process.

The most striking change noticed at autopsy is the character of the bone marrow. Instead of its usual butter-like color and consistency, we find a substance of a raspberry color resembling jelly.

The microscopic picture of this substance shows a more or less complete replacement of the normal fat cells of the marrow with embryonal red cells. The replacement of the adult yellow marrow with embryonal red marrow is very suggestive of a neoplastic change, in which the type cell is the erythroblast, that, as a result of some unknown stimulus, has overcome the subtle physiological restraint which limits cell growth and shows the autonomy or cell anarchy seen in the cells of other neoplasms. Further evidence of a neoplastic condition is the fact that it has recently been shown that small metastatic areas of myeloid cells are found in the liver, spleen and kidneys and a comparison of the clinical picture of pernicious anemia shows a marked resemblance to that produced by malignant new growths.

Splenic Anemia.

One of the most striking forms of chronic progressive anemia associated with an enlarged spleen is the condition spoken of as Banti's Disease. This condition is also of unknown etiology, and has too been the incitant of many theories. It was for some time considered a part of the pathology of cirrhosis of the liver, but a study of many cases showed that while cirrhosis was a frequent symptom, it is secondary to the splenomegaly and anemia.

In recent years a bacterial origin has been ascribed by Gibbons and others. The former based his theory on the finding of streptothricial organisms in stained microscopic sections of six spleens removed from cases of Banti's Disease. The author has studied the bacteriology of splenic anemia and has cultivated several stains of diphtheroidal organisms from spleens removed at operations and autopsy, as well as from the circulating blood. However, stained sections of the spleens failed to show any organisms and, all animal inoculations being uniformly negative, he is inclined to believe that the recovered organisms were either extraneous contaminators or were temporarily present in the diseased organ because of a lowered resistance.

Since the removal of the spleen in early cases has resulted in a large proportion of recoveries, we are forced to conclude that the spleen plays an important part in etiology.

The most striking picture at autopsy is the enlarged spleen, which sometimes fills the entire abdominal cavity, being from 10 to 15 times larger than normal. This enlargement is associated with an increase in density.

Microscopic sections show a marked increase in the connective tissue with atrophy of the Malpighian bodies. The capillaries and sinusoids are distended with blood and many large cells with phagocytized red blood cells are noted. Occasionally large areas of free blood are found under the capsule, simulating a hemorrhagic infarct. These conditions suggest a passive congestion and it is a fact that the portal and splenic vessels show sclerosis to a more or less marked degree.

Next to the large spleen the most striking lesion noted is the extreme anemia, associated with a decrease in the number of red cells. The white cells are also markedly decreased. Hemorrhage is frequent and an almost constant finding. I recall an autopsy in which the entire alimentary canal was filled with

blood, the patient having bled to death through the capillaries of the mucosa, as no large ulcer was found, after careful search.

Blood pigment is rather frequently noted in the various organs.

Cirrhosis of the liver is a constant finding in a more or less marked degree. Ascites and at times general anasarca are frequent, and passive congestion of abdominal viscera are noted.

The bone marrow is much darker than normal and shows an increase in the number of embryonal red cells.

There is a group of protozoal infections which are associated with marked blood destruction and splenic enlargements. One of these, malaria, is usually followed by contraction of the spleen and will not be further considered.

The other protozoal infection, which constitutes the clinical picture of kala-azar, is due to the parasite *Leishmania donovani*, which gains entrance into the body probably through the bite of some insect. It is taken up by the endothelial cells and leucocytes and, gaining entrance to the circulation, is widely distributed to most of the organs of the body. It produces a marked anemia and muscular atrophy. The spleen is enormously enlarged and fills up more than half of the abdominal cavity. It is very firm in consistency, distended with blood and contains numerous cells filled with parasites. This disease is distinctive in that the etiology is known.

In class two (2) there are two distinct clinical entities, in which the white blood cells of the circulating blood first show pathological changes, which are associated with splenomegaly. These are spoken of as lymphatic and splenomyelogenous leukemias. The etiology of the conditions remains obscure, although it occasionally has been assigned to some micro-organism, but in every instance confirmation was lacking.

Within recent years the two conditions have been considered as tumors in which the circulating blood is filled with the peculiar cells in various stages of development and differentiation.

The lymphatic type is characterized by an excessive number of lymphocytes in the circulating blood, sometimes 100,000 or more per c. m. being noted. These cells are derived from the germinal follicles of the lymph nodes or gastro-intestinal tract or spleen. Clinically we recognize two distinct types depending on the rapidity of the growth. In the acute type, the presence

of these cells in the circulating blood is usually secondary to a primary growth elsewhere as the mediastinal, cervical or inguinal glands, in which the lymphoblast has reverted to the embryonal state and by rapid growth and entrance to the lymphatic circulation has involved an entire group of glands before the cells gain entrance to the circulation. It may happen that the principal growth is in the blood alone, there being little involvement of the spleen and superficial lymph nodes. This is the most acute type, in which the cells are of the large form.

In the chronic type many secondary foci of growth are found in the various organs where they replace the normal structures. I recall an autopsy in which the heart, kidneys and lungs were the seat of many secondary nodules. The lymph nodes are replaced by the new cells and the capillaries and subsinusoidal spaces of the liver and spleen are distended with them. The bone marrow, also, is the seat of the new growth and many lymphoid cells replace the normal elements. Anemia is quite a striking symptom.

The other type of leukemia, the myelogenous, springs from the myeloblast of the bone marrow. This is the embryonal cell from which the several types of leucocytes are developed. It is characterized by an excessive number of these cells in various stages of development in the circulating blood. I have myself seen a case having 1,325,000 pr. c. m. m. The blood is considerably lighter than normal, being somewhat of a light chocolate color. The red blood cells are very much diminished in number and show degenerative changes. The spleen is enormously enlarged, sometimes attaining a size 15 to 20 times greater than normal. The enlargement is due partly to hyperplasia and thickening of the capsule, but principally to the multiplication of the tumor cells.

The bone marrow is rather characteristic in appearance, being of a yellow pyoid character resembling pus. The liver, kidneys and lymph nodes show marked increase in size and density. This increase is due to the multiplication of the tumor cells occurring in the stroma of the part as well as in the blood and lymph vessels.

In conclusion, we are forced to admit that, with the exception of kala-azar, the etiology of these interesting blood conditions remains theoretical and unproven.

II.

Blood Dyscrasias Associated with Splenomegaly.*

By JOSEPH D. WEIS, M. D.,

Professor of Tropical Medicine, Tulane College of Medicine, New Orleans, La.

Quickly and somewhat superficially (I hope not too superficially) I wish to review the medical aspect of the following blood dyscrasias associated with splenomegaly.

Blood Dyscrasias with Splenomegaly:

Leukemia: Lymphatic, Splenomyelogenous.

Splenic Anemia (Banti's Disease).

Kala-azar (protozoan splenomegalies).

Pernicious anemia.

Post malarial anemias.

(Severe secondary types.)

I am very glad of this opportunity for two reasons—one, perhaps the most important, certainly so to me, is, that after twelve years of rather dilatory observations in New Orleans upon just such classes of cases, I am compelled to condense this loose array into some compact order for presentation, and incidentally to view it after condensation, so to speak, giving me a vision of the whole twelve years which I have up to the present never stopped to take. The second reason is less personal, and pertains to you. I mean I am glad, if possible, to clear up and succinctly separate the different splenomegalies—more especially those forms which conflict in nomenclature rather than in actual symptomatology. For really there can be no confusion between any of the forms of disease above mentioned as far as their symptoms and signs are concerned.

Where I do find confusion is in the names of these diseases. Obviously this confusion is, then, simply one of superficial observation, or rather not so much observation as attention to the matter itself. No one who is in constant contact with medical wards and medical types of disease and therapeutics would ever make such obvious errors as I have met with often enough in the diagnosis and apparent hopeless confusion of blood pictures in these diseases.

Knowing that the audience to-night is a mixed one, what I mean is, that there are present members of all the specialties as

well as surgeons and internists, I am glad if I shall be able to fix in the minds of those who are interested at all, the absolute sharp and definite differences which exist between each one of the forms of disease always classified together in textbooks on medicine, as well as in lectures on internal diseases, or grouped into an evening's symposium as, for example, this present presentation.

The leukemias are blood dyscrasias of definite type. What signals them out from all other forms of disease associated with splenomegaly is the enormous leucocytosis always found associated with the symptom complex known as leukemia. Clinically the essential difference between the two forms themselves is the presence of enlarged lymphatic glands in the lymphatic form and the absence of lymphatic enlargement in the spleno-myelogenous form. Again, the splenomegaly of spleno-myelogenous leukemia is always extreme (this disease presents the largest spleen found in whatsoever disease); while the splenic enlargement is present in lymphatic leukemia, it, however, is never so monstrously big as in the myelogenous type.

The essential difference between these two diseases, however, lies deeper. The blood itself presents an absolutely different picture, in both diseases. To my mind there is no similarity in these diseases other than the total leucocyte count increase. The actual increase is due to entirely different elements in both conditions.

Lymphatic leukemia shows an increase of an unit of the blood. The mononuclear lymphocyte almost entirely the small forms—as much as 99.9%, while myelogenous leukemia gives a varied picture of increase of all types with the additional presence of a new cell, the myelocyte, a cell which is never found in normal blood, or in any of the known classified, so-called blood diseases, except in this disease and in pernicious anemia.

Definitely, then, under the heading of splenomegaly with leucocytosis, there are but two diseases, the leukemias. All the other diseases showing splenomegaly with blood dyscrasias present an opposite type, namely, the type associated with leucopenia, or with a normal total leucocyte count.

Superficially this is true; actually it is false, because there are numerous states of convalescence from acute disease which present enlarged spleens, anemias of more or less grave types and

a leucocyte increase—a leucocytosis—varying with the type of acute disease which has caused the anemia and splenic tumor. For instance, septic states in convalescence show splenomegaly, anemia, and leucocytosis, as do many anemias of malnutrition, more especially in infants and children. However, it is still wise for the general practitioner to consider all splenomegaly with leucocytosis as possibly leukemias until they are proven not to be, by time and treatment.

Pernicious anemia and splenic anemia, though widely different diseases, are both dyscrasias without leucocytosis; nay, more, they are both associated with marked leucopenia.

As a matter of fact, pernicious anemia shows little or no tumefaction of the spleen; indeed, spleens smaller than normal are found in pernicious anemia. Really pernicious anemia should not be classified as a splenomegaly, but, as it is without doubt the greatest of blood dyscrasias which may have a slightly enlarged spleen, I mention it.

Splenic anemia, however, presents an enormous splenic enlargement, second only to myelogenous leukemia in the greatness of the splenic tumor. Always in splenic anemia the leucocytes are very low—below normal, a definite leucopenia. Indeed, secondary anemia with enlarged spleen and a leucopenia is pathognomonic of splenic anemia.

Splenic anemia (as I have before stated in a previous paper read before this Society) is really a synonym of acute Banti's Disease, and if splenic anemias live long enough they will probably all terminate in the Banti symptom complex, namely, atrophic cirrhosis and ascites. Hence, Banti's disease, when firmly established, is again a splenomegaly with a leucopenia.

Kala-azar, or tropical splenomegaly (the Sahib's disease or Dum-dum fever of India) is a chronic infectious disease with irregular fever, enlarged spleen and liver with Leishman's bodies in these and other organs, a leucopenia and a relative mononuclear leucocyte increase.

States of lymphemia with palpable spleens come under one's notice often enough—very baffling indeed some of them are. In my tabulations I have twelve cases all except one of whom have apparently completely recovered, who have showed, at some time, palpable spleens, anemia, leucocytosis, normal leucocyte counts or leucopenia (apparently there is no constancy present

in these undefined states); but all in their differential counts show marked lymphemias, varying from 35 to 85% mononuclear cells (case of H. K.). Purposely I have not gone into detail of differential counts and other microscopic findings.

Symptomatically it may be said that all of these diseases produce symptoms which are wonderfully similar. Without the microscope it would be difficult indeed to differentiate any one of them from the other. Subjectively it may be said that patients suffering from any of the splenomegalies may have fever or may not; all have weakness, more or less emaciation and the general complaints of anemia, namely, lassitude, dyspnea and palpitation on exertion. Weakness, however, is the most prominent symptom.

From what has been already said, objectively, such patients will obviously differ, as for example glands are present in lymphatic leukemia and absent in all other forms of splenomegaly, except perhaps kala-azar;— will differ also in size of spleen, in presence or absence of hepatic complication, ascites and so forth. It would be useless and beyond the point to go into detail of symptomatology.

Again, the treatment of all of the blood dyscrasias associated with splenomegaly is remarkably similar—which means we know nothing whatsoever of the etiology of any of them (excepting only kala-azar).

Arsenic may be said to be the sine-qua-non in the therapeutics of these conditions. Arsenic as cacodylate hypodermatically and by mouth, arsenic as Fowler's solution, arsenic as the trioxide and as salvarsan, are all employed in all of them, as is also the X-ray over the splenic tumor itself, over glands when present, and over the shafts of long bones.

In the leukemias, benzol in doses from 10 to 25 minims, three times a day, holds the total white count down, much as phenacetin does temperature in febrile conditions. Beyond such action I personally do not believe benzol has any effect.

To sum up:—

The splenomegalies with blood dyscrasias are etiologically mysteries; they are essentially different diseases and probably have nothing in common actually. A great subdivision is into two classes:

One with leucocytosis; one without leucocytosis.

The essential difference lies in the differential counts and the presence or absence of lymphatic glands, enlargement and size and shape of the splenic tumor.

Their symptomatology is similar in that it is almost entirely that of anemia and the treatment is similar—namely the use of a hemapœtic drug to combat the anemia.

III.

The Blood Dyscrasias Associated with Enlarged Spleen.*

By F. W. PARHAM, M. D.,

Professor of Surgery, Tulane College of Medicine, New Orleans.

As the surgery of blood dyscrasias is practically concerned with the role we must assign to the spleen in bringing them about, it might be useful to discuss first the conditions in which enlarged spleen is found and what beneficial effect we may expect from its removal.

It is possible, as W. J. Mayo suggests,

“that the spleen, an organ not necessary to life and not causing disease on its own initiative, is the one link in an otherwise fatal chain which can be easily and safely broken.”

Further,

“as the removal of the tonsil may prevent generalized infections responsible for all sorts of acute and chronic conditions, the tonsil itself not being essential to life, so splenectomy may cure certain disease-conditions of the nutritive system, especially those of the liver and blood.”

As to either tonsil or spleen being a useless organ there may be some question, especially as to the spleen, which seems to play a part in resistance to infectious disease. We know that normally it has a function of hemolysis and phagocytosis, so that it has often been spoken of as a “scavenger,” or as the “graveyard” for defunct and senile red corpuscles. We know, however, of other organs, which, normally useful, may become a positive menace and are removed with benefit. We have learned, too, that in the case of the spleen, its normal useful function of hemolysis and phagocytosis may be much exaggerated and under circumstances threaten life. Such considerations admonish us

that the spleen should only be removed when it has ceased to be useful and its retention would be a menace.

Splenic enlargements are all abnormal, but many are benefited by appropriate treatment of the cause and no spleen is to be sacrificed unless it is apparent that its enlargement bears a direct etiological relation to the condition which is threatening life, and only then if its removal is likely to influence favorably the disease.

Splenic enlargements may be conveniently divided into four groups:

1. New growths.
 2. Infections.
 3. Enlargements associated with hepatic disease.
 4. Those associated with the blood.
1. *New growths.* The spleen may be removed for all new growths when primary, or when secondary for certain reasons.

2. *Infections.*

1. Syphilis. The effect on the spleen is a chronic fibrosis, rarely a gumma. In a few cases the anemia has been markedly benefited by splenectomy (W. J. Mayo), although the liver also is usually involved.

2. Tuberculosis. This is rarely, if ever, primary in the spleen. Splenectomy is only justifiable when the process is absolutely quiescent elsewhere and is unquestionably present in the spleen.

An interesting case reported by Sherman Wight in the *March Annals of Surgery* shows the futility of such an operation where there has been tuberculosis elsewhere, although apparently well.

3. *Splenic enlargements associated with hepatic disease.*

1. Primary biliary cirrhosis of Hanot type. A few cases have been markedly improved by splenectomy.

2. Portal cirrhosis. In four cases in Mayo clinic greatly enlarged spleen has been removed with marked improvement, both anemia and ascites disappearing. Time sufficient has not yet elapsed to know end results.

4. *Splenic enlargements associated with the blood.*

- (1) Leukemia. It matters not whether we consider the myeloid and the lymphatic forms as distinct or as essentially the same, the only difference being the starting point of the disease, it is useless to contemplate seriously

surgical intervention, as the pathologic process involves the whole homopoeitic system and no permanent effect can therefore be expected.

This group of splenomegalies, at one time attacked vigorously, "do not," as John Babst Blake has remarked, "belong to the surgeon at all." The mortality (Carstens), 63 out of 66 operations, is prohibitive, and leaves these cases to the internist and the radiologist. A few cases, however, mentioned by W. G. Mayo in a recent article, of splenic anemia with a leucocytosis of 20,000 or more have been operated on and remained well. Several such had been previously diagnosed and treated for true leukemia.

We do not believe, however, that the case against surgery is so strong in

(2) Pernicious anemia. We believe surgery has a place here, although the pathology of pernicious anemia is still very much in doubt. It is evident that a powerful poison is at work, but where it is elaborated is at present unknown.

"It is generally agreed to-day," writes Cabot, "that the changes we find after death in the bone marrow of cases of pernicious anemia are the result rather than the cause of the disease. The researches of Bunting who produced experimentally in animals a gradual, long standing hemolysis by the injection of small doses of ricin, proved that a typical megaloblastic metamorphosis of the marrow can thus be produced,"

identical with that seen in pernicious anemia. Bunting suggests that we are dealing with a hemolytic process

"produced by a poison which exerts its action over a considerable period of time."

Lee, Vincent, and Robertson in a recent article mention the fact that

"Eppinger, Moffit, von Decastello and others have discussed the theoretical and experimental evidence for the assumption that the etiologic factor of pernicious anemia resides in the spleen."

Eppinger in 1913 first called attention to the remarkable improvement in pernicious anemia following removal of the spleen, and Lee, Vincent and Robertson recently reported a series of five cases, unselected, in which there was undoubted marked

benefit in all from splenectomy preceded or followed by transfusion of blood.

Cabot, from whose service these cases were reported, wrote in 1908 in Osler's System of Medicine that

"transfusion of blood from a healthy individual to a patient with pernicious anemia is not to be recommended and should not be done."

He makes no mention of surgical measures in this article (I have not access to the last edition).

At the meeting of the Association of American Physicians in May, 1915, there was a notable discussion on the treatment of pernicious anemia by blood transfusion and splenectomy. Libman and Ottenberg mentioned 25 cases, in 14 of which there was progressive improvement for a time. In one case there were four transfusions followed by splenectomy, when a remission took place. Cabot in the discussion referred to six cases in which marked improvement followed splenectomy, and four of them are now at work, although previously they were entirely helpless.

Mayo from an experience of 19 cases in the Mayo clinic feels justified in doing splenectomy in selected cases. He feels that if done sufficiently early it will permanently check, if not cure, the condition. Transfusion of blood before or after splenectomy may be necessary. Last summer in Ochsner's clinic I had the pleasure of seeing one case transfused for the second time, improvement after the first having been distinct.

The conclusions drawn by Lee, Vincent and Robertson are very encouraging, but quite justified by the cases reported.

"1. Splenectomy is not a very serious operation in pernicious anemia, and it offers a definite means of inducing a remission.

"2. The remission thus brought about is more marked in the majority of cases than any other known therapeutic procedure."

(3) Hemolytic jaundice. Goldschmidt, Pepper and Pearce report marked benefit from splenectomy in hemolytic, or acholuric jaundice and explain the result on a basis of increased retention and utilization of nitrogen, decreased uric acid output, reduction of iron elimination and 90% reduction of urobilin elimination. Splenectomy removes, they think, the toxic agent or the source of it.

W. J. Mayo has seen the most brilliant results from splenectomy in this affection.

4. Finally we come to splenic anemia. John Babst Blake read at the last meeting of the American Surgical Association a very interesting and instructive paper on Banti's symptom complex with relation to splenectomy. He recommends splenectomy in splenic anemia for the following conditions: First, in adults, when a diagnosis is agreed upon by a good physician and a competent surgeon. Second, when the condition of the patient is sufficiently good to withstand what may be a very serious operation; or when a poor condition can be sufficiently improved by one or more previous transfusions. Third, in children, only after a very thorough trial of all possible medical methods of treatment, including fresh air, sunshine, careful nursing, liberal and appropriate diet, as well as judicious exhibition of drugs. In a large majority of cases, a high white count or a considerable recurring or continuous fever are contra-indications.

Splenic anemia is distinctly a border line condition. In adults we think that it cannot only be cured by operation, but that by the operation it may be permanently cured. In adults, therefore, it is not necessary to wait except for transfusion once the diagnosis is established. Banti's symptom complex is in most cases a slowly progressing condition, often with periods of distinct improvement. In a minority of cases the disease progresses rapidly and in practically all cases it terminates fatally. Unfortunately neither the public, nor indeed the surgeon, is convinced of the importance of early operative attack. There is no doubt that transfusion is a valuable aid in improving a patient's pre-operative general condition. The results sometimes, as in the case of the child related in Blake's paper, are little short of marvelous. The cause of Banti's complex is a most interesting and difficult problem. It would appear, as Warthin seems to have proved, that Banti's disease is a symptom complex resulting from partial occlusion of the splenic or portal vein, and marked obstruction to outflow of blood from the spleen. Blake thinks that it is impossible to read Warthin's exhaustive article without reaching the conviction that the conclusions are correct. According to his explanation, anything which may cause splenic or

portal thrombosis may be the cause of splenic anemia.

Mallory evidently accepts this view, and remarks:

“Until it is definitely shown that splenic anemia can exist without any evidence of obstruction in portal or splenic vein, Banti’s disease and splenic anemia must be regarded as co-ordinated symptom-complexes, and not individual disease-entities” and “the whole pathological picture points to an infective thrombophlebitis of portal or splenic vein as the essential feature of all these cases, no matter under what head reported (splenic or portal thrombosis, splenic anemia or Banti’s disease.”)

“This,” says Blake, “simplifies and explains a good many apparently inconsistent facts: we must believe that infection, whether or not we can trace it, plays the leading role in all cases of phlebitis no matter where located, and that infection of all sorts may cause inflammation and thrombosis in veins, hence it becomes apparent why splenomegaly follows tuberculosis, syphilis, malaria and pneumonia as well, and why it may also follow infection of the gall bladder, as has recently been suggested in the Mayo clinic. Since hypertrophy of the spleen, no matter of what origin, appears to cause in the majority of cases a diminution in red-blood cells and hemoglobin, associated in many instances with a leukopenia, the sequence is as follows: infection causing splenic vein thrombosis; this causing hypertrophy of spleen; this causing anemia and leucopenia, this completing the symptom complex. Splenectomy does not remove the cause, but removes an effect of the cause which had itself become a menace to life.”

My own view of the matter is about this: Disease or enlargement of the spleen is a positive causative factor in splenic anemia, and if the enlargement of the spleen is recognized early enough and the spleen removed, the symptoms will in many instances disappear, and the later stages, known as the Banti’s complex, be prevented. In other words, I believe it is a disease that if seen early enough can often be cured by surgical intervention. Numerous cases now on record show the beneficial effects of splenectomy in splenic anemia. Only by early operation can we hope to forestall the Banti syndrome, but even a few cases where the disease had advanced to cirrhosis and ascites have been much benefited by splenectomy.

Robertson has proposed a determination of urobilin in the feces as a test of the effect of splenectomy.

AIDS TO SUPRAPUBIC PROSTATECTOMY.*

By JOSEPH HUME, M. D.,
Assistant Professor of Genito-Urinary and Venereal Diseases,
and
SAMUEL LOGAN, M. D.,
Instructor in Genito-Urinary and Venereal Diseases,
Tulane College of Medicine, New Orleans.

Unfortunately, to-night, we are not in a position to show anything new as an aid to prostatectomy operations, but in view of the fact that we are dealing with patients requiring such careful surgical consideration from an already weakened and debilitated condition, we feel that it is a very good thing to bring to your attention, as well as we can, any little points which may help in getting these cases through the danger period of the operation.

We are not going in detail into the numerous and various things which can be done to a case of hypertrophied prostate, but we want particularly to call your attention to three factors, one for each stage of the prostatectomy. These factors have helped us immensely in our operative experience. For purposes of convenience, we will divide these cases into three natural headings:

1st: The pre-operative stage, or the stage of preliminary preparation of the patient.

2nd: The operative stage.

3rd: The post-operative care of the patient and of the wound.

We will take them up in this order.

In the pre-operative stage, the stage of preliminary preparation of the patient, the most important point to which we wish to call your attention is the use of the various kidney functional tests. In the opinion of most of us, the advisability of operation and the patient's chances of recovery depend more on the kidney functions than any other set of organs in the body. Fortunately, we are able by these different functional tests to determine approximately beforehand what our patient's chances are of stand-

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ing the siege of an operation. We wish particularly to dwell upon the phenolsulphone-phthalein test, which is in general use as a preliminary to almost every surgical operation, and certainly to all operations on the kidney, bladder or prostate. Should the functional test be low in reading, meaning thereby that the patient has not much functional capacity of the kidneys, it is not necessarily always a bar to operation. For instance, a patient may have a phthalein indication of only 25% and yet be a better surgical risk than another patient who has a phthalein indication of 40%, 50% or 60%. It depends largely on whether the functional capacity is at a steady level rather than declining; this will be shown by doing repeated phthalein tests. If repeated tests show the phthalein output to be identical, we may assume that the patient, while on a low functional level, nevertheless has a certain steady functional capacity. If, on the other hand, repeated tests show a gradually decreasing phthalein output, it means that our patient is on a decreasing functional capacity, and this patient would decidedly not be as good a surgical risk as the former.

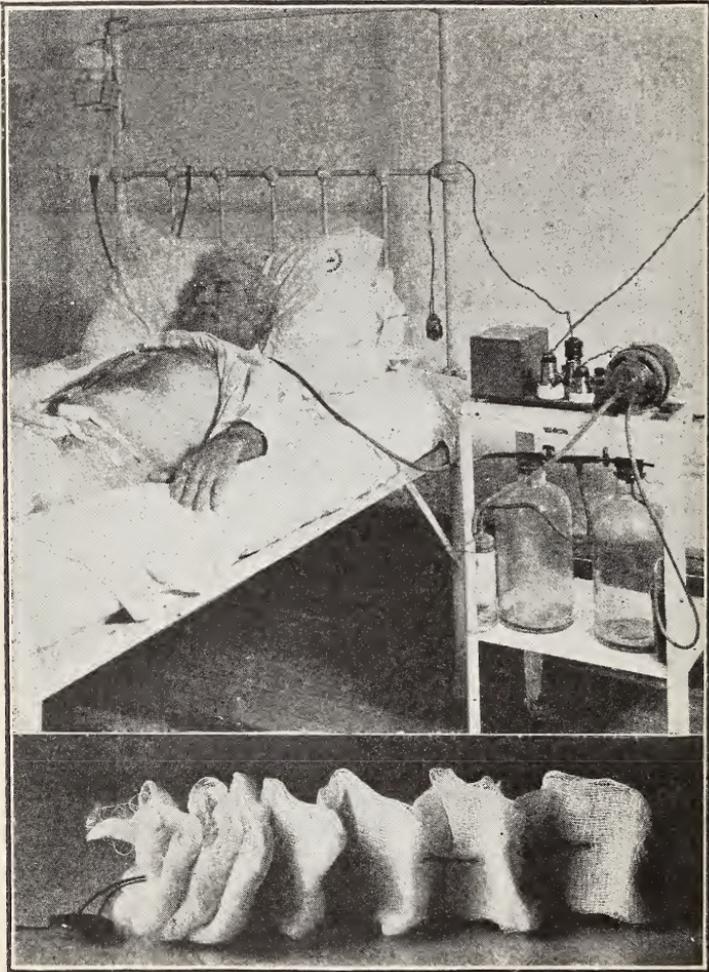
Further, if a patient has persistently low functional readings, we have other methods of determining whether he is bordering on a uremic state or not, and we wish particularly to call your attention to the more recent tests which have been done in this line by Folin, of Boston, and Marshall, of Hopkins, the object of the test being to determine whether the patient has a retention of urea in the blood. Frequently we will find that a patient with a very low phthalein reading, 12% to 15%, which is exceedingly low, will not be retaining in the blood any urea above the normal content. This patient would be a fair surgical risk. On the other hand, we will find some patients with a rather high phthalein output (25% to 40%) who will be retaining urea in the blood in excess of the normal amount. These patients are in the pre-uremic condition and must be looked upon as very poor surgical risks. We would like also to urge the necessity for making series of tests rather than single ones, because experience has proven that repeated tests are much safer. Should you find the patient running at the same functional capacity level, and this a fairly good one, you may safely suppose that he is in a pretty good surgical condition for operation, so far as the kidney output is concerned. If you find the patient is on a decreas-

ing functional capacity level, the operation had best be deferred until some other time when the functional capacity has gotten to its proper level, because if you were to put an extra strain, such as an operation, on a patient of this type, the prognosis would be exceedingly unfavorable.

The next pre-operative point which we think of great importance is the question as to whether the kidneys are infected or not. Most of these patients, from the long-continued presence of infected urinary residual in the bladder, have some degree of ascending renal infection, and to our mind this is always a more grave point than the functional capacity. We prefer, if possible, to treat the infection so as to get it to the lowest point prior to operation. This is not always possible because of the technical difficulty and length of time necessary, but, if possible, an endeavor should be made to get it to the lowest point.

The second point is the operation. This by itself is not such a formidable thing and really does not amount to very much. By means of the suprapubic route, almost any fairly good operator can remove the prostate. There is one point, however, which gives a great deal of annoyance, particularly to the man who is beginning to do these operations. This is the hemorrhage. Once the prostate has been taken out, the hemorrhage is very great and at times assumes an alarming proportion. Opinion as to its control varies greatly; some operators pay no attention to it whatever and think that it is best left to itself. Freyer, of London, who has done probably more prostatectomies than any single operator, disregards it entirely. In a personal communication to us, Dr. Keyes, of New York, said that he, too, had given up attempts to check the hemorrhage, and that Dr. Cabot, of Boston, was of the same opinion. Personally we have never felt secure in our minds when leaving these patients with the excessive bleeding wound in the bladder such as a prostatectomy is left with. We have, therefore, preferred the use of packing the cavity from which the prostate was removed, a device which is not at all new in this class of wound, and which has been suggested and practiced by many operators. We have found a pack such as is illustrated here to be exceedingly useful. The pack is a modified one from a suggestion of Dr. Cabot's, and we had been using it for some time before we knew that he had previously described it.

As seen by the illustration, this consists of a folded gauze strip through which is run a strong silk thread in such a manner that when the thread is pulled upon the pack is folded into a tight wad. This thread is secured by a lead button which gives a very strong point of pressure. It is used as follows: After the



Prostatic Pack for control of hemorrhage after removal of prostate.

Above: Automatic suction apparatus, attached and running, hand switch control and double bottles to accommodate two patients.

prostate has been removed, a urethral catheter is introduced through the penis and the end brought out into the suprapubic wound; the silk thread is tied to the catheter end and the catheter

ter pulled out of the urethra, thereby drawing the string through with it. The pack unfolded is fed through the suprapubic wound and stuffed into the cavity from which the prostate has been removed; traction is then made on the string projecting out of the penis, and this firmly pulls the pack into place and checks the bleeding almost instantly. It is well to have pressure exerted by means of the string for at least five or six minutes, during which time the operator is engaged in suturing up the suprapubic wound and arranging the dressing and drainage tube.

The pack is left in place about forty-eight hours, or longer, as the case may be, and in our experience fully controls the bleeding, these cases being left as dry and free from ooze as any surgical wound in the body. At the end of forty-eight hours, the pack can be gently removed through the suprapubic wound by pulling on the string attached to the button, which protrudes from the suprapubic wound.

The third point in the discussion is the post-operative care of the patient. In the past, it has seemed to us that these wounds have been taking entirely too much time to heal. The reason for this is that we are dealing here with a wound that is constantly being saturated with infected urine; under these circumstances, it invariably heals more unsatisfactorily than one kept dry and clean. We have, therefore, been trying of late to adopt some means of better drainage of these wounds post-operatively, so as to keep them as dry and free from infection as possible. This, too, is a matter in which there is a great deal of individual effort being done at the present time by different men in different parts of the country.

Of late, we have been trying the suction method of drainage, which, in itself, is not in any sense a new procedure, but which, in conjunction with Dr. Kells, of this city, we have elaborated until we believe we have arrived at a satisfactory plan of procedure. We have been trying the apparatus which we here illustrate and which we would describe more in detail.

In order to work satisfactorily, an apparatus for this purpose must fulfill certain requirements. First of all, it must be simple and easy to work; secondly, it must be painless to the patient; thirdly, it must be capable of taking off all the secreted fluids, regardless of specific gravity or amount, such as may accumulate in wounds of this character; and lastly, it should be as self-

working, simple and automatic as possible. The apparatus illustrated here is simply an adaptation of the Kells' suction pump, to which a clock-work attachment is adjusted, so that the apparatus can be made automatically to suck fluids for a variable length of time at regular intervals. This clock-work attachment can be set according to the requirements of the wound. It can be made to run for a certain period of time as desired, and will automatically stop and start. There is an attachment in the shape of a hand-switch by which the machine can be controlled by the patient, and can be run either continuously or whenever he notices that the secretions are beginning to accumulate. The motor is simple; does not get out of order easily, and requires but a single oiling in twenty-four hours. We have run this apparatus for twenty-four hours on a stretch without the slightest inconvenience to the patient and with perfect drainage during that time. It is still in an experimental stage, having been used in but five cases to date, but so far it has certainly seemed to us to keep the bladder wounds drier, and to shorten the time of convalescence from the usual five to seven weeks down to an average of three to five weeks. In two of our cases, we got complete closure in nineteen and twenty-two days, respectively. The wound also seems to heal more firmly and with less tendency to hernia. As we said before, the machine is still in the experimental stage and it will take some time yet to satisfy us as to the benefits to be derived from it, but certainly, in the wards of the Charity Hospital where the nursing attendance is very limited, this automatic drainage machine has helped us greatly. In some of these cases, we have not had to change the dressings once in seventy-two hours. The motor is practically noiseless and there is no disturbance either to the patient or to anyone who may be sleeping in an adjoining bed.

The way we proceed is as follows: First of all, at the time of operation, we put in the bladder our large-sized drainage tube, which is nothing more than a modified Freyer tube. We have an inner suction tube, which is put inside this large tube, and through which the larger sized clots, if any, may be sucked. This tube will take care of pretty nearly anything that comes out of a bladder. The large tube stays in for forty-eight to seventy-two hours, in fact, until we take out the prostatic pack; after that, a smaller sized tube is introduced into the bladder, and this

is kept in place for two, three or four days, depending upon the rate of healing of the suprapubic wound. At the end of this time, the case is either ready for the penile retention catheter or a smaller sized suction tube. We have not decided yet whether it is best to keep the suction tube in place until the wound has healed to a small-sized fistula, or whether it might not be better to start urethral drainage at the earliest possible moment. The suction tubes can be made of soft rubber, thereby allowing greater freedom of motion with the minimum amount of discomfort to the patient.

In conclusion, we would like to repeat that this drainage work is still in an experimental stage, and we are not positive as to the best procedure on certain points, but so far as our experience has been, it has seemed to us that where it is impossible to get proper nursing, and where for any reason frequent changes of the dressings are not desired, the apparatus fulfills a much-needed use. There is absolutely no danger to the tissues either from the presence of the tube or from the amount of suction exerted upon the tissues, and the patients so far have complained only when the apparatus for some reason was not working, and the urine was not constantly drained. In one or two instances, they have objected to our discontinuing it when the proper moment arose, which seems to us the best kind of proof as to the harmlessness of the apparatus.

We would add, in closing, that we feel convinced that this apparatus may be adapted to all classes of wounds needing regular and steady drainage, either intermittent or continuous, and we would greatly like to lend the machine to any surgeon desiring to try it in cases in which its need seems indicated. So far we have been unable to get any material except the five cases above mentioned.

MUCOUS COLITIS AND ITS TREATMENT.*

By SIDNEY K. SIMON, M. D.,

Assistant Professor of Clinical Medicine, Tulane College of Medicine, New Orleans.

Mucous colitis is a term commonly used to cover an affection of the large intestine, characterized principally by the periodic discharge of quantities of mucus from the bowel with the occurrence of paroxysmal attacks of abdominal pain.

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The exact causation and pathology of the condition is yet a matter of some doubt and controversy. The disease has been described under various different titles from time to time, such as membranous catarrh of the intestines, membranous enteritis, mucous colic, tubular diarrhea, but each of these designations in turn point more particularly to the more or less indefinite clinical manifestations of the disease rather than to the exact manner of its origin.

All authorities are agreed that in the disorder as such, there is no actual inflammatory involvement of the bowel mucosa, and therefore to refer to the condition as an enteritis or a colitis is both inaccurate and misleading. A more exact terminology, and one expressing more truly the underlying basis of the disease would be myxoneurosis intestinalis, as suggested by Von Leube. According to this view, accepted now generally, the so-called mucous colitis is thus merely a neurosis of secretion, affecting the large bowel, whereby through functional disturbances the glandular apparatus of the muscosa concerned with the mucus secretion is stimulated to increased activity.

From the clinical aspects of the disease, many factors would seem to be involved, leading up to this unusual state of perverted secretion. The condition is undoubtedly closely associated in nearly every instance with a strong neuropathic diathesis, so that the claim has been made that this special intestinal disturbance may be but a part picture of a more general constitutional neurosis. A careful analysis of the case histories of the disease, however, will show that, apart from the undoubted neuropathic tendencies usually exhibited, other equally important contributory factors will be found in connection with the etiology. Among such predisposing agencies might be mentioned chronic constipation, chronic dyspepsia in its many protean forms, visceroptosis, chronic appendicitis and pelvic diseases of long standing in women.

Each of these has been championed in turn in the literature depending upon the particular experiences and leaning of the writer. Particular importance is ascribed by all, however, to the co-existence of a constipation of long standing in connection with the course of the disease. Von Noorden is firmly of the belief that the constipation in itself is a potent factor in the causation, exceeding in importance all others. Indeed, a history

of a particularly obstinate constipation can usually be attained extending back a long period before the onset of the typical paroxysmal attacks of the mucous colic. Likewise, preceding the attacks themselves, at times there is noted a specially obstinate condition of the bowels, so that there can be no question of the intimate relationship of the state of the bowel movements with the origin of the disease.

Aside from this, the two cardinal symptoms which stand out most prominently in a clinical way are the evacuation of the accumulated mucus masses and the attacks of abdominal pain. The mucus may present itself either in the form of glairy, gelatinous masses, or, as is more often the case, as membranous shreds or bands. Even complete casts of the lower bowel have been passed and the patients themselves will often wonder at the peculiar shapes and structures which the membranes assume. A similarity with some of the larger intestinal worms is at times striking and, unless care is exercised, may even lead to mistakes on the part of the doctor. The mucus may be discharged along with the stools or just as frequently perhaps, independent of the bowel movements. Under these latter circumstances, its evacuation may be attended with pain of a particularly severe paroxysmal type.

The chemical examination of the mucus secreted in mucous colitis reveals no essential difference to that of ordinary mucus resulting from inflammatory processes. Its physical characteristics, however, are strikingly distinctive. The retention of the mucus in the bowel over comparatively long periods offers at least part explanation for this distinction. Because of the more complete dehydration which ensues, it tends to assume an especially tenacious and sticky character, while the passing of the hard constipated fecal column and scybala over the surface, gives rise, it is thought, to the peculiar membranous structures, so frequently encountered. It is surprising with what difficulty at times the mucus is set free from the bowell wall. I have frequently made note of this fact through the proctoscope and believe it a good point to remember in the differentiation of the disease from true colitis.

The occurrence of pain immediately preceding or accompanying the passing of the mucus is, in this light, not difficult to explain. The pain represents an expression on the part of the

bowel of its efforts to free itself of the accumulated mucous masses. The pain may be in the nature of an aching or boring, or perhaps have the character of a true colic, and may occur in connection with a surface tenderness along any section of the large bowel. Most often, it is centered in the region of the sigmoid, but undoubtedly cases are encountered where the right iliac fossa becomes the main seat of the disturbance.

When a combination such as pain and tenderness occurs in the lower right abdomen, attended perhaps by a degree of muscular rigidity, the similarity to appendix disease becomes very marked. The literature contains several instances of mistakes in diagnosis of this kind, where even surgical procedures had been instituted. I, myself, have the case histories of two such plausible errors of diagnosis in individuals who subsequently came under observation and treatment for attacks of typical mucous colitis.

Under like conditions in the left abdomen, confusion may arise in connection with indefinite lesions in the left tube or ovary or even in the left kidney and ureter. I think it is well to remember that paroxysms of mucous colic are not of infrequent occurrence, especially in the female sex, and that evidences of pain in the clinical picture may be more prominently in the foreground than the excessive discharge of mucus.

TREATMENT.—Many divergent views have been entertained in the past in regard to the most effective method of handling this important and interesting disease condition. The prognosis at best is none too favorable, since we are dealing with a chronic functional neurosis, engrafted upon a type of patient who presents always great therapeutic difficulties. The first step should be directed, of course, towards the removing of any gross pathological lesion, which might serve as the starting point for a reflex neurosis. When visceroptosis is present in connection with the disease, I believe it is the first duty of the physician to institute proper mechanical measures looking to the relief of this disability. Likewise, the presence of a chronic appendicitis or other chronic inflammatory lesions in the lower abdomen, should call for appropriate surgical attention. In addition, it need hardly be mentioned that all procedures which tend in a general way to promote the tone and nutrition of the patient should be afforded a prominent place in the treatment.

The harmful effect of a co-existing constipation has already been pointed out, and I am firmly of the opinion that no material benefit can be rendered the individual with mucous colitis until definite steps are taken to relieve this state. For this purpose, a proper dietetic regime must be ordered. The type of diet which has been found of most service includes those articles of food which leave a large residue of undigested material in the bowel. The patient should accordingly be ordered to reduce the amount of meat and eggs to a minimum and, on the other hand, to eat liberally of the coarser vegetables, fruit, wheat bread and fats. I am in the habit of giving twice a day a half a glass of sweet cream, either with or between meals. The fat in these cases serves the double purpose of stimulating the intestinal peristalsis and of increasing the number of food calories so necessary to the upbuilding of the nutrition.

A point of some importance, I believe, likewise, is the insistence on the part of the doctor that large amounts of water be drunk at intervals during the day. Very many of these patients neglect this important matter and in consequence suffer an unnecessary and harmful depletion of the tissues and secretions in general.

As regards the advisability of rectal irrigations, as commonly employed, I should like to offer some objection to this plan of procedure. I believe much more harm is done by a daily tampering with the lower bowel in this type of patient than the possible good that might be accomplished by the mere washing out of the mucus.

It should be remembered always that the underlying pathology is not of an inflammatory nature, therefore the various astringent and antiseptic bowel flushes ordinarily employed cannot be said to be in order. Even the oil enemata, according to the Fleiner method, I believe are open to the same objection and should be used sparingly, if at all, in this disease. If a mild laxative is needed, in addition to the diet, I see no objection to the use of petroleum oil by mouth or even small doses of cascara. Certainly all drastic purges should be interdicted.

When pain is a prominent symptom, I have found a sedative suppository containing orthoform, belladonna and ichthyol to serve admirably as a means of relief.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

MINUTES OF THE MEETING.

The Thirteenth Annual Meeting of the American Society of Tropical Medicine was called to order at 10:20 a. m. Tuesday, May 9, 1916, in the Library of the Hygienic Laboratory, Washington, by the President, Dr. Milton J. Rosenau, of Boston.

Dr. Milton J. Rosenau read the president's address, "The Prevention of Tropical Diseases."

Dr. John M. Swan read the report of the Secretary and the report of the Treasurer. It was moved and seconded that the reports be received. Carried. After a correction to the fourth proposition concerning the Journal, which should contain the statement that the members of the Society would receive the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL regularly.

Dr. John M. Swan moved that the fourth proposition concerning the Journal, after it had been corrected, be adopted. Dr. Damaso Rivas seconded the motion. Dr. Isadore Dyer and Dr. Damaso Rivas spoke. The motion was carried.

The President appointed Dr. William F. Snow and Dr. William Krauss a committee to audit the Treasurer's accounts.

Dr. William E. Snow moved that the thanks of the Society be extended to Dr. Isadore Dyer and Dr. Charles Chassaingnac for their painstaking work in editing the *American Journal of Tropical Diseases and Preventive Medicine* and their liberal and disinterested work in behalf of the Society's interests. The motion was seconded by Dr. E. R. Stitt. Carried.

Colonel Edward L. Munson, of Washington, read a biographical sketch of Surgeon General George M. Sternberg.

Dr. Damaso Rivas, of Philadelphia, read a paper, entitled "The Thermogenic Agency of the Body Against Infection and Its Bearing Upon Immunity." Dr. Rosenau, Dr. George C. Shattuck, Dr. John M. Swan, and Dr. Rivas spoke.

Dr. Joseph D. Weis, of New Orleans, read a paper, entitled "Observations on Splenomegaly." Dr. Bailey K. Askford, Dr. E. R. Stitt, Dr. William Krauss, Dr. Damaso Rivas, Dr. Rosenau, and Dr. Weis spoke.

Dr. John M. Swan moved that the medal awarded to the Society by the authorities of the Panama-Pacific International Exposition at the Twelfth Annual Meeting be deposited in the Library of the Surgeon General's Office. The motion was seconded by Dr. Isadore Dyer. Carried.

The auditors reported that they had examined the checks, vouchers, and accounts of the Treasurer and found them correct.

The meeting then adjourned.

There were twenty-six members and guests present.

The second session was called to order at 10:10 a. m. Wednesday, May 10, 1916, by the President, Dr. M. J. Rosenau.

Dr. Seale Harris, of Birmingham, read the paper by Dr. Frederick L. Hoffman, of Newark, entitled "The Eradication of Malaria."

Dr. C. C. Bass, of New Orleans, read a paper, entitled "Recent Observations in the Control of Malaria in Heavily Infected Countries." Dr. John M. Swan, Dr. Henry R. Carter, Dr. Edward J. Wood, Dr. Damaso Rivas, Dr. Nathan Barlow, Dr. William Krauss, Dr. Seale Harris, Dr. L. O. Howard, and Dr. Bass spoke.

During the discussion the President, who had to leave the meeting, asked Dr. Henry R. Carter to take the chair.

Dr. William H. Seeman, of New Orleans, read a paper, entitled "A Statistical Study of Leprosy in Louisiana."

Dr. Damaso Rivas, of Philadelphia, read a paper, entitled "The Bilateral Distribution of the Lesions of Leprosy in Relation to the Bacteric Nature of the Disease."

Dr. James A. Honeij, of Boston, read a paper, entitled "The Bone Changes in Leprosy."

Dr. Ralph Hopkins, of New Orleans, read a paper, entitled "Observations on the Treatment of Leprosy With Chaulmoogra Oil." Dr. Isadore Dyer, and Dr. Seeman spoke.

There were forty-five members and guests present.

The Society then adjourned.

The third session was called to order at 10:00 a. m. Thursday, May 11, by the President, Dr. Milton J. Rosenau. There were thirty-one members and guests present.

The following candidates were elected active members :

- Dr. W. A. Korn, San Francisco.
- Dr. George M. Converse, San Francisco.
- Dr. George W. McCoy, Washington.
- Dr. W. C. Billings, San Francisco.
- Dr. J. R. Hurley, San Francisco.
- Dr. C. C. Pierce, San Francisco.
- Dr. William H. Seeman, New Orleans.
- Dr. Foster M. Johns, New Orleans.
- Dr. Nathan Barlow, St. Louis.
- Dr. Houston B. Hiatt, High Point, N. C.

The following officers were elected :

- President, Dr. Bailey K. Ashford, San Juan.
- First Vice-President, Dr. C. C. Bass, New Orleans.
- Second Vice-President, Dr. Henry J. Nichols, San Francisco.
- Secretary, Dr. John M. Swan, Rochester.
- Assistant Secretary, Dr. Allen J. Smith, Philadelphia.
- Treasurer, Dr. John M. Swan, Rochester.

Councillors to serve two years: Dr. Weston P. Chamberlain, Plattsburg Barracks; Dr. Philip E. Garrison, New York City; Dr. W. C. Rucker, Washington.

Dr. George W. McCoy and Dr. N. E. Wayson, of Washington, gave a demonstration of the plague-like diseases of rodents and its causative agent, bacillus tularensis.

Dr. Harold L. Ernest, of Boston, read a paper by Dr. S. Burt Wolbach, of Boston, entitled "Rocky Mountain Spotted Fever."

Dr. Brayton H. Ransom, of Washington, read a paper, entitled "The Occurrence in the United States of Certain Nematodes of Ruminants Transmissible to Man." Dr. Charles Wardell Stiles, Dr. E. R. Stitt, and Dr. Brayton H. Ransom spoke.

Dr. Nathan Barlow, of St. Louis, read a paper, entitled "Prevalence and Pathogenicity of *Trichomonas Intestinalis* in St. Louis." Dr. Charles Wardell Stiles, Dr. Frederick H. Morehart, of Washington, by invitation; Dr. Milton J. Rosenau, Dr. Brayton H. Ransom, Dr. Sidney K. Simon, Dr. William Krauss, and Dr. Barlow spoke.

The President then asked the President-elect, Dr. Bailey K. Ashford, to take the chair.

Dr. John B. Elliott, Jr., of New Orleans, read a paper, entitled "Clinical Report of a Case of Diarrhea Apparently Due to

Flagellate Parasites." Dr. Nathan Barlow, Dr. Bailey K. Ashford, Dr. Brayton H. Ransom, Dr. Charles Wardell Stiles and Dr. Elliott spoke.

Dr. Sidney K. Simon, of New Orleans, read a paper, entitled "Recent Experience With Ipecac and Its Alkaloids in the Treatment of Amebiasis." Dr. Charles Wardell Stiles, Dr. Bailey K. Ashford, Dr. Nathan Barlow, Dr. Henry R. Carter, Dr. John B. Elliott, Jr., and Dr. Simon spoke.

The following papers were read by title:

A Biographical Sketch of Carlos J. Finlay, by Dr. Aristides Agramonte, of Havana.

Investigations on the Prevalence and Clinical Features of Bilharziosis in Porto Rico, by Dr. I. Gonzales Martinez, of San Juan.

The Etiology of Dysentery, by Dr. Richard P. Strong, of Boston.

Pellagra, by Dr. Joseph F. Siler, of Washington.

Three-Day Fever, by Dr. George C. Shattuck of Boston.

The Epidemic of Dengue in Porto Rico in 1915, by Dr. W. W. King, of San Juan.

Clinical Types of Dengue in Porto Rico in 1915, by Dr. W. V. King, of San Juan.

A System of Peripatetics, by Dr. E. S. Goodhue, of Holualoa.

It was moved and seconded that the thanks of the Society be tendered to Surgeon General Rupert Blue for the courtesies of providing a meeting place for the Thirteenth Annual Meeting and for the necessary attendance at the meeting. Carried.

The Society then adjourned.

(Signed) JOHN M. SWAN, *Secretary*.

PRESIDENT'S ADDRESS.

THE PREVENTION OF TROPICAL DISEASES.*

By MILTON J. ROSENAU, M. D., Boston.

I appreciate the honor of being the president of the American Society of Tropical Diseases and am mindful of the responsibility which now devolves upon me to deliver a presidential address. I have chosen as my subject "The Prevention of Tropical Diseases," and it is my main purpose to consider certain features in the prevention of these diseases within and without

*Read at the Thirteenth Annual Meeting of the American Society of Tropical Medicine, held in Washington, D. C., May 9, 10, 11, 1916.

their natural habitat; also how to prevent the dragging of such infections from their hot-beds to our more favored climes.

First of all, we should have a clearer understanding as to just what diseases are tropical. Here we meet our first difficulty, for the diseases limited strictly to the region between the Tropic of Cancer and the Tropic of Capricorn are relatively few in number and comparatively unimportant.

Many infections, such as malaria, are most intense and most deadly, as well as most prevalent, under the vertical sun, but malaria may be found on both sides of the equator as far as the arctics. Yellow fever is properly regarded as the type of a tropical disease, yet severe epidemics have occurred in New England and in Spain. Plague, cholera, dysentery, and many other diseases are severe in the tropics but also occur as devastating epidemics in temperate and even in cold regions. Leprosy, always regarded as a tropical disease, once prevailed extensively throughout Europe and many lepers are still found in Norway and other cold countries.

On the other hand, we have many diseases that ordinarily are not considered as tropical, which, however, play unusual havoc in warm countries, such as, for example, tuberculosis, pneumonia, and typhoid fever.¹

Tuberculosis is exceedingly prevalent in tropical countries, due, no doubt, to close contact between children and adults under unhygienic surroundings, aided by the enervating influence of heat and the sapping of resistance by faulty diet. When I was in Santiago de Cuba, I made a study of the vital statistics of that unhappy city, and discovered that for a period of years before the Spanish-American War there were many more deaths among the native population from tuberculosis than from yellow fever, although Santiago had been an endemic focus of yellow fever for many years. Despite this situation, much attention was given to yellow fever and none at all to tuberculosis.

We think of pneumonia as a cold weather disease because the seasonal curve of prevalence in temperate climates rises in winter and falls in summer. Nevertheless, pneumonia may prevail with great intensity and fatality in the tropics under certain conditions. Thus in the Canal Zone, on the Rand, and in other

(1) Diphtheria, measles, and scarlet fever are less severe in tropical regions than in the changeable climates of the temperate zone.

tropical localities where the susceptible native population is brought into close contact with the infection, the disease is serious and the mortality high, despite climatic conditions which are ordinarily regarded as unfavorable for the spread of pneumonia. The inhabitants of Vera Cruz dread going to the City of Mexico for fear of contracting pneumonia, while the inhabitants of the table land fear going to the tierra caliente on account of the fear of contracting yellow fever or malaria. Gorgas did much to control pneumonia on the Canal Zone by "scattering" the workmen in separate houses; that is, taking them out of barracks where close personal contact favors the spread of the infection. The same principles applied to our city tenement population could lessen the prevalence of pneumonia and other diseases spread by contact infection. Better housing is one of the crying needs of our civilized centers.

When I was in New Orleans in 1891, it was said among the medical profession that typhoid fever did not exist in that city, and furthermore, it was the prevailing opinion that typhoid fever was not to be found in tropical and sub-tropical regions. The disease was mistaken for malaria. This same error prevailed up to the time of the Spanish-American War, when this mistake played serious havoc with one-third of the officers and men mobilized to take part in that war. With improved methods of diagnosis, we have discovered that typhoid fever is very prevalent in the tropics. Typhoid fever, is in fact, a warm weather disease, even in cold climes. Its normal curve of greatest prevalence is during the summer. In this regard it is like cholera, dysentery, infantile diarrheas, and other intestinal infections which have their normal curves of prevalence during the warm months. In the United States, there is much more typhoid fever south of Mason and Dixon's Line than in the north. In truth we must not lose sight of the fact that our southern states are in the sub-tropical zone and present many of the problems of the tropics. While intestinal infections may be regarded as having their home in the tropics, they are to be found at any time and any place as students of epidemiology are well aware. It is, perhaps, a new thought to regard tuberculosis, typhoid fever, and pneumonia as tropical diseases, yet they are just as truly tropical as many diseases considered such by Manson, Scheube, Castellani, Chalmers, and other students of tropical medicine.

Our recently gained knowledge of pellagra and beriberi teaches us the lesson that these diseases of deranged metabolism caused by faulty diet may occur in any climate. Their prevalence in warm countries is merely an expression of the unbalanced diets which are much more common in hot countries than in colder or variable climates. Faulty diet, which is such a frequent and serious hygienic question, is much commoner in tropical than temperate climates for reasons that are well known to those who have had experience in tropical regions. It is quite clear that a better ration for the native population in many tropical lands is one of the most important reforms necessary to prevent the diseases directly due to unbalanced diets. Furthermore, a better ration would help to check the prevalence of diseases indirectly brought on or aggravated by poor nutrition. Hence, an improved dietary is one of the most important factors in the prevention of many tropical diseases. The collateral good which would be accomplished by introducing a more varied and better balanced diet for millions of people in the tropical belt would not only diminish and even eliminate such diseases as pellagra and beri-beri, but also favorably influence the prevalence of tuberculosis and many other infections.

Our experience with hook-worm and other animal parasites teaches us that we have more than our share of these infections in our own south land. The prevention of these infections involves the hygienic reformation of the sanitary habits and education of nations. Furthermore, in any climate, it only requires unsanitary conditions and imperfect personal hygiene to favor the spread of relapsing fever, Malta fever, typhus, plague and other diseases ordinarily regarded as tropical.

It seems fair then to assume that tropical diseases are those which have their home in the tropics, are constantly endemic there, spread more rapidly in warm than in cold weather, and hence are more prevalent, more virulent and more fatal in the tropics than elsewhere. However, it must be clear that there is no sharp distinction between the diseases of the tropics and the diseases of temperate climates, except in certain strictly local parasitic infections, such as, verruga, tropical sores, uta, sleeping sickness, etc. The diseases ordinarily classified as cold weather diseases may in fact be especially severe in the tropics, and vice versa.

On the other hand, the influence of tropical medicine upon the prevention and cure of diseases of temperate climates has been far-reaching. We pay willing tribute to many rewardful investigations of tropical infections which have helped the science of medicine at large. Much of our knowledge of the modes of transmission, prevention, and even cure of infections in temperate climes is based upon studies made upon tropical maladies. There are no parallels of latitude in science. The solution of many pathologic puzzles of the tropics has unlocked the door of opportunity in temperate and arctic regions. While the progress has been commendable, all the problems have not been solved—there is still much to be done.

The fact that there is a greater abundance of parasites in warm moist climates accounts in part for the great prevalence and great variety of parasitic diseases found in the tropics, but a still greater cause is found in defective sanitation and hygiene. Thus, we find in the temperate regions that the incidence of parasitic diseases affecting human beings is relatively low, whereas infections of the lower animals are very common. Furthermore, persons living under good sanitary conditions and practising personal cleanliness have fewer infections than persons who fail to practise the teaching of modern hygiene—even in the same community. The prevalence of disease, therefore, in the tropics is not solely due to climate, but is largely an expression of primitive and backward hygiene. Hence, the sanitarian is convinced that the prevention of the diseases of the tropics can best be accomplished by raising the level of civilization and improving the conditions of life among the nations in the tropical belt.

This may best be done by better use of the land, which is sorely neglected in most tropical regions. Improvements in agriculture would furnish a more varied diet, so much needed; it would favor prosperity which is the basis of public health and individual health in all climates. Better use of the land serves many other useful purposes. First of all, it is the best way of clearing a region of parasites and their intermediate hosts. Malaria and other infections may be controlled by improvements in the agricultural conditions of a region. Cultivation of the land and subsoil drainage to improve the crops have eliminated malaria from the most fertile sections of our

middle West. A fertile soil, well tilled, and thus kept "clean" and drained is a sanitary blessing. The encouragement of agriculture in the tropics, which is the most productive soil in the world, would result in a betterment of economic, social, and health conditions. The prevention and eradication of many tropical diseases has become largely an economic and social question. Picture to yourself the effect upon the health of the Canal Zone if the land for ten or more miles on both sides of the Canal were under continuous cultivation. This would bring with it good roads, ditching and draining, better habitations, schools, prosperity and an endless chain of developments. Science has pointed the way and it remains for society to apply the remedy.

The question then arises whether the tropics even when freed of unnecessary diseases, offers a suitable place for the permanent settlement of European races, that is, whether mental and physical vigor would be maintained upon a high level of efficiency, despite the enervating effects of the heat. It would take a prophet to give a final answer to this question, but this much, however, is plain—the chance of such an experiment succeeding is infinitely better now than at any time in the world's history.

It is not alone the diseases of man that concern the student of tropical medicine, for the diseases of domestic animals deserve our careful consideration. Man's dependence upon domestic animals is nowhere better illustrated than in the Gambia. The impossibility of keeping horses and cattle alone keeps that trypanosome infected region backward. Furthermore, diseases of plants are of great economic importance and of some sanitary significance.

This brings us to the question "What is the basis of our interest in the tropics?" It is not merely to protect ourselves from diseases which are brought to us from the tropics; it is not merely to protect our fellowmen from preventable infections in the tropics. It is rather to apply the discoveries in tropical medicine to the utilization of the great sources of energy and materials which go to waste at the present time. The riches of the tropics far outweigh all the other regions of the world. These treasures have heretofore remained just beyond our reach—not because the climate in the tropics is hot, not because the distances are great, not for lack of adventure and spirit, but

solely on account of infections which have made the development of the tropics always hazardous and at times impossible.

The conquest of disease has made the construction of the Panama Canal possible, as well as other great enterprises such as large rubber, fruit and sugar plantations which are now established on a large scale. Every ton of rubber need no longer cost the life of one man.

The development of the tropics for the betterment of man living in all climates is the sole object in view. The world needs the products of the tropics for its food supply. The overcrowding of nations requires the land in the tropics for its surplus population and energy. The successful development of the tropics then would be one of the means to delay—if not to prevent—wars.

How can we protect our own more favored climates against infection with parasites which are found in such great numbers in the warm, moist areas of the tropical zones? How shall we prevent such diseases leaving the tropics? There are several methods, some of which have already been indicated. The chief of these, of course, is to improve the conditions of life in the tropics so that these diseases may be suppressed, controlled, and finally eliminated at their source, and in that way cease to be a menace to neighboring nations. That this will take a long time must be evident. Meanwhile, we may protect ourselves by a system of quarantine.

Disease knows no geographical boundaries. Parasites take no heed of nationality or race. The communicable diseases travel along the routes of human intercourse. Contagium accompanies trade and travel. In the vast majority of instances, infection is dragged from one country to another in persons, rather than on things. In other words, human intercourse, which brings so many blessings, also carries in its wake a trail of dangers. These dangers are no less real because they are insidious and due to an invisible foe. Many more persons in the world's history have died of bacteria than of bullets. The encouraging feature in the situation is found in our growing knowledge of infectious diseases, their modes of spread, and means of prevention. When the historian of the future writes an account of this epoch in which we are now living, he will record unparalleled advances in almost every field of human

endeavor. One achievement, however, will stand out clearly above the rest, namely, the conquest of disease.

We are now especially interested in the development and problems of our own tropical Central American regions. Intercourse between the Pan-American States is growing and is bound to increase in volume and in intimacy. With this interchange of products and people will come a corresponding interchange of infections. Fortunately, our methods of quarantine and sanitation have reached such a point of precision that we can guard against the introduction of most exotic plagues. Quarantine, however, is only a makeshift and is not the true method of prevention. Quarantine is, in fact, an admission of imperfect sanitation. A city free of *Stegomyia* mosquitoes can laugh at yellow fever, and needs no quarantine; a city with a clean water supply, well protected, need fear no water-borne epidemic of typhoid fever or cholera; a rat-proof city will not become an endemic focus of plague. The "City Beautiful" must be the "City Clean."

Monumental public buildings, beautiful parks, art galleries, libraries, and handsome boulevards do not make the "City Beautiful." The sanitarian looks deeper than those outward expressions of prosperity and appreciation of the fine arts. He requires a clean city in the sense of biological cleanliness—free of rats, fleas, vermin and dust; good houses, clean from garret to cellar; tidy back yards, in short, cleanliness of the food we eat, the water we drink, the air we breathe. Cleanliness of home and surroundings is the foundation stone of an enduring structure in preventive medicine. The greatest blessing to man is health, and this cannot be achieved without intelligent effort and the expenditure of time and money. "The healthy man is the most meritorious product of nature so far as he goes. A soul in right health is the blessedest thing this earth receives of heaven."

Again for emphasis, sanitation is the cure for quarantine. Quarantine at best is an acknowledgment of imperfect sanitation. It is endured as a necessary evil, just as jails and reform schools and other places of detention are found necessary by society to quarantine social diseases. The lesson which America has taught the world in the case of yellow fever is instructive and inspiring and it is now quite clear that it would be practical

to render yellow fever extinct. Compare the present day attitude of Havana and our own southern litoral with the days of shot-gun quarantine. Then the dread of yellow fever hindered the progress of the fairest portion of our country with burdensome restrictions to trade and travel. We now enjoy the fruits of the scientific researches of Reed, Carroll, and Lazear, and the practical application of these discoveries by Gorgas, Carter, White and Strong.

The story of yellow fever teaches the lesson that the prevention of tropical diseases rests primarily upon scientific research. Neither the necessity nor the importance of investigation need be emphasized to this audience, but they must be mentioned, for in proportion to their importance there is a dearth of research in the field of tropical medicine. It is humiliating that our great country has not more generously fostered institutes of tropical medicine, and schools for the study of these diseases corresponding to those found in some European countries. America deserves to have an institute of tropical medicine where continuous investigation, both in the tropics and at home, would be fostered and favored. Rewardful results would surely be obtained. Our seaports are quite as favorable for such studies as Liverpool or Hamburg. America's contributions to tropical medicine have been noteworthy. We are proud of the names of Reed, Carroll, Lazear, Rickets, Sternberg, Carter, Goldberger, Gorgas, Theobald Smith, Strong, Wolbach, Bass, Craig and many others. I am here reminded of a remark made by a distinguished English scientist a few years ago. When he was told that pellagra was discovered in America, he said, "Oh, I am so glad, for now we shall learn something about that disease!" This prediction came true in a very few years through the researches of Goldberger and others.

In view of the fact that research is so important in the prevention of tropical diseases, as well as for social and economic betterment, it seems to me that this Society for Tropical Diseases should not be satisfied with a loose-jointed organization which assembles at a casual meeting-ground once a year. It should not be simply a clearing house for the discussion of subjects that interest its members, but it could well take a broader vision of its purposes and include constructive work along the lines indicated. We should set out especially to en-

courage better sanitation of tropical ports and places, and to accomplish the establishment and endowment of an American Institute for the Study of Tropical Diseases.

SECRETARY'S REPORT.

The Council met Monday, May 8, 1916, at 9 p. m. The President, Dr. M. J. Rosenau, was in the chair. There were present Dr. Milton J. Rosenau, Dr. Isadore Dyer, Dr. John M. Swan and Dr. C. C. Bass, by invitation.

The following candidates were recommended for election to active membership:

- Dr. W. A. Korn, San Francisco.
- Dr. George M. Converse, San Francisco.
- Dr. George W. McCoy, Washington.
- Dr. W. C. Billings, San Francisco.
- Dr. J. R. Hurley, San Francisco.
- Dr. C. C. Pierce, San Francisco.
- Dr. William H. Seeman, New Orleans.
- Dr. Foster M. Johns, New Orleans.
- Dr. Nathan Barlow, St. Louis.
- Dr. Houston B. Hiatt, High Point, N. C.

The following members were recommended for election as officers for the ensuing year:

- President, Dr. Bailey K. Ashford, San Juan.
- First Vice-President, Dr. C. C. Bass, New Orleans.
- Second Vice-President, Dr. Henry J. Nichols, San Francisco.
- Secretary, Dr. John M. Swan, Rochester.
- Assistant Secretary, Dr. Allen J. Smith, Philadelphia.
- Treasurer, Dr. John M. Swan, Rochester.

Councillors to serve two years: Dr. Weston P. Chamberlain, Plattsburg Barracks; Dr. Philip E. Garrison, New York; Dr. W. C. Rucker, Washington.

Dr. Isadore Dyer presented a statement of the financial condition of the *American Journal of Tropical Diseases and Preventive Medicine* in which it was shown that the journal had been financially a losing property. He presented four propositions for its future and the future of the transactions of the Society:

1st. That an annual assessment of the members of the Society be made to cover the deficit.

2nd. That the Journal be reorganized as a stock company with the members as stockholders, paying for their stock in annual installments.

3rd. That the Society take over the Journal as its property without cost and agree to continue its publication.

4th. That the Transactions of the Society be published as a department of the *New Orleans Medical and Surgical Journal*, maintaining the name *American Journal of Tropical Diseases and Preventive Medicine*, the official organ of the American Society of Tropical Medicine, and that 200 bound reprint volumes of the Transactions be furnished the Society at the end of the year, the Society to pay \$450 for this service for the ensuing year, viz., July, 1916, to July, 1917.

The Council recommends that the Society accept the fourth proposition.

The dues for 1917 were fixed at \$4.00.

The Council recommends the following amendment to the By-Laws:

We the undersigned move that Article III of the By-Laws of the American Society of Tropical Medicine be amended by striking out the words, "The President and the Secretary shall be ex-officio members of the Council." By striking out the words, "In 1905 three Councillors shall be elected for two years and two Councillors for one year. Thereafter each Councillor shall be elected for two years," and substituting the words, "In 1917 one councillor shall be elected to serve one year, and one to serve two years. In 1918 one Councillor shall be elected to serve three years, one to serve four years and one to serve five years. Thereafter each Councillor shall be elected to serve five years, so that the article shall read as follows:

Article III. The officers shall consist of a President, two Vice-Presidents, an Assistant Secretary, a Secretary, a Treasurer, and a Council of five members. They shall perform the customary duties of such officers.

The Council shall have general supervision of the affairs of the Society, and shall meet from time to time as they determine. The officers shall be ex-officio members of the Council. In 1917 one Councillor shall be elected to serve one year and one to serve two years. In 1918 one Councillor shall be elected to serve three years, one to serve four years and one to serve

five years. Thereafter each Councillor shall be elected to serve five years.

In case of death or resignation of any officer or Councillor of the Society, the Council shall be empowered to fill such vacancy until the next annual meeting.

(Signed) THOMAS H. FENTON.

ISADORE DYER.

JOHN M. SWAN.

M. J. ROSENAU.

The following resignations were accepted:

Dr. Elmer S. Tenney, Dr. W. W. Keen, Dr. L. L. Seaman, Dr. S. D. Risley, Dr. Roger S. Morris and Dr. J. Edward Austin.

The Council voted to hold the next annual meeting in the same place in which the meeting of the American Medical Association will be held.

Membership: On June 1, 1915, the membership of the Society was 164; 112 active, 35 honorary and 17 corresponding. At the Twelfth Annual Meeting 12 active members were elected and one was dropped for non-payment of dues. During the year six active members have resigned, Dr. Elmer S. Tenney, Dr. W. W. Keen, Dr. L. L. Seaman, Dr. S. D. Risley, Dr. Roger S. Morris and Dr. J. Edward Austin. Two honorary members have died, ex-Surgeon-General George M. Sternberg and Dr. Carlos J. Finlay, so that on May 1, 1916, the membership of the Society is composed of 117 active, 33 honorary and 17 corresponding, a total of 167.

At the ninth meeting of the Congress of American Physicians and Surgeons held in Washington in May, 1913, the American Gynecological Society presented to the other branches of the Congress an identical resolution requesting the appointment of two or more delegates to co-operate in forming a national organization to conduct educational propaganda regarding the prevention and cure of cancer. The Gynecological Society had just adopted the report of its committee which had been at work on this problem for a year or more previously, and had recommended that a special society should be established with the sole purpose of conducting this much-needed campaign of education and the collection of data on a nation-wide basis and on a gen-

eral plan similar to that of the National Association for the Study and Prevention of Tuberculosis. In preparing its report and recommendation, the committee of the Gynecological Society had secured the interest and promised support of a group of lay citizens of New York, five of whom (Messrs. John E. Parsons, V. Everit Macy, James Speyer, Thomas L. Lamont, and George C. Clark) had guaranteed \$5,000 toward the first year's expenses of the proposed organization, but solely on condition that the project be approved not only by the Gynecological Society, but the profession generally.

A majority of the constituent societies of the Congress promptly responded to the suggestion of the Gynecological Society and delegates were appointed from the following societies: American Dermatological Association, American Surgical Association, American Laryngological Association, American Otological Society, American Association of Genito-Urinary Surgeons, American Gynecological Society, American Association of Pathologists and Bacteriologists, American Orthopedic Association, American Ophthalmological Society and American Neurological Association.

These delegates were invited to a meeting at the Harvard Club in New York City on May 22, 1913, at which time the American Society for the Control of Cancer was duly organized and the following declaration of its design and scope embodied in the constitution:

"To disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer, to investigate the conditions under which cancer is found and to compile statistics in regard thereto."

The purpose of the Society as just stated prescribes two main lines of activity: (1) a campaign of public and professional instruction, and (2) the collection of statistical data. Experimental research, the support of hospitals or clinics, and the care and treatment of individual patients are not contemplated. In extending its influence and carrying on its work the Society necessarily devoted a large share of its direct efforts to securing the interest of other organizations and forces which are in a position to render assistance in local fields. In the months immediately following the formation of the Society under the auspices of this Congress resolutions of endorsement were adopt-

ed by the American Medical Association, the Clinical Congress of Surgeons, the Western Surgical Association, the Southern Surgical and Gynecological Association, and many state and local medical societies. The government of the Society is vested in a Board of Directors which numbers 66 members. The direction of the work in detail is delegated to an Executive Committee of thirteen directors. The professional members of the Board act in conjunction with the Executive Committee as an Advisory Council which formulates the general policies of the Society. Branch committees of the Society are formed in the several states and cities, not as independent local organizations, but as integral parts of the single National Society. The Society endeavors to have the more progressive health officers devote a proportionate share of attention to cancer, and the national office undertakes to furnish data, statistics, and special articles procured under the supervision of the appropriate committees, for local use in the name of the board of health. The Society, therefore, offers all possible co-operation and assistance to state and county medical societies in providing literature and speakers, and to the various medical journals in publishing appropriate articles. Systematic effort is made to promote the instruction of nurses regarding the earlier phases of malignant disease and predisposing conditions, in order that they may be adequately prepared to advise people, especially women with whom they come in contact in the course of their duties, to seek professional attention in time. A series of special articles for nurses has been published, meetings for nurses have been arranged, all the leading schools of nursing in the country have been urged to include in their courses lectures on the early signs and symptoms of cancer, and opportunities are sought to present the subject at the annual meetings of state and national organizations of nurses, a number of which have recorded their endorsement of the purpose and methods of the Society. The field workers of charity organization societies have similar opportunities to advise people who do not ordinarily read newspapers and educational books and pamphlets. The National Office has, therefore, circularized several hundred of the larger charity organization societies in the various states, seeking their interest and co-operation in holding public meetings and in arranging for the special instruction of the members of their working forces. The

work of the Society has been brought to the attention of the national and state federations of women's clubs, and the appropriate committee officials have been circularized in order to secure their co-operation in suggesting this topic to local clubs. As a result women's clubs in many states and cities have frequently taken the lead in arranging public meetings and in providing lectures in their regular study programs. The co-operation of the leading insurance companies is sought not only in respect to statistical investigations, but for the distribution of educational literature. Many of the larger industrial, commercial, and transportation companies have been offered assistance in providing speakers and circulars, or suggestions for the preparation of special literature. By direct effort and through its local committees and various other agencies already referred to, the Society stimulates the publication of carefully considered newspaper articles. It has published for general distribution to the public a number of leaflets giving in simple language the elementary facts about the disease. To inaugurate work in each of the more important cities, the co-operation of professional, civic, and religious forces is secured in arranging a general public meeting at which recognized experts may discuss the various phases of the cancer problem. A Statistical Advisory Board has been formed, which includes thirty members. At the suggestion of the Society the Director of the United States Census has ordered the publication of a special report on the cancer mortality of 1914 which is now in press and will constitute one of the most important statistical studies of this disease so far made under the auspices of any government. The Society has also undertaken the collection and study of records of operations for cancer in numbers approximately as great as those represented in the national mortality statistics. The committee on statistics has also prepared a series of more detailed blanks, one for each principal type of malignant disease, on which to record the full history of cases as a basis for careful study of etiological factors. These forms have been put into experimental use, and when perfected will be offered for use in a number of the larger hospitals in the endeavor to bring out important factors surrounding the occurrence of cancer in the individual, in the family, and in the community.

Respectfully submitted,

(Signed) JOHN M. SWAN, *Secretary.*

**SURGEON GENERAL GEORGE M. STERNBERG, IN
MEMORIAM.***

By EDWARD L. MUNSON, Lt. Col. Medical Corps, U. S. A.

It is with a mingled sense of melancholy pleasure that the writer undertakes a brief summary of the broad achievements, useful service and sterling worth of General Sternberg, for it was his duty to serve as a member of the official family of the latter during the trying period following the cessation of hostilities with Spain and including the Philippine insurrection.

As a chief in war time, the great abilities of General Sternberg were to be respected. He inherited conditions for which he was in nowise responsible, and which higher authority, though appealed to, would not furnish the means of preventing. That General Sternberg appreciated in advance most of the faults and difficulties encountered in the Spanish War is personally known to the writer from long and confidential association. He did all that the means afforded which were provided him.

As a scientist, he, in his long career, brought great fame to the Medical Corps. He embodied its scientific ideals, and he brought many of these ideals to accomplishment. He was a large contributor to medical science, the Library of the Surgeon General's Office having on file no less than 142 separate books and articles from his pen. Very many of these were based on his own work, and represented notable additions to the advance of medical and scientific progress of the time. He was a pioneer, who blazed the trail into many new fields of thought where others followed.

Of clean and lofty purpose, kindly nature and almost womanly sympathy, he was a true friend. The writer will always hold the personal association with General Sternberg, which he enjoyed, in grateful remembrance. In his sense of fairness and even justice, his standard was of the highest. He played no favorites. He leaned backward in his effort not to be influenced by personal preference. When it came to official business, he had neither friends to reward nor enemies to punish. A square deal, an equal chance for all, a further opportunity for those who took advantage of those already given them—this was his code.

The following is taken from the illuminated brochure issued

*Read at the Thirteenth Annual Meeting of the American Society of Tropical Medicine, held in Washington, D. C., May 9, 10, 11, 1916.

on the occasion of the complimentary banquet tendered General Sternberg, by prominent citizens of Washington and celebrated national characters, on his seventieth birthday:

George Miller Sternberg: The subject of this sketch came of good stock; he was born June 8, 1838, at Hartwick Seminary, Otsego County, New York. His father, the Rev. Levi Sternberg, A. M., D. D., a Lutheran clergyman, for many years principal of Hartwick Seminary, New York, was the youngest son of John Sternberg, a farmer, who inherited the family homestead in the town of Seward, Schoharie County, New York, where his ancestors were among the early German settlers (1703) from the "Palatinate." John Sternberg's father, Nicholas Sternberg, was a member of the "Committee of Safety" in Schoharie County during the Revolutionary War, and several of his uncles or brothers (?) were in the army.

His mother, Margaret Levering (Miller) Sternberg, was the eldest daughter of Rev. George B. Miller, D. D., for many years professor of Theology in Hartwick Seminary, a Lutheran Theological Seminary.

George M. Sternberg was the oldest of a family of ten children. His early education was obtained at Hartwick Seminary. At the age of sixteen he commenced teaching school at New Germantown, N. J., and became self-supporting. His record as a schoolmaster is of a quiet reign. Thoroughness, general good will and regret at his departure are traces that still remain to his credit. Having decided to study medicine, at the age of nineteen he entered the office of Dr. Horace Lathrop at Cooperstown, N. Y., and subsequently attended the College of Physicians and Surgeons, New York, a wealthy relative of his mother's advancing the money for his professional education, which money was subsequently repaid. He graduated as M. D. in the class of 1860, and commenced the practice of medicine in Elizabeth City, New Jersey.

Military History.—At the outbreak of the Civil War Dr. Sternberg passed the examination for the Medical Corps in a class of twenty-one, and was appointed Assistant Surgeon, United States Army, May 28, 1861. Was assigned to duty with the Third United States Infantry. Was with this regiment in the first battle of Bull Run. Remained on the field with the wounded and was taken prisoner. Refused to take parole not to serve against the Confederate States during the

continuance of the war, but gave a parole not to attempt to escape for five days. After the expiration of this parole he escaped from Fairfax Court House, Virginia, and reached Washington the following day. Reported at once for duty with regiment. Continued on duty with Third United States Infantry until the Army of the Potomac retreated from in front of Richmond to Harrison's Landing, Virginia. Was under heavy fire while caring for the wounded in the battles of Gaines Mill and Malvern Hill. Operated under fire at Malvern Hill while the enemy was advancing to attack the position occupied by our troops. Was taken sick with typhoid fever while at Harrison's Landing and was sent North on a Government transport. Suffered a severe attack of delirium, etc. Upon recovery was assigned to duty as executive officer of the United States General Hospital at Portsmouth Grove, Rhode Island (2,200 beds); with General Bank's expedition, and assistant to the medical director, Department of the Gulf, to January, 1864; in office of medical director, Columbus, Ohio, and in charge of United States General Hospital at Cleveland, Ohio, to July, 1865; with the Thirteenth United States Infantry, Jefferson Barracks, Mo., to April, 1866; post surgeon at Fort Harker, Kans., to October, 1867 (cholera epidemic); at Fort Riley, Kans., and in the field from April, 1868 to 1870 (Indian campaign); Fort Columbus, New York Harbor, to May, 1871 (yellow fever epidemic); Fort Hamilton, New York Harbor, to June, 1871; Fort Warren, Boston Harbor, Mass., to August, 1872; ordered to Department of the Gulf, July 22, 1872; acting medical director, New Orleans, La., to October, 1872; post surgeon, Fort Barrancas, Fla., to August, 1875 (epidemic of yellow fever in 1873 and 1875); on sick leave to May, 1876; ordered to Department of the Columbia, May 11, 1876; attending surgeon, Fort Walla Walla, W. T., to May, 1879; in the field, Nez Percés expedition, 1877; on special duty with National Board of Health from June, 1879, to August, 1881, (member of Havana yellow fever commission, 1879); ordered to Department of California, August 10, 1881; post surgeon, Fort Mason, Cal., to May, 1884; attending surgeon and examiner of recruits at Baltimore, Md., to October, 1890; in charge medical purveying depot, San Francisco, Cal., to February, 1892; attending surgeon, New York City, to May, 1893.

Appointed Surgeon-General United States Army, May 28, 1893. Retired for age, June 8, 1902.

Brevet Commissions and "honorable mention" in official communications. Captain and Major U. S. A., "for faithful and meritorious services during the war." Lieutenant-Colonel "for gallant service in performance of his professional duty under fire in action against Indians at Clearwater, Idaho, July 12, 1877.

War of the Rebellion—Official Records.

(Series I, Vol. XI, Part II, Report of Brig. Gen. George Sykes, U. S. A., commanding second division, of the battle of Gaines's Mill, engagement at Turkey Ridge, and battle of Malvern Hill.)

"Dr. Sternberg added largely to the reputation already acquired on the disastrous field of Bull Run." (Op. Cit., p. 352).

Extract from letter of the Surgeon-General U. S. A., to the Honorable the Secretary of War.

War Department, Surgeon-General's Office,
Washington, D. C., Nov. 12, 1875.

* * * Assistant Surgeon Sternberg has since his appointment (May 28, 1861) served in the field during the war; * * * from May 31, 1868, to December 7, 1868, chief medical officer of the expedition serving south of the Arkansas river; * * * from September 2, 1872, to the present date, as post surgeon, Fort Barrancas, Florida, and has rendered there valuable and efficient services during the two epidemics of yellow-fever.

Very respectfully, your obedient servant,

JAS. K. BARNES,

Surgeon-General, U. S. Army.

Special Details.—Member and secretary of the Havana yellow-fever commission of the National Board of Health (1879). Delegate from the United States, under special instructions from the honorable the Secretary of War, to the International Sanitary Conference of Rome (1885). Detailed, by direction of the President, in pursuance of the authority contained in the provisions of the act of Congress, approved March 3, 1887, to make investigations in Brazil, Mexico and Cuba, relating to the etiology and prevention of yellow-fever (1887-'89). Consulting bacteriologist to the health officer of the port of New York (1892) by authority of the War Department, and in compliance with special request of the health officer of the port

of New York and the advisory committee of the New York Chamber of Commerce.

As Surgeon-General of the Army.—General Sternberg established the Army Medical School and encouraged medical officers to engage in scientific researches by establishing laboratories and furnishing necessary apparatus at all the larger post hospitals. He also provided all new hospitals with well-equipped operating rooms, and directed medical officers to operate for hernia, varicocele, etc., instead of discharging soldiers having disabilities curable by surgical procedures, to become life pensioners upon the Government. He established the Tuberculosis Hospital at Fort Bayard, New Mexico. At the outset of the Spanish-American War he issued a circular calling attention to the danger from typhoid fever in camps, the role of flies in the propagation of this disease and the importance of camp sanitation. He organized the "Typhoid Fever Board," with Major Walter Reed and Dr. Victor C. Vaughan, of Michigan, as members. Upon his recommendation the last-named gentlemen were commissioned as surgeons of volunteers in order that they might serve upon this board. He organized the Yellow Fever Commission of 1900 with Major Walter Reed as chairman and Drs. Carroll, Lazear and Agramonte as members.

During the Spanish-American War he established general hospitals at Key West, Fla., Savannah, Ga., Fort Thomas, Ky., Fort McPherson, Ga., Fort Monroe, Va., Fort Myer, Va., Washington Barracks, D. C., and San Francisco, Cal. Two hospital ships—the Relief and the Missouri—were purchased and equipped upon his recommendation; a fully equipped hospital train was kept in service as long as required. All surgeons of volunteers and contract surgeons, with a few exceptions, were appointed upon his recommendation. He organized the female nurse corps, and the corps of dental surgeons in compliance with acts of Congress which had been passed in accordance with his recommendations. He recommended a large increase in the Medical Department to correspond with the increase in the army made in 1901.

The following extracts are taken from "Red Cross Notes," Series II, No. 2, 1898:

The Surgeon-General.

Among the throng of military officials who in these stirring days hurry in and out of the War Building

at Washington, our subject would not be taken for a general; you would recognize him as a soldier who has passed through long, arduous, earnest campaigns, but even his uniform, sword and medals do not build him up to a typical general. He is without the assumption, the bluster and blow. But step into his headquarters and you will find that he is in every sense the head of the service, the chief whose will governs all. That modest, unassuming man is most exacting, a man of command, of thorough execution, a general whose eyes comprehend every microscopic detail, who has studied the **personnel** of every member of his corps and can work them with the rapidity and precision of a machine gun. He is a general, and in the momentous campaigns now before him has mapped out every inch of ground that will be covered. In thirty-seven years he has, step by step, gone from the foot of the class, to the head of the department and has carefully measured every fractional part of an inch as he passed by. He knows in his favorite way by experimental evidence every need, every capacity, every shortcoming of the service. He is familiar by actual demonstration in his own hands with every appliance or method that could be of possible use in military medical service, either in war or in peace. He has lived in the land where the battles of the present war will be fought and knows its every feature of soil and climate. He has studied the germs of yellow fever infection in their habitat, with culture tubes and microscope in hand, and with its poisonous virus coursing through his own veins.

As the Surgeon-General, the physician or the man he is modest and unassuming; he is always busy, but seemingly never in a hurry. Everything is well done and done systematically. He thinks and works all the time without waiting for moods. He takes no man's dictum; nothing to him is an established fact until he has personal experimental evidence of its truth. Work that must in part be performed by others, must come under his review.

When the over-zeal of enthusiasts shall have passed away and the story of bacteriology in the nineteenth century is written up it will probably be found that the chief among those who brought light out of darkness was George M. Sternberg. He will be noted, not so much for his brilliant discoveries, but rather for his exact methods of investigation, for his clear statements of the results of experimental data, for his enor-

mous labors towards the perfection and simplification of technique, and finally for his service in the practical application of the truths taught by the science. His early labors in bacteriology were made with apparatus and under conditions that were crude enough.

Dr. Sternberg would never make a success as a campaign orator. His addresses are most carefully prepared, full of serious argument founded on absolute facts, culled from his own research. They are in language so plain as not to be misunderstood, but they do not contain a line of sentiment and are delivered in an easy conversational style. Though he has written an enormous amount, he believes that the pen is a feeble instrument in science when compared with the test tube, the microscope and the chemical balance. His writings are, therefore, pen pictures of his results in the laboratory and clinic room.

Membership and Honors in Medical and Scientific Societies.

Member and ex-president of the American Public Health Association; member and ex-president of the American Medical Association; member and ex-president of the Association of Military Surgeons U. S.; member and ex-president of the Philosophical Society of Washington; member and ex-president of the Biological Society of Washington; member and ex-president of the Cosmos Club of Washington; member and president of "The President's Homes Commission" (1907); honorary member of the American Association of Physicians; honorary member of the Association of American Medical Colleges; fellow of the New York Academy of Medicine; president of section on military medicine and surgery of the Pan-American Medical Congress; late fellow, by courtesy, in Johns Hopkins University (1885-90); honorary member of the Epidemiological Society of London; honorary member of the Academy of Medicine of Rio de Janeiro; honorary member of the American Academy of Medicine; honorary member of the French Society of Hygiene, etc.

The LL.D. degree was conferred upon General Sternberg in 1894 by the University of Michigan, and in 1897 by Brown University.

Activities After Retirement.—President of the Washington Sanitary Improvement Company; president of the Washington Sanitary Housing Company; president of The President's

Homes Commission; president of the Citizens' Relief Association; president of the Washington Sanatorium Company and director of Starmont Sanatorium; chairman of Committee on the Prevention of Tuberculosis; treasurer of the National Association for the Prevention of Tuberculosis; member of Committee on International Tuberculosis Congress; member Board of Directors of Garfield Hospital; member of Board of Visitors of St. Elizabeth's Hospital; professor of Preventive Medicine in the Faculty of Graduate Studies of George Washington University.

During the fifty-seventh Congress, the Senate passed a bill having the approval of the Secretary of War to retire General Sternberg as a major-general. This bill was also favorably reported by the military committee of the House in the following language:

"Your committee in view of the long, faithful and distinguished service of General Sternberg believe that the bill should become a law and accordingly recommend its passage."

When called up under suspension of the rules on June 2, 1902, the bill was opposed from the floor of the House on the ground that it would afford a precedent for similar legislation in other cases, and it failed to receive the necessary two-thirds vote.

General Sternberg passed away on November 3, 1915, after an attack of apoplexy. His wife survives him. His late years were bright with the public acknowledgment of his great achievements. He can have no better epitaph than the recognition given him by those who knew him best as the "most useful citizen."

DR. CARLOS J. FINLAY—A BIOGRAPHICAL SKETCH*

By ARISTIDES AGRAMONTE, M. D., Sc. D., Havana, Cuba.

The name of Dr. Carlos J. Finlay is familiar to every student of tropical medicine, as he was the discoverer of the mosquito's rôle in the transmission of yellow fever. This savant, whose recent death at the age of eighty-two years has been universally deplored, was one of the most remarkable characters in the history of contemporary science.

It is rather difficult to condense within the limits usually al-

*Read by title at the Thirteen Annual Meeting of the American Society of Tropical Medicine, held in Washington, D. C., May 9, 10, 11, 1916.

lotted to an article of this kind all that might be said in reference to Finlay's notable career, and it would cover many pages, indeed, to even briefly outline all the good that his "earthly evolution" brought upon mankind.

Finlay saw the light during what is known in Cuba as the "year of the cholera," in 1833, when the Island was visited by one of the worst epidemics in its sanitary history, which until fifteen years ago was quite disreputable. Of Scotch and French extraction, his father was a physician, evidently of a wandering temperament, for the subject of this sketch had occasion to visit South American countries as well as other West India islands, before his adolescence, at which time he was sent to France, where he obtained part of his early training, at the *Licée* of Rouen.

His education then suffered a considerable setback, upon his developing a severe attack of chorea, of such a character that it caused his parents to bring him back to Cuba, where he finally recovered, though he ever retained a peculiar hesitancy in his speech, leading many to think that his case was one of ordinary stuttering. This slight defect, which impeded the freedom of expression when his mind was most active, in anger or discussion, often led people to belittle his real and remarkable mental attainments and no doubt was conducive, more than once, to painful misrepresentation of his aims and desires.

As he was rather undersized and of delicate constitution, advantage was taken of opportunity to live for a few years in the North, where he finished his medical education, graduating from the Jefferson Medical College of Philadelphia in 1855. Ten years later, he married Miss Adele Shine, a lady belonging to a prominent family of the Island of Trinidad, West Indies.

A year after, in a paper presented at the Havana Academy of Sciences, in application for the title of Supernumerary Member (now obsolete), Finlay says that since 1858 (three years after graduating), he had been engrossed in the question of the etiology of yellow fever, and one may very well date the period of his activities in that direction from that early statement. Then and for many years after, in fact until 1880, Finlay ascribed prominent etiologic importance to the alkalinity of the air, in yellow fever. Numerous papers read before the Academy of Sciences and the Society for Clinical Studies, of which he was

an active and enthusiastic member, tended to prove his contention. His demonstrations and arguments, though failing to convince anyone, were received generally with the respect they deserved for the evident good faith in which they were performed and presented. This train of thought was subsequently abandoned, without very clear explanation for the change. It probably died the natural death which comes to all errors or mistakes.

Thus in 1881, Finlay read a paper, also before the Academy of Sciences, upon "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever." Needless to say, if his previous efforts had been received with indifference or given little credence, this article, dealing with such a tangible (and hence trivial) cause of propagation, met with the coldest reception; only the man's social standing and his reputation for uprightness of purpose no doubt kept many from outwardly expressing the ridicule they felt, if not their utter incredulity with regard to most of Finlay's assertions in connection with mosquitoes and their relation to yellow fever. Even before the presentation of that paper, while in Washington, at the International Sanitary Conference (1881), he referred to "the presence of an agent whose existence be entirely independent from the sick and the disease, but necessary to transmit the infection from the sick to the healthy," though at the time he dared not to mention the mosquito.

It is difficult to decide what was most admirable in the general make up of Finlay's character, his power of painstaking investigation and his process of logical deduction, or his faithful perseverance against the most distressingly enervating forces, those born of disdain, indifference and failure. What wonderful fortitude! What deep-rooted convictions must have presided over his hours of lonely brooding to have permitted him to hold so tightly to his theory in the face of continued defeat! For continued defeat may be justly considered the repeated failure to demonstrate what virtually was, if not exact, fundamentally true, that, clear and evident to his broader vision, was hidden to the mind's eye of his near-sighted confreres.

Through twenty years he struggled, contending, experimenting, observing and in every way investigating the details that appeared to him of the greatest importance. The practice of his

profession provided for the wants of his exemplary family and the education of his sons, while his scientific disappointments were amply repaid by the happy and blissful home life which attended him to the end. During this period, from 1881 to 1900, Finlay never ceased to believe in the mosquito theory. For a good part of his early work he was ably assisted by Dr. Claudio Delgado, who brought to it, besides, his training in bacteriological technic, encouragement and moral support. Together they endeavored to cultivate the germ of yellow fever from the mosquitoes' proboscis, from blood and other sources, believing for a time that they had been successful in the discovery of the *Micrococcus tetragenus* that Sternberg, upon becoming acquainted with it, called *versatilis* because it seemed omnipresent in Havana.

Nothing daunted by failure, like the crusaders of olden times, Finlay continued his researches. He endeavored to produce immunity by the use of blister serum from cases of yellow fever and also by the application of supposedly infected mosquitoes, in a number of men. Finlay's enthusiasm led him to believe, and he so reported, that he had produced mild cases of yellow fever with his mosquitoes, and, though certainly negative (we now know that they must have so resulted, inasmuch as his mosquitoes had not been sufficiently incubated and were therefore not infective when applied), his apparent success served to buoy him up in his faith, adding thus greater strength to his conviction.

In the memorable excursion made by Gen. Geo. M. Sternberg, then Major, to some of the South and Central American countries in his quest for the real etiologic factors relating to yellow fever, no little attention was given to the investigation of Finlay's claims. Unfortunately, the ubiquitous *Micrococcus tetragenus* was *de furore* at the time and it was so easy to knock that on the head that the main issue was lost sight of in its undoing. The mosquito theory then remained with but two devotees, Finlay and Delgado, until 1900.

Finlay's recognized clinical experience and his friendship with Gen. Sternberg, in spite of their scientific discrepancies, led to his being appointed Acting Assistant Surgeon in the Army during the war with Spain and, in fact, Finlay was sent to Santiago, serving there in the capacity of yellow fever expert until the

definite occupation of the Island by the American forces in 1899. He was then appointed a member of the Board of Experts intended to diagnose every case of yellow fever occurring in Havana. In this position he acquitted himself brilliantly; his untiring energy and his devotion to the faithful performance of the work before him made him a most valuable aid to the sanitary administration of which he subsequently became the head.

In 1899, consistent with his belief in the mosquito as the propagator of yellow fever, Dr. Finlay recommended, in a general way, prophylactic measures which were, of course, entirely overlooked.

Coincident with the events of the Spanish War, the relation of mosquitoes to malaria was demonstrated in Europe in a manner beyond question: on the other hand, all the usual methods of disease prevention applied to yellow fever in Havana had not affected the morbidity reports of that infection, though a better understanding of its clinical aspects had improved the mortality rate.

In 1900, through the investigations carried out by the U. S. Army Board, Finlay's theory became a doctrine and was soon accepted by the scientific world. The knowledge derived from the Board's findings served as a basis for one of the most remarkable and spectacular sanitary campaigns, under the direction of the present Surgeon General W. C. Gorgas, then a Major, when yellow fever was stamped out in one of its recognized and most virulent foci, the city of Havana.

The number of lives that have been saved by the acceptance of Finlay's theory will never be exactly recorded, but as time passes and we see how the disease, thanks to our knowledge of its etiology, is waning in intensity and narrowing its geographical extent, we come to realize what a great benefit it has proven to humanity.

It is impossible to think of Finlay's glory in this respect without reverting at the same time to the credit due the Army Board for having made it viable. Other investigators, no doubt, in the course of time, would have brought out the experimental details necessary, which Finlay himself because of lack of support and training had been unable to present before, yet the fact remains that we know not until when they would have rested unknown

but for the work of the Army Board which carried out the demonstration; hence the great credit due the one robs not the other of a particle of his glory. Thus I am sure, as I trace these lines in reverent memory of Dr. Finlay, I cannot be justly criticised for remembering and setting down the names of my co-workers, Reed, Carroll and Lazear.

The scoffers, the indifferent and unbelievers were conquered by truth and quickly fell into line to do homage to Finlay in his triumph. His Alma Mater conferred upon him the degree of Sc. D. *honoris causa*; the French Government made him an officer of the Legion d'Honneur; the English awarded him the Mary Kingsley Medal; while many learned societies, amongst them this American Society of Tropical Medicine, elected him to honorary membership. In 1911, the Paris Academy of Sciences elected Dr. Finlay a Corresponding Member, and in 1912 he was awarded, together with the writer, the Academy's Bréant Prize, for contributions to Tropical Medicine.

His intellect remained clear and vigorous until 1909, when the Cuban Government retired him on a pension, with the honorary titles of Member of the Board of Infectious Diseases and Chairman of the National Board of Health. At this time the natural infirmities of advancing age began to prey upon his health, turning him melancholy and listless until his death, which took place on the 20th of August, 1915.

The most salient traits in the character of this great man were his honesty of purpose and his firm religious faith; modest and unassuming ordinarily, he was powerfully assertive when defending his rights; his conversation, always instructive, was often interspersed with witty anecdote and there ran a serio-comic vein in the course of his most earnest speech. Harmonically blended in his nature were all the best qualities that tend to make a man loved and respected by those who come in contact with him.

In the death of Dr. Carlos J. Finlay, the writer has lost a friend; society, a member worthy of emulation; Cuba, his country, a spotless and exalted citizen; science, one of its shining lights, and mankind, one of its real benefactors.

SOCIETY PROCEEDINGS.

Report of the Clinical Section of the National Association for the Study and Prevention of Tuberculosis.

By WALLACE J. DUREL, M. D., New Orleans.

The twelfth annual meeting was held in Washington, D. C., on May 11 and 12, 1916.

The following three papers formed a symposium:

"The Separation of Tuberculosis From General Medicine," Dr. Thomas McCrae, Philadelphia.

"The Relation of General Hospitals to Tuberculosis," Dr. George Dock, St. Louis.

"The Education of the Medical Student in Tuberculosis," Dr. W. S. Thayer, Baltimore.

The papers were elaborately and generally discussed, with the following conclusions:—The solution of the problem lies in education, naturally of the profession, but much more so of the medical student. A thorough training in the knowledge of tuberculosis should be an essential part of the work in medicine in every medical school. Tuberculosis should be given especial attention, either as a separate department or in some other distinctive manner. The teacher in tuberculosis should be proficient in this branch of medicine, and have acquired the necessary clinical and practical experience. The teacher in tuberculosis need not necessarily be a specialist, especially if he is to teach diagnosis only. The specialist becomes an absolute entity in the treatment of tuberculosis.

The following resolution was unanimously passed:

"Be it resolved, That it is the sense of the Clinical Section of the National Association for the Study and Prevention of Tuberculosis to recommend the use of special wards for the care of tuberculosis cases in general hospitals."

These wards should be limited in number of beds, and long-standing and hopeless cases should be referred to special tuberculosis hospitals.

"Be it further resolved, That more time be given to the study of tuberculosis in medical schools, and that the medical student

be given a better opportunity to study the disease in tuberculosis wards of general hospitals."

Dispensaries, clinics, classes, etc., do not give sufficient latitude for the study of the disease in all its phases.

Hemoptysis, as a symptom of other diseases, was a topic for general discussion, but nothing new was added to our previous knowledge. That pulmonary tuberculosis is often secondary to other pathological conditions, was clearly demonstrated by the cases cited in this paper.

The class method of "Home" treatment is a valuable asset in large cities; and the rest in the "Home" treatment was again proven of indispensable value in the management of such cases.

The X-rays, after general discussion, were shown to be of value in determining the regional topography of the lesions in the lungs, but helped very little in detecting the presence of scattered tubercles. Still, generally applied, it is a valuable accessory in diagnosis. Active lesions cannot be determined by X-rays, nor is it possible to specify the absolute nature of the shadows in the skiagraph, etc. The influence of certain diseases, as that of the respiratory tract, of influenza, of digestion, of appendicitis, etc., was shown to play a great part in affecting the course of pulmonary tuberculosis. The correction of such complications always proved of benefit, and often changed an apparently unfavorable into an improved or arrested case.

Eleven cases of non-tuberculosis of the base of the lung were reported as simulating advanced tuberculosis. Many of these cases had been inmates of tuberculosis sanatoriums for months before the proper diagnosis was made. Autopsy showed most of these cases to be pneumococcic or chronic influenza. No tuberculin tests were administered in these cases for a differential diagnosis. None showed tubercle bacilli in the sputum.

The care of the teeth of tuberculous cases again proved very essential in the management of such cases.

Tuberculosis of the bronchial glands, leading to that of the bronchial tree, was a subject of great interest, especially in detecting the primary tuberculous lesions in children. Skiagraphs and the tuberculin tests help in the corroborative evidence, with the enlarged veins and capillaries of the chest.

A diagnostic standard for tuberculosis in children was at-

tempted, and the various clinical findings and symptoms were included, i. e., temperature of 99.6° and above, loss of weight, indigestion, etc. The tuberculin tests, especially the skin test (scarification), were given as practical corroborative evidence of the presence of t. b. in the body. Children often show latent tuberculosis, as well as active disease.

The complement fixation test was reported upon by several, and may yet prove of value in determining between active and latent lesions.

The American Medical Association—67th Annual Session, Detroit, Michigan, May 13, 14, 15, 1916.

There were nearly 5000 registered at the Detroit meeting of the A. M. A., the next to the largest meeting yet held by the Association. There were easily two thousand more people in attendance and the crowd was in evidence everywhere. The hotels were more than full and all public places were in like state. The most of the section meetings were well provided for and the only adverse criticisms were aimed at the wide distances of the House of Delegates, the registration bureau and the various sections. As usual, the scientific exhibit was put as much out of the way as possible and made, also as usual, entirely secondary to the commercial display. This was all the more unfortunate this year, because of the meritorious character of some of the scientific demonstrations.

All of the section work was reported as of high standard, and therefore profitable to all who were engaged in the presentation or audience of papers.

The same political engineering of candidates for the chief offices was in evidence, resulting in the selection of a worthy candidate for president.

The House of Delegates had many matters for consideration, notable among which were the determination to have a speaker of the House of Delegates and the unanimous approval of the National Board of Medical Examiners. The enormous production of automobiles in Detroit was evidenced by the presence of so many on the streets and the physicians in attendance varied the many social engagements with visits to the manufacturing plants. Altogether the meeting was a success, but the attend-

ance at future meetings promises to be so large that cities of less than a million inhabitants, with proportionate hotel accommodations, must think twice before undertaking an invitation for the A. M. A. to meet among them. It is probably certain that many stayed away from Detroit because accommodations could not be secured nor assured, and quite a number left Detroit after reaching the meeting because hotel accommodations could not be had.

The following officers were elected: President, Dr. Charles H. Mayo, Rochester, Minn.; first vice-president, Dr. Lewellys F. Barker, Baltimore, Md.; second vice-president, Dr. John Leeming, Chicago, Ill.; third vice-president, Dr. J. Henry Carstens, Detroit, Mich.; fourth vice-president, Dr. George F. Keiper, Lafayette, Ind.; secretary, Dr. Alexander R. Craig, Chicago, Ill.; treasurer, Dr. William Allen Pusey, Chicago, Ill.; chairman of the House of Delegates, Dr. Hubert Work, of Colorado; vice-chairman of House of Delegates, Dr. Dwight H. Murray, New York; Board of Trustees: Dr. A. R. Mitchell, Nebraska; Dr. E. J. McKnight, Connecticut; Dr. Oscar Dowlmig, Louisiana.

The next meeting will be held in New York City.

COMMUNICATION

THE CHARITY HOSPITAL.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL,
New Orleans, La.

Gentlemen: According to the terms of the following resolution we are instructed to forward it to you:

“Be it resolved that the Medical Advisory Committee of the Charity Hospital express its conviction of the soundness of the principles embodied in the present method of administering the Hospital as well as of the fairness and efficiency with which the present Board has governed the Hospital.

Be it further resolved, that copies of these resolutions be forwarded to the Board of Administrators, the Medical Press and to the Governor of Louisiana.”

Very respectfully,
(Signed)

HERMANN B. GESSNER, M. D., Chairman.

WM. KOHLMANN, Vice-Chairman

ISAAC IVAN LEMANN, M. D., Secretary.

June 21, 1916.

NEWS AND COMMENT.

ANESTHETISTS' MEETING.—The second annual meeting of the Interstate Association of Anesthetists will be held in the Hotel Seelbach, Louisville, July 25-27, in conjunction with the meeting of the National Dental Association. For any information address Dr. Hoeffler McMechan, Avon Lake, Ohio, secretary of the association.

NAVAL MEDICAL CORPS.—An examination for the Medical Corps of the Navy will be held on or about August 7, 1916, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago), Ill.; Mare Island, Cal., and Puget Sound, Wash. Applicants must be citizens of the United States with satisfactory preliminary and medical education. The examination is for appointment as assistant surgeon in the Medical Reserve Corps, and embraces the following subjects: (a) Anatomy, (b) physiology, (c) materia medica and therapeutics, (d) general medicine, (e) general surgery, (f) obstetrics. Successful candidates then attend the instruction at the Naval Medical School, beginning about October 1, 1916, receiving a salary of \$2,000 per annum, and at the end of the course, if successful in an examination in the subjects taught, they are commissioned as assistant surgeons.

Full information may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

NATIONAL TUBERCULOSIS ASSOCIATION ELECTS OFFICERS.—The National Association for the Study and Prevention of Tuberculosis, at its meeting in Washington, D. C., May 9 to 12, elected as president Dr. Edwin Baldwin, Saranac Lake, N. Y.; vice-presidents, Dr. Watson S. Rankin, Raleigh, N. C., and Dr. James A. Miller, N. Y.; executive committee, Dr. George Thomas Palmer, Springfield, Ill.; Mr. Homer Folks, New York; Mr. John M. Glenn, New York; Mr. Lee K. Frankel, New York, and Dr. David R. Lyman, New Haven, Conn.

OFFICERS ELECTED IN MEDICAL JURISPRUDENCE ASSOCIATION.—The American Association of Medical Jurisprudence, at its annual meeting held in Washington, D. C., May 6, elected the following officers: President, Mr. Oscar W. Ehrhorn, New

York; vice-presidents, Dr. Philip Coombs Knapp, Boston, and Mr. Bartow S. Weeks, New York; secretary, Mr. Charles P. Blaney, New York; treasurer, Mr. John C. West, New York.

BETTER EMPLOYMENT OF MEDICAL STUDENTS.—News has come from Paris that the minister of war has lately received a delegation from the medical group in parliament, demanding better employment for medical students, who ought to be used as technical students and not as mere nurses. It was also demanded by the delegation that the students be grouped under the name of *eleves aspirants du Service de Sante* near a hospital where they should receive special instruction and, after examination, the title of *aspirants*.

BRITISH HELMET AGAINST HEAD WOUNDS.—The French were the first to adopt a steel helmet in consequence of a large number of wounds in the head. The British then devised a helmet which has not the surprising lightness of the French, but it is considered to be better designed to meet its purpose. Its wide downward sloping brim protects the side and back of the neck and the temples and upper part of the face, as well as the top and sides of the head. While the helmets are by no means bullet-proof, they offer such resistance that a missile which penetrates them loses most of its force.

FULL TIME MEDICAL TEACHING ADOPTED AT YALE.—Full time instruction in medicine, whereby the medical and surgical teaching staffs will give up their private practice and devote their entire time to teaching and hospital work, has been adopted at Yale. This makes the third medical school to adopt this plan, Johns Hopkins and Washington Universities being the other two.

AMERICAN MEDICAL EDITORS' ASSOCIATION.—The annual meeting of this association will be held at the Hotel McAlpin, New York City, October 25 and 26. A most interesting program is in course of preparation. The meeting will be devoted exclusively to problems of a strictly journalistic nature, which will be of importance and interest to every editor and publisher of a medical journal. Among the papers to be presented are the following: "Editorial Control," "The Editor's Prerogative in Editing Original Articles," "Book Reviews in Medical Journals," "Problems of the Subscription Department," "The Rela-

tionship Between Medical Journals of the Day," "The Uplift in Medical Journalism," "The Influence of the Medical Press and Profession in Public Affairs," "The Rights of an Author in the Disposition of His Contribution."

WARNING.—We are advised that a swindle is being worked on physicians by a man fraudulently soliciting orders and collecting money for subscriptions to medical journals and for medical books, representing himself as working his way through college and trying to win a certain contest. He usually gives a receipt bearing the heading of some society or association which does not exist. He is a young man, of Jewish type, slender, with dark hair combed back and shows his teeth when talking. His idea is to collect money by offering special prices on medical books and journals and skip with the money. This young man frequently uses the name of W. B. Saunders Company.

DANIEL DRAKE MEMORIAL TABLET UNVEILED.—The unveiling of the Daniel Drake Memorial Tablet presented by Mrs. Elizabeth Drake Morrill Edwards, great-granddaughter of Daniel Drake, took place on June 10. Daniel Drake was the founder of medical education in Cincinnati. The presentation of the tablet to the Medical Faculty of the University of Cincinnati was made by Mr. Burgess Allison Edwards, son of the donor, and the unveiling, by Elizabeth Drake Morrill, great-great-granddaughter of Daniel Drake. Dr. Christian R. Holmes, Dean, accepted the tablet for the Medical Faculty. Introductory remarks were made by Mayor Puchta and Dr. Joseph Ransohoff.

WAIVES EXAMINATION FEE.—It was decided at the last meeting of the National Board of Medical Examiners to waive the examination fee and to charge each applicant only a nominal registration fee of \$5.00. The first examination will be held in Washington, D. C., October 16, 1916. For full information, address Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

GYNECOLOGICAL OFFICERS.—The following officers were elected at the annual meeting of the American Gynecological Society held in Washington, D. C., May 9-11, under the presidency of Dr. J. Wesley Bovee, of that city: Dr. Frank F. Simpson, Pittsburgh, was elected president; Dr. George C. Ward, Jr., New York, secretary, and Dr. Brooke M. Anspach, Philadelphia, treasurer.

WOMEN PHARMACISTS.—Owing to the war, the number of women students of pharmacy has greatly increased, and some of the principal schools of pharmacy have registered as many women as men. Such is the demand for women assistants to take the place of young men that a woman pharmacist who advertises for an appointment receives several offers at salaries ranging from \$500 to \$1,000 a year.

ANOTHER GIFT TO TULANE.—Of the gifts that have been presented to Tulane University recently none has been accepted with more satisfaction and appreciation than the transfer of the old historic French Opera House of New Orleans to the University. The name of the donor, for some reason, has been withheld, but his generosity is appreciated none the less, and his gift will go far to securing not only substantial revenues to the University, but, under the care and control of Tulane, the future of the famous old opera house will be preserved.

THE HOWARD TAYLOR RICKETTS PRIZE.—This prize for research work done in the department of pathology and bacteriology of the University of Chicago, which is awarded each year on May 3, the anniversary of Dr. Ricketts' death from typhus fever, was awarded this year to Dr. Oscar J. Elsesser.

BEQUEATHS EPILEPSY FUND TO JOHNS HOPKINS.—By the will of Miss Jessie Gillender, who died recently in Los Angeles, the medical school of Johns Hopkins University is to receive \$100,000 for the establishment of the Epilepsy Medical Research Fund. The income of the fund is to be spent in investigating into the cause, prevention and cure of the disease.

THE WISCONSIN STATE MEDICAL SOCIETY, uniting with other medical and surgical societies of the state, and the Wisconsin Anti-Tuberculosis Association, held a "Clinical Tuberculosis Meeting" in Milwaukee, June 6 to 10, inclusive. Physicians of national repute from all over the country, including Dr. F. M. Pottenger, of California, and Dr. E. H. Skinner, of Kansas City, Mo., participated in the program.

AMERICAN RED CROSS MEMBERSHIP.—The campaign which was inaugurated a few weeks ago to increase the membership of the American Red Cross to 100,000 has been successful and the membership has now passed the desired mark and the campaign is still going on.

TULANE COLLEGE OF MEDICINE.—For the first time in the history of the Tulane School of Medicine every member of the senior medical class successfully completed the prescribed course which entitled them to the M. D. degree. There were seventy-four men in the class and each received his diploma at the commencement exercises of the university at the French Opera House on June 7. The graduates are:

Wilmer Baker	Alfred Lawson Lewis
John Young Bartholomew, M. D.	James Louis Locascio
Benjamin Bashinski	Edgar Furman McCall
Webster Whitall Belden	William P. McCrossin, Jr.
William Louis Bendel	Bathune Freeman McDonald
Edwin Eugene Benoist	William Peter McKay
Edgar Joseph Beranger	William Joseph McLean
William Paul Bordelon	Roger John Mailhes
Eleazar Robinson Bowie, M. D.	Eric Leonial Major
Solomon Relophard Boykin	Robert Lampkin Maness
Malcolm Irwin Brewer	Thomas William Martin
Henry Beechum Burdeshaw	William George Milholland
Enoch Callaway	Hilliard Eve Miller
Alfredo Alonso Cantu	Adam Wood Montague, Jr.
Pierre Numa Charbonnet	Clyde Leon Morris
Joseph Raymond Chisolm	Emile Fidel Naef
Arthur Wesley Fegty	Ruffin Alexander Paine
John Blaise Ferran, Jr.	James Howard Park, Jr.
Henry Lawrence Gardiner	Farrar Burr Parker
Charles Edward Garratt	Buford Kirkman Parrish
Upton W. Giles	Presley Louis Pound
Frank Branch Gooch	John Galbraith Pratt
Aynaud Foster Hebert	Clarence Cecil Randall
Samuel Dana Henderson	Jesse Dean Riley
Ben Rufus Heninger	Maurice Samuel Rosenthal
Joseph Paul Israel	Benjamin Clarence Rush
Albert Charles Jackson	Paul Pullen Salter
Allen Johnson	William James Sandidge
George Mitchell Jones	Pleasant Addison Taylor
Karl Frederick Kesmodel	Jerome Manuel Triolo
John Arthur Keyton	Reynold Christian Voss
Kenneth William Kinney	Samuel D. Weaver
Thomas Joseph Kirwin	Grover Grady Whitley
Arthur Louis Korff	James Clinton Willis, Jr.
Willie Frank Krone	Robert Edward Windham
Louis Zelick Kushner	George William Wright
Edwin Mayer Levy	William Herbert Wynn

The other schools of the college graduated the following:
 School of of Pharmacy: Karl von Metzradt. School of Hy-

giene and Tropical Medicine: *Doctors of Public Health*, Charles Schuyler Harper and Luther Allen Riser. School of Dentistry: Edward DeLisle Wooding Deane, Charles George Dugas, Robert Lenton Griffith, Walter Chavigny Hava, Daniel Kelly Henry, Le Dorr Richardson Houk, Charles Gould House, Augustin Logan Magruder, Frederick William McClure, Alphonse Charles Bernard Meynier, Harry Matthew Nolan, Hazel Gabrielle Price, Oscar Blanton Taylor, Bob Ernest Trigg, Benjamin Floyd Walton, Roy White, Theodore Wilson.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.—At a meeting of the Louisiana State Board of Medical Examiners held in New Orleans, June 8, 9 and 10, 1916, sixty physicians were present for examination in medicine, of which number fifty-two passed and were granted certificates. The names of the successful applicants who received certificates are as follows:

Wilmer Baker, Benjamin Bashinski, Webster Whitall Belden, William Louis Bendel, Edwin Eugene Benoist, Edgar Joseph Beranger, George Regard Beridon, William Paul Bordelon, Eleazar Robinson Bowie, Solomon Ralph Boykin, Enoch Callaway, Pierre Numa Charbonnet, Samuel Clarence Dean, John James Donasier, John Blaise Ferran, Jr., Charles Edward Garrett, William Ira Green, Aynaud Foster Hebert, Ben Rufus Heninger, Joseph Paul Israel, Albert Charles Jackson, George Mitchell Jones, Kenneth William Kinney, Thomas Joseph Kirwin, William Frank Krone, Louis Zelick Kushner, Edwin Mayer Levy, Alfred Lawson Lewis, James Louis Locascio, Roger John Mailhes, Eric Leonial Major, Thomas William Martin, William George Milholland, Brastus L. Miller, Hilliard Eve Miller, Jamison Cottrell Mills, Emile Fidel Naef, Farrar Burr Parker, Buford Kirkman Parrish, John Galbraith Pratt, Jessee Dean Riley, Maurice Samuel Rosenthal, Paul Pullen Salter, William James Sandidge, Harry Maxwell Smith, Isaac Henry Smith, Reynold Christian Voss, Grover Grady Whitley, James Clinton Willis, Jr., Robert Edward Windham, George William Wright, William Herbert Wynn.

During the session, four physicians were granted certificates to practice medicine in Louisiana through reciprocity, namely: William Nathaniel Hankins, Minda A. McLintock, Vollie Lafayette and Charles L. Schmidt.

At the midwifery examination held June 9, sixteen applicants were present, of which number three were successful and received certificates, namely: Mrs. Edna Theodora Bennett, Mrs. Elizabeth Hotard and Ivy Jones Moore.

The next examination of the Board will take place in New Orleans, November 30, December 1 and 2, 1916.

REMOVALS.—Dr. O. T. Logan, from Changteh Hunan, China, to Bethany, Ill.

The Medical Fortnightly and Laboratory News, from 803 North Garrison Avenue, St. Louis, Mo., to 928 North Grand Avenue.

Dr. S. E. Prince, from Monroe, to Curtis, La.

The Modern Hospital, from 437 Fifth Avenue to 1 Madison Avenue, N. Y.

Dr. John W. Pendleton, from Burkett, Texas, to Tulsa, Okla.

PERSONALS.—Among the physicians of New Orleans who attended the meeting of the American Medical Association held in Detroit, June 12-15, were Drs. Rudolph Matas, F. M. Johns, Isadore Dyer, S. M. D. Clark, L. R. DeBuys, M. Feingold, W. H. Seemann, Oscar Dowling, R. C. Lynch, E. S. Hatch and E. L. King.

Professor Elie Metchnikoff, head of the Pasteur Institute at Paris, France, is seriously ill with heart trouble.

Professor August von Wassermann, head of the Royal Institute for Infectious Diseases at Berlin, has been appointed director of the Institute for Experimental Therapy at Frankfort, succeeding the late Professor Paul Ehrlich.

Dr. F. F. Martinez has been appointed director of the newly organized Institute of Tropical Medicine at Granada.

Sir R. Havelock Charles, president of the medical board of the India Office, was appointed dean of the London School of Tropical Medicine, succeeding the late Sir Francis Lovell.

MARRIED.—On June 24, 1916, Dr. Robert Foster Fennell, a former graduate of Tulane School of Medicine, to Miss Margaret Street, both of Guntersville, Alabama.

DIED.—On May 22, 1916, at British Honduras, Dr. Moise Lafleur, a well-known young physician of Opelousas. Dr. Lafleur was shot by Guatemalan soldiers. He was engaged in scientific research work in British Honduras.

PUBLIC HEALTH NOTES.

The Illinois Leprosarium has been established on the grounds of the Watertown hospital. The institution has already two occupants.

After almost a year of effort on the part of the United States government, a shipment of salvarsan valued at \$250,000 was received in New York last month.

The House of Representatives passed a bill June 8, providing for divisions of mental hygiene and rural sanitation in the United States Public Health Service.

An appropriation has been made in New York including \$65,000 for the purchase of land and the erection of a building for the laboratory of the state department of health.

Owing to an epidemic among the marines, in which black water fever was one of the troubles, the U. S. hospital ship *Solace* hurriedly sailed for Liberte, Cape Haitien, on May 27.

Ten Nathan Straus infant milk stations were opened June 1, in addition to the eight that remain open during the winter. This is the twenty-fifth year that Mr. Straus has provided pasteurized milk for the poor children of New York.

Major Weston P. Chamberlain, M. C., U. S. A., Plattsburg Barracks, N. Y., who has been on duty with the 30th Infantry in camp at Ft. Sam Houston, has been relieved from duty there and ordered to report to the Department Surgeon for temporary duty in his office.

Dr. George M. Kober has been elected president of the Washington Sanitary Housing Committee. Mrs. George M. Sternberg has been elected a member of the board of directors to fill the place made vacant by the death of her husband, General Strnberg.

The health commissioner of Kansas City, Missouri, Dr. Paul Paquin, has announced that in building up a new and more efficient department of health, the city will be divided into seventeen districts. A sanitary officer will be at the head of each, who will have charge of the sanitary condition of his district.

A new floating hospital, the *Helen C. Juilliard*, has been built and equipped in New York at the cost of \$125,000. The legal capacity of the boat is 2,400, but the actual number will probably be limited to 1,800 in order to improve the service. Provisions are made for more serious cases than is usual in such floating hospitals.

Mr. and Mrs. George Blumenthal have given \$24,000 to be used for the equipment of a base hospital in connection with Mount Sinai Hospital, N. Y. This is the fourth unit to be organized under this branch, each unit consisting of twenty physicians, forty-six nurses, and 125 orderlies and assistants. The equipment is stored in New York, subject to the instant call of the government.

The bill providing for "the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States" was passed by the House of Representatives. The bill provides for an appropriation of \$250,000, to be used for a home for lepers, the maintenance of patients and the pay and maintenance of necessary officers and employees until June 30, 1917.

According to the Bulletin of the El Paso County Medical Society of May, at the beginning of the typhus epidemic, the prisoners of the city jail were given a bath in equal parts of kerosene and vinegar and their clothes were dipped, on account of filth and grease, in a mixture of cresole and gasoline. The prisoners were searched for matches before the baths were started and repeatedly warned during the baths by the doctor and his four assistants. Just as the last bath was given an unruly dope fiend found a broken match on the floor, and, to be ugly, struck it. The gasoline fumes which had permeated the old, unsanitary building exploded at once. The total death rate was 27.

BOOK REVIEWS AND NOTICES

Pathogenic Bacteria and Protozoa, by Joseph McFarland, M. D., Sc. D. Eighth Edition, revised, with 323 illustrations, many in colors. W. B. Saunders Co., Philadelphia, 1916.

As a reference work for medical bacteriology, and the various technique by which the organisms are identified in the various diseases, this book ranks among the very best. This, the eighth edition, has been well revised, bringing the writings practically up to the present time.

The structure, classification and biology of micro-organisms are condensed into short paragraphs of the salient facts that tend to make these usually dry chapters rather readable.

The chapters on infection and immunity are full. Many of the passing conceptions of immunity expressed in graphic terms could probably be left out, and immunity in some instances expressed in simple English.

The various pathogenic bacteria and protozoa are taken up under headings of the clinical nomenclature—a type that renders the subject matter somewhat easier of access in reference work.

It would be indeed difficult to write a book of bacteriology and protozoology, whose contents would harmonize with the views of everyone. For instance, the author's characterization of the finding of gram negative, intracellular diplococci in pus from suspicious gonorrhoeal lesions as a "rough and ready" diagnosis of gonorrhoea compared to the isolation and identification of the gonococcus on culture media would in the light of many of our clinical experiences be a far more accurate statement if reversed.

Again, one of the most trying microscopical diagnoses is that of the various parasitic skin infections so very common in our Southern states. Several of these are mentioned briefly, but by far the most are entirely omitted.

These small criticisms are but fine points in diagnosis, however, and will not mar the great mass of material summed in this book for a doctor with a good, thorough training

in clinical microscopy, for whom this book as a reference for the more uncommon things will be of invaluable aid.

F. M. JOHNS.

The Basis of Symptoms, the Principles of Clinical Pathology, by Dr. Ludolph Krehl. Authorized translation from the Seventh German Edition by Arthur Frederic Beifeld Ph.B., M. D., with an introduction by A. M. Hewlett, M. D. Third American Edition. J. P. Lippincott Company.

All admirers of Krehl's work will welcome this new translation and edition. The two former American editions translated by Prof. Hewlett were issued under the title of *Clinical Pathology*. It seems to us that both the former title and the present one fail adequately to describe the scope of the work, and hence fail to attract to its perusal the very people who might most profit by it. Krehl's own title, "Pathologische Physiologie" (Pathological Physiology), seems much to be preferred. The field which this book covers ought to be made the subject of a separate course in every medical school, for it is by means of attempting constantly to explain disease in terms of morbid function that we shall hope to progress in the study of medicine. Stress must be laid more than ever in the future on the necessary correlation between physiology and the science of medicine, for to physiology (normal and morbid) belongs the future of medicine. Krehl's book will continue to serve as a stimulus and an inspiration to the clinical teacher, the clinical investigator as well as (and most important of all) to the undergraduate and graduate student of medicine

I. I. LEMANN.

A Handbook of Infant Feeding, by Lawrence T. Royster, M. D. Illustrated. St. Louis: C. V. Mosby Co., 1916.

A Practical Treatise on Infant Feeding and Allied Topics.

For physicians and students. By Harry Lowenburg, A. M., M. D., with 64 text-engravings and 30 original full-page plates. Philadelphia: F. A. Davis Company, 1916. 380 pages.

We have here two excellent works on infant feeding, which, though differing somewhat in scope and arrangement, are both worthy of a place in the library of the busy physician.

The smaller work, by Royster, is a compact, highly concentrated extract of the practical knowledge contained in the larger, encyclopedic works on pediatrics. The busy practitioner frequently needs such a work, and the author presents in an easily accessible form the cream of the practical knowledge that a busy man most needs. Further, the book is written in such simple, untechnical language that it might very properly be placed in the hands of intelligent mothers who could thus more efficiently co-operate with the medical attendant.

Dr. Harry Lowenburg's work is more comprehensive. It embraces chapters on breast-feeding and artificial feeding, infantile atrophy, rickets, scurvy, spasmophilia, constipation, diarrhea, exudative diathesis, pyloric obstruction, stomach washing, colonic irrigation, nasal feeding, gavage, feeding by the bowel, feeding during intubation, feeding during the acute infectious diseases, hypodermolysis, feeding in nephritis. In nephritis, Lowenburg does not dread chloride of sodium; on the contrary, he advocates the addition of salt in generous quantities to the diet of all nephritics, and he administers it rectally, hypodermically or intravenously as the cases seem to require. The illustrations call for special mention. There are ninety-four figures of all kinds, eleven of which are in colors. These colored plates show meconium, normal breast stool, normal stool of artificial feeding, stool of indigestion, stool of dyspepsia, fatty stool, calcium-soap stool, undigested protein stool, bismuth stool, infantile scurvy. These illustrations are invaluable, for they convey accurately and instantly information that can scarcely be imparted by the printed work. Taken all in all, Dr. Lowenburg's is one of the most satisfactory practical works that it has been our privilege to read.

A. McSHANE.

Practice of Medicine, by James M. Anders, M. D., Ph.D., LL.D. Twelfth Edition, W. B. Saunders Co. 1915.

The earlier editions of this work have been frequently and favorably reviewed in these columns. The present edition has been carefully revised and much new matter has been added while a considerable number of chapters have been largely rewritten. While there is much to praise in this work, there are also, in the reviewer's opinion, a number of

omissions or faults. The important subject of cardiac arrhythmias is very insufficiently and in large part incorrectly discussed. While this work devotes much more space to treatment than most similar works, there is unmistakable evidence that during the revision the sections on treatment have received scant attention. The reviewer notes among other omissions or (in his opinion) errors the following: No mention of atophan in the treatment of gout; a perpetuation of the delusion as to the harmfulness of red meat in this disease; a statement that the hypodermic administration of mercury is to be adopted "only when very prompt action of this agent is desired;" in the chapter on cardiac diseases the importance of syphilis as a cause and a treatable one is not sufficiently emphasized; a statement that strychnin, gr. 1-30 to 1-15, is the most efficient cardiac stimulant known; on two successive pages the dosage of digitalis is put down as five minims of the tincture three times a day and as dram i to iij, 3 or 4 i.d., or oz. ss q. 2 or 3 h. for 2 or 3 days. It is rather surprising to see the author of this work stating that the object of the preparatory treatment of a patient with tapeworm is "the starvation of the parasite." We hope that in later editions of Dr. Anders' excellent and useful book the sections on treatment will be brought up to the level of the other portions.

J. T. HALSEY.

The Treatment of Acute Infectious Diseases, by Frank Sherman Meara, M. D., Ph.D. The Macmillan Company New York.

This is a practical, useful book written by a competent and successful physician for physicians and for medical students. In it the author gives the best exposition of modern methods of treating acute infectious diseases, of which the reviewer knows. While theory and hypothesis are not neglected in the discussions, they do not in this work, as is so often the case, tend to confuse the reader, but should arouse his interest and stimulate him to try and treat his patients rationally and logically instead of being contented to go on treating them by rule of thumb. The author has considerable faith in the efficiency of drugs and is not afraid to say so, any more than he hesitates to express his scepticism as to the value of various widely used and highly esteemed remedies. The

book abounds in little practical hints as to the best way of doing things, and these will prove of great value, especially to the young doctor.

We hope that a new edition will soon be necessary and that in it the author will devote more space to discussion of what may be called the physiology of acute infections, and to the subject of vaccins and serum therapy. The chapter on malaria should be rewritten, in part at least.

In conclusion the reviewer most heartily recommends this work to anyone wishing to supply himself with a modern and authoritative work on the treatment of these every-day diseases.

J. T. H.

Autoplastic Bone Surgery, by Charles Davidson, M. D., and Franklin D. Smith, M. D. Lea & Febiger, Philadelphia and London.

Here we have a valuable contribution. The text is well arranged and clearly printed; numerous instructive skiagraphs and illustrations form a useful part of the work.

The Workingman's Compensation Law makes it desirable on the part of all surgeons to secure accurate anatomical results, instead of being satisfied with good functional or physiological results.

The three opening chapters contain a clear and lucid description of the physiology, pathology and histology of the growth and regeneration of bone, with a full discussion of the fate of the bony transplant within the tissues drawn from both experimental and clinical observations, with a resume of the literature on this subject, with the conclusions and results of the different investigations in this field, showing the results obtained from the periosteal covered and periosteal free transplant. These chapters are particularly interesting and instructive and should be read by all interested in this field of work. The much-disputed question regarding the function of the periosteum and the part which it plays in the viability and growth of the transplant is amply discussed. In the presentation of any disputed point, the various views are given with the results obtained by experimentation by the different investigators, often with the author's criticisms and conclusions.

A study of the healing of fractures is included in bony growth.

An excellent description of the instruments, technic and methods employed in the many varied conditions is clearly and lucidly presented.

The entire field of bone surgery is thoroughly covered, beginning with recent simple fractures, then follow in classified order, the congenital and acquired defects and deformities of the cranium, facial bones, vertebral column and long bones. Many of these procedures are well described and illustrated by reports of cases. A thorough bibliography forms a useful addition.

CARROLL W. ALLEN.

PUBLICATIONS RECEIVED

P. BLAKISTON'S SON & CO. Philadelphia, 1916.

Manual of Operative Surgery, by John Fairbairn Binnie, A. M., C. M., F. A. C. S. Seventh edition, revised and enlarged.

LEA AND FEBIGER. Philadelphia and New York, 1916.

Fractures and Dislocations, by Kellogg Speed, S. B., M. D., F. A. C. S.

Blood Pressure; Its Clinical Applications, by George William Norris, A. B., M. D. Second edition, revised and enlarged.

W. B. SAUNDERS COMPANY. Philadelphia and London, 1916.

Gynecology, by William P. Graves, A. B., M. D., F. A. C. S.

Embryology, Anatomy, and Diseases of the Umbilicus Together With Diseases of the Urachus, by Thomas Stephen Cullen.

The Medical Clinics of Chicago. May, 1916, Volume 1, Number 6. Index Number.

WASHINGTON GOVERNMENT PRINTING OFFICE.

Washington, D. C., 1916.

Public Health Reports. Volume 31, Nos. 19, 20, 21 and 22.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for May, 1916.

Cause.	White	Colored	Total
Typhoid Fever	7	9	16
Intermittent Fever (Malarial Cachexia).....			
Smallpox			
Measles			
Scarlet Fever			
Whooping Cough	1	1	2
Diphtheria and Croup.....	1		1
Influenza	1	2	3
Cholera Nostras			
Pyemia and Septicemia.....		1	1
Tuberculosis	33	67	100
Syphilis	24	6	30
Cancer		1	1
Rheumatism and Gout.....	9		9
Diabetes	3		3
Alcoholism	7	2	9
Encephalitis and Meningitis.....	1		1
Locomotor Ataxia	17	15	32
Congestion, Hemorrhage and Softening of Brain.....			
Paralysis		1	1
Convulsions of Infancy.....	12	8	20
Other Diseases of Infancy.....	1		1
Tetanus	3	2	5
Other Nervous Diseases.....	55	48	103
Heart Diseases	1		1
Bronchitis	14	16	30
Pneumonia and Broncho-Pneumonia	1	1	2
Other Respiratory Diseases.....	1		1
Ulcer of Stomach.....	3	1	4
Other Diseases of the Stomach.....	31	13	44
Diarrhea, Dysentery and Enteritis.....	4	1	5
Hernia, Intestinal Obstruction.....	2	9	11
Cirrhosis of Liver.....	6	2	8
Other Diseases of the Liver.....			
Simple Peritonitis.....	7	1	8
Appendicitis	24	18	42
Bright's Disease	11	13	24
Other Genito-Urinary Diseases.....	4	2	6
Puerperal Diseases	2	1	3
Senile Debility	6		6
Suicide	29	13	42
Injuries	23	32	55
All Other Causes			
Total	344	286	630

Still-born Children—White, 12; colored, 27; total, 39.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for month—White, 14.96; colored, 33.65; total, 19.90. Non-residents excluded, 17.17.

METEOROLOGIC SUMMARY (U. S. Weather Bureau.)

Mean atmospheric pressure 29.95
 Mean temperature 77.
 Total precipitation 7.97 inches
 Prevailing direction of wind, southeast.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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ISADORE DYER, M. D.

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Vol. LXIX

AUGUST 1916

No. 2.

EDITORIAL

THE DOCTOR IN THE MOVIES.

The scenario designers and picture producers appear so far to have completely failed to portray the physician with any adequacy or even scant justice. Seldom, if ever, has any picture we have seen, or heard of, or read about ever presented a doctor in any role of importance. This, if all, might be overlooked, although it would not be difficult to find characters heroic, interesting, or pathetic among physicians, ancient or modern, either in history or in fiction.

What is annoying and irksome, not to say painful, is to witness the same inane type brought forward over and over again,

with slight variations, whenever the story makes it expedient to introduce a doctor into the scene.

Here is the way he is shown. Though fairly well dressed, he does not exemplify the fashion of the practitioner of long ago, nor yet that of the up-to-date doctor. Never the bluff, kindly, carelessly gotten up country doctor, neither is he the trim, alert city doctor. Even his beard is a cross between the full one of years ago and the absent one of to-day. He is unintelligent, uninterested as well as uninteresting, even unconcerned. He walks in stiffly, deposits his bag (always has a bag), asks nothing and is told the same, immediately pulls out a watch and places a finger near where the pulse ought to be; returning the watch to its pocket, he either shakes his head slowly from side to side (which means the patient is dead or will die) or nods up and down quickly (meaning the patient is or will be all right), picks up bag, bows stiffly, walks out equally stiffly.

The only compensating feature in this idiotic performance is the compliment to the profession by implication to the effect that a diagnosis is invariably made most easily and quickly and that the prognosis follows immediately and unhesitatingly, for the only means of reaching a conclusion we have ever seen used by a movie doctor besides counting the pulse is the raising of one eye-lid (the patient's).

Of course we are not in favor of showing to the public the practical application of the apparatus used for a favorite medication of the time of Molière nor the complete technic of a thorough physical examination, but, please, movie producers, give us sometimes a doctor who looks like one and acts a little like a rational human being who is trying to learn something about the patient and is both able and willing to help him.

If it be the correct thing to show us the heroine writing a note and licking the stamp before attaching, to visualize the hero talking at the phone to his girl and flicking the ashes from his cigarette meanwhile, it can not be out of place to flash on the screen a physician who does something a little naturally and is a little more than an automaton.

Speaking a little more seriously on the moral side, we must object to the serious reflection cast on the profession, also by implication, when for instance an agonized father commits burglary to get money for the doctor who will not attend the sick

child without it. Scenes analogous to this are too often shown. No doubt there are mercenary and even criminal men in the profession, but the multitudes of free clinics and hospitals served gratuitously by physicians testify to the fact that the majority are not callous or grasping. The other side should be shown sometimes for a change.

Criticism of photoplays and their morals might lead us far and it is not our intention to be grouchy, still we do want to plead for a truer and fairer exposé on the screen of the doctor as he usually is and does.

MEDICAL PREPAREDNESS.

Dr. Rudolph Matas, of this city, member of the National Committee of American Physicians, read by invitation an address at the organization of the Red Cross Chapter of Louisiana, July 7, 1916, on "What the National Committee of American Physicians is doing for Medical Preparedness and What it Expects to do in Co-operation with the American Red Cross."

We regret that space will not permit the publication of this most interesting address in full, but we hope that the liberal extracts which follow will serve to give valuable information to the profession and to stimulate their interest in preparedness as a civic and patriotic duty.

"As the origin and purposes of the National Committee of American Physicians for Medical Preparedness are not generally known, being the result of the very recent organization of the medical profession at the meeting of the Congress of Physicians and Surgeons held in Washington last April, and maturing only in the last few weeks, I feel justified in submitting the main facts which are pertinent to this occasion.

With Dr. Wm. J. Mayo, of Rochester, Minn., president, and Dr. Frank F. Simpson, of Pittsburgh, Pa., secretary, the National Committee's organization consists of six ex-officio members (William C. Gorgas, Surgeon General, U. S. A.; William C. Braisted, Surgeon General, U. S. N.; Rupert Blue, Surgeon General, Public Health Service and also president American Medical Association; Jefferson R. Kean, Colonel Medical Corps, U. S. A., Director General Military

Relief American Red Cross; Samuel J. Mixer, president American Surgical Association); thirty representative members, appointed by the joint action of the presidents of the various national medical organizations; state committees of nine members for each state, three members for the territories (appointed by the National Committee), and a number of aides for local work, to be appointed by the several state committees.

"Plans have been carefully formulated for the purpose of organizing our vast civilian medical resources in accord with the comprehensive plans for national defense which are now being carried out.

"The first duties which the Committee of American Physicians for Medical Preparedness undertake are: A. To aid the Medical Department of the United States Army and Navy by making a comprehensive inventory of the special qualifications of individual civilian physicians. B. To cooperate with the National Committee of the American Red Cross in bringing that organization up to the highest standards of medical ideals and to aid in the organization of Red Cross units. C. The activities of the near future will include a very practical inventory of all civilian medical resources. D. Research work along many lines relating to the subject of efficient medical preparedness, standardization of first aid methods, etc.

"The two chief objects of the National Committee's work are summed up under the following headings:

A. Inventory of Medical Men: It is the desire of the Surgeon General of the Army to greatly increase the number of medical men in the Reserve Corps. To further that end, the committee will endeavor to interest the medical profession in that subject, and in the desirability of applying for commissions in the Officers' Reserve Corps, Medical Department.

B. To Aid the American Red Cross: By a mutual understanding between the Committee of American Physicians for Medical Preparedness and the committee of the American Red Cross, and by an interlocking of national, state and local committees, the former organization has determined to cooperate with the Red Cross in raising its work to the highest point of efficiency and in organizing Red Cross units in

accord with recent advances and high ideals of medicine. By a presidential proclamation, the Red Cross was made an agency for the organization of a reserve for the medical services of the army and navy, and the units organized by it pass, in time of war, into the medical service of the military forces.

"From what has just been read, we have learned what the medical profession of the country proposes to do in aid of the established medical forces of the regular army, by canvassing the entire medical profession of the United States and providing a list of efficient medical men in the proportion of 200 reserve surgeons and physicians to one million of the population. When these are duly chosen and examined for their fitness for military service, and approved by the government, they are to be duly enrolled for a term of three years in the Army Medical Reserve Corps, thus constituting a total aggregate estimated to be about 25,000 able, efficient medical men, pledged to respond to the call of the Surgeon General when needed.

"The canvassing of the profession is now being carried out in every state. A state committee for Louisiana has already been organized with nine members: Dr. S. M. D. Clark, Chairman; Drs. W. H. Seeman, President Louisiana State Medical Society, during incumbency; R. L. DeBuys, Secretary Louisiana State Medical Society, during incumbency; Isadore Dyer; Hermann B. Gessner; Urban Maes; C. Jeff Miller; Frederick W. Parham; J. C. Willis; Rudolph Matas, member of National Committee. It will be ready to report early in August.

"Thus far, the work of the National Committee is well under way, insofar as the inventory of the Medical Reserve Corps is concerned. The other great problem is one which cannot be solved without the active and general co-operation of the philanthropic men and women of the community, who are already enrolled in the Red Cross movement and who are anxious to do their share of preparedness. This most important function is that of preparing a number of Red Cross Base Hospital units which should be ready for immediate service whenever called upon by the needs of the country.

"From a recent letter received from Col. J. R. Kean of the U. S. army, and Director General of Military Relief of the American Red Cross, we learn that fully twenty-two such units have already been organized under the direction of the leading universities and hospitals of the northern, eastern and western states. Thus far, no units have been reported from the universities or hospitals of the great cities south of Baltimore, where the Johns Hopkins University holds the furthest post of honor in the South. It therefore behooves us to move promptly, if we are to prove that the South is not lacking in patriotism and enterprise.

"The medical faculty and teachers of the Tulane University and of other medical centers of the South are eager to contribute an efficient personnel to meet the requirements of a base hospital unit; but the equipment of such a unit for active service is no small matter, as this must meet the most advanced requisites of modern medical service and surgical art, when called upon to face the complex conditions of present day warfare.

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"The organization of the Red Cross Base Hospitals for the army is made to correspond as nearly as possible with that of the Army General Hospitals of 500 beds, in order to facilitate their transfer to the military service when called into active service. All of the medical men enrolled in them are given commissions in the Army Medical Reserve Corps, and the nurses are enrolled members of the Red Cross Nursing Service, which is the reserve for the Army Nurse Corps and Navy Nurse Corps.

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"It is surprising to find the readiness and enthusiasm with which the highest medical talent in the country has placed itself at the disposition of the Red Cross for the formation of these units. If a like degree of patriotism and public spirit can be found among the prominent men in other professions and employments, the equipment of these hospitals will be an easy matter.

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"The question that is now squarely placed before this body for early consideration is, Will this Chapter, through its per-

sonal efforts and influence in this community, be willing to permanently equip a Red Cross Base Hospital Unit to meet the requirements of a 500-bed hospital, if the medical or professional personnel is furnished by the Tulane University and other medical institutions in sympathy with the movement, in co-operation with the Red Cross Chapter and nurses of Louisiana?

* * * * *

“I can safely state that out of the faculty and the alumni of Tulane University, there will be an abundance of efficient material for the personnel of such a unit and that this phase of the problem is that which presents the least difficulty, in the way of solution.

“In making such an organization of the Medical Reserve Corps in co-operation with the Red Cross Nursing Corps, we must be guided by two fundamental principles. First: Each man and nurse should be assigned to the service for which he or she is best qualified. Second: Standard materials should be stored so that we may not be caught by a shortage at a time when industries are paralyzed.

“In general, it would seem proper that the civil surgeon of the Reserve Corps should undertake no administrative duty,—such as care of transportation, records, supplies, commissary, etc. The civil surgeon should be primarily, and, if possible, exclusively, engaged in the care of patients. These units will be more efficient if they are made up of men who have had similar training and who know each other, and if they have associated with them a nursing staff familiar with their methods.

* * * * *

“The following personnel is suggested as adequate for each base hospital of 500 beds:

One director or chief surgeon in charge; five assistant surgeons, each in charge of a service of 100 beds; three assistant surgeons; one orthopedic surgeon; one genito-urinary surgeon; three anesthetists; one pathologist and assistant; one internist; one neurologist; one oculist; one ear, nose and throat specialist; two dentists; two roentgenologists; two mechanics; one secretary and record clerk; two stenographers; fifty trained nurses. Total, 78.

* * * * *

"The surgical instruments and apparatus for each unit, including the ambulances, operating tables, X-ray outfits, etc., would be owned by the government and stored in a room set aside for this purpose. There should be a meeting of the unit annually or oftener. Each unit would be assigned to service in a certain contingent of the army, and would go on automatically with that contingent. The preparations and construction of the base hospitals would be in charge of the regular army. Army officers would be on duty in each hospital and would have entire charge of its administration.

"This plan which was first submitted by Dr. G. W. Crile of Cleveland, in October, 1915, has been adopted by the Surgeon General in its general outline, but the precise details of the personnel and of the material that must be supplied by the government have not yet reached us, and we are now waiting for further particulars in order that the full expense of the equipment that is to be provided by each Red Cross Chapter shall be known."

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

A PRACTICAL METHOD OF MINIMIZING THE PAIN OF LABOR.*

By H. W. KOSTMAYER, A. B., M. D., New Orleans.

It is perfectly natural for most of us to borrow the expressions of our teachers when we first start the practice of some branch of medicine. I was taught that pain with labor was necessary and natural, and I recall, with a mixture of amusement and embarrassment, my sitting by the bedside of maternity cases and assuring them that nature in her infinite wisdom saw fit to make women suffer during childbirth that they might love the children the more, and so on to the end of my resources. But that time is past and would have been long since, if men bore children. However, the women themselves have forced on us the problem of relieving, or, at least, of minimizing their pain, and the problem must be solved if the profession is to do its duty toward womankind. Furthermore, I am convinced that small families, in many instances, are directly attributable to the pain of childbirth.

There is a great difference in the degree of success attained by various obstetricians in the use of the classical "Twilight Sleep" procedure. Men of equally good repute report such different results that the conclusion is reached that the method is not adapted to the everyday needs and uses of the average man doing obstetrics. This is strongly emphasized by the often repeated and generally accepted statement that "Twilight Sleep," to be successfully carried out, requires a well-equipped institution, devoted to the purpose, or requires the undivided attention of the attendant in a given case.

There is no such institution in New Orleans, and it is practically impossible to remain continuously with each maternity case throughout the entire labor, so I have been forced to look about

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for some other means than typical "Twilight Sleep" to minimize the pain of labor.

It has always been comparatively easy to lessen the pain of the last part of the second stage; that is, delivery of the presenting part over the perineum. This is readily accomplished with chloroform or ether, but both these drugs are too toxic and retard labor too much to be used throughout the second stage. Morphine, however, in small doses, is a splendid drug in the early part of the second stage, as it greatly diminishes the pain and retards labor but little, this slight retardation being nicely overcome by a judicious use of pituitrin. I say judicious, for it must be remembered that some patients are peculiarly susceptible to the action of this drug, excessively violent uterine contractions sometimes following the use of a maximum dose with possible disastrous results, such as premature separation of the placenta. It is a safe and satisfactory practice to give a small initial dose of pituitrin—say 4 or 5 minims—increasing the second dose, giving 1 c. c. at the third dose, if necessary.

Control of the pain of the first stage is the most difficult problem. Morphine will frequently abruptly stop dilation, and always markedly retards it, while ether and chloroform are obviously contra-indicated. During my intern days at Charity Hospital, chloral was used a great deal in cases of unyielding cervixes, not with the idea of relieving pain, but for its so-called specific action on the cervix. I do not believe it the wonderful specific for relaxing cervixes it was then taught to be, but I do believe it definitely lessens the pain of this stage of labor. This is especially so in nervous, excitable women, who reach the second stage already in a state bordering on exhaustion, unless the early pain is minimized. Besides, I am convinced that chloral very often does materially shorten the stage of dilation.

To summarize, the method is applied as follows: As soon as the pain of the first stage becomes definitely annoying, chloral is given in 10-grain dose and repeated in forty-five to sixty minutes, as indicated, as much as three doses being given, if necessary. When the character of the pain changes to the "bearing-down" of the second stage, morphine grain 1-8 is given by needle, as soon as this pain is severe enough to warrant it. It is rarely necessary to repeat the morphine, though this may safely be done after an hour or two. If labor is retarded in the least,

or if in the judgment of the physician labor might safely be hastened, pituitrin is given by needle in the graduated doses above stated. As the presenting part begins to dilate the vaginal orifice, ether is given by the open drop method at the beginning of each pain, and continued until the pain subsides.

This method is detailed with no idea of originality, but because it is a simple, safe, and practical means of minimizing the pains of childbirth. It has been a big asset to me in my obstetrical work, and has added interest and pleasure to the management of maternity cases, upon which I formerly looked with a feeling closely akin to dread.

REVIEW OF THE TETANUS EXPERIENCE IN CHARITY HOSPITAL FOR TEN YEARS.*

By HERMANN B. GESSNER, M. D., F. A. C. S.,
and
DAVID ADIGER, M. D.,
New Orleans, La.

The purpose of this article is simply to give the actual experience with tetanus in the Charity Hospital for the period, April, 1906, to April, 1916. It will not deal with the subject from any other viewpoint than that of the statistics bearing on the prevention and cure of this disease.

It is interesting to compare the mortality from tetanus to-day with that of the earlier decades of which we have records:

	Discharged.	Died.	Total.	Mortality per cent.
1840-'9 (Incomplete)	5	11	16	68.7
1850-'9	17	70	87	80.4
1860-'9	14	43	57	75.4
1870-'9	17	58	75	77.3
1880-'9	13	68	81	83.9
1890-'9	33	117	150	78
1900-'9	54	119	173	68.7
1910-'14 (5 years)	52	139	191	72.7
1915- (1 year)	22	39	61	63.9

From these figures it will be seen that, while the mortality has diminished, the decrease has been very moderate, not at all in proportion with the gains made by therapeutics in other direc-

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tions, e. g., in diphtheria.

Comparison of the period 1840-'89 with 1890-1915 (the pre-serum epoch with that employing serum) shows a reduction in mortality from 79% to 72%. Study of the comparative mortality of different therapeutic measures, however, leads us to the conclusion that this reduction is to be attributed to some cause other than serum, probably to improved nursing, the introduction of which into Charity Hospital was coincident with the coming of serum treatment. It should be mentioned here that in giving the mortality by years and decades, all cases discharged have been contrasted with all cases that died, without considering that some of those discharged afterward died, and without making allowances for the fact that some of those discharged may not have been cases of tetanus, their stay having been too short to permit of accurate diagnosis. Both these sources of error tend to make the mortality less than it would be if they were eliminated.

Following is a presentation of the cases that developed tetanus although they had received serum before the disease was recognized:—

	History	
	Number.	Serum.
	58.....	5 days after injury, just before onset. <i>Cured.</i>
	101.....	44 days before onset (had suppuration all this time in arm-stump) <i>Died.</i>
Adults	126.....	5 days after injury, 8 days before onset. <i>Died.</i>
	128.....	Died under anesthetic immediately after receiving an intravenous injection of serum.
	135.....	72 days before onset (had necrosis of metatarsals with suppuration). <i>Cured.</i>
	158.....	8 days after injury, 5 before onset. <i>Cured.</i>
	165.....	<i>Improved.</i>
	11.....	<i>Died.</i>
Children	54.....	Serum: 5 days after injury, 2 days be- fore onset. <i>Cured.</i>
	125.....	Serum: 7 weeks before onset. <i>Died.</i>
	161.....	<i>Cured.</i>

Of these 11 cases, 4 died, giving a mortality of 3.3% only.

In 4 cases the preventive dose was given late, from 5 to 8 days after injury was inflicted.

In 2 cases the preventive dose was given at the time of injury, but in one of them suppuration in an arm-stump continued 44 days before onset; in another there was metatarsal necrosis with suppuration for 72 days before onset. Experience has shown that in cases presenting likelihood of tetanus infection, the preventive dose should be repeated after 10 days of suppuration continues. This precaution is very generally neglected by surgeons in Charity Hospital, the writers not excepted.

In case 128 (adult) death immediately after the intravenous administration of serum, may have been due to anaphylaxis. The period of incubation was 14 days.

In 10 years, among 303 authentic cases of tetanus, there were 11 in which a preventive dose of serum had been given. Of these we may eliminate 4 in which the dose was given late, and 2 in which it should have been repeated because of the continued danger of tetanus, suppuration keeping up the conditions of a possible latent infection of this kind. This leaves 5 unexplained cases of tetanus following preventive doses in the course of 10 years, or one case to two years.

We call attention to the fact that though serum did not prevent tetanus in these cases, it appears to have lessened the intensity of the disease as the mortality for the series was 3.3%.

Assuming that all the cases returned to Charity Hospital for treatment, and taking into consideration the large number of punctured, lacerated and gunshot wounds treated annually in the accident service, it seems clear that the preventive use of anti-tetanic serum has established fully its claim to recognition. This experience and the steadily increasing number of cases of tetanus coming in for treatment, leads us to urge that a campaign of education be initiated among the less well-informed classes of our population in order that the mortality from this preventable disease may be reduced to the vanishing point.

Too often the injured of these classes content themselves with the use of bacon fat, turpentine and cockroach poultices for punctured wounds, when a preventive dose of serum would insure safety and prevent the pain, disability and loss of life consequent on the neglect of this precaution.

We come next to a study of the comparative mortality of cases of tetanus under different methods of treatment:

Carbolic Acid—No cases.

Serum given hypodermatically (78 cases): Adults—26 deaths, 7 recoveries; mortality 78.7%. Children—28 deaths, 7 recoveries; mortality, 62.2%.

Serum given intravenously, intraneurally, intraspinally, intramuscularly, or by combinations of these methods (40 cases): Adults—21 deaths, 6 recoveries; mortality, 77.7%. Children—8 deaths, 5 recoveries; mortality, 61.5%.

Sedatives only, excluding chloretone (86 cases): Adults—32 deaths, 9 recoveries; mortality, 78.0%. Children—33 deaths, 12 recoveries; mortality, 73.3%.

Sedatives only, including chloretone (79 cases): Adults—31 deaths, 14 recoveries; mortality, 68.8%. Children—21 deaths, 13 recoveries; mortality, 61.7%.

Magnesium sulphate, given hypodermatically, except 2, intraspinally (20 cases): Adults, 8 deaths, 3 recoveries; mortality, 72.7%. Children—6 deaths, 3 recoveries; mortality, 66.6%.

Total—214 deaths + 89 recoveries=303 authentic cases.

Eliminated—Tetanus neonatorum, 20; incomplete data, 28. Total histories studied, 351.

The most positive statement that can be made from these figures is that the mortality for children under every method of treatment is distinctly lower than that of adults.

For the latter the mortality was lowest for treatment by sedatives only, including chloretone, after which followed in order magnesium sulphate, serum given by other routes than the subcutaneous, sedatives only, excluding chloretone, and serum given hypodermatically; the range was from 68.8% to 78.7%.

Cases in which chloretone was used were grouped separately in order to determine the value of this drug, for which strong claims are sometimes made. According to the figures here stated, the use of chloretone was followed by better results than that of other sedatives, in fact by the best results obtained among adults under any one method of treatment. We draw no final conclusion, believing that further study of better recorded cases is necessary for this purpose.

tetanus has not progressed as it should, and that a determined effort must be made to improve our results in this disease. With this end in view we must aim to get cases earlier. Many cases die, though treated promptly when trismus develops; a large proportion of these give a history of pain and stiffness in the neck, back and extremities for 2 or 3 days or even longer before treatment was begun. To obviate this the laity must be warned to apply for treatment when pain and stiffness follow the kind of injury likely to be followed by tetanus. The use of serum has been disappointing, yet it would be unwise to discard it hastily. The writers have seen individual cases improve so promptly after its use in the larger doses, especially when given by the routes other than the subcutaneous, that they think this plan of treatment deserving of more extended trial. Indeed it may be said that the treatment of tetanus is still a wide open question.

Our final conclusions are these:

1. The preventive use of serum is to be insisted on as a measure of proven value.
2. Cases of tetanus should be recorded with greater accuracy, noting especially whether a preventive dose was given, the period of incubation, the duration of symptoms and the fullest details of treatment with special regard to quantity of various medicines and the method of employment.
3. Pending the acquisition of more experience with the newer methods of treatment care should be taken to afford tetanus sufferers the most careful nursing and the most complete isolation from disturbing factors.

This report would not be complete without acknowledgment of thanks due Dr. G. Farrar Patton, Registrar of the Hospital, without whose efficient management of the records our review could not have been made.

CERTAIN PHASES OF SYPHILIS IN THE NEGRO FEMALE FROM THE STANDPOINT OF MEDICAL DIAGNOSIS.*

By S. CHAILLE JAMISON, M. D., Instructor in Medicine, Tulane College of Medicine, New Orleans.

The observations embodied in this paper are based on the cases of syphilis diagnosed in the examination of 1000 consecutive medical cases seen between June 1, 1915, and January 1, 1916, in my clinics at the Charity Hospital.

There were 166 cases diagnosed as syphilis, or 16.6%. I was surprised at this small number, but find, that if a very strict analysis were made of certain of the cases, the diagnosis might be open to some question, and, therefore, if the figures given err, it is on the side of the fewer cases. We frequently hear the loose statement among doctors that there is 60% or more of syphilis among the negro population. From the standpoint of internal medicine, this is entirely unfounded so far as the negro female is concerned. On the other hand, syphilis, in point of number, heads the list of diseases in these 1000 cases, there being three times as many cases of syphilis as of tuberculosis, which is next in point of numbers, and over twenty times as much syphilis as malaria.

The diagnosis of syphilis in the negro female is not easy. Anyone who has dealt with the negro knows that the history given is so unreliable as to be practically worthless. The female of the race will seldom give a history of the chancre; usually, I believe, because she does not know that she has had such a lesion. Although 25 per cent. of these cases have had vaginal examination, it has been very rarely that the chancre, or its scar has been demonstrated.

I have been surprised by the rarity of skin lesions in these cases. Such lesions are common enough in the mulatto, but it is my impression that the blacks are rather exempt from the skin lesions, and that it is not altogether a question of the color merely disguising the lesion. On the other hand, mucous patches are common, and of great value in diagnosis, especially as the *Treponema pallidum* can so frequently and easily be demonstrated in such lesions.

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Gummas, especially of the periosteum, have been fairly common and need no comment.

The chronic joint lesions have especially interested me, and I have learnt, when the skiagraph of these chronic joints is negative, that they yield, nearly always, to specific treatment. Certainly the incidence of syphilitic arthritis in "chronic rheumatism" is very high among the negro females.

Pain, worst at night, is easily the most common symptom that these cases have presented. I believe that the most characteristic type is that in which the patient merely complains of vague "misery" all over the body. It is more common than the nocturnal headache or "joint pains." In the face of a negative physical examination, such cases are too frequently called "neurasthenia," when the serum test will frequently clear them up.

The history of repeated miscarriages, with negative pelvic examination, is exceedingly common and significant, although it must be borne in mind that abortion is an almost universal practice in this race. I have found that these women are usually very frank on this question and that abortion is looked upon more as a fashion than a crime.

The serum reactions have been performed 81 times on the 166 cases diagnosed as syphilis; it was positive 65 times and negative 16 times. This is about the usually accepted eighty per cent. of positive Wassermanns in cases of syphilis. The routine performance of the test in 100 cases did not alter our percentage. I believe that the serum reactions should be performed on every medical case in which there is a reasonable suspicion of syphilis; that no diagnosis of medical syphilis is complete without such tests; that the man who attempts to diagnose syphilis by serum tests alone is certain to fall into enormous error. A positive serum reaction is of great value; a negative reaction may be of no significance.

Of the sequelæ of syphilis: In this 1000 cases we have been unable to diagnose a single case of aneurysm, and believe that it is rare in the negro female, though its prevalence in the negro male is so great. Again, in contra-distinction to the male, there have been only two cases of aortic regurgitation; there have been two cases of tabes and one of paresis.

**REPORT OF A CASE OF POLYMAZIA, WITH
COMMENTS.***

By J. A. STORCK, M. Ph., M. D., New Orleans.

Professor of Diseases of the Digestive System, Graduate School of Medicine, Tulane University of Louisiana; Visiting Physician of the Charity Hospital, New Orleans.

The physician's observation, while broad and varied, is, for the most part, extended over cases which are embraced in routine practice; but occasionally added interest attaches to some phenomenon presenting itself as quite out of the ordinary. Such has recently been my experience in regard to the case which I consider sufficiently interesting to report to you this evening.

The case in point is the second of its kind which I have seen since I began practice in 1893, the first being that of a mulatress who presented a rudimentary nipple and gland in the left axilla. She came under my observation about fifteen years ago, during my service in the negro female clinic at the Charity Hospital. She stated that a few drops of a whitish substance (milk) was secreted from this gland during the entire period of lactation while nursing two children.

The second case came under my notice recently in my service in the Charity Hospital Out Clinic. It was seen by Dr. Caroline Mims, also by Drs. C. J. Miller, H. W. Kostmayer, and various members of the New Orleans Polyclinic class, attendant on my service during the patient's several visits.

I take it that a short historical sketch of polymazia will not be amiss. A number of interesting facts bearing on this subject are to be found in the "Anomalies and Curiosities of Medicine," by Gould and Pyle.

Polymazia must have been known in very ancient times, since it enters into the mythological conception of Diana. There are images of this goddess in which she is represented with numerous breasts, indicating her ability to provide sustenance for the growing child.

The earliest reference given is that of Julia, mother of Alexander Severus, one of the early Roman emperors. She lived in the third century A. D., and was surnamed Mamma because she had supernumerary breasts.

Anne Boleyn, the unfortunate wife of Henry VIII (rather,

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one of his numerous unfortunate wives), was reputed to have had six toes, six fingers and three breasts. Imagine this noted woman, leading in the court revels and figuring as a great beauty, when she was really abnormal to a marked degree.

Lynceus states that in his time there existed a Roman woman with four mammæ, very beautiful in contour, arranged regularly in two lines one above the other, and all giving milk in abundance.

In the realm of art, Rubens saw fit, from interest or curiosity, to depict a woman with four breasts, and this painting may be seen in the Louvre in Paris.

So much for celebrated cases of polymazia. Why does it exist is a subject of interesting speculation. Leichtenstern, who collected seventy cases of polymazia in females and twenty-two in males, thinks that accessory breasts or nipples are due to atavism, and that our lower organized remote ancestors had many breasts. However, by constantly bearing but one child, females gradually become bimastic instead of polymastic.

Some of the older philosophers contended that the presence of two breasts in woman denoted that she was originally intended to bear two children at once.

In regard to frequency according to Hirst, Bruce and other observers, supernumerary breasts and nipples are more common than is generally supposed. While this may be true in the observations made by these men, from my own personal experience, also that of the confreres to whom I have spoken, the condition seems to be rare in this community.

The observers above mentioned agree that the anomaly is about twice as frequent in men as in women. Instances are sometimes met in boys in whom a small amount of milk is secreted; and one case at least is recorded of a man who suckled a child. The condition of polymazia has been found in all races and is often hereditary. Owen noted it in the ourang, and various observers have found it in other animals.

As to position, the condition of polymasty has been found in various parts of the body. The most frequent place is on the pectoral surface below the true mammæ and somewhat nearer the middle line; but accessory glands have been observed over the prominence of the deltoid, on the abdominal surface below the costal cartilage; above the umbilicus; in the axilla; in the

groin; on the dorsal surface; on the labium majus, and on the outer aspect of the left thigh. Alfield explains the presence of mammae on odd parts of the body by the theory that portions of the embryonal material entering into the composition of the mammary gland are carried to and implanted upon any portion of the exterior of the body by means of the amnion.

The case which I wish to report is that of Mrs. E. B., a native of Louisiana, and twenty-one years old. She has two children, and had one miscarriage at the age of fifteen. Her greatest weight was 145 pounds, her weight in February, 1916, was 112 pounds. She gave the following history. Her mother told her that at the age of two years a mole situated about the middle of the right eye-brow began a periodic bleeding at twenty-eight day intervals. This continued until regular normal menstruation began at the age of 11 years.



On inspection, two fairly well-defined mammae and nipples were observed above the regular mammae, near the axillary region. She stated that, during three pregnancies, milk in abundance flowed from the nipples, causing such discomfort as to necessitate bandaging by the attendant physician. No other member of her family, so far as she knows, has had similar anomalies.

In the present instance she applied for treatment for periodical vomiting, and also complained of being nervous. The treatment instituted has no bearing on this report. The woman has discontinued her visits to my clinic.

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THE UNIQUE CLINICAL HISTORY OF THE COLLEGE OF MEDICINE OF TULANE UNIVERSITY OF LOUISIANA.*

By JOSEPH HOLT, M. D., New Orleans.

During the recent most instructive and enjoyable session of the Louisiana State Medical Society, I was inspired by reminiscent suggestion to prepare a synoptical statement of the most interesting and important clinical study that has come within the range of my professional observation. A case having a logical sequence of events, profoundly affecting every one of you, from the Dean of the Faculty to the latest matriculate, extending to its graduates throughout the State and elsewhere; and yet, never to my knowledge, has this case been presented in its anomalous symptomatology, from its etiological beginning, through its incubative and violently eruptive stages, reaching a climax in an alarming crisis, resolving in happy convalescence, with acquired immunity as a perpetual guarantee for the future. The attack terrified the patient with forebodings of imminent disaster.

By right of seniority, as active Dean of the medical profession of this city and State, it becomes my duty to make known in a coherent, brief recital an outline of occurrence, representing a body of facts, voluminous in detail, not essential to the main understanding of this unusual and momentous case, an accurate account of which has never been in print. Favoring circumstances threw me into an intimate relation, as an early matriculate in the "New School," with many ties of close personal friendship in the "Old School," bringing me into an inside

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knowledge of rare clinical opportunity. Here is briefly the history condensed in allegory:—

Born of the State Legislature in 1834. Female. White. Christened, Medical College of Louisiana. Again baptized, Medical Department of the University of Louisiana, 1847. Successfully vaccinated, 1856. Married into the family of Tulane University, 1884, assuming the title of College of Medicine of Tulane University of Louisiana in 1913.

In childhood and early life she was raised in the *dolce far niente* and luxurious habits of the Old South, with rich plantations all around her, and mistress of this whole lower region of the Mississippi, including Texas, Arkansas, Tennessee, Louisiana, Mississippi, Alabama, with an attractive influence in Georgia, Florida and the Carolinas.

Life was a realized dream of assured contentment, with a prospective tenure, unassailable and unbounded: "And she said to her soul, soul thou hast much goods laid up for many years, take thine ease, eat, drink and be merry"—'This vast territory belongs to thee without possible competition.' And true! for the nearest medical center of instruction, to be reached in modern equivalents of speed, projected on the schedule of a cannon ball express as the unit of time, gives approximately 4000 miles to St. Louis, Louisville or Cincinnati; to Philadelphia, 8000 miles; to New York or Harvard, 9000, and 9800 respectively—a long way off. Chicago, unimportant and not considered. Likewise, San Francisco, whose time distance over plains or across the Isthmus, via Aspinwall, was 54,000 miles.

Feeling absolutely secure in the protecting isolation of a monopoly, that satisfied ambition in the contemplation of her own aristocratic pre-eminence, her labors were recreative, in the restful assurance of a pre-emptor's claim in perpetuity.

She made no reckoning of a raid, and a sudden declaration of "Squatter's Sovereignty," within this sacrosanct precinct of her domain; presently to be enforced by an equipped, a bold and irrepressible band of aspiring, young chivalry; nurtured and trained in her own household. An irreverent crew, allured abroad by the fascinations of an imperious ambition to achieve; in due time returning, with the prestige of Paris, London, Edinburgh and other of the world's greatest schools of medicine.

The State Legislature, a worldly body, was promptly assailed

by the young adventurers, on claims of equal rights and privileges: counter-assailed by a tremendous opposition, urging and fighting desperately for assumed vested rights; demanding protection from ruinous and outrageous innovators.

All swore like the army in Flanders, or Lee's Army in Virginia, the attainable limit.

The social status was fairly well preserved in a cordial interchange of deadly looks, an illy disguised forbearance, compelled by the repressive usages of society; while the town reeked with mutual expressions of hyphenated regard, of high electrical potential, mostly profane.

In a few collatera! involvements, the derringer and ready tranter were heard in major tones, with an occasional knife display of the spirit of the times among gentlemen.

Did I not tell you of these things as a living witness, there would soon be "A Lost Chord" in the harmonies of our profession. It was an exhilarating period of psychic exaltation; and the younger claims were conceded.

Straightway and with masterful audacity, an elaborate and commodious college building, with all the then modern appointments, was erected opposite the front gateway of the Charity Hospital; equal privileges accorded in that institution; able teachers from abroad added to both faculties; and the sharp rivalry of merit instituted, pressing in achievement, to fortune and to fame.

So much for a desperate attack, induced by hypothetic auto-genesis of germs, as virulent as *S. cholerae Asiaticae*, or *B. pestis*; moving on through a dangerous crisis, into a convalescence of acquired immunity maintained by defensive antibodies; not long since severely tested as to protective resistance.

The eventuation of this pestilent attack, immediate and remote, was startling at the time and is operative in enlarging scope to-day. Matriculation in the Medical Department of the University of Louisiana, had increased from 11 to 223 in twenty-two years, 1856, when the competition began. Five years later, under the struggle of rivalry, it had increased to 404, when the Civil War closed the schools. It was drawing students from all the Southern States, Mexico, Central and South America and the West Indies.

Its faculty, pressed by the necessity of enforced action,

aroused with prodigious energy to its vastly extending responsibilities; while the New Orleans School of Medicine, organized in 1856, sparing neither labor nor expense in improving methods of instruction, through individual attention and thorough equipment for demonstration, presently touched the 250 mark of matriculates.

New Orleans, under the creative stimulus of competition, soon found herself a large and growing center of medical education, of diagnostic consultation with treatment, and of operative relief.

Then came four years of Civil War; after which both institutions resumed their duties, amicably, with equal privileges and growing attendance.

The American Medical Directory, tells us, with unfeeling brevity, almost brutal: "New Orleans School of Medicine. Organized, 1856—Extinct, 1870"—a healthy, flourishing institution, stricken with deadly vibrios of dissension, self-cultured in the hearts of the elder faculty, resigned:—she sank to sudden death, scarcely distinguishable from suicide.

For a period of eighteen years after the war, communication continued slow and distances relatively great; hence a lapse into slow ways from lack of competition; but with building of railroads and increasing facility of travel, distances rapidly diminished under the inauguration of the cannon-ball-express units of time and space. Other great centers came into close proximity in the field of competition with the now, Medical College of Tulane University of Louisiana; and the struggle of rivalry soon drove the matriculation above the 425 mark.

So much for quantity, and now for quality, through progressive methods, originally initiated by inoculation with the virus of innovation; followed by the severe illness, that totally changed her constitutional disposition, as here before mentioned.

This change and the steady movement to higher standards, was conspicuously manifest in the brightly intelligent and clear cut appearance of alert efficiency, characterizing the entire personnel of the State Medical Society, here in annual convention, a few days since.

No longer a vestige of the heavy-headed, unkempt, and often alcoholic illiterate, sadly evident in earlier days; but the pleas-

ant, deeply thoughtful face of the trained and cultured physician and gentleman.

In this clinical history, we are taught that to struggle is to have life, and to have it more abundantly. It suggests to us, that there is room in universal space for every star, of whatever magnitude; and that they are all balanced in their orbits by the push and pull of universal opposition: The order of creation.

We see that every great institution, like the sun, carries within itself, potentially the stored energy of its radiant power in perpetual renewal, self-existing.

And, finally, in the specific virulence of this case and altered trend of its life-history, we see wisdom shaping the destiny of the Medical College of Tulane University; so that to-day, from "the doleful, trist and plangorous" episode bristling with an eruption of rude innovation, that grievously afflicted her patrician sensibilities, she has survived in health and strength, to pluck the flower of efficient greatness.

A RESUME OF OUR PRESENT KNOWLEDGE OF THE FUNCTIONS OF MENSTRUATION WITH REFERENCE TO THE INTERNAL SECRE- TION.*

By MILTON A. SHLENKER, M. D.

Professor Clinical Gynecology, New Orleans Post-Graduate School of Medicine;
Attending Gynecologist Charity Hospital; Assistant Gynecologist Touro
Infirmary.

Prior to 1865 we were without any scientific knowledge regarding the function of menstruation. It was Pflueger who promulgated the theory that the flow was produced as the result of a reflex stimulation resulting from a growing Graafian follicle, thereby causing a pressure on the nerves of the ovary. This theory was contradicted by Léopold and others, who proved by the removal of the ovaries that both processes were not necessarily synchronous and that both the function of ovulation and menstruation would occur independently.

McIlroy states that the correlation between menstruation and ovulation is unknown and that the menstrual discharge is an evidence of metabolic processes by means of which some unknown chemical substances are eliminated.

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Kundrat and Engleman were the first to observe and record their observations of a systematic study of the anatomic changes that occurred in the menstruating uterus. They studied the endometrium of a uterus removed from a cadaver, and concluded that there was a fatty degeneration of the mucous membrane, with an exfoliation of the superficial epithelium. Leopold, Wyder, Minot and others agreed with Kundrat and Engleman that a certain amount of the endometrium was cast off, and stated further that there was also a fatty degeneration of the walls of the blood vessels which permitted an easy outlet to the flow of the blood contained therein.

Leopold recognized later that the observations of Kundrat and Engleman were at fault, and stated that the change observed by them was the result of an infective process or some wasting disease that might have been the original cause of death.

Leopold and Wyder claim that the fatty degeneration observed in the blood vessels was as a rule secondary to mal-nutrition.

Moericke in 1862 made a systematic study of the normal menstruating uterus. His material was obtained from the curettings of the endometrium, thus obviating the changes that were possibly coincident to disease.

He found in the 45 cases he studied that the surface epithelium was always intact. This was the first move in the right direction for the proper study of the normal endometrium, which was followed by Gebhart of Berlin, who went further into the subject and studied not only the scrapings, but also sections of the uterus, not involving the endometrium, during the menstrual period. To both Moericke and Gebhart credit is due for the correction of the erroneous idea, that the endometrium was entirely cast off during the menstrual period to be subsequently regenerated.

Gebhart speaks of premenstrual congestion with formation of a subepithelium hematoma, followed by a period where there is a bursting of the blood through the epithelium, and finally by post-menstrual absorption of the clot.

To Hitchman and Adler's efforts is due our present knowledge of the histological changes in the uterine mucosa during the various cycles of menstruation. In their review of the subject, they remark that "since Nylander discovered the cilia of the

uterine epithelium no further facts concerning the structure of the uterine mucosa had become known.

Hitchman and Adler for their investigation employed only the mucous membranes of uteri obtained by operation from the living subject of a definitely known menstrual term, concluding that this was the only possible way of determining the exact changes as they should occur. The parts were secured from the various sections of the uterus, concluding that the changes do not occur uniformly in the whole uterus at the same time.

Normal endometrium was secured from the subject during plastic operations. They also undertook parallel study of inflammatory conditions existing, at the same time, and found that as long as normal menstruation existed there was no interference with the regularity of the mucous membrane. This they found also to apply to myomata and ovarian tumors.

For a fuller comprehension of this important and interesting subject it is well to take into consideration a description of the normal uterus with its gross and microscopical anatomy in order that we may secure a clearer conception of the different physiologic cycles. The uterus early in life becomes differentiated into three parts, remains so throughout its existence, the various portions differing at different stages of life, namely, infancy, puberty, maturity, and menopause. Briefly stated we may say that it is divided into a body and a cervix, each portion possessing somewhat different histological elements. (The description herewith given refers to sexually mature uteri.)

The line division between the body and the cervix is arbitrarily given as the internal os, the narrowest portion of the uterine body. The body is again divided into the fundus uteri or that portion above the insertion of the Fallopian tubes, while the body of the uterus is that portion which lies between the insertion of the Fallopian tubes and the internal os. The cervix likewise is divided into two portions; first, that portion which lies between the pelvic cavity above the insertion of the vaginal vault, known as the supra-vaginal portion, and second that portion which lies within the vagina, the infra-vaginal cervix or portio-vaginalis.

Regarding its structure, it is a hollow organ composed of unstriped muscular fibers. These muscular fibers are distributed irregularly and may be roughly divided into (Syzomicz), a longi-

tudinal layer (*stratum mucosa*), and second, circular layers which are closely associated with blood vessels and known as *stratum vasculare*. The third and outer layer run both circularly and longitudinally, known as *supra-vasculare*, the middle or circular layer being decidedly the thickest. The arteries and veins divide principally in the *stratum vasculare* and send branches to the mucosa and capillary networks to the glands. Veins form plexuses in the deep mucosa and then pass to the *stratum-vasculare* where other plexuses are formed. Omission is intentionally made of the vascular, as well as the lymphatic supply.

The endometrium in its normal state rests directly upon the muscular layer of the uterus. It has a soft velvety feeling and is of a reddish yellow color. Throughout its surface there are microscopic openings, varying in size from a pen to a pin point, representing the orifices of the ducts of the gland. It is one to two m.m. in thickness and is firmly adherent to the uterine muscle from which it can be sharply differentiated.

The epithelium which invests the surface of the mucous membrane is of the cubical type, being broad, short and ciliated with a nucleus which is oval and granular filling almost entirely the cell. The nucleus stains very dark. This form of epithelium is distributed over the entire uterus. In order to gain a greater secreting surface the epithelium dips down into the depths of the mucosa. These invaginations give rise to the so-called uterine glands, which are of the tubular type. They usually run parallel to one another and near the surface and have a constricted portion known as the neck of the gland.

The stroma is a delicate retiform framework containing cellular elements and convey the lymph and blood vessels. These stroma cells which are round, contain a well stained nucleus which almost fills the entire cell. While we pass deeper into the stroma layer, these cells become more or less oval, due to pressure and at the base of the membrane they become flat or spindle shaped having an oval nucleus. They can also be differentiated into three distinct layers containing the different forms of cells.

The cervical mucous membrane, which begins at the internal os, shows the following transitions into the epithelium. The cells are more or less columnar in type, are ciliated, having a round nucleus which is basal. The epithelium covering the vagi-

nal portion of the cervix is of a flat squamous type. The mucosa of the cervix is thicker than that of the body and is thrown into folds.

With this picture of a normally mature uterine mucous membrane we are now in a position to understand and note the change that occurs during the various cycles of menstruation which Hitchman and Adler have designated as follows:

Premenstrual period, duration.....	6 to 7 days
Menstrual period, duration.....	3 to 5 days
Post menstrual period, duration....	5 to 7 days
Interval period, duration.....	15 to 18 days

During the premenstrual period (which is of 6 to 7 days duration) the following transition has taken place. We observe now that the mucous membrane is decidedly hypertrophied, and about 1 c. m. in depth, showing a marked contrast with that of the postmenstrual period when the mucous membrane is about 1 m. m. thick. There is also to be observed a marked congestion of the M. M. with the vessels greatly dilated. There is a decided hyperemia of the entire membrane, with a marked transudation of serum from the blood vessels, and secretions from the uterine glands producing an edema of the tissues and a loosening of the cellular elements of the stroma. There are to be seen slight elevations of the superficial epithelium, due to a diapedesis from the vessels, producing the so-called hematoma of Gebhart, by whom this phenomenon was first described.

The glands are hypertrophied, tortuous or corkscrew in shape, and filled with a tenacious secretion. The stroma cells too, have taken on a new aspect—they are enlarged and those in the deeper which were noted to be spindle shaped have become well rounded due to the distention by increased amount of protoplasm contained therein. These cells now have the appearance of the decidual cells of pregnancy, and the glands also resemble those of pregnancy.

The menstruating mucous membrane presents all the phenomena observed in the premenstrual period with additional changes. We note the hematomas previously mentioned begin now to show extravasations of blood, which, of course, follows the line of least resistance and is discharged into the uterine

cavity. This material, together with exfoliated epithelium, serum and mucus is cast off, forming the products of the menstrual molimen. It is to be understood that these processes are not abrupt, but progressive, beginning usually in the fundus. The discharge is scant on the first day, gradually increasing until it reaches its height, and then it retrogrades until there is a cessation of the secretion, inducing now a picture of the postmenstrual mucous membrane. Keller in speaking of the causative factors producing the flow of blood during menstruation claims to have observed hyaline changes in the middle coats of the small arteries and the endothelium increases in size. The larger arteries near the muscle do not show these changes.

The post menstrual mucosa presents a striking contrast. The membrane which we saw in the previous period a centimeter in depth is now reduced in size to about 1 m. m. in thickness. The glands which we saw previously distended with secretion and tortuous in shape are now collapsed and narrow. The reticulum with its stroma cells have resumed their original shape and size and there is some pigmentation of the tissues remaining from the blood expelled.

The next change to be observed is that of the interval period which usually consumes from 15 to 18 days. Here we will observe a beginning activity which is evidenced by the following change of the mucous membrane; the stroma cells begin to enlarge, and the protoplasm increases: the glands begin to become active and secrete. There is a beginning hyperemia of the tissues with an increased blood supply to the parts.

These processes are gradual and progressive until it returns to the end of the next cycle.

Now that we have considered the histological changes concerned during the various cycles of menstruation, it should be interesting to indulge in the various theories concerning the production of this important physiologic phenomenon.

Undoubtedly the entire endocrinous system is concerned in the elaboration of various hormones, which act either alone or individually upon the various organs of generation, thereby influencing and controlling this important physiologic act.

It was Born who first arrived at the conclusion that the act of menstruation was governed by the corpus luteum of the ovary. He regarded the corpus luteum as a gland producing an internal

secretion which aided in the embedding and subsequent development of the ovum, and his results were verified by Frankel's experimental observation. Frankel concluded that the uterus having its own circulation was not dependent upon the corpus luteum for its nutrition, but without it, it cannot impart the life energy necessary to induce an hyperemia, which if the ovum is fertilized goes to a further phase of development, or if unfertilized results in menstruation.

Sometime later C. Merletti with the object in view of confirming Frankel's observation, remarks: "It must be admitted that in every ovary there is a nerve center which acts as a trophic and peristaltic regulator of the uterus, factors essential to the circulatory modifications which lead to a monthly loss of blood."

McIllroy, who has given this important subject a great deal of study, concludes that the ovary has a dual function; that of ovulation and that of the production of an internal secretion.

More recently F. Cohn published a most interesting article in which he states among other things that "our present knowledge of the subject of the internal secretion is bound up chiefly in the activities of the corpus luteum. The latter supplies a principle which presides over the growth of the genitals and precipitates menstruation. He further states that the stroma cells of the ovary also produce a hormone which protects the secondary sexual characteristics.

It has been shown by Calzolari that the ovaries are in a direct relation to the other so called organs of internal secretion as proven by castration producing an hypertrophy of the thymus. The role that thymus plays in its relation to secretion is that it is supposed to regulate and control the calcium metabolism.

The ovaries or their hormones not only have a prevailing influence on the function of menstruation, but they also directly influence pregnancy. It has been shown by Frankel that the destruction of the corpus luteum prevented pregnancy, and further that it would cause a disappearance of the ovum in the early months of gestation. The action is most profound in the early months of conception, say the first three months, while in the later months of pregnancy it is not in any way interrupted.

Weyermeersch investigated a cause for this action (referring to the destruction of the corpus luteum) and concluded that this condition was due to the fact that there was a constriction of the

uterine vessels and contraction of the uterine muscles, which prevented a complete circulation of the blood through that organ.

The exact relation of the hormone elaborated by the posterior lobe of the pituitary body in its relation to menstruation has not been fully concluded. We do know from clinical experience, that the injection of the pituitary extract into the body has a pronounced effect on the unstriated muscular fibers, with a particular predilection for those of the uterus, which undoubtedly have a decided influence in the expulsion of blood during menstruation. A further demonstration of its action is experienced during parturition, as you are well aware that the injection of even small doses of the pituitary extract produces tonic contractions of the uterine muscles, thereby facilitating the expulsion of the contents of the uterus.

Associated with the various diseases of the pituitary body, I wish to call your attention to those conditions of hypopituitarism which manifest themselves clinically by amenorrhea and obesity. The condition known as *adiposa dolorosa* which occurs most frequently in women, is attributed by some authorities as a disease resulting from an hypo-oophorism which in turn produces a hypo-pituitarism; the resulting combination of these perverted internal secretions favor a suboxidation of fat and consequent accumulation of a large amount of fat.

It is interesting to note that in addition to the phenomena presented during the various histological changes in the organism some of the various metabolic evolutions occur during this period.

In one of his most recent studies Bell has shown that menstruation is largely dependent upon the calcium metabolism and that the periodicity of the function is in direct harmony with the same. He further states that the uterus excretes calcium directly and should the calcium content in the blood not rise in a corresponding manner the coagulability will be affected and menorrhagia will result. This investigation has a direct clinical application in the treatment of menorrhagia and the use of calcium salt in this condition is decidedly beneficial.

The thyroid is frequently referred to as a sex organ, inferring that this gland is intimately associated with the function of menstruation through one of its products of elaboration which up to the present time has not been isolated. It is a matter of com-

mon observation that in many of the lower animals such as the deer just before the rutting period there is a perceptible enlargement of this gland, and it is not unusual to see in some women prior to menstruation and pregnancy, a decided swelling of the thyroid.

Dreissen has demonstrated the presence of glycogen in the glandular elements of the uterine mucosa and that it has a direct relation to pregnancy and menstruation. He has shown that during the menstrual period these glands which are rich in glycogen, discharge their contents and after the period is no glycogen to be found.

Hertoghe in speaking of the thyroid secretion in relation to the sexual apparatus says that it superintends the growth and general development of these organs and refers to the fact that when there is an insufficiency of the secretion the uterus remains small, infantile in character, and the function manifests itself late in life. This condition is contrasted with the fact that later in life when the function is once established and a hypothyroidism occurs we have a condition of menorrhagia and metrorrhagia due to the fact that there is an infiltration of the uterine mucosa and a deficient contractibility of the uterine muscularis associated with a hemophilic condition of the blood. These conditions are amenable to treatment by the use of thyroid extract.

It is a well known clinical fact that just prior to menstruation, there is a marked hyperemia of the endometrium associated with a congestion of the pelvic viscera. This condition was studied by Iscovesco, who succeeded in isolating a lipid secreted by the ovaries which was found to be soluble in oil. This substance he tested by injecting into rabbits and later it was applied therapeutically on men. When injected into rabbits it caused an hyperemia of the uterus and adnexa with an extravasation of blood, especially when large doses were used. A similar lipid was isolated from the testicle of man by the same author. He concluded that this specific lipid of the corpus luteum increases post-partum involution, assists in lactation and lessens the nausea and vomiting of pregnancy.

In amenorrhea, Newman and Herman recorded an increasing lipid content in the blood, indicating a hypo-function of the ovary which confirms the experimental conclusion of Latzo, along the same lines. Bearing on this subject it is well to note

the influence which this internal secretion has on the organism in general, influencing the relation of various other secretions as is evidenced by the fact that during pregnancy and lactation the function of the ovaries are in abeyance as regards menstruation.

O. Frankel has indicated that during this period of hyperemia the glandular element in the uterine mucous membrane is exceedingly active and secreted a substance which is alkaline in reaction containing a tryptic ferment which possesses the ability to digest albumin in an alkaline medium. He also observed that this ferment had the power to digest living tissue where there is an existing hyperemia, and refers to the possibility that it is this ferment acting in the congested mucous membrane, that through its tryptic powers digests the superficial capillaries resulting in an outflow of the blood representing the bloody content of the menstrual secretion.

Undoubtedly there is a distinct interrelation between the secretion of the mammary glands and the menstruation. Exactly how and what the relation is has not been definitely explained. Clinically we know that in many patients just prior to menstruation the breasts become painful and engorged.

In conclusion I wish to state that I have but briefly made reference to some of the various phenomena associated with menstruation and their relation to internal organs of secretion. The subject is one of such vast importance and one of which so much experimental work has been and is being done that it would require volumes to quote all on the subject. Suffice to say that no particular organs exert any specific influence on menstruation, but that the whole organism is affected and that the ovary plays but a part of the whole.

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PYELO-URETEROGRAPHY AS AN AID IN THE DIAGNOSIS OF OBSCURE SURGICAL CONDITIONS OF THE KIDNEY AND URETER.*

By H. W. E. WALTHER, M. D.,

Assistant in Genito-Urinary Surgery, School of Medicine, Tulane University of Louisiana; Chief Urologist, Presbyterian Hospital; Visiting Genito-Urinary Surgeon, Charity Hospital, New Orleans,

Pyelography, or more correctly speaking, pyelo-ureterography, has received a great deal of attention by genito-urinary surgeons recently and many articles have appeared, chiefly in American literature, extolling its merits as a valuable adjunct in the diagnosis of obscure surgical conditions of the kidney and ureter.

The first successful attempt to render the upper urinary tract opaque to the x-rays was accomplished by Voelcker and von Lichtenberg in 1906. In attempting to outline the urinary bladder in the radiogram by filling that viscus with a solution of col-largol they accidentally discovered, in one of their plates, that the solution had entered the ureter and renal pelvis causing these structures to be outlined in the radiographic picture.

Encouraged by their discovery they injected solutions of col-largol through the ureteral catheter into the pelvis of the kidney, and were successful in producing pyelograms which gave definite information as regards position, size and shape of the kidney pelvis and its corresponding ureter. Much credit is due Braasch for having perfected as well as popularized this procedure.

The technic of making pyelo-ureterograms, briefly stated, is as follows: Having previously prepared the patient for radiography by purgation, enemas and restricting food on the day the radiograms are to be made, cystoscopy is performed in the usual manner and one or both ureters catheterized (radiographic catheters usually being used). Then by means of a hand syringe or a small burette to which a piece of rubber tubing is attached with a small canula at the distal end for attachment to the ureteral catheter, the opaque fluid is either injected or allowed to flow by gravity into the renal pelvis and ureter. The gravity method, being the least dangerous of the two, is the one that should be employed. An elevation of the burette 1 foot (which corresponds to 10 mm. Hg. pressure) is usually sufficient to permit the fluid to flow into the kidney pelvis. 2 or 3 c. c. of the solution

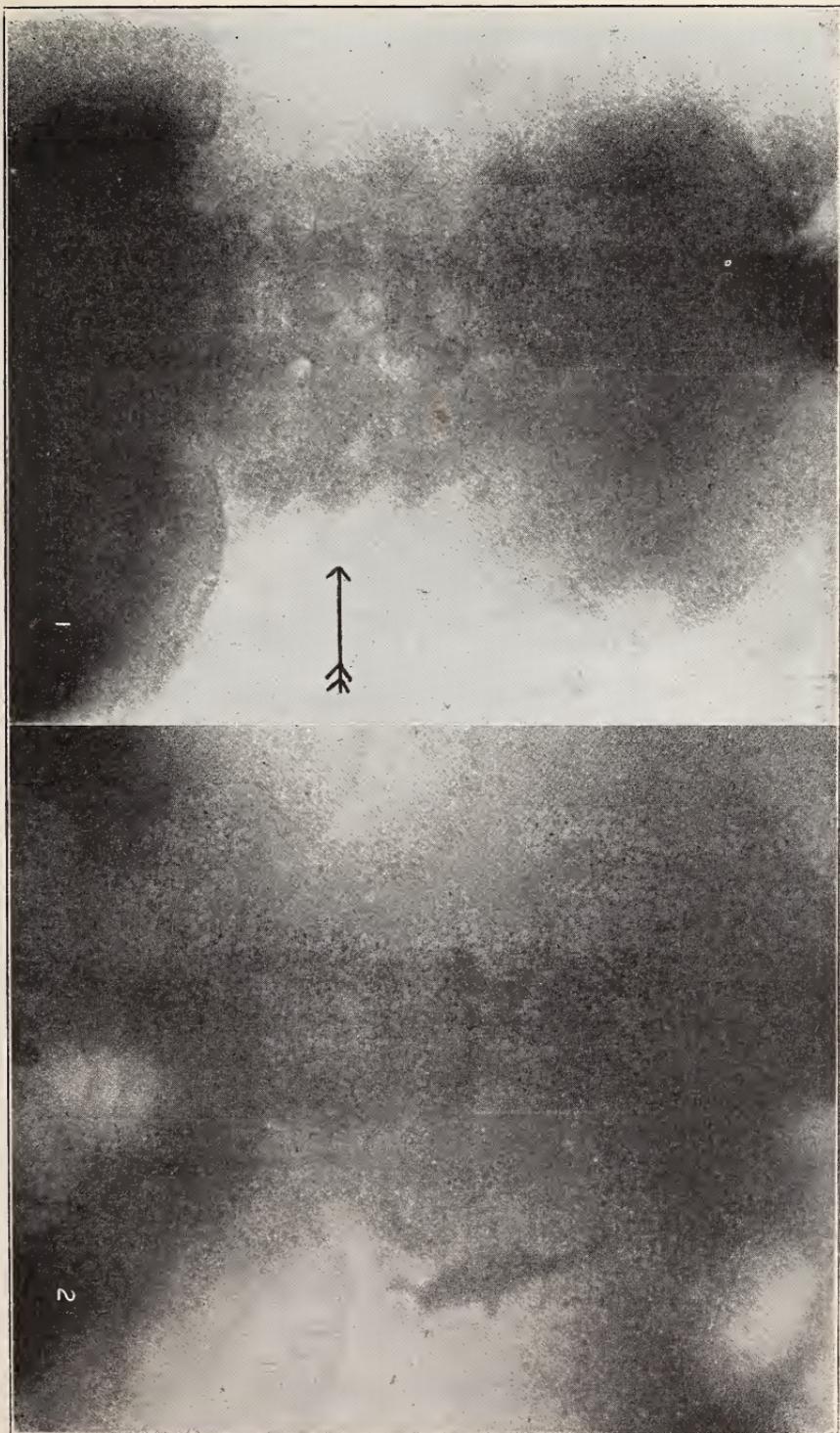
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is all that is usually required for the purpose. Immediately following the instillation of the solution, an x-ray exposure is made. The solution is then allowed to drain off through the catheter and if this does not occur promptly, it should be aspirated by means of a syringe. The removal of the opaque substance from the kidney after pyelography I consider of greatest importance if one would avoid future trouble.

These pictures should always be taken with the patient *standing* in front of the x-ray apparatus, unless specially contraindicated. The reason for taking radiograms with the patient in the erect posture should be obvious, as the chief value of pyeloureterography lies in its ability to demonstrate the position of the kidney and whether or no the urine has a free outflow. The radiogram should be made with the patient in such a position as to best bring out pathological conditons. With the patient in the recumbent position kidneys with a marked ptosis may slip back into their normal positions and ureteral kinks may thereby be straightened out.

The agents that have been commonly employed in the past for making solutions that would be opaque to the x-rays are: col-largol, cargentos, argyrol and silver iodide. When used in sufficient concentrations to produce good shadows, these silver salts are no longer in solution, but are in the form of suspensions and it should be therefore readily understood why there has been some objection to their use. Particles of the silver salt in suspension, when injected under pressure, might easily be deposited in the parenchyma of the kidney and produce foci for infection or necrosis. Then too, whereas the three first mentioned preparations are comparatively nonirritating, the same cannot be said of silver iodide. Recent experiences with silver iodide have convinced me that this preparation produces no little irritation to the kidney, even when instilled in as small amounts as 1 c. c. For these reasons I have abandoned the silver preparations for this class of work.

Burns, of the Brady Urological Institute, Baltimore, a year ago recommended neutral solutions of thorium nitrate for making pyelo-ureterograms and from my personal experience with this preparation I feel that we have at last found an agent for this work that is a perfect fluid, is nontoxic and nonirritating to the kidney. Some skill is required in the making of this



1. Case of intermittent hydronephrosis of the left kidney which is closed. Arrow points to kidney.
2. Pyelogram of a left missshapen renal pelvis, outline of calices practically lost. Notice kinks in ureter, the first an inch below the kidney pelvis, the second about 3 inches from the bladder.

thorium solution. We tried here repeatedly to make up some of the material, but could not succeed in obtaining a perfectly clear nor nonirritating solution. I am now using the thorium solution prepared by Hynson, Westcott & Co., Baltimore, with perfect satisfaction.

Now in what obscure cases may pyelo-ureterography aid in arriving at a diagnosis? In movable, wandering or floating kidney, usually spoken of as nephroptosis, with or without ureteral kink, when suspected in very obese individuals or in those in which the ordinary methods of abdominal palpation for the kidneys proves futile, pyelo-ureterography may be the only means by which a correct preoperative diagnosis can be made. By this procedure the presence of both kidneys can be definitely established. It is not impossible to have two ureters coming from a solitary kidney, as instances of this condition appear in the literature, one such case having been reported in 1911 by Mayer and Nelken of this city. Such conditions could be demonstrated clinically only by pyelo-ureterography. Renal dilations, as in hydronephrosis, can be readily recognized by the increased size of the pelvic shadow as well as by distortion in the shape of the calyces. The greater the distention, the shallower the calyces appear. These pictures are often of considerable value in identifying doubtful tumors of the abdomen. Abnormal pelvic outline or other evidences of tumor involvement of the kidney can be demonstrated in the majority of cases. The position of a dystopic or pelvic kidney, the outline of a fused or horse-shoe kidney and duplications of the renal pelvis can be graphically demonstrated. I present among the illustrations a picture of a case of bilateral congenital renal dystopia or double pelvic kidneys. I was able to make the diagnosis in this exceedingly rare condition only after pyelography had been performed.

Various conditions of ureteral dilation, due either to stricture, kink, calculus obstruction, extraneous pressure as from a pelvic tumor, or urinary retention as the result of extreme bladder retention, can be shown in ureterograms. Ureteral calculi can be differentiated from extraureteral shadows by the passage of radiographic ureteral catheters and the making of stereoscopic roentgenograms. Of the various anomalous ureteral findings, duplication of this structure either on one side or bilateral (where duplication of the ureters occurs the two ureters may en-



3. Congenital bilateral dystopic (pelvic) kidneys diagnosed by pyelography. Very rare, 18 cases only in the literature. Note cystoscope in bladder. Bar connecting kidney shadows is bladder partly filled with colargol solution.

4. Left sided ureteral obstruction (stricture) at level of fourth lumbar vertebra. Right ureter normal.

ter the bladder at different points or they may fuse just above the bladder and enter the bladder wall as one ureter); two ureters draining a solitary kidney; and crossed ureters (in which the ureter from the right kidney enters the left side of the bladder and the ureter from the left kidney enters the right side of the bladder) are the most common conditions which can be demonstrated by shadowgraph catheters and X-ray.

My experience with this procedure leads me to conclude that pyelo-ureterography, when carefully and properly performed, in selected cases, is free from danger. It is true that a number of deaths have been reported in the literature as due to pyelography, but I believe that all these fatalities were due to either faulty technique or the indiscriminate selection of cases. Where one employs the gravity method of instillation not exceeding a pressure of 30 mm. of mercury (which corresponds to an elevation of the burette 3 feet above the patient's body) and where a perfect solution, such as thorium, is used, no one with a fair amount of cystoscopic experience should have any trouble.

I wish to express my sincere thanks to my chief, Dr. Joseph Hume, and to Dr. Samuel Logan and Dr. Maurice J. Gelpi for their kindness in permitting me to use some of the pyelograms illustrated in this article. I wish also to acknowledge my indebtedness to Dr. Adolph Henriques and Dr. Amédée Granger, radiologists, for hearty co-operation in aiding me to obtain these satisfactory roentgenograms.

SCHÖNLEIN'S DISEASE.

By MONTE F. MEYER, M. D., and H. THEODORE SIMON, M. D.,
Charity Hospital, New Orleans, La.

Schönlein's disease, purpura rheumatica or peliosis rheumatica, is, according to Osler¹, the second of the group being purpura arthritic purpura; the other member of this group being purpura simplex, in which a history of previous arthritis is obtainable in patients with hemorrhagic patches under the skin; this is a distinction to Schönlein's disease, which he (Osler) terms "A remarkable affection characterized by multiple arthritis and an eruption which varies greatly in character, sometimes purpuric, more commonly associated with urticaria or erythema exudativum."

Its etiology, as that of many diseases, is in dispute, some claiming a bacterial and others a non-bacterial cause; of the former, Poynton² is one of its advocates, he having found a diplobacillus in the joints, tonsils and skin lesions of patients with this disease, but he has not fully demonstrated Koch's law. Others believe it due to staphylococcus and streptococcus as seen in cases of septicemia with secondary purpura. The advocates of the non-bacterial etiology believe it due to an anaphylactic reaction as that which causes urticaria and its allied lesions.

If we consider the bacterial etiology, we place this disease in the same category as acute rheumatic fever. This brings us to the question, "Is the arthritis primary and the purpura just an incident, or is the purpura primary and the arthritis a sequella?" Metcalfe³ in 1911 reports two cases, the one of a male adult in which the purpura appeared seven days after the onset of joint symptoms; the other of an adult female in which the skin lesions appeared suddenly with the arthritic symptoms following in 48 hours.

Stelwagon⁵ in his description of this disease says that "It is rare." In looking over the records of the Charity Hospital, we find but three cases of arthritic purpura in the ten years, from 1906 to 1915, and of these two are of the simplex variety.

The case that we report is of interest owing more to the fact that the arthritis, purpura, urticaria and angio-neurotic edema have occurred at practically the same time. A similar case was reported by Lemann⁶ in 1909, in which he stated that after extensive perusal of records, only two other cases where all the above signs occur at once have been found by him, the one by Rosenberg⁷ and the other by Don.⁸

Case: J. R., white male, age 32, was admitted to hospital April 21, 1916, complaining of swelling of legs and pains in joints.

Family History: Negative for tuberculosis, cancer and hemophilia. No one of four sisters and one brother living and well, have had rheumatism of any sort.

Past History: Has never had any illness in entire life excepting tonsillitis, which had occurred once monthly between the ages of eight and nineteen. Since, and up to the present, has had no trouble from throat.

Venereal History: Denies gonorrhoea; had soft sore and bubo at same time two years ago.

Habits: Since the age of eighteen has been a heavy drinker of a mixture of alcoholic beverages and is intoxicated most of the time. Smokes about sixty cigarettes daily and drinks about two cups of coffee.

Present Illness: For the past month has been catching crawfish, walking in the swamp water the entire day. Two weeks before admission had temperature for one day. Three days before admission felt drowsy and had general weakness in both upper and lower extremities; the next morning left knee was so painful that he could hardly walk, also noticed that it was swollen and red; that afternoon same condition of right knee; that night both wrists were similarly involved, also noticed swelling of both feet; the next morning (third day) awaked with both elbows and ankles involved and for the first time noticed that on both thighs and legs there was a "purplish colored rash." Was not aware of any "fever" at any time; has never had a chill, nor vomited. Bowels regular. For the last month has had a slight hacking cough; no night sweats. Appetite good. No sore throat. For one week has had a slight eruption on right chest which itched him.

Physical Examination: Fairly well developed and nourished white adult male. Head is negative. Eyes: Pupils equal and react to light and accommodation. Mouth: Few teeth missing; remainder are badly decayed and poorly kept. Tonsils are hypertrophied and only slightly injected. Neck is negative. Lungs: Sonorous and sibilant rales heard over both right and left. Heart rhythm is regular, no enlargement, no murmur. Abdomen is negative. Upper extremities: Tenderness and slight swelling over both wrists and elbows, redness over both wrists and a few of the interphalangeal joints. Lower extremities: Tenderness, swelling and redness over both ankles and knees. Slight edema of feet. Skin: On right chest about sixth rib in axilla extending to mid-clavicular line is a vesicular eruption most probably herpes zoster. On both thighs, buttocks and legs are variously sized, non-elevated smooth purplish macules which do not disappear on pressure.

On Admission: Temperature 99°, pulse 88, respiration 20.

Laboratory Reports: Urine: Albumen 0.5%; fine and coarse granular casts in large numbers.

Total white blood count of 10,463 per cu. mm.

Differential count: Lymphocytes 26%, endothelial leucocytes 5½%, polymorphonuclears 68½%.

Total red count of 4,200,000 per cu. m. m.

Hemoglobin 75% (Tallequist). Color index .9 plus.

Phenolsulphonephthalein Test:

1st hour	50
2nd hour	25
	—
Total	75

Sputum is negative for acid fast bacilli (two examinations).

Original Wassermann—Negative.

Tschernogubow—Negative.

Patient was immediately put on sodium salicylate gr. 50 and sodium bicarbonate gr. 60, every 4 hours (240 grs. in 24 hours).

April 22: Next morning wheals of urticaria appeared on anterior surface of left forearm; these disappeared within eight hours; no complaint of pains in joints on motion.

April 23: No tenderness on pressure over joints, no pain on motion.

April 24: P. M., felt so improved that he deserted and walked home and about city; drank two glasses of beer. That night noticed that scrotum began to swell and also slight swelling of legs.

April 25: A. M., swelling worse, became alarmed and returned to hospital in P. M. Here examination revealed edema of both eyelids, slight edema of both legs and marked edema of scrotum, which was now as large as a good sized cocoanut. Temperature 99°.

April 26: Salicylates again commenced in same dosage; edema as marked as on readmission. Adhesive strips placed between thighs and scrotum placed on shelf of adhesive.

April 27-28: No reduction of edema of scrotum—edema of legs and eyes almost completely disappeared; incision made into scrotum. Temp. 98.6°.

April 29: Slight improvement in scrotum; cold compresses of sat. sol. magnesium sulphate applied. Temp. 98.6°.

April 30: Edema reduced.

May 1: Marked reduction; scrotum almost normal sized.

May 2: A. M., scrotum of normal size; no edema. Temp. 98.6°.

May 2: P. M., temperature 100°. At first complained of pains in head and was very restless, later slight muscular twitching noticed then became maniacal.

screaming and attempting to get up from bed and had to be strapped. Fearing the condition to be uremia, patient put on active treatment of hot packs, etc., with little results.

May 3: Examination of urine showed still 0.5% albumen with casts microscopically. Still slightly maniacal; given atropin hypodermatically and symptoms disappeared; patient once more rational.

May 3 to 13: Improving gradually and practically cured.

May 17: Patient discharged as cured.

As a resume, we find that:

There is no light thrown on the etiological factor of this disease. The joint symptoms with the carious teeth and hypertrophied tonsils much resemble acute rheumatic fever, but in the entire course the temperature had never risen above 100 degrees.

The herpes zoster is no part of this condition, the purpura and urticaria are present at the same time; there is but a slight leucocytosis; the urine shows a nephritis, but the P. S. T. indicates excellent renal function.

The marked edema of the scrotum also edema of feet and eyes, with the maniacal symptoms, leads one to suspect an edema of the brain as a causative factor of the mania, this belief being further strengthened by the disappearance of symptoms with the administration of atropin. We must, however, not lose sight of the fact that this condition could have been brought on by the over-action of the salicylates.

Edema of the angio-neurotic type is one of the rare characteristics of this disease.

The treatment is absolute rest in bed until all articular symptoms disappear. Sodium salicylate is almost a specific, but should be given in large doses with sodium bicarbonate. During convalescence iron and arsenic may be given.

In conclusion we wish to thank Dr. John B. Elliott, Jr., in whose service the case was admitted, for the privilege of allowing us to report the case and for his many valuable suggestions.

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PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE THERMOGENIC REACTION OF THE BODY AGAINST INFECTION AND ITS BEARING UPON IMMUNITY.*

By D. RIVAS, Ph. D., M. D.,

Assistant Professor of Parasitology and Tropical Medicine, University of Pennsylvania.

From the Laboratory of Comparative Pathology and Tropical Medicine,
University of Pennsylvania.

In the early days of our knowledge concerning the nature of pathogenic bacteria in the production of diseases in man and animals, it was assumed that those parts of the body not connected directly or indirectly with the outside, such as the internal organs and tissues, blood, etc., under normal conditions, were sterile or free from bacteria. Recent researches, however, have demonstrated that the invasion of the body by micro-organisms is a constant phenomenon, as they normally get access to the body through the normal barriers such as the skin, mucous membrane, etc.

The presence of bacteria in the internal organs and liquids of the body could be easily proved by cultures from the blood in appropriate media, but, of course, as bacteria are found normally in very small numbers, it is usually negative, as for their detection a relatively larger amount of blood should be employed than that commonly used.

These bacteria, however, are normally destroyed by the organism, as proved by the fact that under normal conditions, in spite of their presence, the normal balance of health is maintained. Experimentally the germicidal action of normal serum may be shown in *vitro*, and it can be shown also in *vivo* that a certain number of pathogenic bacteria can be inoculated into susceptible animals without giving rise to any morbid condition, as proved by us in the following experiment:

A one week old culture of virulent anthrax bacillus on agar was suspended in sterile distilled water and heated to 70 per cent

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C. for 15 minutes to destroy the vegetative forms. The suspension was thoroughly shaken with glass beads in a test tube; a series of dilutions made in sterile water, and the material inoculated into guinea pigs. The number of spores inoculated in each animal was determined by planting 1 cc. of the material on agar before the inoculation. The result is shown in the following table:

Anthrax Bacillus.

No.	Animal	Average weight.	No. of Bact. Inoculated.	Mode of inoculation.	Result.	Remarks
1	Guinea pig	300 grm.	10	Peritoneally.	0	
2	"	300 grm.	10	"	0	
3	"	300 grm.	10	"	0	
4	"	300 grm.	100	"	0	
5	"	300 grm.	100	"	0	
6	"	300 grm.	100	"	0	
7	"	300 grm.	1,000	"	0	
8	"	300 grm.	1,000	"	0	
9	"	300 grm.	1,000	"	0	
10	"	300 grm.	10,000	"	0	
11	"	300 grm.	10,000	"	*	Died after 72 hours.
12	"	300 grm.	100,000	"	*	Died after 68 hours.
13	Control.	300 grm.	0	—	—	—

The above experiment shows that at least 10,000 *Bacillus anthracis* are required to produce a fatal infection in a guinea pig, weighing about 300 grams, and all things being equal, proportionally it would require about 2,000,000 bacilli for an adult man.

Under normal conditions, therefore, pathogenic bacteria are normally destroyed in the body and the normal balance of health is maintained, but when the resistance of the organism is lessened, or when their number is in excess of the antagonistic power of the system, the normal balance is disturbed and the phenomenon of infection or disease is manifested.

What has been said regarding bacterial infection is also applicable to pathogenic protozoa. It is beyond doubt that a certain number of *Entameba histolytica*, for instance, which escape the destructive action of the gastric fluids, may pass through the intestinal canal without giving rise to dysentery, and that in endemic districts, even some of these rhizopods may live and multiply in the large intestine, without causing any disturbance in the host. The same probably is also true of *Plasmodium malarie*, for it is conceivable that a single bite of an infected anopheles is incapable of producing malaria, unless a disproportionate number of sporozoites are inoculated at a time.

As to the pathogenic flagellates, it is not improbable also that

the bite of more than one infected tsetse fly is required to produce sleeping sickness, and the same may be said regarding other pathogenic trypanosomes, spirochætes, and treponema. The body, therefore, normally, is capable of destroying a certain number of these protozoa and only when the infection is above that number, the phenomenon of disease is manifested.

We have determined, for instance, that at least 1,000,000 *Trypanosoma Lewesi* are required to produce an infection in white rats as shown in the following tables:

Trypanosoma Lewesi.

No.	Animal.	Average weight.	No. of Tr. inoculated.	Mode of inoculation.	Result.	Remarks.
1	White rat	300 grm.	10	Intraperitoneally	0	
2	"	300 grm.	10	"	0	
3	"	300 grm.	100	"	0	
4	"	300 grm.	100	"	0	
5	"	300 grm.	1,000	"	0	
6	"	300 grm.	1,000	"	0	
7	"	300 grm.	10,000	"	0	
8	"	300 grm.	10,000	"	0	
9	"	300 grm.	100,000	"	0	
10	"	300 grm.	100,000	"	0	
11	"	300 grm.	1,000,000	"	*	6 days
12	"	300 grm.	1,000,000	"	*	4 days
13	"	300 grm.	10,000,000	"	*	48 hours
14	"	300 grm.	10,000,000	"	*	48 hours
15	Control	300 grm.	0	—	—	—

and that at least 100,000 *Trypanosoma Bruci* is the fatal dose for the same animal, as shown in the following table:

Trypanosoma Bruci.

No.	Animal.	Average weight.	No. of Tr. inoculated.	Mode of inoculation.	Result.	Remarks.
1	White rat	300 grm.	10	Intraperitoneally	0	
2	"	300 grm.	100	"	0	
3	"	300 grm.	1,000	"	0	
4	"	300 grm.	10,000	"	0	
5	"	300 grm.	10,000	"	0	
6	"	300 grm.	100,000	"	*	Died after 5 days.
7	"	300 grm.	1,000,000	"	*	Died after 48 hours.
8	"	300 grm.	10,000,000	"	*	Died after 48 hours.
9	Control	300 grm.	0	—	—	—

As to Metazoan parasites, there is no doubt that of the number of agchylositoma and trichina larvæ, for instance, which may gain entrance at a time into the intestinal canal, most of them are destroyed in the stomach and intestine, and only a small percentage succeed in adapting themselves to continue life in the small intestine, and if their number is small, they may even be incapable of giving rise to any appreciable disturbance in the body.

Finally, that the host normally is not only capable of resisting and overcoming a certain degree of invasion, but that it can also

overcome a manifested infection during the course of a disease, is well illustrated in the spontaneous cure which usually occurs in a great number of diseases. Thus, cases of typhoid fever, diphtheria, tuberculosis, relapsing fever, ascariasis, etc., when uncomplicated, not uncommonly recover without any special treatment beyond an appropriate diet and hygienic regulation.

Means of Defense of the Body.

The normal defenses of the body against infection are several, namely: (1), Mechanical; (2), Organotropic and Physico-chemical; (3), Humoral; (4), Histogenic; (5), Cytogenic; and (6), Thermogenic Phenomena.

(1) MECHANICAL: The skin and mucous membrane act as the most efficient barriers against infection. An abrasion of the skin or of the mucous membrane for instance, is essential for the entrance of *Treponema pallidum*. The peristaltic action of the intestines in severe diarrhea or violent vomiting may cause the mechanical expulsion of intestinal parasites. The larvae of hookworm are more apt to penetrate through the thinnest part of the skin of the foot, and the same reason explains why mosquitoes bite with preference the white rather than the negro, or the native in tropical countries who have a hard skin, a fact which explains also why the whites are more susceptible to yellow fever, malaria, etc.

(2) ORGANOTROPIC AND PHYSICO-CHEMICAL: The chemistry of the body or of the part has an important relation to infection. The fact that the primary focus of tuberculosis is a lymph gland or lymphoid tissue; that diphtheria affects the mucous membranes; dysentery the large intestines; malaria the blood; hookworm the duodenum; paragonomiasis the lungs, etc., and that these parasites usually perish when transplanted experimentally to other organs, than those commonly inhabited by them, is proof of the antagonistic action of certain organs and tissue to infection.

This, of course, is not a teleologic phenomenon, nor a matter of chance, but depends upon the chemistry of the part. Nevertheless, besides the chemistry, other factors, perhaps physical agencies, play an important role, and this may explain the absence of trichina embryos in the heart muscle.

(3) HUMORAL: All infections have a tendency, more or

less, to produce alterations in the body which lead to the appearance in the blood and humors of certain substances, antibodies or amboceptors, more or less defensive in nature. These anti-bodies may be in the nature of antitoxin (diphtheria); agglutinins (typhoid fever, trypanosomiasis); precipitins (hydatid cyst) etc. The action of these antibodies, in most instances, especially in protozoan, is unappreciable, but the natural disappearance of *Trypanosoma lewesi* in the rat; of *Spirochæta recurrentis* and of *Treponema pertenuæ* in man, and the resultant immunity conferred, after recovery from these infections, are examples of the antagonistic action of these antibodies.

(4) HISTOGENIC: The lodgment of a parasite in the tissues is the source of irritation which gradually gives rise to a lymphositic infiltration and finally to a hyperplasia of fibrous tissue around the parasites. Similar is the case in tuberculosis and some other bacterial diseases in which, when uncomplicated by a secondary infection, the growth of fibrous tissue surrounding the lesion may be so perfect as to constitute a distinct encapsulation. The purpose of these histogenic changes, of course, are defensive, because by restricting the infection, damage to the nearby tissue is prevented.

(5) CYTOGENICS: The cellular defense of the organism against infection is seen in the much discussed phenomenon of phagocytosis. By this is understood the property which certain cells of the body have to ingest, destroy, and digest the invading micro-organism, or modify and neutralize its action. This phenomenon is especially manifested by the endothelial cells (macrophages) and leucocytes, but almost any cell of the body, under certain conditions, may exhibit some degree of phagocytic activity.

(6) THERMOGENIC: In the same way in which birds are immune to anthrax, because their normally high temperature is detrimental to the life of anthrax bacillus, so likewise man is immune to a number of bacterial and parasitic diseases peculiar to animals of lower organization. The fact that a certain temperature is essential for the life of a given organism, explains for itself that our body temperature is favorable for the existence of pathogenic bacteria and parasites peculiar to man, but this also points to the fact that any rise in our body temperature must necessarily have also a detrimental action against them. Thus

the high temperature common to infectious diseases (typhoid, diphtheria, pneumonia, etc.) undoubtedly exerts an injurious action upon the viruses of these diseases, and in this respect it may be said that the thermogenic activity of the body acts as one of the most efficient means against infection.

The thermogenic activity of the body against infection may properly be considered under two forms, namely: The normal or physiological and the morbid thermogenic activity.

The Normal or Physiological Thermogenic Activity of the Body.

Body: By the normal or physiological thermogenic activity of the body is understood the normal temperature of 37 degrees to 38 degrees C. of the body, which, though favorable to the life of pathogenic bacteria and parasites of man, at the same time represents an important factor in the normal elimination of certain infections common to animals of lower organization, and this for instance explains our immunity against tuberculosis of birds and of cold blooded animals respectively.

That changes in temperature have an important bearing upon infection, is well illustrated in the classic work of Pasteur, who succeeded in infecting chicks with anthrax bacillus, to which they are normally immune, by lowering the temperature of the animal.

In this connection it may be mentioned that the common expression of "catching cold," "exposure," etc., of the clinicians as a predisposing factor in most infections, has an important etiological significance, as it in reality means a temporary lowering of the temperature in some part of the body which by favoring the growth and multiplication of pathogenic bacteria in this locality it gives rise first to a local infection, which in time may become generalized. Thus, diphtheria, pneumonia, measles and even tuberculosis, etc., usually begin with "a cold;" that cachectic persons, or those with a weak constitution, are more predisposed to infection, is explained also by the fact that in these persons the temperature not uncommonly is subnormal. To summarize, therefore, the above facts clearly show that infection in general beside other things, is a matter of temperature and that the normal thermogenic activity of the body plays an important role in the prevention of diseases.

The Morbid Thermogenic Activity of the Body.

The morbid thermogenic activity of the body is manifested by a rise in the temperature which commonly occurs during the course of certain infections. This rise in temperature, however, is not a constant phenomenon, as there are a great number of diseases in the course of which the temperature remains unchanged or even becomes subnormal, and in this respect it may be said that the disease of man may be divided into two main groups, namely: *Febrile and afebrile* diseases.

Febrile Diseases.

In this group are included most of the bacterial diseases, of which typhoid fever and diphtheria may be mentioned as a type. There are others, such as pyogenic infections, which, though also manifested by a rise in temperature, not uncommonly, when localized, may be afebrile. Finally, other bacterial infections, of which tuberculosis is a type, when uncomplicated, may properly be regarded as afebrile. It is true that certain forms of the disease, such as pulmonary tuberculosis, is accompanied with more or less a mild degree of fever, but it should be remembered that tuberculosis of the lung usually is complicated with cavity formation and mixed infection.

Another form of tuberculosis which is accompanied with fever is tuberculosis of the peritoneum, but bacteriological research commonly shows the presence of pyogenic bacteria in the exudate of the peritoneum and these bacteria, and not the tubercle bacillus, it seems, are the cause of the fever. That such is the case may be proved by the fact that in cattle, which normally are very resistant to pyogenic infections, tuberculosis of the peritoneum or Perlsucht, not uncommonly shows no appreciable symptoms and the disease follows its normal chronic course, giving rise to the formation of tubercles of fairly large size.

Tuberculosis of the meninges is usually accompanied with high fever also, but here again as in tuberculosis of the lung or the peritoneum, secondary pyogenic infection is the rule, and besides, it is not improbable that the mechanical irritation of the brain produced by the tubercles, and not by the tubercle bacillus or its products, *per se*, are responsible for the fever. In other words, the same febrile reaction would be obtained if experi-

mentally grains of sand were introduced in the meninges of an animal.

Finally, a further proof that tuberculosis, when pure, that is, when uncomplicated by pyogenic infection, is afebrile, is shown by the facts that tuberculosis of the joints, tubercular cold abscesses, tuberculosis of the lymph glands, mesenteric, cervical and even of the mediastinum and the lung proper may persist for a long time, years, without giving rise to any appreciable febrile symptoms.

It is known that acute miliary tuberculosis is a typical febrile disease, and this may possibly suggest the toxic nature of the virus, but this also shows that if *Tubercle bacillus* produces a toxin, this is in such small amount as to require a disproportionate number of lesions to produce such effect. In other words, if a comparison is made between tuberculosis and diphtheria for instance, all things being equal, and supposing that a given lesion or a certain degree of infection of diphtheria, produces a unit of toxin; for the production of the same unit of toxin by tuberculosis, it will be required a million or more of such lesions, which is a proof, we believe, of the non-toxic nature of *Tubercle bacillus*.

In the strict sense, it may be said that tuberculosis is a mild non-fatal affection in so far as man in reality dies of the complications such as septic infections, mechanical agencies, etc., during the course of the disease, to which the lesions of tuberculosis are potent predisposing factors.

Afebrile Diseases.

Among the afebrile diseases may be included: (1) *All fungoid diseases* when not complicated by secondary infections. One exception perhaps may be made, namely, generalized blastomycosis, but in this, secondary infection is the rule.

(2) *Most protozoan diseases* excepting malaria and relapsing fever. It may be mentioned, however, that in tertian and quartan malaria, the febrile period is relatively short, 8-10 hours out of the 48 hours and in subtertian it often is only 12 hours, and that in relapsing fever, the fever is only manifested at relatively short intervals.

As to trypanosomiasis, the disease also shows febrile periods, but they commonly are of relatively short duration. It may be

said further that Trypanosomes as well as *Plasmodium malariae* in the chronic stage of the disease, may persist in the blood of the host for a long time without giving rise to any appreciable signs of fever.

(3) ALL THE METAZOAN DISEASES, when uncomplicated, excepting the acute stage of trichiniasis. It is true that uncinariasis, paragonomiasis, schistosomiasis, may be manifested by febrile attacks, but these commonly are due either to localized or generalized secondary bacterial infection.

The above, briefly outlined, shows that the organism reacts thermogenically against certain infections, while it apparently remains inactive for others. Of course no invariable rule or single cause can be given regarding this reaction, as it may vary according to conditions, but in general it may be said that the thermogenic activity is in relation to the toxic nature of the virus.

Thus, toxic bacterial diseases like diphtheria, typhoid, pneumonia, etc., are commonly accompanied with high fever, while those in which the toxic nature of the virus although perhaps exists, plays a secondary importance, and which for practical purposes may properly be neglected in the symptomatology of the disease, the fever is merely slight or entirely wanting. Such is the case, for instance, in fungoid and most protozoan and metazoan infections. Between these two extremes, namely: toxic or febrile and non-toxic or afebrile infections, we find all intermediate variations, which, of course, correspond to the nature of the virus as the case may be.

Among the bacterial diseases however, there are also typical examples of non-toxic and afebrile infection, such as leprosy and cholera, and tuberculosis also may properly be included among this type, since, as already stated, the fever and apparent toxic symptoms in tuberculosis is usually due to secondary infections, to an overdose of the virus, or to mechanical irritation of the brain by the tubercle in tuberculosis of the meninges. It may be said also that, as a matter of fact, the toxic products, or the so-called "endotoxins" of *Bacillus cholerae*, *B. tuberculosis*, *B. leprae*, etc., are still awaiting demonstration.

It may be added in this connection that tetanus, a typical toxic infection, is not uncommonly afebrile, but this may perhaps be explained by the fact that the amount of toxins produced by *Tetanus bacillus* is out of proportion to the reaction of the body

and in this respect it behaves like other toxic infections, as diphtheria for instance, in which, if the infection is very severe, a depression of the body reactions invariably is the result.

Experimentally, it can be proved that the reaction of the body is in relation to the degree of infection, intensity of the toxic action or number of the invading organism. Thus if 10,000 *Bacillus anthracis*, or a minimal lethal dose of diphtheria toxin is inoculated into a guinea pig of average weight, the reaction follows its normal course and the animal dies in two to four days. But if, instead of 10,000, 100,000,000 or more bacteria; or, if instead of the lethal dose of diphtheria toxin, one hundred times that amount is inoculated, the guinea pig will not show any reaction, but, to the contrary, the animal usually dies in 12 to 24 hours without any manifestation of fever and not uncommonly the temperature becomes subnormal.

This clearly shows, therefore, that, besides the quality, quantity bears an important relation to the thermogenic reaction of the body, and also that a good thermogenic reaction in such infections may be taken as a favorable sign, as it really means, either a good reactive power of the body, or that the degree of infection is not too great.

What has been said regarding the thermogenic reaction of the body against bacterial infection is also applicable to protozoan and metazoan infection, with the only difference that while the manifestation of high temperature in the bacterial diseases is the rule, in protozoa and metazoa it is the exception.

As to the bearing which this thermogenic activity of the body has upon the course of the infections, this is clearly shown not only in regard to the prognosis of the disease, but also concerning the immunity conferred after the infection. Thus febrile infections, such as diphtheria and typhoid fever, usually confer immunity, while non-febrile diseases as leprosy, tuberculosis, cholera, etc., do not.

As to fungoid diseases, which are all afebrile, not a single example of acquired immunity is known. As to protozoan, only relapsing fever and yaws are known to confer immunity, while in all metazoan infections, which, like fungoid diseases, are typical afebrile diseases, no immunity is known.

Common clinical experience shows the effect of the thermogenic reaction of the body during the course of diseases in gen-

eral; thus, cases of typhoid fever, diphtheria, pneumonia, etc., when uncomplicated, if accompanied by a more or less regular fever, between 103 and 104 degrees F. usually ends in recovery; those in which the temperature is irregular, are of uncertain termination, while those in which the temperature is relatively low or subnormal, or in which this is maintained for some time over 104 degrees F. (due to a hyper reaction of the body) usually ends fatally.

The effect of temperature on metazoan infections is clearly shown in the spontaneous expulsion of tape and round worms and other intestinal parasites, which not uncommonly occurs during the course of infectious diseases, and the absence of fever in all fungoid, and most protozoan and metazoan infections, probably explains the incurable nature of those affections.

It seems, therefore, that the *dictum* "cold is death and heat is life," as applied to the above conditons could be made use of in the successful treatment of diseases by finding some artificial means for instance, by means of which the temperature of the body or of a part, could be maintained at a certain degree for a certain time during the infection provided such temperature would exercise a detrimental action upon the life of the invading organism, while it would have no appreciable injurious effect upon the patient. This we believe opens a promising field for investigation, and let us hope that thermotherapy may prove to be an efficient assistance to medicine in general and to tropical medicine in particular, in combating those generally recognized as incurable diseases of the tropics.

OBSERVATIONS OF SPLENOMEGALY.*

By JOSEPH D. WEIS, M. D., New Orleans, La.

Obviously no mention will be made of splenic enlargements occurring in such diseases as typhoid fever, malaria, sepsis, nor do splenic tumors, cysts, or metastatic growth interest us in these observations.

Splenomegaly in an essential or etiologic sense—and splenomegaly as a dominant feature of special syndromes, or as the actual disease itself is the question under consideration. Of these I wish simply to mention the leukemias and primary or

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pernicious anemia as examples of known diseases with splenomegaly, with a leucocytosis in one instance and in the other instance pernicious anemia as a possible splenomegaly with a leucopenia. Certainly most cases of pernicious anemia do not have a splenic enlargement. A passing word may also be said about Vasquez's disease, polycythemia (Polyglobulism) which is a splenomegaly with a high red cell count.

Follow then the splenic enlargements which do interest us, namely, the so-called splenic anemias (Banti's disease, Minkowski's disease, Gaucher's disease, Pseudo-leukemias, Dorothy Reed), all splenomegalies with leucopenia.

Textbooks are vague about splenic anemia and for the most part observations published are not clear about just what splenic anemia is. For years now I have been collecting cases of splenic enlargements with a hope of classifying them into some shape compatible with known classifications. I have in all thirty-nine cases, of which thirty-six are males between the ages of fourteen and twenty-six, and three are females between the ages of three and twenty-seven, from which I have drawn the following observations and conclusions.

These thirty-nine cases do not include cases of leukemia nor cases of pernicious anemia, nor malaria, nor cirrhosis, nor Hanot's disease, nor Vasquez's disease, etc. They are then all cases of so-called splenic anemia, or better essential splenomegalies. In the first division I place two remarkable examples of simple splenomegaly, a supposedly family, or hereditary type of splenic enlargement without constitutional symptoms of whatsoever type, namely a simple enlarged spleen and nothing else. One of these cases is a telephone worker, a native Louisianian, male, twenty-seven years of age, a man who strings the wires on the poles. He had never had any symptoms. He came under observation because he was conscious of a large mass in his abdomen, which was heavy and interfered with his pole climbing. Dr. F. W. Parham removed this spleen at the Charity Hospital in New Orleans, and the man is again climbing poles. There were no symptoms before the operation and there have been none since. (Two years). The blood picture of this case was normal and is still practically normal. The extirpated spleen weighed four kilograms and the microscope showed a general fibrosis with

marked congestion, which may be taken as the histological picture for all splenomegalies of the types under consideration.

A young negress is the second example of this type. She does ordinary chambermaid work and though conscious of the enlarged spleen, has no symptoms. I saw her by accident. She had an attack of influenza and was in the Charity Hospital ward for an acute febrile cold, or grippe. She refused splenectomy and is apparently well though the splenic mass is two fingers below the umbilical line. It is now three years since I first saw her. These two cases are simply splenomegalies without symptoms—in neither case could I get any positive hereditary or family history, a rather difficult type of history to get at best.

The remaining splenomegalies of this series are all associated with leucopenia. I first subdivide them into febrile and variable-febrile. What I mean is febrile, having fever or temperature practically all the time—constant temperature. Variable-febrile—fever does occur, but paroxysmally, only occasionally and lasting only a few hours or at most days, with months of non-febrile invalidism, the splenomegaly increasing without temperature as well as with it.

Under the class febrile I place three cases which were respectively: One, a Louisiana lady of Creole (French-Spanish extraction), a native of New Orleans; two, an adult male of mixed origin, Louisiana born; and three, a Mississippian, of Anglo-Saxon origin. The temperature in these three cases lasted six weeks to eight months without a single intermission. I mean no twenty-four hours passed without some elevation of temperature. All three of these cases were like this.

For a convenience, I will call this Class A.

Case I, Class A. A New Orleans physician's wife had a baby in June, 1912, and temperature began to show itself three weeks after the delivery. I saw her about three weeks after the temperature had begun. The remarkable thing in her case on examination was the large spleen, leucopenia (1250) and the absence of malarial plasmodia. She died after a constant temperature lasting for three months. Her last ten days of life were associated with general glandular enlargement. So great was the cervical and adenoid overgrowth that she died practically asphyxiated by the glands.

The solution of her problem came about a year later, when an

artist's model, a young man of beautiful proportion and the picture of health, began having fever and an enlarged spleen. After 5 months, in which time temperature was present constantly, and was very high for periods of six to eight weeks with one intermission of three weeks, he died, and just before death all the lymphatic glands showed marked enlargement. The spleen at autopsy weighed two kilograms and the glands proved to be of the Dorothy Reed type, namely granulation tissue, giant cells (mononuclear and multinuclear) and eosinophiles. Hence these two cases are probably examples of acute Hodgkin's disease or pseudo-leukemia of the Dorothy Reed type. Though I have seen no such description of any such clinical history in Hodgkin's disease, Goodkind in the *Medical Clinics of Chicago*, Vol I, No. II, September, 1915, describes a similar case, but of much more chronic type.

The third febrile case was a farmer from Mississippi, who after six months of fever came to New Orleans and subsequently under my care through the kindness of Dr. Rudolph Matas. This man Yates showed a large spleen, constant fever, 99-101, and leucopenia (1200-860). Splenectomy was done; the spleen weighed 1.380 kilograms and showed fibrosis and congestion. The temperature continued uninterruptedly for two months after the operation and he died without glandular involvement. Whether this case is the same type as cases I and II, I am unable to state. No autopsy was held, only an examination of the extirpated spleen, which was similar to case II.

The class of variable-temperature is more extensive. For my purpose I subdivide this class into hemorrhagic and non-hemorrhagic. Hemorrhagic with varying temperature and hemorrhagic without temperature.

Class B. Hemorrhagic with varying temperature. Of these I have twelve cases, eight of which were males of the Latin or mixed Latin races (Spanish, French and Central American Spanish-Indian), one native Louisianian mulatto woman, part Latin extraction, and three male negroes. All twelve presented large spleens, leucopenia varying from 3200-1200; and none showed the malarial parasite. In three cases, there was hemorrhage from the stomach; two of them had been admitted into the ward of the Infirmary as gastric ulcers. In six there was hemorrhage from the intestines. These six cases were associated with more fre-

quent attacks of temperature and all had definite atrophic cirrhosis and ascites (Banti's syndrome). In two there was hemorrhage from the nose and lungs and in one there was hemorrhage from the kidney associated with gastric hemorrhage. Diagnosis in this case had been made as malarial hematuria. Of these twelve all are dead. In four splenectomy was done with death in three instances within a week after the operation. The remaining one case lived six weeks and died of exhaustion. Autopsy in five of these twelve cases showed fibrous spleens and no glands and in three atrophic cirrhosis and in four a marked varicosity and phlebitis of the portal vein in all its branches.

Class C. Hemorrhagic without temperature. Of these I have thirteen, of whom one is a native Anglo-Saxon child, aged three years, still living; five Italian born men, living in Louisiana and six Central American Spanish-Indian men, one Massachusetts born Anglo-Saxon, living in Guatemala. All thirteen examples are dead except two now under observation; one the child three or four years of age, and one a man of twenty-seven years. The two living examples have shown besides splenomegaly, leucopenia and anemia, hemorrhage, in both cases, from the intestinal canal only. Of the remaining eleven, five were autopsied and three had splenectomies performed. The autopsied cases showed portal varicosity and phlebitis in two cases with atrophic hepatitis. One which had had a splenectomy done forty-eight hours before death, showed an intestine full of blood. The patient had literally bled to death into his intestinal canal. A careful search of the whole gut's length showed no point of hemorrhage. One case at autopsy showed a varicose state of the veins of the esophagus. This patient had had extensive gastric hemorrhages. Indeed death was from loss of blood.

Class D. The remaining nine cases came under observation very late. Of these four were young men from Central America of Spanish or Spanish and Indian or Spanish and negro combination. Three were youngish negro men, one a Spanish lady living in Honduras, wife of a Louisiana physician practicing there in La Ceiba, one an Italian male, born in New Orleans; one of these cases came under observation after eighteen years' of occasional attacks of fever, lasting from three to four weeks and gradual emaciation and ascites. All nine were practically cases of atrophic cirrhosis and splenomegaly (Banti's dis-

ease) needing to be tapped every seven to ten days for the ascites; all but one are dead. Death occurred without fever and without bleeding, apparently from inanition. Three died in coma; one case was brought into the hospital comatose and died four hours after admission.

Autopsies were done in three cases and portal varicosity and phlebitis were found in two of these cases. In one an antemortem thrombus was seen in the splenic vein and the entire colon was gangrenous (mesenteric thrombosis). This example was one of the comatose cases. All the cases in Class D were in so late a stage of the disease that no differentiation could be made. Banti's syndrome was the evident condition. There were no splenectomies in any of these cases.

CONCLUSIONS.

That splenomegaly without leucocytosis or with leucopenia exists in an acute state called splenic anemia, better acute Banti's disease, or acute Hodgkin's disease, according to whether the glands are involved or not. Cases without glandular involvement show much larger spleens than those of the pseudo-leukemic type.

That a sub-acute splenomegaly exists with continued fever and hemorrhage and without hemorrhage; also with hemorrhage and only occasional temperatures.

That chronic splenomegaly is usually part of Banti's syndrome, though it may be a simple enlargement of the organ without other signs or symptoms.

That probably the continued febrile cases are special infections, as for example the disease known as Kala-Azar, and probably have nothing to do with Banti's disease, splenic anemia, nor Gaucher's disease. Of this latter, Gaucher's disease, I have seen no example. I should say this disease probably is a malignant type of splenic enlargement, requiring the presence of a special endothelial cell for a diagnosis.

That Vasquez's disease is a special entity as are the leukemias; all examples of splenomegalia with an increase in the leucocytes in the blood in the one instance, and in the erythrocytes in the other.

That splenic anemia of the Banti's type is most common in young men between the ages of sixteen and thirty-five and most often seen in Central American hybrids, Italians, Spaniards and negroes—rare in women, children or in men of Northern countries.

The essential morbid anatomy of splenic anemia is a fibrosis of the spleen with marked increase in the circulation of that organ, and a thickening of its capsule. In a large proportion of my cases autopsied, portal varicosity with phlebitis was present, which phlebitis is in all probability the source of the temperature and the cause of the subsequent atrophic cirrhosis. In a general way the symptom complex necessary for a diagnosis of these conditions may be said to be as follows:

An enlarged spleen,—more or less marked secondary anemia hemolytic in type, with a peculiar yellowish tinge to the skin, less brilliant than that of pernicious anemia, but decidedly marked—a bluish sclera upon which a yellow tinged sub-conjunctival fat is to be made out, most marked over the angle of aperture and at the inner canthus of the eye ball—a constant leucopenia—normal or low blood pressure and a negative urine.

The diagnosis of these conditions may be said to rest upon the two essential factors—splenomegaly and a leucopenia.

Cultures made by Dr. J. A. Lanford, pathologist of Touro Infirmary, showed a diphtheroid organism in five spleens; one blood culture showed a diphtheroid organism; other spleens and blood were negative. These diphtheroid organisms described by Negri, Bunting and Yates are probably a laboratory finding only and are not recognized as peculiar to any special disease.

It is possible that the hemorrhagic cases are entirely dependent upon passive congestion of the abdominal organs and due to portal phlebitis and varicosity and mesenteric obstruction, as in cirrhosis. Also that the temperature of splenic anemia when constant is due to the constant active phlebitis. The paroxysmal temperatures are either evidences of acute or sub-acute Hodgkin's disease, or are expressions of an active etiologic element not yet discovered, as for instance in Kala-Azar—a *Herpetomonas*, Leger, or Leishman-Donovan body; that the etiology is entirely unknown.

A PLEA FOR A NATIONAL COMMITTEE ON THE ERADICATION OF MALARIA.*

By FREDERICK L. HOFFMAN, LL. D.

Statistician, Prudential Life Insurance Co., Newark, N. J.

Foremost among the public health questions demanding more adequate and extended consideration are malarial diseases and their sequelæ. As a cause of death malaria throughout the country is of relatively small importance, but in certain sections the disease prevails to an alarming extent, and in quite a number of localities even the pernicious form is of common occurrence. In the absence of trustworthy vital statistics for all of the Southern states, including the rural areas, it is impossible to estimate with accuracy the probable mortality and morbidity from malarial diseases. The problem is complicated by the frequency of erroneous diagnoses in many rural sections where there are reasons for believing that cases are reported as malaria which in all probability are typhoid fever. This source of error is not, however, of much practical importance for the purpose of the present discussion. For the United States registration area, which is exclusive of practically the entire rural South, the malaria mortality is only 2.6 per 100,000 of population. For nine representative Southern cities the mortality is 22.1 per 100,000. It may safely be assumed that for all the urban communities of the South the average malaria mortality is approximately 25 per 100,000; for the rural areas the rate is probably not less than 50 per 100,000. For all of the Southern states the total population for 1915 may be conservatively placed at 31,820,000. The proportion of urban population is, on the basis of the last census, about 22.5 per cent. If, therefore, we apply a rate of 25 per 100,000 to the urban population of the South, estimated at 7,160,000, we have an approximate mortality from malaria of 1,790. If we apply a rate of 50 per 100,000 to the rural population of the South, estimated for 1915 at 24,660,000, we have 12,330 additional deaths from malaria. For the remainder of the country the rate, as determined for the registration area of 2.6, may be reduced to 2.0, since the Southern cities included in the registration area have already been considered in the preceding estimate. Assuming, therefore, a rate of 2.0 per 100,000 of population for

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the Northern and Western states, the resulting number of deaths from malaria in these sections is about 1,400, which, combined with the estimated number of deaths for the urban and rural South, gives an aggregate total of 15,520 deaths from malarial diseases for the continental United States as a whole.

The social and economic importance of malaria is, however, much more accurately determined by the frequency of its occurrence as a disease. The fatality rate in malarias is, as a rule, very low. In Mississippi, for the period January to December, 1913, the fatality rate was 1.3 per cent. for white cases, and 2.6 per cent. for colored cases. For both cases combined an average fatality rate of 1.5 per cent. is probably a conservative assumption. On the basis of an assumed fatality rate of 1.5 per cent., there would, therefore, be approximately 1,035,000 cases of malaria throughout the entire country during the course of a year. The social and economic loss resulting from this enormous amount of sickness can hardly be more than guessed at in view of the inadequacy of our existing statistical information. For the purpose of emphasizing the urgency of more adequate consideration, whether medical, scientific or statistical, the following tables have been brought together in a convenient form in support of the resolution introduced by me in Section 9, on Public Health, of the Second Pan-American Scientific Congress, and unanimously adopted by that congress in final session on January 8, 1916, reading as follows:

“That all American countries inaugurate a well-considered plan of malaria eradication and control based upon the recognition of the principles that the disease is preventable to a much larger degree than has thus far been achieved, and that the education of the public in the elementary facts of malaria is of the first order of importance to the countries concerned.”

Preliminary to the tables following, it may be pointed out that, while the malaria death rate in the United States registration area—that is, chiefly the Northern and Central Western states and Southern cities—is only 2.6 per 100,000 of population, it is 3.4 for Havana, 22.1 for representative Southern cities of the United States, 66.5 for Jamaica, 131.2 for Bahia, Brazil, 219.6 for Trinidad and Tobago, 590.4 for British Guiana, and finally, 643.4 for British Honduras. It may also be pointed out in this connection that in six Southern states according to statistics collected by the United States Public Health Service, chiefly under the direction of Dr. R. H. von Ezdorf, including 8,519 cases, 65.2

per cent. were of the tertian type, 22.0 per cent. of the estivo-autumnal type, and 12.8 per cent. of the quartan variety. The observations and conclusions following rest upon the generally accepted definition, according to Gould and Pyle, that malaria "is a specific infectious disease depending upon the presence in the blood of one or more of several species of closely allied parasites (Hæmosporidia), which develop within, and at the expense of, the red blood-corpuscles of the infected individual, resulting, according to the species and number of the parasites present, in more or less periodic febrile paroxysms, or in continued fever."

Table I exhibits the mortality from malaria in the registration area, first, for both sexes combined, and second, for males and females separately, by divisional periods of life:

TABLE I.—MORTALITY FROM MALARIA,

U. S. Registration Area, 1910-1914—Males and Females.

Ages	Population	from Malaria	100,000 Population	Per Cent. Distribution
Under 5	31,559,740	1,901	6.0	24.2
5-14	55,870,822	788	1.4	10.0
15-24	58,873,965	875	1.5	11.1
25-34	52,548,817	835	1.6	10.6
35-44	41,943,446	763	1.8	9.7
45-54	29,773,733	745	2.5	9.5
55-64	17,829,891	734	4.1	9.4
65-74	10,151,567	631	6.2	8.0
75 and over	4,283,036	554	12.9	7.1
Unknown . . . . .	.....	33	..	....
All ages	302,835,017	7,859	2.6	100.0

TABLE I-A.—MORTALITY FROM MALARIA,

U. S. Registration Area, 1910-1914—By Sex.

Ages	MALES			FEMALES		
	Male Population	Deaths from Malaria	Rate per 100,000 Popu- lation	Female Popu- lation	Deaths from Malaria	Rate per 100,000 Popu- lation
Under 5	15,984,134	967	6.0	15,575,606	934	6.0
5-14	28,170,678	387	1.4	27,700,144	401	1.4
15-24	29,758,695	421	1.4	29,115,270	454	1.6
25-34	27,654,370	419	1.5	24,894,447	416	1.7
35-44	22,082,077	418	1.9	19,861,369	345	1.7
45-54	15,776,516	409	2.6	13,997,217	336	2.4
55-64	9,263,101	425	4.6	8,566,790	309	3.6
65-74	5,075,105	316	6.2	5,076,462	315	6.2
75 and over	2,025,009	285	14.1	2,258,027	269	11.9
Unknown . . . . .	.....	21	..	.....	12	..
All ages	155,789,685	4,063	2.6	147,045,332	3,791	2.6

This table emphasizes for both sexes the exceptional frequency of malaria in early life and the importance of the disease as a direct or contributory factor in infant mortality. It is shown that out of the mortality from malaria at all ages, 24.2 per cent. of the deaths occurred at ages under 5 years. It is shown furthermore that the rate of relative incidence diminishes rapidly from infancy to early adolescence, increasing gradually during middle life, and reaching a second maximum point of frequency in advanced age.

The second table exhibits the mortality from malaria in more detail at ages under 5 years:

TABLE II.—MORTALITY FROM MALARIA IN INFANCY.

U. S. Registration Area, 1910-1914.

MALES AND FEMALES		Deaths from Malaria	Rate per 100,000 Population	Per Cent. Distribution
Ages	Population			
Under 1 yr.....	6,581,885	729	11.1	38.4
1 year	5,867,037	485	8.3	25.5
2 years	6,431,998	316	4.9	16.6
3 years	6,401,424	209	3.3	11.0
4 years	6,277,396	162	2.6	8.5
Under 5 ...	31,559,740	1,901	6.0	100.0
MALES.				
	Male Population			
Under 1 yr.....	3,337,487	385	11.5	39.8
1 year	2,974,647	233	7.8	24.1
2 years	3,262,362	153	4.7	15.8
3 years	3,224,000	111	3.4	11.5
4 years	3,185,638	85	2.7	8.8
Under 5.....	15,984,134	967	6.0	100.0
FEMALES.				
	Female Population			
Under 1 yr....	3,244,398	344	10.6	36.8
1 year	2,892,390	252	8.7	27.0
2 years	3,169,636	163	5.1	17.5
3 years	3,177,424	98	3.1	10.5
4 years	3,091,758	77	2.5	8.2
Under 5 ...	15,575,606	934	6.0	100.0

According to this table, the incidence of the disease is highest during the first year of life. For both sexes combined, of the deaths from malaria at all ages under 5 years, 38.4 per cent. occurred at ages under one year, or, respectively, 39.8 per cent. for

males and 36.8 per cent. for females. The table is particularly suggestive in connection with scientific studies of the spread of the disease through infected mosquitoes obtaining their infection through neglected or unprotected infants during the earliest period of childhood. Since as far as known malaria can only be spread through existing cases of the disease, and by means of infected mosquitoes, the adequate protection of small children against the bite of the mosquito is therefore one of the very first requirements of an effective campaign against the spread of the disease.

The correlation of malaria frequency to an excessive rainfall is too well known to require extended consideration. The table following, however, will prove of interest in that the population estimates have been corrected throughout for the varying lengths of the months, so that the resulting rates per million of population may be accepted as trustworthy and conclusive:

TABLE III.—SEASONAL INCIDENCE OF MALARIA.

U. S. Registration Area, 1910-1913.

Month	Population (Corrected)	Deaths from Malaria	Rate per 1,000,000 Population
January	236,156,155	257	1.1
February	216,092,575	234	1.1
March	238,203,415	250	1.0
April	231,528,813	316	1.4
May	240,320,075	442	1.8
June	233,577,358	507	2.2
July	242,420,787	667	2.8
August	243,471,978	904	3.7
September	236,596,323	1,018	4.3
October	245,540,466	956	3.9
November	238,598,033	534	2.2
December	247,608,944	297	1.2
Total	2,850,114,922	6,382	2.2

In connection with this table the fact, however, must not be lost sight of that the same represents conditions throughout the country and not with special reference to the Southern states, where, quite probably, the monthly incidence would slightly vary on account of different climatological conditions. According to the table under consideration, the mortality from malaria is highest during September, when it attains to 4.3 per 1,000,000, in contrast to a minimum rate of 1.0 during the month of March.

The relative frequency of malaria varies not only according to sex, but even much more so according to race. The returns have

been combined for five Southern cities, for more or less of a ten-year period (1903-1915), to provide an adequate basis for average rates of at least approximate accuracy.

**TABLE IV.—MALARIA MORTALITY, BY RACE AND SEX,
Five Southern Cities (1903-1915)**

WHITE RACE			
	Population	Deaths from Malaria	Rate per 100,000 Population
Males	3,639,271	267	7.3
Females	3,812,525	153	4.0
COLORED RACE.			
Males	1,499,336	263	17.5
Females	1,809,212	333	18.4

It is shown by this exceedingly interesting comparison for five representative Southern cities—(data lost, names of cities not now obtainable)—that there is a decided difference in the sex incidence of malaria frequency among the white population, while for the colored the rates are practically the same, with a slight excess on the part of women. For the white population the male rate is 7.3 per 100,000, against a female rate of only 4.0. Among the colored population the male rate was 17.5, against a female rate of 18.4. Accepting the earlier conclusions of qualified observers in the Southern states that malaria was relatively rare among the slave population, or that, in other words, the African negro was more or less immune to the disease, there has obviously been a complete change in this respect, for every investigation proves conclusively that malaria is to-day decidedly more common among the colored than among the whites in the Southern states.* In the furtherance of a more scientific study of the relative incidence of the disease, by race and age, the following table is included:

**TABLE V.—MORTALITY FROM MALARIA, BY RACE AND AGE.
Five Southern Cities, 1906-1912.**

Ages	Whites		Colored	
	Deaths from Malaria	Rate per 100,000 Population	Deaths from Malaria	Rate per 100,000 Population
Under 5 yrs...	78	10.0	131	67.3
5- 9	21	2.8	39	19.3
10-10	47	3.0	108	25.3
20-39	158	5.2	280	26.3
40-59	121	6.8	174	36.0
60 and over ...	90	16.8	86	64.3

*See in this connection the opposite conclusion advanced in the report on the Malarial Fevers of Baltan. Thayer and Hewetson, Balt. 1895, p. 70.

According to this table the malaria rate for the colored very materially exceeds the corresponding rate for the white population at every divisional period of life. The table is thoroughly representative and includes a sufficient population to make the rates trustworthy and conclusive.

In consequence of the remarkable sanitary progress of the Southern states the mortality from malaria has materially decreased during recent years. For the purpose of emphasizing the relative effect of these changes on the malaria death rate of the two races, the following table has been prepared for nine typical Southern cities, with comparative returns for the periods of 1904-08 and 1909-13:

**TABLE VI.—COMPARATIVE MORTALITY FROM MALARIA,
Nine Southern Cities, 1904-1913.**

Race	Death Rate per 100,000 of Population		Decrease	
	1904-08	1909-13	Actual	Per Cent
White	16.4	9.5	6.9	42.1
Colored	71.7	46.7	25.0	34.9
Total	35.8	22.1	13.7	38.3

The table brings out the striking fact that the sanitary progress of Southern cities has been of decided benefit to both races. The actual diminution in the malaria mortality of the colored race is, in fact, nearly four times the decrease in the white race, but the relative diminution during the period under observation was 42.1 per cent. for the whites, against 34.9 for the colored. During 1904-08 the number of deaths from malaria among the colored was equal to 437 to every 100 among the white population. During 1909-13 the corresponding ratio was 492. The relative diminution in malaria mortality was, therefore, distinctly less among the colored regardless of a very material actual decrease. In other words, the effect of race is once more, in the case of this illustration, shown to be of more profound importance than the effect of changes in environmental conditions.

It would serve no purpose to enlarge in detail upon the diminution in the mortality from malaria of the principal Southern cities. The reduction in the death rate in the case of the principal Southern cities during the five years ending with 1908, in comparison with 1909-13, are shown in the table following:

**TABLE VII.—CHANGES IN THE MALARIA DEATH RATE OF
Eight Southern Cities, 1904-1913.**

City	(Death Rates per 100,000 Population)					
	Total		White		Colored	
	Population	Population	Population	Population	Population	Population
	1904-1909-	1904-1909-	1904-1909-	1904-1909-	1904-1909-	1904-1909-
	1908	1913	1908	1913	1908	1913
Charleston, S. C. . . .	37.8	28.4	22.0	17.1	51.2	38.7
Memphis, Tenn. . .	120.4	80.2	67.5	41.4	190.4	139.8
Birmingham, Ala. . .	*	22.5	*	10.4	*	41.2
Montgomery, Ala. . .	65.7	52.9	25.5	15.5	101.3	90.1
Mobile, Ala.**	36.3	60.6	19.5	24.5	57.4	106.1
New Orleans, La. . .	16.1	9.3	12.2	6.1	27.0	18.3
Galveston, Tex. . . .	5.4	8.7	1.1	6.9	20.4	14.9
San Antonio, Tex. . .	17.5	13.9	17.6	12.9	16.9	21.6

*No data available. **Periods 1906-09 and 1910-13.

The preceding table emphasizes the remarkable sanitary progress throughout the South as made evident in the reduction in the mortality from malaria. The table further emphasizes the greater difficulty of malaria eradication in the case of the negroes. As shown by the investigations carried on by the U. S. Public Health Service, under the direction of Dr. R. H. von Ezzdorf, the extent of the disease is practically universal throughout the South, but the disease is by no means uncommon in the Northern and Central states, and is relatively of considerable practical importance in the great central valley of California.

The malaria surveys under the direction of the U. S. Public Health Service are, however, far from being as thoroughly scientific, comprehensive and conclusive as the urgency of the situation demands. They are, broadly speaking, only tentative inquiries, and, as a rule, the conclusions based on the returns must be accepted with caution on the side of extreme conservatism. The malaria index for particular counties is, broadly speaking, invariably insufficient in view of the relatively small number of persons examined. What has been done in this direction is indicative of a much more serious situation than is disclosed by superficial considerations based on mortality returns alone. The investigations by Herms, in California, illustrate the scientific and practical value of malaria surveys and of public educational campaigns based upon such investigations, with a due regard to the economic interests concerned. Of special value in this direction is the California effort to correlate malaria campaigns to the health condition of rural school children and the taxable values of the communities concerned.

As yet, however, no effort at malaria eradication has been made in this country corresponding to the work which has been done in certain portions of India, in Mauritius, on the isthmus of Suez, and in certain sections of West Africa. Of course, in the countries and localities referred to, the situation was distinctly more alarming and often fatal to the settlement of Europeans under tropical conditions of life, than in this country. There are, however, vast areas, even in the United States, such, for illustration, as the Yazoo Delta region of Mississippi, which have been enormously hindered in their development by the relative frequency of malaria often in a most serious form. The same conclusion applies to certain sections of North Carolina, South Carolina, Georgia, Florida, Alabama, and Louisiana. There is the most urgent need for a strictly scientific determination of the true incidence of malaria as measured by the spleen rate, in conformity to the methods successfully carried through by the Malaria Committee of Bengal. An exact delineation of the areas in which black-water fever, or malarial hæmaturia, occurs would be of the first order of importance in the furtherance of a nationwide effort at malaria eradication. Left to time, of course, the disease will gradually be eliminated by the economic progress of the nation, the improvement of the land, the introduction of drainage systems, etc., but many years must pass before this ideal condition is likely to exist. The practical elimination from sections in the Northern states in which intermittent fevers were exceedingly common during the early period of settlement is chiefly attributable, if not entirely so, to economic progress rapid increase in population demanding drainage, sewerage, etc. The same result will unquestionably be experienced in the South in the course of many years. There are the strongest possible reasons for believing that if the true facts regarding malaria frequency were better understood a material improvement would be brought about in the existing situation on the basis of educational efforts such as have been suggested in a well-written circular recently issued by the Public Health Service, and a more or less corresponding publication issued by the Department of Agriculture. The several state boards of health have also issued brief descriptive circulars of much practical value. The entire movement for malaria eradication, however, requires to be centralized in much the same manner as this has been done in the

case of nation-wide efforts against infant mortality, tuberculosis, cancer, etc. Such a movement should be under the auspices of the American Medical Association, and it seems particularly fitting that the same should have the endorsement of the Southern Medical Association, the American Society for Tropical Medicine, and of all the local Southern medical societies, and of all other states in which malaria is of relatively common occurrence. In course of time the work of the National Committee should be extended to Hawaii, Porto Rico, and the Panama Canal Zone. In the furtherance of such an effort it is proposed to organize a National Committee on the Study and Prevention of Malaria, and among others the following have given the movement the weight of their endorsement:

Dr. C. C. Bass, Professor Experimental Medicine, Tulane University, New Orleans, La.

Dr. Rupert Blue, Surgeon General, United States Public Health Service, Washington, D. C.

Dr. Henry R. Carter, Assistant Surgeon General, United States Public Health Service, Baltimore, Md.

Dr. C. F. Craig, Captain, Medical Corps, United States Army, Fort Leavenworth, Kans.

Dr. W. H. Deaderick, author "Textbook on Malaria" and "Endemic Diseases of the Southern States," Hot Springs, Ark.

Dr. W. E. Deeks, General Superintendent, Medical Department, United Fruit Company, New York, N. Y.

Dr. Oscar Dowling, President, Louisiana State Board of Health, New Orleans, La.

Dr. R. H. von Ezdorf, Surgeon, United States Public Health Service, New Orleans, La.

Major General W. C. Gorgas, Surgeon General, United States Army, Washington, D. C.

Dr. Frederick R. Greene, Secretary, Council on Health and Public Instruction, American Medical Association, Chicago, Ill.

Dr. Seale Harris, Editor-in-Chief, *Southern Medical Journal*, Birmingham, Ala.

Dr. Frederick L. Hoffman, Statistician, Prudential Life Insurance Company, Newark, N. J.

Mr. L. O. Howard, Entomologist, United States Department of Agriculture, Washington, D. C.

Mr. Arthur Hunter.

Mr. J. A. LaPrince, Sanitary Engineer, United States Public Health Service, Washington, D. C.

Dr. Jos. Y. Porter, State Health Officer of Florida, Jacksonville, Fla.

Dr. W. S. Rankin, State Health Officer of North Carolina, Raleigh, N. C.

Dr. M. J. Rosenau, Professor Preventive Medicine and Hygiene, Harvard Medical School, Woston, Mass.

Dr. E. R. Stitt, Captain, Medical Corps, United States Navy; Professor Tropical Medicine, George Washington University, Washington, D. C.

Dr. John M. Swan, Secretary, American Society of Tropical Medicine, Rochester, N. Y.

Dr. W. S. Thayer, Professor Clinical Medicine, Johns Hopkins Medical School, Baltimore, Md.

Dr. Robert Wilson, Jr., Dean, Medical College of the State of South Carolina, Charleston, S. C.

It is sincerely to be hoped that such a committee will be formed and that its efforts will be co-ordinated in the most practical manner to the existing efforts of the Federal Public Health Service, the state and municipal boards of health, medical societies, the Rockefeller Foundation, etc. It is also anticipated that the work will obtain the active co-operation of the American Society for Tropical Medicine, of the Schools of Tropical Medicine of Tulane University, Louisiana, and Harvard University and of the Rockefeller Sanitary Commission. The movement should rest largely, if not exclusively, upon the principle of purely voluntary effort and active official co-operation. The effort, in the main, should be along the lines of the work of the Malaria Committee of India, including, first, public education; second, scientific malaria surveys; third, scientific research; fourth, statistical research; fifth, general problems such as legislation, municipal ordinances, drainage and irrigation projects, etc.

The practical difficulties no doubt are serious, but they can and will be overcome in time. Admirable illustrations of modern American conceptions of the plan and scope of such an effort are the extended references to prophylaxis in Craig's treatise on Malaria, Gorgas, "Sanitation at Panama," and the recent work by Le Prince on "Mosquito Control at Panama." For a concise outline of the methods followed to advantage in India the Proceed-

ings of the Imperial Malaria Conference held at Simla, October, 1909, and the Transactions of the Committee for the Study of Malaria in India, published in the several issues of *Paludism*, should be consulted, aside, of course, from the classical work by Ross, on the Prevention of Malaria, which includes important special contributions from practically all the malarial regions throughout the world.

CURRENT LITERATURE.

New Method of Making Anti-Hog Cholera Serum (*Journal of Agricultural Research*, U. S. Dept. of Agriculture).

A new method of preparing anti-hog-cholera serum, which permits the economical production of a clear sterilized product, has just been described. The advantage claimed for the new method is that it makes possible the production of an anti-hog-cholera serum which can be quickly sterilized by heat to a point that will absolutely kill any germs of foot-and-mouth disease and so yield a serum that is absolutely safe even if taken from a hog which might harbor foot-and-mouth disease and yet give no indication of being infected.

The method, as described by its discoverers, Dr. Marion Dorset and R. R. Henley, of the Biochemic Division, Bureau of Animal Industry, consists in adding a slight amount of an extract from ordinary white navy beans to the defibrinated hog-cholera-immune blood which has been the form of the serum used in the past. The addition of this bean extract causes the red cells of the blood to agglutinate and when the mixture is whirled on a centrifuge the red cells pack together and form a rather stiff jelly-like mass. It is then possible to pour off a clear serum, leaving behind the red cells which play no part in preventing hog cholera and which in fact simply tend to dilute the serum and render its sterilization by heat impracticable. To increase the yield of clear serum the discoverers added a small amount of ordinary salt and found that they obtained from 70 to 74 per cent of clear serum. The clear serum thus obtained, it was found, could be heated for 30 minutes at a temperature of 60 degrees centigrade without changing its consistency or lessening in any

way its effectiveness in preventing hog cholera. The heating to this point for this time is more than sufficient to kill any germs of foot-and-mouth disease which might accidentally be present. Practical tests with hogs show that probably all of the antibodies useful in combating hog cholera were retained in the serum and the red cells extracted contained so few, if any, of these valuable bodies as to make the residue of red cells useless in preventing the disease.

Before the clear serum was developed, many attempts were made to sterilize by heat in a practical way the ordinary defibrinated blood. It was found, however, that heating the old product up to 100 degrees centigrade resulted in more or less complete coagulation of the defibrinated blood and in the destruction of the serum so far as its commercial worth is concerned. It was found that the highest temperature that could be used was 50 degrees centigrade, and it was necessary to keep the old serum at this temperature for 12 hours to make certain that the virus of foot-and-mouth disease was killed. Heating serum at a steady temperature over this long period in ordinary practice is difficult and too expensive.

Attempts also were made to make a clear serum by centrifugalizing. It was found, however, that while the centrifuge would separate to some extent the red cells, they were in such shape that it was difficult to separate the serum completely. An important quantity of antibodies were left behind in the red clot, and the resulting product was a cloudy rather than a clear serum. With this process, moreover, it was possible ordinarily to secure only about 50 per cent of serum. Under the new method it is possible to secure as high as 74 per cent of clear serum, which in actual test has proved to be fully potent. This clear serum, moreover, can be completely sterilized in 30 minutes, whereas the old serum had to be heated steadily for 12 hours.

The new form of serum, as far as the department knows, is not yet being made or put on sale by the commercial serum laboratories. As this process was discovered by the Federal government, anyone in the United States is free to use it.

Trichinosis.—William Lintz, Brooklyn (*Journal A. M. A.*, June 10, 1916), adds three more cases to his record of the presence of the *Trichina spiralis* in the cerebrospinal fluid. The fluids

in which they were found were apparently normal. His discovery has been confirmed by other observers and if the parasite is found to be fairly constant in the cerebrospinal fluid the method clinches the diagnosis rapidly as few other single procedures do.

Coccidioidal Granuloma.—S. T. Lipsitz, J. W. Lawson, and E. M. Fessenden, St. Louis (*Journal A. M. A.*, April 29, 1916), report a case of coccidioidal granuloma, the first case in Missouri and the third occurring in a patient who had not been in California, as far as known. The disease is not of protozoan origin, but is due to a yeast organism, as shown by Ophuls, and Wólbach. While the case is similar in most respects to those previously reported, its duration was the shortest on record and was accompanied with a high sustained fever and marked leukocytosis, the time elapsing between the first symptoms and death being only about fifty-two days. The condition closely simulates acute tuberculosis in many respects, and while the organism resembles that of blastomycosis, treatment adapted for that disease failed and it appears to be much the more fatal of the two. Excepting for one or two cases treated surgically, as by early amputation, this disease does not appear to be amenable to any form of treatment.

Streptothrix in Rats.—In a preliminary report of examination and cultural experiments causing the discovery of a streptothrix in the diseased rats similar to that found in cultures from the lesions from rat-bite fever, Ruth Tunnicliff, Chicago (*Journal A. M. A.*, May 20, 1916), describes the organism in cases of a common form of bronchopneumonia in rats. In fifty-six white rats suffering from the disease that were examined out of sixty with the acute or chronic disorder, a long, fine, straight, or wavy filamentous organism was observed in smear preparations or by dark field illumination. They were most abundant in acute lesions. It is a gram-negative organism staining fairly distinctly with carbogentian-violet and the Giemsa stain. They are barely visible in tissues stained with methylene blue but are distinct in tissues impregnated with silver nitrate according to Levaditi's method. They were not observed in twenty-four normal rats. A streptothrix resembling these organisms was cultivated from twenty rats and isolated in pure culture thirteen times. Cultures from thirty-three rats remained sterile, but why this was so is undetermined. The character of the lesion does not seem to

make any difference. A number of other organisms were isolated from twenty-two rats, namely, streptococci, pneumococci, staphylococci, diphtheroid bacilli, anaerobic spirilla, and a profusely growing gram-negative bacillus which was probably a contamination. Other details are given. Young healthy rats injected intraperitoneally with cultures show acute lesions in the lungs. A streptothrix appears to be the same as the *Streptothrix muris ratti* isolated in pure culture from the blood of patients with rat-bite fever by Schottmuller and Blake, and seen in the blood during the paroxysms of Tileston. Rats causing rat-bite fever have not been examined as far as known but the author has examined twenty-eight wild rats and found one infected. The lesions in the lung were the same as those observed in the white rats and showed the same organisms.

Granuloma Pyogenicum.—C. D. Wescott, Chicago (*Journal A. M. A.*, June 24, 1916), reports a case of granuloma pyogenicum occurring in a boy aged 9, and affecting the eye. It was located just above the edge of the left upper lid and caused serious anxiety for fear of cancer, the disease of which the child's father had died. Wescott gives an account of the growth which has caused considerable clinical, pathologic and bacteriologic confusion in medical literature. The two conditions simulating it are cancer and chancre. Although persistent and liable to recurrence, it is usually treated without too much difficulty. The tumor in this patient was removed and the wound cauterized; it healed without infection, leaving a very small scar, and has not recurred to date.

NEWS AND COMMENT.

MEDICAL MILK COMMISSION MEETS.—At the annual meeting of the American Association of Medical Milk Commissions, held at the Cincinnati General Hospital, June 10, Dr. Walter D. Ludlum, Brooklyn, was elected president; Dr. Otto P. Geier, Cincinnati, secretary (re-elected); William J. Graf, Cincinnati, assistant secretary; J. P. Sedgwick, Cleveland, treasurer, and Henry F. Price, Pittsburgh, member of the council.

RED CROSS HOSPITALS FOR BORDER.—A fund of \$200,000 is being raised by the Chicago chapter of the Red Cross for the creation and operation of four base hospitals on the border and

four hospital columns on lines of communication with troops. These hospitals and columns will be fully equipped, with a full complement of physicians, nurses and all necessary assistants. Supplies for wounded men and for troops will be purchased, dependent families of national guardsmen will be cared for, and a general fund for miscellaneous needs occasioned by war will be maintained.

FACTORS WHICH INCREASE TUBERCULOSIS.—The United States Public Health Service recently made a survey of tuberculosis in Cincinnati. It was found that the tuberculosis death rate in that city was fifty per cent above the average and double that of Pittsburg; that poverty was a vital factor in the spread of the disease, the tenement districts producing a tuberculosis mortality three times as great as the areas with better housing conditions, or where the family income was the smallest, tuberculosis was most prevalent; that alcoholism was likewise a prominent factor in causation, and that consequent dissipation, with overcrowding and lack of personal responsibility, aided in the propagation of the disease.

PROPOSES A NATIONAL SCHOOL OF HYGIENE.—It has been announced from Baltimore that the Rockefeller Foundation purposes to establish in that city as an integral part of the Johns Hopkins University, a National School of Hygiene and Public Health. It is proposed to erect a building to cost about \$200,000, with running expenses of about \$75,000 annually. Dr. Welch, professor of pathology at Johns Hopkins, and Dr. Wm. H. Howell, professor of physiology, will undertake the work of organizing the school. It is planned to open the school in October, 1917. Educating the public by exhibits, lectures and other means, with a view to better appreciation and understanding of the importance of public and personal hygiene and in co-operative efforts for the training of public health nurses, are the objects for the establishment of the school.

EXAMINATION FOR NAVAL MEDICAL CORPS.—The next examination for appointment in the Medical Corps of the Navy will be held about August 7, at Washington, D. C.; Boston, New York, Philadelphia, Norfolk, Charleston, S. C.; Great Lakes, Ill.; Mare Island, Cal., and Puget Sound, Wash. Applicants must be citizens of the United States and must show evidence of preliminary and medical education. The first feature of the exami-

nation is for appointment as assistant surgeon in the Medical Reserve Corps and embraces anatomy, physiology, materia medica and therapeutics, general medicine, general surgery and obstetrics. The successful candidates then attend a course of instruction at the Naval Medical School, which will begin about October 1. During this time candidates will receive a salary of \$2,000 a year with allowances for quarters, heat and light, and at the end of the course, if successful, will be commissioned as assistant surgeons in the navy to fill vacancies. Fuller information may be obtained by addressing Surgeon-General of the Navy, Washington, D. C.

SOUTHERN RAILWAY SURGEONS ELECT OFFICERS.—At the meeting of the association held in Chattanooga, Tenn., June 6 and 7, the following were elected officers: President, Dr. Cooper Holtzclaw, Chattanooga; vice-presidents, Dr. Wm. H. Armstrong, Rogersville, Tenn.; Dr. T. F. Robinson, Bessemer, Ala.; Dr. Julius H. Taylor, Columbia, S. C., and Dr. Henry McHatton, Macon, Ga.; secretary-treasurer, Dr. Jacob V. Ray, Woodstock, Ala.

GIFT FOR TUBERCULOSIS INVESTIGATION.—Through the generosity of Dr. Kenneth Dows, of New York, Johns Hopkins University, Baltimore, has recently received \$95,000 for the investigation of tuberculosis and the better teaching of physicians and medical students in the recognition and management of the disease and the care of patients.

DEMOCRATIC PUBLIC HEALTH PLANK.—The Democratic party at its convention in St. Louis, June 16, adopted the following plank in its platform: "We favor a thorough reconsideration of the means and methods by which the Federal Government handles questions of public health, to the end that human life may be conserved by the elimination of loathsome diseases, the improvement of sanitation, and the diffusion of a knowledge of disease prevention. We favor the establishment by the Federal Government of tuberculosis sanitariums." The *New York Medical Record*, commenting on this plank, says: "The second sentence is badly worded, but intelligible enough; what is meant by the beginning of the first sentence can only be guessed at."

AS WE VALUE OURSELVES.—A story is told of a young east side physician in New York City, who spends much of his time in charitable practice. On one occasion the doctor visited a

woman living in a small tenement room with her three children. He made out a prescription and presented her with two dollars, telling her to buy the medicine and use the change for needed food. The next day, on entering the tenement for a second call, he met the ten-year-old daughter of the patient, and inquired of the child how her mother was faring. "Oh, she's well," said the child. "She took that two dollars and got a real doctor."

EXPERIMENT ON TUBERCULOSIS.—The Metropolitan Life Insurance Company has presented the National Association for the Study and Prevention of Tuberculosis \$100,000 for the purpose of demonstrating by a community experiment, for three years, that tuberculosis can be controlled as any other infectious disease if right methods and adequate resources are available. The plan is to select a town or city of about 5,000 inhabitants, probably in New York or Massachusetts, and apply there all the knowledge and treatment of tuberculosis available, with the view of ultimately eradicating the disease.

BALTIMORE QUARANTINE STATION TRANSFERRED.—The campaign for the transfer of the Baltimore quarantine Station to government control, which has been carried on by Dr. Mydeger, of the Public Health Service, for the past three years, has been successful. This is the last station in the country to go under national control.

MEDICAL SCHOOLS TO MERGE.—The plan to merge the three big medical schools of Philadelphia, the medical department of the University of Pennsylvania, the Jefferson Medical College, and the Medico-Chirurgical College, under one head, thus forming the largest medical school in the United States, has been completed. This plan, it is believed, is largely the result of the urging of the directors of the Carnegie Foundation, who are of the opinion that Philadelphia is supporting too many medical schools.

ANTI-VIVISECTION BILL NOT APPROVED.—The anti-vivisection bill which was passed at the last session of the legislature in California, failed to receive the approval of the governor of that State.

RAILROAD CASUALTIES.—The Interstate Commerce Commission has just issued a report stating that there were 2,531 people killed in the United States and 43,518 injured, during the three months ending September 30, 1915. As compared with figures

for the same quarter in 1914, there is a good net decrease shown.

PHYSICIANS IN THE UNITED STATES.—It is estimated that there are 150,000 physicians in the United States, according to the *Medico-Legal Journal*, or one physician to every 667 people.

SOUTHWESTERN MEDICAL JOURNALS MERGE.—The publications of the Southwest Medical and Surgical Association and the Arizona State Society will be merged with the *Bulletin* of the El Paso, Texas, County Medical Society. The new journal will be known as *Southwestern Medicine*, and Dr. M. B. Weston, of El Paso, editor of the *Bulletin*, will edit the consolidated journal. The merger began with the July issue.

CATS AND DIPHTHERIA.—The recent outbreak of diphtheria in a London orphanage was traced to cats. In the investigation, after eliminating such factors in the production of the disease as contaminated water supply, sanitary defects, food, etc., the physician in charge realized that there must be a bacillus carrier and turned his attention to the cats, taking a swab from all their throats. On examination it was found that the four cats from the boys' side of the orphanage, where the majority of the cases prevailed, were suffering from diphtheria. The four cats on the girls' side, although showing other micro-organisms in profusion, did not have the true diphtheria bacillus. The cats were destroyed and after a few days no more cases occurred.

NEW ORLEANS DEATH RATE DECREASES.—The deaths in the city of New Orleans for the six months ending June 30 were 539 fewer than for the same period last year. The total during the first six months of 1915 was 3,975 and for the six months just ended 3,436. The mortality of communicable diseases for June shows a decrease of 50 per cent compared with June last year, or May this year. Since 1911, when the disease was placed on the list of communicable diseases to be reported, there have been forty-six cases known and only two deaths of infantile paralysis. A remarkable decline in deaths of children from intestinal diseases is reported.

TUBERCULOSIS HOSPITAL GIVEN MORE FUNDS.—Mrs. John Dibert of New Orleans has added \$103,000 more to the \$200,000 already donated for the establishment of the institution to be known as the John Dibert Tuberculosis Hospital. Plans for the hospital have been received and will include a three-story, fire-proof building, with a large recreation pavilion in the center

on each floor, an administration section, an operating room, a free clinic, and other desirable features. The building will cost \$150,000. The city of New Orleans has donated the site and will appropriate \$10,000 a year for the hospital.

PARKE, DAVIS & COMPANY'S NEW CATALOG.—Parke, Davis & Company announce the publication of their 1916 price list. It is said to be an improvement over any previous issue, and its amplitude, handy classification, comprehensive general index, will no doubt serve to make it a reference book of value to medical practitioners. Copy can be obtained by applying to Parke, Davis & Company, Detroit, Mich.

AGAINST ALCOHOLISM.—The Union des Françaises contre l'alcool (Union of French Women Against Alcohol) has been recently organized. A vast series of petitions to parliament and to public authorities, and a great public manifestation against alcoholism, are some of the features of its campaign. The union insists on the principle that private interests must give way before those of the country, and, when it is the question of the general lives of millions of beings, one must not stop at half measures. The petition demands the abolition of the privilege of the small distiller, the suppression of spirits for drinking, and the development and encouragement of the use of industrial alcohol.

INFANTILE PARALYSIS IN NEW YORK.—The discovery of a group of cases of infantile paralysis in Brooklyn was made some time in May by the health department. It was stated in the beginning that the cases were mild in character, occurring principally in infants and very young children, but the disease has now reached the epidemic stage and is spreading rapidly. The United States Public Health Service has taken up the question of the origin of the disease and its transmission. In the meantime the demand for immediate relief is paramount and national, state and city governments are co-operating, together with thousands of citizens, in their work to eradicate the disease. Isolation and quarantine of all attacked by the disease, and a thorough sanitary fight looking to making the city as clean as possible, is the plan of campaign. It would be well for the rest of the country to take warning from New York's experience and put themselves in good sanitary condition at once. Even if filth does not generate and propagate the malady, trash piles and

dirty streets and tenements offer a possible hiding place for the germs.

NOVOCAIN NOT UNDER HARRISON ACT.—Novocain, a synthetic chemical, was recently determined by a jury in a United States Court to be without the prohibitory provisions of the Harrison Anti-Narcotic Law in that it was not a derivative or compound of opium or coca leaves. It is a local anesthetic extensively used by physicians and dentists, and is imported and dispensed in the United States to professional men by the Farbwerke-Hoechst Company. Under a ruling of the Treasury Department that any synthetic substitute for cocaine was taxable under the Harrison Act, the Farbwerke-Hoechst Company paid, under protest, paid the tax to the Collector of Internal Revenue and brought action for the recovery of same, in order to demonstrate that novocain, holocain, orthoform and anesthesin were not derivatives of coca leaves or opium, and contained no habit-forming drugs.

JOURNAL DISCONTINUED.—Announcement has been received that the *Cincinnati Medical News* has been discontinued. Dr. A. G. Kreidler, formerly editor of the *News*, is now the editorial staff of the *Lancet-Clinic*.

PERSONALS.—Dr. Isadore Dyer returned during the month from Fort Sam Houston, San Antonio, Texas, where he was ordered on temporary duty as a member of the Medical Reserve Corps. Dr. Rudolph Matas with Dr. Dyer served as an examining board for applicants to the regular army medical corps at the examinations held in New Orleans, July 17 to 22, inclusive.

Dr. J. T. Halsey (New Orleans) is spending the summer with his family at Bernardsville, N. J.

Dr. M. Feingold (New Orleans) is still enjoying a long-needed rest in Colorado, but expects to return for the opening of college.

Several Louisiana members of the Medical Reserve Corps are on duty with the army services along the border and in Texas: Dr. H. B. Gessner, at Nogalez, Arizona; Dr. J. F. Dunshie, at Ajo, Arizona; Drs. L. C. Scott, Trepagnier and LaCroix, at Fort Bliss, Texas; Drs. J. A. Bethea and A. E. Graham, at Fort Sam Houston; J. C. Willis, at Brownsville, Texas.

Dr. C. C. Bass (New Orleans) has returned from his vacation in Honduras, Central America, where he was engaged in a malarial survey of several plantations near Ceiba.

REMOVALS.—Dr. O. H. Burton, from Hot Springs to Crystal Springs, Ark.

Pediatrics, from 25 East 60th Street, to 355 West 145th Street, New York City.

Dr. I. N. Adams, from Jena, to Selma, La.

Dr. K. Winfield Ney, to 1204 Maison Blanche Building, New Orleans.

Dr. Lionel Paget Player, to 509-516 Sutter Street, San Francisco, Cal.

MARRIED.—On June 28, 1916, Dr. William Plummer Bradburn, of New Orleans, to Miss Mary Annie Pearce, of Sarasota, Florida.

PUBLIC HEALTH NOTES.

The annual meeting of the American Association of Medical Milk Commissions was held at Cincinnati, on June 10.

Professor S. M. Gunn, director of the division of hygiene of the Massachusetts State Department of Health, has resigned and Dr. Lyman A. Jones has been named as his successor.

Since probably 50 per cent of the men working in mines in California are said to be affected with hookworm disease, the State Board of Health will hereafter issue certificates stating whether the men are free, cured or suffering from hookworm.

The annual meeting of the American Public Health Association will be held in Cincinnati, October 24 to 27. The six sections into which the association is divided are: Public Health Administration, Laboratory, Sanitary Engineering, Vital Statistics, Sociology, and Industrial Hygiene.

Beginning in September of this year, a course for public health nurses will be given in the Medical College of the Ohio State University. The principal object of the course is to supplement the education received at schools for nurses, in order that the women who take up public health nursing may be familiar with and proficient in all phases of public health work.

Plans have been completed for the erection in the city of Washington of a series of model homes, to be known as the Ellen Wilson homes. Congress has enacted a law to go into effect July 1, 1918, prohibiting the use of alley dwellings in the District of Columbia. Notwithstanding many attempts at sanitation and improvement, the morbidity and mortality in these districts has always been high.

Yale University is to have a board of health which will supervise the physical and medical examinations of students, inspect dormitories, assembly halls and other buildings, etc. The board will consist of Dr. Frederick S. Jones, dean of the college; Dr. Russell H. Chittenden, director of the Sheffield Scientific School; Dr. George A. Blumer, dean of the medical school; the professor of public health, the professor of bacteriology and hygiene, the treasurer of the university, the director of the gymnasium, and the chairman of the athletic committee.

The members of the International Health Board of the Rockefeller foundation who have formed a commission to study tropical diseases sailed on June 14 for South America. Gen. William C. Gorgas, U. S. A., who obtained a four months' leave of absence for the purpose, is at the head of the commission, and the other members are: Assistant Surgeon General Henry R. Carter, U. S. P. H. S.; Dr. Juan Guiteras, head of the Public Health Service of Cuba; Major Theodore C. Lyster, M. C., U. S. A.; Sanitary Engineer William D. Wrightson, U. S. P. H. S., and Harry H. Wakefield, secretary. The commission will go to Caracas, Venezuela, and then to Colon, will cross the Isthmus and go down the western coast of South America, stopping at Guayaquil, Ecuador, and Manaos, Pernambuco, and Bahia, Brazil.

BOOK REVIEWS AND NOTICES

Post-Mortem Examinations. By William S. Wadsworth, M. D. W. B. Saunders Company, Philadelphia and London, 1915.

This book on Post-Mortem Examinations takes up the subject from every viewpoint and considers the various aspects in their minutest details. The author has divided the book into six parts, each of which is more or less distinct, yet has a bearing on the others. In his introductory remarks, he mentions the various reasons for which a post-mortem examination may be done and describes rather briefly the reasons under the several headings. While the average physician is interested in a post-mortem only to determine the cause of death, the author emphasizes several other reasons. He describes quite clearly and accurately a good mortuary and its equipment, as well as all the instruments necessary for an autopsy.

In the part devoted to the examinations of the body, he considers every possible change in the external appearance and by means of clear photographs shows the results or effects of death from violence, drowning, asphyxiation, electrocution, etc. The part on the inspection of the internal organs is equally as good.

The book is very extensively illustrated, there being over 300 original illustrations, most of which are photographs. These photographs show every conceivable object used in the performance of an autopsy and covers most of the various steps ordinarily followed. There are also several interesting charts useful in keeping records of the autopsy findings.

The book should appeal especially to coroners and men particularly interested in the subject of post-mortems from a medico-legal aspect, as the author considers the subject more from that angle and devotes quite an interesting part to medical evidence. It should also appeal to those men who look upon the performance of an autopsy as an easy task.

The author impresses one with his knowledge of the subject and for the most part his style is quite pleasing. The manner in which he pleads for a humane personal attitude to a dead body is unusual, yet none the less gratifying.

J. A. Lanford.

The Principles and Practice of Obstetrics, by Joseph B. DeLee, M. D. W. B. Saunders and Company, 1915.

When the first edition of this magnificent book appeared two years ago, it received immediately the enthusiastic approval of the medical profession. No publication in the English language approached it in the amount of material condensed into one volume and the profuseness of illustrations. It approaches an encyclopedia in detail, yet its arrangement is such that it proves to be an excellent textbook for students and, at the same time, the most convenient reference work for the busy practitioner.

The first edition was rewritten several times and a second edition became necessary in two years, which proves without further comment the need for such a work.

The first distinctive feature of the text to attract attention is the illustrations. Dr. DeLee has managed to introduce nearly 1,000 illustrations covering every phase of the text, the majority of which are original.

It would not be possible to comment in detail on the arrangement of various views expressed in the subject matter. Every phase of modern obstetrics has been carefully considered. The very latest subjects, "Twilight Sleep," Gas-Oxygen Anesthesia, Abderhalden's Reaction, Blood Pressure in Pregnancy and Labor, Extra Peritoneal Cesarean Section, and other subjects of the day are set forth with accuracy and fairness.

The reader will soon appreciate that the author is thoroughly familiar with obstetrical literature and has combined with his knowledge of the subject a ripe experience, mature judgment and, withal, an enthusiasm for interesting details that adds a valuable feature, especially for students.

If any chapter of the book is worthy of special comment, I should recommend those dealing with toxemias and infections. The author here shows a knowledge of pathology and practical experience that makes his opinions especially valuable.

A review might include a discussion of some of Dr. DeLee's views on various subjects, but, from what has been already stated, we must agree that this book will materially assist in placing American obstetrics in the first rank of similar publications in any language.

Miller.

Cancer of the Stomach. A Clinical Study of 921 Operatively and Pathologically Demonstrated Cases. By Frank Smithies, M. D. With a chapter on Surgical Treatment of Gastric Cancer, by Albert J. Ochsner, M. D. W. B. Saunders Company, 1916.

This is a book of over 500 pages in which the author attempts to set forth facts which are considered valuable, from a study of 921 operatively and pathologically demonstrated instances of gastric cancer.

The cases and records comprised a part of the author's services extending over ten years at the University Hospital (Ann Arbor, Mich.), the Mayo Clinic and the Augustina Hospital.

The subject is divided into 12 chapters, dealing with every phase of gastric cancer, from the general distribution and etiology, to the non-surgical treatment.

The first chapter which would interest the reader in a book dealing with this subject would be the division on Symptomatology and Diagnosis. The author's tabulated statements as to the incidence of certain symptoms are extremely interesting and should naturally assist in impressing the careless practitioner of the extreme importance of systematic history taking. For example, in the group in which gastric cancer developed in patients with years of antecedent "dyspepsia" of the peptic ulcer type, 47.3 per cent showed that malignancy had been superimposed upon a previously benign type of dyspepsia. "The anamnesis alone brings out the characteristics of the disease in each of its stages." In the pre-carcinomatous period, he states, the average duration of all symptoms in the first stage of the ailment that were clinically benign was 10.5 years.

"This long antecedent history of gastric malfunction proves that the majority of our cases of gastric cancer did not develop in patients who had previously been in good health." In 90 per cent of such cases the histories showed "spells" of epigastric distress or actual pain.

Such statements, of which there are many, are impressive and have been arranged in a readable manner and not as dry statistics.

The chapter on the Examination of Gastro-Intestinal Function is rather lengthy and bristles with chemical formulae. The author is a staunch defender of the test meal in the diagnosis of cancer. He states that there are few clinical methods, and certainly no clinical laboratory procedure, which enables one to estimate the status of a given case of gastric cancer so quickly, accurately and inexpensively as does intelligent scrutiny of the test meal data. Unfortunately, however, he emphasizes at the beginning of this paragraph that he is considering well established cancer.

While marked progress has been made with X-ray as a diagnostic measure, Dr. Smithies does not believe it to be of special value until such complications as deformities, stenosis or adhesions to adjacent structures alters normal rela-

tions. The diagnosis must be made clinically and chemically.

Anyone who has had occasion to collect statistical data will appreciate the amount of work done in the preparation of this book, and the author deserves commendation for the manner in which it is arranged. The surgical world already knows Dr. Ochsner's ideas regarding surgery of gastric cancer. In this book he has given his views in a concise manner which could hardly be improved upon.

Miller.

Pulmonary Tuberculosis, by Maurice Fishberg, M. D. Lea & Febiger, Philadelphia and New York, 1916.

In the preface, the most interesting part of this book, the author gives his opinion that "incipient" does not always mean curable tuberculosis; and "advanced" disease does not necessarily indicate a hopeless outlook.

He pointedly brings out the relative value of the institutional and "home" treatments of tuberculosis. He attempts to make a sharp distinction between infection and disease, or tuberculosis and phthisis.

The chapters on Tuberculosis Infection, Phthisiogenesis, Pathology and Morbid Anatomy give a very concise expose of these important subjects.

Much stress is laid upon the clinical findings and personal history of the patient in diagnosis.

The author believes that active tuberculosis—manifested by symptoms of bacterial intoxication—is the only type of the disease necessitating a rigid enforcement of the "home" and "institutional" treatments.

Non-active tuberculosis is not considered at all in this book. There is nothing new presented in the chapters on Differential Diagnosis and Treatment.

Durel.

The Practitioner's Medical Dictionary, by George M. Gould, A. M., M. D. Third edition. Revised and enlarged by R. J. E. Scott, M. A., B. C. L., M. D. P. Blakiston's Son & Co.

In noticing this new edition of a standard dictionary we may quote the publishers who state that the object in presenting a new edition was to provide a modern dictionary that should be up to date and issued in a for mconvenient to handle and to be had at a low price (\$2.75). With over 70,000 words, 962 pages, flexible binding, and clear and well arranged type, the book would seem to fulfil the publisher's intention.

The American Illustrated Medical Dictionary, by W. A. Newman Dorland, A. M., M. D., F. A. C. S. Eighth edition, Revised and Enlarged. W. B. Saunders Company, Philadelphia and London.

This popular dictionary grows in volume with each new edition, showing its response to medical advance.

The present edition contains 1135 pages, 331 illustrations, 119 in colors; 1500 new terms have been added.

Medical and Veterinary Entomology, by William B. Herms, The MacMillan Co., New York.

To the student of tropical diseases some knowledge of entomology is essential and it is especially gratifying that this work should have come from so authoritative a source.

The book is arranged from the standpoint of its application to disease and is presented in terms which any student may understand. The author puts the object of the book plainly in saying that it is an attempt to systematize the subject rather than an exhaustive treatise. Enough references are given to other texts, however, to afford wider studies for those interested.

Not only are the commoner disease bearing insects described and their association detailed, but considerable space is given to the discussion of prevention.

Altogether the work is timely and eminently worth while.
Dyer.

Nervous Children. Prevention and Management by Beverly R. Tucker, M. D. Richard C. Badger, Boston.

The author divides the general causes of nervous disorders in children into inheritance, environment and acquisition and proceeds to discuss these in detail, correlating the physiological, physical and domestic phases of each division. Special diseases are touched upon, and the application of the essential ideas brought to bear upon these. The book is a co-ordination of essays on various phases of the general subject, without any idea of a systematic treatise. As expressing the views of a careful observer this little book is well worth reading.
Dyer.

Bandaging, by A. D. Whiting, M. D. Illustrated. W. B. Saunders Company, Philadelphia and London.

With a multitude of excellent illustrations and with simple and explicit text all the bandages usually employed are demonstrated in this little book of some 130 pages. The work is practical and commends itself for the clear photographs showing the exact detail of each bandage discussed.

D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for June, 1916.

Cause.	White	Colored	Total
Typhoid Fever	4	2	6
Intermittent Fever (Malarial Cachexia).....		4	4
Smallpox			
Measles			
Scarlet Fever			
Whooping Cough			
Diphtheria and Croup.....		1	1
Influenza	2		2
Cholera Nostras		1	1
Pyemia and Septicemia.....	44	48	92
Tuberculosis	34	5	39
Cancer	2	2	4
Rheumatism and Gout.....	3		3
Diabetes	2		2
Alcoholism	2	1	3
Encephalitis and Meningitis.....			
Locomotor Ataxia	12	7	19
Congestion, Hemorrhage and Softening of Brain.....	2	2	4
Paralysis	1		1
Convulsions of Infancy.....	10	7	17
Other Diseases of Infancy.....	1	2	3
Tetanus	3		3
Other Nervous Diseases.....	52	33	85
Heart Diseases	2	3	5
Bronchitis	7	11	18
Pneumonia and Broncho-Pneumonia	4	4	8
Other Respiratory Diseases.....			
Ulcer of Stomach.....	1		1
Other Diseases of the Stomach.....	17	12	29
Diarrhea, Dysentery and Enteritis.....	3	1	4
Hernia, Intestinal Obstruction.....	8	3	11
Cirrhosis of Liver.....	4	2	6
Other Diseases of the Liver.....	1		1
Simple Peritonitis.....	11	3	14
Appendicitis	22	22	44
Bright's Disease	10	10	20
Other Genito-Urinary Diseases.....	4	4	8
Puerperal Diseases	5	1	6
Senile Debility	4	1	5
Suicide	26	19	45
Injuries	13	28	41
All Other Causes			
Total	316	239	555

Still-born Children—White, 25; colored, 18; total, 43.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 13.74; colored, 28.12; total, 17.62. Non-residents excluded, 14.76.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure.....29.94
 Mean temperature

Mean temperature

Total precipitation

Prevailing direction of wind, southwest.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

COLLABORATORS

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JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

C. C. BASS, M. D., Tulane University of Louisiana.
RUPERT BLUE, M. D., Surgeon General, United States Public Health Service.
H. D. BRUNS, M. D., Tulane University of Louisiana.
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EDITORIAL

METCHNIKOFF.

The passing of Metchnikoff is more than an incident in the history of medicine; it marks an epoch which began with the later work of Pasteur. The mantle of Pasteur's endeavor really fell on Metchnikoff's shoulders, for he alone stood for the traditions of the *Institut*, which graduated Phisalix, Roux and other brilliant scientists, who removed to other fields of effort. Even while Pasteur was yet alive, in the decade before his death, Metchnikoff and Roux were engaged in training younger men from many countries, and the inspiration derived from the triple instruction has carried far.

A number of the present generation of New Orleans physicians remembers the careful teaching of Metchnikoff, whose quiet but impressive method never failed to carry conviction. His philosophies have influenced medical thought for nearly a generation and his conclusions now color accepted theories in practise as well as in the laboratory.

When the history of medicine for the current period will have been written, Metchnikoff will survive among the great geniuses directing the thought of his time. He may have failed to profit by his theory of living to old age—but how many are overtaken before their labor bears its ripest fruit.

No memorial of Metchnikoff can be written without the tribute to his unselfishness in the field of science which claimed him at all times; to his loyalty to the *Institut*, which nurtured his genius; to his modesty, which survived his successes.

To those of us, who had a personal contact with Metchnikoff on more than one occasion, there comes a sense of loss, which grows with the reflection that in the midst of so glorious a career, there should have been so sad an occasion for the passing.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

The National Board of Medical Examiners announces its first examination to begin October 16, 1916, in Washington, D. C. The examination will last one week and is open to graduates of Class A medical schools, who have had one year of acceptable hospital intern service. Other details may be had from the secretary, Dr. J. S. Rodman, 2106 Walnut street, Philadelphia.

Rather general notice has been taken of this National Board, founded by the late Wm. L. Rodman, and furthered by him up to his untimely death. The purposes of the Board are so high, that the support of the entire profession should be given to it. The sole aim is to provide a standard examination for medical graduates which shall be of such a character as to deserve and to obtain recognition everywhere. The Army and Navy Departments have already signified the intention of accepting the certificate of this board as satisfying the examination usually required by them and a number of states have authorized the examining boards to accept the certificate of the National Board for registration, without further examination.

The purposes of the board are wholly untrammled by any monetary difficulties as the Carnegie Foundation has provided for the expenses of operation.

This makes the examination of candidates almost an honorary and academic procedure, for no fees are charged for the examination itself, a registration fee of \$5 alone being required.

The lack of uniformity in State board examinations—no matter how thorough some of them may be—makes reciprocity a doubtful procedure, with a standard examination, based upon the highest sort of requirements and conducted with a thoroughness which may be compared only with the examination of the English Conjoint Board for the Royal Colleges, the basis for qualification in the United States must in time come up to a high plane.

PREVENTION OF INFANTILE PARALYSIS.

The widespread incidence of poliomyelitis in this country and the development of an epidemic focus in New York has occasioned much concern over the whole country.

State Boards of Health are active in keeping track of the sporadic cases, with a view to preventing the spread and the public generally is being instructed in matters related to this object.

A conference of prominent scientific and laboratory men from various centers met in New York during the week ending August 5, and outlined methods of investigation which might lead to a better knowledge of the disease itself. Another conference of State health officials and the U. S. P. H. S. was called for the latter part of August with the idea of reviewing the situation.

Such activity in the face of a threatened pandemic is highly commendable and should prove fruitful of result.

Meantime little progress has been made in the way of curing the disease. Most cases have been seen too late to make the Flexner serum of any service. Returns on the use of adrenalin are not yet in, so that no conclusions are yet warranted. The interest in the whole question is acute, both in lay minds and among medical men. The advice, therefore, coming from the

Public Health Service in a recent bulletin is timely and deserves extended notice:

"Infantile paralysis is probably caused by a very minute organism found in the nasal, mouth and bowel discharges of those who have the disease or who are carriers of the germ without themselves suffering from the ailment. All of the steps in the spread of the infection are not known but if this germ can be prevented from passing from the infected to the well person, the disease will cease.

"Infantile paralysis is not a disease of recent origin. Sporadic or scattered cases have occurred throughout the country for many years but it is only during the last decade that the infection has assumed epidemic proportions in the United States. The present epidemic in New York City, on account of its magnitude and virulence, has awakened the residents of many communities to the danger of the importation of the disease into their own midst. This danger is real, but if due precautions are exercised it is believed that the epidemic will subside.

"The actual control of the present epidemic must be left to the city, State and Federal health authorities. These organizations will properly quarantine and care for affected persons, prescribe sanitary measures and limit as may be necessary the travel of individuals in order to protect neighboring districts from the infection. Individuals and communities, however, can do much toward their own protection.

"Poliomyelitis is probably spread directly or indirectly, through the medium of infective secretions. Account must therefore be taken by communities of every means by which such secretions are disseminated. Promiscuous expectation should be controlled. The common drinking cup affords a method for the interchange of material of this nature and should therefore be abolished. Rigid cleanliness of glasses and utensils at soda fountains, in saloons and other public places should be enforced. Flies, roaches and other vermin, by coming in contact with infective secretions, may possibly convey them to our food and thus directly bring about the development of disease. Therefore eliminate insects. Street and house dust bear a definite relation to the spread of many infections and it is not unreasonable to presume that they may be a factor in the dissemination of infantile paralysis. Maintain strict cleanliness of streets, yards and alleys in order to prevent the breeding of insects and other vermin.

"See that all garbage and waste are properly cared for and collected at regular and frequent intervals. Guard all food supplies, especially milk and other perishable products. Digestive troubles of children arising from the ingestion of food of questionable quality may lower resistance. Assemblies of children in infected localities are to be discouraged, if not actually forbidden. While the above measures are in a sense general, and applicable to many epidemic diseases, their importance should not be overlooked.

"A child may convey the disease to others even after a lapse of several weeks. For this reason quarantine should be maintained for a considerable period, usually from six to eight weeks, and should be adhered to during this time. Disinfection of the room following recovery is advisable."

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

DISEASE AND DEATH RATE IN HUMAN TYPES.

By ROBERT BENNETT BEAN, B. S., M. D.

(From the Anatomical Laboratory of the Tulane University of Louisiana).

Looked at in broad groups, the Hyper-ontomorph and the Meso-ontomorph, presently to be described, are the extreme forms of the white peoples, and the average individual, or normal person, is intermediate between the two. The physician will meet more of the extreme forms in practice and the hospitals will be filled with them, therefore it may be well to describe these two extreme types of the white people in some detail.

The Hyper-ontomorph is an undersized individual, about five feet six inches or less in height, thin, with long, narrow face and pointed chin, long, narrow, high nose, small, thin, long, narrow ears with everted tragus, antitragus and anthelix, and deficient helix that is turned back towards the head. The trunk is long and slender, the chest thin from before backward, and the abdomen flat or depressed. The arteries and veins are thin and elastic, with sclerosis only in the aged, and the kidneys are unusually good. The brain is large relative to the size of the individual and the cerebellum is small and has few simple convolutions. The pons is also small. The type is not muscular, the bones and muscles are small and thin.

The Meso-ontomorph is of medium size, about five feet eight inches or more in height, heavy, with oblong or oval face, rather broad, but high nose, almost flat ears that are large and broad, with moderately everted tragus, antitragus and anthelix, and large helix. The trunk is broad and thick, the abdomen full or protuberant. The arteries and veins are thick and inelastic, liable to early sclerosis and the kidneys are very bad. The brain is small relative to the size of the individual, and the cerebellum is large and has many intricate convolutions. The pons is also large. The type is stockily built, muscular, with large bones and muscles.

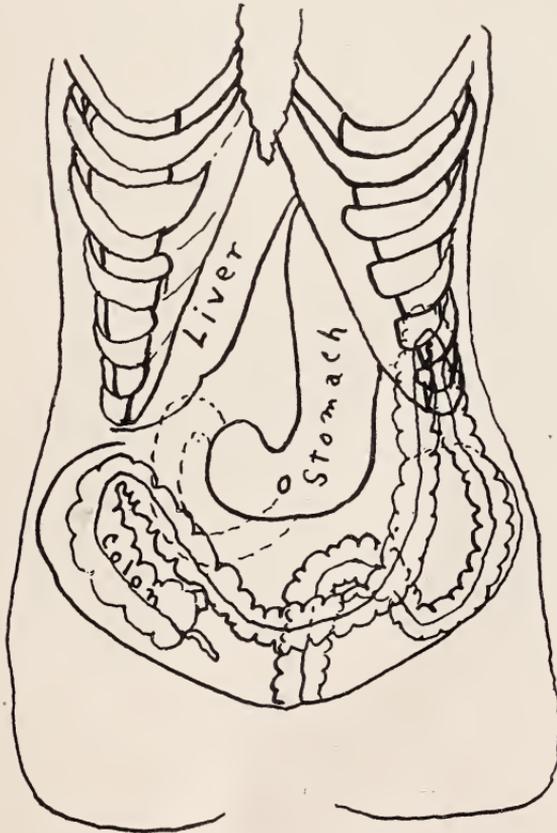
The Alimentary Canal and Viscera in the Hyper-Ontomorph and the Meso-Ontomorph (Percy Brown).

Certain fixed points of the alimentary canal vary in their position and security of attachment due no doubt to the time and extent of their fixation in prenatal life. The chief of these fixed points are the cardiac orifice of the stomach where the esophagus comes through the diaphragm, the pyloric orifice of the stomach, the junction of the duodenum and jejunum, the hepatic and splenic flexures of the colon. Some of these points become fixed early in prenatal life, others late. The latter, which are the pylorus, the junction of the duodenum and jejunum, and the hepatic flexure of the colon, are related to the rotation of the stomach to the right, and the formation and fixation of the intestinal loop. They are apparently more unstable than the others, and when they become fixed early they differ from when they become fixed late. The one represents the Hyper-ontomorph, the other, the Meso-ontomorph. In the Hyper-ontomorph the stomach is small, vertical, low—often below the umbilicus—, J shaped, and on the left side; the liver is small, low, almost vertical, and far to the right; the hepatic flexure of the colon is low, often lying entirely in the right iliac fossa, the splenic flexure is high and shares the dome of the diaphragm with the stomach, the transverse colon hangs far down, often in the pelvis, in the form of a long loop, and the small intestine is unusually short, often only 10 to 12 feet in length. The sigmoid flexure of the colon is often long and reaches the umbilicus.

In the Meso-ontomorph the stomach is large, diagonal or transverse oval, high, and partly on the right side; the liver is large, high, diagonal or transverse, and partly on the left side; the colon is high, both flexures are about on the same level, the transverse colon is short and high with a small loop; and the small intestine is very long, frequently about 30 feet in length.

Measurements of the length of the small intestine have been made, and although the lengths are only approximate because of the difficulties in measuring, the liability of the intestine to stretch or contract, and the pathological conditions that may alter the length, yet the differences in the types are fairly constant, quite evident in many cases, and the correlation of length of intestine and type is positive. The length of the small

intestine in 35 Hyper-ontomorphs is 16.38 feet, the shortest 10 feet, the longest 30. The length in 47 Meso-ontomorphs is 22.9 feet, the shortest 12 feet, the longest 33 feet. The length in 49 mixed Meso-Hyper is 21.4 feet, the shortest 12 feet, the longest 30 feet.



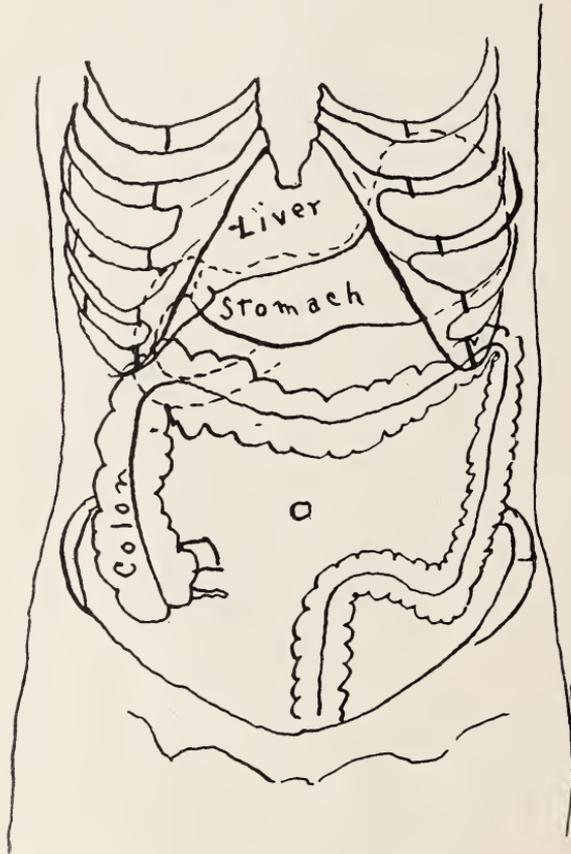
Hyper-ontomorph.

Table 1. Length of the Small Intestine in Feet.

	10-14	14-18	18-22	22-26	26-30	30-34
Hyper	9	13	6	6	..	1
Mixed	2	13	19	6	7	2
Meso	1	7	11	16	7	4

The anatomical position of the stomach and colon in the Hyper-ontomorph renders the passage of food difficult, and favors the dropping of the viscera, splanchnoptosis. In fact the normal position of the viscera in this type is a mild form of splanchnop-

tosis. The stomach is down to about the umbilicus, the transverse colon is below the umbilicus, the liver is almost down to the crest of the ilium, the hepatic flexure of the colon is in the right iliac fossa, and the small intestine is largely in the pelvis. When food enters the vertical stomach, especially if in too large amounts, the tendency is for the pylorus to be carried down by the weight.



Meso-ontomorph.

Diagrammatic outlines showing the relative positions of the liver, stomach and colon in the hyper-ontomorph and meso-ontomorph.

To pass into the duodenum the food has to be forced uphill. In its further transit through the small intestine from the pelvis the food must again be forced up into the colon. It has a short climb in the ascending colon to the hepatic flexure where it again descends to the pelvis in the transverse colon, after which it has the longest climb of all to the splenic flexure. It then passes

down through the descending colon when it may finally have a long, hard, uphill passage through the sigmoid flexure before it reaches the rectum to be evacuated (see plates). There is apt to be stasis at several points, in the stomach, in the ascending colon, in the transverse coion, and in the sigmoid flexure. The food does not stay long in the small intestine because this is short and very active in the Hyper-ontomorph, therefore the small intestine

Copy of X-ray.

Mass. ontomorph on white screen
Mastelhofsch



plays a small part in alimentation of this type. In the average individual absorption of food takes place largely in the small intestine, and the large intestine absorbs chiefly water, therefore it is evident that the food of the Hyper-ontomorph must be highly nutritious and thoroughly prepared in order to be of the greatest value. A diet of meat, eggs and milk with small amounts of ripe fruits and vegetables, and nuts, thoroughly masticated, is to be desired for this type. Great care must be taken not to overload

the stomach thereby producing gastropnoxis and stagnation in the stomach with hyperacidity.

The position of the viscera in the Meso-ontomorph does not lead to grave digestive disturbances and diseases due to malnutrition, but to a plethora or too abundant nourishment, when taken in large amounts. The stomach in the Meso-ontomorph is almost transverse, high above the umbilicus, and the pylorus is almost on a level with the fundus, the liver is wholly under the ribs on the right but extends over to the left and may separate the stomach from the heart, and push up the latter organ and the lungs, the hepatic and splenic flexures of the colon are about on the same horizontal plane, the transverse colon is only slightly if at all depressed by the stomach, and the sigmoid flexure is neither high nor long. The small intestine is very long. It is also large and its great size may help to keep the other viscera high, especially because it is sluggish in action and the food stays in it a long time. As absorption is most active in the small intestine the food of the Meso-ontomorph should be of a bulky nature and not very nutritious. Fruits and vegetables should form a large part of the diet, with the addition of well cooked meat without its juices. The plethora induced by overfeeding of too rich food in this type causes disorders of the kidneys and heart to which this type is peculiarly liable, and induces changes in the arteries and veins leading to arterio-sclerosis. Resistance to acute diseases is lowered and death from pneumonia and typhoid fever is common with this type.

Goldthwaite⁴ has given a resumé of these two contrasting types from the clinical standpoint, of the Hyper-ontomorph as splanchnoptic, congenital visceroptotic, carnivorous, macrosclous, and narrow-backed, and of the Meso-ontomorph as herbivorous, broad-backed, and brachysclous to which may be added plethoric, and apoplectic.

Bryant³ has made statements based upon personal observation of the work of others that demonstrate about 140 clinical differences between the carnivorous and herbivorous types of men. So far my studies have confirmed his in many differences between the Hyper-ontomorph and Meso-ontomorph. Some of the confirmations will appear in the present work. Before proceeding I wish to emphasize the desirability of uniform terms for the two types to be discussed. Hyper-ontomorph and Meso-ontomorph

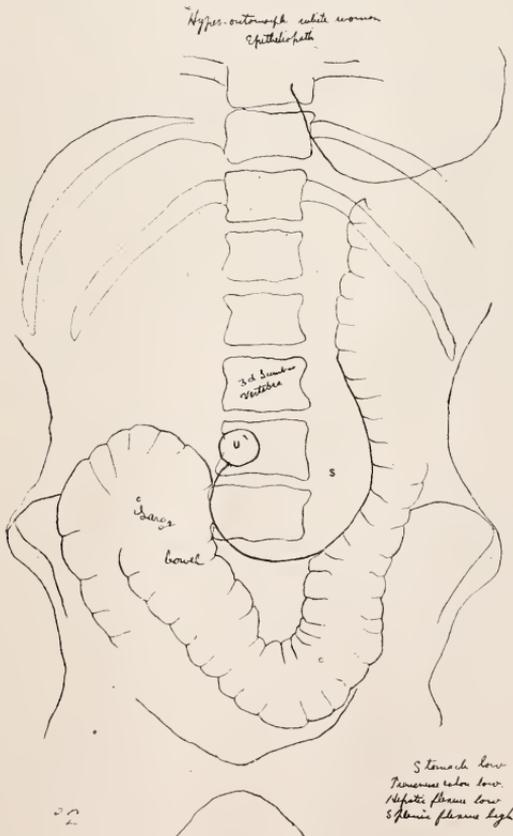
are to be preferred because they represent the type in evolution, development and anatomical structure. Epitheliopath and Mesodermopath have a meaning from the clinical and pathological point of view, and carnivorous and herbivorous from a popular and dietetic standpoint.

The tuberculous, the scrofulous, the cachectic, the leper, the pellagic are effects of the type, and so is the carnivorous habit.

The plethoric, the dropsical, the apoplectic, the broad-backed, the cardiac, the nephritic are effects of the type and so is the herbivorous habit.

The conditions are due to epithelial and mesodermal susceptibilities as a result of the Hyper-ontomorph or Meso-ontomorph type, as will be demonstrated presently. The last two terms are therefore preferable to the others.

Copy of X-ray.



My attention was called to the structural differences between the two types while in the Philippine Islands, in 1908, although I

had noticed the external differences, especially of the ear, previous to this. The discovery occurred in the following way: All unclaimed bodies in the city of Manila are brought to the Medical Department of the University of the Philippines where they are utilized for anatomical and pathological purposes. For the former I selected the thin subjects because they dissect more readily and take injections better. Post mortem examination revealed that these had usually died of tuberculosis, their arteries were elastic and free from signs of sclerosis, and their connective tissues, bone and muscle were slender and fragile. Such subjects were invariably of the Hyper-ontomorph type. At that time I associated the type with susceptibility to tuberculosis, but since then I have discovered that all the epithelial tissues seem to be more liable to disease, especially the alimentary canal, skin, and central nervous system. The Meso-ontomorph on the other hand is more susceptible to diseases of the mesodermal tissues, especially to diseases of the heart, vessels and kidneys.

The basis of susceptibility to disease is founded on the two fundamental embryonic tissues, epidermal and mesodermal. In man after the segmentation of the ovum there are two layers, the ectoderm and the mesoderm. The endoderm develops from the ectoderm, and from these two there develop the epidermis and its appendages, hair, nails, epidermal glands and the enamel of the teeth; the epithelium lining the mouth, nasal cavity, digestive tract in general and its associated glands such as the liver and pancreas; the epithelium lining the larynx, trachea and lungs; the nervous system and the nerve elements of the sense organs including the lens of the eye; and the epithelium of the urethra and bladder. From the mesoderm there develop the connective tissues including bone, and the teeth, except the enamel; the muscles striated and non-striated; the circulatory system including the blood itself and the lymphatic system; the serous membranes of the body; the kidneys and the ureters, and the internal organs of reproduction. Thus all the structures of the body are formed from the two tissues, epidermal and mesodermal. Epithelial structures may arise from mesodermal tissues, as, for instance, the serous membranes of joint and body cavities, therefore the term epithelial diseases will be used to indicate diseases that attack specifically epithelial structures. The term mesodermal diseases will be used for diseases that attack all structures

derived from the mesoderm except epithelial structures so derived.

The incidence of disease and type will be presented in relation to specific diseases beginning with tuberculosis.

Epithelial Diseases.

TUBERCULOSIS. After having determined that the Hyper-ontomorph is susceptible to tuberculosis by the post mortem examination of about 100 individuals in the Manila Morgue (1), I tested this for the living at Taytay, a town near Manila, where a complete biological survey was made of all the people of the place. My observations in the temporary hospital there were limited to a few hundred individuals, but this was sufficient to confirm previous observations. Incidentally observations were made relating to other diseases which will be given later. In the morgue 70 per cent of the Hyper-ontomorphs were found to have died of tuberculosis, and about 30 per cent of the Meso-ontomorphs also. At Taytay the following ratios of the incidence of disease and type were found:

	Lung	Circulatory	Kidney	Others
Hyper-ontomorph	50.9	13.1	0.0	19.0
Meso-ontomorph	37.7	9.4	8.3	21.1

Here it is clear that the Hyper-ontomorph is susceptible to lung trouble and is immune to kidney affections. It was here that the thought came to me that one type might be more susceptible to kidney diseases than the other, and the one susceptible to kidney disease is more or less immune to tuberculosis and vice versa.

After this about 100 more post mortem examinations were made in the Manila morgue, and it was found that of the 30 Hyper-ontomorphs 56.6 per cent had tuberculosis, and of the 61 Meso-ontomorph 8.2 per cent had tuberculosis. This was determined by using the ear type alone regardless of any other physical characteristics. Before leaving the Philippine Islands, I went to Bilibid prison, which is the penitentiary for the archipelago, and classified the ears of the patients in the ward for pulmonary tuberculosis. Sixty per cent were Hyper-ontomorphs and 40 per cent were Meso-ontomorphs.

Upon my return to the United States in 1910 my study of the types was continued in New Orleans and elsewhere as oppor-

tunity offered. At the Touro Infirmary and the Charity Hospital I have made a detailed study of the incidence of disease and type for several years. All of the physical characteristics of the individual are utilized in the differentiation of the types in these studies.

Only two individuals of the 134 afflicted with tuberculosis showed no trace of the Hyper-ontomorph form, although some of them were not of the pure type. The post mortem examination of 47 individuals with tuberculosis showed 41 Hyper-ontomorphs and 6 Meso-ontomorphs. The form which I call the Hyper-phytomorph seems to be susceptible to tuberculosis, but very resistant to a fatal issue with the disease. This type is tall, rawboned, with large face, long and broad, prominent cheek bones, large nose and long, large ears.

Individuals with kyphosis are invariably of the Hyper type if we may judge by the 61 individuals noted with this affliction, 59 of whom were Hyper-ontomorphs and 2 partly Hyper-ontomorphs.

The prevalence of tuberculosis is due not only to the almost universal distribution of the germ, and to unhygienic surroundings, but also to the type of the individual, and the presence of the Hyper-ontomorph may account for the failure of the campaigns to completely eradicate tuberculosis.

PELLAGRA. Pellagra is a disease with lesions of the skin, alimentary canal, mucous membranes and central nervous system, an epithelial disease. It has been on the increase in the United States at an alarming rate in recent years, so much so that it has been the subject of varied investigations and legislation, and no little worry to health officers and others because its etiology has been in dispute. Diet is no doubt a factor in its cause and in its cure, and there must be some reason why forced feeding is efficient in treating the disease. I hope to furnish the reason.

It was my good fortune to stay in New Orleans during the summer of 1915, and to examine the patients at the Charity Hospital ill with pellagra during the epidemic which comes each year in the early summer. In all, I have examined but 55 cases, 13 of which were examined post mortem, but there is such a preponderance of the Hyper-ontomorph that the few are sufficient to justify the assertion that this type is susceptible to pellagra, and that the presence of the type in any large numbers in the popula-

tion is an important factor in the prevalence of the disease. Of the 55 cases examined, 49 are Hyper-ontomorphs, the majority of whom are pure, although some are mixed, 5 are partly Hyper-ontomorphs and 1 is a Meso-ontomorph.

There can be no doubt that the Hyper-ontomorph is more susceptible to pellagra than are the other types, and this is in line with expectations. Pellagra attacks the epithelial tissues, therefore the Hyper-ontomorph is the one to suffer. It is needless to dwell on the symptoms of the disease.

The condition is one of toxemia with especial predilection for involvement of the central nervous system, lungs, and alimentary canal. The skin lesions are almost invariably present. The pathological picture is one of infection or inflammation, which affects the epithelial tissues more than it does the mesodermal tissues. The disease has been transmitted through the monkey by Harris⁵, and although this has not been repeatedly verified by many workers, yet there seems to be strong evidence of some active agent in the transmission of the disease.

In pellagra, as in tuberculosis, leprosy and carcinoma, there are three factors. The farmer finds it essential to have the soil, the seed, and the weather, so in certain diseases it is essential to have the susceptible type of individual, the germ of the disease, and the environment. In the case of the four diseases just mentioned it is becoming more and more evident that all the three factors play a part in the production of the disease. The reason why diet is so important a factor in the cause and in the cure of these diseases—and this is especially true of pellagra (Goldwater)⁷—is because of the nature of the alimentary canal in the Hyper-ontomorph who is so susceptible to the disease. It is necessary only to call attention to the short, small intestine, the long obstructed colon, and the low stomach.

Presentation of records for carcinoma may be very brief. Only 15 cases of carcinoma of the stomach or bowel have been seen post-mortem and every one of the individuals was a Hyper-ontomorph. There can be only one conclusion, the Hyper-ontomorph is susceptible to gastric carcinoma. It is becoming increasingly evident that diet plays a role in carcinoma (Rous⁶) and it may be decided that proper diet may prevent, alleviate and possibly cure cancer.

The Hyper-ontomorph is susceptible to other diseases of the

alimentary canal as the records from Manila, Taytay and New Orleans demonstrate. For instance, at Taytay alimentary diseases occurred in the ratio 5 in the Hyper-ontomorph to 1 in the Meso-ontomorph. Post-mortem examination of 13 cases of chronic inflammation of the alimentary canal were examined, all of which were Hyper-ontomorph, although 2 were mixed. In the records from New Orleans the disease of the alimentary canal were the following: stomach 14, diarrhea 6, typhoid fever 5, appendicitis 2, and intestinal parasites 4. All are Hyper-ontomorphs except one, although some of them are mixed types. These are few cases for final judgment, but the uniformity of results indicates susceptibility on the part of the Hyper-ontomorph for diseases of the alimentary canal.

MENTAL AND NERVOUS DISEASES. Only nine post-mortem records were obtained in Manila with diagnosis of diseases of the central nervous system, 7 insanity, 1 epilepsy, 1 myelitis, of which 7 were Hyper-ontomorphs, 2 Meso-ontomorphs. At the Touro Infirmary and Charity Hospital, 82 cases of diseases of the central nervous system were examined; neurasthenia, 33 cases, paralysis 18, exophthalmic goiter 12, insanity 6, epilepsy 5, tabes dorsalis 2, angioneurotic edema 2, sclerosis 1, herpes zoster 1, hysteria 1, and torticollis 1. Of these 75 are Hyper-ontomorphs, 6 Meso-ontomorphs. Notable is the fact that all the insane and all with exophthalmic goiter are Hyper-ontomorphs.

Mesodermal Diseases.

HEART DISEASE. From the records at Taytay there were 22 cases in which the heart was affected, 21 of which were Meso-ontomorphs and 1 a Hyper-ontomorph. In the morgue at Manila 23 cases of heart disease were examined, all but one of which was a Meso-ontomorph. In New Orleans 92 individuals were diagnosed with heart and kidney disease, and of these 81 were Meso-ontomorphs and 11 Hyper-ontomorphs. Of the latter 4 are advanced in age beyond 50 years. Among about a hundred post-mortem examinations in New Orleans, 32 showed heart lesions, of which 29 were Meso-ontomorphs and 3 Hyper-ontomorphs. There can be no doubt that the Meso-ontomorph is susceptible to heart disease.

ARTERIES AND VEINS. At the Touro Infirmary and Charity Hospital 24 cases of arterio-sclerosis were Meso-ontomorphs and

11 Hyper-ontomorphs. The majority of the latter were beyond the age of 50 years. Besides these 15 Meso-ontomorphs had aneurism and 2 Hyper-ontomorphs also. Seven post-mortems of mesodermopaths showed dilation of the aorta.

KIDNEY DISEASE. Chronic nephritis alone will be considered in this connection. In the morgue at Manila 23 cases of kidney diseases were examined, 21 of which were Meso-ontomorphs and 1 a Hyper-ontomorph. At the Touro and Charity Hospitals in New Orleans 92 individuals were diagnosed with heart or kidney disease, of which 81 were Meso-ontomorphs and 11 Hyper-ontomorphs. Post-mortem examination of 17 individuals with cardiac or renal trouble give 15 Meso-ontomorphs and 2 Hyper-ontomorphs. Finally at the Charity Hospital 16 Meso-ontomorphs and 8 Hyper-ontomorphs examined post-mortem had chronic nephritis. There can be no doubt that the Meso-ontomorph is susceptible to disease of the kidneys, especially to chronic nephritis, or Bright's disease.

A review of the hospital and morgue cases examined previous to 1915 shows a grand total of 1,002 living individuals of whom diagnosis was made, and 317 post-mortem examinations, of whom 699 were Hyper-ontomorphs and 620 Meso-ontomorphs. Of the former 402 or 57.5 per cent had diseases of the lungs, alimentary canal, nervous system or joints, epithelial structures, and only 30, or 4.2 per cent had diseases of the heart, kidneys, arteries or veins. Whereas of the 620 Meso-ontomorphs, 187 or 30.1 per cent had diseases of the heart, kidneys, arteries, or veins, and only 45 or 7.2 per cent had diseases of the lungs, alimentary canal, nervous system, or joints.

I have completed a review up to 1916 of more than 500 post-mortem examinations made upon 162 Filipinos, 250 American negroes and 100 American whites.

The post-mortem examinations are largely of unclaimed dead in the cities of Manila and New Orleans and might be called the submerged tenth of the population. The negroes do not represent so low an element as the others, because life with them has a low value and more of the average negro population is included. The individuals here recorded present a fair picture of the types as represented by their disease resistance under the conditions of a struggle for existence with handicaps and without advantages. A different picture might be revealed in a study of a different

stratum of the population under different conditions of life.

First I will present, I—The type and the cause of death, then II—The type and the age at the time of death.

I. The Type and the Cause of Death.

For purposes of convenience the diseases will be grouped under the following heads: Tuberculosis, Cancer, Central Nervous System, Chronic enteritis, Pellagra, Chronic infection, Arterio-sclerosis, Chronic heart, Chronic kidney, Pneumonia, Acute infection, and Accident. All conditions that do not come under any of these headings are omitted; there are very few of these however.

There is no great racial difference in susceptibility to disease, but there is a great type difference that is true regardless of sex or race, climate or habit. This may be presented in percentages combining the races and sexes.

TABLE 2. TYPE AND DISEASE.

	No.	Tb.	Cancer.	C. N. S.	Chron. enteritis.	Pellagra.	Chron. Infection.	Art. Scl.	Chron. Heart.	Chron. Kidney.	Pneumonia.	Act. infect.	Accident.
Hyper-Ontomorph	190	50.5	5.8	3.2	7.9	5.8	5.3	6.3	3.2	4.7	2.6	3.7	1.0
Hyper-Meso	38	31.8	4.5	1.1	3.4	3.4	6.8	1.1	8.0	13.6	10.2	9.1	6.8
Meso-Hyper	41	19.5	....	....	....	2.4	7.2	2.4	24.4	29.3	7.3	2.4	4.9
Meso-Ontomorph	141	12.8	0.7	....	0.7	....	5.0	5.7	28.4	29.8	7.1	4.3	5.7

The Hyper-Ontomorph.

The great scourge of the Hyper-ontomorph is tuberculosis, which occurs more than all diseases in this type among the submerged tenth. If we take the diseases that occur in more than 5 per cent of the diseased Hyper-ontomorphs and those that occur in less than 5 per cent, there is a well marked division into epithelial and mesodermal diseases. In the plus 5 per cent group tuberculosis heads the list, of course, then in order come chronic enteritis, arterio-sclerosis, cancer, pellagra, and chronic infections. In the minus of 5 per cent group come accidents, pneumonia, chronic heart disease, diseases of the central nervous system, acute infections and chronic kidney diseases.

The reason for the greater percentage of arterio-sclerosis among the Hyper-ontomorphs is due to the greater age at death in this type as will be explained presently.

The small number of accidents among the Hyper-ontomorphs may be explained by less exposure to violence and greater care on their part because of slight physical development.

The Meso-Ontomorph.

Chronic heart and kidney diseases are the scourge of the Meso-ontomorph among the submerged tenth, because they afflict more of this type than all other diseases combined. Tuberculosis is not a negligible factor although of less importance than for the Hyper-ontomorph. Pneumonia is next to tuberculosis in fatality for the Meso-ontomorph.

In conclusion it may be said that no great racial or sexual difference in susceptibility to disease is derived from a study of more than 500 post-mortem examinations.

Susceptibility on the part of the Hyper-ontomorph to diseases of the epithelial tissues, notably tuberculosis, skin, alimentary, and nervous diseases, and cancer, is indicated, and susceptibility on the part of the Meso-ontomorph to all diseases of the mesodermal tissues as suggested by heart and kidney disease, arteriosclerosis, pneumonia, weak heart and kidney, acute infections and accident is also indicated.

II. The Type and the Age at the Time of Death.

The effect of age upon type has been a question that has continually recurred, and the following data bear upon that question.

Table 3. Age at Death by Type.

	No.	20-40	40-60	60-80	over 80
Hyper-Ontomorph	163	48.5	28.2	20.3	3.0
Hyper-Meso	114	41.2	36.8	20.2	1.8
Meso-Hyper	39	33.3	53.8	12.9	..
Meso-Ontomorph	113	31.9	50.5	16.8	0.8

The death rate of the Hyper-ontomorph decreases with a fairly regular rate from the earliest to the latest periods, is greatest between 20 and 40, least after 80, whereas the death rate of the Meso-ontomorph increases from the first to the second period, is by far the greatest between 40 and 60 and is materially reduced after 60. More Hyper-ontomorphs than Meso-ontomorphs live beyond the age of 60, but more Hyper-ontomorphs than Meso-ontomorphs die before the age of 40.

Not only is there a selective death rate as to type, but also as to disease.

Table 4. Disease and Age at Death.

	20-40	40-60	60-80	over 80
Tb.	50.8	34.7	13.4	1.6
Chronic Heart and Kidney.	32.1	39.6	20.8	7.5

Tuberculosis appears at death more frequently between 20 and 40 than at any other time, whereas chronic heart and kidney disease appear more frequently between 40 and 60. This is to be expected because of the susceptibility of the Hyper-ontomorph to tuberculosis and the large per cent of deaths of this type between 20 and 40, and because of the susceptibility of the Meso-ontomorphs to chronic heart and kidney disease, and the large per cent of deaths of this type between 40 and 60.

Should the results obtained by this study be verified and also found to be true for other classes of the population than the submerged tenth, they should prove of great value.

Summary.

(1) Human types that represent different degrees of susceptibility to disease may be segregated.

(2) The two extreme types among white people are the Hyper-ontomorph or carnivorous and Meso-ontomorph or herbivorous.

(3) The Hyper-ontomorph is susceptible to diseases of the epithelial tissues and more or less immune to diseases of the mesodermal tissues other than epithelial.

(4) The Meso-ontomorph is susceptible to diseases of the mesodermal tissues and more or less immune to diseases of the epithelial tissues.

(5) The Hyper-ontomorph has a high early death rate, 20 to 40 years, yet many live beyond the age of 60.

(6) The Meso-ontomorph has a high death rate at middle age, 40 to 60, and not so many live beyond the age of 60.

(7) The high early death rate of the Hyper-ontomorph is due largely to tuberculosis.

(8) The high later death rate of the Meso-ontomorph is due largely to heart and kidney disease.

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PULMONARY SYPHILIS—REPORT OF A CASE.

By J. MAXIME PERRET, M. D.,

Charity Hospital, New Orleans.

With the advent of the Wassermann test and the use of the Röntgen rays as an aid in the diagnosis of intra-thoracic diseases, it seems as if Osler's statement that pulmonary syphilis is very rare, will soon be found not to be so. A professor of medicine while delivering a lecture on tuberculosis remarked that an important point in the diagnosis of the disease was always to keep it in mind. And so it is with syphilis of the lungs. Around the Charity Hospital this manifestation of the protean disease is not lost sight of, so that a sufficient number of cases has been recognized, and the condition is regarded with interest but not considered a rarity.

The diagnosis is to be made only after a careful consideration of all the facts in the case and a good deal will depend on elimination, for the signs and symptoms are those of a chronic bronchitis and broncho-pneumonia and hence could be simulated by tuberculosis, influenza, blastomycosis, etc. Careful and frequent sputum analyses are necessary. A good X-ray plate is a help. Finally a positive Wassermann test and rapid improvement under anti-syphilitic treatment make the diagnosis positive.

History of the Case.

R. McK., white male, 39 years, a native of Texas, a farmer, was admitted to a surgical ward on Oct. 13, 1915, complaining of swelling of his neck, hoarseness and "rheumatism."

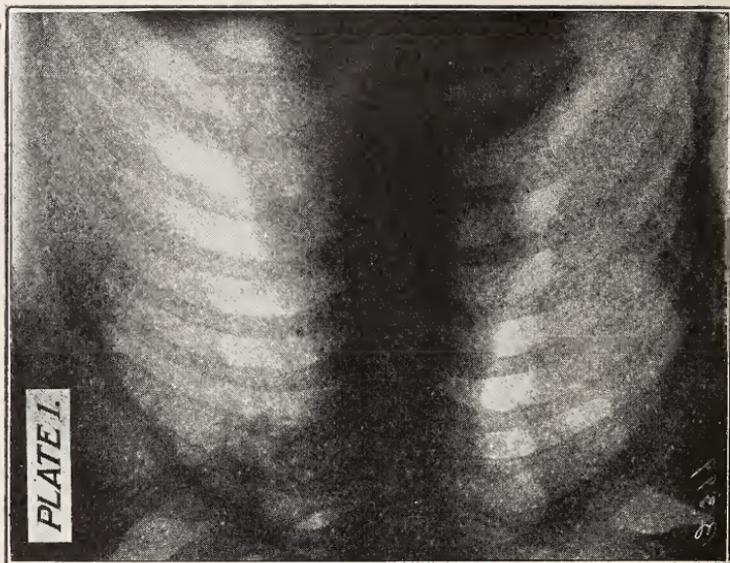
Family History did not contain anything of interest. It was negative for tuberculosis and cancer.

Past History: Measles and varicella in infancy. Frequently had had malarial fever. In 1913, was operated upon for a left varicocele and left inguinal hernia and left testis which was said to be tuberculous was removed. Six weeks later, right testis was removed for a similar reason. One month later, patient returned to work and remained well for about a year.

Habits: Up to eight years ago, was a heavy drinker; drinks moderately at present. Does not smoke.

Venereal History: Urethritis in 1897 and 1907; first attack was complicated by a poly-arthritis; no

permanent disability. In 1898 for a period of eight months, had several small ulcerations on penis, which would heal, only to ulcerate again after a few days. Sore throat one month after the appearance of the sores. Took mercury for eight months.



Present Illness: Onset gradual in March, 1915, with malaise, afternoon temperature which varied between 101 and 102° F., a dry cough which became productive in May, 1915. Would have occasional paroxysms of coughing, after which he noticed that the sputum would be streaked with blood.

Began to get hoarse in July, but this hardly caused him any inconvenienc until September when he could speak only in a whisper and noticed that larynx and surrounding tissues were swollen; this progressed for a week, diminished for several days and afterwards began again to swell. In September a physician told him that he had consumption.

Towards end of July, 1915, his left elbow became swollen and painful. In the last two weeks the pains in his arm are more severe at night. On admission the elbow is very painful and he holds his left forearm almost straight. In September, 1915, had pain and swelling of left hip joint which persisted for two weeks. Habitually constipated. Sleeps poorly. Bad appetite. Weight 155 pounds in March; 114 pounds in October.

Physical Examination:

Emaciated, poorly developed, adult white male. Skin: Many small white scars, having a general distribution. Scars of previous operations in inguinal regions. Lymphatic glands not palpable. Knee jerks were lively. Eyes: Pupils equal, reacted to light and accommodation. Ears and nose negative. Mouth: Slight pyorrhœa alveolaris. Small white ulcerations on posterior pharyngeal wall. Neck: Swelling of larynx and peri-laryngeal tissues which form a mass about the size of a small apple. Overlying skin is freely movable. Patient is very hoarse. Extremities: Left elbow joint is spindle-shaped, very painful and forearm is held at an angle of 145 degrees with arm; no power of flexion; slight pronation and supination; the joint is slightly swollen; thickening of outer surface of lower third of the arm. Chest: Bony landmarks prominent. Heart: Regular, slightly rapid, sounds clear; no enlargement. Lungs: Hyperresonant note on percussion. Breathing diminished over entire chest and is of the cog-wheel type, especially in interscapular spaces. Crepitant rales. Abdomen: Scaphoid in shape. No tenderness nor rigidity. Liver, spleen and kidneys not palpable. Genitals: Penis: No visible scars. No urethral discharge. Testes absent.

Laboratory Findings:

Urine negative for albumen, sugar and casts.

Blood: Hemoglobin 60%. Total red blood cells per cubic m m 3,306,250. Total white blood cells per cubic m m 5,208.

Differential Leucocytic Count:

Lymphocytes	28%
Neutrophiles	72%

Color Index 0.8. Negative for malarial plasmodia.

Wassermann and Tschernogubow were both strongly positive. Sputum was profuse, foul, muco-purulent. It was examined on twelve different occasions, twice the anti-formin method was used, and it was always negative for acid fast bacilli.

X-ray report 10—16—15.

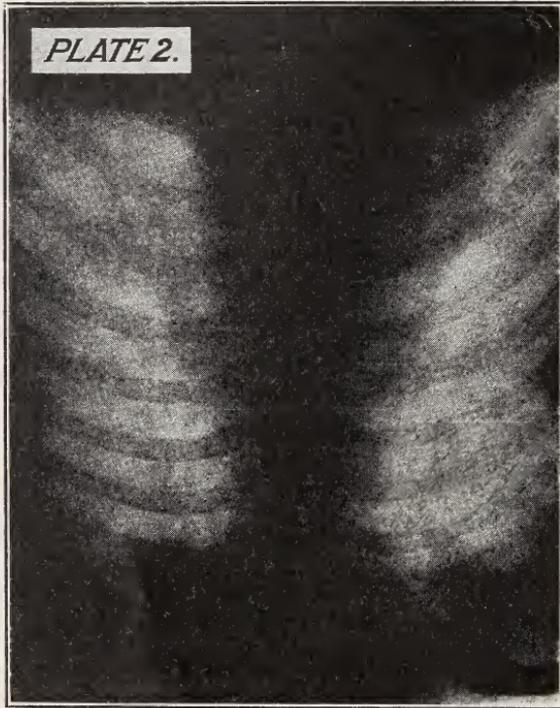
(a) Chest: Characteristic T. B. infiltration of both lungs (upper lobes more so).

(b) Left elbow: Moderate degree of bone atrophy. Joint

presents evidence of an arthritis, but no active process of necrosis present.

X-ray report 10—30—15.

Chest: Lungs—



Comparing findings of present examination with those of 10-16-15 there does seem to be some improvement, however, variations in density of plates (exposure) must be considered. 10-14-15. A laryngologist called in consultation, reported as follows:

Edema of arytenoids with slight fixation; tubercular laryngitis.

The following day another specialist, perhaps influenced by the Wassermann report which had now come back, pronounced the case syphilitic.

Temperature: From October 13 to 23, varied between 101 and 102° F. in afternoon; from October 24 to November 6, only twice did it reach 99° F. Respirations 20 to 24 per minute. Pulse was usually in the eighties.

Treatment: Had four intra-muscular injections of bichloride of mercury, gr. 1-4, one dose being given every other day. After this short course of mercury, he became salivated, the bad condition of his mouth, probably being responsible. Also was given the saturated solution of potass. iodid., beginning with gtt. 10 and increasing each dose by gtt. 1.

Progress Notes.

10-22-15—Feels better. Does not have to strain so much to speak and is less hoarse. Can now use left forearm. Diminution of pains in left elbow.

10-27-15—Slightly salivated.

10-30-15—Hoarseness and elbow pain almost entirely gone. Is now a helper in ward.

11-2-15—Improvement continues.

11-6-15—Elbow is now painless. Normal motion regained. Nutrition of muscles of right arm has improved. Examination of chest: dullness in interscapular spaces, especially right. Distant breathing throughout chest. Crepitant rales at both bases posteriorly. Few sonorous rales at both bases posteriorly. Few sonorous rales at right apex. Voice clear. Feels very well and has gained in weight.

Discharged and advised to continue anti-syphilitic treatment.

5-7-16—A letter received from patient says that he is working and feeling well. Has not had any fever or cough since leaving hospital.

Review and Discussion of Case:

1. It will be recalled that in 1913, he had a double orchidec-tomy performed, on a diagnosis of tuberculosis. I do not know whether the therapeutic test was tried and whether the testes were submitted to a histo-pathological examination. In the light of the subsequent developments of the case, I feel tempted to believe that the genital disease was leptic. Be that as it may, the important point to bear in mind is not to remove a testicle before eliminating syphilis by the Wassermann and therapeutic tests.

2. That a clinical diagnosis of pulmonary tuberculosis should have been made seems at first sight very plausible, as the patient had rales in chest, cough and expectoration, afternoon temperature, emaciation, etc. However, the history of sores in 1898, followed a month later by sore throat and repeated negative sputa

analyses, ought to have been sufficient to arouse suspicion and put the clinician on the right track provided that he had borne the possibility of syphilis in mind.

3. One of the laryngologists' opinion and also the radiologist's interpretation of the skiagraph, though both were erroneous, are of interest in showing how closely tuberculosis and syphilis may at times resemble each other.

4. When a careful history of the case had been obtained, and a physical examination made, two diseases at once loomed up, tuberculosis and syphilis, as the laryngeal, pulmonry and arthritic symptoms could all be accounted for by either one. The X-ray of the joint and bones eliminated tuberculosis, but was not characteristic of syphilis. And had we accepted the laryngologist's and radiologist's opinions without question, we would have been led astray. The strongly positive Wassermann reaction, the repeated negative sputa analysis and the rapid amelioration under mercury and potas. iod., however, made us feel sure that we were dealing with a case of pulmonary syphilis. The second radiograph showing that the infiltrations and deposits in the lungs were diminishing and news of the patient six months later stating that the pulmonary symptoms had cleared up, do not allow of any reasonable doubt as to the accuracy of the diagnosis.

About a month after seeing R. McK., a woman was admitted to the obstetrical service, who had been hoarse and coughing for about five months and had lost a good deal in weight. On physical examination, I found many rales in her chest. The Wassermann reaction was strongly positive. The sputum was negative for tubercle bacilli. This looked like another case of syphilis of the lungs, but as the patient deserted before skiagraphs of the lungs could be taken and repeated sputa analyses made and the therapeutic test tried, I was unable to make a positive diagnosis. I only mention the case to show that the condition as I have already stated is not rare. If we are on the alert, we are going to recognize quite a number of cases.

In conclusion, I wish to express my thanks to Dr. Urban Maes, who has kindly allowed me to report the case, which was in his ward when in the hospital.

A DISCUSSION OF SOME QUESTIONABLE FORMS OF PRESCRIBING.*

By OSCAR W. BETHEA, M. D., New Orleans.

The prescription is a tripartite document of particular interest to the prescriber, the compounder, and the patient, and its value depends upon the co-operation of these three.

To obtain desired results the doctor must so construct his order as to avoid the possibility of misunderstanding. The druggist must execute the order with accuracy and deliver promptly. The patient must use the remedy and carry out the associated instructions.

As the main object in prescription writing is to secure the application of therapeutic agents to the treatment or prevention of disease, every effort should be made to safeguard every step of the process from writing to application inclusive. All other considerations should be subservient and nothing tolerated that introduces the element of danger. The object of this paper is to point out a few customs that tend to promote the chance of error.

The average pharmacist is so accustomed to the common usages of prescription writing that their translation and execution is mechanical, but many prescribers pick up a word or phrase that is sufficiently unfamiliar to present the possibility of confusion. I selected a few of such from prescriptions and arranged a little examination with which I made a canvass of many of the drug stores of this city, and examined twenty pharmacists who with their usual spirit of co-operation submitted themselves.

I wish to say here that in my earlier years I worked as a pharmacist in four States and in many cities and that the pharmacists of New Orleans are far above the average. The State board requirements are high and have been for years—so high in fact that Louisiana is among the large group of progressive States with uniform standards that reciprocate in the matter of license.

All the druggists examined were licensed—all but eight were graduates in pharmacy. Their colleges ranged from among the largest in Europe and North America down. Their average experience was sixteen years.

Among the subjects of examination were the following:

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Latin Words and Abbreviations not in Every Day Use.

These with the average grades were:

"*No. rep.*" (not to be repeated). Used in the lower left hand corner of the sheet when the prescription is not to be refilled. The average grade was 90%. That is eighteen understood the meaning, two did not.

"*Q. R.*" Meaning that the quantity is correct and used when the dose is unusual, but proper for that case. The average was 0. None recognized the meaning as it is so seldom used here, though often employed elsewhere.

"*Opt.*" (best). Used as in ordering olive oil and brandy when different grades might be in stock and the best is desired. Average grade 20%. Four were familiar with this abbreviation.

"*QQ*" or "*Q*" or "*q*" meaning every and "*vel*" or "*v*" meaning "or." Some doctors use this, as in "Teaspoonful *q 2 v 3* hours." Average grade 15%. Only three could interpret this.

"*p. c.*" (after food) used, as in "Teaspoonful *pc. c.*, meaning after meals. Average grade 85%. One answered "before meals;" two did not know.

"*t. i. d.*" (three times a day) as "One *t. i. d.*" Average grade 100%. This is sufficiently common to be generally recognized.

"*tere bene simul*" (Rub well together). Used as in prescribing an ointment containing yellow mercuric oxide for the eyes. Average grade 50%. Half either knew or had a general idea of the meaning.

Druggists have books in which these or similar words or abbreviations could be found, but a word that would require looking up is unjustifiable. I believe it was Dr. Osler who said something about a patient dying through a misprint.

Unusual Arrangement

Occasionally a prescriber is found who arranges his prescriptions as follows:

Rx.

<i>Hydrarg. chlor. mitis.</i>	gr. j
<i>Sacchari lactis</i>	gr. x
<i>M. ft. cht. mitte talcs, no. iij</i>	
<i>Sig.</i> . One every hour.	

The body of the prescription specifies the amount for one dose

and the druggist is instructed to prepare a certain number of such doses. This prescription was submitted in the examination and fifteen druggists understood it as intended, and five understood that the amounts were totals and that the one grain was to be divided into three powders of one-third grain each.

My personal experience was that this type of prescription did not occur but once or twice in a thousand, if that often, so it is unexpected when presented. It requires more pencil strokes from the doctor than the usual style, and aside from the chance of misunderstanding it throws upon a drug clerk of unknown mathematical ability the burden of making a calculation that the educated experienced physician could and should do himself.

Metric System.

In filling prescriptions certain weights and measures are necessary. I personally examined the weights and measures in ten stores to ascertain if sufficient of the metric system were carried to enable the druggist to handle these prescriptions without having to transpose them to the apothecaries system before filling. One store had none and only two had complete sets, while less than half had what I considered sufficient to enable them to handle the general run of work if in the metric system. This means that if a prescriber writes metric prescriptions a fairly large per cent of them must first be transposed by the druggist to the denominations of the usual weights and measures. This must be done by a clerk of unknown ability, often in the middle of the night after a trying day's work, or during the day while he is also selling stamps, directing strangers, showing the directory and serving as general utility man for the doctors particularly and the neighborhood generally.

To transpose a prescription from one system to another a knowledge of four cardinal equivalents are necessary and must be so familiar that their use is mechanical. I submitted them to the pharmacists with the following grades:

How many grains in a gram?—90%. Eighteen knew approximately, two did not.

How many minims in a cubic centimeter?—70%. Fourteen knew, six did not.

The metric equivalent of a fluid ounce?—80%.

The metric equivalent of a grain?—40%.

The metric equivalent of a fluid ounce?—80%.

The metric equivalent of a grain?—40%

The druggists answered these questions off hand and all could have looked up the correct answers in data readily available, but is it necessary or justifiable to subject a patient to the possibility of error to please the personal fancy of a prescriber?

My hearty approval of the use of the metric system, when we are ready for it, is well known, but my contention is that here and now we are not ready. There is no possible blame to be attached to the pharmacists. They are always abreast of the requirements made upon them and their unpreparedness on the metric system is due to its great infrequency in use in this city except in those stores located in the hotel section that catch the transient trade. The pharmacists are no more to be expected to be able to do the unusual than some of us to remove a cataract, or operate on an aneurism of the abdominal aorta. I am taking the liberty of distributing some copies of a previous paper setting forth in greater detail my views on the metric system.

I still hope to see more intimate co-operation between the compounders, when uniform usages will be adopted to the great joy of the pharmacists, and to the credit and benefit of the medical profession.

VACCIN TREATMENT OF WHOOPING COUGH.*

(PRELIMINARY REPORT.)

By CHARLES JAMES BLOOM, B. Sc., M. D.

Senior Pediatricist Presbyterian Hospital, Junior Pediatricist Touro Infirmary, Visiting Pediatricist Charity Hospital, Instructor Dept. Pediatrics, College of Medicine, The Tulane University of New Orleans, La.

During the past few years,—since Bordet and Gengou in 1906 gave to the medical world a new bacteriological factor as the causative agent of pertussis—many articles referable to the vaccin treatment have been published—some authorities giving much credit to the efficiency of the vaccin therapy, others discrediting the favorable conclusions of the former. It did not seem, however, that the subject had been worked out thoroughly by those obtaining negative results.

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It was not my intention to discuss this subject until I had carefully watched fifty cases, but inasmuch as the results noted up to this time were so universally successful, and prompted by a desire to help those now afflicted with this virulent infection—these facts caused me to discuss my modest findings. Up to this writing,—the writer has watched some thirty cases, but as the data necessary for conclusive deductions were lacking in some of the cases, only fifteen of this number will be discussed. *Nevertheless the entire series gave positive results.*

In the near future—a review of the literature on this subject as well as additional cases and data will be brought before the society.

REACTION

Of the fifteen cases under consideration, in only one was there a rise in temperature—namely one half of one degree. Other than convulsive attacks following the administration of the vaccin, there were no indications of a reaction.

VACCIN

The vaccin employed in these cases was the one containig, viz:

	Bacteria per bulb.
Bordet-Gengou bacilli.....	50,000,000
Staphylococci pyogenes aureus.....	10,000,000
Micrococci catarrhalis	20,000,000
Bacilli influenzæ	20,000,000
Streptococci pyogenes	20,000,000

When the treatment by this method was first instituted small initial dosages were recommended—increasing 20,000,000 each time; for instance initial dose 60,000,000, second dose 80,000,000 and so on until a maximum of 200,000,000 was reached. Practical experience taught pediatricians these larger amounts both at the initial and the following doses.

The quantities used in this series and the number of injections are as follows:

Case.	Amount vaccin equals	Number of injections equals	
No. 1.....	500,000,000	5	7
No. 2.....	660,000,000	"	7
No. 3.....	624,000,000	"	12
No. 4.....	1,268,000,000	"	7
No. 5.....	596,000,000	"	6
No. 6.....	540,000,000	"	5
No. 7.....	500,000,000	"	6
No. 8.....	900,000,000	"	11
No. 9.....	974,000,000	"	9
No. 10.....	766,000,000	"	10
No. 11.....	761,000,000	"	7
No. 12.....	602,000,000	"	9
No. 13.....	750,000,000	"	11
No. 14.....	870,000,000	"	12
No. 15.....	1,050,000,000	"	8
Average.....	760,000,000	"	

The initial dose was found to be insufficient—my best results were obtained in cases where the first dose was not smaller than one hundred million. Another error which has been remedied by the writer is in relation to the succeeding doses namely, first dose, 120,000,000; second dose, 180,000,000; third dose, 240,000,000, and maintaining this maximum quantity until the end of the treatment. Heretofore I have not gone beyond this quantity, but in the future, however, the maximum quantity will be much larger. The intervals are as follows:

(a) Every other day until one of the marked symptoms had disappeared or the severity and intensity of several symptoms had become less marked.

(b) Following this period (generally two weeks), intervals of three or four days, and continued until patient is discharged.

Duration.

Case.	Treatment		Total
	Before	After	
No. 1.....	5 days plus	18 days	23 days
No. 2.....	6 days plus	28 days	34 days
No. 3.....	5 days plus	28 days	32 days
No. 4.....	7 days plus	24 days	31 days
No. 5.....	42 days plus	22 days	64 days
No. 6.....	1 day plus	26 days	27 days
No. 7.....	7 days plus	13 days	20 days
No. 8.....	14 days plus	11 days	25 days
No. 9.....	1 day plus	28 days	29 days
No. 10.....	35 days plus	23 days	58 days
No. 11.....	14 days plus	32 days	46 days
No. 12.....	7 days plus	18 days	25 days
No. 13.....	8 days plus	13 days	21 days
No. 14.....	2 days plus	41 days	43 days
No. 15.....	1 day plus	31 days	32 days
Average.....	10 days plus	23 days	33 days

Omitting cases Nos. 5, 10, 14—first two having had the infection at least five weeks previous to treatment and the latter case complicated, the average duration was:

Treatment.

Before	After	Total
6 days plus....	22 days.....	28 days

The duration of the disease after the condition has progressed for many weeks, is not decreased by the treatment, but averages with the remaining cases.

Authorities such as Holt, Lotch, Cantley, Garrod, Batten, Thursfield, and Ruhrah estimate the duration of this disease, respectively, 61 days, 90 days, 120 days, 30-90 days, 49-148 days, and 90-180 days.

Can one doubt the efficiency of this vaccin, when the length of the infection is reduced from an average 30-180 days to 28 days.

AGE AND SEX

The cases were as follows:

- Under 1 year—Case No. 3.
- Under 2 years—Case No. 1.
- Between 2-5 years—Case No. 6.
- Between 5-8 years—Case No. 5.

Eight boys and seven girls constituted the sex distribution.

Symptoms.

(a) Weight, (b) Cough, (c) Vomiting, (d) Loss of sleep and (e) Complications.

(a) Weight.

Case.	Treatment		Gain.	Loss.
	At Start.	At Finish.		
No. 1	44 lbs. 8 $\frac{3}{4}$	45 lbs.	8 $\frac{3}{4}$	
No. 2	47 lbs. 8 $\frac{3}{4}$	49 lbs.		24 $\frac{3}{4}$
No. 3	30 lbs. 2 $\frac{3}{4}$	30 lbs. 6 $\frac{3}{4}$	4 $\frac{3}{4}$	
No. 4	58 lbs.	56 lbs. 12 $\frac{3}{4}$		24 $\frac{3}{4}$
No. 5				
No. 6				
No. 7	21 lbs. 1 $\frac{3}{4}$	20 lbs. 5 $\frac{3}{4}$		12 $\frac{3}{4}$
No. 8	37 lbs. 12 $\frac{3}{4}$	36 lbs. 4 $\frac{3}{4}$		20 $\frac{3}{4}$
No. 9	14 lbs.	11 lbs. 8 $\frac{3}{4}$		40 $\frac{3}{4}$
No. 10	29 lbs. 10 $\frac{3}{4}$	30 lbs. 3 $\frac{3}{4}$	9 $\frac{3}{4}$	
No. 11	25 lbs. 8 $\frac{3}{4}$	25 lbs. 15 $\frac{3}{4}$	7 $\frac{3}{4}$	
No. 12	28 lbs. 6 $\frac{3}{4}$	27 lbs. 7 $\frac{3}{4}$		15 $\frac{3}{4}$
No. 13	16 lbs. 6 $\frac{3}{4}$	16 lbs. 13 $\frac{3}{4}$	7 $\frac{3}{4}$	
No. 14	21 lbs. 9 $\frac{3}{4}$	20 lbs. 11 $\frac{3}{4}$		14 $\frac{3}{4}$
No. 15	27 lbs. 5 $\frac{3}{4}$	27 lbs. 8 $\frac{3}{4}$	3 $\frac{3}{4}$	

Cases Nos. 6—Gain average 6 1-3 $\frac{3}{4}$.

Cases Nos. 7—Loss average 21 5-7 $\frac{3}{4}$.

Cases Nos. 2—Not weighed.

Average loss in Cases No. 13 averaged 14 $\frac{3}{4}$.

Cough and Vomiting:

(a) Intensity and number of attacks became markedly less after *three injections of vaccin had been given.*

(b) *After six injections* spasmodic character and persistent vomiting ceased.

(c) Sleep during the twenty-four hours is not disturbed after 5-12 days.

Case No. 8 is illustrative of the remarkable virtue of this mixed vaccin.

Complications. Thirteen out of fifteen cases, after ten months' observation have not exhibited a single sequel or complication.

24 hrs.	Coughs.		Total 24 hrs.	Vomiting.	Blue Spells.
	Day	Night			
1st	6	6	12	4	2
2nd	7	5	12	3	2
3rd	5	5	10	1	1
4th	6	7	13	5	2
5th	4	3	7	1	
6th	4	2	6	2	
7th	3	2	5		
8th	3	2	5		
9th	3	2	5		
10th	3	2	5		
11th	2	2	4		
12th	Discharged.				

Blood Manifestations.

Case	Age.	Date.	Total white Cell Count.	Endothelial leucocytes.	Eosinophiles	Lymphocytes	Neutrophiles No. of vaccin injections.
				Pct.	Pct.	Pct.	Pct.
No. 9	2½ mos.	6/29/15	60,500	9	66	....	25
		7/ 8/15	8,150	5	56	....	39
		7/14/15	3,700	16	13	....	70
		7/29/15	16,250	4	34	4	58
No. 10	3 yrs.	7/10/15	18,800	3	57	3	37
		7/12/15	6,500	12	6	2	80
		7/22/15	27,000	8	25	12	55
		7/29/15	22,500	2	45	13	30
No. 11	3 yrs.	7/ 8/15	13,500	6	53	4	37
		7/13/15	3,400	13	35	2	50
		7/20/15	43,000	8	44	9	39
No. 12	3 yrs.	6/24/15	13,540	9	45	7	39
		7/ 6/15	43,600	7	36	10	47
		7/13/15	4,500	4	30	1	65
No. 15	4 yrs.	8/ 3/15	25,500	8	41	6	45

CONCLUSIONS.

Before vaccin. (a) Marked leucocytosis at onset of Pertussis (13,540—60,500). (b) Significant lymphocytosis at onset of Pertussis (41 per cent—66 per cent.) (c) Moderate eosinophilia (0—12 per cent).

After vaccin. (a) Marked leucopenia (3,400—8,100), with decrease in number of lymphocytes and increase in the neutrophiles. (b) In third stage of Pertussis, moderate leucocytosis with normal differential count.

Conclusions and Summary.

1. The treatment of pertussis by vaccin therapy is most efficient providing the procedure in following same is correct.

2. Give large initial dose, not less than 120,000,00—increase 60,000,000 for each succeeding dose, and give *maximum quantity every other day until one of the marked symptoms show an appreciable improvement, continue every 3-4 days until cured.*

3 *Vaccin is preferable because*

(a) No reaction.

(b) Duration averages only 28 days.

(c) The loss of weight is minimum—14 ounces.

(d) The intensity and number of coughing spells become less after three injections have been given.

(e) Vomiting ceases after six injections.

(f) Sleep is not disturbed after 5-12 days.

(g) No complications in 13 cases after 8-12 months' duration

THE ENUCLEATION OF THE EYE BALL AND FAULTY TECHNIC COSMETICALLY CONSIDERED.*

By T. J. DIMITRY, M. D.,

Professor Ophthalmology, New Orleans Post Graduate School of Medicine,
New Orleans.

This subject may be instructive and interesting to the general practitioner and he will gather information which will make it possible for him to answer the repeated queries as to why the artificial eye appears so unnatural?

The observing practitioner, the oculist and the confiding patient have noted with dissatisfaction the results obtained, cosmetically considered, after the enucleation of the eye. My desire to encourage the use of what appears to me to be an improved technic over the enucleation operation as is usually performed is my apology for contributing this paper.

The enucleation of the eye is a major operation, and this execution destroys all hope of visual power leaving the patient with a noticeable and objectionable deformity which often is mortifying to the patient and distressing to his friends. This deformity even

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when not marked is the source of much solicitude on the part of the inquisitive individual. The patient is oftentimes depressed and disappointed at his appearance. He most often believes that the fault is due to an improperly fitted shell or prothesis. Little notice or interest on the part of his surgeon to see that the best fit is obtained after enucleation is extremely common. The fitting of the prothesis or artificial eye is usually left to the inexperienced optician. He selects and inserts into the orbit the shell; and the only qualification which he possesses in adapting an eye to the socket is his possession of a stock in trade of these artificial eyes. The relation and position of the tissues are not considered by this tradesman, and, adding insult to injury, the patient cosmetically considered is poorly handled.

The different enucleation operations are practically the same, Bonnett, Farrell, Agnew and the Vienna, each and everyone severing the conjunctiva, the muscles and the optic nerve from the tube.

“The hemorrhage is checked and, in the Agnew method, the opening in the conjunctiva is neatly drawn shut—not sutured—and any extruding shreds from the tissues are cut off.”

The above methods are the most generally used and in fact in most textbooks little importance as to the care of the socket is given. In Beard's recent textbook of Ophthalmic Surgery, page 463, appears this description under the Agnew technic:

“The opening in the conjunctiva is nearly drawn shut—not sutured—and any extruding shreds from the tissues beyond are cut off.”

The muscles, tendons and fat all fall into a position which nature permits, sometimes being heaped to the inner, outer, upper or lower part of the orbit and might find a proper position for the muscles, but unfortunately this is seldom the case, hence the insult to the ambitious patient and his desire for personal appearance.

The above technics, Agnew, Bonnett, Farrell and the Vienna technic are to be severely criticized unless you provide for the proper bringing together of cut muscles, Tenon's capsule and conjunctiva. It is granted that no operation is so reliable in its results as Tenon's enucleation, but the necessity of improving the orbit cosmetically is essential for a true surgical technic—Bowman, Allport, de Wecker, Snell, Ernest Clarke, Suker, H. Schmidt,

Priestly Smith, de Schweinitz, Todds, Hansel and Sweet have provided means for the care of these cut muscles, and each operator aims to procure the best and most movable stump without exposing their patient to any harm by so doing. We desire to have an artificial shell rest upon the best movable stump procurable, provided it is consistent with safety.

The Bonnett-Vienna methods are adopted by many ophthalmic surgeons. It is easy of performance, but the patient is left with an empty cup, which affords no support to the lids and the inserted shell. The upper lid falls into the cavity, the lower lid sags and when the prosthesis is inserted, one side may bulge forward, for the cul-de-sac is improperly placed, the immovable eye stares into space, all of which is mortifying and discreditable to the surgeon.

The writer is not entering into a discussion as to when the eye should be enucleated, particularly when we have to deal with a suppurative panophthalmitis. Eviscerate or enucleate is the unsettled question.

The different substitutes are the results of a desire for a superior stump, and thereby obtain an improved appearance.

1st. Simple evisceration (the removal of all scleral contents) leaving muscles, optic nerve, cheek ligaments attached to the sclera. The sclera and conjunctiva are sewed up; but there is a vacant space left within the sclera, which most time fills with blood and drainage is not provided for.

2nd. Evisceration with the transplantation of a globe of gold, glass, wire, fat—paraffin, rabbit's eye and many other substances within the sclera. The results obtained are ideal as to a movable stump when the artificial vitreous is retained. Simple evisceration and evisceration with the insertion of an artificial vitreous have occasioned in many reported cases transferred ophthalmia. These facts occasion hesitancy in adopting such a technic. Though the prospect is very pleasing the danger is not to be ignored. Transferred or sympathetic ophthalmia following evisceration has been reported by Drausart, Van Dunyse, Forget, Nieden, de Wecker, and was quite generally condemned at the Heidelberg Ophthalmic Congress, 1908. H. Knapp observed a severe case of orbital cellulitis—Shieck, Hotz, Schmitz, Rimpler, de Schweinitz, Waldispuhl and others have reported instances of ophthalmia following evisceration—Gifford, Handerson and many others regard

evisceration as a safer operation. Gifford, in the *Ophthalmic Record*, 1908, reports nine cases of transferred ophthalmia following Mules' and three after Frost operation.

The following technic of Hall, in *American Journal of Surgery*, 1896, and Husinger in *Journal American Med. Association*, 1908, advocated an operation designated as Eviscero-Neurotomy. Husinger says it is a combination of evisceration and optico-neurotomy. In this operation the muscles are undisturbed. The anterior and posterior sections of the globe are removed; these are the two principal sections from which trouble may be expected.

In this operation the conjunctiva is separated from the globe at the sclero-corneal junction. The anterior portion of sclera is removed practically at the insertion of the muscles. The contents of the globe are thoroughly removed and hemorrhage stopped. The posterior end of the ball is picked up from within, and an incision made with a bistuary and with scissors the optic nerve is cut and the post one-third of the globe. We have remaining a scleral ring with the six muscles properly attached, not having been disturbed as in the enucleation operation. Many different surgeons have carried out different technics to close the space after enucleation, but the best of them provide for nothing equal to position where they were originally placed by nature. Many bring the superior, inferior, internal and external recti together, but the superior and inferior oblique are at all times ignored. These latter two muscles are very important and a study of their anatomical situation in the orbit will readily show that they should not be ignored as is generally done. A consideration of the anatomy of the orbit, the situation of the ball within the orbit and the attachment of the muscles to the globe will assist in conveying the reason for suggesting this technic. The long orbit is a four-sided pyramid. The base is the anterior aperture of the orbit and the apex is the point of entrance of the optic nerve. The inner wall of the pyramid is paralld to the inner wall of the other orbit. The outer wall runs divergently. The four straight muscles take their origin from the apex of the cone along the margin of the foramen opticum, they run forward diverging in their course, and are inserted into the globe. The two oblique muscles are quite different both in origin and insertion. The superior

starts at the rim of the foramen opticum and passes forward along the upper and inner wall of the orbit and passing through the trochlea or pulley. The trochlea lies a little behind the upper and inner margin of the orbit. The muscle after passing through this fibrous loop bends backward at an angle of at least 60 degrees, where it spreads out into the form of a fan and is inserted into the upper part of the eye ball just behind the equator. The inferior arises from the floor of the inner side of the orbit, passes outward and is inserted into the globe behind the equator.

The tendons of all muscles pass through and are invaginated by Tenon's capsule. A detail description of the cheek ligaments would add interest and the importance of them should be remembered and should not be unnecessarily disturbed. The oblique muscles and the cheek ligaments assist in preventing the eye from sinking into the orbit and the less their relations are disturbed the greater and better cosmetic results to be obtained.

The Hall operation provides for a piece of gauze to be inserted into the sclera. Husinger uses a fenestrated metal ball. The suggestion I make is to close carefully the scleral ring posteriorly, centrally and anteriorly and not necessarily transplant anything within, merely bringing the structures together without disturbing them. You may transplant fat, or even a rabbit eye, into this space, but that it will be ultimately absorbed is most generally believed. Cosmetically the results obtained are quite satisfactory and its simplicity of technic encourages its use. It leaves an excellent stump and prevents the danger of sympathetic inflammation. The reaction is no greater than an enucleation. The muscles are held centrally and in a proper position and with a shell properly adjusted, the results are most gratifying.

In closing I would like to append a short statement appearing in the *Encyclopetia of Ophthalmia* on (page 4,396), headed "A Choice of Method in Eye Ball Excision," which, in speaking of enucleation says:

"that in the majority of cases this mutilating and deforming operation is unnecessary and should be relegated to obscurity, that it may make way for better, more modern and more humane surgical procedures."

INTERSTITIAL PREGNANCY.*

By W. KOHLMANN, M. D., New Orleans, La.

The abnormalities of the tubes require a special consideration, as they are liable to cause peculiar and important disorders of pregnancy. As you know, it is the function of the tubes to carry the spermatozoids to the ovary, and the ovum, after impregnation (which occurs in the ovary or in the ampullary part of the tube) into the uterus. The spermatozoids reach the ovary, if the tube is normal, by their own natural movements. The propelling power of the ovum is the movement of the cilia of the tube, which is directed toward the internal os, aided by the peristaltic movement of the tube.

Disorders of the tubes, preventing the entrance of the spermatozoids, are a cause of sterility. But if the function of the tube is only disturbed in regard to the motion of the fertilized ovum, this may adhere and develop at any location on the road from ovary to uterine cavity, most frequently in the mucous membrane of the tube, causing the development of an ectopic pregnancy.

The anomalies of the tube, which produce the disturbance of the normal mechanism and cause the development of an ectopic pregnancy, are not definitely known, and it is difficult in any case, even at operation for rupture of an extra-uterine pregnancy, to decide the cause in the special case.

The most frequent conditions interfering with the downward movement of the ovum are:

- (a) Inflammatory state of the tube and peritoneal adhesions, compressing the lumen or interfering with its peristalsis.
- (b) Small tumors, situated in the wall of the tube, may compress the lumen.
- (c) Endosalpingitis, producing destruction of the cilia and consequent cessation of the downward current.
- (d) Infantile tubes, persisting later in life—lack of cilia.
- (e) Diverticula of tube.
- (f) Occurrence of the external migration of the ovum. The impregnated ovum gets too large during its migration and the size prevents its passage through the tube.

*Read before the Orleans Parish Medical Society, June 26, 1916. [Received for Publication, July 15, 1916.—Eds.]

Tube pregnancies are at present so frequently met with, that it requires an excuse to report a case of that kind. The interstitial variety though is extremely rare and deserves, especially in regard to diagnosis, some special mention. Werth saw one case in 120. Lawson Tait reports one in 100, Rosenthal 40 in 1,324 cases.

Two cases have been under my personal observation. One I reported at the Louisiana State Medical Society in 1912. The history of this case was slightly different from the history of any extra-uterine pregnancy.

Patient's last menstruation November 19, 1911. On February 13, 1912, was awakened by sudden pain in abdomen, right side. On first examination there were symptoms of moderate shock—pale color, pulse 120. Bimanual examination showed cervix and uterus enlarged and soft—four months' pregnancy. Uterus irregular in shape, right side reaching higher than the left. The examination showing the absence of an abdominal mass outside the uterus made the diagnosis of an extra-uterine doubtful, and operation was postponed. Later more marked symptoms of internal bleeding developed and an immediate operation was imperative.

Operation showed the seat of the ectopic growth to be in the right side of the uterine wall, simulating a tumor of the uterus.

The other case occurred only recently and presents some other interesting features, besides being a good specimen of this variety, which mainly induced me to bring same before this meeting.

(1) There is hardly any doubt that the cause of the extra-uterine was due to external migration of the ovum.

(2) That the pregnancy developed in the interstitial part of the tube after salpingo-oöphorectomy of the affected side was done.

Regarding the symptoms and the possibility of diagnosis the case could hardly be differentiated from any ectopic gestation.

Mrs. B. Admitted Charity Hospital May 9, 1916; discharged Charity Hospital, May 31, 1916.

Previous history: Three children, no miscarriages. Was operated sixteen months ago. Has not menstruated for three months. The last two months patient has been suffering some nausea, pain in back and pain in left lower abdomen, radiating towards the back.

The pain in the left side has been growing worse and patient was admitted to hospital. Examination—vaginal and abdominal: cervix normal in size and somewhat soft. An irregular and soft mass is felt in the abdomen which was considered to be the uterus with a slightly fluctuating mass adherent to it.

Operation (May 12, 1916). After opening the abdomen omentum was found adherent to a mass, which appeared deeply congested in spots, though pale and of a greyish color as if ready to rupture, and intimately connected with the uterus.

After dividing the omentum between two clamps it was easily seen that the irregular mass was the uterus itself. Right half of the mass was normal in consistency, the left was soft, fluctuating and irregular in shape. Panhysterectomy was done. Patient made good recovery. I did a total excision of the uterus, as the patient's condition was satisfactory, and at the same time I did not consider it just to have her exposed to future complication.

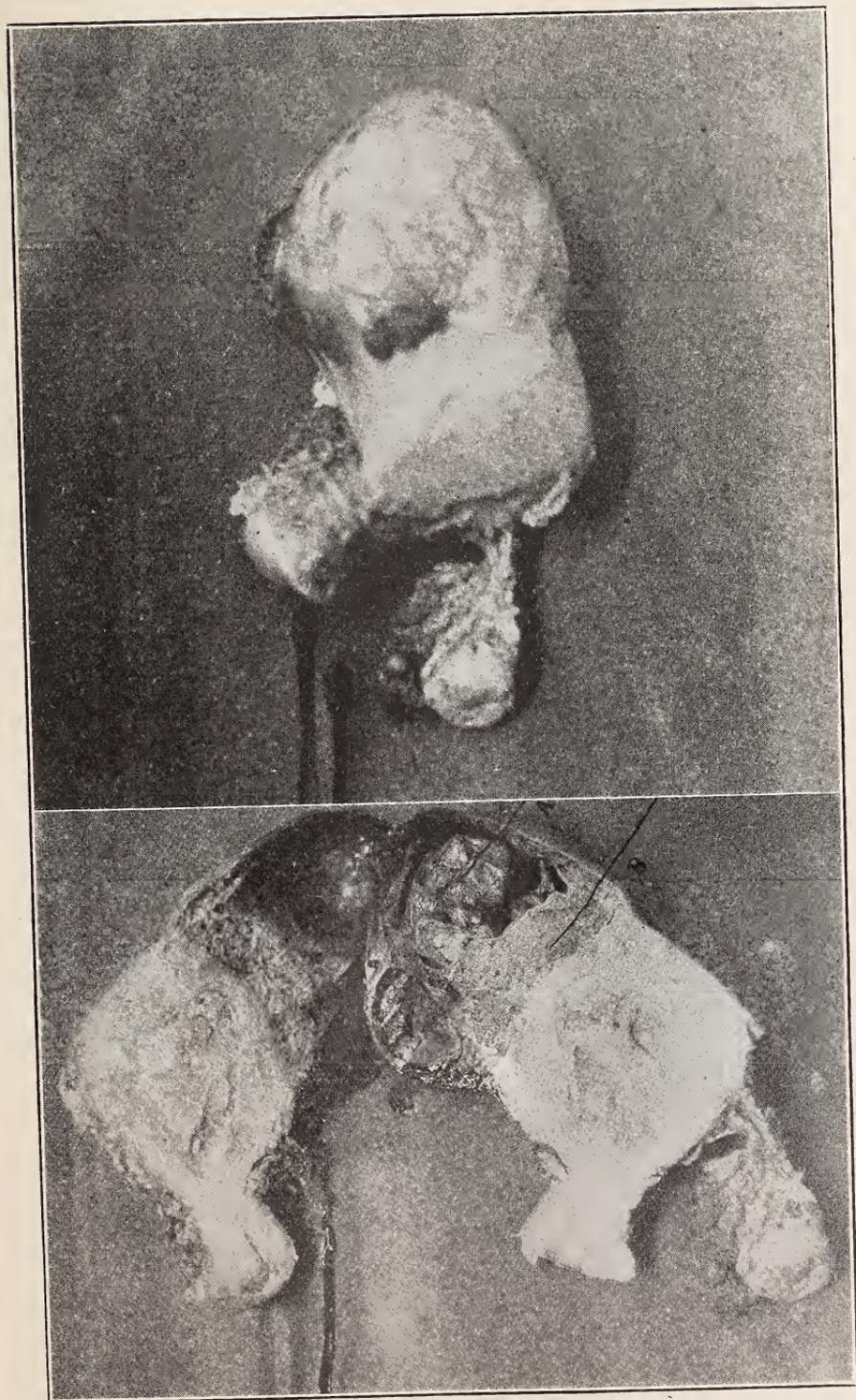
Specimen was hardened and longitudinal incision proved it to be an interstitial pregnancy. (See cuts.)

If it is already difficult in many cases to make a fairly probable diagnosis in tubal pregnancy, the diagnosis of the interstitial variety is hardly possible beyond the probability of an ectopic pregnancy.

It is possible in the two other tubal varieties to detect an enlargement of the tube, either in form of a thickening of the end of the tube in the ampullary variety, or in a cylindrical or ovoid shaped enlargement of the tube in the isthmic variety.

The graviditas interstitialis presents itself clinically as a swelling of the fundus uteri, which does not make the impression of a tubal tumor, but as a tumor of the uterus. This tumor, produced by the enlargement of the interstitial part of the tube, is situated on the inner side of insertion of the round ligament: the tumor of the other varieties is situated externally of the insertion of the round ligament. It may easily be mistaken for a soft myoma of the uterus, or for a variety of uterine pregnancy, the so-called annular pregnancy, as the uterus is asymmetrically enlarged.

As the interstitial part of the tube is surrounded by muscular tissue of the uterine wall, the wall takes part in the formation of the fetal sac, enveloping the ovum from all sides. The fact that the ovum in this particular variety is surrounded by muscular tissue is no doubt the reason that the rupture takes place later



Illustrating Dr. Kohlmann's paper.

than in other types of tubal pregnancy, usually about the fourth month. The growing ovum gradually thins out the surrounding tissue and prepares either for rupture towards the abdominal cavity, or develops more toward the ostium uterinum, which opens the pressure of the enlarging ovum—*graviditas tubo-uterina*. This development permits expulsion of the fetus by the natural route. A diagnosis of this kind can no doubt be questioned, but cases occur where such an explanation could be believed probable.

Treatment: Treatment of these cases has to be considered from two different viewpoints:

(1st) Is the case under observation before rupture has taken place, or (2nd) after rupture.

In the former variety, especially in the first two or three months of pregnancy, excision of the affected part of the uterus can be done, a procedure which insures the patient the possibility of menstruation—a fact of great importance in younger women.

Whether or not the remaining part of the uterus is considered sufficient for future intra-uterine development of pregnancy, can be left to the judgment of the surgeon, otherwise an excision of the tubes would remedy this difficulty.

If the sac has ruptured we have a different and more serious problem before us. In such cases the internal hemorrhage is, as a rule, very severe, and the condition of the patient is such that the method which controls bleeding quickest and best is the one to be employed. In this consideration the supra-vaginal amputation should be the operation of choice, as it can be performed, practically, without any loss of blood. Suture of the lacerated part of the uterus most probably could not be done any quicker, and the post operative union of these traumatized parts could not be expected with the same safety.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE BILATERAL DISTRIBUTION OF THE LESIONS IN LEPROSY IN RELATION TO THE BACTER- EMIC NATURE OF THE DISEASE.*

By D. RIVAS, Ph. D., M. D.,

Assistant Professor of Parasitology and Tropical Medicine, University of
Pennsylvania.

(From the Laboratory of Comparative Pathology and Tropical Medicine, University
of Pennsylvania, Philadelphia.)

In our previous contributions concerning the bacteremic nature of leprosy¹, we have demonstrated the presence of *Bacillus lepræ* in the circulating blood collected from apparently healthy parts of the skin, finger, etc., as well as from the superficial veins of the arm. Our work was not concerned merely with the finding of extracellular acid fast bacilli in the blood, but more especially with the demonstration, in the material examined, of *lepra cells*, which are pathognomonic characteristics of leprosy. We have also demonstrated that the presence of *Bacillus lepræ* in the blood is not an accidental occurrence, but rather a constant phenomenon, since these bacteria were found regularly in the samples of blood collected during an observation extended for six months upon the patient, in whom the disease presented the usual regular course.

We also observed, however, that while these bacilli were abundantly found in samples of blood collected from lepra, they were less numerous in the blood obtained from healthy parts of the skin and finger, and that, in samples of blood from the vein, they were so few that for their detection it was required to examine larger quantity of blood, by the acetic acid concentration method.

This method is very simple, as it merely consists in collecting about 0.1 to 1.0 cc. of blood in about 10 cc. of a 2% acetic acid solution, and after thoroughly shaking for a few minutes to com-

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

(1) *New Orleans Med. and Surg. Journal*, 1912, Vol. 65.

(2) *Amer. Journal of Tropical Diseases and Preventive Med.*, Nov., 1914.

(3) Transactions of the Eleventh Annual Meeting of the National Association for the Study and Prevention of Tuberculosis.

plete hemolysis, the mixture is centrifugalized and the sediment stained as usually done for *Tubercle bacillus*.

Attempts made to grow the micro-organism for the blood in artificial culture were unsuccessful. True, *Bacillus lepræ* was found to increase in number after one to two weeks incubation at 37°C., but whether this increase was merely apparent and due to the setting free of the numerous bacilli enclosed in lepra cells, or to a temporary actual growth on the liquid or cells of the body transplanted with the material, or both, could not be determined. However, whatever the case may have been the micro-organisms became less numerous on subsequent reinoculations and finally disappeared on the fourth transplantation.

Attention was also paid concerning the distribution of the lesions in leprosy in regard to the bacteremic nature of the disease, and we were especially interested to observe that, as in other bacteremic diseases, such as typhoid fever, the petechial hemorrhages in septicemia, etc., in leprosy likewise, the lesions are bilateral and often present at remarkable symmetry, a fact which can only be explained by the existence of the virus in the circulating blood.

The result of our previous works, in support of the bacteremic nature of leprosy, may be summarized as follows:

(1) *Bacilli lepræ* were found in the blood collected from the finger and from the veins, singly, in pairs or in bundles and also in the form of *lepra cells* which are pathognomonic characteristic of leprosy.

(2) The skin lesions in leprosy are bilateral, and often present a remarkable symmetry, that is, they correspond to the lesions common to other bacteremic infections.

In the present work we propose to illustrate this bilateral distribution of the lesions of leprosy with a series of photographs collected from a number of patients in different stages of the affection, which we believe is a further proof of the bacteremic nature of the disease, but it may be well first to define briefly what should be understood by bacteremic diseases.

The term bacteremia is used sometimes to denote the presence of pathogenic bacteria in the circulating blood, but a moment's thought will show how imperfect this definition may be when applied in connection with bacteremic diseases. Contrary to what was first believed, that those parts of the body not connected

directly or indirectly with the outside, such as internal organs and blood, under normal conditions were sterile, that is, free from bacteria, more recent works have demonstrated that normally pathogenic bacteria constantly get access into the blood through the normal barriers of the body, skin, mucous membranes, etc., but under normal conditions these bacteria are likewise constantly destroyed and the normal balance or normal state of health is thus maintained. Under abnormal conditions, however, such as when the antagonistic reaction of the body is weakened, or when pathogenic bacteria enter the body in disproportionate number to the normal resistance of the body, the normal balance is disturbed and the phenomenon of disease or infection is manifested.

Generally speaking, all infections are primarily a localized affection, in others the virus may enter the blood and being carried to distant parts of the body, give rise to local metastatic lesions or to a generalized infection.

As examples of localized infection may be mentioned diphtheria, which affects the mucous membrane, and tetanus which is limited to the skin and subcutaneous tissue. Examples of localized metastatic lesions are abscesses of the lungs and other internal organs, or tissue following a septic infection in other parts of the body, while a typical example of generalized infection is afforded by anthrax.

This selective or organotropic property of pathogenic bacteria of course is not a matter of chance, but due to physico-chemical genesis of the different parts of the body, which becomes a suitable soil for the life of the invading micro-organism, and this explains why *Bacillus diphtheriae*, for instance, affects with preference the mucous membrane, *B. tetanus* the subcutaneous tissue, *B. typhosus* and *B. cholerae* the intestine, *B. tuberculosis* the lymph gland and lymphoid tissue and *B. anthracis* the blood, etc.

Of course, no fixed rule can be applied to the above statement because of the fact that a certain group of bacterial diseases, such as most pyogenic infections, which primarily are localized affections, may invade the blood and become generalized, but this usually occurs after the body has undergone profound changes preparatory to the successful entrance and maintenance of the invading bacterium in the circulating blood of the host. Contrary to this, however, under normal conditions, that is, during the normal course of the infection, *Tetanus bacillus* is known to be

found only in the subcutaneous tissue, and while the finding of *Bacillus diphtheriæ* in the circulating blood is an exception, this is the rule regarding *Bacillus anthracis*.

The above clearly shows, therefore, that while the term *bacteremia* may properly be applied merely to denote the occasional presence of pathogenic bacteria in the blood, a *bacteremic disease or infection is one in which the pathogenic bacterium, the cause of the infection, lives, grows and multiplies in the circulating blood of the patient during the course of the disease*, and in this sense it may be said that though anthrax is a typical bacteremic disease, several other bacterial infections, which are usually localized, such as abscesses for instance, may, under certain conditons, give rise to metastasis and become a bacteremic infection.

Mention perhaps should be made in this connection regarding tuberculosis. Tubercle bacillus, of course, like other pathogenic bacteria, may occasionally enter the circulation and give metastasis in some part of the body, and even this micro-organism may persist for some days, circulating in the blood, especially during the early stage of acute miliary tuberculosis, before it becomes lodged in a suitable soil (lympathic gland or lymphoid tissue) for its growth and multiplication in this locality, but that the tubercle bacillus lives, grows, and multiplies in the circulating blood, in other words, that, tuberculosis is a hemic infection, awaits confirmation. In this respect tuberculosis resembles cancer and sarcoma in so far as tubercle bacillus, cancer and sarcoma cells may occasionally enter the blood and give rise to metastasis, but this does not prove that these are bacteremic affections.

It is a common clinical experience to see that in all cases of bacteremic infections, when accompanied with skin eruptions, such as typhoid fever, hemorrhagic septicemia, etc., these eruptions are bilaterally distributed, or generalized, because of the fact that the virus, living in the circulating blood, is distributed more or less equally throughout the body. Based on this, it would naturally follow that if leprosy is a bacteremic infection, the lesion common to the disease should follow the same order of distribution. This is clearly demonstrated in the accompanying illustrations.

BONE CHANGES IN LEPROSY.*
(An Abstract)

By JAMES A. HONEIJ, M. D.,

Assistant Professor of Medicine in charge of Radiology, Yale University School of Medicine, New Haven, Conn.

The bone changes with which we are concerned involve mainly the hands and feet, that is, the phalanges, metacarpal and metatarsal bones. Other bones are affected, but cannot be studied so readily as the bones of the hands and feet, where the changes are seen earliest in the disease.

In both types of leprosy, the nerve and nodular changes in the consistency, size and shape of the bones take place.



1. Case N. Q. Typical early nodular leprosy. No ulceration. Very slight infiltration of skin.

The earliest changes that I have been able to observe have been either thinning of the epiphysis, especially the distal ends, or a decrease in circumference of the distal phalanges of the little finger.

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held at Washington, May 9, 10, 11, 1916.

In general the bone changes to be observed range from slight thinning or early atrophy to advanced changes with total absorption of phalanges, marked inflammatory action in bone, distortion and fractures. Changes may begin in the periosteum, articular surfaces, corticalis, or medullary canal, and any combination of these changes or all of them may occur in the same set of bones. It is not possible to tell which bones are the first or most likely to suffer, but it can be stated that the thumb bones are rarely affected. Also, it is not possible to ascribe any particular type of bone change to any particular type of disease.



2. Case L. P. Typical nodular leprosy. No ulceration. Infiltration of skin.

In the nerve type of leprosy the changes to be expected would be atrophic ones and in the nodular type, inflammatory or hypertrophic changes. As a matter of fact, this can be reversed and both types of changes may also be observed in the one form of leprosy.

In early cases the bones are nearly always affected in the epiphysis, leaving the shaft fairly normal. With absorption of

lime salts and disintegration of the bone, fractures occur. These are painless and unaccompanied by callus formation. Ankylosis of joints also occurs.

The causes for these disturbances have been cited by many investigators and hardly two agree. The difference of opinion, however, regarding the changes found in the bones of nodular and nerve leprosy and the cause of such changes is more apparent than real if one considers that the study of most of the cases has been at different stages of the disease, of different types, and in general with limited material. Authorities are agreed, however, that the constant inflammation and infiltration of the nerves, in the



3. **Case I. U.** Typical nodular leprosy. No deep ulceration. Infiltration of skin.

nerve form of leprosy, definitely interfere with their function. Bacilli are found in both the central and peripheral nervous system and consequently bear a direct relationship to the changes in the bones, if they are in the area controlled by the affected nerves. Bacilli in the blood and bone marrow also undoubtedly are the cause of some inflammatory disturbances and resulting changes in the internal structures of the bones. Periostitis due to organisms

that have found their way in through ulceration of the tissues, although admitted and observed, do not concern the bone changes in which we are interested.

The question which has prompted the investigation concerning the changes in the general absorption of lime salts early in the disease, with changes in the size, shape and consistency of the bones, is whether the two recognized causes of nerve affection with atrophy and rarefaction of the bones and inflammatory disturbances, directly due to the acid fast bacilli, are sufficient. Personally, I do not believe so.



4. Case **M. M.** Typical anesthetic or nerve type of leprosy. Deep ulcer under base of great toe one year previous. No other ulceration of tissues of foot. No infiltration of skin.

The bone changes seen so early and which are so gradual, particularly in the nodular type of leprosy, are not in this way sufficiently accounted for.

I would therefore suggest—as my investigation is at this time not yet completed—that factors of metabolism play an important role in our particular problem and in leprosy in general.

OBSERVATIONS ON THE TREATMENT OF LEP- ROSY WITH SPECIAL REFERENCE TO CHAULMOOGRA OIL.*

By RALPH HOPKINS, M. D., New Orleans, La.

It is said in India that chaulmoogra oil has been used in the treatment of leprosy for several thousand years, which period of time seems ample to determine whether or not its use is beneficial; yet among observers there remains a difference of opinion as to its value. The evidence in favor of chaulmoogra oil presented in this paper is the result of comparison between this and other methods of treatment in 269 cases extending over a period of fifteen years, during which time it has been the author's privilege to be attending physician to the Lepers' Home of Louisiana, in which institution the cases cited were treated. A study of these cases shows the difficulty of a critical analysis of the value of chaulmoogra oil, and may in part explain the reported difference of opinion as to its therapeutic value.

A proper analysis should include the changes that usually occur in leprosy untreated, as compared with such changes as may occur in cases under treatment.

Cases removed to the Home by the health authorities from some place of concealment show almost immediately some improvement in their general health. Better hygienic conditions alone would account for this, irrespective of treatment. The confinement incidental to concealment, with the mental harassment due to fear of detection, compare unfavorably with conditions of fresh air and outdoor life at the Home. In addition the patients at the Home have expert nursing, are well housed, well nourished, and furnished with abundant facilities for daily hot baths. Even cases admitted in the terminal stage in whom the prognosis is hopeless, frequently show remarkable, though temporary, improvement. Such surgical conditions as perforating ulcers, suppurative bone conditions, tendon infections, and superficial ulceration are ameliorated by cleanliness and proper care without any specific medication directed at a cure of leprosy. Improvement in these conditions may wrongly be ascribed to any drug which may happen to be administered when such cases first come under treatment. One observer has stated that almost anything that is done

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington May 9, 10, 11, 1916.

for a leper on his admission to an institution seems to improve his condition.

Lepra fever, too, frequently obscures the effects of medication. Attacks of this fever with accompanying changes in old skin lesions, and the formation of new nodules may occur as often as three or four times in one year in any case of skin leprosy. It lasts from a few days to a month or more, and the temperature may attain 106° F. resembling that of septicemia in its remittent character. During the course of the fever some of the chronic nodules show evidence of acute inflammation, becoming painful, red, and swollen. In severe cases bullæ may develop on the surface of inflamed tubercles, and there may be suppuration and abscess formation. Inflammatory nodules, usually lenticular in shape and resembling erythema nodosum, may also appear in areas of skin previously free from lesions. These acute lesions are evanescent in character, each nodule lasting only a few days, and being succeeded by others in different locations. In fact, during an attack of lepra fever the aspect of leprosy, from the viewpoint of the progress of the disease is entirely masked. After an attack, improvement may be noted in the chronic lesions when compared to their condition before the occurrence of the fever. This improvement seems to be a sequence of the fever and not so depend on medication.

In the observation of the treatment of anesthetic cases with the circinate type of macules, it must be borne in mind that this type of eruption is not nearly so persistent as the infiltrated macular patches associated with the tubercular form. Nor are any of the macular lesions that appear on the covered parts of the body, as persistent as the nodules found on the exposed surfaces. Advanced and even terminal trophic cases are often found to be entirely free from macules, though in the incipency of this type, circinate macules are usually present. The fading and disappearance of macules may take place in the course of a great length of time without any medication.

It is not unusual for mixed cases presenting well defined nodules to become in the course of time purely anesthetic or trophic. The disappearance of the nodules and infiltrated patches in the skin takes place very slowly while the nerve symptoms are growing progressively more aggravated. Again trophic cases may become arrested spontaneously. We have at the Home several of such

cases who have had leprosy for over forty years, with no aggravation of their condition in the last eight or ten years. These cases are badly mutilated and their extremities are anesthetic, but no further mutilation is taking place, and they give promise of not having their lives shortened by leprosy. Such cases obviously cannot respond to medication.

The most notable of the intercurrent diseases that have an influence on the course of leprosy is erysipelas. Many observers have noted marked improvement in both nodules and macules and we have record of instances in which even ulcers of long standing have healed after recovery from erysipelas. In the last year there have been 22 cases of erysipelas, nine of whom showed improvement in leprosy lesions following the attack. In one case an ulcer on the leg of ten years' standing has almost entirely healed and in another, tubercular case, the nodules have completely disappeared. The 13 cases not improving were in the terminal stage of leprosy or approaching it. An exception to this was one case with very slight evidence of leprosy.

The favorable changes enumerated above as possible of occurrence independent of medication are overbalanced by the almost uniform tendency of leprosy to grow progressively worse to the point of such destruction of tissue that outwardly a mere semblance of humanity remains. In terminal cases such permanent destruction has taken place in nerve, eyes, skin, vocal cords, respiratory passages and bones, that even if the bacillary cause could be entirely removed, there would remain but a wreck with symptoms unabated.

Taking all the vicissitudes of the disease into consideration with the fact that chaulmoogra oil at the best acts very slowly, the conclusion is reached that the larger the number of cases reported the more accurate the deductions therefrom. It is hoped that the cases presented below may add to the sum of knowledge.

Methods of Administration.

Until recently the only method of administration of chaulmoogra oil at the Home has been by mouth in doses gradually increasing from three to one hundred or more drops, in capsules three times daily, before or after meals. Strychnin has also been given in 1-60 gr. doses three times daily and hot baths at least once a day. This is the method devised by Dr. Isadore Dyer and

reported by him relative to his cured cases.* Subsequent to favorable report from the United States Bureau of Health for the Philippines of its use hypodermically, chaulmoogra oil has been used hypodermically at the Home (1) as an emulsion in weak alkaline solution, (2), with camphorated oil and resorcin according to Dr. Mercado's formula, (3) in an emulsion with gum arabic and water, Dr. Vahram's method.

The two great disadvantages of the internal administration of chaulmoogra oil, are, the slowness of its action, and the nausea and vomiting occasioned in many cases. The oil is disagreeable to take even when vomiting is not provoked, and the slowness of improvement leads to discouragement on the part of the patient. Incipient cases usually suffer no disturbance associated with pain, itching, or other discomfort to urge them imperatively to persistence in treatment or to inform them subjectively of improvement or the reverse. In spite of every effort to encourage the taking of the oil a certain percentage of cases are found to be intolerant of even small doses while others who are capable of retaining therapeutic doses refuse to pursue so disagreeable a routine. Those cases who are not too far advanced and who systematically take sufficient doses show a large percentage who have improved. In fourteen instances this improvement has progressed to a point of complete disappearance of all lesions and bacillary evidence. So strong has the conviction become that chaulmoogra oil is beneficial that it has become a routine practice to administer it to every case on admission to the Home, and to increase the dose according to the tolerance and disposition of the individual. Cases cited below as treated by other methods are generally those to whom the oil could not be given internally.

Results of Internal Administration.

Eliminating terminal cases, there have been in the Home since September, 1901, when treatment with chaulmoogra oil was systematically commenced, 117 advanced and 104 incipient cases of leprosy. Treatment with the oil internally has been urged on all these cases according to their tolerance, with the following results. Of the 104 incipient cases:

14 have been discharged cured.

4 apparently cured are held for observation.

*The Cure of Leprosy. *N. Y. Med. News*, July 29, 1905.

- 1 case admitted pregnant.
- 1 Mexican was deported shortly after admittance.
- 20 remain at the Home in improved condition, are still improving.
- 12 remain apparently arrested.
- 20 have absconded in improved condition.
 - 5 were admitted too recently for any change in condition.
- 11 absconded too shortly after their admittance for any change.
 - 1 absconded improved and returned in terminal stage.
 - 2 absconded and returned in advanced condition.
 - 4 have grown worse and are in advanced stage.
 - 5 have died of intercurrent diseases.
 - 4 became terminal and died.

104 total number of incipient cases.

Deducting from the total of 104 incipient cases, those to whom a fair trial of the oil could not be given, namely:

- 5 cases too recently admitted.
- 1 case deported.
- 11 absconding shortly after admittance.
- 5 dying of intercurrent diseases.

22 total, leaves 82 incipient cases treated for a sufficient time for results to be apparent.

Of these 82 cases

- 17% have been discharged cured.
- 4% remain at the Home all lesions having disappeared.
- 24% remain at the Home in improved condition.
- 24% have absconded in improved condition.
- 14% remain at the Home apparently arrested.
- 8% have grown worse.
- 4% have died.

Of the 117 advanced cases,

- 11 remain at the Home in improved condition.
- 5 apparently arrested have not grown worse in the last 5 to 15 years.
- 8 absconded in improved condition.
- 16 absconded too shortly after admittance for any change.
 - 5 admitted too recently for any change.
- 25 remain in the Home with but little change for better or worse.
- 12 absconded and returned in the terminal stage.

6 have become terminal cases are now at the Home.
8 died of intercurrent diseases, leprosy not having progressed.

21 became terminal cases and died of leprosy.

117 total number of advanced cases.

Deducting from total of 117 advanced cases, those to whom a fair trial of the oil could not be given, namely:

5 too recently admitted to show any change.

16 absconding too shortly after admittance to show any change.

8 dying of intercurrent diseases.

29 total, leaving 88 cases treated for a sufficient time to show results. Of these cases—

12% remain at the Home in improved condition;
5% arrested, have not grown worse in the last 5 to 15 years; 9% absconded in improved condition; 28% remain but little changed for better or worse; 20% became terminal; 23% died in terminal stage.

Time Factor.

The length of time elapsing between the commencement of treatment and date of discharge in cured cases was as follows:

(1) 4 years 3½ months; (2) 8 years 2 months; (3) 2 years; (4) 7 years; (5) 1 year 5 months; (6) 3 years 7 months; (7) 2 years; (8) 3 years 4½ months; (9) 2 years 5 months; (10) 2 years 7 months; (11) 6 months; (12) 1 year 2 months; (13) 1 year.

Making an average time of approximately three years. As much as possible discharged cases have been kept under observation. One discharged case relapsed after developing tuberculosis, was readmitted to the Home and died. This case is not included in the calculation of the average time in the treatment of cured cases.

Chaulmoogra oil has also been used internally as an emulsion in weak alkaline solution in a few cases. No difference has been noted as to the digestive disturbances occasioned as compared to the crude oil. Chaulmoogra oil emulsifies very readily.

Hypodermic Use of Chaulmoogra Oil.

In the annual report of the Bureau of Health for the Philippines Islands, published in 1913, a method of hypodermic injection

tion of chaulmoogra oil was reported with histories of two cases discharged from the hospital free from all evidence of leprosy. The prescription used was that of Dr. Mercado, House Physician at the San Lazaro Hospital, and consists of

Chaulmoogra oil	60cc
Camphorated oil	60cc
Resorcin	4 grams

Mix and dissolve with aid of heat on a water bath, then filter.

To the first case the foregoing mixture was given—: during the first month 2cc every three days, during the second month 5cc every eight days, during the third month 10cc every eight days. This large dose was badly borne and was reduced to 5cc, which amount was injected every eight days for the following three months. At the end of which time all lesions had disappeared and it was impossible to demonstrate the leprosy bacillus. All treatment was then discontinued for a period of one year, during which time the patient remained negative microscopically.

In the second case the same mixture was given in doses as follows: During the first month 1cc was injected into the buttocks every eight days. The next month 10cc were injected every four days, then one dose of 15cc was given. After that 5cc were injected every six days. Great improvement in her condition was reported at this time, and she was microscopically negative for leprosy. All treatment was then discontinued for nine months. Microscopical examinations were made at frequent intervals, but always with negative results. At the time of her discharge all macules had disappeared, but there was still some suffusion of the countenance. This initial report has been supplemented by further favorable results obtained by this method.

Subsequent to this report an emulsion of chaulmoogra oil in weak alkaline solution was used at the Home hypodermically in eight selected cases representing different types and stages of the disease. Difficulties that could not be overcome were the irritation provoked locally, and the failure of the oil to be absorbed. In two cases cysts formed at the site of injection the fluid contents of which were evacuated 1-2 years after injection.

Following the discontinuing of the weak alkaline emulsion at the Home the Mercado method was used in nine cases, and is being continued at the present time. The oil seems to be readily absorbed, and marked improvement in one tubercular case has been

noted, though the injections have been given for a period of one month only. No local bad results have been noted with small doses up to the present time.

Dr. Vahram's Emulsion.

Dr. Vahram, in an effort to overcome the gastric disturbances, and pain or abscesses incidental to the administration of chaulmoogra oil by mouth or hypodermically, has devised an emulsion of sufficient fineness for intravenous injection. He states that the globules of this pseudo-solution are of such fineness as to approach the dimensions of colloid "grains." He thinks that the fineness of these particles and in consequence the multiplication of the active surface, should produce intense medicinal effects.

He reports the following results with animals. Rabbits and dogs: toxic dose 0 gr. .0004 per kilogram of animal. Human therapeutic dose 0 gr. .00002 per kilogram, which is one-twentieth of the toxic dose of a dog or rabbit. With doses of 0 gr. .0002 per kilogram, a light hemolysis was obtained. No effect on a rabbit heart (isolated) was obtained with a dose of 0 gr. .001 per liter of Ringerloke solution. In a dog 0 gr. .0005 per kilogram of animal caused a marked fall in blood pressure and a slowing of respiration. After these experiments on animals, intravenous injections were given to two cases of leprosy referred to him by Dr. Brocq by whom the results were controlled. He has noted no reaction following the injections, and states that the therapeutic results have been very encouraging. From the first there has been a returning of sensation, a progressive diminution of nodules, and the disappearance of open lesions. These two cases have received thirty injections each given every second day. In the first case, who presented open lesions and a complete general anesthesia, the open lesions almost entirely healed at the end of the twentieth intravenous injection and the tenth hypodermic injection. Sensation, completely restored to him, commenced to manifest itself after eighth injection. In the second case, which was presented to "La Societe Medicale des Hopitaux de Paris," all anesthetic patches had almost entirely disappeared, the nodules were notably diminished, and the general health was improved.

Dr. Vahram's method of administration starts with an intravenous injection, of 1 cubic centimeter of the emulsion increasing 1-10 of a cubic centimeter at each subsequent injection up to 2

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= 11.
cubic centimeters. This dose is maintained to the twentieth injection. After this the intravenous injections are discontinued, and the emulsion may be given hypodermically, commencing with 1 cubic centimeter and increasing 1-2 cubic centimeter up to 5 cubic centimeters, which dose is maintained up to the twentieth dose. The intravenous method may then be recommenced. Dr. Vahram remarks that the dose of chaulmoogra oil which had therapeutic action was very small. (The pseudo-solution of chaulmoogra oil is an emulsion of the oil in the presence of gum arabic (0 gr. .0144 of the gum and 0 gr. .00072 of the oil) which after dessiccation, while cold, is submitted to a long porphyrization, and put in suspension in the initial volume of liquid and sterilized at a temperature of 110° C.)

Two cases at the Home have been under treatment with Dr. Vahram's emulsion since April 30, 1916. One case is an incipient macular type, and the other a tubercular type approaching the terminal stage.. In both cases the emulsion is being given hypodermically with good results. It is proposed to try the intravenous method if results justify this more dangerous method of administration.

I have found that the oil globules are undoubtedly reduced to very fine dimensions, appearing under high magnification about the size of ordinary cocci, and showing Brownian movement in a hanging drop. The emulsion flows very easily through a fine hypodermic needle and is readily absorbed. I have also found that the intravenous injection of this emulsion in toxic doses produces in dogs under ether the same fall in blood pressure as described by Dr. Vahram. With a much coarser emulsion of chaulmoogra oil in gum arabic, or in weak alkaline solution I could obtain no fall in blood pressure under similar conditions. The argument that the finely divided state makes the emulsion more active seems well taken. In both of the cases receiving treatment at the Home there has been no inflammation following the injections. In the incipient case there has been some decrease in the size of the macules, and a fading of their color; in the advanced case several nodules have disappeared leaving pits. Many have decreased in size, and the general health and appearance of the patient seems to have improved.

Neither of these cases have been under treatment long enough to justify conclusions, but results obtained so far are encouraging.

Other Methods of Treatment Used at the Home.

Emetine, 4 cases, no change in condition.

Methylene blue, 3 cases: one negro, two white, blue discolorization of modules in both white cases. Slight improvement in one white case.

Duval's vaccin, 6 cases, reaction general and local, improvement, local abscesses of long duration following injection.

Duval and Gurd's immunized sheep serum, 1 case, intense general reaction followed by some improvement.

Iodides, apparently aggravate condition.

Bromides, 6 cases, improvement in superficial ulcer of long standing in one case, otherwise no change.

Sulphuric acid, internally, 4 cases, marked inflammatory reaction in the lesions in two cases.

Alkalies, no change.

Lanolin, no change.

Olive oil, food value only.

Normal horse serum, 5 cases in year 1901, improvement at first, but improvement did not continue.

Chlorate of potash, 6 cases, no permanent improvement.

Sodium salicylate, useful for neuritic pains, no effect on leprous lesions.

Ichthyol, internally, no effect.

Modified erysipelas vaccin, 16 cases, improvement in one case.

Glandular extracts, 1 case, improving.

Of all these remedial agents, other than chaulmoogra oil, the one that has best stood the test of time is Fowler's solution, given during attacks of lepra fever, in increasing doses. With a condition as variable in its severity and duration as lepra fever, therapeutic values are difficult to determine, but with its use in a large number of cases, the conviction has grown strong with the patients, nurses and myself that arsenic in this form is very useful in diminishing the duration and severity of the attacks. Its use, when not contraindicated, has become almost a routine practice for this condition.

NEWS AND COMMENT.

MEETING OF THE MEDICAL ASSOCIATION OF THE SOUTHWEST.

—The eleventh annual meeting of the Medical Association of the Southwest will be held at Fort Smith, Arkansas, October 2, 3, 4, 1916. Preparations for the meeting are well under way, but there is still room for a considerable number of papers on the Scientific program. For any information, address Dr. F. H. Clark, Secretary, El Reno, Okla.

A NEW CORPORATION.—Announcement has been made of the formation of a new corporation, called the Victor Electric Corporation, which has purchased the business of the Victor Electric Company, the Scheidel-Western X-ray Company, the Macalaster, Wiggin Company and the Snook Röntgen Company. The purpose of the new corporation is to continue the respective business policies of the above mentioned concerns, and by elimination of waste, and the development of co-operative service, be better able to serve more efficiently the interests of the medical profession.

PREVENTION OF INFANT MORTALITY.—The American Association for the Study and Prevention of Infant Mortality will hold its seventh annual meeting, October 19-21, at the Hotel Wisconsin, Milwaukee.

FEMALE WAR HOSPITAL.—The Women's Hospital Corps of London has established a hospital which will accommodate 500 soldiers. This hospital is in Endell street, near Covent Garden market, and the entire staff, from cooks to surgeons, are women. The staff includes eight surgeons, under the direction of a chief surgeon, a dental surgeon, an ophthalmic surgeon, a pathologist and X-ray operator, an anesthetist, and a number of physicians.

MORTALITY DUE TO CHILDBIRTH.—Zinke, in the Bulletin of the Lying-In Hospital of New York, states that during the past fifty years Germany has lost 400,000 women from puerperal causes, while the loss in the United States during the same period is estimated at 1,000,000. Our population during the past forty-five years has increased by 40,000,000, while in Germany the increase is about half this figure. That much of this

is really preventable is shown by the fact of the absence of mortality in well-conducted maternities, when all conditions can be controlled.

SURGEON'S ODD BEQUEST.—By the will of Dr. J. William White, of the University of Pennsylvania, a convict discharged each year from the Eastern penitentiary, "who is most likely to be helped to permanently honest ways" is to receive a sum of money, and a similar gift is to be made to a discharged patient of the Philadelphia hospital to aid him in earning "a decent livelihood." Large bequests were made to various hospitals in Pennsylvania. A trust fund of \$150,000 is created as a permanent endowment fund for the establishment of professorships of surgical research at the University of Pennsylvania.

UNIVERSITY OF CALIFORNIA GETS CHILDREN'S HOSPITAL.—The Children's Hospital, which was founded and controlled for more than thirty years by women physicians, has passed under the management of the University of California, whose medical students will practice among the little patients. A factional fight has existed for a long time among the board of directors, a new element wishing to oust those in control. By a vote of 9 to 8, the old order of things was overturned and a five-year agreement with the university was authorized.

WAR REDUCES MADNESS.—According to medical inquiry, it would seem that the reduction of insanity since the war began has been considerable. Dr. William Graham of the Belfast Lunatic Asylum remarks: "It is not the great tragedies of life that sap the forces of the brain and wreck the psychic organism. On the contrary, it is the small worries, the deadly monotony of a narrow and circumscribed existence, the dull drab of a life without joy and barren of an achievement, the self-centered, anæmic consciousness—it is these experiences that weaken and diminish personality and so leave it a prey to inherited predispositions or to the "slings and arrows of outrageous fortune."

THE BOARD OF DIRECTORS OF THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH announces the following promotions and appointments: Dr. Alphonse R. Dochez, hitherto an Associate in Medicine, has been made an Associate Member. Dr. Henry T. Chickering has been appointed Resident Physician in the hospital, succeeding Dr. Dochez. Dr. Louise Pearce and Dr.

Frederick L. Gates have been made Associates (Pathology and Bacteriology). Dr. Oswald Robertson, Assistant (Pathology and Bacteriology); Mr. Ernest Wildman (Chemistry). The new appointments are: Dr. Rohda Erdman, Associate in the Department of Animal Pathology; Dr. Rufus A. Morrison, Assistant in Medicine and Assistant Resident Physician; Dr. John Northrop, Assistant in the Department of Experimental Biology; Dr. Jean Oliver, Assistant in Department of Pathology and Bacteriology; Dr. Ernest W. Smillie, Fellow in the Department of Animal Pathology, and Dr. William D. Witherbee, Assistant. Mr. Hardolph Wasteney, hitherto an Associate in the Department of Experimental Biology, has become Associate Professor of Pharmacology in the University of California.

BOGUS CIRCULATIONS IN MEDICAL JOURNALS.—The American Medical Directory contains in its recent issue a complete printed list of medical journals in the United States. There were two demands made when calling for the information in this list: first, whether the journal conformed to the standards of the Council on Pharmacy and Chemistry; and second, to furnish a sworn statement of circulation. In both cases the facts were to be printed in black faced type in the directory. The statistical results show that out of 257 medical journals and bulletins only 133 conform to the standards; 196 of them accept advertisements, 61 do not. Only 55 of the 257 give sworn statements of circulation. Of those that accept advertisements, 41 give sworn statements of circulation. Only 38 out of the 196 that accept advertisements conform to the standards and furnish sworn circulations. Of these 38 journals, 28 are the official state medical journals.

BAD TEETH CAUSE REJECTION.—Of those who applied for enlistment in the National Guard, thirty per cent. are said to be rejected on account of bad teeth. It is hardly necessary to furnish another proof that the work of caring for children's teeth needs the co-operation of parents, physicians and dentists in order for it to be sufficiently effective.

THE THREE "C'S" OF CARING FOR MILK.—The three "C's" for the proper care of milk in the home, according to the United States Department of Agriculture, are: *Clean*, *Cold* and *Covered*. "Milk is a highly perishable food and the length of time it will remain sweet and safe, especially for children,

depends almost entirely upon the constant care it receives from cow to consumer. If the producer and dealer have done their part, clean, safe milk will be delivered, thoroughly chilled, to the consumer. Bottled or other milk should not be allowed to remain in a warm place, as on a sunny porch or in a warm kitchen. In hot weather, the milkman should put the milk directly in the refrigerator, or in some tight container with insulated walls that keep the heat from getting rapidly to the cold milk."

ARREST CHICAGO'S MORONS.—Following the announcement that the Rockefeller Institute would begin a survey of the city of Chicago, August 1, to ascertain how many residents are sub-normal mentally, it was declared by a number of alienists and physicians that should this survey be carried out half the population of the city would be sent to institutions for defectives. The institute proposes to empower the police to arrest anyone looking like a moron, half-wit, or any other unfortunate. "Should this suggestion be carried out, some of our most noted physicians, surgeons, bankers, brokers, editors—in fact, half of the population will have to flee the city for safety," said Dr. Wm. D. Krohn, noted alienist.

PRIZE FOR THE BEST ARTIFICIAL HAND.—A large sum of money has been received by the Royal Surgical Society of London to be offered as a prize to the inventor of the best artificial hand. An exhibition of persons who have worn the hands for at least six months will have to be made by the competitors.

CHANGE OF NAME.—The International Health Commission of the Rockefeller Foundation has changed its name to International Board of the Rockefeller Foundation.

INFANTILE PARALYSIS KILLS FOOT-BALL PLAYER.—Frank McCormick, center in 1906 on Villa Nova football team and picked on the All-American team that season, died on July 17 from infantile paralysis. McCormick was 36 years old.

NEW ORLEANS EYE, EAR, NOSE AND THROAT HOSPITAL.—The annual report for 1915 of the Eye, Ear, Nose and Throat Hospital, which was recently issued, shows the good accomplished and the progress made by that institution. The objects of the hospital are to save life and to stop the spread of disease. The fight against diphtheria has been so successful that the mortality from that disease was reduced from 36 per cent to 1½

per cent. There were 47,943 consultations given, 7,698 cases treated, 1,969 operations performed. The number treated from the parishes was 2158. Of the 674 indoor patients treated, only 4 died. The institution, however, is greatly handicapped by lack of sufficient means and it is the hope of the board of trustees that the State of Louisiana will restore the appropriations to that institution which it formerly enjoyed. The parishes of Ascension, Lafourche and Terrebonne each contributed \$100 to the hospital, and other sums were received from various sources.

TO PREVENT BLINDNESS.—A small carton of tubes is being sent by the Louisiana State Board of Health, to every registered midwife, containing five drops each of a 1 per cent solution of silver nitrate. This solution is to be used to prevent blindness in new-born infants, and simple directions accompany it so that there is no excuse for error on the part of anyone. It has been found that all the cases of blindness in the institutions for the blind in the United States about one case in four is the result of neglecting the eyes of new-born infants. The solution if intelligently used will reduce blindness by 25 per cent.

THEORIES AND FACTS.—It would seem that scientists and even those who are "next to things" flounder in their theories and run amuck in their prophecies. Osler, with his age limit for usefulness, has seen his theory disproved by the fact that nearly all the men who are handling the European war are in their sixties or over, and even contradicts his own theory in himself. Now, Metchnikoff, the great bacteriologist and biologist, by his death when in his early seventies, has proven the fallacy of another theory which he advanced, that sour milk was the secret to old age and if taken would insure the user a long life. Facts, and not theories, are what we want these days.

A PRENATAL RESTAURANT.—Miss Mabel Parker, of New York, is the originator of an idea, which, if all goes well, will play a big part in the history of the nation. She proposes an organization to be called the Prenatal Diet and Health Association, and its slogan will be "Save the child and you'll save the city." The purpose of this organization is to provide a noon meal for the mothers-to-be for five cents. This meal is provided for six months or more before the baby is born. The food is carefully selected with consideration for values, and the menus

vary. Miss Parker believes that infant mortality from preventable causes after birth, which has been so reduced by milk stations and other agencies, could be even greater reduced when mothers of the tenements have been properly nourished before the birth of their children.

PERSONALS: At the Detroit meeting of the Association of American Teachers of Diseases of Children, Dr. L. R. DeBuys, of New Orleans, was elected president for the coming year.

Dr. Marcus Feingold, Professor of Ophthalmology, School of Medicine, Tulane University, has been summering in Denver, Colorado. News has been received that the postgraduate course in ophthalmology conducted at the Medical Department of the University of Colorado has been greatly benefited by the presence of Dr. Feingold, who has been conducting some very interesting demonstrations in ocular pathology.

The degree of Doctor of Ophthalmology was conferred on Dr. Feingold by the University of Colorado.

Dr. Frederick K. von Ilberg, noted laryngologist, who had the care of the Kaiser's chronic throat affection, died in Berlin, July 9.

Dr. Charles Chassignac (New Orleans) spent the month of August with his family in Swannanoa, North Carolina.

Dr. C. C. Bass was summoned to New York, together with other scientists, to discuss the infantile paralysis situation during the week ending August 5.

Dr. Edmond Moss has returned from his vacation spent in Plymouth, Mass.

Prof. L. Albert Neisser, of Breslau University, the famous dermatologist, died in Berlin, July 31.

Dr. John B. Murphy, the noted Chicago surgeon, died after an acute illness.

REMOVALS: Dr. M. H. Edens, from Verden to Sand Springs, Oklahoma.

Dr. L. F. Lorio, from Lottie to Lakeland, Louisiana.

BOOK REVIEWS AND NOTICES

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by H. R. M. Landis, M. D., and others. Vol. II. Twenty-sixth Series. 1916. J. B. Lippincott Company, Philadelphia.

The present volumes of the well known series maintains its established reputation. The articles cover a wide variety of subjects all timely and all eminently practical. Those interested in problems growing out of the great war in lessons learned therein will welcome the article on Tetanus by Dr. J. B. Young and the one on Orthopedic Problems Presented by European War, by Dr. R. B. Osgood.

I. I. Lemann.

The Practical Medicine Series. 1916. VI. I. **General Medicine.** Edited by Frank Billings, M. D. The Year Book Publisher. Chicago.

This little year book continues to serve a useful purpose. The topics it reviews are well chosen and adequately covered. The practitioner who will spend a few hours with it will find himself well repaid by the clear information he will gain of the newest investigations and clinical observations in the field of medicine. Of particular interest is the statement by the editor, Dr. Billings, that he has for nine years made use of the prolonged absolute fasting period in the treatment of diabetes—the method of treatment now associated with the name of Frederick Allen, who has brought forward substantial experimental data upon which to base it.

Lemann.

Rules for Recovery from Tuberculosis. A Layman's Handbook of Treatment. By Lawrason Brown, M. D. Lea & Febiger. Philadelphia and New York.

This little book will fulfill the purpose for which it was intended. The author "has attempted to make clear the whys and wherefores of many rules ordinarily given patients in an oracular manner, for he believes that the day has come when the physician should look upon the patient, not as an ignorant child, but as a human being endowed with more or less mature intelligence, as one, in fact, who has a right to demand an explanation of the way certain effects follow certain causes." Dr. Brown's long experience in the great Trudeau school has qualified him to write with authority and this booklet of the

a b c's of therapy in tuberculosis may be heartily commended for the perusal and study of the practitioner as well as of the patient. The simplicity and clarity of the presentation have added to its interest and readability.

Lemann.

The Medical Clinics of Chicago. May, 1916. Vol. I, No. 6. Published Monthly by W. B. Saunders & Co. Philadelphia and London.

This number has a number of very good lectures. Dr. Hamburger's lecture on the Allen Treatment of Diabetes brings additional clinical evidence as to the value of the treatment. Some of the articles as notably that on "The Relation of the Upper Respiratory Tract to Metastatic Injections" and the one on "Rachitis" are quite extensive. It seems to the reviewer that the purpose of the publication will be better carried out by brief practical talks rather than by long monographs which have been developed beyond the limits of an ordinary chatty lecture.

Lemann.

Painless Childbirth, Eutocia and Nitrous Oxid-oxygen Analgesia. 1916. By Carl Henry Davis, A. B., M. D. Forbes

This is an interesting little volume of 135 pages in which the author presents a concise history of the development of anesthetics and discusses in a most convincing manner the value of nitrous oxid gas in obstetric practice. The objections to "twilight sleep" are related and the growing necessity of relieving pain in childbirth is emphasized.

Anyone who really desires to reduce the discomforts of delivery will find much useful information in this little book.

Miller.

A Manual of Gynecology and Pelvic Surgery for Students and Practitioners. By Roland E. Skeel, A. M., M. S., M. D. P. Blakiston's Sons & Co. Philadelphia, 1916.

This is an excellent handbook of 680 pages in which the author presents a concise practical working knowledge of gynecology, with special emphasis on Diagnosis and Treatment. The author is to be congratulated upon his ability to condense so much material in a small volume and, at the same time, avoid the ordinary compend style of composition.

The illustrations are well selected and excellently drawn.

It is seldom that an author attempts to introduce references with any degree of system in any but large textbooks. Dr. Skeel has selected a number of references for each chapter, with the idea of having students do collateral reading. The idea, while not new, is excellent, and with a library at the

command of students this plan of teaching would soon supersede the old textbook plan so general at present.

Miller.

Surgical and Gynecological Nursing. By Edward Mason Parker, M. D., F. A. C. S., and Scott Dudley Breckenridge, M. D., F. A. C. S. J. B. Lippincott Company. Philadelphia. 1916.

This volume is rather more pretentious than the average textbook on nursing. The effort throughout the book has been to present to the student and graduate nurse an essentially practical statement of those procedures in her professional work that fall within the realms of general surgery and gynecology.

An unusual amount of space has been given to illustrations, especially of surgical instruments, in order that nurses might have the opportunity of familiarizing themselves with the preparation and names and instruments before they are thrown into the busy duties of the operating room.

In addition to the surgical and gynecological technic, there are valuable chapters on the use of fractional doses in hypodermic medication, weights and measures, solutions and formulæ.

The book should find a place in schools for nurses and also be a ready handbook for the busy, operating-room nurse.

Miller.

Obstetrics. By Edwin Bradford Cragin, A. B., A. M., M. D., F. A. C. S. Lea & Febiger. Philadelphia. 1916.

The announcement of a book on Obstetrics, written by Edwin B. Cragin and based upon the statistical results of 3,500 deliveries in the Sloane Hospital for Women, will meet with the hearty approval of the medical profession. The Sloane Maternity has been one of the foremost institutions of America for many years, and Dr. Cragin as the medical head is largely responsible for the excellent system and results obtained in this service.

One of the chief aims of the author was to furnish a textbook for undergraduates in which the subject is covered concisely and from which unnecessary discussion is eliminated. It requires only a superficial examination to show how successfully this has been accomplished, and, furthermore, that the book is essentially the personal views and methods of the author.

The profession is indebted to Dr. Cragin for his effort to present statistics in obstetrics. The wealth of material at his command has been carefully studied and systematically recorded, which gives his opinions special weight when he discusses the treatment of Placenta Previa, based upon 223 cases,

181 cases of Transverse Presentations, or 150 cases of Cesarean Section, etc.

So many commendable features appear in this book that only a few may be mentioned. The author is especially gifted in his ability to make clear the points in differential diagnosis, which makes the work of special value to both students and practitioners.

The chapters on Placenta Previa and Toxemia of Pregnancy are alone worth the price of the book. His conservative position as to the indications of Cesarean section in both placenta previa and eclampsia should be seriously studied by those who are inclined to make this operation a cure for all obstetrical ills. While he believes in emptying the uterus promptly in eclampsia, if the patient fails to improve under treatment, he relies upon bags and manual dilatation more than upon cutting operations.

We rarely find in a textbook so much space devoted to lactation and infant feeding as has been devoted to these subjects by Dr. Cragin. However, his views are well worth the space.

There is no doubt but that Dr. Cragin's book will promptly take rank among the best textbooks on modern obstetrics, because of its excellent arrangement, the concise but at the same time full discussion of the subject matter, and, most important of all, the book represents the personal views of one whose ripe judgment and conservative tendencies have been known and respected for many years.

Miller

Diseases of the Digestive Tract and Their Treatment. By A. Everett Austin, A. M., M. D. D. St. Louis. C. V. Mosby Company. 1916.

Another book on "Diseases of the Digestive Tract," we hear some one say. Yes; and withal a good one.

In great measure, the author handles the branch of medicine as here presented from the viewpoint of physiological chemistry. To the reviewer's way of thinking this is a logical and perfectly correct point of view.

The book is written in an easy style and avoids dealing with anything superfluous. When necessary, the author shows an independence of thought, which, however, is in line with the best opinions of the day, and in accord with the results reached by careful workers in this branch of medicine. His conclusions, therefore, must be adjudged rational from our present day light on the subject.

Dr. Austin's book does not savor of the usual compilation. Authors have been consulted, as a matter of course, but, for the most part for "observations upon the rarer diseases which have never come under the eye of the author. This ample,

but not too voluminous book, is printed with type on heavy paper, and the illustrations are numerous. The book is not padded and may be considered a good guide. No marked innovations are made, but the volume is sound to the core, and we are pleased to give it our approval.

Storck.

The Memoirs of a Physician. By Vikenty Veressayer. Translated from the Russian by Simeon Linden. With an Introduction and Notes by Henry Pleasants, Jr., M. D. Alfred A. Knopf, Publisher. New York.

Not a great while ago we were reading a review of the life of John of Gaddesden, full of a vast experience saturated with the utmost egoism. The work before us is strong in its contrast. Above all it is so utterly human that any one who may read it must gather many many lessons. Says the author:

I am but an average practitioner, with average ability and average knowledge. I find myself entangled in a web of contradictions, and I am utterly powerless to solve many of the hard problems which, unfortunately demanding an answer, arise before me at every step.
* * * I am about to describe my sensations on my first acquaintance with medicine, what I expected of it, and how it actually affected me.

Then the author proceeds to give his audience an intimate story of his experiences as a medical student and as a young practitioner. While the chagrin of an acknowledged ignorance is still acute (for the author says he has practiced but seven years), a sincere self analysis is undertaken, in which successes are noteworthy for their omission, while all sorts of mistakes are related. The men who hold higher places in the medical life of the author come in for a large share of commentary and while there is a very thorough criticism of methods and of practice, there is at the same time the highest expression of respect and consideration for those who have deserved it.

Like the "Confessions" of Rousseau, there is, beyond the mere detail of a technical biographic sketch, a remarkable literary style, of which is added a distinctly broad knowledge of historic and contemporaneous service in medicine, which makes the book a decided contribution.

To the practitioner who is old enough to have mellowed in his work, to the student who has his professional life before him and to any man or woman who wishes to know anything of the vicissitudes of an honest doctor, we commend this book for careful perusal. Read once, it will be read often.

Dyer.

Surgery in War. By Alfred J. Hull, F. R. C. S., with a Preface by Sir Alfred Keogh, K. C. B., M. D. P. Blakiston's Sons & Co. Philadelphia.

This is really a handbook for the army surgeon, dealing with practical preparedness and with the detail of direct service for the surgeon either at the field or at the base hospital. Modern conceptions of infections are presented and a clear relation of bacteriology to warfare surgery is maintained throughout. The various regions of likely injury are discussed and the injuries of the nerves also find place.

There are numerous illustrations—diagrammatic and photographic—all adding to the value of the book.

The work is timely and among many publications on war surgery already out, it will have a place of its own as co-ordinating modern practices and as being easy of use because of its compact, readable form.

Dyer.

The Practical Medicine Series. 1915. Under the Editorial Charge of Charles L. Mix, A. M., M. D. Vol. IX. **Skin and Venereal Diseases.** Edited by Oliver S. Ormsby, M. D., and James H. Mitchell, M. D., and **Miscellaneous Topics.** Edited by Harold N. Moyer, M. D. The Year Book Publishers. Chicago.

The bulk of this volume is devoted to skin diseases and syphilis and the review for the year of 1915 is quite comprehensive. Serotherapy as well as advanced ideas in bacteriological study of obscure dermatoses find large place. The historical status of syphilis is presented, with an inclusion of the life of Fournier, who died in 1914. The material is varied and both academic and practical.

Dr. Moyer's section is a well assorted review of near medical topics, educational, economic and sociologic, all of which are of timely interest. Altogether this volume of the Practical Medicine Series is well up to the standard of the publication.

Dyer.

Progressive Medicine. Volume XIX. Nos 1 and 2. Edited by Hobart Amory Mare, M. D., A. B., Noted. Leighton F. Appleman, M. D.. Lea & Febiger. Philadelphia and New York.

These two volumes of the current year, contain a wide assortment of topics, arranged by such surgeons as Gerster, Frazier, Muller (Geo. P.), Clark (John G.); such physicians as Stengel, Ruhrah, Crandall (Floyd); and with special subjects: of the Eye (Jackson, Edw.), Ear, Nose and Throat (Geo. B. Wood and T. L. Saunders).

The wealth of material afforded in each group of subjects cannot be determined except by their perusal, but the service

of such a review is great. The chapter on Infectious Diseases alone (Rubrah) covers about 125 pages, and both ordinary and exotic diseases are discussed.

The mass of topics prevents any detailed review, but it is a matter of privilege to note that it is just such standard quarterly digests of contemporaneous medical literature which permit the general practitioner to keep up with modern progress in the profession.

Dyer.

The Kinetic Drive; Its Phenomena and Control. By George W. Crile, M. D. W. B. Saunders Company. Philadelphia and London.

Reduced to a lecture before the New York Academy of Medicine, the author submits an hypothesis which he proposes as an unsolved problem and to which he applies preliminary observations and some experimental data. In substance the human is the subject of unbalance due to loss of proper transformation of energy as developed by the natural processes. Such unbalance results in morbid phases, light or severe, reflecting in the individual in various acts. The incoordination of the organic functions, failure in controlling emotions, effort, and the elimination of acid by-products, so provoking infection, auto-intoxication and the like, constitutes an elementary but inherent force, which operating may be called the **Kinetic drive**. The author conceives that the activating organs of the kinetic system are the adrenals and the thyroid; and that by reducing their size their activity may be reduced; further that by severance of the cervical sympathetic, the association of these organs with the brain may be reduced and in this way the kinetic drive may be interrupted.

Operative experiment is exemplified to show the result of the theory put in practice in such conditions as diabetes, Graves' disease, etc., and the cases related are remarkably interesting.

Altogether the kinetic theory as advanced by Crile is full of interest—offering many phases of correlated reasoning. The various combinations of human functions capable of joining to create an unbalance and to establish a kinetic drive are numerous and if the remedy is one reducible to a mathematical relation of certain organs to certain syndromes, then there is a solution ready for many of the diseases now within the borderland of obscurity.

The matured work of Dr. Crile in this field will be awaited with keen anticipation.

Dyer.

Pellagra. An American Problem. By George M. Niles, M. D., W. B. Second Edition. Saunders Company. Philadelphia and London.

This new edition of an important American contribution to pellagra has evidence of a number of revisions. The chapters on etiology and treatment especially have been materially enlarged and brought up to date.

The chapter on symptomatology is full of practical descriptions largely based on more recent observations. The book is full of the author's personal observations, evidently from a wide experience with the disease. There seems to be no attempt to make the review of contemporary opinions complete, but rather to offer a practical opinionative essay on subjects covered by the title of the book.

Dyer.

Elementary Bacteriology and Protozoology for Nurses. By Herbert Fox, M. D. Second Edition. Lea and Febiger. Philadelphia and New York.

While there is a great deal more contained in this book than most nurses have any need to know and certainly much more than any nurse has any reason for learning, this cannot detract from the work of the author, who has made an excellent presentation of a difficult subject in a way which is both authoritative and thorough. The text is logically arranged, and covers the field of bacteriology rather extensively. Protozoology is not so fully considered, for obvious reasons. The chapters on the destruction of bacteria by chemicals and on immunity are important for all nurses—and incidentally, as they are put, most doctors might profit by reading them.

The illustrations are apt and excellent.

Dyer.

Diagnostic Methods, by Herbert Thomas Brooks, A. B., M. D. Third edition. C. V. Mosby Company, St. Louis.

This little guide is evidently intended for the practical technical training of the laboratory student and the everyday physician. It describes simple routine and easy methods and so fulfils the purpose of the author—himself a trained teacher.

D.

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Dementia Precox Studies, by Bayard Holmes, M. D., and
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A New Trypanosoma of the Vampirops Lineatus, by
Juan Iturbe, M. D., and Eudoro Gonzales, M. D.

Apuntes Sobre la Bilharziasis en Venezuela, por el Dr
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Conservation of Vision and Prevention of Blindness, by
G. E. de Schweinitz, M. D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for July, 1916.

Cause.	White	Colored	Total
Typhoid Fever	5	1	6
Intermittent Fever (Malarial Cachexia)	1	1	2
Smallpox	1	3	4
Measles			
Scarlet Fever			
Whooping Cough			
Diphtheria and Croup			
Influenza			
Cholera Nostras			
Pyemia and Septicemia		1	1
Tuberculosis	31	62	93
Cancer	22	6	28
Rheumatism and Gout	1		1
Diabetes	1		1
Alcoholism	1		1
Encephalitis and Meningitis	8	2	10
Locomotor Ataxia	3		3
Congestion, Hemorrhage and Softening of Brain	21	2	23
Paralysis	3	3	6
Convulsions of Infancy	2		2
Other Diseases of Infancy	24	8	32
Tetanus		1	1
Other Nervous Diseases	5	1	6
Heart Diseases	55	43	98
Bronchitis		3	3
Pneumonia and Broncho-Pneumonia	11	14	25
Other Respiratory Diseases	2		2
Ulcer of Stomach	1	3	4
Other Diseases of the Stomach	4	0	4
Diarrhea, Dysentery and Enteritis	24	14	38
Hernia, Intestinal Obstruction	3	1	4
Cirrhosis of Liver	7	7	14
Other Diseases of the Liver	3	1	4
Simple Peritonitis			
Appendicitis	7	3	10
Bright's Disease	17	21	38
Other Genito-Urinary Diseases	17	8	25
Puerperal Diseases	6	3	9
Senile Debility	2	1	3
Suicide	5		5
Injuries	19	13	32
All Other Causes	7	6	13
Total	319	232	551

Still-born Children—White, 24; colored, 26; total, 50.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 13.87, colored, 27.29; total, 17.49. Non-residents excluded, 15.46.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 29.91
 Mean temperature 82.
 Total precipitation 6.78 inches
 Prevailing direction of wind, southwest.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

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JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }
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EDITORIAL

THE REPORT OF THE COUNCIL ON MEDICAL EDUCATION.

The current report of the Council on Medical Education is interesting in its review of medical progress in the United States in the past ten years. The student attendance at medical colleges has dropped 50% in this time, 28,142 in 1904 and 14,022 in 1916. There were 162 medical colleges in 1906 and since 1904, 94 have closed. There survive 82 regular schools and 13 irregular schools capable of classification. While medical schools have merged in a number of cities, there are still 8 in Chicago, 7 in New York and 5 in Philadelphia, though in Philadelphia the three leading schools have planned to merge.

Practically all schools rated in Class A will demand two years

of college work as an entrance requirement after January 1, 1918, as this time limit has been fixed by both the Council and by the Association of American Medical Colleges.

The number of graduates has naturally grown smaller under such rapid changes in standards and the decrease will probably go on until some adjustment takes place, for the practise of medicine is not nearly so attractive to the average individual as it was a few years back, when the way was easier; with twelve years of school, two years of college work and five years in the medical and hospital fulfilment, before practise can be undertaken, the total of nineteen years before the start can be made will act as a deterrent to many young men who might be inclined to go in this field.

The smaller number of physicians, on the other hand, will certainly benefit the survivors, except that already the gravitation of the better trained men to the large cities makes the competition greater and the reward smaller, while in the country places there is now the demand for practitioners—a demand also already not so easily satisfied.

There may be a logical adjustment of the supply and demand, coming probably only when the smaller communities have more to offer, for the modern study of medicine carries many incentives to the aggregation of the scientifically inclined and the continued advanced teaching in our medical schools will not prepare the medical student when graduated to undertake country practice. The question is not yet up for solution but may not be long deferred.

This discussion cannot detract from the good work done by the Council on Medical Education and the whole credit is due this body for a relentless activity in standardizing medical education—a result now assured and not likely to be altered in the years to come.

THE NEW ORLEANS CHARITY HOSPITAL.

During the last quarter of a century the administration of the New Orleans Charity Hospital has been the object of popular consideration and the nature of its control by political influences has always seemed to share, if it did not carry, the burden of responsibility for general criticism.

The Charity Hospital has probably for many years been an

outlet for gubernatorial patronage and the time has not passed too long for many to remember when the matter of the patient and the institution was of no real consideration so long as the political situation was properly adjusted.

The recent resignation of most of the remaining members of the old hospital board of administrators reminds us of former times when a clean sweep of the hospital board was made whenever it seemed necessary in the interest of the house surgeon in office.

It is really to be deplored that so obvious a partisan policy should have been followed by the new state administration, which should have resulted in the resignation from the hospital board of some of the best administrators the hospital has had in years.

Leaving the system of the hospital aside the outgoing board has to its credit the rehabilitation of the New Orleans Charity Hospital. Every member of the visiting staff will acknowledge a better service from the standpoint of either the patient or visiting staff; the intern staff does better work and the general public is certainly better served than ever before. Contagious diseases, including tuberculosis, have been provided for, and the hospital clinics are better attended, with a better result in public service as a whole.

A social service has been undertaken, and there is for the first time in many years a real department of pathology which not only has satisfied the hospital end of its operation, but has done statewide service in preventive medicine as well as in serum treatments, altogether netting an expense to the hospital less than the same department hitherto entailed.

The new board may profit by the experience of its predecessors and the new superintendent may not disturb the successful system inaugurated by his predecessor. We are hopeful for the continuance of the hospital management as revised in the last four years and we are sure that we voice the rest of the New Orleans profession in saying that any improvement will be welcomed and to that end we vouch our support—but, with such a remarkable showing by the board which has honorably served for the past four years, we earnestly trust that the improvements will be based upon a proven plan, for any step backward cannot help the hospital in any of its activities.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

HAY-FEVER IN LOUISIANA.

An Analysis of the Age, Sex, Occupations and Color of Hay-Fever Cases, with a Review of the Principal Causes.

By W. SCHEPPEGRELL, A. M., M. D.,

President, American Hay-Fever-Prevention Association, New Orleans.

At the request of the American Hay-Fever-Prevention Association, Dr. Oscar Dowling, President of the Louisiana State Board of Health, sent a list of questions regarding hay-fever to all the physicians of this State. These were issued under the authority of the United States Public Health Service.

The answers represent a good proportion of the physicians of the State and establish some interesting points. As this is the first general statistical information that has thus far been obtained regarding hay-fever, a careful analysis should be of interest.

The answers indicate that the percentage of hay-fever in North Louisiana is 8-9 of 1 per cent, and in South Louisiana 1 per cent, or approximately 1 per cent (0.94) for the State. The estimate which has been made by our research department of hay-fever cases in New Orleans is also about 1 per cent.

The average percentage of hay-fever cases in Louisiana and the Gulf Coast generally is somewhat lower than in other sections of the United States East of Kansas, where the rag-weeds (*Ambrosias*) are found. This is due to the fact that the common rag-weed (*Ambrosia trifida*), which is prevalent through this section of the United States, is replaced on the Gulf Coast by the giant rag-weed. While the pollen of this is spiculated similar to that of the common rag-weed and gives the same form of hay-fever, its larger size reduces its potential area. The common rag-weed measures 15 microns* in diameter and the giant rag-weed,

*Micron is one-thousandth of a millimeter.

20 microns, the latter being two and one-half times the weight of the former. As this is the important factor in the convention of pollen by the wind, this gives the *A. trifida* a much smaller potential area. Under wind conditions that the common rag-weed would traverse one-half mile, the giant rag-weed will traverse only one-quarter mile. The common rag-weed, therefore, has a potential area four times greater (square) than the giant rag-weed.

The percentage of asthma complicating hay-fever was found unexpectedly large, being 30 per cent of the total number.

The seasons in which hay-fever appears most in Louisiana is also about the same as in other parts of the United States below the 35th parallel, but differs materially from those in higher latitudes. As in other sections, August and September are the most common months (67%), October, however, being also included in this State. The cases at this season are due almost entirely (85%) to the rag-weeds, the common (*Ambrosia elatior*) or giant rag-weed (*Ambrosia trifida*) being responsible, according to the humidity of the soil and the proximity to the Gulf. Where the one is prevalent the other is usually infrequent. In New Orleans and its vicinity, the giant rag-weed (*trifida*) is the principal cause of fall hay-fever, to the practical exclusion of the common rag-weed.

May, June and July form the next most common season (24%). The hay-fever cases during these months are almost entirely due to the grasses, the most common being the Bull grass (*Paspalum dilatatum* and *vasyanum*), Bermuda grass (*Capriola dactylon*), Carpet grass (*Paspalum conjugatum*), Smut grass (*Sporobolus indicus*), Johnson grass (*Andropogon halapense*), Lace grass (*Eragrostis conferta*) Canary grass (*Phlaris canariensis*) and Crab grass (*Panicum sanguinale*).

February, March and April have only 7% of the hay-fever cases, these being due principally to the early grasses, such as the June grass (*Poa annua*), Scotch rye grass (*Lolium perenne*), etc., although at this season the Curly Dock (*Rumex crispus*) and Plantain (*Plantago*) are also in bloom. The amount of pollen in the air at this season, however, is comparatively small and the attacks of hay-fever are usually of a mild character, and limited to cases in close proximity to the source of infection.

In New Orleans there is a type of hay-fever (2%) that is found all the year, which is principally due to the False Wormwood (*Parthenium hysterophorus*), this being florescent practically every month of the year. It has a spiculated pollen of the same size as the Trifida rag-weed (20 microns) and gives the same type of direct hay-fever, the only difference being the color of the pollen which is white instead of yellow as in the rag-weeds. The amount of pollen, however, is not very great as compared with the Ambrosias, and the tendency of the pollen to adhere in bunches of one hundred or more, gives it a restricted potential area. It is therefore not responsible for many cases of hay-fever, but these may develop at any time of the year.

Regarding the age at which hay-fever develops, this was found to be most common between 20 to 40 years (62%), the next most common age being from 10 to 20 (17%). The principal age corresponds with the time of life that a man enters his life's occupation, when he is usually more exposed to the hay-fever pollens. Hay-fever in children, however, is frequently mistaken for "colds" and this percentage will probably be readjusted when this condition is better recognized.

The pollens considered most responsible for hay-fever in Louisiana correspond remarkably with our recent investigations, considering the comparatively late date of the acceptance of the pollen theory of hay-fever. About 70% (69) were attributed to the rag-weeds and golden rod. The latter not being wind-pollinated, however, is not a cause of ordinary hay-fever, and may be omitted. The grasses were considered responsible for 11%, which is too low an estimate due to the relation of the grass pollens to hay-fever not yet being fully understood. Corn and rice were held responsible for 2% of the cases. Since corn belongs to the order of *Gramineæ* and is high in protein, it is also a source of hay-fever, the large size of its pollen, however, greatly reducing its potential area. It measures 80 microns in diameter as compared with 15 microns of the common rag-weed, as a result of which the latter would traverse one-half mile under the same wind conditions that the corn pollen would traverse only 43 feet. Oats is also given as a cause by two physicians, but as this is not wind-pollinated it does not cause hay-fever. The only cereals which may cause hay-fever are corn, rye and rice.

The report on occupations is one of the most interesting results of this questionnaire. It is commonly supposed that persons in the country suffer little from hay-fever, and the alleged fact that farmers do not suffer from this disease is often used as an argument against the pollen theory of hay-fever. This investigation, however, demonstrates that the occupation which has the largest number of hay-fever cases (38%) is that of the farmer. As they are most exposed to the pollen, this is only natural, and shows that the greater resistance due to their out-door life is offset by the still greater exposure.

The proportion of males and females having hay-fever is probably due not so much to difference of susceptibility as of exposure. The males have 63 % of the hay-fever cases against 37% of the females, the difference being probably due to the men being more exposed to hay-fever pollen by their occupations.

Another interesting point is the proportion of colored persons who suffer from hay-fever. Most reports and books on the subject refer to the rarity of hay-fever in the colored race. The answers show that the proportion of white and colored are 79% and 21% respectively. As the United States Census shows that there were 713,874 colored to 941,086 white persons in Louisiana, this indicates that the colored are affected with hay-fever about one-third as often as the whites..

We have considered constitutional causes as a predisposing factor in hay-fever as being effective only to the extent of lowering the normal resistance, without being otherwise an important consideration. This was corroborated by the answers, in which fifty-four physicians reported forty-eight different predisposing constitutional causes of hay-fever!

The statistics on hay-fever have heretofore been very vague and indefinite and the synopsis of these answers, which give definite information on many parts of this subject, should be of interest not only in Louisiana but in the United States generally.

EPIDURAL, CAUDAL OR SACRAL ANESTHESIA.

By CARROLL W. ALLEN, M. D., New Orleans.

In connection with spinal and para-vertebral anesthesia, should be considered the epidural injections of Cathelin. Cathelin first conceived the idea of medicating the pelvic nerves in the sacral canal for the relief of various pelvic neuroses, especially neuralgia of the lower half of the trunk, incontinence of urine and sexual neuroses. He later tried the method for the purpose of inducing anesthesia, but met with little success.

The technic of Cathelin's injections were practically the same as those employed to-day for surgical purposes. The solutions which he used were either plain water or salt solution alone, or containing an appropriate quantity of cocain, novocain, codein or morphin; 6 or 8 ounces or more were injected. The method of its action is hard to explain, but seems to be due to the physical influence, as well as such chemical changes as may be induced by bathing the nerves in this space in the injected solution.

Cathelin and his associates reported a large number of cases treated by this method, and, in incontinence of urine, reported 49% cured, 35% materially improved and 4% failures. It was occasionally necessary to repeat the injections several times.

The method had been used in a desultory way from time to time for purposes of anesthesia. Stockel met with somewhat more success in this direction, but it was not until Lawen's paper in 1910 that the method attracted any serious attention.

Anatomy: The dural sac ends opposite the lower border of the second sacral segment; the terminal bundles of the cauda equina pass through the dural sac into the sacral canal on their way to the sacral foramina through which they pass to form the sacral plexus consisting principally of the sciatic, vesical and pudic nerves. The sacral canal also contains the sacral plexus of veins and much loose cellular tissue through which passes the filum terminalis of the cord.

The lower end of the sacrum, which most interests us, presents a notch or triangle due to the lack of development of the spinous processes, on the lower extremity of each side of the triangle is a bony prominence, the sacral cornu, which articulates with the coccyx.

At the apex of this triangle is found the sacral hiatus, a bony

canal, which opens into the sacral canal; the triangle is covered with the sacro-coccygeal ligament which closes the sacral hiatus. The sacral canal is flattened from before backward and progressively diminishes in size from above downward, following the general curve of the sacrum, which is always more marked in the male.

The hiatus varies much in size, but is nearly always large enough to permit the ready passage of the needle.

The distance from the sacral hiatus to the dural sac is from 6 to 9 cm.

The nerves in the sacral canal are identical with peripheral nerves and in reaching them with anesthetic solutions in this position they are affected the same as perineural injections made around nerve plexuses in other parts. The method is essentially different from spinal anesthesia, in which the injection is made into the dural sac and is confined within it, being distributed by the spinal fluid; in sacral injections while the fluid injected may ascend the vertebral canal between the dura and vertebra for a considerable distance, it is also escaping from the canal in all directions through the numerous foramina.

Another essential difference is that in spinal injections but a few minims of solution is used containing usually less than one grain of the anesthetic agent, while in sacral injections 30, 40 or 60 cc. of solution may be used containing 4 or 5 grains of anesthetic.

Solutions: Lawen's success was due to the use of large quantities of more concentrated solutions, 20 to 25 cc. of $1\frac{1}{2}$ to 2% solutions of novocain, he made the injection in the sitting position and had the patient remain in that position for some minutes to retain the solution at the lower end of the vertebral canal. He was able to report fairly constant results. Gras recommended the addition of sodium bicarbonate, which he states permits the solution to more readily penetrate the nerve sheaths. Two solutions were used:

Sodium chloride	0.1
Sodium bicarbonate	0.15
Novocain	0.6

dissolved in 30 cc. of water. 20 to 30 cc. of this solution, which

is 2% novocain, are injected; or a slightly larger quantity of the following, 1½% novocain may be used—

Sodium chloride	0.2
Sodium bicarbonate	0.2
Novocain	0.75

dissolved in 50 cc. of water.

The solutions are first boiled for a few seconds just before use, which converts a part of it into carbonate, increasing its efficiency, due to its increased hydrolytic action. After cooling 5 to 10 drops of a 1 to 1,000 adrenalin solution are added.

Strauss prepares a solution by the addition of sodium sulphate, which he claims prevents the decomposition of adrenalin.

Harris, who has had much experience with this method, claims that the efficiency of the solution is increased by the addition of ¼ to ½% calcium chloride to a 1% novocain solution, adding about 10 drops of adrenalin 1:1000 before injection. 30 to 40 cc. are used.

While the author has used these various salts in the anesthetic solution which he has employed, owing to the inevitable failure of a certain number of all cases I have not felt certain that the efficiency was increased, but am inclined to believe that the calcium chloride solution is the more effective.

If any additions are to be made to the anesthetic solution, it would seem to the author that gelatin has some claims for recognition. Muroya has shown in experiments on rabbits that 5% gelatin in the solution delays its absorption from the point of injection and thus increases its efficiency. I have recently been using this in my injections, but am not yet prepared to make a positive statement as to its advantages. Certainly the large amount of cellular tissue in the sacral canal would seem favorable to its action. The free space in the sacral canal can at most not exceed a few drams and the large amount of solution injected 20, 30 and 40 cc. must escape up the vertebral canal and through the sacral foramina in all directions.

Hertzler recommends the use of quinin and urea using from 60 to 80 cc of a .6% solution. I have had no experience with this agent and would offer the same objections to its use here as in other parts of the body.

The cause of occasional failures (10 to 15%) is explained by

the difficulty of having anesthetic solutions when injected perineurally, penetrate effectively all parts of the nerve trunks. Sacral anesthesia is essentially peri-neural anesthesia. About the same percentage of failures is noted in all perineural injections where the nerves are of any size as in Kulenkampff's injection of the brachial plexus. The same may be more readily observed when injecting the ulnar nerve at the elbow; unless the needle be made to penetrate the nerve the anesthesia is uncertain. The delay necessary to produce anesthesia (20 to 30 minutes) is similarly explained.

Any method of anesthesia that shows 10% failures can not become universally popular, but if some means can be determined to make it practically a certainty, the method will undoubtedly gain great popularity.

It is possible in considering the above that the use of much smaller but more concentrated quantities of solution containing 5% gelatin, which the author is now using, may improve these results.

In clinical experience so far slightly better results have followed the use of larger quantities of weaker solutions, 80 to 90 cc of $\frac{1}{2}$ % solutions; the pressure effect exerted by the larger quantity of fluid as well as its greater diffusibility has favorably influenced the results, although there still remains in excess of 10% failures.

Technic: The patient should lie on either side near the edge of the table, with the limbs drawn up. I find lying on the right side more convenient.

The last sacral spine is palpated with the left hand; immediately below this is the sacral triangle with the hiatus at its apex above. The skin and subcutaneous tissue over this region is anesthetised with a small syringe and fine needle, using the same solution intended for the injection. The large syringe and long needle are now used, the needle entered about one inch below the last sacral spine and advanced upward in the direction of the sacral canal injecting as the needle is advanced searching for the sacral hiatus. This is usually located without much difficulty in thin subjects by gently feeling the way with the point of the needle. In very stout subjects more difficulty may be encountered, and, when difficult to locate, I find a convenient

aid in placing the left index finger in the rectum outlining the coccyx and lower end of the sacrum. With the finger in this position, the needle can more easily be passed up over the base of the coccyx and sacrum, seeking the opening. When found, the needle is gently pushed up for a distance of two or three inches injecting as it is advanced. When well within the canal, the needle point should convey the sensation of being in a free space. Care should be taken not to enter any veins or the termination of the dural sac. This last is unlikely at this depth, but both should be insured against by gentle aspiration before making the injection, and if found to have entered either a vein or the dural sac, the needle should be slightly withdrawn and redirected at a different angle. When freely within the sacral canal as the needle is being advanced, it is advisable to depress the syringe slightly forward, thus directing the point of the needle toward the back of the sacral canal to avoid wounding the nerves which lie more in front.

Lawen prefers to make the injection with the patient in a sitting position with the back near the side of the table, in much the same position as is used for spinal puncture. The sacral triangle is outlined and an imaginary line drawn from its apex to base and the needle entered at the middle of this line, advancing it upward in the recognized direction. These landmarks are, however, not easily located in stout individuals and the position is not a convenient one. I much prefer to use the technic as outlined above. When well within the canal, the solution should be slowly injected; detaching the syringe from the needle for refilling as occasion requires. While making the injections, the patient will occasionally complain of pains in the legs, which are transient and should cause no concern. If this or other complaints are made, the injection should be given more slowly or stopped for a few minutes.

Toxic symptoms when they occur are no different than when using the same agents elsewhere. Lawen has used as much as 5 grains of novocain here, but as these injections should be regarded as slightly more toxic than subcutaneous infiltrations, these large doses should be cautiously used, as here the entire quantity is thrown into a free space at one time and it is well to reserve a margin of safety, both to avoid toxic effects and in

the event of failure in anesthesia, which occurs in 10 to 15% of cases, to permit the use of direct injections into the field of operation should the case be suited to it.

Having made the injection, the patient is turned on his back to permit the uniform distribution of the anesthetic to both sides of the sacral canal; otherwise a one-sided anesthesia may result.

The field can now be prepared while waiting for the anesthesia to be well established, which takes from 10 to 20 minutes, though at times slightly longer.

Extent of Anesthesia: The full anesthetic influence is exerted on the smaller nerves of the sacral plexus and the few terminal filaments which make up the coccygeal plexus.

The great sciatic is only occasionally affected and rarely completely anesthetised. The principal nerves most constantly anesthetised are the pudic, small sciatic with its inferior pudendal branch, the vesical nerve and other small branches. This group of nerves gives us anesthesia of the lower part of the rectum, perineum, vaginal floor, posterior half of the coverings of the external genitalia, the bladder, prostate, penis and clitoris; the anterior scrotal skin, scrotal contents and anterior portion of the vulva in the female are not anesthetised, as the nerve supply is from the ilio-inguinal and genito-crural. The upper part of the vagina and uterus usually escape the anesthesia, as their nerve supply is partly from the lower lumbar region. At times with a higher ascent of the anesthetic along the vertebral canal, some of the parts usually exempt are brought under its influence. This ascent of anesthesia may be favorably influenced by using the Trendelenburg position, in which the anesthesia may ascend as high as the umbilicus, but when this is done the degree of anesthesia is less certain.

The order in which the anesthesia usually manifests itself is, first in the parts supplied by the coccygeal plexus, then the anus and anal canal, perineum and lastly the penis or clitoris, and disappears in the reverse order, the coccyx the last to feel pain.

The duration of anesthesia varies within wide limits. When a good surgical anesthesia has been secured, the minimum time is usually 45 minutes, and it may last as long as two hours.

As is common with all local and regional methods, complete muscular relaxation is noted in the parts affected due to the

absence of all reflexes as well as to a certain amount of motor paralysis. This is a decided advantage and permits the more ready handling and retraction of the parts. The complete muscular relaxation in addition to the anesthesia, has prompted its use in labor, particularly in old primipara, where it is often used to great advantage if properly timed to meet the head at the perineum. For this purpose it is usually given when the head is well engaged in the pelvis. It does not seem to affect the progress or intensity of the pains.

Surgical Applications: In addition to the original therapeutic uses as suggested by Cathelin and its employment in labor, it finds a ready field of usefulness in many surgical procedures. All operations in the ischio-rectal region and lower end of the rectum, including its resection, perineorrhaphy, internal and external urethrotomy and all operations upon the penis, passage of sounds, cystoscopy and all intra-vesical operations, such as the destruction of growths by electricity, perineal prostatectomy and suprapubic prostatectomy when combined with infiltration for the supra-pubic incision.

Complications and after Effects: These are few and as a rule of no serious concern, aside from possible infection, which should be regarded as due to improper technic. The only serious consequences can result from the use of a toxic quantity of the anesthetic. Motor paralysis which sometimes may occur, possesses no disadvantage, except in such cases as cystoscopy, etc., where the patient may be forced to remain recumbent for an hour or more.

While this method is still in its infancy, it has already gained a wide range of popularity and as it possesses none of the disadvantages or dangers of spinal anesthesia, it will probably be developed to a high state of efficiency. The injection is not made, however, with the same ease or certainty as spinal puncture, but requires some little practice. The element of uncertainty, 10 to 15% failures, and delay before anesthesia, 10 to 30 minutes, operates considerably against its universal adoption. Further experience will no doubt largely eliminate these objections. As used at present, the best results are obtained by the use of large quantities of weak solution 40 to 50 cc of $\frac{1}{2}\%$ novocain injected high in the canal.

HERNIAS OF THE URINARY BLADDER.*

By AIME PAUL HEINECK, Professor of Surgery Chicago College of Medicine and Surgery, Surgeon to Rhodes Ave., Jefferson Park and Frances Willard Hospitals.

The permanent or temporary escape of a part or the whole of the urinary bladder, through any of the usual or unusual hernial orifices, is uncommon. Nevertheless, many cases have been published and a much larger number have been allowed to pass without record. In a long series of hernia operations, every surgeon is certain to meet with some instances of hernia of the bladder.

Though the term hernia implies the presence of a hernial opening, of a sac, sac-contents and sac-coverings, we know that in many hernias of the urinary bladder the sac is either incomplete or totally absent.

To designate the clinical entity under consideration, we fail to find any other term more appropriate, more sanctioned by long usage than that of hernia of the urinary bladder.

Our deficient knowledge of this pathological lesion is responsible for many unfortunate and, at times, fatal accidents.

Many operators have unknowingly punctured, incised, ligated or removed a herniated bladder-process and then closed the hernial canal and operative wound in the usual way. Bladder protrusions have been excised by mistake for hernial sacs, or stitches used to close hernial canals have been passed too deeply and found at the necropsy to have caught the bladder.

The urinary bladder in part or in its entirety is present in 1% of all hernias.

As vaginal bladder hernias fall more appropriately within the domain of the gynecologist, we decided not to include them in this contribution. All the hernias herein considered were external hernias, that is, their outermost overlying saccular covering was skin; each after reaching a certain stage of development, gave rise to a more or less visible and palpable, external swelling in the obturator, femoral, inguinal or other region, depending upon the anatomical location of the hernia.

*This article is based on an analysis of all the vesical hernias reported with sufficient data in the English, French and German languages from 1896 to 1914, inclusive (literature to which access can be had at the John Crerar Library, Chicago, Illinois), and also on some unpublished personal cases (one hundred and fifty-nine patients, representing one hundred and sixty-four vesical hernias).

We will discuss the subject under the following sub-heads:

1. Incidence as to age,
as to sex,
as to side involved.
2. Anatomical types.
3. Clinical types.
4. Etiology.
5. Symptomatology.
6. Clinical manifestations.
7. Operative findings.
8. Diagnosis.
9. Treatment.
10. Conclusions.

Incidence as to Age.

It was not possible, in most cases, to ascertain the age at which the hernia first appeared. We therefore tabulated the age of the patients at the time of operative relief. In three cases, the patient's age at time of operation is not or is indefinitely stated (a young man; a multipara). The other patients at time of operation were from:

16 to 25 years old.....	9 cases.
26 to 35 years old.....	27 cases.
36 to 45 years old.....	31 cases.
46 to 55 years old.....	36 cases.
56 to 65 years old.....	19 cases.
66 to 75 years old.....	15 cases.
76 to 80 years old.....	5 cases.

Our personal clinical observation and a review of the literature justify the following conclusions as to age incidence of hernias of the urinary bladder:

a. They are extremely rare in infancy, childhood and adolescence. During the first year of life, not one patient, and previous to the sixteenth year, only thirteen patients are reported to have been operated for hernia of the urinary bladder.

b. They are most frequent after the fortieth year of life. Ninety-one patients out of one hundred and fifty-nine unselected consecutive herniated individuals were operated for the relief of this condition during the fifth and subsequent decades of life. Five of these patients, each presented a right and a left vesical hernia.

c. Hernia of the bladder is an infirmity occurring chiefly in advanced life.

Incidence as to Sex.

Hernias of the urinary bladder, like all hernias of viscera common to both sexes, are found more frequently in males. The one hundred and sixty-four hernias herein studied and analyzed were distributed as follows: Masculine pseudohermaphrodite, 1 case; females, 62 cases; males, 96 cases.

Case reports show that, in the female, these hernias occur in nulliparæ, in primiparæ and in multiparæ. They first become manifest either before, during, or after gestation, or between successive pregnancies.

In looking over the cases, we find that vesical hernias have occurred in:

1-para.....	5 times.
2-para.....	3 times.
3-para.....	2 times.
4-para.....	1 time.
6-para.....	1 time.
8-para.....	2 times.
9-para.....	1 time.
14-para.....	1 time.
Multipara.....	3 times.

In the other female subjects, no definite statement is made as to pregnancy.

Incidence as to Side Involved.

Most hernias of the urinary bladder are unilateral. Out of one hundred and fifty-nine patients suffering from this infirmity, only five presented double vesical hernias. In thirty-seven females and fifty-one males, the hernia was on the right side; in seventeen females and forty-one, it was on the left side. We thus see that hernias of the urinary bladder show in both sexes a noticeable predilection for the right side.

In bilateral hernias, both hernias either appear simultaneously, or, as is more frequent, an interval of time, measured in weeks, months or years, elapses between the appearance of the first and that of the second hernia.

Anatomical Types.

Hernias of the urinary bladder appear at various anatomical sites. Indirect or oblique inguinal hernias escape from the abdomino-pelvic cavity, above Poupart's ligament, by way of the external inguinal fossa, and follow in their progress outward the

course of the spermatic cord in the male, or of the round ligament in the female. They are complete or incomplete, according as the herniated viscus or viscera emerge or not beyond the external opening of the hernial canal. The complete are pudendal or scrotal. In the former the hernial swelling descends into a labium majus; in the latter into a scrotal pouch.

Direct inguinal hernias escape from the abdominal cavity by emerging through either the middle or the internal inguinal fossa and first appear externally at the superficial abdominal ring. Direct inguinal hernias are always to the inner or medial side of the deep epigastric vessels, and, unlike the indirect, do not follow the entire course of the inguinal canal.

In our cases, we find twenty-seven patients with direct inguinal hernias and eighty-seven with indirect or oblique inguinal hernias. Of the twenty-seven patients with direct inguinal hernias, five were females. Direct hernias are very rare in the young. Thirteen of the eighty-seven patients with indirect or oblique inguinal hernias were females.

In our list of cases, there were forty-two femoral hernias, forty of which occurred in female patients and two in males.

What precedes shows that:

a. Inguinal vesical hernias are more common in men than in women.

b. Femoral vesical hernias are far more common in women than in men.

c. Femoral hernias of the urinary bladder are an exception to the general rule, which is that inguinal hernias are more frequent in women than femoral hernias. Forty female patients presented femoral vesical hernias and only seventeen presented inguinal vesical hernias.

d. Direct inguinal vesical hernias are of frequent occurrence. Out of one hundred and fourteen inguinal vesical hernias, twenty-seven were of the direct variety, that is, in twenty-seven cases the herniated bladder-process was to the inner side of the deep epigastric artery.

Gladstone's case of left obturator extra-peritoneal bladder hernia is the only obturator vesical hernia reported in the period covered by this paper. It coexisted with a right obturator tubal

hernia of the third variety and a right reducible femoral intestinal hernia.

Gerulanos' and Tédenat's cases were irreducible supra-pubic hernias of the linea alba, consisting solely of a prolapsed bladder diverticulum. In these two cases, both of which occurred in eight paras, the pedicle of the hernial swelling passed above the upper surface of the symphysis pubis, and had emerged from the abdominal cavity through round orifice between the two recti muscles.

According to the relation which the bladder protrusion bears to the peritoneum, hernias of the urinary bladder are classified into the following three varieties:

- a. Intra-peritoneal, in which there is a complete hernial sac.
- b. Para-peritoneal, in which the herniated bladder-process is covered by peritoneum on one surface.
- c. Extra-peritoneal, in which the herniated portion of the bladder is neither engaged in nor contiguous to a hernial sac.

In the intra-peritoneal variety, the herniated portion of the bladder has a complete peritoneal covering and is contained in a true hernial sac. In the para-peritoneal variety, the herniated bladder-process lies to the inner side of the sac, and its serous covering enters in part into the formation of the hernial sac. Part of the herniated bladder-process has no peritoneal covering. The para-peritoneal form is not uncommonly a sliding hernia, and is frequently due to a continuous pull and traction exerted by the sac of an existing enterocele, epiplocele or entero-epiplocele upon the peritoneal covering of the urinary bladder. In the extra-peritoneal variety, the herniated bladder-process has no peritoneal covering. The prolapsed bladder is neither present in nor does it enter into the formation of a hernial sac. The extra-peritoneal bladder-protrusion is in relation with the subcutaneous tissues and is always distinct from and to the inner side of the hernial sac, if one be present.

In the one hundred and sixty-four reported cases, the hernia is definitely stated to have been:

Intra-peritoneal in 4 cases (females, 1 case).

Para-peritoneal in 53 cases (females, 21 cases).

Extra-peritoneal in 58 cases (females, 22 cases).

In the cases not included in the above tabulation, the relation

of the herniated bladder-process to the hernial sac, when one was present, is not precisely recorded.

Clinical Types.

Any hernia of the bladder, be it intra-peritoneal, para-peritoneal or extra-peritoneal, may be reducible, inflamed, obstructed or strangulated.

If the contents of a hernial sac return spontaneously to or can be manipulated back into the abdominal cavity from which they have escaped, the hernia is said to be reducible. At first most vesical hernias are reducible; the larger number, sooner or later, become irreducible. Reduction of hernial contents, spontaneous or manual, may be temporary, may be permanent, and is effected with more or less difficulty (general anesthesia may be required). In our collected cases, there were forty-eight hernias, the contents of which could be completely reduced. Sixteen of these occurred in female subjects.

If the hernial sac-contents cannot be manipulated back into the abdominal cavity, the hernia is said to be irreducible, provided that the irreducibility *per se* does not cause any functional disturbance of the herniated organ or organs, and none or but slight interference with the blood supply thereof. The irreducibility may be recent or of long duration. Partial or complete irreducibility predisposes to inflammation, obstruction and strangulation, and is either of sudden or of gradual onset. We noted fifty-eight irreducible vesical hernias, twenty-one of which occurred in females.

If communication between the herniated and the non-herniated portion of the bladder be more or less interfered with, the urinary bladder being transformed, in some instances, into a bissac, the hernia is said to be obstructed.

If, in addition to irreducibility of the sac-contents, the blood supply of the herniated organ or organs is interfered with to such a degree that their vitality is endangered or lost, the hernia is said to be strangulated. Strangulation may follow a paroxysm of cough, heavy lifting, a fall, any strong muscular effort associated with great sudden increase of intra-abdominal pressure. There were twenty-two strangulated hernias, eleven of which occurred in females. In some cases, the hernia of the bladder exists alone and becomes strangulated. In some of these strang-

ulated cases, the vesical hernia was associated with an enterocele, an epiplocele or an entero-epiplocele, the bladder was not constricted and the herniated omentum or intestine or both were strangulated. In others, the bladder was strangulated and the herniated omentum, intestine or both were not constricted. Bladder-wall offers more resistance to constriction than intestine. Strangulation of the bladder is especially grave if renal disease coexists.

Etiology.

The etiology of these hernias is largely the etiology of hernias in general. In the causation of this pathological lesion, the following factors are of importance:

A. All conditions that tend to increase intra-abdominal pressure.

1. Occupations necessitating repeated muscular efforts associated with increased intra-abdominal tension, as the lifting or pushing of heavy weights, etc. (over twenty cases in our series).

2. Physiological or pathological states which distend the abdominal cavity, stretching the abdominal parietes, and widening the orifices normally present in the muscular and aponeurotic layers of the abdominal wall (enteroptosis, obesity, abdominal tumors, ascites, pregnancy, etc.).

3. All diseases associated with frequently repeated increase of intra-abdominal pressure (long-standing lung affection, pulmonary emphysema, chronic bronchitis, habitual constipation, etc.).

B. All conditions which weaken the abdominal wall.

1. Acute or chronic diseases debilitating the organism, especially such as cause great emaciation.

2. Obesity weakens the abdominal wall and increases the intra-abdominal pressure.

3. Traumatism. Most often the traumatism does not cause the hernia, but only reveals its existence (abdominal operations). Pathologic adhesions of viscera or omentum to the anterior parietal peritoneal wall near a hernia opening may act as a predisposing cause.

4. Previous hernia operations.

5. Enteroceles, epiploceles and entero-epiploceles.

6. Feeble development or atrophy of the aponeurosis of the

transversalis muscle and of the conjoined tendon. This factor is of great importance in direct inguinal hernia.

7. Unduly large hernia rings.
8. Excessive breadth of hernial canal.
9. Congenital defects present in abdominal wall.
10. Inherited or acquired weakness of abdominal wall.
11. Pre-existing hernial sacs of pre-and post-natal formation.

C. All conditions associated with prolonged over-distention, over-stretching, impaired contractibility, restricted mobility, etc., of the urinary bladder.

- i. Congenital malformations of the bladder.
2. Diseases of the lower urinary organs, impairing the expulsive force of the bladder or abnormally hindering the outflow of urine (vesical catarrh, prostatic hypertrophy, urethral stricture, phimosis, etc.).
3. Abnormal increase of the peri-vesical fatty connective tissue (lipome pre-vesical).

Symptomatology.

Hernias of the urinary bladder are congenital or acquired, recent or recurrent, and of greater or shorter standing. They vary in shape, volume, rate of growth and in amount of discomfort and disability entailed. Occasionally they occur at the site of a previous hernia operation.

Hernia of the bladder is usually an acquired condition. It occurs most commonly in late adult life and is, not infrequently, secondary to pelvic, vesical and urethral diseases. Twenty-seven patients presented direct inguinal hernias. Direct inguinal hernias are said to always be acquired hernias. Forty-two patients presented femoral hernias, excepting one case, that of a five-year-old female child and reported by the author to be an acquired hernia. All these femoral hernias first became manifest in adult life. Congenital femoral hernias are pathological rarities. Femoral hernia is essentially a hernia of adult life. Congenital hernias appear at all periods of life. Even at the time of operation, one may be unable to differentiate between a sac of pro-natal and one of post-natal formation.

Size is variable. A few of the reported hernias simply pointed; some were hazelnut-sized, lima bean-sized, pigeon egg-sized, goose egg-sized; others had the volume of a fist, of two fists, of

a foetal head. In many, the hernial swelling is said to have been large, voluminous.

The hernial swelling may be cylindrical, ovoid, elongated-ovoid; it may be grooved or bilobed, soft, elastic and fluctuating or hard and non-elastic. The hernial swelling may be a large, tense, smooth tumor, may occupy the scrotum, may extend as far as the middle of the femur, may occupy the entire left labia, distorting the vaginal opening.

The size of the hernia is liable to rapid and considerable changes, being influenced by clinical type of hernia, position of body, amount of urine present in bladder, etc. The hernial swelling may be a large, tense, smooth tumor, may occupy the scrotum, may extend as far as the middle of the femur, may occupy the entire left labia, distorting the vaginal opening.

The size of the hernia is liable to rapid and considerable changes, being influenced by clinical type of hernia, position of body, amount of urine present in bladder, etc. The hernial swelling gives a dull or tympanitic percussion note.

Pain is an inconstant symptom. Ten of the reported cases are said to have been painless.

Diverse urinary disturbances (subjective and objective) may be present. These disturbances may be occasional or constant.

Subjective: Frequent urination; painful urination; pain at close of urination; difficult urination. Patient, in order to urinate, may find it necessary to elevate or to compress the scrotum and its contents, or to, both, elevate and compress the scrotal contents. These patients sometimes resort to unusual positions to empty their bladder: dorsal decubitus. In a few cases, on account of the narrowing or compression of the joining isthmus, considerable difficulty is experienced in emptying the scrotal portion of the bladder into the pelvic portion.

Vesical tenesmus. Pressure upon hernial swelling gives desire to urinate; burning on urination.

Objective: Increase of swelling with accumulation of urine, decrease with voiding; two-step urination (Miction á deux temps) (is associated with a simultaneous lessening of the hernial swelling).

The injection of fluid into the bladder causes an increase in size of the hernial swelling. A sound introduced into bladder

may enter the herniated bladder-process. A cystoscope introduced into bladder may show the round contour of the normal bladder distorted into T-shape, may show the vesical opening of the herniated bladder-process, etc.

Vesical hernias may exist alone, may be one of two or more hernias, coexisting with a hernia of other organ or organs on the same or opposite side of the body. Other congenital or acquired anomalies may be present: phimosis, ectopia testis, inguinalis, cryptorchism, vaginal cystocele, hydrocele, prolapsus uteri, hydrocele of hernial sac, etc.

Pathology.

In many cases, note is made of excessive breadth of hernial canal, of enlarged hernial rings. The spermatic cord may be to the outer side of the hernial swelling, may be spread out over the hernial sac, may be behind sac, may be below and external to sac, may be spread out over bladder (anterior and outer surfaces).

To differentiate a hernial sac of pre-natal formation from one of post-natal formation is at times difficult, at times impossible.

Acquired hernial sacs, except in hernias "*par glissement*," are always entirely derived from the parietal peritoneum.

Sac may be thin or thick, congested and infiltrated, intimately adherent to the spermatic cord, and, not uncommonly, is capped by a thick mass of fatty tissue.

An extra-peritoneal bladder hernia has no serous hernial sac. A pseudo-sac, consisting of connective tissue, overlies the herniated bladder-process. This connective tissue may be much attenuated or much thickened.

There may be an unusual amount of fat in the hernial canal. In the extra- and para-peritoneal forms, the herniated bladder-process is frequently covered with fatty tissue, the "*lipome herniaire*" of the French authors. This pre-vesical accumulation of fatty tissue is thought by many to be an important contributory etiological factor.

In the para-peritoneal hernias, the serous sac is, at one point, intimately adherent to the bladder-wall. In the para- and also in the extra-peritoneal types, if a sac be present, the bladder is always to its inner, to its medial side, and, at times, below. The

bladder may be adherent to the hernial sac, may be adherent to the spermatic cord.

Amount of viscus present in hernial swelling may be small, may be large. In some cases, the hernial swelling consists solely of the herniated bladder-process and of the increased amount of fatty tissues overlying it; in other cases, fifteen in our series, of the herniated bladder-process or bladder-diverticulum and of an empty serous hernial sac. In a large number of cases, the hernial swelling includes a herniated bladder-process and a distinct or contiguous serous hernial sac with or without sac-contents. The hernial sac-contents may be hernial fluid, a part of right ureter, omentum, small intestine, large intestine, intestine and omentum, small and large intestine.

In the strangulated cases, we note such contents as the following: Hemorrhagic fluid and the bladder, bloody fluid, gut and ovary; a loop of congested intestine and urinary bladder; congested bluish appendix epiploica; reddish-brown fluid, bladder-diverticulum and small intestine.

The wall of the herniated bladder-process may be normal, thinned or thickened. The herniated bladder-process may present the appearance of an empty or of a thickened hernial sac. Its cavity communicates with the cavity of the non-herniated portion of the bladder by means of a wide or narrow channel. It may be the seat of tuberculous disease, of carcinomatous disease. Calculi may be present in the herniated and in the non-herniated portion of the bladder.

The spermatic cord is sometimes found spread out over the vesical hernia, at times is distinct from it, and often is in close relation with coexisting enterocele, epiplocele or entero-epiplocele.

Diagnosis and Differential Diagnosis.

The existence of a hernia of the urinary bladder may be ignored, suspected or diagnosed before operation. The diagnosis may first be made at time of operation, or not before one or more days after operation. Evidence of the bladder having been wounded may not be present until some time after the patient has left the operating table. It has happened to eminent clinicians to fail to recognize even in operated cases the true state of affairs previous to the autopsy.

Before operation, the following symptoms are suggestive of vesical hernias:

1. Urinary disturbances: dysuria, two-stage urination, frequent urination, scalding urination.
2. A hernial swelling, pressure upon which causes a desire to urinate, and which increases in volume with urinary retention, and markedly diminishes in size with urination.
3. A hernial swelling, the size of which is increased by air- or water-distention of the urinary bladder.
4. A hernial swelling in which fluctuation is detected or in which a metallic sound can be introduced by way of the urethra.
5. A hernial swelling, in which, after easy reduction of most of the contents, there persists a small doughy mass representing the extruded part of the bladder.

During the course of a hernia operation, the following symptoms or signs are suggestive of vesical hernias:

1. An unusual amount of fat in the neighborhood of a hernial swelling.
2. Difficulty in finding or in isolating the true hernial sac from the tumor mass.
3. The trabeculated appearance of the bladder muscularis.
4. Large-sized external hernial opening and the fact that hernias of the bladder are usually nearer the median line than true hernial sacs.
5. The occurrence of a second hernial sac is so rare that it is a safe rule to regard as the urinary bladder, until proved otherwise, any structure resembling a second hernial sac.
6. The pedicle of a herniated bladder-process leads down behind the pubic bone into the true pelvis; the pedicle of a true hernial sac leads to the general peritoneal cavity.

Passage of sound into a cystocele, cystoscopic confirmation of its existence, escape of urine following wounding of bladder (thirty-one cases), all these are conclusive signs.

Keep in mind that vesical hernias are frequently associated with intestinal and omental hernias.

Injury of the bladder may not be noticed at the time of operation, and be diagnosed, for the first time, several hours after operation by:

- a. Voluntary voiding or withdrawal by catheter of blood-stained urine.
- b. Urine escaping from the hernial operative wound. This is usually preceded by the development and subsequent rupture or incision of a urinary phlegmon.
- c. Sepsis due to urinary extravasation.
- d. Peritonitis due to escape of urine into peritoneal cavity.

Treatment.

In discussing the treatment, we will limit ourselves to the consideration of femoral and inguinal hernias.

An operator not on his guard, may incise the bladder under the belief that he is opening a hernial sac. In operating upon recurrent hernias, guard against wounding the bladder. If isolation of the hernial sac from the inner lower portion of the ring be difficult, involvement of the bladder is to be suspected. Avoid this injury by securing a good exposure of the operative field. The more exact the stripping of the sac, quite up to the deep epigastric artery, the more likely will cystocele, especially in its earlier stages be discovered.

Vesical hernias can be produced by traction upon the sac and efforts to place the ligature high up may, if one be careless, result in catching in its bite the bladder-wall.

The bladder was accidentally injured in sixty-eight of the cases under consideration. In thirty-one, urine escaped into the operative field at time of operation.

Should the bladder be incised or otherwise injured, carefully suture it and provide appropriate drainage. Immediate closure of the bladder wound is of primary importance. It is effected by two, in some cases, by three layers of interrupted or continuous sutures. Introduce your bladder-sutures so as to include all the layers of the bladder-wall, the mucosa excepted. Needless to say that only absorbable suture-material is to be employed. Even if the bladder be not opened, but merely injured, it is safer to fortify the weak spot by the introduction of a few catgut sutures.

The herniated urinary bladder-process may be:

- a. Injured in attempts to carefully and cautiously separate surrounding adhesions. Not only must one be careful as to sac-contents, but also as to contiguous tissues.

b. Torn accidentally in trying to separate it from the hernial sac. The herniated bladder-process is more liable to be injured if it be the seat of such changes as are incident to strangulation.

c. Punctured or pricked in suturing walls of hernial canal, in closing hernial orifice.

d. Incised or ligated and cut off, being mistaken for a hernial sac.

Resection of the herniated bladder-process is indicated only if it be very much attenuated, necrotic or the seat of other serious degenerative changes. Resection is to be followed by suture of the bladder-wound. If a calculus or calculi be present in the bladder protrusion, incise the bladder-wall, remove the foreign body, and repair vesical wound *secundum artem*. As a routine procedure, resection of the bladder protrusion is not to be recommended. It was performed only in twelve of the reported cases.

If the bladder protrusion be apparently normal, free it from surrounding adhesions, if any be present, and then reduce it into the abdomino-pelvic cavity. As a routine procedure, bladder repair, bladder resection and bladder reduction are always to be supplemented by resection of the abdominal wall. After isolation of the herniated bladder-process, supplemented by the repair of any injury which it may have sustained during the course of the operative procedure, we advise that the bladder be reduced into the abdominal cavity.

Vesical hernias have been successfully operated for radical cure without anesthesia, under local, cocain infiltration, spinal and general surgical anesthesia: nitrous oxide gas and oxygen, chloroform and ether (the majority of cases).

For inguinal hernias, the Bassini operation, with or without transplantation of the cord seems to be the operation most universally employed; it was employed forty-one times. Czerny's, Andrews', Ferguson's, Halsted's and Kocher's type of operation were each employed once. Numerous other methods were employed.

Various types of operations were employed in the femoral hernias (Berger, Coley, Lotheissen's operations, etc.). Some operators closed the hernial sac by a ligature, others by a purse-string suture, others by suturing the edges. In eighteen cases, it is stated that the hernial canal was freed of fatty tissue.

In all the cases in which the herniated bladder-process was not injured, in practically all those cases in which it was injured and repaired or resected and sutured, the organ, after being freed from surrounding adhesions, was returned into the abdominal cavity. Bernhard, in one case, after suturing the bladder, fixed it to the lower angle of the abdominal wound.

Operators are not agreed as to the advisability of using a permanent catheter after bladder suture, nor as to the time during which this permanent catheter, if used, should be left in the bladder. Some leave it in one day; some, two days; some, three days; some, four days; some, five days; some, six days; some, one week; some, two weeks.

Drainage extending to the bladder wound is a prudent provision against leakage from the sutured bladder. Many operators prefer, after bladder suture, to leave the abdominal wound open at its lower angle, and to close it as soon as conditions warrant.

If the hernial swelling contains, in addition to a bladder-process, a knuckle of gut, a piece of omentum or some other viscus, the indication is to first free and reduce the bladder-process, and then carefully isolate, incise and inspect the hernial sac contents. In the absence of contraindications, all hernial sac-contents, sac-fluid excepted, are to be returned into the cavity from which they have escaped.

A deviation from this rule is indicated in cases:

a. In which herniated omentum has undergone such inflammatory, cystic or other changes, that, if returned into the abdominal cavity, it might act as a foreign body.

b. In which the herniated gut or omentum is gangrenous or of doubtful viability.

c. In which the hernial contents are in such a pathological state that their return to the abdominal cavity would jeopardize the patient's life.

The treatment of the sac-contents does not differ from that which obtains in hernial swellings in which no bladder-process is present; if those contents are injured by the surgeon, the injury calls for repair.

Results.

Operations for the radical cure of vesical hernias have practically no mortality. What mortality occurs is due either to con-

comitant circumstances: extreme old age, great debility, shock, long-standing strangulation and unrecognized bladder injuries.

One of these hernias was a dissecting-room discovery; this leaves one hundred and sixty-three hernias occurring in one hundred and fifty-eight subjects. There were twelve deaths; all the other patients recovered.

Operations for the radical cure of vesical hernias are rarely followed by disagreeable sequelæ. In thirteen cases, a urinary fistula complicated convalescence. These urinary fistulæ usually closed spontaneously. One can, if he so desires, close these fistulæ under cocaine anesthesia.

A careful study of the cases in which death occurred shows that operations for the radical cure of vesical hernias have no mortality per se, if all bladder injuries be suitably repaired. In bladder hernias, recognized either previous to or at time of operation, before closure of the abdominal wound, recovery, of necessity, is rapid and uneventful.

Conclusions.

1. The urinary bladder, in part or in its entirety, may escape from the abdominal and abdomino-pelvic cavities through any of the uncommon or common hernial orifices of the lower abdominal wall.

2. Hernias of the urinary bladder occur in both sexes, at all ages, and in all races. They are congenital or acquired, recurrent, recent or of some standing; almost always unilateral, very rarely bilateral. Like other hernias, they vary in shape, size, rate of growth and in the discomfort and disability which they entail.

3. In the female, vesical hernias occur in nulliparæ, primiparæ and multiparæ; they occur previous to, during, or after gestation and between gestations. They neither interfere with gestation nor disturb parturition.

4. According to anatomical site, vesical hernias are designated as hernias of the linea alba, of the obturator, femoral or inguinal regions. Anatomical relations justify the further subdividing of the latter into interstitial or intra-parietal, direct or indirect, complete or incomplete, pudendal or scrotal.

5. The relation of the herniated bladder-process to the serous membrane lining the peritoneal cavity is well expressed by the

terms: Intra-peritoneal, para-peritoneal and extra-peritoneal. These designations are serviceable from the viewpoint of etiology, symptomatology and treatment.

6. According to clinical manifestations, hernias of the urinary bladder are reducible, irreducible, inflamed or strangulated.

7. A vesical hernia may be single, double, or one of two or more hernias located on the same or opposite side of the body, having dissimilar contents, and presenting like or unlike anatomical and clinical characteristics. Thus, the same patient may present an inguinal cystocele and a femoral epiplocele, a reducible femoral vesical hernia and an irreducible inguinal intestinal hernia. Case reports of an inguinal vesical hernia on one side coexisting with an inguinal enterocele, epiplocele or enteroepiplocele on opposite side of the body are not uncommon.

8. As etiological factors, in the causation of vesical hernias, the following are foremost:

a. All conditions that tend to increase intra-abdominal pressure.

b. All conditions, congenital or acquired, that weaken the abdominal wall.

c. All diseases of the lower urinary organs that impair the expulsive force of the bladder or abnormally hinder the outflow of urine.

d. Pre-existing hernias and hernial sacs of pre- or post-natal origin.

9. The pre-operative signs and symptoms may be unmistakable, vague or absolutely wanting. In addition to such symptoms as are common to all other hernias, vesical hernias present peculiar suggestive and positive manifestations of their existence. Chief among the former are such disturbances of micturition as the following: Frequent, painful and difficult urination, vesical tenesmus, urgent desire to urinate caused by pressure upon hernial swelling and two-step urination. Chief among the positive manifestations are: A hernial swelling increasing in size with urinary retention and decreasing with urination; increasing in size of a hernial swelling with air or water-distention of the bladder and decreasing upon withdrawal of these agents; passage of a sound into the herniated bladder-process by way of

urethra and bladder; cystoscopic demonstration of the vesical orifice of the herniated bladder-process.

10. The herniated bladder-process may be the sole content of the hernial swelling, or merely one of the associated contents. In addition to a bladder-process, a hernial swelling may contain a part of one or more of the following organs: Ureter, Fallopian tube, ovary, appendix vermiformis or appendix epiploicæ, omentum, and small or large intestine.

11. The herniated bladder-process may be free or adherent to surrounding tissues or organs, structurally normal or present degenerative, inflammatory or neoplastic changes; may be the seat of atrophy, hypertrophy, catarrh, gangrene, tuberculosis or carcinoma, and may or may not communicate freely with the general vesical cavity. The herniated process of bladder may contain one or more calculi.

12. The vesical hernia may be the sole existing anomaly, or it may be one of two or more, congenital or acquired, pathological states, having or not having any relationship of cause or effect to the hernia (cryptorchism, vaginal cystocele, prolapsus uteri, prostatic hypertrophy, etc.).

13. Truss treatment for hernias of the bladder is not curative, is often productive of discomfort and may injuriously affect the structure of the bladder-wall.

14. In patients over ten years of age, all hernias, irrespective of anatomical site, clinical condition or contents, should, in the absence of a constitutional state contra-indicating operations of election, be subjected to an operation for radical cure.

15. Clinical conditions so closely simulating hernias of the urinary bladder that a positive diagnosis without operation appears impossible, should be subjected to operative treatment. Only benefit can be derived from adherence to this rule. A diagnosis is established and a cure is effected.

16. All hernias of the urinary bladder, irrespective of sex, age or social condition of patient, irrespective of size, shape, anatomical site or clinical type, call for operative treatment. Operative treatment is free from danger and is curative. The only contra-indications to operative treatment are: Extreme old age and the co-existence of a pathological state or states contra-

indicating operation of election. Operative treatment is the only rational treatment of hernia in the adult.

17. In all incarcerated and in all strangulated hernias of the bladder, operative intervention is indicated.

18. In all hernias, the ideal time for operation is previous to the development of degenerative or other pathological changes in the herniated organ or organs and previous to the occurrence of any of the various complications incident to hernias.

19. Women who suffer from any form of hernia should be carefully watched before, during and after their confinement, so as to prevent or rather minimize any undue strain upon weak regions of the abdominal wall. Those women, at the close of lactation or towards the end of the first year following their confinement, should, in the absence of contra-indications, be subjected to an operation for radical cure of the hernia. In the female, the inguinal rings are comparatively small. They can without inconvenience to the patient be closed.

20. The most popular and efficient modern hernia operations permit a full view of operative field and allow such a careful examination of hernial rings, canals, and surrounding structures, that a prolapsed or herniated viscus rarely escapes detection.

21. In inguinal and femoral hernia operations, after careful opening and isolation of the sac, see that the latter consists preferably of peritoneum only, and that its neck be freed from all other structures. Neck of sac should not be twisted, as by so doing the bladder is drawn towards the hernial opening and is liable to be included in the ligature. Necrosis and peritonitis result therefrom.

22. In the course of a hernia operation, if, after opening the sac and reduction of its contents, there appears a second sac, it is not to be opened, unless the introduction of a sound in the bladder shows the complete independence of this sac from the urinary reservoir.

23. In hernias of the urinary bladder, first expose and free the herniated organ or organs, and then reduce it into the abdomino-pelvic cavity. Follow this by suppressing the hernial sac if one be present, and then strengthen, according to an approved method, the weakened hernial area. Resection of the herniated bladder-process is only exceptionally indicated. When

performed, it calls for immediate reconstitution of the urinary reservoir.

24. During hernia operations, the wounding of the urinary bladder can, to a large extent, be prevented by careful operating and by keeping in mind that this clinical entity occurs.

25. Wounds of the urinary bladder inflicted during the course of hernia operations give a good prognosis if they be immediately accurately repaired and if the post-operative treatment be instituted appropriately. In the repair of bladder-wounds, two or three layers of continuous or interrupted absorbable sutures give satisfactory results. Bladder suturing is to be followed by resection of the abdominal wall of the hernial area.

26. If within twenty-four to forty-eight hours after a hernia operation on a healthy subject the catheterized urine contains blood, determine the origin of the blood. If a bladder-injury be present, open the hernial operative wound or laparotomize or do both and repair the injury.

27. The mortality of operations for the radical cure of hernia, if performed at an opportune time by a rapid and skilful operator competently assisted, is practically nil. Coley operated 1,000 consecutive cases of hernia without a single death.

28. The operative treatment of hernias of the urinary bladder is highly satisfactory.

THE SURGICAL ASPECTS OF INFANTILE PARALYSIS.*

By E. D. FENNER, M. D., New Orleans.

The surgical treatment of the Protean deformities which result from poliomyelitis is a fascinating field of work. While it is certainly true that no case in which nerve centers in the cord have been destroyed can ever be made perfect, it is equally true that there are very few cases, no matter how helpless they may appear, which cannot be improved by well chosen and properly timed orthopedic measures.

The medical and the orthopedic treatment of infantile paralysis inevitably overlap each other, unless we are to consider that the medical treatment of these cases should end with the

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termination of the acute stage of onset, or, at least with the period of spontaneous regeneration of muscle activity.

To this borderland of disputed authority belong the measures intended to assist in the recovery of muscles not permanently paralyzed—strychnin, hydro-therapy, electricity, massage, passive, assisted, and active motion (muscle training). In addition, it might be considered as much the duty of the physician as of the surgeon to apply splints, or even braces, to maintain the normal attitude of the limbs and prevent the development of deformity. Inasmuch as it is the business of the orthopedic surgeon not only to ameliorate, to cure, but also to prevent bodily deformity, all of the measures named above are a part of the surgical treatment of infantile paralysis.

It is my own conviction that the above measures are of value in the order in which they are given. The benefit to be derived from the use of strychnin is to my mind problematical. A long and patient trial of electricity has resulted in an attitude of decided skepticism as to its definite influence. Massage and muscle training have appeared to me to be of very much greater value. Hydrotherapy is, of course, a minor matter. The use of splints and of braces to maintain the normal attitude of the parts, is a part of the treatment of poliomyelitis whose importance cannot be over-emphasized, but which it but too generally neglected.

The deformities following infantile paralysis are the result of a number of factors, acting either independently or together. Thus we recognize: 1. The influence of the force of gravity, the pressure of bed-clothing, and the weight of the part itself, as in certain cases of paralytic drop-foot. 2. Adaptative shortening of the tissues as a result of prolonged assumption of one position, as, for instance, in those cases of contracture about the hip so often seen in children who cannot walk at all, but spend most of their time in the "tailor's posture." 3. Stretching of the muscles which have been paralyzed. 4. Unopposed action of healthy and powerful muscles whose antagonists have been destroyed or weakened by the disease. 5. Retarded development of the bones, the result of trophic disturbances, and in certain cases shortening and deformity due to paralytic dislocations, as seen at the hip and shoulder joints.

In the vast majority of cases several of these factors cooperate in the production of deformity, as for instance, in a case where the peroneal group has been paralyzed, the weight of the body, the absence of the normal support of the peronei, and the unopposed pull of the tibials combine to produce a valgus deformity.

In the surgical treatment of the disabilities and deformities of infantile paralysis there can be no question that the ideal to be striven for is to obtain a stable, symmetrical and useful limb, without the need of any brace support. Braces are unsightly, cumbersome, expensive and hard to keep in repair, and while it is true that there are many cases in which they cannot be dispensed with, there are a great many more who can be made independent of braces by proper operative procedures. It is fortunate for the patients that poliomyelitis exhibits so marked a selection for the spinal cord segments supplying the lower extremities, and with such comparative infrequency destroys the function of the muscles of the trunk, and of the upper extremity. Any surgeon who has had to deal with a paralytic scoliosis, or with a paralysis of the arm (in the vast majority of cases of the Erb type), knows how gloomy is the prognosis for improvement of the condition, and, in the case of the spine, particularly, for preventing the advance of an incorrigible deformity. As for the upper extremity, deformity is seldom conspicuous, but the loss of function is as a rule permanent and intractable. The vast majority of the cases present involvement of the lower limbs, and it is here that surgery is capable of doing a great deal of good.

Opinion is now crystallized that operative interference is not wise until the chronic stage is well established; in other words, not until at least a year, and preferably two years have elapsed since the onset of the disease. There are, of course, exceptions to this, as there are to every rule. For instance, I do not think there could be any question as to the wisdom of a simple tenotomy of the tendo Achilles, even though the poliomyelitic infection were but six months past, where a severe contraction, producing a talipes equinus, had been permitted to develop. The justification of such a violation of the general rule is two-fold:

1. If the deformity is permitted to go on, not only the tendo

Achilles, but the ligaments and other structures are likely to undergo adaptative shortening, which may readily be prevented if the normal relation of the foot to the leg is restored by the simple section of the tendo Achilles. 2. It is a well established axiom, long ago emphasized by Tubby and Jones, that muscles which are simply weakened, or paretic, soon become practically paralyzed if constantly stretched, whereas their vitality may be restored by simply putting them in an attitude of relaxation. In such a case as I have cited, therefore, the tenotomy is conservative in that it not only prevents adaptative shortening on the posterior aspect of the limb, but may permit a very remarkable regeneration of the anterior group of muscles.

Equally well established is the opinion that the prognosis for permanent benefit from operation is better in the adolescent than in the very young child. It is the consensus of opinion that radical procedures are better postponed until the patient is seven or eight years old, our efforts in the younger patients being directed to the prevention of deformity, and the development of such muscular power as still remains by the regular use of electricity, massage, muscle training, and the support of suitable braces. In this way the patient may be tided along until the ultimate and permanent stage has been fully established. I do not mean by this that no cases under eight years of age should be submitted to operation, because there are many circumstances which not only justify intervention at an earlier age, but which clearly demand that surgical assistance should be given. My own opinion is that age may be disregarded in those cases in which you cannot hope to maintain any supervision to detect the development of deformity, in those in whom it is evident that even a well applied brace cannot be expected to prevent the development of deformity, and in those cases in whom deformity is already present, and in whom early operation may permit functional use of the limb, and prevent the development of permanent bone changes under the operation of Wolff's Law. It is to be borne in mind that even though the result be not permanent, an operation done in early life may arrest or delay deformity until the patient has reached an age when more radical procedures may be resorted to with success.

The operative procedures which are commonly employed in poliomyelitis include:

1. Manual stretching to overcome bony deformity, just as we use it in the correction of congenital club-foot.

2. Tenotomy, either the simple sub-cutaneous tenotomy, or by the method of Bayer, in which the tendon is punctured at its middle and one-half cut through, when a second puncture about $1\frac{1}{2}$ inches higher is made and the opposite half sectioned. A quick and strong stretching force will now permit of "sliding" of the two halves upon each other.

3. Tendon lengthening through an open incision is a little more complicated, but serves the same purpose as tenotomy. It may be done by the Z-method of Bayer, with suture of the divided ends of the tendon, or by the reversed "double L" method, in which the continuity of the tendon is not destroyed and no sutures are required. Either tenotomy or tendon lengthening may permit the restoration of a normal attitude, but neither can be expected to restore muscle balance or stability unless supplemented by other measures.

4. Tendon shortening, either by taking a tuck, or by removing a section of the tendon, is of little value, since the paralyzed muscles are sure to yield again. It is occasionally employed in connection with arthrodesis, or tendon transplantation.

5. Tenodesis, or tendon fixation, was long ago recommended by Hoffa, and others, but had fallen into practical oblivion until recently revived by Gaillie. In this operation the paralyzed tendon is exposed and freed from its sheath, and after being pulled up until the foot is in a corrected position, is firmly anchored in a deep groove chiseled in the bone near by. Originally Gaillie advised that only tendons whose muscular belly was completely and permanently paralyzed should be used for fixation, but recently he has extended its use to muscles which are only partially paralyzed by splitting the tendon and fixing only half of it in the bony groove. In talipes calcaneus, the fixation of half of the tendo Achilles corrects the deformity, gives stability to the foot in walking, and by relaxing the uncut portion of the tendon, permits the muscle to recover from the effects of constant overstretching. Ryerson has in a late article described a modification of Gaillie's technic whereby still greater stability

is obtained by not only burying the tendon in the bony groove, but cutting it in two high up, and passing the upper end of the buried tendon through a whole in the bone, turning down the end and suturing it firmly to the portion lying in the groove.

Tenodesis seems to me one of the efficient measures. It takes advantage of natural structures, whose function has been entirely destroyed, and introduces no foreign material.

6. Artificial silk ligaments (extra-articular and intra-articular) have been employed for the same purposes as tenodesis. My own experience with this procedure has led me to the conclusion that it is not to be relied on by itself, but it may be a valuable adjuvant to tendon transplantation, or even to tenodesis.

7. Arthrodesis is one of the most reliable operations for the improvement of a flail ankle. It is not to be employed in cases less than 8 years old because a large percentage of failures to secure a stiff ankle will be recorded in younger patients. In a number of cases not only the tibio-astragaloid joint but the astragalo-scaphoid articulation should be dealt with. Arthrodesis is also sometimes employed in one-sided disability at the hip, and in cases of flail shoulder, but in neither of these is it as reliable as in the ankle.

8. Astragalectomy is Whitman's panacea for calcaneus deformity, one of the most troublesome of all the distortions of the foot. It has been widely used, and has given admirable results not only in calcaneo-valgus, for which Whitman originally advised it, but in other severe conditions at the ankle.

9. Tendon transplantation, either alone or in combination with one of the other procedures, is undoubtedly the operation to which we turn in the largest number of cases, where a group of muscles on one side of the limb is paralyzed while its antagonists are strong and active. We cannot but be attracted by an operation which strives to replace the deficiency on one side by subtracting from the excess on the other. Unfortunately the extravagant hopes of the pioneers in this work have been greatly curtailed by time and experience, but in spite of this very decided benefit may be gotten in properly selected cases. This type of operation is applicable in many situations; at the foot, the knee, the wrist, the shoulder. And the number and variety of the individual transplantations which may be found useful is too

great to permit their enumeration here.

10. Nerve transplantation, whereby it is hoped to restore the innervation of the paralyzed nerve and the muscles it supplies is undoubtedly the ideal operation for the relief of infantile paralysis. Success here means a "*restitutio ad integram*," but the indications which would justify the operation are so seldom present, and the number of failures has been so large that it must still be regarded as a desideratum and not a practical resource. I have myself attempted nerve transplantation in a few cases. The operation I considered justified for the following reasons: 1. The entire muscular distribution of the nerve transplanted was paralyzed, so that section of the nerve could not cause any increase in the paralysis. 2. The adjacent recipient nerve trunk was healthy. In one of my cases I was successful. The patient, a little girl of four years, had had an attack of poliomyelitis when about 16 months old. In the beginning both lower limbs, and the right arm were affected, but the lower limbs had practically recovered. The arm paralysis, of the Erb type remained permanent. She had good motion in the hand and wrist, except for supination, but the elbow and shoulder were helpless. I exposed the musculo-cutaneous nerve in the axilla, cut it across, and implanted the distal end in a slit in the median. The anastomosis was wrapped in Cargile membrane, and the wound closed. There was union by first intention. In about a month there appeared to be slight contractility of the biceps. Several years after the operation the child's mother reported to me that she was able to flex and extend the elbow. The shoulder, of course, was not improved in any way.

11. Finally, there may arise in certain cases indications for other operations. Paralytic dislocation of the hip is by no means uncommon, and this may be combatted either by incision and suture with stout silk of the distended capsule, or by an arthrodesis. At the shoulder similar procedures may be justified for the improvement of flail or dislocated shoulder. Albee in his recent work on Bone Graft Surgery, recommends the insertion of a bone graft into the transverse processes for the relief of paralytic scoliosis. Whether the operation has been really successful in enough cases to justify its general adoption I do not

know, but I have not been able to avoid the suspicion that Albee has been influenced by the enthusiasm which is so natural in a man who has devoted himself so energetically to this particular kind of work.

TREATMENT OF PNEUMONIA WITH PHYLACOGEN.*

By J. B. ANDERSON, M. D., Yazoo City, Miss.

Pneumonia is still one of the most fatal of the acute infectious diseases. The mortality remains very high whether in private or hospital practice and varies within wide limits, being from 15 to 60 per cent, influenced by the character of the epidemic and the virulence of the infection. When alcoholics and the very aged are stricken they rarely recover, and often the death rate runs high among vigorous, young adults. Pneumonia therapy remains to-day about what it has been for the past several decades. We have no drug that even approaches a specific, and the research laboratories and workers are yet looking for an immunizing agent or antitoxin that they hope will be a specific in its action as is the diphtheria antitoxin is in that disease.

Recently we have had a few cases of pneumonia in both adults and children which we have treated with pneumonia phylacogen, manufactured by one of the largest bacteriological houses in this country. They do not claim that their product is an absolute specific, but the late results of its use have been so gratifying that it is worth the trial in view of the fact that we lack a rational and curative therapy in pneumonia. Not long since the manufacturers sent me a complimentary package through the courtesy of their trade representative in this territory with the request that it be given a trial in the first case of pneumonia that we had, so I wish to present herewith the clinical report of the cases treated with their product. I wish to say that the results were little short of brilliant, and since these cases had been treated along the lines usually adopted without improvement or cure the decided specific action of the phylacogen is the more apparent and positive.

Case 1. This case was that of a three-year-old boy, who developed a case of broncho-pneumonia on Christmas day last. When seen that afternoon I was quite sure that he had a pneumonia, but reserved a positive opinion until the next day. The child had had a very

*Read before the Yazoo County Medical Society, February, 1916.

severe cold, and evidently the pneumonia was the result of an extension into the lungs. The little patient had a temperature of 102° F., pulse 130, and respiration of 48; there was cough, flushed cheeks, and the physical examination of the chest showed a slightly limited respiratory excursion, hyperresonance over both lungs, and throughout the greater area of both lungs large and small moist rales. Several times during the boy's illness I found the lungs practically free of any rales or other physical signs, but that pulse and temperature ratio was maintained. The fever curve showed the usual morning remissions that we are accustomed to see in pneumonia, once or twice touched normal, though the oscillations were usually $100\ 1-2^{\circ}$ F. morning to $101\ 1-2^{\circ}$ to $102\ 2-5^{\circ}$ evening and night. The highest temperature noted was 104° one or two afternoons. There was no tendency for the temperature to run high or show wide excursions. Throughout the pneumonia the pulse range was between 112 to 140 and the respirations varied between thirty-two and fifty, both being accelerated or retarded by the temperature curve. This little patient had at times decided tympanites, quite usual with pneumonia in children, and each time it occurred the heart and respiration was interfered with proportionate to its extent.

Up to the tenth day the treatment consisted in abundance of fresh air, the child's bed being by an open window and the room freely ventilated and kept cool; the taking of water was encouraged and given often; counter irritation over both lungs with mustard jacket every six hours until the surfaces were a sunburn red; the patient was fed every two hours. A mixture of euquinine, salol and sodium salicylate was given every three hours, and the bowels kept active with castor oil or cascara. Temperature above 102° was controlled by tepid baths, cold enema, or ice cap to the head. Under this treatment there was no change in the child's condition on the tenth day, and the parents were beginning to get anxious and ask questions as to why the child did not get well or the fever quit. They were plainly worried and I saw it. The boy was not dangerously ill did I think, and the advice that pneumonia in children was quite different to the adult type and that the child might be sick three to six weeks but made parental hearts the more critical. About this time the phylacogen arrived, and I decided to give it an immediate trial. The morning of the tenth day I gave $\frac{1}{2}$ c. c. dose subcutaneously and repeated the dose in twelve hours, and on the eleventh day increased the dose to 1 c. c. morning and

night. The morning temperature was $99\ 2\text{-}5^{\circ}$ and the afternoon was $100\ 2\text{-}5^{\circ}$ the twelfth day, and the patient was given $1\frac{1}{2}$ c. c. and repeated at the twelve hour interval. The next day the temperature did not exceed $99\ 2\text{-}5^{\circ}$, and the convalescence was rapid and uninterrupted. He was given 2 c. c. on this day, and is now perfectly well.

Case 2. Lobular pneumonia; adult female, mother of one child, and a negative family history. This patient was taken ill about 7 p. m. the 9th of January with a chill or rigor, pain in the left side, though not severe or stab like, increased respiration, cough, temperature $102\ 3\text{-}5^{\circ}$, and marked restlessness. I found her on the afternoon of the second with a temperature of 103° , pulse 116, and respiration twenty-eight. Physical examination of her left chest showed slightly limited motion, which I ascribed more to pain on breathing, tactile and vocal fremitus were practically normal, and only here and there was the percussion note changed from the normal. Auscultation showed fine rales over limited areas in the left lung, and over these involved portions of the lung was heard broncho-vesicular breathing. The patient was expectorating a blood-stained sputum; not, however, so characteristic of a lobar pneumonia, less free and not so red or prune juice in color.

The patient was taking quinin, viskolein and salol in capsules every two hours, was given a preliminary calomel purge, and the bowels kept moving with oil and salts. Counter irritation was practiced over her chest, and abundance of fresh air and nourishment encouraged. In view of the happy result experienced with the case just reported, I administered $1\frac{1}{2}$ c. c. of pneumonia phylacogen at my first visit. That night I was called and informed that the patient's temperature was 104° . Being in the country I did not see her until the twenty-four hour interval was up, and found her fever $102\ 3\text{-}5^{\circ}$, pulse 120, and breathing about 24. At this visit I gave 3 c. c. of phylacogen. The next morning, the fourth day of her illness, her temperature was 99° , but reached the usual $102\ 2\text{-}5^{\circ}$ by five o'clock. Did not see her this day. A temperature of $101\ 1\text{-}5^{\circ}$ and a pulse rate of 112 ushered in the fifth day, while the other symptoms were unchanged. 4 c. c. pneumonia phylacogen given. Her husband phoned me the next morning, the sixth day of her illness, that her temperature was normal, and it did not rise again above $99\ 1\text{-}5$. This return to normal was unattended by the rapid fall of fever or critical sweat that is common with the usual pneumonia crisis.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE OCCURRENCE IN THE UNITED STATES OF CERTAIN NEMATODES OF RUMINANTS TRANSMISSIBLE TO MAN.*

By B. H. RANSOM, Bureau of Animal Industry, U. S. Department of Agriculture.

The primary purpose of this note is to call attention to the occurrence in this country of three of the four species of *Trichostrongylus* that have been recorded as parasites of man. These nematodes have already been reported for the United States (Ransom, 1911) so that the present note may appear rather unnecessary. It seems, however, to be justified by the circumstance that the original report appeared in a publication not likely to be seen by physicians, and as that report seems never to have been reviewed in detail in any of the medical periodicals nor to have been taken into consideration in any of the medical manuals which have come to my notice, it is quite probable that very few physicians, even of those most interested in parasitology, know of the occurrence of the parasites in question in the United States. As a matter of fact, though they are common enough in ruminants, none of the three has yet been found in man in this country. The apparent reason for this is not because they do not occur here in the human host, but because they have not been properly looked for, and I have little doubt if the fact of their common occurrence in this country were generally known that some at least of the various species of *Trichostrongylus* would soon be added to the list of parasites recorded for man in the United States. I have therefore taken the opportunity of this appearance before a society particularly interested in medical zoology to point out, even at the risk of incurring the guilt of needless repetition, that the trichostrongyles are not mere exotic forms occurring in remotely distant regions, but are parasites which have a certain direct and immediate interest to American physicians.

*Read by title at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

Trichostrongylus colubriformis (Giles, 1892) usually referred to in the text books as *Strongylus subtilis* or *Trichostrongylus instabilis* is very common in sheep and goats in the eastern United States, and has been encountered in large numbers in animals which died following symptoms of parasitic disease. It has also been found in camels, antelope, and deer which died at the National Zoological Park, Washington, D. C. Loos in 1905 showed that *Strongylus subtilis* originally described in 1895 as a parasite of man occurred in sheep, apes, gazelles and camels in North Africa as well as in human beings and was identical with Railliet's *Strongylus instabilis* which was originally reported in 1893 from the sheep, goat and roe deer in Europe. Clayton Lane (1913) by a re-examination of the original specimens of Giles's species which were collected from sheep in India, has apparently definitely established the identity of *colubriformis* and *instabilis*. The species, accordingly, in conformity with nomenclatural rules, takes the name *colubriformis* given to it by Giles in 1892, the name *instabilis* as well as *subtilis*, because of their later dates, falling into synonymy.

The nematodes which Ogata discovered in a Japanese woman in 1889, afterwards identified by Ijima (1895) as *Strongylus subtilis*, also those reported by Kitamura and Oishi (1913) from South Japan and Korea, are not *subtilis*, according to Jimbo (1914), but another species, namely *Trichostrongylus orientalis* Jimbo, 1914. This form is known only as a parasite of man and has been reported only from Japan and Korea.

Trichostrongylus vitrinus Looss, 1905, which has been found in Egypt as an occasional parasite of man, as well as of sheep and camels, occurs in sheep and goats in the eastern United States. It is less common than *T. colubriformis* and relatively few individuals have been found in any case of infestation in which it has been observed.

Trichostrongylus probolurus (Railliet, 1896), found by Looss occasionally in man and in the sheep, gazelle and camel in Egypt, and originally reported by Railliet in the camel in Europe, has been found but once in the United States, namely, in a Bactrian camel which died at the National Zoological Park, Washington, D. C.

Of the above-named species of *Trichostrongylus*, *T. colubri-*

formis is apparently by far the most common in the United States, and perhaps is the most likely to be found as a parasite of man. There appear to be no statistics as to the frequency of *Trichostrongylus colubriformis*, *vitrinus*, and *probolurus* in man, but Jimbo found *T. orientalis* in 27 out of 57 cadavers examined for its presence, and he notes that in addition he had under treatment 5 patients who were infested with this parasite. Generally the number of individual worms found was less than 10, and only exceptionally did the number exceed 50.

Trichostrongylus orientalis therefore seems to be a rather common parasite in Japan, which leads one to suspect that the trichostrongyles are not such rare parasites of man as is generally supposed, and that investigators in other parts of the world who will make the same careful examinations as Jimbo made are likely to arrive at very similar results.

The absence of records of the occurrence of one or more of the species of *Trichostrongylus* in man in the United States even though these parasites should be comparatively common in that host is not surprising. The worms are small and slender, less than 7 mm. in length, hence are readily overlooked either in the feces or in the intestine on post-mortem examination. The small numbers which are usually present in human cases is also a circumstance which renders their detection difficult. The similarity of their eggs to those of hookworms is liable to result in their being mistaken for the latter on casual observation, but their larger size (length in the species thus far recorded in man, 73 to 91 microns) as well as the fact that the eggs are in somewhat later stages of segmentation when passed in the feces, are rather conspicuous features of *Trichostrongylus* which can hardly fail to attract the attention of any observer who has them in mind.

Because of the evident adaptability of members of the genus *Trichostrongylus* to existence in the human intestine and because of the possibility that some of those not yet recorded as such may be found occurring as parasites of man, it will not perhaps be inappropriate if I refer here to the species present in the United States that are not known to be transmissible to human beings. *Trichostrongylus extenuatus* (Railliet, 1898) is very common in cattle and has been found also in sheep, goats

and several species of deer. Another species, *T. capricola* Ransom, 1907, has been frequently found in goats and sheep and once in the prong-horned antelope. Seven species not yet known to occur in ruminants have been seen in this country. *Trichostrongylus axei* (Cobbold, 1879) or a nearly related species has been found in the horse; *T. retortaeformis* (Zeder, 1800) and *T. calcaratus* Ransom, 1911, have been reported from rabbits; *T. delicatus* Hall, 1916, occurs in one of the squirrels; *T. fiberrius*, Barker and Noyes, 1915, has been described as a parasite of the musk rat; *T. tenuis* (Eberth, 1861) has been collected from the goose; and *T. pergracilis* (Cobbold, 1873) has been found in quail and grouse.

From the foregoing it is seen that altogether twelve species of *Trichostrongylus* have been found in the United States, including three of the four species known to occur in man in other parts of the world. As some of these species are very common in this country, and as careful examinations of human beings in other countries (Egypt and Japan) have demonstrated that worms of the genus *Trichostrongylus* occur more or less frequently in the human host (nearly 50 per cent of individuals examined in one series in Japan showing infestation) it is probable that more careful examinations than those customarily made will show that some of the species in question occur likewise as parasites of man in the United States.

In order to complete the list of nematodes which are characteristically parasitic in ruminants but may also occur in man, another species in addition to those already mentioned should be noted. This species, *Hæmonchus contortus* (Rudolphi, 1803), as its name indicates, belongs in another genus. It is known commonly as the stomach worm of ruminants, sometimes as the twisted stomach worm. Of frequent occurrence in this country as a parasite of sheep, cattle and other ruminants, it is the cause of a great deal of damage to the live stock industry. It has been recorded once as a parasite of man, having been found in Brazil by Magalhães (1908) in a case of anemia which rapidly improved after treatment with thymol. The specimens upon which Magalhães based his opinion as to the identity of the parasites were recovered from the feces. *Hæmonchus contortus* is a form of considerable size, measuring 10 to 30 mm. in length. As the worms of this species are more slender than hookworms

and otherwise quite different in appearance even upon naked eye examination, they are not likely to be mistaken for the latter. The eggs resemble hookworm eggs, but like those of the trichostrongyles are considerably larger (length 75 to 95 microns), and when expelled from the intestine of the host (at least in the case of ruminants) are in somewhat later stages of segmentation than the hookworm eggs seen in fresh human feces.

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STUDIES ON TRICHOMONAS.*

By NATHAN BARLOW, M. D., Saint Louis, Mo.

There have been a number of recent papers, ascribing pathogenic effects of greater or less severity to *Trichomonas intestinalis*. This parasite was discovered in certain cases among the patients of Barnes Hospital, in the course of a study of the intestinal parasites prevalent in St. Louis. Owing to the rapid disappearance of the trichomonads shortly after passage from the body, the prevalence of the parasites was determined by the administration of salines to one hundred unselected cases and examination of the specimens while in a perfectly fresh condition. Twenty-five of these one hundred patients were found to harbor trichomonads in greater or smaller numbers. A few additional cases were discovered among patients who had been referred from the gastro-intestinal clinic, on account of symptoms which suggested the possibility of the presence of intestinal parasites.

It may be noted that twenty-two of these twenty-five patients had been reported as negative to intestinal parasites, after routine examination. This indicates the necessity of examining absolutely fresh specimens obtained after the administration of saline cathartics in order to ascertain the presence of protozoal parasites. The routine examinations were never made later than three hours after the collection of the specimens.

After careful search, I, myself, failed to find parasites in a number of such specimens from patients whom I knew to be infected. As most complete and detailed records were available, a most excellent opportunity was afforded of determining what pathogenic effects, if any, could be ascribed to the trichomonads. The symptoms most commonly attributed to these parasites are alternating diarrhea and constipation. These symptoms were present in fourteen of the cases which were studied. In six of these cases there were other conditions present, such as tuberculosis, dilatation of the colon, or surgical conditions of the abdomen which were fully adequate to explain the symptom. Five of these cases, of which two were from the Barnes Hospital service and the other three were referred cases, were infected with typical *Endameba histolytica*. The other three cases were in-

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fects with endameba, which, while not presenting all the characters of histolytica, were certainly not at all similar to *Endameba coli*. One of the cases in which it was very difficult to find trichomonads on ordinary occasions, but which, in the mild diarrhea following indiscretions of diet, presented them in considerable numbers, apparently afforded an instance of a relationship between the trichomonas and the diarrhea, but it was later found that a few doses of any cathartic would bring about the same increase in the number of trichomonads present.

An experiment was made with certain of the cases in which only small numbers had been found. If specimens following saline or other cathartics were requested on successive days, the number of trichomonads steadily increased, suggesting that their increase in numbers at the time of intestinal disturbance is a result and not a cause, and depends upon the more favorable conditions for growth produced by fluid stools.

Careful study was made of the hemoglobin percentage and of the red and white cell count. These were found to depend entirely upon the other conditions present. If there were no other diseases which would account for anemia, leucopenia, or leucocytosis, these counts were found as nearly normal in the cases showing infections with *Trichomonas*, as in the cases which were free from parasites. Four of the cases of *Trichomonas* infections presented an eosinophilia of from 3% to 6.8%. These cases all had a concomitant infection with *Endameba histolytica*, or with some endameba which appeared to approach in character as closely to the pathogenic as to the unpathogenic forms. No cases infected with *Trichomonas* alone had an eosinophile count greater than 2.5% and the only case which was literally swarming with trichomonads did not show a single eosinophile in several examinations of blood stains.

Nervous manifestations such as neuritis, neurasthenia, irritability, etc., were manifested only in those cases in which they could either be accounted for by some pathological condition present or else in which the history clearly showed evidence of a congenital neuropathic tendency. None of these cases showed loss of appetite, weakness or general debility, unless there were other conditions which fully accounted for these symptoms.

A careful study was made as to the relationship of the pres-

ence of these parasites to degenerations of the heart or to pathological conditions in the liver or other organs. In no instance was any such condition found, unless there were one or more serious systemic disorders fully sufficient to account for the condition.

No difficulty was experienced in growing the organisms in the acidified bouillon recommended by Lynch. A number of experiments were made with rectal injections in rabbits of considerable quantities of such cultures and also of perfectly fresh material containing very large numbers of trichomonads. In some instances trichomonads could be recovered from the rabbit for a few days following, but in not a single instance did the infection last for more than five days, nor was there ever any diarrhea or other sign of disturbance produced in the rabbit.

With certain of the patients an effort was made to destroy the infection. Flowers of sulphur administered continuously for a number of days was found absolutely without effect. One luetic patient had recently received a prolonged course of mercury by oral administration and was given two doses of salvarsan of 6-10 gram each, without producing any effect whatever on the trichomonads.

Four cases with a concomitant endamebiasis were treated with moderately long courses of emetin, one grain daily, in one instance accompanied by ipecac administered orally, without any effect whatever on the trichomonads other than the diminution in number which always accompanies an amelioration of a catarrhal condition of the intestines. Methylene blue was tried upon three cases in doses of one grain three times daily. In each case it was continued until the patient experienced slight vesical irritation, which took place in from four to seven days. Living parasites are not to be observed in feces which are impregnated with methylene blue but as soon as the dye had been removed from the body, they rapidly increased and in a short time were present in as large numbers as ever. Thymol was tried in small doses, six grains three times daily, and was found the most efficient of all drugs against the trichomonas of St. Louis. One patient remained free from *Trichomonas* for four weeks after which they reappeared in the stools. When the parasites have been reduced in number or caused to completely

disappear by either methylene blue or thymol, there was no improvement to be noticed in the subjective or objective condition of the patients, which seems to afford a further proof that these organisms are ordinarily non-pathogenic. It is, of course, not impossible that there may be different strains or even different species of *Trichomonas* and that some of these are at times more or less pathogenic. Or after the very great increase in their numbers which takes place whenever an infected individual has any intestinal disturbance whatever, even so slight a one as that induced by several doses of cathartics, it may be possible that such enormous numbers could contribute to the irritation already produced by other pathogenic influences.

Although very careful and prolonged observations were made, the greater part of the time for several weeks having been devoted to the study of these organisms, but little was accomplished other than to confirm the morphology as it has been described by various writers. Only a brief description will therefore be given, sufficient to indicate the description of the trichomonads of this region with reference to the characters which have been found to vary in different localities.

Trichomonas intestinalis in St. Louis was found to be usually from 10 to 18 microns in length. Forms of 22 to 25 microns are frequently encountered and one individual of 32 microns in length was found. When uninjured by changes of temperature, the *Trichomonas* is spindle-shaped or lanceolate, both extremities being pointed, the posterior extremity usually very slightly prolonged, forming an appendage or tail which may, however, equal or exceed the body in length and occasionally shows a small spherical expansion at the extremity. By ordinary illumination it appears composed of two portions; a homogeneous or slightly granular endoplasm, containing a greater or smaller number of ingested food particles mostly bacteria and a perfectly transparent and pellucid ectoplasm which is in constant motion. The character of this motion can only be distinctly made out by dark field illumination and it seems to consist of two distinct movements, one of which is an undulatory motion, progressing very rapidly from the anterior to the posterior extremity. The other movement consists in the projection of pseudopodia which when projected, move from the anterior to

the posterior extremity, gradually becoming less prominent as they approach the tail.

From the anterior extremity there project four flagella formed by the extrusion of the ectoplasm and which are in constant very rapid whip-like motion, when the trichomonas is swimming free. When fixed, this motion becomes more rotatory in character and creates a constant stream directed against the anterior end. At certain times there is to be seen a depression or cleft near the base of the flagella, usually very transient but sometimes persisting as long as the organism is observed, which undoubtedly serves as a temporary cytostome. The pseudopodia are composed of ectoplasm only. They may be rounded or filiform in character but are usually shaped more or less like a shark's tooth with the concavity directed backward. They may be projected from any portion of the ectoplasm but are usually put forth only along the myoneme which passes from the origin of the flagella to the posterior extremity. These follow each other in such rapid succession that the portion of the ectoplasm containing the myoneme is elevated from the body of the parasite to a variable height and length, creating an undulating membrane which, however, is in no way a permanent structure but varies in length, height and thickness and may entirely disappear. It is usually plainly made out under dark field illumination for about three-quarters of the distance from the anterior to the posterior extremity.

Prolonged and careful observation has convinced me that the trichomonas is normally fixed by the tail to an epithelial cell or to some solid body, that the tail takes no part in locomotion and that the flagella and undulating membrane are only secondarily organs of locomotion and that their primary purpose is to create currents in the surrounding medium, which bring food particles within their reach and to grasp and hold these particles until they can be taken up by temporary stomata.

The endoplasm has a somewhat limited but frequently very active motion. It consists of the change of form sometimes resembling that of the ameba and sometimes a peculiar doubling and undoubling, resulting in the reversal of the direction of the organism. The endoplasm never puts out pseudopodia and I have never observed it to enter into the formation of a pseu-

dopod of the ectoplasm. On exposure to air, light, or to a temperature a few degrees below 30° C., motion is very rapidly lost and the trichomonads undergo one of three changes, according to the rapidity of action of the adverse influence.

Most commonly the flagella, the tail and the undulating membrane disappear, irregular pseudopodia are projected from various parts of the ectoplasm, although for a small distance along the myoneme a suggestion of an undulating membrane might persist. The organism becomes spherical in form, swells up and becomes pale and suddenly disappears by plasmolysis. Owing to this form of change, unless warm, fresh specimens are examined, trichomonads will not be found unless originally present in enormous numbers.

The second form of change consists in a withdrawal of the flagella and undulating membrane and persistence of the tail, which retains a certain amount of to and fro motion, and a loss of elasticity of the ectoplasm which permits it to sag backward, giving the appearance of a small oval body, the endoplasm, contained in a leaf-shaped sac of ectoplasm. Occasionally pseudopodia may be still projected from the ectoplasm, but after a certain length of time, the organism swells up and undergoes plasmolysis as in the first form of change.

In the third form of change the organism withdraws its appendages, becomes spherical in form, homogeneous in appearance, acquires a somewhat thickened outer membrane and is apparently a resistant form or dauer-cyst. These dauer-cysts may be readily recognized by any one familiar with trichomonads and while I have never failed to find the parasite in cases in which I had seen the dauer-cyst, in old specimens the character of the cysts is not sufficiently distinct to base a diagnosis upon their presence alone.

Although most careful search was made for true amebic forms and for reproduction cysts, they were never observed either in specimens or in cultures. Efforts were made to obtain variations in the organism by varying the composition and consistency of the culture medium. No change could be produced other than alterations in the rapidity of growth. There were several patients in whom it was at first thought that the trichomonads showed certain morphological differences from those observed

in the majority and that these differences persisted over a number of examinations. It was always possible, however, to find a few typical trichomonads and on making cultures from these patients, all of the trichomonads were typical in every respect.

The method of division is longitudinal, commencing at the flagella, two flagella going with each half of the organism, and the division progressing backward to the tail. My observations seemed to indicate that under normal conditions this process is extremely rapid, probably not consuming over three or five minutes in its entirety. The complete division is never witnessed under a microscope, as the change from the body to the host or from the culture medium in a dark incubator to the stage of the microscope, is sufficient to prevent the beginning of division. Many of those in whom it has already commenced, will complete it before they can be observed. Very occasionally, either the first or the last portion may be seen under the microscope. When seen, it is very rapid, as long as it advances at all. Most of the dividing forms seen under the microscope are already so far injured that no further change takes place, no matter how long they are observed. It is probable that the great rapidity of division accounts for the scarcity of dividing forms encountered and for the almost complete impossibility of finding the nucleus in mitosis.

As with the amebæ, the various forms of Romanowsky stain were found too variable and uncertain to be of any real value in determining morphology. The only satisfactory stains were the modifications of the iron hematoxylin method. The greatest difficulty in staining is to obtain a satisfactory fixation. If freshly passed mucus containing trichomonads can be quickly smeared and immediately plunged into a fixing bath, Schaudin's fluid being very satisfactory, the trichomonads can frequently be fixed with no other change than a somewhat more spherical shape, the flagella and undulating membrane remaining apparently unaltered. The protoplasm, in addition to the food vacuoles, shows a vacuolated appearance which is undoubtedly due to the staining reagents.

The nucleus, which is usually completely invisible in fresh specimens, is seen at the anterior end. It consists of a definite nuclear membrane on the inner surface of which is a fairly uni-

form deposit of chromatic material, and a flask-shaped karyosome, the pointed extremity of which touches the anterior pole of the nuclear membrane. The chromatin of the nucleus is so dense that it is difficult to make out the finer details of structure but when over decolorized, it may be seen that the apparently flask-shaped karyosome is really a round karyosome from which numerous chromatic threads converge to the anterior pole of the nucleus. There also seems to be a chromatic network between the karyosome and the nuclear membrane. From the point to which these chromatic threads converge, a delicate rhizoplast runs to the anterior extremity of the trichomonad, where it seems to be expanded into a single granule of chromatic material from which granules arise the four flagella and a delicate myoneme which runs backward to the posterior extremity and is raised to the outer edge of the undulating membrane, when this structure is present.

In the examination of several hundred stained specimens, the four basal granules described by Lynch could never be observed and the four flagella seemed to always arise from a single granule and from the same point at the anterior extremity. The appearance described by some writers of a pseudopod projected between two pairs of flagella, I believe to be due to the position of the parasite in which the true origin of the flagella was not visible but after having passed for a short distance on the under-surface of the parasite, and separated into two pairs, a pseudopod arising in front of them appeared to be between them. It will be noted that the nuclear structure and mode of origin of the flagella, are precisely similar to those described by Wenyon for the cercomonas which was cultured by him. An axostyle or other supporting structure was never observed nor was there in a single individual, any appearance which by any stretch of the imagination could even suggest the existence of internal structures such as those figured by various authors for the trichomonads of animals.

Trichomonas vaginalis has a precisely similar structure but shows differences in its greater size, in the shorter length of the flagella as compared with the body, and in the shorter comparative length of the undulating membrane which is ordinarily invisible except anteriorly, in its more prompt loss of active mo-

tion, under adverse conditions, in never possessing the pointed anterior extremity and resulting lanceolate or spindle-shaped form of *T. intestinalis*, in the smaller number of ingested food granules, in greater difficulty in cultivation and in greater readiness of cyst production. In one case of infection with *T. vaginalis* in which it was possible to make a careful examination for *Trichomonas intestinalis*, it was not found, although *Trichomonas vaginalis* was found on two separate examinations. In another case in which for some reason the vitality of the *Trichomonas* seemed decreased at the second examination, there was a large number of round or oval cyst-like bodies measuring from 20 to 30 microns, containing usually a single small nucleus or occasionally from 2 to 8 nuclei, grouped at the center of the cyst. In a single instance some of these nuclei presented an appearance when stained, which seemed to indicate karyokinetic division. These bodies appeared very much like reproduction cysts. In cultures, *Trichomonas vaginalis* dies out very readily but as long as the culture remains alive, the characteristics of the organism are maintained and it does not approach *Trichomonas intestinalis* in its morphology.

I am therefore inclined to believe that the two forms are valid species.

A series of one hundred cases from the gynecological clinic was examined for the presence of *Trichomonas vaginalis*. Five cases were found infected. The parasite apparently can thrive only in cases having some pathological condition which produces a free discharge, such as the postpartum state, chronic gonorrheal endocervicitis, subinvolution with chronic endometritis, etc. In all of these cases the character of the secretions and the intensity of the symptoms seemed to depend entirely upon the bacteriological infection and surgical condition, and to be in no way altered by the presence of the trichomonads.

I wish to acknowledge my indebtedness to Dr. George Dock for permission to report these results, and to the various members of the Staff of Barnes Hospital and Washington University for their co-operation in the work.

**CLINICAL REPORT OF A CASE OF DIARRHEA
APPARENTLY DUE TO FLAGEL-
LATE PARASITES.***

By JOHN B. ELLIOTT, Jr., M. D., New Orleans.

Miss A., aged 25; of Southwest Louisiana, was seen by me for the first time on May 4, 1915. She gave the following history:

Had always lived in Southwest Louisiana. Mother and father both living and in good health. Two brothers and two sisters living, all healthy. Had chicken pox and whooping cough before the age of 12. Commenced menstruation at the age of 14 and was very irregular for the first two years.

In 1908 had acute attack of appendicitis. The appendix was removed. In 1909 was curretted because of pain and irregularity of periods. At this operation, it was discovered that the uterus was of the infantile type.

In March, 1910, she was taken rather suddenly with diarrhea, almost dysenteric in character, averaging from nine to fifteen stools a day; these stools were bloody and contained mucus. There was constant headache but no fever and no indigestion.

When this first developed, she weighed 116 pounds, but went down rapidly to 80 pounds. The dysenteric character of the stools disappeared in about two months, but she continued to have from eight to ten actions a day of a watery character, but with no mucus, no blood, nor tenesmus. For this condition, numerous astringents were tried during the next year, but none had any effect. In November, 1911, her tonsils were removed in the vain hope that suppuration there might be the cause of the trouble. During 1912, she was treated twice for amebic dysentery by two local physicians, taking emetin and ipecac in every conceivable form and quantity, but with no effect.

In the summer of 1913 she went to the coast of Maine for three months, but this change of climate had no effect on the diarrhea.

In 1914, things continued as before; never less than six movements a day; generally eight or nine; most of them occurring between four and ten a. m.

I saw this patient for the first time, as above stated, on May 4, 1915. She looked a typical picture of one suffering from pernicious anemia. An examination showed her heart and lungs to be normal; liver little enlarged; spleen not enlarged. Her

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

leucocytes were 17,300; red cells 4,200,000. Differential count showed lymphocytes 53%; endothelial leucocytes 16%; neutrophils 31%. Anisocytosis. A few nucleated reds. Color index point five-three.

An examination of the feces showed nothing abnormal, but after a dose of salts the stools were one mass of *Cercomonas hominis*. Dr. C. C. Bass could find no amebæ. A thorough examination showed no tubercle bacilli in the feces.

A stomach examination showed a slight achylia. A proctoscopic examination made by a most competent man just prior to my seeing her showed no ulcers anywhere in the large bowel.

The Wassermann reaction was negative.

The X-ray examination showed nothing abnormal throughout the intestinal tract except for the first time I was enabled to see fermentation in the small bowel. This was very striking.

While unable to make a diagnosis, and doubting that the parasites could be the cause of the diarrhea, I placed the patient on thymol, sixty grains a day for one day in each week, in other words, the usual treatment for hookworm. I also gave her dilute hydrochloric acid, 40 minims after each meal.

A letter on June 2 stated she had lost three pounds but color better. Number of stools the same.

When seen again on June 5 the blood examination showed exactly as before. The stools of the first two days looked much like sprue. Another X-ray of the large bowel at this time seemed to show atony.

During July, while still on the thymol, patient gained 8½ pounds, and the number of stools was reduced to four in twenty-four hours; hardly any fever during this month, the diet being soft food entirely, containing no cellulose. Thymol was taken every two weeks during July, August and September, but all she had gained in July was lost in the next two months.

I might also add that she was taking bismuth by enema for three weeks in July, as well as resting daily from 9 to 11 a. m. and again from 2 to 4 p. m.

In August she grew rapidly worse; had temperature 100° daily, with bad headaches. Bowels the same. Was given emetin for the next month, off and on, with no improvement. Was then placed on chenopodium in seven drop doses twice a

day, and increased up to 16 drops a day during the month of October.

During all these three months, July, August and September, she was on a most careful, soft diet.

On November 24, 1915, patient returned to New Orleans for further observation. Her hemaglobin was 70% against 45% in May. Red cells 5,100,000; white cells differential count at that time showed lymphocytes 53%; endothelial leucocytes 18%; neutrophiles 28%. The feces contained comparatively few cercomonas, but she had taken no purgative prior to my seeing her.

A rectal examination disclosed a band of tissue stretching across the bowel about two inches from the nus, which easily ruptured and bled only slightly. Further examination of the rectum showed only a very small ulcer just above the site of this band, which was entirely healed in two applications of silver nitrate.

Examination of the feces on March 27, 1916, still showed the presence of numerous parasites.

On April 3, 1916, patient again returned for observation. Says she gained four pounds in January; that she had taken during that month eight doses of emetin of 2 grains each by needle; that she had been using nitrate of silver or quinin daily by enema, with absolutely no change in the number of stools; that she also took an infusion of powdered pecan-nut shells, an old French remedy in her part of the country.

On Monday, March 27, 1916, had a very small hemorrhage from the bowel, preceded by a pain in the back, and much weakness. Her weight at this time is 86½ pounds.

An examination of the stools by Dr. C. C. Bass and Dr. W. H. Harris showed the same excess of parasites; no amoebæ present after exhaustive search; no free fat in the stools; no tubercle bacilli.

A red blood count showed 4,270,000 cells; white count 3,980; hemaglobin 55%; lymphocytes 60%; endothelial leucocytes 9%; neutrophiles 28%. Negative Wassermann.

Stomach examination showed the same hypochloridia. Free H. Cl. 9; combined acids 13; total acidity 22.

All physical examination negative as before. Still having her regular eight movements a day.

From April 3 to May 6 has again been taking dilute hydrochloric acid, 40 minims after each meal, to which has been added pancreatin, 15 grains three times a day and a kaolin 8 drams. Her rest periods and diet as before. Letter on May 8 reports conditions unchanged.

This case is still undiagnosed, but I must believe that the parasites are the factors in its etiology.

THE BILATERAL DISTRIBUTION OF THE LESIONS IN LEPROSY IN RELATION TO THE BACTER- EMIC NATURE OF THE DISEASE.³

By D. RIVAS, Ph. D., M. D.,

Assistant Professor of Parasitology, University of Pennsylvania.

(From the Laboratory of Comparative Pathology and Tropical Medicine, University of Pennsylvania, Philadelphia.)

(*Through misunderstanding the accompanying illustrations were omitted from the September JOURNAL.*)

The illustrations, together with the accompanying legends, should face page, 218.)

DESCRIPTION OF PLATES.

- Fig. 1. Maculo—anaesthetic Leprosy showing bilateral lesions all over the body.
- Fig. 2. Leper showing bilateral amputation of digits and lesions on the face and extremities.
- Fig. 3. Tubercular leper. Note symmetry of lesions, especially in ears.
- Fig. 4. Leper showing extensive amputation of digits in both hands.
- Fig. 5. Leper showing symmetrical lesions on the face.
- Fig. 6. Group of lepers showing bilateral amputation of digits.





NEWS AND COMMENT.

BRITISH MEDICAL ASSOCIATION MEETING.—The eighty-fourth annual meeting of the British Medical Association was held in London during July. Because of the war the scientific and social side was entirely dropped and only political matters were discussed.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION will hold its forty-second annual session at the Claypool Hotel, Indianapolis, October 10, 11 and 12, 1916. A very interesting program has been prepared, scientifically and socially, and a very successful meeting is anticipated.

TUBERCULOSIS CONFERENCES.—The Mississippi Valley Conference on tuberculosis will be held at the Seelbach Hotel, Louisville, Ky., October 4-6, under the presidency of Walter D. Thurber, Chicago.

The third Southern Conference on Tuberculosis will be held at Jackson, Miss., October 30 and 31. The states comprised in this conference are North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi and Louisiana.

The object of these conferences is to strengthen and extend the work of the national association on tuberculosis, and to bring about closer relations between anti-tuberculosis agencies and other health societies, providing for the interchange of ideals and experiences.

AMERICAN PROCTOLOGIC SOCIETY ELECTS OFFICERS.—At the last meeting of the American Proctologic Society, the following officers were elected: Dr. Alfred J. Zoble, San Francisco, Cal., president; Dr. Granville S. Hanes, Louisville, Ky., vice-president; Dr. Collier F. Martin, Philadelphia, Pa., secretary-treasurer. Executive Council: Dr. T. Chittenden Hill, Boston; Dr. Alfred J. Zoble, San Francisco; Dr. William M. Beach, Pittsburgh, Pa., and Dr. Collier F. Martin, Philadelphia.

THE CARTWRIGHT LECTURES.—Dr. Richard M. Pearce, professor of research medicine, University of Pennsylvania, will deliver the Cartwright Lectures for 1916 of the Association of the Alumni of the College of Physicians and Surgeons, Columbia University, on October 24 and 25. His subject will be "The

Spleen in Its Relation to Blood Destruction and Regeneration."

THE ALVARENGA PRIZE AWARDED.—The Alvarenga prize this year was awarded to G. Riedel, chief of the biologic chemistry service at the Hospicio Nacional and instructor at the University of Rio, Brazil. His work was on protective ferments and described extensive personal research.

NEEDLESS PETS.—The *Texas Medical Journal* for August comments on the fact that people are always making war on rats and mice but that dogs and cats are just as much disease carriers and germ spreaders as the former pests. Dogs and cats are freely admitted into our homes and are fondled and caressed by the women and children of families, often when they are loaded with disease germs. They are extremely filthy and are expensive to feed and dangerous to have around. It would be well if there was started an educational campaign in the country to exterminate these useless household pests.

WOMEN'S DISPENSARY REPORT.—At the September meeting of the New Orleans Dispensary for Women and Children, the reports for August were heard showing the hospital to be in full running order again, with all wards and clinics crowded. During the month 1,235 women and children were given treatment in the outdoor clinic; 505 treated in the surgical ward, with 45 operations and 2 deaths. The dispensary is growing rapidly in importance.

BIRTH CONTROL FAVORED.—At a meeting recently held in Des Moines, Iowa, representative physicians and heads of state institutions under the jurisdiction of the State Board of Control went on record in favor of birth control. It was the opinion of those present at the meeting that the practice would result in less crime, disease, social vice and other evils. Professor Clarence Van Epps, of the Iowa State University, declared that the wealthy classes already have knowledge of and practice birth control and that the same knowledge should be given to poorer classes by the state.

HEAVY DAMAGES FOR ILLICIT DRUG TRAFFIC.—A widow in the state of New York recently received \$2,000 compensatory damages and \$1,000 punitive damages against a firm of druggists who had sold heroin to her eighteen-year-old son. The judge in affirming the judgment said that during the time the

defendants were supplying the drug to the boy he became a vagabond, an idler, a drug fiend, and a criminal, undutiful to his mother, worthless to himself, dangerous to the community, and that the jury was right in concluding that all this was the result of the illicit traffic carried on by the defendants, and that they should be punished for their reckless disregard of the rights and welfare of the boy and his mother.

COMMUNICABLE DISEASES PREVALENT IN THE UNITED STATES.—A series of tables has recently been published by the United States Public Health Service showing the prevalence during the year 1915 in cities of the United States with a population of over 100,000 of the following diseases: diphtheria, gonorrhoea, malaria, measles, epidemic cerebrospinal meningitis, pellagra, poliomyelitis, rabies in men, rabies in animals, scarlet fever, smallpox, syphilis, tuberculosis and typhoid fever. The health departments of the respective cities gave the data to compile these tables, and include the number of cases reported, indicated case rates in a thousand of population, and indicated fatality rates in one hundred cases. The pamphlet, Reprint No. 347, Public Health Reports, may be obtained at five cents each, from the superintendent of documents, Government Printing Office, Washington, D. C.

BLOND BABIES AND INFANTILE PARALYSIS—Chicago investigation in infantile paralysis have proven by their records that more blue-eyed, golden-haired babies succumb to this disease than do the dark-eyed, dark-haired babies. They also show that in Norway and Sweden, where the disease is of common occurrence, the blue-eyed are the ones most easily stricken. Whether this be true elsewhere remains to be proven and the discovery may be an aid in finding a cure for the disease.

TWILIGHT SLEEP FAILS AT JOHNS HOPKINS.—The Johns Hopkins Hospital has abandoned its experiments in the use of "twilight sleep," with the conclusion that the method is too dangerous, and that the menace to the life of the new child is too grave to warrant its use, except under the most favorable circumstances. Twilight sleep has been abandoned in nearly every hospital where it has been tried.

RABBITS FOR PELLAGRA.—As pellagra is now said to depend largely on improper diet, Dr. C. W. Stiles, as a result of his

special study, advises a more extensive consumption of the flesh of rabbits and hares, as an addition to the meat supply. The animals breed and grow rapidly with little care or expense, and can be made available at any place without the necessity of cold storage.

COCAIN HABIT WITH SOLDIERS.—It has been discovered that among the large number of soldiers, invalided and otherwise, in England, cases of the cocain habit have attracted notice, with the result that a surreptitious traffic in the drug in saloons and other places has been detected. Drastic action has been taken by the government against this practise.

FRANCE DAY IN GREAT BRITAIN.—The French national fete day, July 14, was observed in Great Britain as France's Day for the benefit of the French Red Cross, with very satisfactory results.

U. S. NAVY SURGEON.—The next examination for appointment in the Medical Corps of the Navy will be held on or about October 23, 1916, at Washington, D. C., Boston, Mass., New York, N. Y., Philadelphia, Pa., Norfolk, Va., Charleston, S. C., Great Lakes (Chicago), Ill., Mare Island, Cal. and Puget Sound, Wash.

Applicants must be citizens of the United States and must submit satisfactory evidence of preliminary education and medical education.

The first stage of the examination is for appointment as assistant surgeon in the Medical Reserve Corps, and embraces the following subjects: (a) anatomy, (b) physiology, (c) materia medica and therapeutics, (d) general medicine, (e) general surgery, (f) obstetrics.

The successful candidate then attends the course of instruction at the Naval Medical School. During this course he receives a salary of \$2,000 per annum, with allowances for quarters, heat and light, and at the end of the course, if he successfully passes an examination in the subjects taught in the school, he is commissioned an assistant surgeon in the Navy to fill a vacancy.

Full information with regard to the physical and professional examinations, with instructions how to submit formal applica-

tion, may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

MEDICAL DEPARTMENT IN TEXAS.—The surgeon general of the Army has installed some notable hospital facilities in Texas to meet the possible demands upon the medical corps in the way of the sick and injured of the troops serving along the border and in Mexico. Base hospitals of 200 to 500 beds have been established at Brownsville, Laredo, Eagle Pass, and Nogales. There is a base hospital at Columbus of 100 beds. Base hospitals of from 700 to 1,000 beds exist at Fort Sam Houston and El Paso. Camp hospitals of about 150 beds have been established at Mercedes, McAllen, Del Rio, Marfa, Deming, and Douglas. These institutions have been furnished with modern X-ray apparatus and surgical sterilizers for dressings, instruments and utensils. There is, of course, water sterilization, and at five of the places portable, wheeled, steam disinfectors have been installed suitable for disinfecting mattresses and cloth and of a capacity of 3 by 6 feet. The hospitals are equipped also with white enamel iron bunks and hair felt mattresses. In addition to these base and camp hospitals, there are the field hospitals with the organizations. Each division is entitled to four field hospitals and four ambulance hospitals, and many of the regiments have regimental hospitals. The reports received from medical officers in Texas and in Mexico indicate that the health of the troops is satisfactory, and that the best of care is being taken of those who have to be sent to the hospitals.—*Army and Navy Register*.

MEDICAL INTERN EXAMINATION.—The United States Civil Service Commission announces an open competitive examination for medical intern, for both men and women, on October 4, 1916, in St. Elizabeth's Hospital (formerly Government Hospital for the Insane), Washington, D. C., at a salary of \$900 a year, with maintenance. The position is tenable for one year, during which time a postgraduate course in mental and neurological diagnostic methods is given, and examination is held, and promotions to the next grade junior assistant physician, are made. Applicants must show that they are graduates of a reputable medical college, or that they are senior students in such an institution and expect to graduate within six months from

the date of this examination. Applicants must be unmarried and must be 20 years old or over at the time of examination. For further information apply for Form 1312, stating title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C.

PERSONALS: Among the doctors of New Orleans who have returned from their vacations and resumed practice are: Drs. N. K. Edrington, A. S. Yenni, S. F. Braud, J. J. Ryan, C. L. Eshleman, W. D. Phillips, Hampden S. Lewis, J. T. Scott, W. M. Johnson, Isidore Cohn, Geo. J. Tusson.

Dr. Herman B. Gessner has returned to New Orleans after being stationed two months at Nogales, in service with the Army Medical Reserve Corps.

REMOVALS: Dr. T. M. Brister, from Hackley, to Bogalusa, La.

MARRIED: On August 15, 1916, Dr. Sidney Francis Braud, to Miss Agnes Marie Murphy, both of this city.

On September 6, 1916, Dr. James Birney Guthrie, to Dr. Haidee Weeks Latham, both of this city.

On September 14, 1916, Dr. Lucian H. Landry, of New Orleans, to Miss Lowell B. Sedgwick, of Columbia, Miss.

On August 28, 1916, Dr. Bridges Terry, of Alexandria, La., to Miss Luna Durio, of Glenmore, La.

DIED: On September 9, 1916, Dr. Rudolph H. von Ezdorf, surgeon in charge of the Marine Hospital in New Orleans, and prominently connected with the United States Public Health Service for more than eighteen years. His death occurred at Lincolnton, N. C., where he had gone to aid in the mosquito survey work of that state.

PUBLIC HEALTH NOTES.

GOVERNMENT HEALTH WORK IN ALASKA.—With the aid of special appropriations granted by Congress during the past two years Secretary Lane of the Department of the Interior, through the Bureau of Education, has been able to make considerable progress in checking the ravages of disease among the natives of Alaska. The Government has recently opened a well-equipped hospital in Juneau for native patients and small hospitals are maintained at three other centers of native population. A number of physicians and nurses have been employed for service in

hospitals and in maintaining sanitary conditions in native villages; and the teachers of the United States public schools in Alaska are supplied with medicines and medical books in order to enable them, in the absence of a physician, to treat minor ailments.

An investigation made several years ago showed that, without this work in disease prevention on the part of the Government, the native race in Alaska would soon die of tuberculosis and other diseases. The Department of the Interior and Congress have realized the urgent need for medical relief and it is believed that the steps now taken will help to keep our record clear in maintaining the native population of Alaska, and in relieving them from the suffering caused by disease and the lack of proper medical attention.

HEALTH NEWS: (United States Public Health Service).—It is a remarkable fact, confirmed by many observations, that many physicians who have devoted considerable labor to the study of a particular disease have themselves died of that disease. One of the most interesting examples is that of John Daniel Major, born August 16, 1634, in Breslau, a physician and naturalist of no mean ability. Bitten early by the wanderlust, he studied at Wittenburg, took courses at many of the schools in Germany, and finally went to Italy where he received the degree of doctor of medicine at Padua in 1660. Returning to his own country, he resided for a short time in Silesia, and in 1661 married at Wittenburg, Margaret Dorothy, a daughter of the celebrated Sennert. The following year, his young wife was stricken with plague and died after an illness of eight days. Distracted by his loss, Major wandered up and down Europe studying plague wherever he found it in the hope that he might discover a cure for the disease which had bereaved him. Spain, Germany, France and Russia were visited by him. He settled in 1665 in Kiel, where he was made professor of botany and the director of the botanical gardens. He made frequent voyages, however, always in quest of the remedy for plague. Finally in 1693, he was called to Stockholm to treat the queen of Charles the Eleventh, then ill with plague. But before he could render her

any service, he contracted the disease and died on the third of August.

U. S. P. H. S.—Congress has recently made an appropriation for 33 additional Assistant Surgeons in the United States Public Health Service. These officers are commissioned by the President, and confirmed by the Senate. The tenure of office is permanent, and successful candidates will immediately receive their commissions.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Passed assistant surgeons after twelve years' service are entitled to examination for promotion to the grade of Surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, Senior Surgeons \$3,500, and assistant surgeon-generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and 50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

Examinations will be held every month or so in various cities, for the convenience of candidates taking the examination. Further information will be furnished by addressing the Surgeon-General, United States Public Health Service, Washington, D. C.

BOOK REVIEWS AND NOTICES

Anatomy of the Brain and Spinal Cord, With Special Reference to Mechanism and Function. For Students and Practitioners. By Harris E. Santee, A. M., M. D., Ph. D. Fifth Edition. 155 Illustrations, 46 in Colors. P. Blakiston's Son & C., Philadelphia.

In this work Santee presents a book that is at once a guide for the dissecting room and a systematic treatise on the structure of the nervous system. The numerous editions of the work attest its usefulness. The present edition copies after its predecessors by containing the substance of recent advances in anatomical knowledge, which has necessitated a thorough revision.

The study of the nervous is necessarily a difficult matter because of its complexity. Much of this complexity is overcome by the plan pursued in Santee's work, wherein the description proceeds from the gross structures to the constituent neurones in each successive region. Function is everywhere correlate with structure. The numerous illustrations form a valuable feature of the book and serve materially to lighten the student's burden in treading the hard path of a difficult part of anatomy.

Santee's work has already established for itself a high place in medical literature and the present edition secures it in its niche.

McShane.

Modern Medicine. Ssler and McCrae. Vol. V. Published by Lea and Febiger, Philadelphia and New York.

This volume is divided in two parts. Part I includes diseases of the nervous system, with an introduction, and Part II, diseases of the locomotor system.

It is the last volume of the second edition, thoroughly revised of that important work on the theory and practice of medicine.

E. M. D.

International Clinics. Vols. II, III and IV, Twenty-fifth Series, and Vol. I, Twenty-sixth Series. Published by J. B. Lippincott Company, Philadelphia and London.

These volumes bear favorable comparison with any of their predecessors. The contributions are most valuable as usual, furnishing always a source of practical information.

The collection of whole series, complete, would be appreciated by any lively physician.

E. M. D.

PUBLICATIONS RECEIVED

W. B. SAUNDERS COMPANY. Philadelphia and London.
Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes, by Charles A. Elsberg, M. D., F. A. C. S.

The Medical Clinics of Chicago. July, 1916. Volume II, No. 1.

The Clinics of John B. Murphy, M. D. Mercy Hospital, Chicago. Edited by P. G. Skillern, Jr., M. D. August, 1916.

PAUL B. HOEBER. New York, 1916.

Studies in Immunization Against Tuberculosis, by Karl Von Ruck, M. D., and Silvio Von Ruck, M. D.

G. P. PUTNAM'S SONS. New York and London, 1916.

Physics and Chemistry for Nurses, by Amy Elizabeth Pope.

P. BLAKISTON'S SON & CO. Philadelphia, 1916.

The Treatment of Infantile Paralysis, by Robert W. Lovett, M. D.

LEA & FEBIGER. Philadelphia and New York, 1916.

A Manual of Otolology, by Charles Edwin Perkins, M. D., F. A. C. S.

The Treatment of Diabetis Mellitus, by Elliott P. Joslin, M. D.

MISCELLANEOUS:

Monthly Bulletin of the Indiana State Board of Health. Indianapolis, May, 1916.

Quarterly Bulletin of the Louisiana State Board of Health. New Orleans, June, 1916.

Report of the Louisiana State Board of Medical Examiners on the Midwife Problem. New Orleans, La.

Bulletin of the Tulane University of Louisiana. The Register. 1915-1916. New Orleans, La.

Studies from the Institute for Medical Research, Federated Malay States. No. 13. The Bacteriology of Dysentery in Malaya, by Henry Fraser, M. D.

REPRINTS:

A Review of Current Periodicals by the Staff of the Research Department of the Severance Union Medical College, Seoul, Korea. Ralph G. Mills, M. D., Director.

Les Typhoides Intriquees, par le docteur Arthur Grimberg.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for August, 1916.

Cause.	White	Colored	Total
Typhoid Fever	5	3	8
Intermittent Fever (Malarial Cachexia).....	2	1	3
Smallpox .....	.....	.....	.....
Measles	2	.....	2
Scarlet Fever	1	.....	1
Whooping Cough .....	.....	1	1
Diphtheria and Croup.....	2	1	3
Influenza .....	.....	.....	.....
Cholera Nostras .....	.....	.....	.....
Pyemia and Septicemia.....	1	.....	1
Tuberculosis	45	49	94
Cancer	22	6	28
Rheumatism and Gout.....	2	.....	2
Diabetes	2	1	3
Alcoholism	2	.....	2
Encephalitis and Meningitis.....	2	1	3
Locomotor Ataxia	1	.....	1
Congestion, Hemorrhage and Softening of Brain.	21	8	29
Paralysis .....	.....	1	1
Convulsions of Infancy.....	.....	.....	.....
Other Diseases of Infancy.....	15	8	23
Tetanus	1	.....	1
Other Nervous Diseases.....	5	1	6
Heart Diseases	43	37	80
Bronchitis .....	.....	.....	.....
Pneumonia and Broncho-Pneumonia	15	23	38
Other Respiratory Diseases.....	1	3	4
Ulcer of Stomach.....	2	.....	2
Other Diseases of the Stomach.....	1	2	3
Diarrhea, Dysentery and Enteritis.....	33	15	48
Hernia, Intestinal Obstruction.....	5	.....	5
Cirrhosis of Liver.....	6	7	13
Other Diseases of the Liver.....	5	5	10
Simple Peritonitis.....	1	.....	1
Appendicitis	4	2	6
Bright's Disease	18	21	39
Other Genito-Urinary Diseases.....	12	10	22
Puerperal Diseases	10	4	14
Senile Debility .....	.....	.....	.....
Suicide	3	1	4
Injuries	21	16	37
All Other Causes	21	16	37
Total	332	243	575

Still-born Children—White, 24; colored, 28; total, 52.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 14.43; colored, 28.59; total, 18.25. Non-residents excluded, 15.97.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 30.00

Mean temperature 83.

Total precipitation 4.89 inches.

Prevailing direction of wind, southeast.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

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JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

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EDITORIAL

THE MEDICAL RESERVE.

There is an unusual activity in all three of the Federal Services, Navy, Army and Public Health, in the way of increasing the medical officers. In the Navy it is announced that there will shortly be some 300 vacancies; in the Army there are nearly a hundred and the Public Health Service has nearly fifty places open.

There was never a time when unattached physicians under 32 years of age have been offered such tempting positions. Any of the government services to-day offers a large career, with opportunity for scientific endeavor in any of the three divisions,

such as is seldom afforded outside the government laboratories. Moreover, the projects under way promise more rapid promotion than formerly and while waiting for promotion the medical officer is much better paid than the majority of men in the first five years at the practice of medicine.

The engagement of government employment in any of the branches of such public service at this time is especially favorable

Meanwhile there is a large activity in developing the Medical Reserve Corps in groups in the various States, so that every available man who wills is to be invited to join the Medical Reserve Corps. Many younger men are fearful of contracting such a relation with the government, because of the likelihood of being deprived of their growing practice and of being sent into mobilization upon unlimited terms. The experience of some M. R. C. men in the past summer has prejudiced quite a number on this account. The willingness to serve in case of real emergency, however, is the first step toward a proper organization, and if the profession generally were assured that the aim of all present effort is toward a general plan of preparedness, through the expansion of the Reserve Corps, the number of applications might be larger.

In case of actual war probably a very few medical men would refuse to serve, but if war came tomorrow they would not be particularly useful if they had no conception of the place in which they might be needed.

Already there is a good number of physicians in the list of the Medical Reserve Corps of the Army, and for two years they have had the opportunity of camp experience under government instruction. With several thousand in the M. R. C. the instruction could be more widely distributed and, in the end, there would be ready for emergency enough men to satisfy a large army need.

In the past the young, or older, medical graduate has had to drift into the Army, Navy or Public Health Service, and because of the limited number of positions in these government services there was naturally no encouragement, but the way was always made hard with the idea of both limiting the number of applicants and of selecting the best of them.

As the need of more medical officers has come about, there

should be a general consideration on the part of the profession of the larger opportunities for the young medical graduate, and they should be encouraged to go into the Medical Reserve Corps as a way toward the regular services or to active usefulness in preparedness should the occasion arise.

THE CHARITY'S NEW SUPERINTENDENT.

Dr. Stephen W. Stafford, recently elected superintendent of the Charity Hospital by its Board of Administrators, assumed the duties of the position about the middle of October.

He is a graduate of 1899 and already well known to the profession as Assistant House Surgeon of the hospital, which he served for several years, up to the time of the reorganization of the staff of that institution about four years ago. His residence in the hospital no doubt has resulted in a large experience as to the workings of the institution and has familiarized him with its needs; also, his observation of conditions and results under the "house surgeon" plan while he was a resident of the hospital and under the "superintendent" method while still one of the staff as a visiting surgeon should enable him to judge of the possible advantages and disadvantages of both systems and to cull the best from both.

We believe Dr. Stafford means to do his best for the welfare of the hospital and he cannot afford to do otherwise if his superintendency is to be a success. He needs the encouragement and assistance of the visiting staff in achieving this success and in consequence he must in return give them a square deal, and the staff is entitled to it. We urge this co-operation between the new head of the hospital and its visiting staff. It is to everyone's interest and, most important of all, it necessary for the welfare of the patients in the institution.

ON TO ATLANTA.

Every year the meeting of the Southern Medical Association grows more attractive, and the coming gathering in Atlanta on November 13 to 16 promises to eclipse all previous sessions of this rapidly-growing organization.

The secretary announces that a large attendance is promised and, with nearly 6,000 members, there should be a rousing meeting. Special trains are projected and every State in membership is already planning a record-breaking delegation.

The program is always full of good material and Atlanta is proverbially hospitable. Clinics are planned for every morning of the meeting and the incidental conferences on public health will certainly add to the features of the meeting.

While New Orleans is usually well represented, the rest of Louisiana has been a little less enthusiastic. It is to be hoped that this year both old members of the Association, as well as those who mean to join, may go in representative number to the Atlanta meeting.

The Southern Medical Association is the largest medical body in the United States after the American Medical Association, and, with its large geographic area, the membership promises to multiply greatly as the importance of the Association is demonstrated. The democratic organization, together with the lack of any politics whatever in any part of its administration, is surely calculated to develop the usefulness of this body in furthering the interests of the great South, which it wholly and effectively represents.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

OPERATIONS UPON THE KIDNEY AND URETER UNDER LOCAL ANESTHESIA.

By CARROLL W. ALLEN, M. D., New Orleans.

The free exposure and anesthesia of the kidney and ureter as far down as the brim of the true pelvis, can be quite satisfactorily carried out. While several methods have been suggested, including para-vertebral anesthesia, the author prefers the following plan as easier, quicker and always certain of satisfactory anesthesia. The only condition under which it can not be satisfactorily undertaken is in the presence of extensive perirenal adhesions, or complicating surrounding pathology. Under such condition local methods should not be attempted alone.

The use of the Lilienthal bridge, or sand bags, to elevate the kidney region should not be made until just at the time the kidney is ready to be delivered and then used to a less degree than under general anesthesia, as they may become very uncomfortable or even painful and cause the patient to complain or squirm about in a trying way. After the kidney is delivered, these aids may be partially or entirely removed and it is often found possible to perform the operation without them, or a satisfactory substitute may be had in a soft pillow doubled up under the lumbar region. With the patient in a comfortable position, a point midway between the last rib and crest of the ilium along the proposed line of incision is selected and an intra-dermal wheal created. A large syringe and long needle are now used. One-fourth per cent novocain or one-fifth per cent eucain solution will be found amply sufficient. The long needle is entered through the wheal and directed up subcutaneously over the last rib, injecting as the syringe is advanced as far

as the eleventh rib. The point is now slightly withdrawn and directed close under the lip of the rib and an injection made here to reach the eleventh intercostal nerve. The needle is now withdrawn almost the entire length and redirected on a slightly deeper plane—always injecting the solution as the needle is being advanced, removing the syringe from time to time for refilling. The needle is now advanced in contact with the twelfth rib. The twelfth intercostal nerve, unlike the other intercostals, leaves the rib early in its course, running obliquely away from it downward and forward, and in the position encountered here about three inches from the spine, it lies from one-half to one inch from the rib. As the needle passes this point, a slightly larger quantity of solution is injected. The needle is now almost withdrawn and redirected down close in contact with the sheath of the quadratus lumborum and advanced up along it for several inches, distributing the solution. By changing the direction of the needle, the aponeurosis of the abdominal muscles at the point where they fuse with the sheath of the quadratus lumborum, is sought for; this is about two to two and one-half inches from the lumbar spinous processes. This is recognized as the first plane of resistance which the needle encounters. It is penetrated at several points and a few drams of solution deposited beneath it. The needle is now directed slightly deeper into the perirenal fat and about one-half ounce of solution deposited here extending as high as a point well up under the last rib. If any uncertainty is felt in making these last deep injections, they can be omitted until the aponeurosis of the muscles is exposed and the deeper parts of the field brought closer within reach.

Having completed the above, the lower half of the area is now injected in a similar manner by directing the needle downward from the skin wheal toward the crest of the ilium, but on a slightly anterior plane approaching the anterior portion of the iliac crest to conform to the curve of the proposed incision.

The tissues here are injected in several planes as above—the first injection being made subcutaneously. When pro-

ceeding by this method, it is unnecessary to inject the skin independently, as the subcutaneous injection has ample time to diffuse outward while making the deeper one. The operation can now be proceeded with and as it will usually be found advisable to resect the twelfth rib, this is done at once and furnishes ample room for access to the parts beneath without undue traction.

A limited amount of injecting in the deeper parts will now be all that is needed. The advantage of practically completing the injection before making the incision is obvious. With the weak solution employed ample time is allowed for thorough saturation of the tissues and only the excess escapes when the incision is made. It is also much quicker and by following a methodical plan of this kind no portion of the field is left uninjected.

After dividing the aponeurosis of the abdominal muscles and the twelfth dorsal nerve, a large branch is encountered between their planes, giving off in this position its lateral cutaneous branch.

By gently following these two trunks proximately they are seen to approach each other and join on the anterior surface of the quadratus lumborum. In the depth of the wound, they can now be injected intraneurally, which should be done as deep down as they can be conveniently reached. They are the principal sensory nerves of the superficial parts and their thorough anesthesia insures a painless wound.

Having freely divided the aponeurosis of the abdominal muscles, the finger is gently passed inward through the cellular tissue along the anterior surface of the quadratus lumborum muscle. This tissue is loose and easily separated, searching the way for needle, which is now advanced in this direction toward the vertebral column and a few drams of solution deposited here in the tissues underlying the hylum of the kidney. If the kidney is adherent, this injection should be more liberal than in a simple case and should be carried well in toward the psoas muscle, which is easily felt and can be seen with reaction of the tissues. This deep injection is very easily made and is of much importance should the kidney be adherent or the abdominal cavity likely to be opened,

as it controls the entire nerve supply of this portion of the cavity by blocking the sensory fibers of the rami communicantes, which run in the sympathetic chain on each side of the vertebral column.

This completes the anesthesia and no further steps of the operation need be explained here, as it can now be performed by any technic preferred; but where the kidney is to be removed, I usually make a slight additional injection along the vessels, at its hylum after the organ is exposed and before separating them from the ureter, but this injection is unnecessary if the injections close to the vertebral column have been ample.

By following this method of procedure, which is the gradual evolution of much clinical experience, I have frequently removed kidneys or freely opened them along their entire length down to the pelvis in removing calculi. In one case of polycystic kidney, which was considerably larger than a man's head, filling the entire right side of the abdominal cavity and badly adherent, the organ was separated from its adhesions and the cysts ruptured, reducing the kidney to about normal size, without any discomfort on the part of the patient.

The thorough anesthesia, which permits such muscular relaxation, often makes the use of retractors superfluous and the use of kidney pads of the Lilienthal bridge unnecessary.

Operations upon the ureter are similarly performed, omitting the deep anesthesia toward the vertebral column and anesthetizing only the cellular tissue along the recognized course of this organ. By carrying this anesthesia to a lower level and dividing the abdominal muscles at their attachment to the iliac crest, the ureter can be easily followed as far down as the brim of the true pelvis. Beyond this point local methods are not feasible. As the ureter descends, it approaches the peritoneum and is adherent to it throughout the lower part of its course and is easily found in this position, as these tissues are separated from the posterior abdominal wall. High up in its course, the ureter is best located by following it down from the kidney.

Perinephritic abscess requires no special technic, but can be readily opened by infiltrating the several planes of tissue

which overlies it. As any pressure excites pain, the infiltrating should be gently and slowly proceeded with, using slightly stronger solutions than advocated above, at least one-half per cent of novocain.

DR. CARLOS J. FINLAY'S POSITIVE CASES OF EXPERIMENTAL YELLOW FEVER.

By C. E. FINLAY, M. D., of Havana, Cuba.

In the July issue of THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL is published a most touching biographical sketch of my late father, Dr. Carlos J. Finlay, by Dr. Aristides Agramonte, his co-worker in the field of yellow fever etiology, which is pregnant with warm friendship and admiration which he felt toward him and in which he depicts in vivid colors the tremendous uphill fight he had to wage for 21 years before obtaining scientific recognition of his theory of transmission of yellow fever by means of the mosquito (*Stegomyia calopus*).

In this article there appears, however, a statement in reference to the cases which my father had reported as "positive" of "experimental yellow fever" to which I must take exception, viz: That they "were certainly negative (we now know they must have so resulted, inasmuch as his mosquitoes had not sufficiently incubated and were not infective when applied").

This paper has for its object a defense of the positive nature of these cases, a point which has a much greater importance than the secondary one of priority in the production of experimental yellow fever, since if cases be accepted as "positive" it entails the possibility of transmission of yellow fever, even though it occur exceptionally, after a shorter incubation than the classical twelve days now held, which must be taken into account in the carrying out of prophylactic measures, especially at this moment when the Rockefeller Commission has undertaken the "magnum opus" of studying the measures requisite for eradicating from the surface of the earth that terrible scourge which, even today, levies such a heavy toll from the population of tropical lands.

There is no question but that the brilliant results of the United States Army Yellow Fever Board were much more convincing than those which my father had previously obtained with the more or less primitive means at his disposal, but this does not justify

the conclusion that his positive cases were negative on purely conjectural grounds and without going into the circumstances that surrounded them.

Before going further, I think it expedient to consider the different objectives pursued by the Army Board and by my father, which in a great measure explain the difference in the results obtained. The board's objective was purely scientific, their purpose being mainly the production of clear cases of experimental yellow fever, running the risk of production of a severe or even a fatal case of the disease in consideration of the great benefit to be derived by humanity by a clear demonstration of its means of transmission; my father, on the other hand, only aimed at the production of a mild case, surrounding his experimental cases with a number of precautions to prevent the production of a severe case, this mild attack guaranteeing the inoculated person from a future attack of possibly severe or fatal yellow fever. In this he was inspired by perhaps somewhat exaggerated scruples and by the fact that he was conducting his experimentation on entirely original lines, individually and with no official backing. He realized perfectly that by applying more than one mosquito and by allowing more time to elapse between the stinging of the infecting and the inoculated case, he would be more certain of producing a positive case, but was deterred by the danger. Thus in a paper, written in 1891 and reproduced by Dr. Guiteras in the *Revista de Medicina Tropical*², we find the following paragraph:

By the term "contaminated mosquito" I understand such as have stung a yellow fever patient during the first six days of the disease, and it is my belief that whereas one or two stings from mosquitoes recently contaminated may either occasion in susceptible persons a mild attack or simply confer immunity without any pathogenic manifestations, a severe attack would result from a **greater number of stings** and the same might also occur in consequence of a single sting from a mosquito that should have fed on sweet juices during several days or weeks after its contamination, before it is allowed to sting another non-immune subject. In this case the germs have had time to develop more abundantly, not having been wiped off in the interval, and the virulence of the infection might be expected to be proportionately increased.

And again in a paper written in 1898³ we find the following:

It is therefore, quite admissible that, when the mosquito becomes contaminated, not only its eggs but also its salivary and venom glands may be invaded by the pathogenous germs, so that the latter may be discharged with the secretions of those glands along the track of the wound, and into some capillary vessel entered by the sting when the insect attacks its next victim. Indeed on some rare occasions, I have seen mosquitoes die within twenty four hours after they have stung a severe case of yellow fever without any assignable cause, for they still retained some of the blood which they had sucked; whence it may be surmised that the yellow fever germ is pathogenic for the Havana mosquitoes though the infection seldom proves fatal for those insects.

After these preliminaries, I will proceed to deal with:

1. The results of my father's yellow fever inoculations.
2. The objections presented against the admission of my father's positive cases.
3. A criticism of these objections.
4. A study of the circumstances which may permit the transmission of yellow fever by a mosquito with a relative short incubation.
5. The conclusion to be drawn from the data brought forward.

I. Dr. Carlos J. Finlay's Yellow Fever Inoculations.

These are detailed in a long series of papers⁴, the last one dealing with them being published in 1904⁵. In this we find the tabulated report of 102 cases inoculated by him with mosquitoes, all with a short incubation, in these he obtained positive results in 11 cases, a doubtful result in 3 and negative ones in 89; in a majority of the latter he claimed to have produced immunity. In all these cases he attempted to avoid any outside causes of infection, but in the greater number it was impossible to exclude absolutely the possibility of such an occurrence, although the consideration of all of them as coincidences seems a little strained. There are, however, four cases where such an outside source of infection can be rigidly excluded from a strictly scientific standpoint; these are reported in detail in some of his earlier papers⁶; I will summarize the results of three of them in his own words⁷:

My first inoculations by means of mosquitoes were performed under the following circumstances: A group of unacclimated soldiers who were quartered on the heights of the Cabanas, on the other side of the bay, were picked out for observation, and were only allowed to cross the bay in batches of four or five, on the days they were sent to my office, where I tried their blood for hematimetric purposes. Five of the group were inoculated by me at different dates between the 29th of June and the end of August, 1881. The first three were followed at the end of five to fourteen days incubation by an attack of fever of several days duration, diagnosed by the attending physicians at the military hospital as "regular yellow fever" in the first case, and "abortive yellow fever" in the two others. The fourth inoculated soldier suffered only from continued headache, and on the fifteenth day after the inoculation came to my office with slight fever (temperature 100.7 degrees F., pulse 100), but was not laid up. The fifth did not return to my office. I was informed that he had felt poorly a few days after the inoculation, but was not laid up. I have been able to trace the history of these five cases until the beginning of last year (1885). None of them have been reported, up to that date, as subsequently attacked by yellow fever. Of the remaining fifteen soldiers of the group, upon which the inoculation was not performed, none were attacked with yellow fever during the period of my observation, June 28 to September, 1881.

Can the attack of "regular yellow fever" in one of these cases and "abortive yellow fever" in two others and subsequent immunity during a period of four years, although they lived in a yellow fever focus, and the freedom from yellow fever, during the period of observation, of the remaining fifteen non-inoculated soldiers who lived in the same barracks and under exactly the same conditions, be considered a coincidence?

The fourth case is still more convincing and is reported in detail in both the publications referred to above. The experiment was performed at a pleasure farm owned by the Jesuit Fathers, where they sent their non-immune members during the hot summer months. It was situated outside the regular thoroughfares at a place called "Los Quemados," at Marianao, some nine kilometers from Havana. The only way to reach it was by a flag-station on the Marianao Railroad, the distance from which to the

farm was about one kilometer across fields; this place was alluded to by Dr. Stanford E. Chaillé in his Report of the Yellow Fever Commission that visited Havana in 1879⁶, and it was on this same farm where, years later, the United States Army Yellow Fever Board established their "Lazear Camp." During the 11 years which this farm had been in possession of the Jesuits, prior to the inoculation I am about to refer to, not a single case of yellow fever had developed there, so that it could be considered as free from yellow fever at the time the experiment was performed. The subject experimented upon was Rev. E. Urrea, S. J.; he was transferred to the farm and kept there for three weeks under strict observation without developing any symptoms of disease. On July 15, 1883, he was inoculated by a mosquito which had bitten a yellow fever patient in his seventh day, this inoculation proving negative. After a month's time, during which he was not allowed to come to the city, he was inoculated on August 17, 1883, by a mosquito which had stung two and four days previously two severe cases of yellow fever, both in the sixth day of the disease. Nine days later Father Urrea fell sick, developing a typical case of yellow fever. None of the other non-immunes, who were stopping at the farm, contracted the disease and Father Urrea, who still lives in Havana, never suffered from another attack of yellow fever⁹.

Can any theoretical grounds suffice to disqualify this last positive case? Do not the circumstances surrounding it exclude any outside sources of infection as rigidly as in the cases of the Army Board? If the source of infection of this case was not the mosquito that stung him would not some of the other non-immunes staying then at the farm have also fallen ill with yellow fever?

II. *Objections to the admission of these cases as "positive" ones of Experimental Yellow Fever*, advanced on different occasions by Drs. Reed, Carroll and Agramonte¹⁰

These objections are of two orders: (a) That according to the present scientific census of opinion, yellow fever must be considered of the same nature as malaria; that its germ or parasite requires to evolve a certain cycle of its existence in the mosquito and another in man; that the duration of the mosquito cycle is at least twelve days, before which time the parasite is not infective to man, and as in my father's positive cases the sub-

jects were stung by mosquitoes two to six days only after their contamination, these could not have produced the disease in these cases. (b) That the experiments of the United States Army Medical Yellow Fever Board and subsequent observers all tend to prove that the infected mosquito is not infecting till after the twelfth day, all their experiments with mosquitoes incubated for less time having proved negative.

III. Criticism of These Objections.

My father, Dr. Carlos J. Finlay, was among the first to accept the similarity of the biological process of the parasite of yellow fever with that of the malaria parasite; even before the experiments of the Army Board he had mentioned that he considered the parasite of yellow fever as pathogenic for the Havana mosquito¹¹, and there is no question of the existence of this similarity, but, from that, to conclude that the process is identical in the two parasites and that consequently my father's "positive cases" could not have been produced by the mosquitoes with which he stung them is an entirely different proposition; rather must we adapt our theories to "facts" than these to any theory no matter how plausible. Nothing is known of the yellow fever parasite, we surmise it is a protozoon of the malaria type, small enough to pass through a Berkfeld filter, hence it is rash to fix the different incubation periods within such hard-fast limits; even with such a thoroughly-studied parasite as that of malaria we find great variations pointed out in the duration of the incubation period in the mosquito¹². Moreover, the biological process shows a marked difference in the two diseases in one important particular to which my father called attention in 1903¹³, and that is that:

While the human subject is rightly held to be the 'permanent host' of the malaria parasite, it is the *stegomyia* mosquito and not the human subject that acts the part of 'permanent host' for the yellow fever parasite. The short sojourn of this germ in the human body being only such as might be expected of a parasite going through the phases of sexual reproduction in the body of its 'intermediate host.'

In malaria, the infective period in man is practically unlimited, whilst in yellow fever the infective period in man is limited to the first four days, according to the Army Board, and first six days,

according to my father. The reverse takes place as regards the mosquito for, whilst in malaria it is only infecting for a short time, in yellow fever once infecting it continues to be so during the remainder of its lifetime, being more and more so as time passes on. On this last point the board and my father agree in every respect, where they differ is in how much time must elapse before the infected mosquito becomes infecting.

Another point, in connection with this part of the subject, is the transmission of yellow fever by direct injection of blood serum extracted from a yellow fever patient in the first three days of the disease, the possibility of which was proved by the Army Board, by the French Commission, etc.¹⁴, there is in this line an instructive experiment performed by Carrol¹⁵, in which the blood of a mild case of yellow fever was kept overnight, for fourteen hours before its injection into the experimented subject, the result of the inoculation being positive. Taking this into consideration, my father pointed out that there is a possibility of the mosquito under certain circumstances performing this blood-to-blood transmission and thus producing yellow fever in a different manner from the usual process¹⁶.

Let us now pass to consider the experiments of the United States Army Yellow Fever Board and subsequent observers as tending to prove that mosquitoes infected with a yellow fever case are not infecting till after the twelfth day. The experiments of the Army Board are reported in two communications: (1) A Preliminary Report, read at the meeting of the American Public Health Association at Indianapolis, Ind., October 22-26, 1900, and (2) An Additional Note, read at the Third Pan-American Congress, Havana, 1901. In the former we find reported nine negative results with mosquitoes which had incubated less than twelve days, in one of these (Case 1) the infecting case was in its seventh day and my father had already observed that after the sixth day yellow fever was not infecting, leaving us eight negative results. On the other hand, we find, in connection with the two positive cases of the group, that one (Case 10) was stung with a mosquito which had stung a yellow fever case twelve days before, but the same mosquito had also stung yellow fever cases six, four and two days before, and the other (Case 11) was stung by four mosquitoes, two of which had bitten yellow fever cases twelve

days previously, one sixteen days before and the fourth eight days before; the two first mosquitoes had, however, also stung yellow fever cases two, four and ten days before being applied to the subject experimented upon; the third mosquito had also bitten yellow fever cases two, four, six and eight days previously. In these cases, although it is probable that the infection arose from the longer incubated bite, the shorter incubated ones cannot be excluded with certainty nor the statement made that all the experiments with mosquitoes incubated for less than twelve days were negative, since there is a *possibility* that these cases may have arisen from some of the more recent bites. In the further experiments performed by the Army Board, reported in the second paper, very few were performed with mosquitoes which had incubated for a short time. Case 1, where a negative result was obtained by the biting of the subject (twice) with a mosquito which had bitten a yellow fever case eleven days, another case six days before and a third case three days before the first inoculation and two more days before the second, gave a negative result; this case later proved positive when inoculated with five mosquitoes that had incubated from fifteen to twenty-one days; and Case 7 (the infected tent case) which gave a positive result, the fifteen infecting mosquitoes having incubated:

One for twentyfour days; three for twelve days; four for eight days; seven for five days.

In this experiment one cannot eliminate one set of mosquitoes from the other. As regards the positive results obtained with long-incubated mosquitoes, it is instructive to point out that four prior attempts had given negative results although the mosquitoes applied had incubated for eleven, fifteen, seventeen and eighteen days¹⁷, which shows that the negative results may depend on other causes than too short an incubation.

We come next to Dr. Guiteras' experiments at the inoculation station of Las Animas Hospital¹⁸. We find five experiments with mosquitoes with a short incubation (less than twelve days). One of these (experiment 3) is noted in the table of inoculations as "doubtful insect"; another (experiment 13) was inoculated posteriorly four times with a similar negative result¹⁹ with mosquitoes which had incubated eleven, twenty-three and twenty days,

respectively, a positive result not having been obtained²⁰ till the sixth inoculation with a twenty-four-day incubated mosquito, denoting a great individual resistance to the infection; another case (experiment 16) had been inoculated before with seventeen and twenty-five-day incubated mosquitoes²¹ and posteriorly with insects which had incubated for sixteen and twenty-four days²² with likewise negative results, a positive result not being obtained till the sixth inoculation²³; in the other two (experiments 17 and 26) only a single experiment was performed with mosquitoes which had incubated for seven and five days. In the remainder of the experiments we find eight positive and twenty-nine negative results. This whole series shows an extraordinary number of negative results, to which Dr. Guiteras himself calls attention, attributing them to the mildness of the cases from which the first twenty-five experiments were inoculated to the season of the year, to variations in the number of parasites in the peripheral circulation.

Other subsequent investigators²⁴ have made no experiments with mosquitoes incubated for a short time, so that their experiments have no bearing with the point at issue.

The only deduction that can be drawn from these data is that the transmission of yellow fever by the infected mosquito is much easier after a certain number of days have elapsed, a fact which my father had surmised since 1891²⁵, not having put it into practice on account of his exaggerated fears of producing a severe attack²⁶ of the disease or even death²⁷. But from these few negative results, setting aside the doubtful positive result obtained in three cases, and in connection with a parasite about the biological details of whose life history we are so utterly in the dark, to conclude that under no circumstances an infected mosquito can transmit the disease under the rigid limit of twelve days is unwarranted; much less are we justified on these purely hypothetical premises in disqualifying all my father's positive cases even where surrounded by the circumstances referred to in connection with the four cases mentioned in the early part of this paper.

IV. Circumstances Which Might Permit the Transmission of Yellow Fever by Means of a Shortly Incubated Mosquito.

There is nothing in the acceptance of my father's cases as

“positive” which affects the “host” theory of the transmission of yellow fever by the mosquito so beautifully evolved and proved experimentally by the Army Board, there are a number of explanations which can be given for the exceptional occurrence of these early incubated cases, it not being possible to determine which is the correct one till the parasite and the biological details of its life history are known.

In the first place, it is possible that under certain circumstances of temperature, atmospheric conditions or some accidental circumstances in the mosquito its salivary glands become infected at an earlier date than seems to be usually the case. This is all the more feasible if my father's theory that the asexual portion of the life of the parasite takes place in the mosquito be accepted, the multiplication in the body of the mosquito in that case taking place by schizogonia and the infection of the bitten man being due on one hand to the number of germs introduced into his body, which is greater and greater as time goes on, and on the other to the susceptibility of the bitten subject, a small number of parasites in a susceptible subject being more likely to produce an attack of illness than a large number in non-susceptible, partially or totally immune one.

Another explanation is that in the cases of short incubation the process of transmission is not the usual one, but must be considered as a direct blood-to-blood transmission, the mosquito in this case not acting as a “host,” but simply as a receptacle for the blood. This possibility was called attention to by my father in 1901²⁸.

All this is, however, purely hypothetical, and when the parasite is discovered some entirely different explanation may be forthcoming.

The only conclusion that can be drawn from the foregoing is that:

In the present light of medical science there are no grounds for rejecting the cases of experimental yellow fever reported as positive by the late Dr. Carlos J. Finlay in general and in the cases referred to in this paper in particular, and that in consequence the possibility of the occurrence, even if it happen exceptionally, of cases after a short mosquito incubation should not be lost sight of.

Before leaving the subject and in connection with the relation between the admirable experimental work and accurate technic of the Army Board, which not only confirmed my father's Theory of Yellow Fever Transmission, but also evolved the "host" theory of the evolution of its parasite and my father's *previous work with cruder and less perfect methods*, I will quote the following phrase from a speech he pronounced at a dinner in his honor given by the physicians of Havana presided over by General Wood on December 22, 1900, on the occasion of the confirmation of his theory by the United States Army Yellow Fever Board:

Twenty years ago, guided by indications, which I deemed certain, I sallied forth into an arid and unknown field; I discovered therein a stone, rough in appearance, I picked it up and with the assistance of my efficient and faithful colaborer—Dr. Claudio Delgado, polished and examined it carefully, arriving at the conclusion that we had discovered a rough diamond. But nobody would believe us, till years later there arrived a commission, composed of intelligent men, experts in the required kind of work, who in a short time extracted from the rough shell the stone to whose brilliancy none can now be blind.

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10. Book of The Third Pan-American Congress I p. 297; **Journ. Am. Med. Assoc.**, June 13, 1903; **N. Y. Med. Record**, August 10, 1901; **New Orleans Med. and Surg. Journal**, July, 1916.
11. **N. Y. Med. Record**, May 21, 1899.
12. See: Rees—**The Practitioner**, March, 1901, p. 280. Darling—Studies in relation with malaria, Washington, 1910. Gorgas—Branch of Health Lab. Pepp., Dep. Sanit. of the Isthmian Canal Commission, January, 1908. Lebrede—**Revista de Med. y Cir.**, Habana, Julio 10, 1910. Celli—15th Internat. Congress, Washington, 1912. Ross—Session of Soc. of Arts, London, Nov. 28, 1900, where he makes the statement with regard to the malaria mosquito, "that there is a well known period of incubation lasting from two days to twenty or even longer—the usual period being one to two weeks."
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17. Cases 1, 2, 4 and 5.
18. Experimental Yellow Fever at the Inoculation Station of Las Animas Hospital, **Revista de Medicina Tropical**, Havana, 1902.
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FINLAY AND DELGADO'S EXPERIMENTAL YELLOW FEVER.**(A REPLY TO DR. C. E. FINLAY).**

By ARISTIDES AGRAMONTE, M. D., Sc. D., Havana, Cuba.

The question whether, during their original investigations and in their futile attempts to demonstrate the transmission of yellow fever by the stings of mosquitoes, the late Drs. Finlay and Delgado were enabled to produce a case or not can be of but secondary importance now, inasmuch as failure to convince anyone was unfortunately the outcome of twenty years' labor, in presenting to the scientific world the more or less exact data at their command and the reasoning upon which Dr. Carlos J. Finlay based his theory.

But I am compelled to treat upon the matter, since Dr. C. E. Finlay, referring to my paper in the *JOURNAL* of July, 1916, takes exception to my statement therein that none of his father's so-called experimental cases can be accepted as positive yellow fever, and essays to defend his position by considering as the most forceful the two least weighty arguments that have been put forth in support of the contrary opinion at the same time that he misquotes his father's published tables and results.

I have not seen published that any authority, aside from the late Dr. Finlay himself, accepted or recognized the authenticity of the cases of yellow fever which he claimed to have produced in collaboration with Dr. Delgado; had such acceptance been accorded by any investigator, had any of their supposed demonstrations "held water," Finlay's theory would have been certainly proved many years before the United States Army Board took up the investigation.

The fundamental truth (the fact that mosquitoes transmit the infection), as conceived by Finlay, was so wrapped up in a mass of errors, hypotheses and speculations in his original contributions, that it remained hidden from the eyes of science until the subject received a thorough overhauling at the hands of the United States Army Board, when at last the grain was threshed out from the chaff; Finlay and Delgado's experimental cases formed part of the chaff.

The following table is extracted from the original article in "Selected Papers" (p. 497), being misquoted by Dr. C. E. Finlay;

it shows how his father claimed, not *eleven*, but *sixteen* positive results; there were *eighty-six* (not *eighty-nine*) failures, the doubtful cases mentioned not appearing there.

Serial number on Table.	Source of Mosquito's Contamination.					Days after contamination	Result in First Twenty-five Days.		
	Date of inoculation.	No. of mosquitoes	Day of the disease.	Character of the disease.	Date of onset.		Period of incubation	Character of the resulting attack.	
1	30, Jun. 81	1	4th	Hemogastric	2	14, July	14 days	Albuminuric p. f.	
2	22, Jul. 81	1	5th	Albuminuric	6	27, July	5 days	Abortive; one febrile paroxysm and no albuminuria.	
4	31, Jul. 81	1	3rd	Hemogastric	2	5, Aug.	5 days	Abortive, same as above.	
5	2, Aug. 81	1	5th	Hemogastric	3	17, Aug.	15 days	Ephemeral fever, without well defined characters.	
8	22, Jun. 83	2	6th	Hemogastric	2	9, July	17 days	Non-albuminuric of mod. intensity.	
9	15, Jul. 83	1	7th	Albuminuric	2	26, Aug.	9 days	Non-albuminuric of mod. intensity.	
	17, Aug. 83	1	5th	Hemogastric	2 & 4				
13	16, Jul. 83	1	7th	Albuminuric	2 & 4	9, Sept.	22 days	Yellow fever with traces of albumin.	
	18, Aug. 83	2	5th	Hemogastric	2				
28	7, Sept. 86	1	?	? ?	6 & 4	23, Sept.	16 days	Non-albuminuric of mod. intensity.	
32	16, Jun. 87	2	6th	Hemogastric	2	11, July	25 days	Yellow fever with traces of albumin.	
42	8, Jun. 88	1	4th	Hemogastric	3	1, July	22 days	Non-albuminuric of mod. intensity.	
55	17, Aug. 89	1	4th	Albuminuric	3	26, Aug.	9 days	Abortive; one febrile paroxysm with albuminuria.	
66	14, Aug. 90	1	4th	Albuminuric	3	21, Aug.	7 days	Abortive; same as above.	
80	17, May 93	1	4th	Albuminuric	2	22, May	5 days	Ephemeral fever, without well defined characters.	
82	28, May 93	1	3rd	Hemogastric	2	11, June	14 days	Ephemeral fever; same as above.	
84	12, Aug. 93	1	5th	Hemogastric	3	17, Aug.	5 days	Non-albuminuric of mod. intensity.	
90	6, June 94	2	4th	Hemogastric	3	22, June	16 days	Abortive; one febrile paroxysm with albuminuria.	

Extract from Finlay-Delgado's Table. (Selected Papers, p. 497).

It may be well to note that, as acknowledged by my colleague, in the greater number of the cases inoculated "it was impossible to exclude absolutely the possibility of outside infection." Note also that the claim to have produced immunity in the majority of the eighty-six failures rests upon the information obtained that the men experimented upon never afterwards developed yellow fever; but it is curious enough, as will be detailed later, that

some of the so-called positive cases suffered from a subsequent attack of the disease, and we are logically led to infer that cases which resisted the experimental inoculations became immune thereby, while some of those who suffered the experimental infection, presumably thus showing that they were susceptible and who ought to have become immune, actually suffered another attack, and in one instance *two attacks*, of the disease. This rather astounding record, naturally, was not touched upon by Dr. C. E. Finlay:

Dr. C. E. Finlay has been good enough to admit that most of the cases are open to criticism, but that out of the *sixteen* (not *eleven*), supposed to have resulted positively, four of them, in which the "outside source of infection can be rigidly excluded from a scientific standpoint," ought to be accepted as true experimental yellow fever.

Let us examine them in the order presented.

The first three supposed positive cases, Nos. 1, 2 and 4, of the Finlay-Delgado Table, were attempted upon soldiers (Spanish), who were quartered at Cabana's Heights, across Havana Bay, and came to the city, says Dr. Finlay, Sr., "on "the days they were sent to my office where I tried their blood for hematometric purposes." Now, since the city of Havana, as everybody knows, was a pest-holt of yellow fever at the time, can outside infection be excluded from such men, who regularly came into it, so as to visit the doctor's office? How often did they come? Did these soldiers go nowhere else before or after the call at the doctor's? From a scientific standpoint, outside infection cannot be excluded and the experiment as carried out upon these three men certainly cannot be considered as worthy of much credit.

Case No. 1, diagnosed by the attending physician at the military camp as "regular yellow fever," according to Dr. Finlay's record, came down with the disease *fourteen* days after the experimental inoculation (June 30th to July 14th, 1881). I hardly think it necessary to go very extensively into an analysis of this case; a period of incubation extending to twice the length of time recognized by all authorities as the usual one in yellow fever is enough to throw the case out from the group of the so-called positive results and when we remember that the man came

to Havana now and then it seems more logical to assume that he became infected in one of those trips, subsequent to his inoculation, than to suppose an exceptional incubation period of fourteen days, in his particular case. It will not be thought strange to find such great error at the commencement of Dr. Finlay's experiments when we observe, by the table above referred to, that he was willing to grant a possible period of incubation to his experimental cases extending even to twenty-five days. The length of time that elapses from the moment of infection until the appearance of the first symptoms has been a subject of discussion since the earliest investigations of this disease; the work of Carter, as well as the experimental data that has accumulated (with which I do not wish to burden this brief reply), have definitely allowed sanitarians to agree, and it is the consensus of opinion, that it can only exceptionally extend beyond the seventh day and certainly no one should contend, unless he present experimental demonstrations to that effect, that a period of incubation of nine or more days in yellow fever is at all probable. For quarantine purposes, six days of observation from the moment of possible infection has been considered sufficient to safeguard a community.

The next question is, did they have yellow fever?

Cases Nos. 2 and 4, the other two soldiers, according to the military surgeon's diagnosis, suffered an attack of "abortive yellow fever without albuminuria." Really, anything at all may be called an "abortive" attack of any infection, where the infective organism is unknown; a single febrile paroxysm without albuminuria, or any other symptom, occurring in a soldier, might be due to innumerable causes, certainly not yellow fever. In the cases mentioned there is no record that all these other causes had been eliminated; too quick to see here a positive experimental case they probably were not even considered. Dr. Finlay himself did not make the diagnosis in those cases of "abortive" fever; had he done so, perhaps I might be tempted to accept it, knowing his familiarity with the disease (trusting to his "clinical eye"); for this additional reason we cannot accept the surgeon's diagnosis, based upon such meager evidence as "one non-albuminurial febrile paroxysm." There is nothing, absolutely nothing, to show that these two cases (from which outside infection cannot be ex-

cluded) had yellow fever, and only an exalted enthusiasm, such as naturally inspired Dr. Finlay at the time, could have misled his good judgment in accepting them and placing them upon record.

The fact that these three men (cases Nos. 1, 2 and 4) did not suffer from yellow fever for some time afterwards cannot be used as an argument in favor of the positive character of their illness, for, as Dr. Finlay himself reports, "of the remaining fifteen soldiers of the group upon which the inoculation was not performed none were attacked with yellow fever during the period of my observation, June 28 to September, 1881." Far from its being a coincidence I consider this the natural course of events, inasmuch as the period of observation was too short, and that instead of proofs of exposure to infection, it is claimed that Cabana's Heights was a perfectly safe harbor.

The fourth and last case that Dr. C. E. Finlay thinks beyond question is still easier to set aside as certainly negative. It corresponds to case No. 9 in the Finlay-Delgado Table.

Let us presume, for there is no conclusive evidence to prove it, that the man as well as his companions had been surrounded by every safeguard to prevent their infection with yellow fever. I personally believe this was unnecessary and that none of them had yellow fever at all. On July 15 (1883) a supposedly contaminated mosquito is applied to Father Urrea; no infection followed, naturally; on August 17 two other insects are allowed to sting him; then, after *nine* days the man suffers from a "non-albuminuric yellow fever of moderate intensity." With due respect for Dr. C. E. Finlay's opinion, I must say that for an experimental case this could hardly be less *typical*; in the first place, we have again the onset occurring beyond the usual recognized and "official" period of incubation; had the circumstances been otherwise I am sure that the appearance of non-albuminuric symptoms nine days after inoculation would have been ascribed to any other cause than the mosquitoes' stings; yet I appreciate the personal equation in this case, as well as in the others, the natural optimism of the investigator who, believing in the possibility of a *twenty-five-day period of incubation*, was more ready to admit a shorter one of nine days; but no modern physician conversant with yellow fever can so accept it.

In the second place, the identity of the disease may be questioned with good reason. At any rate, a non-albuminuric case of yellow fever is a *rara avis*; only during active epidemics, when other diagnosis cannot be made, dare we arrive to such a conclusion and that, mainly, by exclusion; but when it reaches a "moderate intensity" albuminuria is sure to be present. The frequency with which the late Dr. Finlay claims to have seen such cases previous to the United States Army Board's investigations and the fact that we never saw them afterwards leads me to think that he was prone to put too much faith upon non-albuminuric fever being yellow fever. The other prominent symptoms of yellow fever (fever, jaundice, vomiting) may well belong to other conditions. As may be seen by the table, any typical form of the disease seems to have been a pretty constant feature of Dr. Finlay's experimental cases. I offer as a further proof that Father Urrea did not have yellow fever the fact that the other priests living with him under the same conditions did not subsequently suffer an attack of the disease, for nowhere is it reported that any precautions were taken to protect him or his companions from the stings of mosquitoes or to destroy insects which might have been contaminated by him. In the natural desire to claim success these arguments are lost sight of and it seems too late now to assume that other measures were adopted than those heretofore recorded. Experience has shown that a case of yellow fever in a community such as the suburbs of a Cuban city, where no precautions had been taken to eliminate the *Stegomyia* mosquito or to decrease its numbers, was sure to bring about an epidemic. Although the same neighborhood was used by the United States Army Board for our experiments, our men were kept isolated in tents, slept under mosquito bars, their temperatures taken at regular intervals and, as soon as the first sign of infection was noticed, they were taken away from there to the yellow fever hospital, more than a mile distant, so that they were not allowed to infect the camp at any time; if any of these precautions were taken in the case of Father Urrea they are still to be reported, and to establish comparison between that case, a tardy and questionable infection, and with the Army Board's conclusive results seems to me entirely out of reason.

In briefly outlining the most salient objections to the authen-

ticity of Finlay and Delgado's experimental infections with yellow fever I have purposely left out of consideration the only two arguments that Dr. C. E. Finlay thinks have been opposed to his father's claims, (*a*) the period of the disease at which the insect can become contaminated and (*b*) the time at which the insect becomes infective. Much might be written in support of them, but I wanted to show that the so-called experimental cases of Finlay and Delgado could be thrown out upon the most cursory examination by anyone who is at all familiar with the etiology and pathology of yellow fever. The late Dr. Finlay always held the same views as expounded by his son today, but he never proved his contention, although his official position and the elements at his command for several years could have enabled him to demonstrate that mosquitoes became contaminated and infective as early as he supposed.

If the above were not sufficient reasons to cast serious doubt upon the experiments as reported, I wish to point out that in Finlay and Delgado's original table (Selected Papers, p. 497) there is a column headed "subsequent yellow fever" (*fiebre amarilla ulterior*), in which it appears that

Case No. 42 suffered another non-albuminuric attack of yellow fever (presumably not experimental) on November 4, 1888.

Case No. 66 suffered a second attack on July 6, 1895, "abortive with albuminuria" (five years after the experimental attack).

Case No. 80 suffered *TWO* subsequent attacks of yellow fever; one, October 18, 1893, non-albuminuric in character, and another on August 26, 1894, of the hemogastric type of yellow fever.

Case No. 90 suffered a second attack, "abortive with albuminuria," on August 18, 1895.

We have, therefore, that out of sixteen experimental cases, five of them suffered secondary attacks of the disease. Is this an argument in favor of the so-called positive results, or just the contrary? It is difficult to see how a more unsatisfactory record could be presented.

The claim that immunity had been conferred upon men because they failed to contract yellow fever through a prolonged residence in the country seems to me as far-fetched as an argument could be, short of the ridiculous. Many of us have known numerous non-immunes, or supposedly non-immunes, who lived

in Cuba even during the worst years of the scourge without, to their knowledge, having suffered an attack of yellow fever.

The rest of Dr. C. E. Finlay's paper deals entirely with hypotheses, conjectures and possibilities, in the discussion of which it would be useless to enter. To say that sufficient experiment have not been made in one or another direction is a matter of personal opinion and no controversy can be sustained upon such ground. To deny the value of an experimental result, it is necessary to show where the flaw exists or else the contrary by another experiment; in the case of Finlay's yellow fever inoculations such demonstration has been made by the United States Army Board and by all the other investigators who, following upon its steps, corroborated all its findings; simply to cry out that it is not enough, that it must be done again, is, to my mind, extremely infantile.

Finally, I must be allowed to quote the great Finlay's first conclusion, in the paper oft referred to here (*Fiebre amarilla Experimental segun la Técnica Moderna, Selected Papers, pp. 491-517*). He says:

(1) "The only natural process by which we *positively know* that yellow fever is transmitted from the sick to the healthy individual is by the stings of the *stegomyia* that may have previously contaminated themselves through biting a patient *during the first three days* of his attack of yellow fever."

In accordance with this, therefore, if that is the only way we "positively know," every other way must be considered speculative, conjectural, hypothetical and hence, from a scientific standpoint, not acceptable.

In the light of modern medical science, Finlay and Delgado's experimental cases are less creditable today than ever and although, as evidence of the authors' unswerving faith and painstaking labor they shall always stand as an honorable testimony, we must acknowledge it was through their own deficiencies that they unfortunately failed to serve the object for which they were intended.

The fact of their uselessness cannot dim the glory that is Finlay's for the brilliant triumph of his theory.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

INVESTIGATIONS ON THE PREVALENCE AND CLINICAL FEATURES OF INTESTINAL BIL- HARZIOSIS (SCHISTOSOMIASIS MAN- SONI) IN PORTO RICO.*

By I. GONZALEZ MARTINEZ, M. D.,

Member of the Institute of Tropical Medicine and Hygiene of Porto Rico.

PRELIMINARY REMARKS.

It was in February, 1904, during the course of certain investigations undertaken for the purpose of throwing light on the obscure etiology of several cases of dysenteric, afebrile, and recurrent enteritis, rebellious to usual treatment, that I discovered lateral-spined eggs of *Bilharzia* in the excrement of two young Porto Ricans who never lived or traveled except in this island.

Two months later I addressed to the assembly of the Medical Association of Porto Rico, held on April 3, my first written communication²⁷, describing the clinical history of both cases, and claiming the right of priority to the important discovery which I had just made.

That memorial was published in a thirty-two page pamphlet entitled "Bilharziosis in Porto Rico"²⁷ and a copy thereof was forwarded to the Congressional Library as well as to a large number of professional reviews, and to several prominent investigators in the United States, England and France, who are especially interested in questions tending to a better knowledge of the geographical distribution and etiology of *schistosomiasis*.

The conclusions that I believed myself authorized to draw at that time were the following:**

- I. As shown by the cases I have cited, in which, under no circumstances can it be supposed that the infec-

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10 and 11, 1916.

**I. González Martínez. Bilharziosis in Porto Rico, page 31. San Juan, Porto Rico. April 3, 1904.

tion was contracted in a foreign land, since the patients never left their native country, Bilharziosis is a disease naturalized in Porto Rico.

2. It probably made its appearance during the shameful period of slavery, being brought in **with the Africans imported** by infamous slave-traders from Congo, Angola and Kafir Land, **this circumstance explaining its possible predominance in the zones where cane is cultivated.**

3. There is no reason, therefore, to further consider the disease as endemic to the African continent, since my **observations categorically show its increasing spread to regions held as immune up to the present time.**

4. It is a disease common to coast regions and particularly to swampy lands where, in many cases, its infecting larvæ will live beside the cercariæ of *distoma heptacium*, the latter parasite being spread to an enormous degree among the bovine species of the Northern and Western parts of the island, as I have been able to prove.

5. It seems that in Porto Rico, in contrast with other countries where bilharziosis exists, the intestinal form is more frequent than the genito-urinary.

6. The frequency of the disease is far less than that of filariasis, and compared with uncinariasis, it falls to a minimum.

7. As in the Dark Continent the greatest number of infections is recorded in the male sex, because, as I believe, said sex is more easily exposed to infection.

Thanks to the courtesy of the members of the first Anemia Commission of Porto Rico, Drs. B. K. Ashford, W. W. King and Pedro Gutiérrez Igaravidez, I had the fortune, six months later, of performing an autopsy in the Municipal Hospital of Arecibo on the corpse of P. C., one of the patients of said Commission, who died of intense uncinariasis complicated with intestinal bilharziosis and pellagra. I extracted from the trunk of the portal vein and its tributaries 219 *schistosomes*, most of which were males, although a few bore the female in the gynecophoric canal. Said parasites were almost wholly distributed among Drs. Rafael Blanchard, Paris; Charles W. Stiles, Washington; and John Catto, London, to whom I also forwarded specimens of eggs having a lateral spine.

In December, 1904, I sent to the *Review of Tropical Medicine*, of Havana, a brief note reporting my observations in 1321 un-

selected cases examined by me, among which I found 59 infected with schistosoma and suffering from intestinal bilharziosis.⁶³

The *Journal of Tropical Medicine and Hygiene*, of London, also reported the aforesaid investigations in its number of March 15, 1905.⁶⁴

On July 2, 1905, I addressed the annual scientific assembly of the Medical Association of Porto Rico, placing before that assembly a study, under different aspects, of our peculiar form of Bilharziosis, and reporting my discovery of lateral-spined eggs of schistosoma in a patient coming from Santo Domingo. The conclusions derived from such study confirmed many of my previous assertions, which may be summarized as follows:*

1. Bilharziosis is a disease naturalized in Porto Rico, Martinique and Santo Domingo, and very probably in the other Antilles.

2. It has very possibly extended to the continent.

3. It was apparently introduced by negro slaves.

4. It is a disease peculiar to coast regions and swampy lands where cane is cultivated, in which places the larva lives in consort with that of the *fasciola hepatica* or *durva*.

5. In Porto Rico, Santo Domingo and Martinique the clinical form up to the present established, is intestinal.

6. Not one single case of the genito-urinary form has been recorded in said countries.

7. The disease has spread to such a high proportion as 7.8% because of lack of habits of cleanliness among our country people.

8. The largest number of cases is recorded in the male sex.

9. Bilharziosis determines changes in the globular composition of the blood, which changes are distinguished by **mild leukocytosis**, moderate eosinophilia (8%) and moderate mononucleosis (10%).

10. Bilharziosis, even in its intense form determines but slight anemia. Moreover, it does not conflict with regeneration of the blood in intense anemia, as shown by some cases of mine where the hemoglobin has increased from 9% to 100%.

A second autopsy performed in Mayaguez in the month of January, 1905, on the corpse of another patient suffering from

*Scientific assembly of the Medical Association of Porto Rico. Bulletin of the Medical Association of Porto Rico, July 2, 1905, pages 108-111.

uncinariasis and concomitant intestinal bilharziosis, furnished me two males which, preserved in formol, 5%, I forwarded to Professor Blanchard, taking advantage of the opportunity to inform that eminent zoologist of my suspicion of the probable existence of a new species of schistosoma responsible for the symptoms and anatomical changes characteristic of bilharzian enteritis. And my opinion was based not only on the geographical distribution of this clinical form of schistosomiasis, but chiefly on the peculiar and constant disposition of the spicule of the egg, and on the exclusive selection of the veins of the colon and rectum as a lodging for the female during ovular deposit.

The foregoing information is included in the present memorial not only because it constitutes the first steps in the evolution of our endemiologic knowledge of intestinal Bilharziosis in Porto Rico, but also *because it proves incontrovertibly that the first cases of this disease pointed out among natives of the Antilles, and perhaps in America too, were those described by me in my monograph of April 3, 1904.*

In fact, according to such information as I have been able to obtain, it seems that the medical literature of America, and principally that of the United States, records only five cases of Bilharziosis published prior to mine: 1st. The case of Booth, of Sparta, Ill., in 1882. 2nd. The case of B. F. Curtis, of New York, in 1896. 3rd. The case of Brooks and Sonders, in 1897. 4th. The case of Walkers, Evansville, Ind., in 1900. 5th. and last, the case of Pool, New York, in 1903. But in all these patients the genito-urinary form only was observed, the same being produced by *Schistosoma hematobium*, not taking into account that in the cases of Curtis, Brooks and Pool, *they stated that they had visited and remained in infested parts of Africa.*

It is true, however, that in 1902, Sir Patrick Manson⁵⁰ had already found lateral-spined eggs of *Schistosoma* in the feces of an Englishman who returned to London after having resided for several years in the Antilles. It is also true that this observation induced him to consider as probable the existence in America of a species of *Schistosoma* determining bilharzian enteritis, the same being different from *Schistosoma hematobium*

or the agent producing hematuria in Egypt. But it is not less true that while this discovery of the illustrious English author was made on a European temporarily residing in the New World, on the other hand, ours was made on two young natives of the Island of Porto Rico who had never been across the seas prior to said time.

In this manner I had *the fortune of being the first to offer solid support of the ideas of Manson* and brilliantly to confirm the same, as the very interesting investigations and discoveries of Piraja da Silva in Bahia and of P. C. Flu in Surinam established the exactness of Manson's hypothesis, and of my theoretical suppositions on the specific differentiation of intestinal Bilharziosis.

Definition, Varieties and Geographical Distribution.

The general name of *Bilharziosis* comprises all the functional and anatomical changes produced in the human organism by infection with *Bilharzia* or *Schistosoma*.

Schistosoma are bi-sexual sanguicolous parasites belonging to the class of platyhelminths, order of trematodes, family fasciola. There are three species parasitic in man, each capable of producing specific symptoms and lesions, which give rise to as many clinical forms of the disease.

Said species are: 1. *Schistosoma*, or *Bilharzia hematobium*, the direct agent of hematuria in Egypt, or genito-urinary bilharziosis. 2. *Schistosoma mansoni*, the determining cause of intestinal bilharziosis or bilharzian rectocolitis. 3. *Schistosoma cattoi* or *japonicum*, the agent of the disease known as Katayama or arteriovenous bilharziosis of China and Japan.

Each of these species also has its own peculiar geographical distribution. Thus *Schistosoma hematobium* is spread greatly throughout northern, eastern and central Africa and as far as the southern part of said continent. The Japanese variety of *Schistosoma cattoi* extends throughout China and Japan, and *Schistosoma mansoni* prevails in the Belgian Congo, having spread to the Antilles, South America and some regions of the United States.

It is precisely of this species and of the parasitic pseudosenteric rectocolitis which it produces, that I shall treat of in this paper.

Some respectable authors—among them Le Dantec⁴⁵—propose the substitution for the names of intestinal bilharziosis and intestinal schistosomiasis, that of American schistosomiasis, and for the name *Schistosoma mansoni*, *Schistosoma americanum*. But we are of the opinion that such nomenclature is incorrect, for no one has as yet proved that *Schistosoma mansoni* is not of African origin. On the contrary, it is more than probable, almost a certainty, that the intestinal schistosomiasis prevalent in America was brought to us by the pirates who carried on the slave trade, through the West African negroes that they profusely distributed among the Antilles and on the continent.

Value is given to this well-based supposition by the investigations of Firket, the first to describe bilharzian pseudodysentery, and by the investigations of Broden, both of which were made in the Belgian Congo, where they assert having found numerous subjects suffering from intestinal schistosomiasis, expelling only lateral-spined eggs.

And many of the negroes imported into the Antilles and the continent came precisely from the Congo and regions adjacent thereto.

ETIOLOGY.—With the exception of Looss and his followers, few now doubt that the living agents of intestinal bilharziosis, i. e., *Schistosoma mansoni*, should constitute a distinct species within the genus *schistosomum*.

The ingenious as well as fantastic theory of that great zoologist to explain the formation of the lateral-spined eggs in the ootype of unfecundated females, besides absolutely lacking an experimental base, will not stand the slightest criticism on theoretical grounds.

If the lateral-spined eggs are an unfecundated, accidental and transitory product in the life of the female, how does Looss explain the continuous appearance during successive years of this variety only, in the feces of subjects suffering from bilharzian rectocolitis? And how does he explain the almost constant appearance in such eggs (which he considers unfecundated) of a ciliated, mobile embryo which breaks and escapes from the shell as soon as it is placed in contact with water? If such were the truth, how could I have obtained the figures that accompany this communication in order to show the embryo sometimes

at rest, in contraction within the shell at other times, and again free?

If *Schistosoma hematobium* and *Schistosoma mansoni* constitute one single species, how does Looss explain the complete absence of hematuria and of terminal-spined eggs in the Antilles, where bilharzian rectocolitis prevails exclusively?

If in Africa and America the normal habitat of adult bilharzia is in the region of the portal vein, how does Looss explain the exclusive preference of American female schistosoma for the hemorrhoidal veins in making their ovular deposits, and the preference of the vesical plexuses in Egyptian bilharziosis?

I have had the opportunity of performing two autopsies on subjects who died of intense uncinariasis, but who at the same time were infected with *Schistosoma mansoni*, and in neither case did I find lesions in the region of the genito-urinary organs, nor did an examination of the urinary sediment reveal anything in particular.

Besides, I have examined many thousands of eggs and have conscientiously studied numerous samples of urine, but I have not had the good fortune of discovering one single specimen of eggs having a lateral spine.

And greater weight will be added to this negative data, by the fact that all of us who compose the Permanent Anemia Commission of Porto Rico, and who are the present members of the Institute of Tropical Medicine and Hygiene carefully sought among the patients at the hookworm dispensaries, any cases of bilharzian hematuria, but without success, and it must be remembered that in the course of eight years, over 300,000 persons were treated at these places.

Now then, it is necessary to confess that these reasons are not sufficient to prove irrefutably the distinction between the two species, but the anatomo-pathologic investigations of Maurice Letulle,⁴⁴ and the anatomical study of the parasites by Piraja da Silva, and by P. C. Flu have brought out such marked differences that Looss' theory has been forever destroyed. Thus Letulle describes as an anatomical lesion characteristic of intestinal bilharziosis, an obliterating endophlebitis accompanied by integrity of the endothelium and hyper-genesis of the sub-jacent layer, and Piraja da Silva discovers that the female

Schistosoma mansoni has a pointed caudal extremity different from the cilindro-conical extremity of the *Schistosoma hematobium*, and Flu points out the constant lack of symmetry of the ootype; more pronounced sinuosities in the disposition of the ovary; and an anatomical peculiarity which he considers characteristic of the male of the species in question, such peculiarity being the perpendicular incidence of the anterior edge of the lateral folds on the anterior portion of the body.

Accepting, therefore, that the specific differentiation between the two schistosoma has been established, we shall immediately describe at large the species *Schistosoma mansoni*—an appellation proposed by Sambon in 1907 to designate the species producing bilharzian rectocolitis.

Piraja da Silva describes the adult worm as follows:

"The male measures 12 millimeters in length by 448 microns in width at the middle, 224 at the cephalic extremity and 56 at the caudal end. The ventral sucker measures 140x420 microns; the pedicle having a length of 84 microns. The mouth has a diameter of 280 microns. The distance between the mouth and sucker is 504 microns. The parasite has a tapering tail, and the outer surface of the body is covered by spines that do not seem as prominent as those of *Schistosoma hematobium*. The genital organs are composed of seven testicular masses and seminal vesicles.

"The female measures from 14.5 to 15 millimeters in length by 168 microns in width at the middle, 56 at the cephalic extremity and 84 at the caudal end. The worm terminates in a pointed tail which tapers to such an extent that the posterior end of the digestive tube is 336 microns from the point of the tail, while in *Schistosoma hematobium*, the caudal part of which terminates more abruptly, this distance is reduced to 130 or 180 microns as a maximum. The ventral sucker measures 84x56 microns, and the mouth has a diameter of 84 microns. The distance between the mouth and sucker is from 224 to 252 microns.

"The genital organs of the female comprise the gemogen or ovary, and the vitellogen, each of which has its excretory canal. These two canals join in the shell gland from which an evacuating canal runs, the latter alone dilating to form the uterus. The vulva opens behind the ventral sucker, and the uterus always contains a lateral-spined egg, even while the female is in the gynecophoric canal of the male, and consequently fecundated.*"

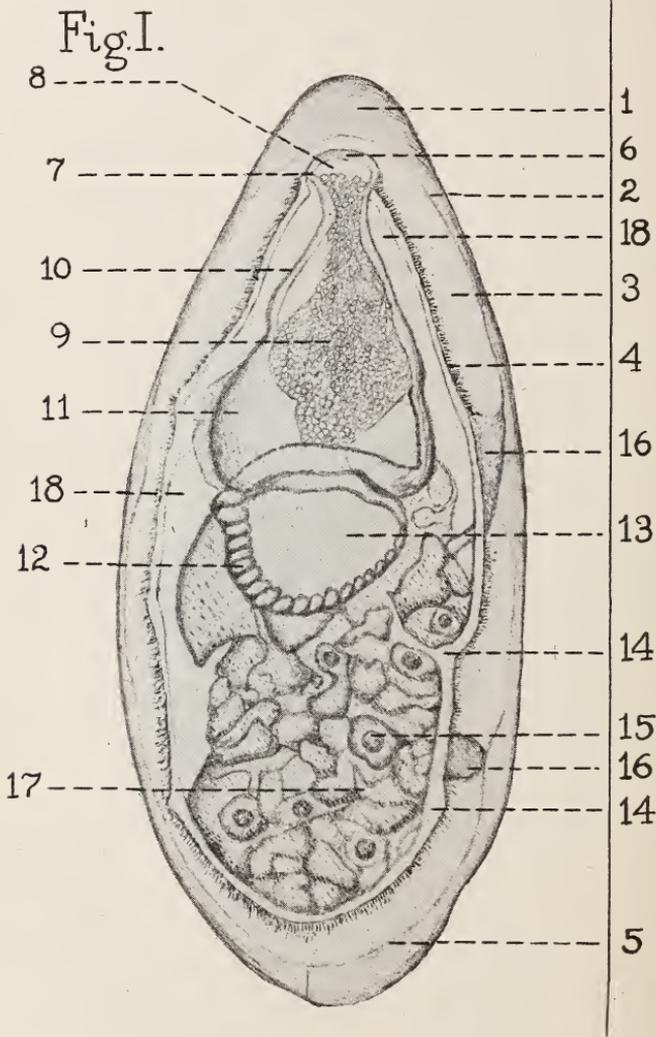
The *miracidium* or ciliated embryo takes different forms according to whether it is observed in water, rid of its ovular covering and free, or inclosed within the walls of an unbroken shell. In the first case it is generally cylindrical when conditions of life are favorable, although it varies unceasingly by stretching and shrinking in proportion to the contractile activity of the muscular layers. When death approaches, the movements cease, the body flattens, and sarcode balls appear.

Seen within the shell through the transparent walls thereof, the embryo has an oval form, one extremity being narrower than the other and imitating a trunk. This extremity is the

*Le Dantec. *Precis de Pathologie Exotique*, Tome II, page 866. Paris, 1911.

cephalic portion, while the other, which is much larger and round, is the posterior or caudal region.

Although the method of fixation by tetroxid of osmium proposed by Lortet and Vialleton,⁴⁷ in experienced hands may give



Ocular V, obj 11/12, Leitz

Figure I.

excellent definitive preparations, I believe, however, that it would be easier for beginners to appreciate the different details of the anatomy of the miracidium by studying it preserved alive

and immovable within the walls of its ovular covering which is fortunately very transparent.

It was in this manner that I obtained the preparations that allowed me to copy by means of Abbe's drawing camera the figures illustrating this paper.

In fact, there is nothing easier than providing one's self with abundant material by seeking mucous dejections free from large solid particles that might obstruct observation.

Besides, certain metallic medicines, certain cathartics and some excitant condiments have the power of provoking acute dysenteric outbreaks of bilharzian rectocolitis accompanied by abundant discharge of mucus heavily laden with eggs.

The outer surface of the miracidium, as shown by figures 1 and 2, is covered by vibratile cilia, which are swimming organs necessary for rapidity in movement. These cilia extend over the whole body except the rostrum or proboscis. The base of said proboscis or oval papilla, constitutes the neck, and is the place by which the embryo fastens to the ovular covering, in which disposition it remains until full development is acquired.

REMARKS.

- 1—Chitinous covering. 2 and 5—Double contoured.
- 3—Leuckart's external ectodermic membrane.
- 4—Ciliary covering of the embryo. 6—Proboscis.
- 7—Excretory orifice of the gland.
- 8—Entrance orifice of the stomach. 9—Stomach sac.
- 10—Excretory tube of the gland. 11—Unicellular gland.
- 12—Cellular coat of the nervous system.
- 13—Central granular part of the nervous system.
- 14—Orifice of the excretory apparatus and vibratory ciliary fringe.
- 15—Germinal cell with its nucleus.
- 16—Zapfchen (Pivot).
- 17—Location of the spine on the opposite side.
- 18—Cœlomic cavity.

Under the ciliated skin there lies a double muscular layer, longitudinal and transverse, as in the embryo of the *Fasciola hepatica*.

The digestive apparatus is represented by a rudimentary stomachal tube filled with a granular substance, the opening being towards the oral extremity, where there also open, though independently, the ducts of two unicellular glands placed one at each side of the stomachal tube.

The nervous system, formed by a bunch of granular cells, immediately follows the most posterior portion of the digestive apparatus.

The excretory system is composed of two coiled tubes opening to the exterior through four ventral funnel-like openings provided with crowns of long delicate cilia having an undulating movement. These vibratile crowns are very important in distinguishing such eggs as reach complete maturity. The undulating movement of these crowns—similar to that of an oriflamme—may be seen perfectly through the ovular covering, by means of an optical combination augmenting 400 diameters. The presence of such movement not only proves the vitality of the miracidium, but also its readiness, in appropriate surroundings such as water, to break the shell, gain its liberty and proceed to find its *intermediate abode*.

Fig. II.

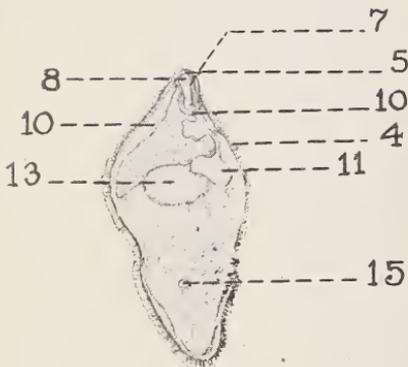


Figure II: Free miracidium; oc. IV; obj. V, Leitz.

Fig. III.

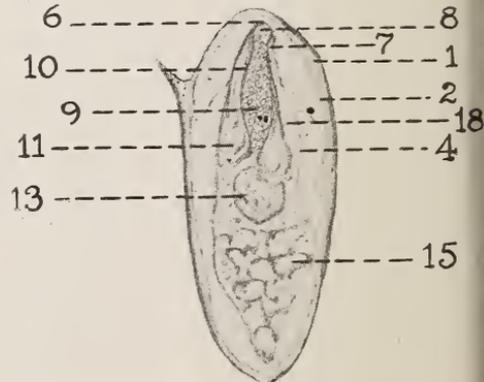
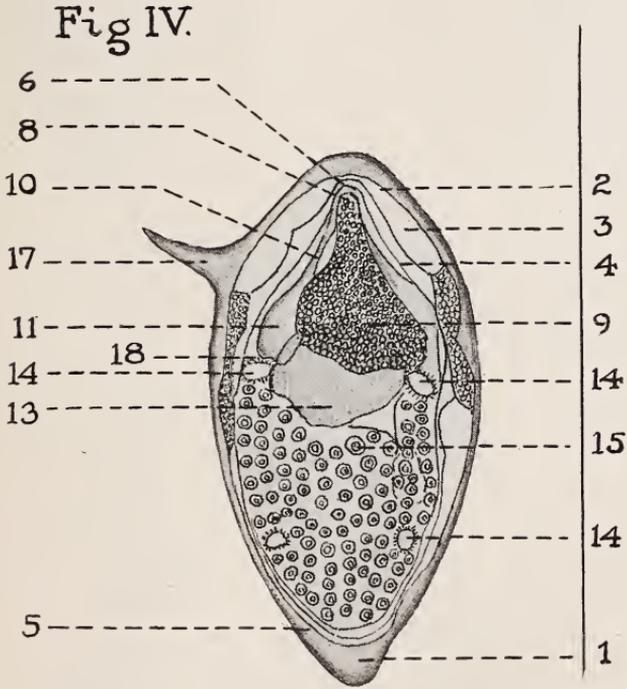


Figure III: Showing contraction of the miracidium when the egg is submerged in water; oc. V; obj. V, Leitz.

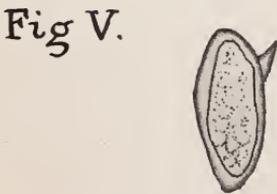
When attentive observation fails to disclose the four undulating crowns, it is then almost certain that the embryo is dead, or that the egg is immature.

The eggs of *Schistosoma mansoni* are yellowish, slightly transparent, and two and one-half times longer than those of the *Necator americanus*, and twice as wide. They have the form of a flattened ovoid, one extremity being thicker than the other, and are always provided with a lateral spicule situated 30 or 40 microns from the larger pole. They generally contain a fully developed embryo, but immature ones are at times observed.

There is nothing easier than the investigation thereof, an increase of 150 to 300 diameters being sufficient. Even for structural details a combination of ocular 3 with Leitz' objectives 3 and 5 will suffice.



Dorsal view; Schematic; oc.IV,
obj.VII, Leitz.



Dorsal view; ocular IV; obj.III, Leitz.

Fig. VI.

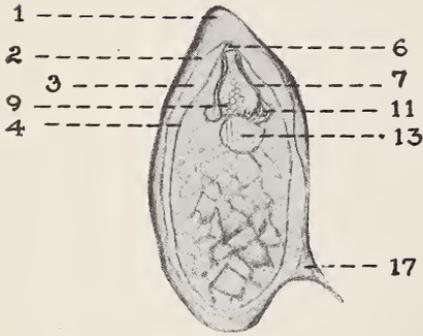
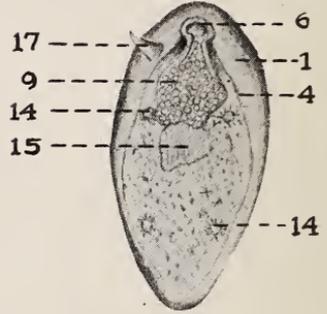


Fig. VII.



Schistosoma Mansoni's eggs
Dorsal view; oc. 3, obj. 5, Leitz.

Ventral view; oc. 2, obj. 5.

Fig. VIII

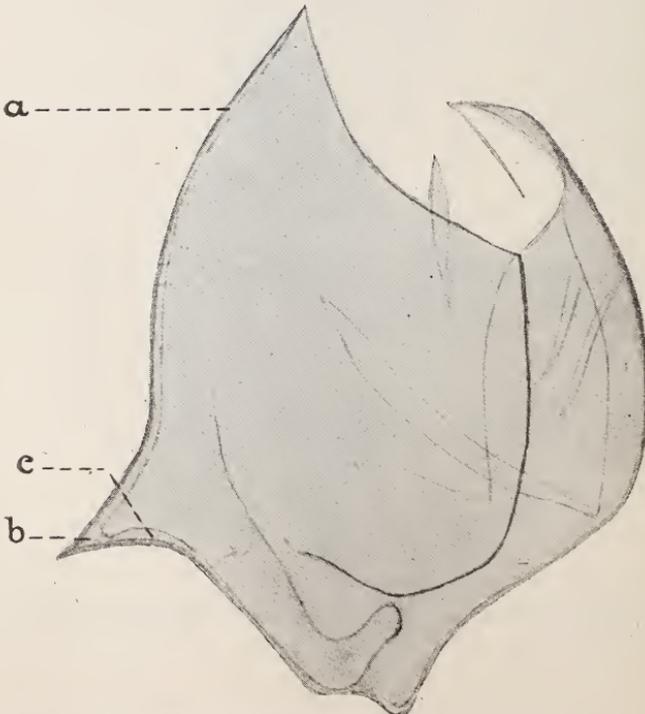


Figure VIII. Broken shell of the egg; oc. V; obj. 1/12, Leitz.

I have found that the dimensions of the eggs fluctuate, in regard to the longitudinal diameter, between 112.24 and 173.24

Table I

Dimensions of the egg and the spicule.

B O D Y		S P I N E		
No.	Length :in microns:	Width :in microns:	Length :in microns:	Width :in microns:
1	151.28	58.56		
2	151.28	56.12	24.4	7.32
3	136.64	56.12		
4	136.64	58.56	24.4	9.76
5	169.50	101.70		
6	146.90	73.45		
7	124.30	62.15		
8	141.25	56.50	22.6	7.06
9	141.25	56.50		
10	158.20	56.50		
11	135.60	62.15	22.6	7.06
12	129.95	62.15		
13	129.95	56.50	22.6	7.06
14	158.20	62.15	16.95	7.06
15	141.25	56.50	22.6	7.06
16	141.25	67.80	22.6	5.65
17	173.24	78.		
18	141.52	68.32		
19	136.64	58.56	26.8	
20	112.24	55.56		
21	161.04	89.96		
22	170.80	78.96		
23	156.16	82.96		
24	165.92	82.96		
25	156.16	73.		
26	131.76	73.20		
27	170.80	73.20		
28	126.88	58.56		
29	146.40	73.20		
30	167.	82.96		
Average	: 147.	:	:	:
Dimensions	:	: 67.09	: 22.7	: 7.5

Extreme dimensions

Of the egg (Greatest length--- 173.24 microns
 (Minor length-----112.24 microns
 (Greatest width-----101.70 microns
 (Minor width----- 55.56 microns

Of the spicule (Greatest length- 26.8 microns
 (Minor length---- 16.95 microns

microns, and as to the transverse diameter at its widest part, between 55.56 and 101.70 microns. The spicule measures from

16.95 to 26.8 microns in length by 5.65 to 9.76 in width at the base. These measurements are somewhat greater than those obtained by Letulle, and approximately equal, with the exception of the dimensions obtained from an uncommonly large egg, to those of Piraja da Silva. It must be borne in mind, however, that Maurice Letulle took his measurements from preserved eggs, which were consequently somewhat shrunken.

The following table contains the dimensions of 30 eggs, and gives a clear idea of the multiplicity of individual variations:

As to the thickness of the ovular covering the measurements taken from the specimen shown in the figure, give 1.2 microns in some parts and 3 microns in others. The spicule, as may be seen, is hollow for two-thirds distance from the base, and solid towards the sharp point, for a distance of 8 microns.

Life History and Mode of Introduction.—Mature eggs expelled with excrement from the intestinal canal cannot arrive at spontaneous dehiscence while imprisoned in feces undiluted or not submerged in natural organic liquids. The mixture thereof with an abundant proportion of water is necessary, when the miracidium commences to move and contract vigorously until it ruptures the fastenings that hold it to the ovular covering, which, once broken, is followed by the splitting of the shell. Through the split it glides out to commence a vertiginous search for the mollusk which will serve as its intermediate abode. The miracidium penetrates directly into the body of such mollusk, takes refuge in its interior organs, turns into redia, the rediæ produce cercariæ, and the latter, abandoning the transitory abode, wait free in the water of marshes, in the smooth waters of rivers and among aquatic plants, for the opportune moment of attacking their victim and definitive lodging—man. They introduce themselves sometimes through the skin, and other times by the digestive canal, entering the stomach in unfiltered water. They immediately proceed to the organs of their predilection (in this case the liver and vessels of the portal circulation) evolve to adult form, and after sexual intercourse in the thick branches of the mesenteric inferior vein, the female leaves the male and alone descends to the capillaries of the sub-mucous layer of the rectum and the inferior part of the colon, where it lodges during

the ovular deposit which is to insure the perpetuation of the species.

The descent and progression in a direction contrary to the circulation is favored by the absence of valves in those veins, and perhaps also because the male assists by carrying the female to the vessels ranging from $1\frac{1}{2}$ to 2 millimeters in caliber.

To prevent the embolical expulsion of the eggs just laid in the circulatory current, by the force and direction of the current, the female must select vessels of small caliber which without endangering her life or impeding her return to the thicker trunks where the male resides, will permit her, however, to obstruct its passage with the caudal extremity of the body and to retard temporarily the course of the blood above the obstacle, for such time as the deposit of eggs may last. Internal pressure will increase unceasingly because of continuous though slow afflux of blood, and because of the accumulation of eggs in an inverse direction, as the parasite expels them. Such increase of pressure throws the eggs against the walls of the capillary, pushes one egg against the other, and thus provokes and facilitates perforation of the endothelium by the steeled spicules with which they are armed.

Once out of the endothelial layer of the vein, the eggs proceed towards the intestinal mucosa receiving impulse from the muscular fibers. There they accumulate until favorable circumstances drive them into the intestinal canal, and from the latter, with the fecal matter, to the exterior, where the miracidium is liberated and the life history again commences.

We have said that the embryos of schistosoma go through the redia and cercaria stages before infecting man, and that the free cercaria is re-introduced, entering by the mouth in unfiltered water. This opinion, maintained by many investigators since the first years of the discovery of bilharziosis in Egypt, has been strongly refuted by Looss, of Cairo.

The illustrious German zoologist created the theory of *direct penetration of the skin by the miracidium*, and its transformation into sporocyst in the liver, and into cercaria and adult vermes afterwards, without necessity of resorting to an intermediate abode. But this theory, supported by a base purely hypothetical, has not received experimental confirmation.

In fact, E. F. Bour⁶ who worked under exceptional conditions, choosing and applying such methods as would reasonably insure success, failed absolutely and could not obtain direct infection by the miracidium. And as Bour failed, so failed Conor¹⁷ and all who followed Looss' ideas.

This does not occur with the opinion first expressed which is based on the general law governing the biology of other trematodes, and of which I have been a warm partisan for reasons not only of probable analogy of evolution, but also because of my own personal observations on the distribution in Porto Rico of intestinal schistosomiasis of man, and of distomatosis hepatica in bovines at the same endemic center.

Furthermore, the autopsy performed on P. C. in 1904, of which previous mention has been made, allowed me to discover specimens of *Fasciola hepatica* (liver fluke), which were considered by Charles W. Stiles as belonging to a *new species*.

The investigations of the last few years have almost wholly dissipated the shadows surrounding the life history of schistosoma—parasite of man—thus solving one of the most debated questions of tropical etiology. R. Miyairi and M. Suzuki⁵² state that in 1913 they observed the penetration of the miracidium of *Schistosoma japonicum* into the body of a snail having a dark shell with seven spirals; that after twelve days the radiæ were already formed; and that submerging rats for 3 hours during four consecutive days in the water contained in the vessel where the snails were cultivated, such rats became infected and contained schistosoma in the liver 3 weeks later. Watkins-Pitchford⁶² states that in Natal, Cawston succeeded in infecting African *Linnea Physopsis* with miracidium of *Schistosoma hematobium*, and that three weeks later he found cercariæ in the liver.

But it is above all, to Leiper that science owes the clearing of the life history of schistosoma. Working with Atkinson in Katayama and Shanghai he discovered that the miracidium of *Schistosoma japonicum* penetrated the body of a mollusk called *Katayama nosophora* (Robson) and evolved within its organs until it became cercaria. These cercariæ, free and numerous in the water where the *nosophora* were cultivated, penetrated the skin of rats submerged in said water, access to the mouth being

prevented, and the autopsy performed on such rats (later transported to London) disclosed live schistosoma in the mesenteric vessels, thus at once proving not only that the life history thereof is similar to that of *Fasciola hepatica*, but also that the infecting cercariæ may introduce themselves through the skin. His recent investigations in Egypt during the first half of the year 1915 more clearly prove that a similar life history occurs in *Schistosoma hematobium*, for operating on mollusks *Bullinis* and *Planorbis* he has obtained numerous cercariæ and has infected rats, white rats, guinea pigs and Mangabey monkeys, all of which at autopsy showed an enormous proportion of adult schistosoma in the portal venous system. Leiper has proved, moreover, that the cercariæ do not die by immersion for five minutes in a solution of hydrochloric acid at 1x800, and that therefore, the infection of man is possible by the entrance of cercariæ into the stomach, and in fact, the monkey subjected to the test of ingestion had in its mesenteric veins, a larger number of schistosoma than those inoculated through the skin. Finally Leiper proved that penetration is rapid, for one of the rats became infected by remaining only ten minutes in water containing cercariæ.

In Porto Rico there is no doubt that the cercaria introduces itself facultatively according to circumstances, sometimes by way of the stomach, and other times by penetrating the skin. Many of the cases observed by me while working in Mayaguez, occurred in women born and bred in excellent financial conditions, belonging to society's privileged classes, who were never obliged to engage in agricultural labors, who never bathed in rivers or stagnant waters, and who never went barefooted. But they did confess to having frequently eaten raw fruits and fresh vegetables spontaneously growing or cultivated in suspicious places. They also remembered having drunk unfiltered water from wells roughly constructed in infested regions. On the other hand, the most careful and minute investigation did not discover the occurrence in said cases, of circumstances favorable to an introduction through the cutaneous channel. It must be admitted, therefore, that such cases were infected by cercaria which entered the stomach with impure water or poorly washed vegetables.

Men, however, generally contract infection by way of the skin. With a few exceptions, they are in the habit of bathing in rivers, and the major part of the inhabitants of the country districts are laborers who always go barefooted.

In Utuado, where like men, women cultivate the soil or engage in the work of washing clothes on the margins of two heavily infested rivers, and where children of either sex and of all social classes bathe and remain for hours at a time in these rivers, infection is surely contracted through the skin.

Pathology.—The permanence of *Schistosoma mansoni* in the mesenteric veins provokes a series of anatomic-pathological changes in the large intestine and in the cellular tissues of the pelvic basin, which should be considered, to a certain degree, as specific of this parasitic disease.

It was believed and maintained for a long time by a number of authors that the adult vermis, male or female, was itself inoffensive, and that the anatomic changes observed, and the corresponding functional disorders should be attributed to the steeled spicule of the eggs. But the investigations of Maurice Letulle proved that the numerous and extensive traumatism produced by the suckers and dorsal papillæ of the male, and by the suckers and tail of the female determine inflammatory reaction in the veins, which is distinguished by *simple vegetative endophlebitis accompanied by absolute integrity of the endothelium and hypergenesis of the circumjacent elastic tissues.*

Such special endophlebitis, considered by Letulle as the fundamental specific lesion of intestinal bilharziosis, appears not only in the capillaries of the sub-mucous layer where the female deposits her eggs, but also in the thick vessels of the mesorectum and mesocolon, and throughout those that serve as lodging for the parasite.

The different tunics of the intestine equally suffer the irritating stimulus of numerous traumatism produced by the spicule of the egg, and also the phlogogenic action of some toxin discharged by the worm. The tunics respond to such perturbing agents by ulcerative and hyperplastic processes. The ulcerative processes are the result of diffuse chronic inflammation of the intestinal mucosa accompanied by destruction of the glandular tubes and disappearance of the epithelial layer. Such

destruction is not deep. It becomes covered by fleshy granulations when secondary bacterial infection occurs, and unlike the real dysenteric ulcers, it stops before reaching the muscularis mucosæ. The hyperplastic processes become generalized in the fundamental tissues of the mucosa and are accompanied by hyperplasia of the glandular elements, forming real glandular adenomata and greatly vascularized polypiform eminences of a dark reddish color.

In the sub-mucous layer, which is the place chosen by the female for her ovular deposit, besides the endophlebitic lesions above mentioned, there is also observed a considerable development of fibrous tissue, and a notable thickening and hardening of the intestinal walls.

Such sclerosis immediately following a chronic diffuse inflammation, spreads to the pelvic cellular tissues, and there is no doubt that in its genesis there is the phlogogenic action of irritating toxins secreted by the parasite.

So far as relates to the changes caused in the globular composition of the blood, and in its wealth of hemoglobin, by infection with this parasite, I must state that it is a question very difficult to solve, because unfortunately, in tropical regions where bilharziosis occurs, uncinariasis, a disease which greatly disarranges the hematologic formula, is endemic and widely spread.

I have endeavored to group in distinct series such patients as were victims of both infections, and have constituted a special group of cases of intestinal bilharziosis free from uncinariasis, but I must note, however, that although I have been able to eliminate the presence of uncinaria, I have been unable absolutely to discard that of other parasites such as tricocephalus and ascarides, so common in this country. But their power to modify sanguineous cytology is so small that I do not believe they produce perceptible changes.

Table I comprises a series of 18 subjects infested by *Schistosoma mansoni*, but free from uncinaria. Although there are included among them, some at the same time suffering chronic perturbing diseases such as syphilis, splenomegalia, chronic rheumatism, malaria and chronic streptococcemia, it may be observed that with the exception of case No. 2, who died a few days later, the rest all show a relatively high hemoglobinal

Showing cases of bilharzia complicated with uncinaria, with high hemoglobin percentage.

Table III.

Case No.	Date.	Age.	Sex.	Color.	Per cent hemoglobin.	Red cells per cmm.	Color Index.	Leucocytes per cmm.	Percentage of Leucocytes						Remarks.		
									Poly-nuclears	Eosino-philes.	Lympho-cytes.	Mono-nuclears	Baso-philes.	Turck's cells.			
20:	17-7-04 :	26 :	M :	M :	94 :	:	:	36 :	12 :	32 :	19.2 :	0.8 :	:	Bilharzia, Uncinaria, Oxyuris Vermic.			
" :	2-8-04 :	:	:	:	:	:	:	58 :	8 :	27.2 :	6.4 :	0.4 :	:				
21:	26-10-04 :	22 :	F :	W :	59 :	:	:	58.4 :	16.4 :	17.6 :	6.4 :	1.2 :	:	Bilharzia, Uncinaria, Trichocefalus.			
22:	1-11-04 :	27 :	M :	W :	84 :	:	:	68 :	8.8 :	13.2 :	9.6 :	0.4 :	:	Bilharzia, Uncinaria.			
23:	15-11-94 :	26 :	F :	W :	85 :	:	:	66 :	13.6 :	12.4 :	5.2 :	2.8 :	:	Bilharzia, Uncinaria.			
" :	26-12-04 :	:	:	:	:	:	:	59.2 :	17.6 :	17.2 :	6 :	:	:				
24:	12-11-04 :	6 :	F :	N :	53 :	:	:	34 :	27.6 :	30.8 :	7.2 :	0.4 :	:	Bilharzia, Strongyl.int., Ascaris, lumbr.			
25:	4-1-05 :	:	F :	W :	91 :	:	:	5,860,256 :	0.763 :	14,000 :	40.4 :	28.4 :	20 :	Bilharzia, Uncinaria.			
26:	26-1-05 :	16 :	F :	W :	86 :	:	:	4,411,794 :	0.97 :	10,200 :	46.4 :	24.4 :	19.6 :	8 :	1.2 :	0.4 :	Bilharzia, Uncin., Tricho., Ascaris.
27:	27-1-05 :	:	M :	W :	100 :	:	:	58.4 :	7.6 :	22.8 :	9.6 :	1.2 :	0.4 :	Bilharzia, Uncin., Tricho., Strongyl.			

Differential or Cytochromic Count.

Polynuclears	56.1%
Lymphocytes	23.7
Large Mononuclears	10.5
Eosinophiles	8.6
Labrocytes or Basophiles	0.7
Turck's stimulation cells	0.1
Myelocytes	0.3

Table V.

Showing hemoglobin percentage and leucocytes in cases of bilharzia complicated with uncinariasis.

Case No.	Date	Age	Sex	Wt.	Hemo-globin	Per cent	Leucocytes per cmm.	Parasitism.
28	8-2-05	19	M	61	12,600			Bilharzia, Uncinariasis, Trichocephalus, Oxyuris.
29	8-2-05	13	M	61	29,000			Bilharzia, Uncinaria, Trichocephalus.
30	8-2-05	22	F	79	9,932			Bilharzia, Uncinaria, Trichocephalus.
31	9-2-05	19	M	103	8,800			Bilharzia, Uncinaria, Trichocephalus.
32	9-2-05	16	M	77	13,600			Bilharzia, Uncinaria.
33	10-2-05	25	F	N	32	6,266		Bilharzia, Uncinaria, Trichocephalus.
34	10-2-05	11	M	98	12,066			Bilharzia, Uncinaria, Ascaris Trichocephalus.
35	10-2-05	19	F	91	11,400			Bilharzia, Uncinaria, Trichocephalus.
36	11-2-05	39	F	60	7,100			Bilharzia, Uncinaria.
37	13-2-05	21	M	52	11,132			Bilharzia, Uncinaria.
38	13-2-05	30	M	N	65	11,133		Bilharzia, Uncinariasis, Trichocephalus, Strongyloides.
39	13-2-05	20	M	74	11,466			Bilharzia, Uncinaria, Tricho. Strongyl.
40	13-2-05	15	F	82	12,932			Bilharzia, Uncinaria, Trichocephalus.
41	13-2-05	19	M	85	8,866			Bilharzia, Uncinaria, Tricho., Splenomeg.
42	14-2-05	35	M	90	14,066			Bilharzia, Uncinaria.
43	14-2-05	36	M	M	58	9,200		Bilharzia, Uncinaria, Trichocephalus.
44	15-2-05	11	M	86	10,532			Bilharzia, Uncin., Strongyl., Ascaris Strongyl.
45	15-2-05	40	F	92	10,800			Bilharzia, Uncin., Tricho., Tyroglyfus.
46	15-2-05	29	M	66	3,332			Bilharzia, Uncin., Strongyl., Tricho.
47	17-2-05	16	M	100	11,466			Bilharzia, Uncin., Strongyl., Tricho.
48	17-2-05	26	M	50	9,200			Bilharzia, Uncin., Tricho.
49	17-2-05	32	M	M	66	7,100		Bilharzia, Malaria
49	20-2-05	14	F	M	60	9,732		Bilharzia, Uncin., Tricho.
50	20-2-05	27	M	88	8,000			Bilharzia, Uncinaria.
51	20-2-05	50	M	81	10,932			Bilharzia, Uncinaria.
52	23-2-05	11	F	90	11,866			Bilharzia, Uncin., Trich.
53	23-2-05	19	M	90	18,466			Bilharzia, Tricho.
53	23-2-05	17	M	57	9,600			Bilh., Unc., Tricho., Ascaris, Strongyl.

(W--- White.
 Color (N--- Negro.
 (M--- Mulatto.

Compared with the normal formula, the foregoing differs because of mild leukocytosis, median eosinophilia, moderate mononucleosis and decrease of the neutrophilic index.

The eosinophilia varies between the extreme limits of 2% and 24.4%, and mononucleosis—which is a constant feature—between 3.6 and 28.6%.

Table VI.
Showing the changes in the blood of bilharzia cases complicated with febrile diseases.

Case No.	Date.	Age.	Sex.	Color.	Per cent hemoglobin	Leucocytes per CMM.	Percentage of Leucocytes							Remarks
							Poly-nuclears	Eosino-philic	Lympho-cytes	Mono-nuclears	Baso-philic	Myelo-cytes		
18	14-11-04	19	M	W	66		42.8	7.2	38.8	6.4	4.4		(Bilh., Trich)	
19	17-2-05	32	M	M	86	7,100	65.6	3.2	13.6	16	1.2	0.4	(Repeated streptococcus infection on right leg with elephantiasis. Acute lymphangitis)	
"	20-2-05	"	"	"	"		74	2.8	12	10.4	0.4		(Acute nephritis)	
"	26-2-05	"	"	"	"		62.6	6	25	6.4			(Bilh. Malaria before access. Im full access. Five days after.)	

Tables III and IV comprise subjects infected with schistosoma and uncinaria, and a perusal thereof will show that when both parasitisms coincide, the hematologic formula is modified and governed by the most aggressive parasite, which in the present case is the uncinaria. Eosinophilia is greater and the neutrophilic index much less.

Table V includes a series of 28 absolute counts of leukocytes in subjects infected with uncinaria and schistosoma. A higher figure than in cases of bilharziosis without parasitical anemia, is obtained.

Table VI refers to two subjects in whom bilharziosis was complicated with recurrent erysipelas and acute accesses of malaria. It shows the great modification produced by the febrile attack, decreasing the eosinophilia and increasing the neutrophile coefficient.

Table VII serves to show that intestinal bilharziosis, as already stated by me in previous publications,* does not conflict with regeneration of the blood in intense anemia. Subjects almost dead, having 9% of hemoglobin, and infected with *Schistosoma mansoni* and *Necator americanus*, saw their hemoglobin increase rapidly after the first doses of thymol, till the enviable figure of 100% was reached. And others also having intense uncinariasis and bilharziosis, and giving hemoglobinometric readings of 16 and 37%, reached 78 and 102, respectively, in 3 and 4 months.

*Bulletin of the Medical Association of Porto Rico, July 2, 1905. Page 110.

Table VII.

The Mayaguez Series of 1904-1905.

Males.

Rise in the hemoglobin percentage with the use of tymol in the treatment of bilharziosis complicate with uncinariasis.

Number:	Age :	Hemo- globin at admission.	Hemo- globin when discharged.
6	35	73	83
7	22	54	45
8	39	45	55
15	34	37	102
43	21	48	46
44	29	68	85
59	24	39	
75	25	45	87
104	35	44	92
110	22	48	86
123	13	65	70
134	19	55	85
160	22	80	62
171	13	54	68
182	50	93	
185	45	90	92
69	21	47	86
221	20	62	95
215	27	70	70
225	25		99
229	25	44	88
240	16		
243	24	29	82
257	22		
266	25	41	52
268	25	34	51

The Mayaguez Series 1904-1905.
(continued)

-2-

Number: of in- scrip- tion.	Age	Hemo- globin at admission.	Hemo- globin when discharged.
275	20	42	65
309	30	72	79
311	28	39	95
314	15	62	81
322	20	29	
333	25	48	87
334	25	19	55
335	21	24	40
336	30	66	81
346	19	57	105
353	22	82	83
788	23	88	
792	20	55	
2	60	15	Died
27	16	8	100
65	13	75	
367	11	78	94
370	11	76	98
380	9	69	
387	8	87	86
392	36	58	
411	30	41	87
413	40	56	76
415	27	88	88
422	38	98	
444	40	56	
461	30	24	38
493	36	26	78
517	19	10	Died
528	32	36	74
538	12	66	94
545	33	67	51

The Mayaguez Series 1904-1905.
(continued)

-3-

Number of in- scrip- tion.	Age.	Hemo- globin at admission.	Hemo- globin when discharged.
: 559	: 19	: 66	: 90
: 567	: 35	: 60	: 90
: 585	: 20	: 30	: 87
: 588	: 29	: 16	: 78
: 601	: 21	: 75	: 85
: 623	: 16	: 60	: 90
: 625	: 20	: 32	: 77
: 655	: 17	: 26	: 57
: 665	: 50	: 60	: 91
: 669	: 20	: 94	:
: 676	: 26	: 28	: 48
: 696	: 8	: 62	: 104
: 700	: 19	: 32	: 70
: 705	: 30	: 86	:
: 715	: 19	: 60	: 70
: 717	: 16	: 77	: 108
: 724	: 15	: 82	:
: 731	: 40	:	:
: 735	: 13	: 55	: 70
: 748	: 30	: 65	: 73
: 753	: 11	: 92	:
: 776	: 22	: 55	: 60
: 778	: 32	: 86	:
: 790	: 20	: 105	:
: 638	: 30	: 46	: 95
: 796	: 27	: 98	:
: 798	: 41	: 41	:
: 795	: 15	:	: 95
: 803	: 26	: 70	: 74
: 804	: 23	:	: 88
: 805	: 20	: 55	:
: 739	: 25	: 25	: 60
: 638	: 22	: 39	: 85

Table VII.

The Mayaguez Series of 1904-1905.

Rise in the hemoglobin percentage with the use of tymol
in the treatment of bilharziosis complicated with
uncinariasis.

Females.

:Number: : of in- :scrip- :tion :	Age :	Hemo- : globin : at admission.:	Hemo- : globin : when discharged:
: 21 :	: 12 :	: 17 :	:
: 31 :	: 26 :	: 50 :	: 76 :
: 53 :	: 28 :	: 17 :	: 40 :
: 68 :	: 28 :	: 77 :	: 97 :
: 87 :	: 25 :	: 50 :	: 56 :
: 94 :	: 12 :	: 48 :	: 90 :
: 99 :	: 22 :	: 85 :	:
:115 :	: 6 :	: 56 :	: 54 :
:144 :	: 19 :	: 79 :	: 90 :
: 158 :	: 12 :	: 68 :	: 82 :
: 159 :	: 40 :	: 29 :	: 90 :
: 165 :	: 60 :	: 68 :	: 86 :
: 175 :	: 11 :	: 69 :	: 73 :
: 203 :	: 15 :	: 69 :	: 82 :
: 179 :	: 14 :	: 35 :	: 86 :
: 213 :	: 16 :	: 75 :	: 107 :
: 227 :	: 26 :	: 50 :	: 89 :
: 264 :	: 35 :	: 62 :	: 80 :
: 286 :	: 12 :	: 26 :	: 61 :

: 314	: 29	: 64	: 80	:
: 315	: 25	: 68	: 80	:
: 322	: 60	: 61	: 100	:
: 343	: 22	: 48	: 84	#
: 368	: 27	: 74	:	:
: 426	: 12	: 69	: 86	:
: 432	: 11	: 62	: 97	:
: 435	: 20	: 50	: 98	:
: 437	: 40	: 66	: 85	:
. 248	: 16	: 60	: 79	:
: 455	: 45	: 96	:	:
: 479	: 25	: 92	:	:
: 535	: 28	: 69	: 88	:
: 537	: 27	: 87	: 87	:
: 586	: 18	:	: 88	:
: 618	: 19	: 85	: 89	:
: 633	: 25	: 45	: 75	:
: 692	: 39	: 45	: 80	:
: 699	: 24	: 87	:	:
: 709	: 19	: 85	: 96	:
: 721	: 23	: 67	: 80	:
: 766	: 28	: 73	: 91	:
: 784	: 24	: 78	:	:
: 794	: 24	: 84	:	:
: 808	: 44	: 98	:	:
: 809	: 28	: 69	:	:

Table VIII.

The Mayaguez Series of 1904-1905.

Distribution of Bilharziosis according to sex and color.

Color	White	Mulatto	Negro	Total
Females	34	7	4	45
Males	77	12	2	91
Total	111	19	6	136

Table IX.

The Mayaguez Series of 1904-1905.

Distribution of Bilharziosis according to age and sex.

Ages	Males	Females	Total
Under 10 years	3	1	4
10 to 19 years	22	15	37
20 to 29 "	40	21	61
30 to 39 "	18	2	20
40 to 49 "	5	4	9
50 to 60 "	3	2	5
Total	91	45	136

Table X.

The Utuado Series of 1913.

Distribution of Bilharziosis according to age, sex and color.

A G E S	S E X E S						Un- clas- si- fied	Grand Total
	Males			Females				
	White	Color	Total	White	Color	Total		
Under 10 years	15	2	17	6	5	11	28	
10 to 19 years	26	7	33	35	22	57	90	
20 to 29 "	19	3	22	26	10	36	58	
30 to 39 "	9	0	9	12	2	14	23	
40 to 49 "	3	0	3	5	0	5	8	
50 to 59 "	0	0	0	4	4	8	8	
60 to 69 "	0	0	0	0	0	0	0	
70 to 79 "	0	0	0	1	0	1	1	
Unclassified	1	0	1	1	1	2	4	
Total	73	12	85	90	44	134	220	

Table XI.

The Mayaguez Series of 1904-1905.

Parasites associated with bilharzia.

Parasites	Males	Females	Total
Bilharzia	91	45	136
Uncinariasis	76	30	106
Trichocephalus	54	25	79
Strongyloides	23	4	27
Ascarides	8	7	15
Distoma hepaticum	1	0	1
Tenia	1	1	2
Amebas	1	0	1
Oxyuris	5	0	5

Table XII.

The Utuado Series of 1913.

Parasites associated with Bilharzia.

Bilharzia	220
Uncinariasis	156
Ascarides	91
Trichocephalus	46
Strongyloides	7

Table XIII
The Tenado Series of 1904

Name.	Date.	Age.	Sex.	Color.	Per cent hemoglobin.	Red cells per cmm.	Color index.	Leucocytes per cmm.	Percentage of Leucocytes.							Remarks.										
									Poly-nuclears	Eosino-phil.	Lympho-cytes	Mono-nuclears	Baso-phil.	Turck's cells.	Myelo-cytes.											
I.N.: 10-8-04: 11	:	F	:	W	:	98	:	5,031,112	:	0.97	:	14,200	:	57.	:	8.8	:	27.2	:	5.6	:	0.4	:	0.4	:	Bilharzia, uncinaria.
G.S.: 11-8-04: 3	:	M	:	W	:	82	:	6,286,207	:	0.65	:	13,000	:	59.	:	14.	:	20.4	:	4.8	:	0.8	:		:	Bilharzia.
C.L.: 9-8-04: 22	:	F	:	W	:	85	:	5,702,116	:	0.74	:	12,000	:	51.2	:	13.2	:	31.2	:	4.	:	0.4	:		:	Bilharzia, uncinaria, sphylla.
J.N.: 10-8-04: 20	:	M	:	W	:	68	:	6,112,000	:	0.55	:	9,000	:	53.2	:	12.8	:	27.6	:	5.2	:	1.2	:		:	Bilharzia, uncinaria.
F.M.: 12-8-04: 11	:	M	:	W	:	116	:	4,794,380	:	1.21	:	16,200	:	50.	:	11.2	:	24.	:	13.6	:	1.2	:		:	Bilharzia, uncinaria.
P.G.: 12-8-04: 12	:	M	:	M	:	23	:	1,891,440	:	0.60	:	14,400	:	88.8	:	0.4	:	9.2	:	1.2	:	0.4	:		:	Bilharzia, uncinaria, ascaris, fasciola hepatica.
J.V.:	:	M	:		:	51	:	5,581,116	:	0.44	:	16,600	:	43.6	:	13.2	:	37.6	:	4.8	:	0.8	:		:	Bilharzia, uncinaria.
C.S.: 11-8-04: 40	:	F	:	W	:	66	:		:		:		:	41.2	:	12.8	:	33.2	:	12.4	:	0.4	:		:	Bilharzia, tricho, metritis.

Symptomatology.—The symptomatology is very vague, there being nothing characteristic. In some cases the presence of the worm does not cause in the victim any functional changes subjectively perceptible. In others only a certain degree of constipation more or less accentuated is discovered, and slight pains are felt in the hepatic region. On rare occasions serious intractable diarrhea appears, as it does in common chronic enteritis. But the most constant morbid indication, that which constitutes the principal symptom of intestinal bilharziosis, is the *chronic, dysenteric, afebrile diarrhea*, accompanied by frequent painful dejections, tenesmus, and expulsion of white or sanguinolent mucus.

Clinical Features.—In Porto Rico it is impossible to distinguish, according to the predominance of one symptom or another, three different clinical forms of intestinal bilharziosis, to-wit: (a) Moderate form; (b) Enterocolitic form; and (c) pseudodysenteric form.

(a) *Slight infections.*—Slight infections lack symptoms. They are unexpected laboratory discoveries made while examining feces for other purposes. They occur in persons seldom exposing themselves to contagion, and who afterwards never complain of abdominal pains or attacks of diarrhea. The general health of such persons is good, their hemoglobin is normal, and if it were not for the disclosure made by the microscope no one could suspect the existence of schistosomiasis. This form is frequent in Porto Rico—more so than would be supposed at first sight. My Mayaguez series comprises a large number of well to do patients, especially among the women; and the Utuado series, which all the members of the Institute of Tropical Medicine and Hygiene studied carefully from this point of view, shows 97 out of 220 recorded cases, or 44%, in which there was a total absence of symptoms.

(b) *Bilharzian enterocolitis.*—Bilharzian enterocolitis is characterized by absence of diarrhea and presence of constipation of moderate intensity. The excrement is hard and caprine, and enclosed in mucus which is at times sanguinolent. Moderate intestinal colic and slight pains in the hepatic region or in the epigastric cavity are also frequent. The appetite remains good, digestion is normal, general health hardly suffers, or continues to

be excellent, and the hemoglobin remains high. Many cases clinically diagnosed as chronic mucomembranous enterocolitis are nothing but intestinal enterocolitic bilharziosis, which circumstance should be borne in mind in tropical countries infested by *Schistosoma mansoni*.

The frequency of this form reached 14.5% in my Utuado series.

(c) *Bilharzian pseudodysentery*.—Bilharzian pseudodysentery was described by Firket²⁵ in 1897. It is considered as the typical form of intestinal bilharziosis, because it is the form which best responds theoretically to the aggregate of anatomopathological changes observed in corpses. It is distinguished from true amebic or bacillary dysentery because there is no acute febrile stage, and because it becomes chronic from the beginning, with frequent attacks of intestinal colic accompanied by mucous or mucosanguinolent stools, generally from 4 to 6, every 24 hours, but which may reach 12 and 15 a day. Tenesmus is generally moderate and coincides with a troublesome sensation of weight in the inferior portion of the rectum accompanied by a burning pruritus of the sphincter ani and congestion of the hemorrhoidal veins. There appear, besides, moderate sordes gastricæ, and the appetite diminishes.

The acute attack lasts 4 or 5 days, but calms rapidly under a milk or lactohydrocarbonate diet, and certain saline laxatives, but it recurs by reason of some dietary disorder, or provoked by the ingestion of certain excitant condiments, or of some metallic medicament, such as iron or arsenic.

In my Utuado series the frequency of this form was 40.9%. Ninety-one cases out of the 220 showed dysenteric symptoms. This was corroborated in Mayaguez among the laborers.

Diagnosis.—Only the microscope can establish a positive diagnosis, free from doubt. Hence the imperative necessity in tropical countries of systematically examining the dejections of persons suffering from diarrhea and dysentery; for it must not be forgotten that other parasitic diseases such as uncinariasis, anguilluliasis, tricocephaliasis and balantidiiasis, may cause the dysenteric syndrome.

The technic of the microscopic examination is very simple. It does not require special knowledge. It is sufficient to place a

particle of excrement on the slide and to press it lightly with a No. 1 or No. 2 cover glass, until it spreads into a thin layer. The mucus enclosing the fecal matter should be preferred, but if it does not appear a portion of the external layer of the scybalum may be used. When the excrement is very hard and dry it must be dampened with urine, ascitic, hydrocelic, or any other organic fluid, but water must not be used for it provokes the dehiscence of the egg, and, therefore, makes observation more difficult. If by this means success is not achieved, then the method of Yaoita must be resorted to. This method consists in dissolving a portion of feces in a combination of equal parts of antiformin and ether, and centrifugalizing it. The antiformin disgregates the hard excrement and permits the sedimentation of the eggs of schistosoma and other parasites.

Only in exceptional cases determined by lack of apparatus for observation, may a studious physician with a profound knowledge of intestinal schistosomiasis and other parasitic affections, venture a clinical diagnosis of bilharzian pseudodysentery, after a careful examination of the subject and a study of his commemorative signs in connection with the location of his residence and place of labor.

Prognosis—Up to the present time schistosomiasis has been benign in Porto Rico. Forty-four per centum of the persons infested suffer no trouble at all. The general health is not impaired. Sanguineous regeneration in intense uncinariasis treated by thymol is not delayed by the presence of schistosomiasis. And those who protect themselves against re-infestation, cure spontaneously in the course of years, as happened in one of my cases from Aguadilla, cured ten years after diagnosis.

Although I have referred in this paper to two cases of bilharziosis upon whom I performed autopsies, and to another who died a few days after examination, I must state that they died of intercurrent diseases and not of schistosomiasis. One died of pellagra, another of heart failure, and the third of intense uncinariasis.

Because of its long duration—up to thirty years, according to some—this disease, although benign, is of serious prognosis.

Treatment—The treatment is purely symptomatic—mild saline laxatives, and opiated pills with extract of hydrastis and

ipecac during the acute attacks. Against the schistosoma there is nothing to recommend. Salvarsan, neosalvarsan, atoxyl, aspidium, filix-mas, and other less important drugs, failed in my hands.

Prevalence and Distribution in Porto Rico.—Schistosomiasis prevails on the coasts of the island, and in those lowlands and valleys of the interior where cane is cultivated. Favorable shelter is offered thereto by river margins, swampy lands, small lakes, pools and ditches. It has been found in the North, in the East, in the South and in the West, and in the basins of the large rivers. On the dry lands where coffee is cultivated—although they may be near the coast—and in the mountain regions, there are no endemic centers.

We must except Utuado, however, which, notwithstanding its being in the center of the island and surrounded by mountains, constitutes a seriously threatening focus.

In 1904 the first Anemia Commission of Porto Rico recorded 21 cases out of 5,000 anemia patients examined by them, and in 1913 the Institute of Tropical Medicine of Porto Rico, as a member of which I worked there, recorded out of its 10,140 patients, 320 cases of intestinal bilharziosis.

The reason for the existence of this endemic focus in the center of Porto Rico is explained by the following circumstances: (a) The town of Utuado was founded in a damp valley crossed by two large rivers contaminated by human dejections. (b) Many years prior to the emancipation of slaves, the bottom and low lands surrounding the town and adjacent to the rivers, were cultivated to cane and rice. (c) During the existence of slavery, West African negroes purchased on the coast were imported, and they possibly scattered the eggs of the parasite in the regions at present contaminated which are precisely those nearest the town.

The 136 cases of the Mayaguez series gave a contingent of 99, or 73.3%, for the rural zone. Thirty-two cases, or 22.2%, corresponding to the town, and the rest, or 4.45%, to other municipalities. This includes one case from Santo Domingo. It is important to point out that in one sole district of the town 23 cases were recorded, and that this district is contiguous to the swampy zone where, without question, the two cases mentioned in my first monograph became infested.

The distribution of bilharziosis in regard to the sex, age and color of the patients, is summarized in Tables VIII, IX and X. The Mayaguez series, which comprises Tables VIII and IX, shows 91 males as against 45 females, or 67.4 and 32.6%, respectively, and that of Utuado, on the contrary, gives 85 males as against 135 females, or 38.64 and 61.36%, respectively.

The marked difference and even the contrariety discovered in the distribution of the disease among the sexes of the two tables, is immediately noticeable. There is nothing particular in the contrast, and its explanation is very simple. In Mayaguez, women do not engage in agricultural labor, nor do they wash clothes on the river margins, but in laundries within the city limits, being, therefore, much less exposed than men, who cultivate the soil and go barefooted about the swampy lands. In Utuado, on the other hand, women cultivate the soil as do the men. They wash clothes on the margins of rivers infested by the dejections of almost all the inhabitants of the town, and also bathe in these rivers. Their exposure is perhaps greater.

Intestinal bilharziosis has no predilection for any determined race. Its frequency is shown in my statistics in relation to the proportion of patients of each race that visited our dispensaries—111 whites, 19 mulattoes and 6 negroes in Mayaguez, and 163 whites and 56 colored patients in Utuado.

The distribution according to age shows that in both series the ages of greatest exposure are from 10 to 39 years.

Conclusions.

From the foregoing study we may arrive at the following conclusions:

1. Intestinal bilharziosis is a disease naturalized many years since in the Antilles and other regions of the American continent.

2. Evident demonstration of its occurrence in natives of America was not established until 1904, when I presented my first two cases to the Medical Association of Porto Rico.

3. Papers on bilharziosis published in America prior to mine, all refer to bilharzian hematuria produced by *Schistosoma hematobium*.

4. The living agent of intestinal bilharziosis is the *Schistosoma mansoni*, the female of which lays lateral-spined eggs different from those of *Schistosoma hematobium*.

5. *Schistosoma mansoni* and *Schistosoma hematobium* are **distinct species** introducing **different diseases**, having special geographical distribution.

6. *Schistosoma mansoni* was imported into the Antilles and America, by West African negroes.

7. In over 300,000 persons examined by the members and subaltern personnel of the Anemia Commissions of Porto Rico and of the Institute of Tropical Medicine and Hygiene, it has been impossible to find one single case of bilharzian hematuria, notwithstanding the tenacity and interest with which it has been sought.

8. Intestinal bilharziosis has spread around the entire coast of the island, and prevails in the zones where cane is cultivated and in the valleys crossed by large rivers.

9. The infection of the inhabitants of each district is more or less intense according to the extension of the endemic centers. Thus Utuado, with a small focus, has an index of 2.16%, while Mayaguez, with extensive bottom lands and numerous swamps, gives an index of 8.4%.

10. Intestinal bilharziosis has no predilection for race, sex or age. It attacks all those exposing themselves to contagion.

11. Although in the majority of cases the parasite entered through the skin, it is undeniable that certain subjects could not have been infested otherwise than through the alimentary canal.

12. The clinical features of intestinal bilharziosis in Porto Rico are the following: (a) Slight form, with a frequency of 44%. (b) Pseudodysenteric form, with a percentage of 40.9. (c) Enterocolitic form with 14.5%.

13. Even in its most serious form it determines but slight anemia. Moreover, it does not oppose regeneration of the blood in intense anemia, as established by cases of mine wherein the hemoglobin increased from 9% to 100.

14. Intestinal bilharziosis determines slight changes in the globular composition of the blood, which are characterized by moderate leukocytosis, eosinophilia and mononucleosis.

15. There is no pharmacologic curative treatment therefor.

16. Benign infections of subjects who abandon endemic centers, cure spontaneously in a period never less than ten years.

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NEWS AND COMMENT.

THE ATTAKAPAS CLINICAL SOCIETY held a very successful meeting in Crowley on October 3, with an attendance of about thirty-five. Dr. L. B. Crawford, of Patterson, presided, and Dr. W. F. Carstens, secretary-treasurer, was at his post. The session began at 2 p. m. with a clinic at the Crowley Sanitarium, under the auspices of Dr. E. M. Ellis. Many interesting cases were shown and discussed, the modern sanitarium was visited and lunch was served. Shortly after, at about 5 p. m., the scientific program was begun at the Elks' Home. Papers were read by Drs. Chassaingac, Gessner and Butterworth, of New Orleans; Dr. Young, of Rayne, and Dr. Faulk, of Crowley. All were pretty thoroughly discussed and, after a short business session, all adjourned to the Egan Hotel for the supper tendered by the society to its members and guests.

The place selected for the next meeting is Jennings, the representatives of two or three other towns withdrawing them, as no meeting was ever held in Jennings previously.

THE NAVAL MEDICAL SCHOOL.—This school opened at Washington, D. C., September 29, with eighteen students, the assistant surgeons, Medical Reserve Corps, composing the class entering at that time.

ARMY MEDICAL SCHOOL INSTRUCTORS.—The officers of the Medical Corps who were ordered to duty in the faculty of the Army Medical School, Washington, D. C., for the session beginning October 16, are: Col. William O. Owen, professor of medical department administration; Lieut. Col. Champe C. McCulloch, Jr., professor of military hygiene; Major Carl R. Darnall, professor of sanitary chemistry; Major William H. Moncrief, professor of operative surgery, and Capt. Philip W. Huntington, professor of roentgenology. The Army Medical School, formerly located at 721 Thirteenth Street, N. W., has been transferred to 462 Louisiana Avenue.

ANTHRAX IN SHAVING BRUSHES.—A number of cases of anthrax due to shaving brushes has come to light recently in London. The infection was traced to a cheap horsehair shaving

brush, described as having black japanned wooden handles and a thin brush of white hair, and manufactured in Japan. Neighboring towns of London and other places received large parcels of these brushes and a warning was sent out by the Local Government Board to the health officers in each of the towns receiving them.

SILLIMAN LECTURES AT YALE.—The Silliman lectures at Yale University were delivered this year by J. S. Haldane, M. D., LL.D., F. R. S., October 9-13. The subject was "Organism and Environment as Illustrated by the Physiology of Breathing."

COURSE OF LECTURES.—New York Skin and Cancer Hospital announces that Dr. L. Duncan Bulkley, assisted by the attending staff, will give the eighteenth series of "Clinical Lectures on Diseases of the Skin," beginning November 1, 1916. The lectures will be free to the medical profession on presentation of their professional cards.

LACK OF FUNDS MAY CLOSE HOSPITAL.—It is announced that the New York Ophthalmic Hospital may be compelled to close its doors for lack of funds, because of the falling off of subscriptions since the beginning of the war. Two of the free clinics for children have already been closed and it is feared further curtailment of the work will be necessary.

MURPHY FIELD HOSPITAL DISBANDED.—The field hospital organized by Dr. John B. Murphy as the Chicago medical unit, and forming a part of the general field hospital of the British expeditionary force in France, has been disbanded because of Dr. Murphy's death. The unit won the Royal Red Cross medal and was twice mentioned in dispatches for effective work.

MEETING OF THE SOUTHERN MEDICAL ASSOCIATION at Atlanta, Ga., November 13, 14, 15 and 16 will be held in Atlanta's Auditorium Armory, located near the principal hospitals of the Atlanta Medical School, in which clinics will be held every morning from 8 to 10 by distinguished clinicians from sixteen States. All railroads east of the Mississippi comprising the Southeastern Passenger Association have already granted reduced rates.

GROWTH OF THE A. M. A.—According to Secretary Alexander R. Craig, of the American Medical Association, the membership

of that association is now 78,301, and shows a gain of 2,300 over last year.

CHANGE IN TEXAS MEDICAL NEWS.—Dr. M. M. Smith, of Dallas, editor of the *Texas Medical News*, announced recently the change of his journal to a national journal, which will be devoted to the interest of medical life insurance and health conservation.

NEW ORLEANS RECORDS LOWEST DEATH RATE.—The death rate of New Orleans for September was the lowest in one hundred years. The white death rate was only 11.96, but the negro rate was 25.65. The rate is always augmented by the deaths in the Charity Hospital and other institutions where patients are received from the surrounding country. Accordingly, with the non-residents excluded, the true rate for the city was found to be 10.69 for whites and for negroes 22.12, or a total of 13.79. The total number of deaths in New Orleans for September was 493.

TUBERCULOSIS WEEK.—December 3-10 is "tuberculosis week," and it is the desire of the National Association for the Study and Prevention of Tuberculosis that this be made the banner year in constructive and effective work. Now is the time to prepare for this important time and occasion, in order that results may be more satisfactory than heretofore. If, according to expert opinion, tuberculosis can be stamped out in twenty years, it is necessary that each one do his part to help eradicate this dread disease.

ASSOCIATION FOR THE STUDY OF INTERNAL SECRETIONS.—This association was recently inaugurated with the object of correlating the work of the physicians and other students of this phase of medicine in the different parts of the world. Libraries are to be established and a scientific bulletin published to contain a resume of the work being done in this important line. The charter membership includes nearly three hundred physicians in every branch of medical practice. The association desires those who have contributed articles pertaining to one phase or another of the study of internal secretions to send six copies each of their reprints to Dr. Henry R. Harrower, Los Angeles, Cal.

These will be catalogued, cross-indexed and made available in six different medical centers.

JUBILEE OF PARKE, DAVIS & COMPANY.—The house of Parke, Davis & Company recently celebrated its golden jubilee. In a little pamphlet entitled *JUBILEE SOUVENIR* a complete history of the company is given, from the time of its establishment in 1866 to the present day. It is now ranked as one of the largest and best known firms in the world. It not only has branches in a great many of the large cities of America, but reaches out to foreign countries, and is represented in Montreal, London, Petrograd, Bombay, Buenos Ayres and Argentine and Havana.

MEETING OF OBSTETRICIANS.—The twenty-ninth annual convention of the American Association of Obstetricians and Gynecologists was held in Indianapolis September 25-27 and the following officers were elected: President, Dr. John W. Keefe, Providence, R. I.; vice presidents, Drs. Thomas Reeder, St. Louis, and Charles L. Hill, Newark, N. J.; secretary, Dr. Gustave Zinke, Cincinnati (re-elected), and treasurer, Dr. Herman E. Hayd, Buffalo.

SOUTH TEXAS DISTRICT MEDICAL ASSOCIATION MEETING.—The fortieth semi-annual meeting of the South Texas District Medical Association was held at the Holland Hotel, Orange, Tex., October 5 and 6, with Dr. E. A. Malsch, of Victoria, presiding. Drs. S. M. D. Clark and Isadore Dyer, of New Orleans, attended the meeting and read papers. The meeting was a most enjoyable and profitable one, both socially and scientifically.

PRESBYTERIAN HOSPITAL REPORT.—The September report of the New Orleans Presbyterian Hospital shows a total of 304 patients in the institution during the month, which broke all records. There were 40 patients in the hospital at the beginning of the month and 264 patients admitted during the month.

WASTE PAPER SOLD FOR TUBERCULOSIS BENEFIT.—During the last six months the St. Louis Tuberculosis Society collected and sold nearly 1,000,000 pounds of waste. New Orleans should have no difficulty in collecting that amount and more in the same length of time and putting the proceeds to some good account.

RECEIVES PRIZE FOUR TIMES.—The Elbert prize was awarded for the fourth time, by the American Pharmaceutical Association, to Prof. John Uri Lloyd, for his discoveries in the colloidal precipitation of alkaloids by Fuller's earth.

DISEASE COSTLY.—At a meeting of the American Chemical Society, held in New York recently, it was stated that this country is losing close to one billion dollars a year through preventable occupational diseases, in spite of the better-working-conditions' movement. Dr. W. A. Lynott, of the Federated Bureau of Mines, read a paper before the meeting which contained statistics that every workers in the United States loses an average of nine days' work a year through occupational diseases that could be prevented by the use of proper machinery and thorough sanitation.

CESAREAN TRIPLETS.—According to a press report, the first instance of the delivery of triplets by the Cesarean method took place at the Providence Hospital in Holyoke, Mass., some time in September. The babies, who are all apparently vigorous, are two girls, weighing six pounds each, and a boy weighing five pounds, twelve ounces.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.—The next meeting of the Louisiana State Board of Medical Examiners will be held November 30 and December 1 and 2 at the Hutchinson Memorial Building, 1551 Canal Street.

PERSONALS.—Dr. Earl Peck, first assistant resident physician at the Municipal Hospital in Philadelphia, who had attended hundreds of stricken children, died September 5, from infantile paralysis.

Dr. James A. Bethea, who has been on duty all summer in the Medical Reserve Corps at Fort Sam Houston, successfully passed the Army Board examination on July 14 and has been ordered to the Army Medical School at Washington, D. C.

Among the doctors from New Orleans who have returned recently from their vacations and resumed practice are: Drs. F. W. Parham, E. D. Martin, Milton A. Schlenker, I. McIlhenny, John F. Dicks, Thomas B. Sellers, W. W. Butterworth and George S. Bel.

Dr. Isadore Dyer attended the first examination of the National Board of Medical Examiners, held in Washington, October 16 to 21. Of ten candidates five passed.

Dr. C. Jeff Miller attended the meeting of the Clinical Congress of Surgeons held in Philadelphia, October 23-28.

Drs. Charles Chassignac and W. W. Butterworth were visitors at the meeting of the Attakapas Clinical Society held in Crowley, October 3.

REMOVALS.—*Journal of the Michigan State Medical Society*, from 91 Monroe Avenue, to 513-522 Powers Theater Building, Grand Rapids, Mich.

Dr. Allen Johnson, from McGregor, Tex., to German Hospital, San Francisco, Cal.

Dr. J. T. Weeks, from Bremond to Cleveland, Tex.

Dr. A. J. Bryant, from Newellton, La., to Little Rock, Ark.

Dr. C. B. Alexander, from Downey to Alhambra, Cal.

Dr. V. K. Allen, from Illinois Central Hospital to Lecompte, La.

The following removals have taken place in New Orleans:

Dr. J. M. Elliott, from 201 Medical Building to 1229 Maison Blanche Building.

Dr. A. J. Montz, from 209 Macheca Building to Dumaine and Rampart Streets.

Dr. J. Leon Lewis, from 709 to 421 Macheca Building.

Dr. S. W. Stafford, from 711 Macheca Building to Charity Hospital.

Dr. John R. Hume, from 518 to 311 Macheca Building.

Drs. C. A. M. Dorrestein, Ramon A. Oriol and Harold J. Gondolf, from 822 Audubon Building to 1226 Maison Blanche Building.

Dr. S. P. Delaup, from 412 to 201 Medical Building.

Dr. Robert Bernhard, from 711 Macheca Building to 412 Medical Building.

Dr. W. D. Phillips, from 416 Medical Building to 1201 Maison Blanche Building.

Dr. A. McShane, from 701 to 614 Macheca Building.

Drs. J. G. Hirsch, M. A. Shlenker and William Kohlmann, from 1201 to 1217 Maison Blanche Building.

Dr. J. Fred Dunn, from 1218 Maison Blanche Building to 711 Macheca Building.

Dr. J. M. Hountha, from 105 Medical Building to 711 Macheca Building.

Dr. E. A. Bertucci, from 710 to 1226 Maison Blanche Building.

Dr. H. P. Jones, from 1205 to 1203 Maison Blanche Building.

Drs. O. W. Bethea, J. T. Halsey, C. N. Chavigny, George K. Pratt, Jr., and Solon G. Wilson, from 1232 to 203 Maison Blanche Building

Dr. Henry P. Daspit, from 1226 to 1225 Maison Blanche Building.

Dr. John Smyth, from 1217 to 1141 Maison Blanche Building.

Dr. E. M. Hummel, from 1226 to 1222 Maison Blanche Building.

Dr. S. C. Jamison, from 1217 to 1232 Maison Blanche Building.

Dr. R. J. Mainegra, from 701 Perrin Building to 1109 Maison Blanche Building.

Dr. J. E. Landry, from 1232 to 1126 Maison Blanche Building.

Dr. T. B. Sellers, from 724 Baronne Street to fourth floor Cusachs Building.

Dr. J. T. Scott, from 1228 Maison Blanche Building to 602 Perrin Building.

Dr. Lucien A. Fortier, to 1106 Maison Blanche Building.

Dr. George Dempsey, from 709 to 702 Macheca Building.

Dr. E. A. Overbay, from 509 to 306 Macheca Building.

Dr. P. G. Lacroix, from 1232 Maison Blanche Building to 701 Perrin Building.

MARRIED.—On October 24, 1916 Dr. Charles Shupte Holbrook, of Jackson, La., to Miss Marie Louise Hertzog, of Derry, La.

BOOK REVIEWS AND NOTICES

All new publications sent to the **JOURNAL** will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the **JOURNAL** to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Venesection. A Brief Summary of the Practical Value of Venesection in Disease. By Walton Forest Dulton, M. D. F. A. Davis Co., Philadelphia.

Although it purports to be a "Handbook of Venesection" this book devotes much space to matters that have nothing to do with the history, technic or indications of blood letting. A great deal of its matter, therefore, would better have been relegated to a treatise on general medicine or therapeutics. On the whole the case of blood-letting is well put and this volume may be welcomed as spreading the teaching that venesection should be revived and accorded its rightful place as one of our most therapeutic procedures. It is to be regretted that this author has been inclined (as do nearly all others writing upon this subject) to make exaggerated claims for venesection and to suggest its application in conditions where, to say the least, its use is of doubtful value. Such a policy naturally tends to diminish the consideration which should be accorded blood-letting in its proper sphere.

Lemann.

A Manual of Practical Laboratory Diagnosis. By Lewis Webb Hill, M. D. W. M. Leonard, Boston.

This little manual is very practical and the methods it sets forth have been well chosen and clearly and concisely described. It fulfills its purpose of providing a pocket reference book for students and internes so that they may be saved "the trouble of hunting through all the various alternative methods of performing a test given in most of the larger books."

Lemann.

The Diagnosis and Treatment of Heart Disease. Practical Points for Students and Practitioners. By E. M. Brockbank, M. D., F. R. C. P. 2nd Edition. Paul Hoeber, New York.

The author has brought into small compass the essentials of the physical diagnosis of heart conditions. His descriptions are clearcut and easily understood. This little manual can be

used with profit in classes of physical diagnosis. The section on treatment is too brief to amount to more than the merest outline.

Lemann.

Clinical Disorders of the Heart. A Hand Book for Practitioners and Students. By Thomas Lewis, M. D., D. Sc., F. R. C. P. 3rd Edition. Paul Hoeber, New York.

The appearance of the third edition of Lewis' little book setting forth the basis for the recognition of the various types of cardiac irregularities gives evidence of the prompt recognition of its importance by the profession. The contributions of the English School of cardiologists are just beginning to be incorporated into our general text books of medicine and the treatment they are sometimes accorded there is inadequate. The subject is so important, the facts presented in this little treatise are so fundamental, and the treatise itself is so short that every well informed doctor should read it.

Lemann.

Modern Medicine and Some Modern Remedies. By Thomas Bodley Scott. Paul Hoeber, New York.

This little book contains four essays on: Disorders of the Heart, Arteriosclerosis, Therapeutics, Speculations and Doubts, Chronic Bronchitis and Bronchial Asthma. It was written by a general practitioner for general practitioners and its spirit as well as its aim is eminently practical rather than speculative or theoretical. The author has based much, in fact most, of his recommendations upon the solid basis of the latest facts of the science of medicine and so has brought art and his science in correlation. Many times, however, he becomes a rank empiricist and some of the applications of the newer remedies smack of pseudo science. The style of the author is clear and all the lectures are interesting and worth reading.

Lemann.

Diseases of the Skin, by Richard L. Sutton, M. D., C. V. Mosby Co., St. Louis.

There are a number of good text and reference books on skin diseases, but this work of Sutton will be generally considered as an addition to American dermatology. While conforming to the general scheme of the best of recent text books, there is much of originality in the presentation of the subject. The chapters on diagnosis and treatment particularly go into illustrative detail which can only help the student of dermatology. As for the general text, it is comprehensive and practical and carries a large number of illustrations, all of which

are evidently original and derived from many sources. The author has been generous in his quoted references, including much of the work of American dermatologists. The more exotic diseases are presented in sufficient length to give a summary of present information and this feature will add to the value of the book as a reference.

The style of the author is frank and clear and the work is altogether creditable when its pretensions are considered.

Dyer.

Mentally Deficient Children. Their Treatment and Training, by G. E. Shuttleworth, B. A., M. D. and W. A. Potts, M. A., M. D. Fourth Edition. P. Blakiston's Son & Co., Philadelphia.

The present edition of this valuable little book has been entirely revised in all its divisions. Since the first edition (1895), many phases of defective or "exceptional" children have undergone several revolutions, until today the whole field is newly outlined. The book in review has satisfied these changes and now presents the modern conception of the whole subject. The historical review of the study of deficient children is especially noteworthy. The material is excellently arranged and is thorough in the detail undertaken.

Dyer.

Skin Cancer, by Henry H. Hazen, A. B. M. D., C. V. Mosby Co., St. Louis.

There has been a long desideratum for a comprehensive book on skin cancer and we are glad Dr. Hazen has given us such a book. Skin cancer ordinarily has had so small a significance that it is worth while to find a work of pretentious proportions presenting several kinds and numerous varieties.

While the book will be valuable to those who want a careful and detailed differentiation of types of skin cancer and their diagnosis and treatment, there is still so much of educational importance in the work that the general practitioner should not miss the chance to become informed upon a subject to which he now confesses so large ignorance.

The pathology of each form of skin cancer is well given and the theories of cancer origin are discussed. Much detail is shown in differential diagnosis, and the excellent illustrations are of large service to this end.

Remedial care of cancer is fully covered, including many surgical procedures, some of which are aptly illustrated.

Altogether a timely and valuable contribution.

Dyer.

Harvey's Views on the Use of the Circulation of the Blood, by John G. Curtis, M. D., LL. D. Columbia University Press, New York.

Dr. Frederick S. Lee, Professor of Physiology at Columbia, has undertaken the editing of the work of Dr. Curtis and the gratitude of the medical profession should be extended him for his successful endeavor. As he states in an editorial note, the work is of one "who from the background of the physiological science of today delighted in mastering the ideas of the fathers of modern physiology. If his work is to be summarized in a single sentence, it may be said that he has shown Harvey to be a disciple more of Aristotle than of Galen. * * * Harvey's true position in the world of physiological thought has not before been made known. Herein lies Professor Curtis' contribution to the history of this science!"

The book itself is a rare literary treat, aside from its value as a careful and analytical review of Harvey's development of an evolutionary stage of medical thought. It hardly admits of brief review, for it deserves to be read by all medical men, who respect the foundation of the science which embraces modern medicine.

Dyer.

The Endemic Diseases of the Southern States, by William H. Deaderick, M. D., and Loyd Thompson, M. D. W. B. Saunders and Co., Philadelphia and London.

Malaria, blackwater fever, pellagra, amebic dysentery, hookworm and other intestinal parasites are discussed in this work, which contains over five hundred pages of material. Deaderick has again presented a masterly article on malaria covering all the modern information on this subject. This takes up nearly half the book, and it stands out as the best of the book, for the reason that it carries so much of the original work of the author.

Thompson contributes the article on pellagra and amebic dysentery jointly with Deaderick. These two subjects are reviewed and brought up to date, as are the other divisions of the work. The authors state that they are really only aiming at some of the endemic diseases in the South and in this their book is of service. The amount of material presented and the evidence of care displayed in compiling so much from so many sources bespeak the favorable reception of the book; besides, it is so full of valuable information that it may well serve for reference upon the topics included in its covers.

Dyer.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. 1916. Thirty-fourth year. Wm. Wood & Co., New York.

This encyclopedic volume presents a wonderful mass of information derived from universal sources and compiled and annotated by a group of the best of modern physicians and surgeons, many distinguished in the special fields of their contributions.

Dyer.

Diseases of the Eye, a Handbook of Ophthalmic Practice for Students and Practitioners. By George E. de Schweinitz, M. D., LL. D. (Pa.). W. B. Saunders Co., Philadelphia and London. 1916.

For more than twenty years de Schweinitz's work on the Eye has been a standard text-book on Ophthalmology. The constant advances made in that branch of medicine quickly make a good book obsolete. De Schweinitz's treatise has never been allowed to become antiquated, but, by repeated revision and enlargement, it has always sustained its claim to being a complete and systematic reflex of contemporaneous ophthalmologic practice. Among the new matter incorporated in this edition we may mention: Clifford Walker's method of testing visual field; squirrel plague conjunctivitis; swimming bath conjunctivitis; anaphylactic keratitis; family cerebral degeneration with macular changes; ocular symptoms of disease of the pituitary body; sclereotomy with a punch; preliminary capsulotomy; iridotaxis; thread drainage of the anterior chamber; extraction of cataract in the capsule after subluxation of the lens with capsule forceps; capsulo-muscular advancement; tenotomy of the inferior oblique; window resection of the nasal duct.

It is unnecessary to give an outline of the subjects discussed in de Schweinitz's work, since such an outline itself would have to embrace the entire domain of ophthalmology.

The author himself has done the revising, and by industry and careful sifting of periodical literature he has succeeded in retaining its claim on the consideration of the medical world as a full, systematic exposition of modern ophthalmology.

McShane.

Practical Medicine Series. Vol. III. Eye, Ear, Nose and Throat. Edited by Casey A. Wood, M. D.; Albert H. Andrews, M. D.; George F. Shambaugh, M. D. Series 1916. The Year Book Publishers, Chicago.

We have had the pleasure of noticing previous numbers in this valuable series of year books. The ten volumes that con-

stitute the year's output of condensed medical progress in all branches of medical science give the general practitioner a faithful summary of the useful new work done in the entire field of practical medicine. Although the volumes are intended primarily for the general practitioner, still the specialist in each can, by selecting the appropriate volume, find, in brief compass, a summary of the substantial progress achieved in his particular line. The present volume abounds in matter relating to injuries of the eye, owing to the Pan-European war, where shrapnel and high explosives are playing havoc with the ocular apparatus. The present number sustains the high character of the series.

McShane.

International Medical Annual, 1915. Published by William Wood and Company, New York.

In spite of the great war, the thirty-third annual issue of this well-known year book of treatment and practitioner's index was produced. Are noted: Special articles on Naval and Military Surgery; but, as usual, most careful consideration has been given to each department of medicine and surgery.

Articles deal with alterations and additions of the new edition of the British Pharmacopoeia.

A new and more prominent type for this issue has been adopted which renders it easier to read.

E. M. D.

Refraction of the Human Eye and Methods of Estimating the Refraction. By James Thorington, A. M., M. D. P. Blakiston's Son & Co., Philadelphia.

Under this single title are grouped three different works by the same author: "Refraction and How to Refract," "Prisms" and "Retinoscopy." Thornton's work on refractive errors has long been a standard text-book. His little handbook on Retinoscopy is a complete practical exposition of the subject. The author's aim has been to supply beginners in Ophthalmology with an accurate guide, while leaving out the abstruse mathematical calculations that abound in Sanders' classical treatise. Thorington is systematic and practical. He takes the student through the laws of optics; then the standard emmetropic eye is studied, and finally all kinds and conditions of ametropia are described and methods of correcting them fully set forth.

Some matter that has fallen into disuse has been deleted, and all useful new matter has been incorporated in the text. It may be of interest to note that Thorington's original work

on "Refraction and How to Refract" received the compliment of being translated into Chinese in 1914.

The recent improvements introduced into Thorington's work assure it of a continuance of the popularity and esteem it has always enjoyed.

McShane.

The Medical Clinics of Chicago. Vol. I. No. 1. July, 1915. Vol. I. No. 2. September, 1915. Vol. I. No. 4. January, 1916. Vol. I. No 5 March, 1916 Published by W. B. Saunders Company, Philadelphia and London.

These books are published bi-monthly, six numbers a year. They are clinics held in the great hospitals of Chicago and contribute a most flattering proof of the advancement of medicine in America.

It would be worth while owning the sequence of the numbers as they are published.

E.M. D.

PUBLICATIONS RECEIVED

- LEA & FEBIGER.** Philadelphia and New York, 1916.
Progressive Medicine. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. September 1, 1916.
Diseases of Children, by Edwin E. Graham, A. B., M. D.
- J. B. LIPPINCOTT COMPANY.** Philadelphia and London, 1916.
Care and Feeding of Infants and Children, by Walter Reeve Ramsey, M. D., including suggestions on nursing, by Margaret B. Lettice and Nann Gossman.
International Clinics. Volume III. Twenty-sixth Series, 1916.
- THE YEAR BOOK PUBLISHERS.** Chicago, 1916.
The Practical Medicine Series. Volume IV: **Gynecology.** Edited by Emilius C. Dudley, A. M., M. D. and Herbert M. Stowe, M. D. Series 1916. Volume V: **Pediatrics.** Edited by Isaac A. Abt, M. D., with the collaboration of A. Levinson, A. M., M. D. **Orthopedic Surgery.** Edited by John Ridlon, A. M., M. D., with the collaboration of Charles A. Parker, M.D.
- P. BLAKISTON'S SON & COMPANY.** Philadelphia, 1916.
A Text-Book of Human Physiology, including a section on Physiologic Apparatus, by Albert P. Brubaker, A. M., M. D. Fifth edition, revised and enlarged.
- SURGERY PUBLISHING COMPANY.** New York, 1916.
The American Year-Book of Anesthesia and Analgesia, by F. H. McMechan, A. M., M. D.
- F. A. DAVIS COMPANY.** Philadelphia and London, 1916.
A Practical Treatise on Disorders of the Sexual Function in the Male and Female, by Max Huhner, M. D.
- WASHINGTON GOVERNMENT PRINTING OFFICE.** Washington, D. C., 1916.
United States Naval Medical Bulletin. October, 1916.
Report of the Department of Health of the Panama Canal. July, 1916.
Bacteria in Commercial Bottled Waters, by Maude Mason Obst. United States Department of Agriculture.
Hay Fever and Its Prevention, by W. Scheppegrell, M. D.
Public Health Reports.
Public Health Reports. Volume XXXI, Nos. 29, 30, 31, 32, 33, 34, 35, 36, 37, and 38.

- Report of the Department of Health of the Panama Canal. June, 1916.
- The Sanitary Progress and Vital Statistics of Hawaii. (Prudential Press, Newark, N. J.)
- Die Schwarzen Sporen (black spores), bei der Malariainfektion im Mucken Körper, Von S. L. Brug.
- Archiv für Schiffs—und Tropen-Hygiene, begründet von C. Mense.
- Streptococcus equinus Septicaemia in the Anglo-Egyptian Sudan, by Alberet J. Chalmers, M. D., F. R. C. S., D. P. H., and George Haddad M. D.
- Dr. John Hall—Shakespeare's Son-in-Law, by Walter Lindley, M. D.
- Pathogenic "Faecalis" Streptococci in the Anglo-Egyptian Sudan by Albert J. Chalmers, M. D., D. P. H., and Alexander Marshall.
- A Note on Vaccine Treatment in Streptococcal Puerperal Fever, by Albert J. Chalmers, M. D. D. P. H., and Captain O'Farrell, R. A. M. C.
- Cecal Stasis With Betaiminazolyethylamine (Histamin) Intoxication in Relation to Dementia Praecox; Indications for Treatment by Bayard Holmes, M. D.
- Dementia Praecox Studies, by Bayard Holmes, M. D., and Julius Retinger, Ph. D.
- Contribucion al Estudio de los Germenés Patogenos del Agua, by Dr. Juan Iturbe and Dr. Eudoro Gonzales.
- The Urine as a Prognostic Indicator in Puerperal Infection, by Theodore William Schaeffer, M. D.
- The Control of Typhoid in the Army by Vaccination, by Major F. F. Russell, M. D., U. S. A.
- Hay Fever: Its Cause and Prevention, by William Scheppegrell, M. D.
- Proctitis and Pruritis Ani, as discovered by Dr. Alcinous B. Jamison.
- Commercial Production of Thymol from Horsemint (Monarda Punctata). By S. C. Hood, United States Department of Agriculture.
- Report of the Director of Sanitation of Porto Rico for 1915.

MISCELLANEOUS:

- Medical and Surgical Reports of the Episcopal Hospital Hospital in Philadelphia.** Volume III. (Press of Wm. J. Dornan, Philadelphia, 1915).
- The Anti-Prohibition Manual.** (National Wholesale Liquor Dealers' Association of America, Cincinnati, Ohio, 1916).
- The Sanitary Progress and Vital Statistics of Hawaii.** (Prudential Press, Newark, N. J., 1916).
- Jubilee Souvenir.** (Parke Davis and Company, Detroit, Michigan, 1916).
- Saving the Sight of Babies.** (National Committee for the Prevention of Blindness, New York City, 1916).
- The Meaning of War and the Basis for Permanent Peace,** by James W. Johnson. (Lewis R. Kantner Press, New York, 1916).
- Second Annual Report of the International Health Commission of the Rockefeller Foundation.** (Offices of the Commission, 61 Broadway, N. Y., 1916).
- Transactions of the Society of Tropical Medicine and Hygiene.** July, 1916. (11 Chandos St., Cavendish Square, W., London, 1916).

REPRINTS

- Great Men and How They Are Produced,** by Casper L. Redfield.
- Three Cases of Entamoeba Histolytica Infection Treated With Emetine Bismuth Iodide,** by George C. Low, M. A., M. D. and Clifford Dobell, M. A.
- Reports of the M and H. Laboratories Dealing With the Diseases Affecting the Troops in the Dardanelles,** by Captains R. G. Archibald and G. Hadfield, R. A. M. C. and Lieutenants W. Logan and W. Campbell, R. A. M. C.
- Preliminary Remarks Upon Epidemic Cerebrospinal Meningitis as Seen in the Anglo-Egyptian Sudan,** by Albert J. Chalmers, M. D., F. R. C. S., D. P. H. and Captain W. R. O'Farrell, R. A. M. C.
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MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for September, 1916.

Cause.	White	Colored	Total
Typhoid Fever	5	2	7
Intermittent Fever (Malarial Cachexia)	3	2	5
Smallpox			
Measles	1		1
Scarlet Fever			
Whooping Cough	1		1
Diphtheria and Croup	1	2	3
Influenza			
Cholera Nostras			
Pyemia and Septicemia			
Tuberculosis	34	41	75
Cancer	19	9	28
Rheumatism and Gout	1	3	4
Diabetes	2	2	4
Alcoholism	4		4
Encephalitis and Meningitis	2	1	3
Locomotor Ataxia	1		1
Congestion, Hemorrhage and Softening of Brain	10	7	17
Paralysis	1	1	2
Convulsions of Infancy			
Other Diseases of Infancy			
Tetanus		2	2
Other Nervous Diseases	5	1	6
Heart Diseases	44	39	83
Bronchitis	1	2	3
Pneumonia and Broncho-Pneumonia	13	12	25
Other Respiratory Diseases	1	1	2
Ulcer of Stomach		1	1
Other Diseases of the Stomach	2	1	3
Diarrhea, Dysentery and Enteritis	13	7	20
Hernia, Intestinal Obstruction	3	1	4
Cirrhosis of Liver	4	7	11
Other Diseases of the Liver	5	4	9
Simple Peritonitis			
Appendicitis	3		3
Bright's Disease	15	14	29
Other Genito-Urinary Diseases	18	13	31
Puerperal Diseases	2	1	3
Senile Debility			
Suicide	2	1	3
Injuries	22	20	42
All Other Causes	37	21	58
Total	275	218	493

Still-born Children—White, 20; colored, 26; total, 46.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 11.96; colored, 25.65; total, 15.65. Non-residents excluded, 13.78.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 30.00
 Mean temperature 79.
 Total precipitation 3.13 inches
 Prevailing direction of wind, northeast.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

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JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

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H. D. BRUNS, M. D., Tulane University of Louisiana.

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EDITORIAL

NEW ORLEANS A MEDICAL CENTER.

The press reports of several millions donated to the University of Chicago for the development of its medical school presents large interest for those concerned in medical education.

A few years ago the Harvard Medical School was changed from a mediocre teaching institution to probably the best school in this country by a gift which permitted the erection of monumental buildings together with all complementary equipment. A civic interest in Boston added the control of the excellent hospitals and with these co-ordinates Harvard moved into the first place in medical education. Certain insular methods of

curriculum have still prevailed, but a liberal administration is gradually broadening the educational usefulness of a school which at all times has led in scientific achievement.

With Chicago, New York, Philadelphia, conditions have not been entirely likewise. Here the several schools have enjoyed state or municipal support, with more or less added endowment. Where the schools have been part of universities the assurance of maintenance has always been the reason for good standards. No one of the schools in these places, however, has been able to make eccentric standards, through a financial independence of a student body. With Cornell alone a liberal endowment has permitted some restrictions.

Johns Hopkins University in its Medical School has been singularly fortunate in being selected for a varied philanthropy which has practically assured the future of a school always exceptional in its methods of teaching and so far singular in many of its curricular arrangements.

Washington University in St. Louis has not yet assumed the promised stride which was to put it on a basis like that of Hopkins, even though several million dollars of endowment have been afforded and the generous are still adding to the store.

Chicago has more than once taken the initiative in medical education and its real medical schools have more than once suffered in the sacrifices committed for better standards. That the University of Chicago, with less than the Harvard endowment, proposes the best medical school in the country is quite becoming to Chicago and it is to be hoped that a city of such large achievements generally may help the endowment enough to make this ambition a realization.

The policies which govern philanthropic bodies possessed of wealth for public service are usually not open to the intelligence of the man in the street, but it would seem that so far the tendency is to strengthen those already strong—perhaps those weak or less strong may find help later.

There have been three medical centers in the United States for nearly a century—Philadelphia, New York and New Orleans. Other places have developed as educational centers and, among other university activities, medical education has grown into larger and larger importance. State universities, like those

of California, Minnesota, Wisconsin, have satisfied these claims of the public and are giving of the best. Accidental wealth of endowment or large state support by themselves create opportunities and none of these make a medical center.

The large material for medical investigation and research in the principal seaports of any country makes for their educational value and if the clinical opportunities are made available the field for student and for the practical physician must be always great.

New Orleans has these facilities—true not in magnificent buildings or in the number of them, but in the population which comes from all countries and which in its natives represents an almost tropical people. Even with limited means, in its local medical school, one large achievement after another has come forth, and in a purely scientific way New Orleans has never lost that original prestige, established the first half of the last century. With the support of wealth both in their respective states and cities, as well as from private sources, the medical schools of the North, East and West are already satisfying dreams of successful administration without care for the economies of a parsimonious budget and the future opens up a more advanced attitude to the growing problems of medical education. Our own citizens have given, but a medical school to-day demands a great deal to be efficient and it requires the highest degree of efficiency to properly train the physician of to-day.

New Orleans is almost awake to its commercial greatness; every day a new clarion note is sounded in one or another enterprise. The medical field has always done its work well, without the clarion note, and thus far it has largely thriven upon the empty laurels of its achievement, still hoping for a more practical reward, expressed in such terms as those which have cheered the University of Chicago—"8,000,000 for the Medical School of the University of Chicago!"

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

A DIGEST OF THE INSECT TRANSMISSION OF DISEASE IN THE ORIENT WITH ESPECIAL REFERENCE TO THE EXPERIMENTAL CONVEYANCE OF *TRYPANOSOMA EVANSI*.

By M. BRUIN MITZMAIN, M. Sc.,

Formerly Veterinary Entomologist Government of the Philippines. Technical Assistant U. S. Public Health Service.

In a discussion of the interpretation of the mode of conveyance of infectious diseases by insects, the question is limited, from the viewpoint of the entomologist, to the consideration primarily of the armament of the insect carrier. The nature of the insect's appendages gives us at once a working hypothesis for the founding of our experimental procedure. From the character of the mouth parts, e. g., whether of the piercing type or the mandibulate, we know at once if an insect carrier can function as an active parasite or purely as a passive one.

The latter mode of conveyance involves, as we at once recognize, such forms as the scavenger flies with fouled mouth parts, feet pads, and body hairs, affording unlimited possibilities of contamination. This type of disease transference cannot be dismissed from the jurisdiction of a discussion of this sort, but it must be related with an insect which assumes a passive role in the sense of playing the part of an accidental carrier. This can be interpreted from results of experiments referred to later.

Modes of conveyance with insect vectors involve the mechanical, whereby the agent acts as a mere porter, and the biological, whereby the agent acts as the definite host. In the latter, a definite cycle of development occurs within the body of the insect and the causative protozoan parasite is modified prior to assuming a form suitable for conveyance through the channel of the insect's biting apparatus. Transmission of this type involves,

as we are well aware, such classical diseases as malaria and sleeping sickness.

The formulation of a working hypothesis is the first step in laboratory research, and the philosophical basis for a proposed line of action is invariably reasoning by analogy. The experimental investigation of the insect transmission of the surra trypanosome is no exception, and ever since the monumental work of Kleine and of Bruce in the etiology and mode of conveyance of African trypanosomiasis, the investigators of surra have been summoned from time to time to demonstrate a similar biological phenomenon of the cyclical development of the trypanosome in the insect carrier. The results of the investigations of workers in India, Java and the Federated Malay States do not tend to support this hypothesis. On the contrary, circumstantial evidence, judged from field observations, at least, is strongly opposed to it and a satisfactory explanation of the spread of the infection of surra among draft animals in the Orient is provided in the direct method of insect transmission.

This was the status of the experimental evidence concerning the epidemiology of surra prior to the time of the writer's modest attempts to contribute to our knowledge of the subject. It was clearly seen at the outset that the work of all previous investigators failed in one important essential, namely, the lack of biological appreciation of the pathogenetic material presented.

Briefly the defection consisted in this: Since it was attempted to prove that the direct method of transmission was the only one, the conclusions drawn were unwarranted, as all of the experimental evidence contributed showed, first—that the investigators employed only wild flies caught in the open, which failed to accurately account for the possibility of a previous infection, as the food source was not ascertainable; and, secondly, the principle of a biological cycle of development of the surra trypanosome could not be properly eliminated because the flies used in all the experiments lived only a few days after biting the infected host.

With due deference to the monumental advances inaugurated by medical men in applied entomology, it is only fair to explain that the workers in the Orient were not entomologists, but were medical men who lacked either training or appreciation of

the biological factors involved in the problems of trypanosomiasis. It was obvious that, in order to pursue the work accurately, it was essential to provide a rational biological equipment. In other words, in order to incriminate or eliminate certain blood-sucking flies, it was necessary to apply in our experiments only laboratory-bred insects, which must be used in large numbers and during long periods. At first, attempts were made to experiment with every species of ectoparasite found in sufficient numbers to warrant investigation. Difficulties were at once encountered in breeding certain species in large numbers and also in keeping flies alive for considerable periods. The forms bred successfully included the carabao louse, cattle tick, stable fly, gad fly, the hippoboscid fly, and several species of mosquitoes. All of these were successfully kept under artificial conditions for daily feeding tests during considerable periods following the initial meal on the infected host. The flies which gave trouble in their breeding and longevity were the sand fly, a species of gnat, and the horn fly.

If conclusions are warranted, the evidence obtained would indicate that all the species applied could transfer infection readily if considerable abrasions were present, that is purely mechanical contamination. Also only one species, namely, *Tabanus striatus*, the gadfly or horse fly, could transmit the disease readily through puncturing of the unbroken skin of the experimental animal. In all, four hundred experiments were attempted before any thought was given to speculate on the results obtained. The stable fly, *Stomoxys calcitrans*, was accurately eliminated relative to a developmental cycle after ninety-four days of continuous daily feeding, and was considered not a serious factor in the dissemination of the disease by the direct method of application. It was concluded, also, that the horse fly, *Tabanus striatus*, was the most formidable and probably the only agent in the disease transmission from host to host by virtue of its skin-piercing apparatus. The latter fly is now accepted as a surra-conveying fly of the Philippines.

Let us consider how far this parasite is active as an agent of transmission. The limits of time infection were determined after an exhaustive period of feeding tests. It was ascertained that under natural conditions this horse fly, either voluntarily

or on account of strenuous resistance on the part of the host attacked, will invariably interrupt itself while sucking blood and requires several distinct insertions of its proboscis before a point of satiation is reached. These pricking stabs of the insect's mouth can be induced in an experiment to the extent of twenty-six times or a matter of fifty-two bites when applied at short intervals to two hosts alternately. The epidemiological significance of this peculiar biting action appeals to one at once. It would appear, at first impression, that a fly given the necessary materials for operating, namely, sick host and healthy host, transmission would result infallibly. And if many healthy contacts were present an epizootic would appear to be not preventable.

The query naturally arises—how many animals could flies infect successively? A question of highest importance, where large numbers of animals are quartered, as obtains in army posts and public corrals. This point was settled, experimentally, with the following results: Horse flies permitted to bite a highly-infected horse when successively applied in individual tubes to three healthy animals, at intervals, aggregating five minutes, could infect the first horse exposed to the fly bites, but could not infect the second and third horses employed. The trypanosomes were deposited on the first animal only, being washed cleanly into the blood stream of this contact and did not adhere to the lumen of the fly's proboscis nor were they retained by the salivary glands and regurgitated upon subsequent feedings.

In the matter of the time limit of infection it was found that flies of this species could transmit at intervals of a few seconds only, within three minutes, five minutes, seven and one-half minutes, ten minutes and in fifteen minutes, but could not transmit trypanosomes at various intervals from twenty minutes to twenty-six days after soiling their proboscides with blood of a virulent case of surra. Monkeys, Guinea pigs, horses and cattle were successfully inoculated by the flies used in this series of experiments.

As to the fate of the trypanosomes within the body of the insect host, it was determined by systematic dissections that horse flies harbored the organisms in an unchanged form for a period

of thirty hours and were present in a form virulent by inoculation into susceptible animals a period of ten hours after the infective bite. The organisms became probably rapidly disintegrated through the alimentary tract, for it was ascertained that trypanosomes similar to the blood forms were found in the fecal deposits of infected flies beginning two and one-half hours after feeding.

Transmission of infection hereditarily was eliminated both experimentally in numerous trials and practically when judged by field observations.

Preventive measures were promoted in the following recommendations: Through attack of the fly in the larval form by chemically treating sand along lake shores found harboring them; protection of animals in darkened sheds which was found to repel flies; and avoiding bites in enzootic areas by keeping animals in the open only during the hours between 7 p. m. and 5 a. m., the time when this species of *Tabanus* is inactive.

The possibility of surra dissemination through the agency of non-biting flies was determined in an investigation of *Musca domestica*, the house fly. The possibility of infection conveyed by the house fly in a passive role has long been recognized. In reference to trypanosome transmission it is presupposed that the method is correlated with a previous skin abrasion affording the channel of entrance for the pathogenic organisms. Consideration of skin abrasions occurring through injury or disease must include the mechanical openings effected by various ectoparasites. The latter include such forms as the ticks, gad flies and stable flies. These parasites are important factors commensurate to the size of the openings punctured in the host's cuticle and which remain after withdrawing the piercing mouth parts in satisfying the desire for blood. It is obvious that in the presence of muscids, with mouths constructed for lapping contaminated products, unlimited possibilities for conveyance of surra from host to host present themselves.

In the present study the investigation was pursued from various angles. The purely mechanical method of contamination was not considered until the more important biological relations were exhausted. Only *Stomoxys calcitrans* was considered as a correlative factor in reference to the house fly as

a carrier of infection. In a previous report, I have described the intimate relations existing in the feeding habits of the two species of flies. It was pointed out that the coprophagous flies, and especially the house fly, acted in a sense as secondary passive parasites by lapping to a point of engorgement the blood brought to the host's epidermis by the probing of the proboscis of the stable fly. It was observed under natural conditions that an unusual percentage of non-biting flies were attracted to domestic animals not alone to act their role as scavengers but were found to accompany stable flies and gad flies to avail themselves of the food provided through the wounds made by the latter.

With this peculiar phase of parasitism in mind experiments were conducted to determine the relationship of *Musca domestica* as a carrier of trypanosomes. It was aimed to prove, first, that this fly could harbor infective organisms and was determined satisfactorily by numerous dissections and injections of saline suspensions of abdominal contents of flies fed on the abraded tail of the surra-infected monkey. Two Guinea pigs and one monkey inoculated with material of this sort sickened after an average incubation period and died, giving indications of the nature of the disease at autopsy. Preparations of the blood of the three animals showed *Trypanosoma evansi* in large numbers.

Attempts were made to simulate the normal relationship of parasitism in *Musca domestica* and *Stomoxys calcitrans* by placing many flies of the two species in a common bottle and permitting them to attack the enclosed tail of a surra-infected monkey. Only laboratory-bred flies were employed.

The five experiments were followed by negative results, demonstrating under these conditions that *Musca domestica* does not transport infection through the channel afforded by the wound caused by the skin-piercing apparatus of *Stomoxys calcitrans*.

The possibility of surra infection being carried by the fly's feet was tested also. This was performed in the same manner with both species, as in the preceding, but with this difference: The infected *Musca* were introduced from a separate bottle and by careful manipulation of the wire support attached to the monkey's tail the flies were permitted to alight on the appendage, but were prevented from feeding.

The five experiments failed to demonstrate that the wound

made by the labium of the stable fly was a suitable channel for the introduction of trypanosomes carried on the pulvilli of *Musca domestica*.

Finally, to serve as controls to these experiments, four tests were made to decide the question of the possibility of the punctures caused by the bite of the stable fly serving as sites for the introduction of trypanosomes in virulent blood. The four Guinea pigs used for the fly biting and the subsequent rubbing in of blood conveyed on a platinum loop escaped infection.

The practical significance of the conveyance of trypanosomes obtained by *Musca domestica* from the bite of the probing of the stable fly when wounds are present was finally investigated. Monkeys and horses were employed in this series. The house flies, after apparent engorgement of blood derived from the probes of stable flies were transferred to clean bottles and the abraded surface of the monkey's tail presented for the completion of the meal. The two horses exposed were scarified by scratching the haunch with a sharp scalpel.

In transferring bottles and tubes applied to the infected host the mouth of the vessel was carefully wiped with a cloth saturated with strong alcohol. A few minutes were permitted to elapse before the vessel was then applied to the broken skin of the healthy host. Four of the five experiments attempted resulted in positive transmission.

In confirmation of conclusions to be inferred from the experimental evidence obtained, epidemiological studies were conducted in the region of two very well-defined outbreaks of surra in two provinces on the Island of Luzon. In one focus, a total of one hundred and five saddle horses and pack horses contracted the disease at a time when the presence of the blood-sucking form, *Tabanus striatus*, could be definitely excluded. It could be shown, however, that the first horses, which died before the malady was identified, became infected at a time when gad flies were prevalent. It was observed here that at the height of the spread of the disease an unusual infestation of house flies occurred. This was easily accounted for by the presence of large quantities of sugar cane debris accumulating about the stables where the animals were quartered on this sugar hacienda. Here myriads of flies were attracted and were found breeding. Nearly

95 per cent of the sick animals were found with open sores arising from packs and saddles and many were seen with mouth abrasions due to the rough sugar cane fodder upon which they fed.

The second outbreak investigated gave strong evidence of infection due exclusively to the gad fly, *Tabanus striatus*. Twenty-four cases of the disease were isolated from brood mares located on the government stock farm near Manila. The evidence incriminating horse flies of the species *Tabanus striatus* was presented as follows: *Tabanus striatus* was the predominant species of fly observed preceding and during the outbreak. Not a single instance of infection arose in animals kept stabled during this period. Only pastured animals were attacked and these were kept in stables at night so that mosquitoes and other nocturnal forms present could be eliminated. Experimental horses kept in these pastures at night and stabled during the entire day escaped infection. Not a single instance of wound infection could be demonstrated among these animals, which were daily in the care of a government veterinarian. The infection exacted its toll from animals segregated in four nearly distinct pastures with wooded barriers, conditions favoring the peculiar habits of flight and rest for the horse flies incriminated.

In the matter of eliminating the factor of a biological transmission of *Trypanosoma evansi* all of the epidemiological evidence tended strongly to be convincing. Studies of this nature were conducted during three years and more throughout the Philippine archipelago with a definite conclusion that every outbreak of surra infection could be satisfactorily accounted for in the direct method of transmission.

In the outbreak last analyzed this principle was given a convincing test in the following ways:

Large numbers of horses, experimental and others, were exposed to fly bites from one week to sixty days following the isolation of the last case of surra. These animals were kept in the identical pastures and woods from which sick animals were removed.

More than five thousand horse flies were collected from this region at intervals following the outbreak. These were ex-

amined beginning forty-eight hours after possible contamination and this was continued for a period of three and one-half months. These findings, in addition to the biting experiments on healthy monkeys and horses, were negative.

A previous outbreak upon the government stock farm occurred in September, 1909; in the presence of similar faunal conditions there was no recurrence of the disease until four years later, May-June, 1913. This also would tend to eliminate the possibility of any biological development relative to protozoan parasite and insect carrier.

OBSERVATIONS ON TETANUS WITH REPORT OF A SUCCESSFULLY TREATED CASE.*

By L. SEXTON, M. D., New Orleans.

Tetanus is an acute infection, caused by the tetanus bacillus of Nicolier (1884) and Kitasato (1889), usually following some wound or abrasion. Tetanus is characterized by tonic and clonic spasms of the voluntary muscles. While it is usual for some traumatism to precede the attack, it is not always possible to discover such wound or abrasion, but it should be remembered that the infection may take place within the alimentary canal (being abraded) or from some subcutaneous injury becoming infected through the blood (rarely), or from an undiscovered wound. Tetanus has at times been almost epidemic in certain hospital wards and in portions of the tropics, supposed to be due to the action of the warm climate and manure mixed in the stable and garden soil, favorable to the development of the virulent tetanus organism.

The bacillus is anaerobic, a facultative saphrophyte, capable of continuing its development outside the body tissue. It is an almost constant part of the soil of the garden, stable and dairy pens, and it is on this account that laborers, negroes, stable and dairy attendants are the most often attacked by the disease. It should also be remembered that such laborers are least careful about keeping trivial wounds aseptic, and the hygienic surroundings, as well as habits of such people are generally bad. The

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reason they suffer from tetanus more often than other people is explained by the fact that the tetanus bacillus is normally found in the dung of cattle and other warm-blooded animals, hence their liability to infection through contact.

Before asepsis was thoroughly understood the death rate in poorer white and colored families was very large, during the first two weeks of infant life, from so-called "nine-day fits." The cord in many cases was severed by the midwife's rusty septic scissors, tied with a dirty thread, wrapped with an uncleanly rag, and often greased with non-sterile applications. Hebrew surgeons say that the death rate from trismus was more frequent than it should be before the rabbis were taught to be more aseptic with the *Mohel*, and after treatment of circumcision with aseptic dressings. It is our personal opinion that all such operations in the interest of child conservation should be done by doctors and dressed by nurses who have been thoroughly drilled in aseptic surgery. Many cases of tetanus have been produced in the present great European war by explosives and the contact with stable and garden soil in the trenches of Belgium, France and Galicia, especially in the highly-cultivated districts of these countries, where the soil is intimately mixed with manure, which is used for fertilization. Early experimenters found that if garden mold or soil was placed in an abrasion or under the skin of an animal, tetanus would follow.

Kitasato in his studies could not isolate the germ until he heated the pus to 80 degrees Centigrade for one hour to get rid of the other septic microbes, as tetanus is nearly always a mixed infection. The tetanus, like the anthrax bacillus, is very resistant to heat. The tetanus bacillus develops in the wound in long, delicate threads, breaking up into separate bacilli with spores at one end, resembling the head of a pin. It is next to impossible to recover the tetanus bacillus from the original wound of infection, though the cerebro-spinal fluid taken from the patient and injected into an animal will readily produce the characteristic tetanus convulsion. The tetanus bacillus always remains in and around the original wound, while its toxalbumins are absorbed into the system through the motor nerve tracts, so it is a pure toxemia, not a germ, traveling along the motor nerve tracts. Tetanus bacilli are independent of oxygen,

of low vitality, and only invade bruised or septic tissue. They grow better in hydrogen. As the germs develop in the septic wound toxic bodies are produced, going direct to the spinal cord and brain, resulting in the tonic spasms which are characteristic of the disease. The toxemia is said to be four hundred times more poisonous than strychnin, to which it is similar in action.

Diagnosis: Tetanus could hardly be mistaken for any physiological sickness other than strychnin poisoning, from which it is differentiated by the history of the poison having been taken or to the evidence of a wound infected; by the relaxation between the strychnin spasms and the ability to open the mouth. The hands are more involved in the strychnin poisoning, the thumbs turning in; the muscles of the jaw and back are more involved in tetanus. The fever and violent sweating stages are absent with strychnin and are very pronounced in tetanus.

Prevention: There is no doubt about the fact that prevention of tetanus by proper disinfection of all wounds and immunizing doses of antitetanic serum is far better and safer than the treatment of the cases after they have been allowed to develop. Tetanus cases have been reduced by 75 per cent in the United States since the doctors and the public have been educated to a saner Fourth of July and Christmas and the necessity of proper disinfecting and sterilizing of all wounds as soon as received. Anders' mortality was 74 per cent in acute and only 8 per cent in chronic cases lasting over fifteen days. With a 60 to 80 per cent death rate from tetanus in European wars, the Fourth of July, with its toy pistols and cannon crackers, makes the present an opportune time to discuss the prevention and treatment of tetanus. All punctured and lacerated wounds should be relieved of all foreign bodies by instruments or by pouring into them a warm 50 per cent solution of hydrogen peroxid in order to remove by oxidation the deeper and smaller particles driven into the tissue. Equal parts of tincture of iodine and alcohol are more suitable to these wounds than are the antiseptic dusting powders, which do not so thoroughly penetrate the wound. The application of a 20 per cent phenol solution, followed immediately by alcohol to neutralize it, is an almost sure way of destroying

the bacillus. All lacerated wounds should be thoroughly cleansed, drained, packed and allowed to heal by granulation. Out of sixty thousand wounds in Bavaria, .6 per cent died, .4 per cent of these died of tetanus (in the present war) regardless of the prophylactic injection of serum; hence the necessity of using all other legitimate preventive measures, including Bier's method of hyperemia for the prevention of tetanus in all wounds. The mistake is in giving just one dose of anti-tetanic serum and stopping, when it should usually be repeated within from seven to ten days in order to make assurance doubly sure. Large doses of the anti-tetanic serum, with heroic measures to control the nervous excitability, should begin with the first stiffening of the jaws in a suspected case.

Prognosis is becoming better as we learn more about the prevention and treatment of tetanus and by reducing the chance of the absorption of the toxins. The later development of the disease the fewer the spasms, the more chronic the course the better chance for recovery. When incubation is under ten days the mortality usually reaches 60 per cent. When it is over ten days and the course of the disease runs three weeks, it is denominated chronic tetanus and the mortality is from 20 to 40 per cent. If the period of incubation and the course of the disease are both three weeks in duration 50 per cent may recover. The death rate in the present European war has been very large from tetanus because of the great number of lacerated wounds and because the war has been waged in the highly-cultivated fields and garden districts of those countries, notwithstanding that the free use of anti-tetanic serum and anti-septic first aid dressings were used immediately after injury. So at present in Europe it is one of the most serious diseases with which the surgeon has to contend.

Lacerated and punctured wounds, in which foreign bodies have been driven, furnish the best medium for the development of tetanus. Gunshot wounds, compound fractures and the puerperal state are also favorable to the development of tetanus. Where there is any suspicion that tetanus may follow we should give the anti-tetanic serum as a precaution in all such cases. Occasionally hospital wards and neighborhoods seem to be infected; the contagion is spread by actual contact, as in dressing,

instruments, nurses and doctors, who are not aseptic. The suspected wound should be disinfected not once, but twice daily, for it must be remembered that the germs remain in and about the wound where it was first received and that it is only the toxemia which is generated several days after the wound is made that is absorbed. There are no symptoms of tetanus manifested until the toxemia has reached the spinal cord, through the medium of the motor nerve tracts. Irritation of these motor tracts cause the tonic convulsions to begin. Muscle cramps and girdle pains are due to the irritation of the sensory nerves. The extensor muscles always overcome the flexors, hence the head is retracted, feet extended and the back is arched (opisthotonus). Tonic spasms are continuous except when relaxed by heroic doses of sedative drugs, which have to be kept up throughout the attack. The spinal cord is in such a state of excitability that any noise, draught, or jarring causes painful spasms to occur. Asphyxia may be threatened by tonic convulsions of the chest and throat muscles. Often even the inexperienced surgeon is taken off of his guard as to the seriousness of the attack on account of the clear mind to the end of even a fatal termination.

Other prominent symptoms of tetanus are retention of the urine and constipated bowels, rigid muscles, including the abdominal ones, with no sleep without heavy drugging. The first symptoms of tetanus are difficulty in mastication, spasms of the jaw, with rigid neck and abdominal muscles. When the face muscles are involved, a sardonic grin is produced that is peculiar to the disease. The violent muscular contraction with the absorption of the toxins produces a violent fever and sweating, which is usually a constant symptom to the end of the case. The patients usually suffer a great deal from girdle pains produced by spasms of the diaphragm.

Treatment: Removal of all foreign bodies, cleansing opening and draining of all wounds has been a daily occurrence at our clinic for the past ten years. The result has been fewer cases of tetanus to treat from the clinic in the great Charity Hospital of New Orleans, though many more wounds have been treated in that decade than in previous years. The germs develop their toxins in the wound before they are absorbed

into the system, hence the risk of infection is much less when the wound is kept sterile.

We should endeavor to keep the bowels well open and the kidneys active in order to eliminate as much of the poison as possible. The irritability of the spinal cord should be controlled by large alternating doses of sedative medicines, including chloroform, to control these spasms. We prevent the toxins entering into the system by thorough disinfection of the original wound. We inject two thousand units of anti-tetanic serum in the vicinity of the wound or between the wound and the spinal cord. If the wound is upon the hand, use the serum in the arm near the brachial plexus. If in the foot, use it near the sciatic nerve. Ashurst and Johns prefer chloroform to ether in order to relax the spasms, as it is more easily administered, but it is five times more lethal in its effects. Blake of New York recommends twenty minims of a 20 per cent solution of sulphate of magnesium to be injected into the spinal cord to relax these spasms. Eighteen cases so treated resulted in four recoveries; two were acute and two chronic, showing a death rate of 70 per cent, which was about the same mortality as when treated by other methods. Irons recommends from three to five thousand units of anti-tetanic serum intraspinaly and ten to twenty thousand units intravenously in his treatment of tetanus as soon as the case is diagnosed. The earlier the treatment is begun the more favorable the prognosis of the case. After these heroic doses, on the fourth day he again uses ten thousand units subcutaneously. We think the alternating use of syrup of choral, bromid of potash, morphin and atropin should be the way in which sedatives should be given to control the convulsions of tetanus. Daumslor of the French army used six grams of choral every six hours until the spasms were relaxed (rather heroic, it would seem). Wintraud says that little can be expected from the serum treatment, that its use is in prevention and not in cure of the disease. Sainton cured six patients out of twenty-two by injecting forty cc of a 2 per cent phenol solution twice daily subcutaneously. It has been found that phenol is less toxic by injection than by the stomach. Johns and Ashurst depress the functions of the spinal cord by from thirty to sixty grains of chloretone given in either oil or whiskey.

You may expect retention of urine, which is very common on account of the spasm of the cut-off muscle.

Intraspinal injection of fifteen hundred units of anti-tetanic serum is the best and quickest way to apply the remedy to the over-excited spinal cord. The same amount of spinal fluid should be allowed to escape before the injection of the anti-tetanic serum is begun.

In nourishing a case of tetanus rectal or nasal feeding may become necessary when it is impossible to get the food into the mouth on account of the spasms of the jaws; a tooth may be extracted to facilitate the introduction of nourishment.

Mrs. C., age thirty-five, mother of two children, who had never had any serious sickness before, was attacked by all the classical symptoms of tetanus and was so diagnosed. The only abrasion that could be found upon her person was an ulcerated hemorrhoid, from which she had suffered for the past three weeks with impacted spells. The jaws closing, tonic and clonic spasms increased daily, as did the temperature, when it became necessary on the fourth day to control the spasms by chloroform and sedatives in large and increasing doses. We darkened the room with curtains and removed the patient to the most quiet and best ventilated room in the house. We restricted all visitors and drafts and noises as nearly as possible. Although we pushed the sedatives to the limit the patient would be attacked by spasms as soon as the doses were reduced or given further apart. In the early period of the disease we obtained eight vials of fifteen hundred units each of anti-tetanic serum, which we administered in the flank, two each day, until they were all used. We discussed the use of the serum intraspinaly and into the arachnoid space, but on the principle of "safety first" for the patient we injected into the flank and deltoid, which we commend to others in serious cases which at least subject the doctor to less criticism if the case should prove fatal, as they often do. We nourished the patient on milk, broths, soups, and various liquid foods (swallowed best when under the influence of sedatives). We kept the bowels open with purgatives or enemas, used milk instead of water to quench the thirst, as it served the purpose of nourishment at the same time. When the temperature would reach one hundred and three or four degrees, she was given one five-grain dose of phenacetin or acetanilid compound, not to be repeated more than twice in twenty-four hours, provided the temperature again reached one hundred and four degrees.

As to whether this patient was benefited by the injection of the anti-tetanic serum as a cure, or whether the antiseptic treatment of the hemorrhoidal ulcer and unloading the impaction, or the alternating use of the sedatives, nourishing food, keeping the bowels open, or whether nature cured the case in spite of our efforts, I leave to the Society to judge.

DISCUSSION ON DR. SEXTON'S PAPER ON TETANUS.

Dr. F. Temple Brown: In May, 1916, a boy three years of age was brought to my clinic at the Charity Hospital with an infection of the leg just above the ankle, of seven days' duration. The jaws were rigid and he could not open his mouth more than half an inch. We incised the wound and cauterized it and dressed it with wet saturated solution of boric acid and gave 1,500 units of antitetanic serum at once and sent him to the hospital. About three hours later we anesthetized and gave 3750 units intrapinally, 5250 intravenously and 3,000 in site of injury. There was a marked reaction, temperature 104° and numerous convulsions, which were controlled by chloral and bromid. On the third day, 3750 units were given intraspinally. The child was discharged cured 27 days after admission, which cure I think was entirely due to the antitoxin and the way it was given.

Dr. H. B. Gessner: In reviewing the records of the Charity Hospital for the past ten years, I found two cases in which there was no apparent site of entry of the infection. Dr. Parham read a paper on this subject some several years ago. Dr. Sexton aptly brought out the point that the cerebro-spinal fluid of infected animals is poisonous to other animals. I have been impressed by the poor results that tissue examinations have shown. I believe that practical and popular articles on tetanus should be written with the idea of educating the public. The best results in three hundred and two cases were had with chloretone. I think there can be no doubt that the antitoxin must be given in very large doses before and during the incubation period.

Dr. Sexton (in closing): The incubation period seems to range from two days to one month, with an average of nine days. I think in the matter of prevention that the value of the local disinfection treatment is underestimated. I believe that the anti-tetanic serum injection should be made somewhat close to the site of infection, as the toxins travel along the motor nerves. I think that the anti-toxin to be of marked effect should be given in large and repeated doses and previous to the seventh day of incubation. 1,500 units is not enough. Where sedatives are necessary, I think they should be alternated, and in doses large enough to control the convulsion.

UNILATERAL EDEMA.*

By S. CHAILLE JAMISON, M. D., New Orleans.

It is the intention of this article to discuss only those conditions in which edema is constantly limited to one side of the body, or part thereof. We eliminate at once the two greatest causes of edema, i. e., the heart and kidneys, as edema due to disease of these organs is bilateral. Edema due to local infections is mentioned only for the sake of completeness.

In unilateral edema two factors are to be considered: Mechanical obstruction to the return of fluid from the part and increased permeability of the vessel walls due to loss of vasomotor tone.

Edema Involving an Entire Lateral Half of the Body.

This condition exists only in association with hemiplegia, and is due to a general loss of tone in the blood vessels supplying the paralyzed half of the body. It is by no means always present, and it would seem that the perverted function of the tissues themselves would contribute, because of their inability to give fluid in the normal manner. Such edema is usually transitory, and disappears as atrophy sets in.

Edema of One Arm.

Three conditions are to be considered: 1. Pressure within the thorax. 2. Obstruction to the lymphatics. 3. Phlebitis.

There is, perhaps, no one sign that points so surely to a thoracic aneurism or new growth as edema of one arm. It must be borne in mind, however, that a dilated auricle may cause sufficient pressure on one of the innominate or sub-clavian veins to produce edema. I have also seen a case where it was proven at autopsy that the edema of the arm was due to the pressure of an enormous amount of fluid in the pleura.

Edema of one arm due to obstruction to the lymphatics is best seen in carcinoma of the breast. It is too common to need more than passing mention.

Thrombosis of the axillary or brachial veins may occur, but is exceedingly rare, and is usually associated with valvular disease. Phlebitis of these veins is also a rarity, and will be dis-

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cussed more fully further on in connection with phlebitis of the femoral vein.

Edema of a Lateral Half of the Thorax.

This is not an usual condition, but is frequently not commented upon. It occurs, however, practically in every case where there is a large amount of fluid in the pleura, and is due to pressure upon the azygos and internal mammary veins, into which empty respectively the posterior and anterior intercostal veins. The majority of text-books on physical diagnosis tell us that the bulging of the intercostal spaces in fluid in the pleura is due to the actual distention of the cavity of the thorax from the fluid; this, of course, does play the larger part, but the edema certainly plays some part in the production of this physical sign, as anyone who has been observant and has "tapped" the chest for large quantities of fluid can testify.

Edema of one Leg.

There are two conditions to be considered: (a) Obstruction to the veins. (b) Obstruction to the lymphatics.

Obstruction to the veins is due to (1) thrombosis, (2) phlebitis, and (3) pressure of a tumor within the pelvis.

Thrombosis and phlebitis usually go together, and cannot be separated clinically, except that the absence of fever, leukocytosis and local tenderness, together with a cardiac lesion, would point to thrombosis; while an infection such as typhoid or a septic uterus points to phlebitis and an infected thrombus. Cabot* states that

Phlebitis, almost invariably unilateral, may be unaccompanied by pain or tenderness, but, as a rule, there is soreness over the course of the vein on the inner side of the thigh. The diagnosis can sometimes be made only by the study of the associated disease; for instance, typhoid fever or the puerperal state.

Obstruction of the veins due to the pressure of a pelvic tumor can be dismissed without comment.

Obstruction to the lymphatics.—This usually occurs from an infection and destruction or sclerosis of the internal iliac glands, which drain the lymphatics from the lower two-thirds of the

*Cabot—Diff. Diagnosis. Vol. 2, p. 465.

uterus, the upper two-thirds of the vagina, the bladder, the seminal vesicles and vas deferens, the prostate, the upper portion of the urethra, and also the deep lymphatics from the upper and inner portion of the thigh. I have had two cases in my service this summer, both of whom have presented massive edema of one leg. Autopsy showed no thrombosis or phlebitis, but both showed chronic infection of the genital organs, with enormous enlargement of the internal iliac glands, and of the lymphatics of the leg leading to them. The same condition occurred in a woman who died of carcinoma of the uterus; the glands, of course, being obstructed and destroyed by metastases instead of infection.

It has been long known that elephantiasis from filarial disease is due to the obstruction of the lymphatics by the adult worm. I examined the blood of over 100 negro patients for the filarial embryos, but was unable to demonstrate a single case; these examinations were made at night, between 12 o'clock and daylight. I am far from satisfied, however, that there is no filarial infection among humans here, for the great prevalence of this disease in dogs (though, of course, it is not the same type of filaria) would lead one to suppose conditions are favorable for this disease.

In conclusion, I can say from my own limited experience, that edema of one leg is certainly a common condition in this locality, while, so far as I can find, edema of one arm is rather rare. I believe, also, that edema of the arm is usually easily explained, while edema of one leg is not. It appears to me that edema of one leg is perhaps more frequent from obstruction to the lymphatics following infection of the genitals than from any other cause.

BLOOD TRANSFUSION SIMPLIFIED; DEDUCTIONS FROM NINETEEN CASES, ELEVEN HUMAN AND EIGHT ON THE DOG.*

By JAMES T. NIX, JR., B. S., M. D.,

Adjunct Professor of Surgery, N. O. Post Graduate School of Medicine.

The virtue and potency of the transfusion of blood is no longer a matter of conjecture but a well-established fact. In hemorrhage of any variety blood is the best substitute for blood. In sepsis of any type a fresh supply of healthy phagocytes is the best possible reinforcement and often tips the scale to the side of recovery. In hemophilia, anemia and many other blood disorders, transfusion is extremely valuable. Yet, in spite of this undisputed knowledge, we are astonished to find at the great Charity Hospital of New Orleans scarcely a half-dozen blood transfusions, dating from its very beginning to the present time. Two of these were for hemorrhage, 20 c.c. being transfused by the direct method with the aid of Kimpton Brown tubes. Two were for hemophilia, 40 and 20 c.c., respectively, being transfused by the indirect syringe method, citrate of soda being used as an anti-coagulant. One was for comatose malaria, 250 c.c. being administered by Kimpton Brown tubes. The malarial case was moribund at the time; all the other cases did well.

There were two transfusions at the Hotel Dieu of the city prior to the introduction of the apparatus included in this article. Both were by the direct method according to the technic of Crile, artery to vein anastomosis. In these two septic cases the patients had gone down too far to rally and the technic not given a fair trial. I was unable to obtain the records of the other institutions. This brief survey represents the meagre role played heretofore by so important a therapeutic measure.

Probably the reason for this scarcity of transfusions was because the direct method of undiluted blood was used in nearly all instances and the operation made harder than it should be.

According to statements from numerous sources which were later verified by experimentation a 2 per cent solution of sodium citrate, one dram to one ounce of blood, was found to be the best anti-coagulant, the blood remaining unchanged

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for six to eight hours. The same dilution with one-fourth of 1 per cent citrate coagulated in one and one-half minutes. The same dilution with one-half of 1 per cent citrate coagulated in three minutes. The same dilution with 1 per cent of citrate coagulated in twenty minutes. The same dilution with 2 per cent of citrate coagulated in six to 8 hours. A 2 per cent solution, dilution one dram to two ounces, coagulated in fifteen minutes.

Of the numerous methods of transfusion suggested to-day, the one which at first appeared to be the simplest and best was that which appeared in the May number of the *Southern Medical Journal* by A. O. Singleton of Galveston, Tex., He made use of Kimpton Brown tubes, paraffin coated, and by means of wash bottles half-filled with water established positive or negative pressure, during injection into recipient or aspiration from donor respectively. The first five human transfusions were by this method, 500 c. c. of blood being transfused in each case. The first two were on the same patient, splenic anemia, at one week's interval, the blood count being raised from 1,200,000 to 2,500,000 by the first, and the second raised the count to 3,700,000. The patient's general condition improved wonderfully and the spleen was removed June 6, 1916. She has continued to improve and at present is in better condition than she has been for two years. In one instance the donor was a son and in the other a daughter, preliminary agglutination tests were negative.

The next two were administered to a boy eighteen years old, suffering from a virulent type of bacteremia with infectious poly-arthritis, following a suppurative mastoiditis. Vaccin and other therapy had failed, the patient was running a temperature of 101 to 103 degrees and rapidly losing ground. By the first transfusion 500 c.c. of blood were taken from an elder brother. Temperature immediately subsided and never went above 100 degrees, so a second transfusion was given seven days later, at which time the same amount of blood was again taken, but from a younger brother. Within one week fever left entirely and patient was out of danger.

The fifth case by the paraffin-coated tube was a case of puerperal septicemia of one month's duration, the temperature being

septic and high. Five hundred c.c. of blood were transfused from a younger sister and the patient made a rapid recovery. In all five of these cases the results were most gratifying, though the technic of pressure bottles with paraffin-coated tubes and citrate solution was complex, cumbersome, and required too many assistants.

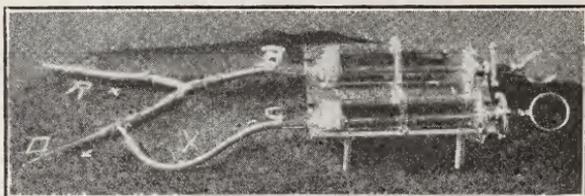
The insertion of tip of tube into the vein at times was very difficult, especially when the tube was filled with blood, so it was decided to make separate special tips by drawing out small size drinking tubes, by heating in the flame of an alcohol lamp. The tips were so made that there was a small swell near the small end of the tube over which the vein could be drawn and safely tied. To the other end was attached a small piece of rubber tubing. These tips could be easily inserted, filled with citrate, the rubber connection clamped with a non-serrated artery forceps, and the tip allowed to remain inserted as long as necessary.

These special tips, which can be made in the space of a few minutes, represent to my mind a factor of utmost importance in the simplification of blood transfusion, because of the fact that they will connect to almost any type or style of syringe or transfusion tube. Once the tip is inserted into the vessel it is not taken out until the operation is complete, there being no danger of coagulation in the tube if it is kept filled with citrate after each step in the transfusion.

The sixth and seventh cases were septic and 500 c.c. of blood was transfused in each instance. One patient was moribund at the time and died twenty-four hours after the transfusion; the other immediately responded to treatment and made a good recovery. The Kimpton-Brown tube method somewhat modified was adopted. The tip of the tube was cut off one inch from its end, leaving a shorter tip with an opening of about one-tenth of an inch in diameter. Special transfusion tips were inserted into veins of donor and recipient as before described, and by means of the short rubber connections the projecting arm of Kimpton tube was attached with ease to the special tip already inserted. Citrate of soda was used as an anti-coagulant, so the tube was not paraffined. Positive and negative pressure, instead of being controlled by pressure bottles, was maintained

by the use of a large aspirating syringe for thoracic work. If the tube method is to be used, these little changes greatly simplify the procedure.

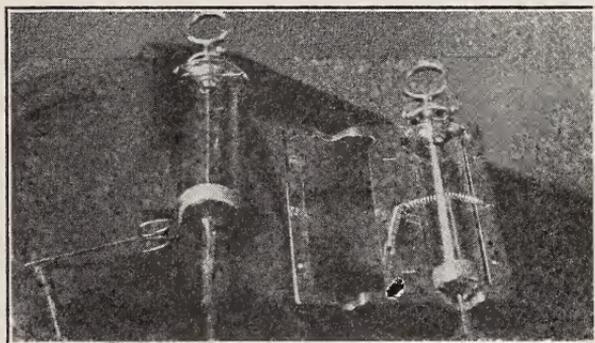
Realizing, however, that the tube method at its best was not the most practicable, a series of experiments was begun on dogs with the idea of determining the simplest, safest and most reliable method of blood transfusion.



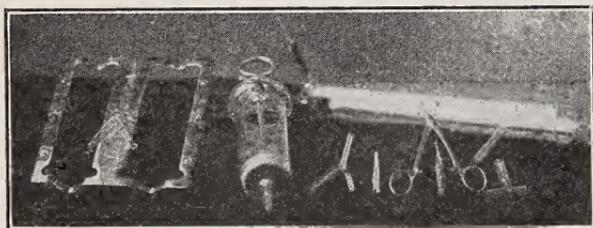
D represents tip inserted into vein of donor; R, recipient; B, blood syringe; C, citrate syringe.

A special instrument was devised consisting of two syringes connected as follows: One syringe was filled with a 2 per cent solution of sodium citrate and this in turn connected with small rubber tubing to the vertical end of a glass "T" tube. One arm of the "T" was joined by rubber to the transfusion tip of the donor, the other end was united in the same way to one arm of a "Y" tube. The other arm of "Y" tube was connected to the transfusion tip of recipient, while the vertical shaft of the "Y" was joined to another syringe, which served to aspirate and inject blood. The principle involved here is very similar to the Unger device, although it is much simpler, safer and more rapid in its use, because there is no complicated metal apparatus involved, no ether spray is required during the transfusion, and large syringes are used, the larger the better, thereby saving time. By pressing on plunger of citrate syringe the entire tubing and tips are filled with citrate solution, then special tube forceps are applied to the connections of both transfusion tips. Still further pressure displaces piston of other syringe and fills it to one-eighth of its capacity with citrate solution. It is now ready for use, so the respective tips are inserted and tied into veins of donor and recipient. Clamp is now released on side of donor and blood aspirated to the capacity of the syringe. Blood in the donor tip is now displaced by pressing on piston of citrate syringe and rubber connection at this tip is again clamped.

Forceps on side of recipient is now released and the citrated blood is slowly forced into recipient. This tip is also flushed with citrate and the process repeated as often as necessary without fear of coagulation because of the constant flushing of connections with citrate solution.



Picture shows large syringe taken off frame, connected to special transfusion tip and ready for single transfusions. Syringe is now filled to one eighth of its capacity with citrate solution. Both special tips are filled with the same solution, clamped with non-serrated forceps, inserted and tied in veins of donor and recipient.



Apparatus dissembled showing metallic frame, large syringe, "Y" tube, transfusion tip, special tube, forceps, transfusion tip with rubber connection and "T" tube.

The Kimpton Brown tube is also shown with the special transfusion tip connected.

With the use of this instrument eight experiments were performed on dogs. In the first two transfusion was from femoral to femoral of the same dog; the next four were from jugular to jugular of the same dog; the last two transfusions were from the jugular vein of one dog to the femoral vein of another. The dogs were all small, weighing from 20 to 25 pounds. Eight to ten ounces of blood were transfused during each experiment and in none did it seem to produce any harmful results. One dog, after having had twenty-four ounces of his blood transfused from one jugular to the opposite, developed a severe chill and died an hour after the operation. Dr. C. Jamison suggested that death

might have been due to the filarial worm in the heart and volunteered to autopsy the dog. This was done and filarial worms were found in the right auricle. Excepting this untoward incident nothing happened in the entire course of experiments which might tend to discredit the method. The syringes used in these operations were two-ounce capacity, glass barrel, glass-asbestos plunger.

The instrument used for human transfusions has syringes of the largest capacity, the one for blood being six ounces and the one for citrate four and one-half ounces, these being bladder syringes with adjustable rubber pistons. Solid glass syringes are the best, but the largest obtainable at present are 100 c.c. capacity. An order has been placed for two 250 c.c. solid glass syringes, catheter tipped, but because of the war it is very doubtful when deliveries will be made.

Four human transfusions have been performed by the new technic, the most important feature being the simplicity in administration with the use of only one assistant. Three of these were emergencies, so agglutination tests were not made.

The eighth transfusion was for shock and severe gastric hemorrhage following cholecystectomy for empyema of gall bladder with stones. Patient was sixty-two years old and pulseless at the time of the transfusion, so the result could not be determined, death resulting about one hour after the treatment.

The ninth case was one of post operative shock and hemorrhage following the removal of a large intraligamentary fibroid. Patient, fifty-six years old, built up wonderfully under the transfusion and made a splendid recovery.

The tenth transfusion was performed on a case of intestinal obstruction (volvulus). The patient came from the country, had been sick several days before receiving medical attention and was moribund at the time surgical aid was attempted. The treatment did no apparent good.

The indication for the last transfusion was hemophilia with profuse intestinal hemorrhage, patient having lost at least one quart of blood, and was still bleeding at the time of treatment. This was the third attack, but in all previous ones the hemorrhage was quickly controlled by the giving of horse serum. On this occasion, however, the serum failed. Twelve ounces of

blood was transfused from a brother of the sick man, both parties conversing and joking during the entire procedure. The donor left the institution immediately and the recipient left the next day, all hemorrhage having stopped and his general condition having greatly improved.

All of the transfusions enumerated in this article were performed on my own patients at Hotel Dieu of this city since May 1 of the present year.

The experimental work on dogs was done in the Miles Laboratory of Operative Surgery of Tulane University. The most complete equipment and excellent service greatly facilitated the work.

The first three transfusions by the new technic were performed by using the large syringe alone, with special transfusion tips inserted in donor and recipient respectively. In each instance the donor simply leaned back in a rocker while the blood was being drawn. The recipient was not disturbed from bed and was unaware of being transfused.

For the last infusion both donor and recipient were placed on separate tables with their feet pointing in opposite directions. The right arm of one and the arm of the other patient were extended from their bodies at right angles. The arms were then brought together and supported on a small table which was placed between the operating tables. Placing the patients in this fashion made it an easy matter to insert the tips into the distal and proximal ends of veins of donor and recipient, respectively. The rest of the procedure was the same as for any transfusion.

Advantages of the New Technic.

1. The apparatus is glass, metal and rubber and can be sterilized by boiling.
2. The paraffin coating of tubes, spraying of tips with ether and other complicated measures are done away with by the constant bathing of connections and mixing of blood with citrate solution.
3. It is simple, there being no complicated device for changing the blood current in direction, but by simply applying a clamp to the connection on donor or recipient tip, the current of blood or citrate is changed to the opposite direction.

4. It is an apparatus which can be improvised in any laboratory in a few minutes, any style of syringe being applicable, glass, metal, hard rubber, or glass-asbestos.

5. It is inexpensive.

6. The instrument, when disconnected, permits of single transfusions by means of the large syringe with the special tips and this, to my mind, represents the simplest of all methods where you do not wish to transfuse large quantities of blood or where the patient is so badly shocked that it is to his or her best interest not to be disturbed.

Before concluding, I wish to extend thanks to Dr. Dyer, Dean of Tulane School of Medicine, and Dr. Gessner for the use of the laboratory, instruments and paraphernalia in carrying out the experimental part of this work.

The day of transfusion is here. The hemorrhagic demand it, the septic call for it in unmistakable terms, the hemophilic, anemic, those suffering from shock, and the most diverse ailments are often relieved and cured by this means when other measures fail—therefore let us acquire and adopt this simple technic, revive the lost art, give it a thorough trial, and rest assured it will win for itself the widespread application which it justly deserves.

DISCUSSION ON DR. NIX'S PAPER ON TRANSFUSION.

Dr. Homer Dupuy: I enjoyed the privilege of witnessing Dr. Nix's method of transfusion, as one of the cases was a chronic mastoiditis, with metastatic involvement of all the joints. I was associated with him in this case and was impressed with the ease in which the transfusion was effected. Especially noticeable was the action of the sodium citrate solution in keeping the blood fluid in its transit from the donor to the subject. This particular patient was intensely septic. I believe his life to have been saved through transfusion.

Dr. Danna: I feel that the medical organization owes a deep debt of gratitude to Dr. Nix for his valuable contribution. Had we known of this in by-gone years, many lives would have been saved, in accidents, especially with severe hemorrhages and following severe shock. I would like to ask Dr. Nix, however, concerning the danger of anaphylaxis, that is, the danger following the use of one person's blood into another person.

Dr. Jamison: We have great difficulty in experimenting on animals because about one-fourth are hemolytic to other animals. We can determine in the laboratory definitely whether one person's

blood is hemolytic to another person, and this test should always be made prior to transfusion. In persons of blood relation, the danger of hemolysis is greatly diminished.

Dr. Nix (in closing): I wish to thank the members for their active interest, generous discussion, and congratulations. Replying to Dr. Danna, for single transfusions with one syringe the most accessible and prominent veins are the ones selected, median basilic, median cephalic, or any others; for continuous transfusion with two syringes the median basilic veins of donor and recipient are preferable.

Agglutination tests of the two bloods are always made if the case is not one of the utmost urgency and if time permits. If hemolysis has not been eliminated the donor selected should be some intimate member of the family. In one instance the donor was a husband, agglutination tests were negative, and transfusion was begun. After one ounce of blood had been transfused the recipient suddenly became death-like in appearance, pulseless, and complained of a most intense pain in the region of the heart. Transfusion was discontinued.

Hemolysis did not take place in any of the dogs upon which we experimented.

HYSTERECTOMY FOR DOUBLE PYOSALPINGITIS.*

By LOUIS LEVY, M. D., New Orleans.

Having seen many cases in which the uterus was allowed to remain after both tubes were removed, and with the sequelæ of pain, backache, and the same general distressing symptoms minus the fever that the patient came to you for, and in this day and date in which rheumatism, arteriosclerosis, high blood pressure, bronchitis, and many other symptoms for which pus-foci were blamed, it is imperative that gynecologists do their part in the eradication of these foci in their field. While there are many factors to be considered, there can be no argument when both tubes are involved as to allowing the uterus to remain through which this infection has traveled.

It is understood when I say hysterectomy, I do not mean the removal of both ovaries, as it is just as much a fallacy to remove both ovaries as it is a fault not to remove the uterus. If one ovary cannot remain in situ, enough of ovarian tissue can always be gathered, and, if necessary, be sutured together to be grafted in the abdominal wall.

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It takes no more time to do a hysterectomy than it does to remove both tubes, and a hysterectomy is just as bloodless. The cry of conservatism as far as this operation is concerned is not used by the skilled surgeon. He knows that the uterus is allowed to remain by that type of man who thinks that a hysterectomy is a more shocking operation than a double salpingectomy.

The picture presented of a pelvis that requires a hysterectomy in pyo-inflammatory condition is, as a rule, that the ovaries and tubes are in the cold stage, and all the occlusion that is going to be there in the tubes is there at this time of operation, and you know you are seeing the patient to the best advantage; that is, after she has been in bed with the usual treatment of ice bags and douches until all the temperature and pain is as near gone as it is possible for the rest cure to obtain.

I mention cold stage in the operation of pus tubes to impress the fact that if a tube is diseased enough to be occluded, it is now seen as near well as it is possible for treatment to have it, yet it is diseased enough to be taken out, and if both tubes are diseased enough to be removed—the uterus that is their supply of infection is diseased enough to be removed also. Plastic work on occluded tubes attached to discharging uteri is of no value, and hysterectomies are best done by surgeons desiring positive, lasting results.

Some Practical Aids in Operation on Pus Tubes not Generally Given

Pus tubes are always curled in the posterior cul-de-sac, and are easily separated if the lines of cleavage are followed from below upward and towards the broad ligament. Care should be taken not to tear into broad ligament from below.

To remove pus tubes from above should never be attempted, as in this case the broad ligament or the vessels supplying the tubes are always torn, and much unnecessary bleeding encountered; a very common error in which easy cases are made hard.

Tubes should always be peeled from bowel, so that if any tearing is done it should be from the tube side, even at the risk of tubal rupture.

With best of relaxation, intestines should be well walled off with packs.

Where there is the least doubt of pus being spilled or oozing, drainage should be used.

Less surface for adhesions is seen after hysterectomy than after removal of pus tubes.

After supra-vaginal hysterectomy and cauterization of cervix, if discharge does not cease, cervix should be removed. Same can be done with local anesthesia.

The histories of the following cases, some of which and some which have not had their uterus removed, and those of which have not, I consider candidates for hysterectomy.

The etiology of these cases and the finding of a discharging endometrium after the uterus has been removed and cut open will convince one that a discharging uterus is beyond the pale of ice bags, curets or applications:

Case I. Mrs. I. M. Operated in 1910. Case of double pyo-salpingitis following gonorrhoeal infection. One tube removed, plastic work done in the other. Operated by me in 1911. The other tube removed, uterus anchored. She still has pain, discharge and being treated. She is not in my care, discouraged with surgery, and yet will not be cured until a hysterectomy is done.

Case II. Mrs. J. D. Operated May 25, 1909. Case of double pyo-salpingitis following gonorrhoeal infection. Tubes removed, cervix cauterized. Both tubes and one ovary removed, uterus allowed to remain. She still has discharge, but is satisfied with her condition and will have nothing further done.

Case III. Mrs. F. Operated April 13, 1914. Double pyo-salpingitis and oophoritis following induced abortion. Both ovaries and both tubes removed. Menstruation has ceased, but she still has a discharge. She douches daily, and is satisfied with her condition.

Case IV. Mrs. O. Double pyo-salpingitis following gonorrhoeal infection. Hysterectomy done, part of one ovary allowed to remain. She no longer menstruates, but has no pain. She feels generally well, has gained weight and is normal in every way. She is not displeased with the absence of menstruation.

Case V. Mrs. A. J. of Houston, Tex. Operated September 25, 1915. Double pyo-salpingitis, following induced abortion. Hysterectomy done, both ovaries had to be removed, parts of each taken and grafted in abdominal walls. She had an uneventful recovery, and wrote me six months after operation that at two months

after operation she had flushes and was nervous, all of which symptoms were controlled by medication. She is now apparently normal. She has no pain and no discharge.

Case VI. Mrs. I. M. Operated April 17, 1914. Double pyo-salpingitis following accidental abortion. Both tubes removed, one ovary allowed to remain. She now has painful menstruation and discharge. She refuses to be operated on again.

Case VII. Mrs. S. L. Operated May, 1915. Double pyo-salpingitis following gonorrhoeal infection. Complete hysterectomy done. Ovaries were not in condition to retain any part. Sinus continued to drain where drainage tubes were placed and she continued to have vaginal discharge. She was operated on again in May, 1916. At this operation cervix was removed. Cervix showed infection over entire area. Sinus closed promptly after its removal. She is now free of pain and discharge.

Case VIII. Mrs. E. J. Operated April 18, 1916. Case of double pyo-salpingitis following gonorrhoeal infection. Hysterectomy done, no ovarian tissue left. Made uneventful recovery. She is now free of pain and discharge.

Case IX. Mrs. N. M. Operated July 7, 1916. Double pyo-salpingitis following gonorrhoeal infection. Hysterectomy done, one ovary allowed to remain. Made uneventful recovery. She is now free of pain and discharge.

Case X. Mrs. E. P. Operated June 5, 1915. Had been operated a year previous. One tube has been removed entirely, and part of the other. She came for pain and discharge. Hysterectomy done. One ovary allowed to remain. She made uneventful recovery. She is now free of pain and discharge.

Case XI. Mrs. I. W. Operated April 13, 1914. Double pyo-salpingitis following gonorrhoeal infection. Hysterectomy done, part of one ovary allowed to remain. Made uneventful recovery. She is now free of pain and discharge.

Case XII. Mrs. B. Operated July 14, 1916. Double pyo-salpingitis following an abortion of ten years previous. This is probably the most interesting of all cases. This woman had bronchitic asthma starting three months after the abortion. She had been curetted immediately after the abortion. She had been treated by internists, and had been sent away and had gotten only temporary relief. Menstruation was painful, chronic discharge. She had been confined to bed with asthma three weeks pre-

vious to operation. Hysterectomy done, one ovary allowed to remain. She made uneventful recovery. Has had one slight attack of asthma in August. She is gaining weight, and is not nervous over absence of menstruation. She is now free of pain and discharge as well as bronchitis.

Nearly all of these cases were operated with local anesthesia and nitrous oxid gas.

Cases IV and VIII referred by Dr. Nelken; Case XII referred by Dr. Bel; Case XI referred by Dr. Poche, Ama, La.

Conclusions.

1. Whenever tubes are diseased enough to cause their removal, the uterus should also be removed. The uterus now being a useless organ is only a harbinger of pus foci.
2. Menstruation is often manifested, after the uterus is removed and the cervix allowed to remain, by muco-sanguineous discharge at apparent menstrual periods.
3. The absence of menstruation is not a cause for nervous disorders, if the ovary is allowed to remain and the woman is explained that she will not menstruate any more.
4. Many cases of rheumatism, heart trouble, high blood pressure, and other conditions caused by pus foci may be explained by vaginal discharges.
5. Hysterectomy is as safe an operation and causes no more shock and takes no more time than the removal of both tubes.

DISCUSSION OF DR. LEVY'S PAPER.

Dr. Maurice Gelpi: The Society should be grateful to Dr. Levy for bringing up this important topic for discussion. Looking at the subject in a broad way, the question as to whether the uterus should be left in, in the type of cases in question, depends upon a number of factors. Among the most important factors to consider are the **degree** of damage to the pelvic organs and the **type** of infection present. I take it for granted that the discussion is to be limited to the chronic cases only, as these inflammatory conditions as a rule do not need surgical interference in the acute stage, except, at times, for vaginal drainage of a pelvic abscess.

In a general way, then, we have three main types of chronic infection to deal with: The puerperal or streptococcal, the gonorrhoeal and the tubercular.

In dealing with the first two types, it is important that the abdominal operation should be preceded by a more or less prolonged period of rest in bed, with an ice bag and douches, until the temperature comes down and stays down, for eight or ten days or bet-

ter two weeks, and until the leucocyte count is about normal. If after this treatment the patient still needs operation, there is a better opportunity for conservatism, the morbidity following operation and the mortality are distinctly less and furthermore, from the technical side, the case is easier to handle.

In the advanced streptococcal cases, usually the entire pelvic organs including the uterus require removal. In certain mild cases, it is sometimes possible to preserve the uterus and a good ovary or piece of ovary. In the advanced gonorrhoeal cases, usually the treatment is the same as in the advanced streptococcal. If, however, the case has been thoroughly rested, or if the inflammatory process is still restricted for the most part to the tubes, then double salpingectomy, leaving in one or both ovaries and the uterus, should be done. As we are dealing in these gonorrhoeal cases with a primary intratubal infection, the diseased tubes should be removed in their entirety. Furthermore, it is important to excise the cornua of the uterus with the tubes, as the gonococcus has been found to survive and thrive in this region, over long periods of time. When the cases so treated, however, continue to have a leucorrhoea, usually if the cornua have been excised, the trouble is not in the endometrium, or in the body of the uterus, but in the cervical canal,—not an endometritis or metritis, but an endocervicitis. If the uterus has been left in, therefore, the cervical condition producing the leucorrhoea can be efficiently treated from below, either by plastic work or cauterization. On the other hand, to prevent this cervical leucorrhoea when supra-vaginal hysterectomy is done, it is important to ream out the mucosa in the cervical stump from the abdominal side, thereby removing practically all of the diseased gland bearing area. Consequently, if the uterus is not diseased, and if an ovary or a piece of ovary can be saved, the indication is clearly therefore to preserve both structures and the function of menstruation.

In the tubercular cases of advanced type, usually there is no choice but to remove the uterus and both adnexa. In early cases, however, especially in young girls, the treatment should consist of double salpingectomy, leaving in both ovaries and the uterus. We consider that tubercular pelvic peritonitis is primary in the tubes and that if you remove this primary focus and can preserve menstruation, the accompanying tubercular endometritis will get well. This is materially assisted by the periodic Bier hyperemia of menstruation. Fortunately it is possible to determine macroscopically whether the ovaries are tubercular or not, as the process usually is seen on the surface. If any doubt should arise, the ovary may be incised for inspection and left in or removed according to the findings.

As regards drainage when pus has been spilled in the cavity in these cases, it is not necessary to do so, if the case was properly prepared and rested as indicated. That is to say, if the total and

poly counts are normal and if the patient has been free from all temperature. I mean even 99 or 100 degrees—for ten days or two weeks, you can spill pus in the cavity, close without drainage and your patient will get well uneventfully, without the danger of a hernia and postoperative adhesions from a drain. We take cultures routinely from the pus spilled from these tubal collections and we have demonstrated repeatedly that, except in very rare instances, the pus is sterile. On the rare occasions when a growth has been obtained, the strain of organisms seemed to be of a very low resistance and clinically the patients did just as well as when the pus showed no growth whatever.

REPORTS OF CASES.*

By URBAN MAES, M. D., New Orleans.

Case I. The Conservative Treatment of Thrombo-Angitis Obliterans.

Case II. Foreign Body in the Esophagus.

Case I. Mr. J. D., age thirty-seven, native of Louisiana, white farmer, unmarried.

History by Dr. J. A. Bethea. Admitted to ward 71, Charity Hospital, March 2, 1916.

Family History.—Father died recently of paralysis. Mother living and healthy. Two brothers and two sisters living and healthy. One sister dead, cause unknown. No hereditary diseases.

Past History.—Fever at times. Mumps, measles and whooping cough. Gonorrhoea four or five times. Sore on penis nineteen years ago. No secondaries. Sore well in about six weeks, but took treatment for three years. Drinks moderately. Smokes cigarettes.

Present Illness.—This started about ten years ago, when the fourth toe of the left foot got sore around the nail, the soreness spread rapidly, and the physician amputated the toe. A black spot was noticed on the stump five days after the operation and it was soon black to the ankle. He then came to the Charity Hospital, where he was treated for seven weeks with dry hot air and the foot apparently returned to normal. He went home and for three years had no more trouble.

In April, 1910 (about six years later), the third toe of the left foot got sore and was amputated after one month. The second toe of the same foot got sore a few days after this amputation, and soon became black up on to the foot. He came to the Charity Hospital then and was

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seen by Dr. Maes, who diagnosed it thrombo-angitis obliterans and amputated at the junction of the upper and middle third of the leg. This healed by first first intention and he went home well.

In May, 1914, he trimmed the nail of the large toe of the right foot, and the toe became sore, giving him much discomfort, so that he came back to the hospital. A few days later he noticed a sore on the side of the toe. The leg was baked daily and it improved considerably. This improvement seemed to be more marked after taking mercury and iodides. He stayed in the hospital for two or three weeks, when he went home and continued the baking with an improvised apparatus at home. The toe got worse and was amputated in January, 1915, and this foot has never bothered him since.

During his stay in the hospital in 1914, he had a Wassermann made, which was negative. Luetin, positive.

Physical Examination in 1914.—Fairly well nourished. Poorly developed. Arcus senilis both eyes. Pterygium on right eye. Many scars on body. One scar on penis. Cervical and epitrochlear and other glands palpable. Arteries palpable but not beaded. Lungs negative. Heart enlarged to left and downward. Aortic second sounds accentuated. Abdomen prominent. Stump of left leg is normal, with good circulation. Right foot cold, with no dorsalis pedis palpable. Veins not distended. Great toe inflamed and discharging pus under the nail. Right arm—B. P. Sys. 140, Dys. 130. Left arm—B. P. Sys. 130, Dys. 120. X-ray showed necrosis of terminal phalanx of great toe.

Present Condition.—Seven months prior to admission, the index finger of the left hand began to change color and became painful at times. Gradually all of the other fingers of the same hand became affected in the same way, with the exception of the thumb. The ends of some of the fingers became black and the tips sloughed off.

Hands baked for one week with no improvement.

Other treatment was discontinued and treatment was begun with Ringer's solution by hypodermoclysis. This was given (500 c.c.) on March 15, 17, 20, 25, 29, April 7, 11, 26, and May 15.

The patient could notice distinct improvement after three treatments. The pain ceased after this time and the fingers commenced to heal and were completely well in about six or seven weeks after treatment was started. He has remained well since.

In a painstaking article, Willy Meyer of New York (*Annals of Surg.*, March, 1916) reviews the present knowledge of thromboangitis obliterans, especially its pathology and treatment. The case just cited is strikingly like the one cited by Meyer and forces upon us the realization of the hopelessness of this condition.

The typical case is usually seen in men between the ages of thirty and forty and is more common in the Jewish race, and differs still further from diabetic and senile gangrene in attacking individuals who are otherwise in a fair state of health. The first manifestation is usually a progressively deepening cyanosis accompanied by exquisite pain, neuralgic in character. These patients are afraid of dressings and it is with difficulty that any attention can be given the afflicted limb. The pain and cyanosis increase and a gradual mummification of the tissues involved takes place unless amputation is resorted to, or the process may change to a moist gangrene with all the accompanying constitutional phenomena.

The site of an amputation is a serious consideration. The risk of flaps sloughing in the poorly-vascularized tissue is very great. In a former paper the writer has advocated the application of the Moschowitz test to determine the limit of the active blood supply in an affected limb.

As amputation seemed to be the only remedy and as more than one extremity often becomes involved (both legs and one hand in my patient), the suggestions made by Bier, Von Oppel, Wieting, Bergheim and others were all welcomed. Active and passive hyperemia, reversal of the circulation, ligation of the main vein of the extremity as recommended by these investigators were only occasionally successful and gave way to the time-honored amputation. Of all the conservative methods, dry superheated air has given the best results.

According to Meyer, at the suggestion of Prof. Ito of Tokio, two of his assistants, Mayesima and Koga, made some studies on the viscosity of the blood in the extremities of patients suffering from Buerger's disease, and, based on their findings, have recommended the use of Ringer's solution by hypodermoclysis. After a trial on thirteen patients, Mayesima and Koga claim uniformly good results.

While in the patient cited above, the result was all that could be desired, further experience has not been so gratifying. I have under my care at present, in the service of Dr. Matas at Touro Infirmary, a Russian Jew afflicted with Buerger's disease, in whom nine injections of Ringer's solution did no good, and amputation through the middle of the calf became necessary to relieve the patient's suffering.

It is with some hesitancy that I have undertaken to test out the value of the Mayesima-Koga treatment. How any solution given by hypodermoclysis can dilute the circulation blood long enough to nourish a leg threatened with gangrene is hard to realize. However, the result in one case, despite the failure in another, certainly makes so conservative a treatment worthy of trial, remembering what is already dead must be cast off or removed, as it cannot be revived.

Case II. Foreign Body in the Esophagus.

On July 7, 1916, I was called to the Charity Hospital to see J. C., age two. The child seemed happy and was playing around the hall. The mother's story was that six days ago the child had swallowed a brass beer check. Since then it had not been able to swallow any solid food, but liquids were taken without any difficulty. The X-ray picture showed the foreign body to be on the root of the neck, just behind the manubrium.

After failure with the coin catcher and esophagoscope, I determined to perform a left-sided esophagotomy. This was technically easy and, despite the suture of the esophagus and drainage of the external wound, a virulent infection occurred with some sloughing, allowing all of the food taken by mouth to escape through the neck wound. The child was fed by proctoclysis and, passing the stomach tube, nourishment was given that way.

Despite a broncho-pneumonia, the child has made a good recovery and was seen by me a few days ago.

The accompanying picture shows the foreign body and its location.



DISCUSSION ON DR. MAES' PAPER ON FOREIGN BODY.

Dr. Homer Dupuy: My remarks are strictly impersonal, as I have the highest regard for Dr. Maes' technical skill as a surgeon. While those doing endoscopy cannot expect to equal the work of such a master in the art as Chevalier Jackson, yet the mortality from a properly conducted esophagoscopy is so low while that of esophagotomy is so high that the latter should never be resorted to until all the resources of endoscopy have been exhausted. Dr. Maes was so fortunate as to pluck success in the face of many odds and for this he deserves congratulations. This surgical procedure, however, should never have been practiced until esophagoscopy in trained hands had failed. As we see by the history, the case was not one of urgency, and thus the question is now brought to one of criticism relative to the Hospital authorities. I was rung up to attend the case. As no dyspnea, or other urgent symptoms were present, I judged the case could wait and offered to see it later in the evening, when more time could have been given to the details of endoscopy. I also suggested to ring up other throat men. Certainly, in the absence of untoward symptoms I feel that this child was not accorded the first, best and safest method of treatment. As a matter of common justice I wish to say, that there are a sufficient number of laryngologists attached to the Hospital staff doing endoscopic work to have made esophagotomy an absolutely last resort.

UNUSUALLY LARGE CYSTIC APPENDIX VERMI-FORMIS.***COMPLETELY COVERED BY PERITONEAL FOLDS OF TREVES, COMPLICATED WITH LARGE RIGHT OVARIAN DERMOID CYST.**

By PAUL MICHINARD, M. D., New Orleans.

Case.—Alice Y., colored, age thirty-one, four children, three miscarriages. Last child two years ago (1914). No trouble was experienced during or after her deliveries. Menstruation always normal, excepting during past eighteen months, when the flow became more profuse and of longer duration. She entered the Charity Hospital, Ward 38, May 22, 1916, complaining of frequent attacks of abdominal pains for about two years. There were no typical attacks of appendicitis pains.

On examination the lower abdomen was felt to be filled with a movable, doughy-like mass, somewhat inclined to the right. Pressure over the right iliac fossa and in the neighborhood of McBurney's point did not cause any defensive contraction of the rectus muscle or any special suffering. Her temperature was normal. From the consistency of the tumor a dermoid cyst was diagnosed, and the history of repeated attacks of pain led to the suspicion of chronic appendicitis. Operation, May 30, 1916, revealed a six and one-half pounds dermoid filled with sebaceous matter and kinky hair. The tumor was freely movable and easily extirpated. The left ovary was found normal and not disturbed. On investigating for the appendix we found a sausage-like object filled with a clear serum-like fluid. With the exception of about one inch of its distal part it was completely covered by a thin, broad translucent and almost bloodless membrane, which also covered the cecum, to which, as well as a small surface of the appendix, it was slightly adherent. The accompanying photographs†, taken from Eastman's article that appeared in the April, 1913, number of *Gynecology, Surgery and Obstetrics*, well illustrate this case, excepting as to the bands attached to the ileum, which were not so broad.

*Presented at the Clinical Meeting of the Orleans Parish Medical Society, held at the Charity Hospital, New Orleans, October 9, 1916. [Received for Publication, October 11, 1916.—Eds.]

†See cut on page 456.

This object was the appendix. It was astonishing with what difficulty it was removed from its pocket-like covering, finger and Mayo scissors accomplishing the separation. After removing the appendix, the membrane, which was almost bloodless, was excised, ligatures were placed on the stumps to prevent any possible post operative bleeding. The appendix which



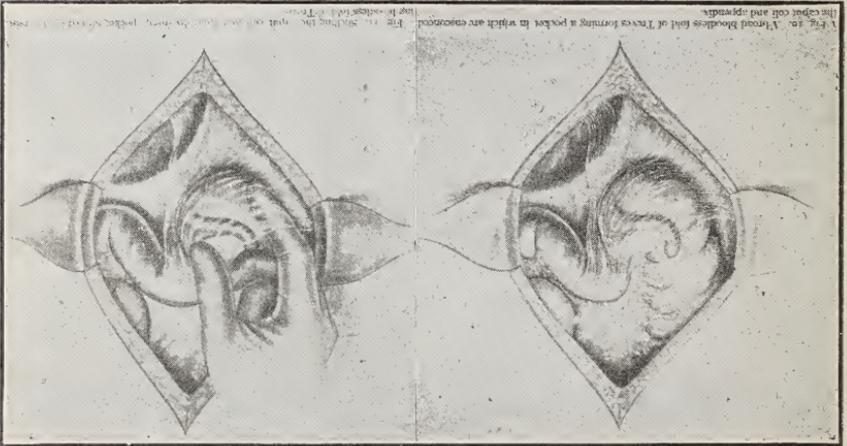
Cystic appendix, Dr. Michinard's case.

is shown to you measures about eight centimetres in circumference and seventeen centimetres in height.

Let us now turn our attention to the membrane which encased the appendix. It was certainly not of inflammatory origin. Its appearance was almost that of normal peritoneum. Excepting over the cecum and a small part of appendix it was not adherent,

and it did not bleed, or scarcely so, when cut. It was very broad. Speaking of these membranes Charles H. Mayo, in the March, 1911, number of *Surgery, Gynecology and Obstetrics*, said:

We believe that this condition is undoubtedly due to the late rotation of the bowel and descent of the cecum from its hepatic position after the formation of the peritoneal cavity of the infant. The cecum burrows its way into position, as it were, through the peritoneum.



These membranes have been called the peritoneal folds of Treves, Jannesco and Reid, and also Jackson's membrane. That they are not of inflammatory origin seems to be the prevailing opinion to-day. Eastman seems inclined to call them the "bloodless fold of Treves." At this operation, which was completed in less than an hour, and from which the patient made a quick recovery, I was assisted by Dr. Frank Gomila.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

RECENT EXPERIENCE WITH IPECAC AND ITS ALKALOIDS IN THE TREATMENT OF AMEBIASIS.*

By SIDNEY K. SIMON, A. B., M. D.
New Orleans.

There is apparently complete unanimity of opinion at the present time regarding the specific amebicidal effect of both ipecacuanha and its alkaloidal principle, emetine, upon the infections in man produced by the *Entameba histolytica*. Though the crude ipecac root had enjoyed, for centuries back, a varying reputation as a remedial agent in all forms of dysentery, the recognition of its distinctive value in those dysenteries of purely entamebic origin, it should be remembered, is a discovery of comparatively recent times. The finding of the marked effectiveness of the drug in this particular field and the more exact methods of its administration are, in fact, the results of painstaking investigations, only brought to a successful culmination within the past decade.

In 1909, George Dock¹ and, shortly after, the writer himself² were able to report gratifying results with the use of ipecac in a series of cases of amebic dysentery, which had previously shown themselves refractory to other plans of treatment. The important feature pointed out in these experiences concerned the administration of the drug according to a special method which included its employment in pill form, each pill coated with a layer of salol of sufficient thickness to prevent dissolution in the stomach.

Up to that time the drug had not met with favor in clinical practice, largely because of the irritant effects it produced when brought in contact with the gastric mucosa in an unprotected state. With the employment of the enteric coated pills this objection was in the main overcome and the way was thus opened

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

for a more extended use of this important agent in the control of the widely-prevalent entamebic diseases.

In 1912 a still further advance was recorded in the manner of exhibiting the drug in its full effectiveness. In that year Vedder³, in the course of experimental investigations carried on with emetine, an alkaloidal principle extracted from the ipecac root, had shown the powerful amebicidal effect of this substance on the free living organisms in dilutions as high as 1-100,000. Within a short time following Rogers⁴ was able to give a practical application and a clinical value to these tests. He employed the soluble hydrochloride salt of the alkaloid, making use of both the subcutaneous and intravenous methods of injection in a series of twenty-five cases of human entamebiasis, mostly intestinal in type. The results obtained proved to be highly striking and successful and prompt confirmation was soon derived from many sources.

A period of four years has now elapsed since the introduction of this new agent in the therapy of entamebic diseases, an interval sufficiently long, it would seem, to have allowed of a thorough testing out of its efficiency. During this time the use of emetine may be said to have almost entirely supplanted that of its parent drug, ipecac.

The question that now presents itself for consideration is whether the early claims made in behalf of emetine as an amebicidal agent superior in value to ipecac itself has been sufficiently justified. From a culling of the recent literature there would seem to be increasing evidence of doubt upon that score.

All authorities are agreed regarding the prompt effect of the alkaloid on the vegetable ameba, when used subcutaneously in doses of from one-half grain up. Clinically, the response to the emetine therapy is strikingly prompt and convincing. Within forty-eight hours following an injection of one grain a careful search of the stools may fail to reveal any trace of the organism previously present perhaps in large numbers. However, it need only be recalled in this connection that clinical results equally as impressive might be obtained from the use of the powdered ipecac administered by mouth. With both the parent drug and its alkaloid a clinical cure in the sense of a relief of active symptoms can with equal certainty be expected.

It is with the prevention of relapses, a sequel so characteristic of protozoan diseases, that the real effectiveness of these drugs should be judged and their relative merits be established. In this respect it would seem that ipecac possesses a far greater value than emetine. It has been my experience, after an extended and impartial observation, that relapses, though encountered with great frequency in the course of the emetine therapy, form a rare exception when the entire ipecac root is employed in full dosage.

The cause of relapses in amebiasis, as in other infections due to protozoa, may be traced to the tendency which the animal organisms exhibit to pass from the active vegetative state to a quiescent condition with the formation of cysts. Once in the encysted state the ameba becomes highly resistant to external influences and may, in fact, remain quiescent in the tissues for long periods of time, as is now universally recognized. The influence of emetine on the encysted ameba would seem to be quite small or even negligible in marked distinction to its well-recognized destructive effect upon the free living organism. Vedder⁵, himself, acknowledges that "a large percentage of cases treated with emetine continue to harbor the *Entameba histolytica* in the encysted and most dangerous form in the feces for some time." Likewise Allan⁶, Baermann⁷, Gaide, and Monzels⁸ and Marchoux⁹ have all found that "the entamebæ are not expelled from the intestinal tract by the emetine treatment to the degree that the relief of clinical symptoms would lead one to expect."

More recently Phillips¹⁰ states that "the effects of emetine are not permanent and that though the active amebæ are killed off very quickly, the drug has no effect on the cysts." Again, in a splendid summary of the subject, G. I. Jones¹¹, in analysing his experiences with a large material, makes the significant statement that while he considers emetine a most valuable agent in the treatment of intestinal amebiasis, "the use of this drug alone will not cure amebic dysentery." He has found that relapses will soon occur and strongly urges the employment of ipecac by mouth as a necessary step to achieve complete and permanent recovery.

The result of these extended and latter-day experiences with the emetine therapy would, therefore, appear to lead to the con-

clusion that the drug proves of splendid service as an agent for the destruction of the free living ameba in the tissues, whether in the intestinal tract or in the liver, but finds a somewhat restricted field of usefulness in the prevention of relapses when the amebæ have passed into their encysted cycle.

Another matter in connection with the use of emetine, to which increasing attention has been directed recently, concerns the possible toxicity of the drug on the human organism in doses ordinarily employed. In a very recent number of the *Archives of Clinical Medicine*, Levy and Rountree¹² report two cases of undoubted poisoning with emetine. In one case, representing a mixed amebic and luetic infection, death resulted from nephritis following the subcutaneous administration of emetine in average daily doses of one and one-half grains covering a period of twenty-nine days. In the other case, which had a less serious outcome, the toxic effect showed itself in a stupor lasting one week, after an unusually small dosage. These cases undoubtedly represent rare coincidences, considering the wide usage to which the drug has been put, and may possibly find an explanation, as the authors suggest, in an accidental impurity in the quality of the preparation.

However, much evidence is accumulating that milder types of toxemia are by no means uncommon. Lyons¹³ a year ago was able to collect four cases of peripheral neuritis which could be traced directly to the effects of the drug and has recently communicated an instance of cardiac arrhythmia in an individual who took ninety grains of alcresta over a period of six days. In summarizing his impressions upon this subject, Lyons states "that the evidence is increasing in the literature to the effect that the drug is not as harmless as generally supposed and that large doses are not without danger." Within the past year I have succeeded in obtaining records of seven additional instances of peripheral neuritis of unquestionable emetine origin. This complication, as well as other ill-effects at times mentioned in connection with the use of the drug, will be found to be due, I believe, in each instance either to the employment of an excessive daily dosage or to an injudicious prolongation of the treatment beyond limits of safety.

The toxic properties of the ipecac alkaloids revealed in part

above, as well as the pharmacology of the drug as a whole, it should be remembered, had been worked out in an experimental way several years back. Emetine had, in fact, been known as early as 1817, having been introduced by Pelletier¹⁴, a French chemist, as a term to include the total alkaloid obtained from the ipecac root. The use of the term was continued in this sense until 1894, when Paul and Crownley¹⁵ showed that the root consisted, in fact, of two distinctly active alkaloids, to which they gave the names Emetine and Cephaline. The physiologic and toxic action of these two alkaloids upon the human organism, as well as upon some of the lower animals, was tested out a year later by Wild¹⁶, who found that the effects they produced were to a great extent similar in character.

Though emetine has been used extensively in a clinical way, as we have seen, since 1912, for its active amebicidal effect the possibilities of cephaline in this particular field have been more or less overlooked. Leonard Rogers, in a paper contributed to the Asiatic Society in Bengal in 1914, related some observations he had made concerning the relative therapeutic value of emetine and cephaline in entamebic diseases. He administered the drug by the subcutaneous route and concluded that emetine in almost every particular was superior in effectiveness to cephaline.

With a view toward the further testing out of the possible influence of cephaline upon intestinal amebiasis, I have recently taken occasion to employ this agent in some six cases, each presenting active clinical symptoms. For this purpose I have made use of both the subcutaneous and oral methods of administration in turn, and the dosage employed has ranged from one-half to one grain. The results I have obtained, I must confess, have been, upon the whole, somewhat more favorable than those reported by Rogers. The number of clinical cases is not, of course, sufficiently large as yet to permit of very definite conclusions; but I have thought it might nevertheless prove instructive at this time merely to summarize the impressions which had been gained from the observation of these cases.

1. Cephaline would seem to possess an amebicidal action upon the free-living entameba to a degree equal to that of emetine in the same dosage.

2. The destructive effect of cephaline upon the encysted

organism would appear to afford more promise of success than that induced by emetine. One of my cases has remained free from relapse for a period of five months, with no reappearance of the cysts in the stool during that time after repeated examinations.

3. The administration of cephaline by the subcutaneous route produces considerably more irritation and pain at the site of puncture than does emetine.

4. Evidences of gastric disturbances accompanied by nausea and vomiting are encountered with more frequency and to a greater degree with the use of cephaline than with emetine.

5. There is less tendency to diarrhea in the course of the cephaline therapy than following the use of emetine.

6. The employment of a combination of the two alkaloids by hyperdermic injection would seem to promise a greater amebicidal effect than is obtained with emetine alone.

7. No evidence of toxemia was observed following the employment of the comparatively small doses of cephaline.

In conclusion, I wish to acknowledge my indebtedness to the Parke, Davis & Company Laboratory in Detroit for a liberal supply of the cephaline used in these experiments.

1. Paper contributed to American Society of Tropical Medicine, 1909.
 2. *Jour. Amer. Med. Assn.*
 3. *Bull. Manila Med. Soc.* (1911), 3, 48.
 4. *Ther. Gazette* (1912), 36, 837.
 5. *Jour. Amer. Med. Assn.*, Vol. LXII, p. 501.
 6. *Ibid.* 1913 (60).
 7. *Munch. Med. Woch.*, 1913 (60).
 8. *Bull. Soc. Path. exotique*, 1913 (6).
 9. *Ibid.*
 10. *Brit. Med. Journal*, Dec. 19, 1914.
 11. *Jour. Amer. Med Assn*, Mar. 20, 1915.
 12. *March*, 1916.
 13. *Amer. Jour. Med. Sciences*, July, 1915.
 14. *Annals Chem. et Phys.* (1817), 4, 172.
 15. *Phar. Jour.* (1895), 25, 111.
 16. *Lancet* (1895), 2, 1274.
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CURRENT LITERATURE

FURTHER PROGRESS IN THE USE OF RADIUM IN THE FIELD OF LARYNGOLOGY, D. Bryson Delavan, M. D.—Decided advances have been made during the past year in our knowledge of the application of radium in disease of the upper air passages, while the number of the conditions in which it is found effective is being steadily increased.

An interesting condition in which radium has no rival is in the reduction of lymphoid tumor cases, as found in tumors of the tongue, called hemolymphangioma.

The treatment by radium of papillomata of the larynx, as with warty growths in general in other parts of the body, is being attended with ever increasing success.

Leucoplakia of the tongue, Abbe believes, is as capable of cure by radium within the mouth as is the skin hyperkeratosis. In the mouth, however, the duration and the method of application require more judgment and skill to attain good results. The treatment is associated with transient painful irritation, but this seems essential to success. Chronic abrasions and fissures of the lip are curable by radium.

In the treatment of nevus, excellent results are being obtained.

New growths of nonmalignant type are receiving an increasing amount of attention, with excellent results. Thus, Abbe has shown a case of myeloid tumor of the lower jaw completely cured.

Tumors of the larynx of various kinds have been caused to disappear, with complete return of the singing voice.

In the field of nasopharyngeal fibroma the use of radium is most encouraging, particularly so in view of its success in the treatment of fibromata of the uterus.

Two cases observed by the writer, of sphenoid carcinoma, are worthy of notice. Both originated in the left side of the throat, close to the wall of the larynx, probably extralaryngeal. Both were seen late, long after operation would have been possible. Both patients were men in the early fifties, hitherto in perfect health, active, vigorous, and of good antecedents. When first seen, the disease in both had invaded the interior of the

larynx, the left lateral wall of the pharynx, the pyriform sinus, the tonsil, and the base of the tongue. In both, ulcerations were present and there were marked asphonia and dysphagia. Both were treated at the same institution, exposed to large doses of radium, and in both the results were materially the same. The first effect locally was an almost immediate control of the secretions of the throat. From having been abundant and fetid, they promptly ceased. Following this, the areas of ulceration rapidly diminished in extent, and in the less severe of the two cases disappeared, while in the other case they seemed to do so. The swellings, which had appeared over extensive areas of the affected parts, decreased markedly, and the infiltrated tissues were reduced in size, became soft to the touch, and more natural in appearance. Meanwhile the voice became clearer and deglutition improved so that both patients were able to swallow without pain and to largely increase the variety of their food. The general improvement was remarkable. Digestion became normal, and sleep more prolonged and restful. Strength increased steadily, and there was an almost normal condition of good spirits. One patient, a physician, was able to resume office practice and operative work for a period of over two months. Both have agreed that if the further progress of the disease should be entirely unfavorable, the benefit gained in the relief of suffering and the added comfort afforded would well have repaid them for any inconvenience which the radium had caused, whether from burns of the skin or from any other result.—Abstract, Report Thirty-eighth Annual Meeting, American Laryngological Association, 1916.

ANGIOMA OF THE LARYNX, Emil Mayer, M. D.—This affection is of very rare occurrence, the writer having found only forty recorded cases in the world's literature.

He presented the history of a woman, aged fifty-two years, who had a history of previous attacks of laryngitis with hemoptysis, and who had a tumor in the larynx on the left side, extending from the left false cord and covering the true cord on that side.

The diagnosis of cancer of the larynx had been made by laryngologists who had seen her previously.

The patient was admitted to Mount Sinai Hospital, and the

writer asked to report upon her condition and remove a portion of the growth for diagnosis, if necessary.

Owing to the yielding character of the growth, its bluish tinge, and the history of previous bleeding, the diagnosis was made of angioma of the larynx by Dr. Mayer. Removal of a portion for diagnosis was deemed too dangerous, and external operation was advised. This was subsequently performed by Dr. C. A. Elsberg.

The growth was removed, the mucous membrane sutured, and the pathologist reported it to be a hemangioma.

The patient made an uneventful recovery.

The writer concludes that angioma of the larynx is a rare disease, occurring mostly in adults, the proportion of males to females being about four to one. It may be mistaken for cancer. Endolaryngeal removal, even of a portion of the growth, for diagnosis is fraught with danger, while laryngofissure is entirely safe and feasible.—*Ibid.*

SORE THROAT CLINICALLY CONSIDERED, Samuel Johnston, M. D.—In the clinical study of "sore throat" we should scan the physiognomy of the patient, mark well any changes in the voice tones, and note the odor of the breath before entering into a more detailed examination of the case.

Among the conditions causing changes of the voice may be mentioned paralysis of the soft palate, defections in the conformation of the palatine arch, swollen tonsils, benign and malignant growth in the nasopharynx, laryngeal inflammations, paralysis, and so forth.

The odor of the breath may call attention to such conditions as uremic poisoning, pulmonary gangrene, ozena, necrosis of the nasal bones, and so forth. The need of careful inspection of the lips, gums, teeth, tongue, palate, pharynx, nasopharynx, lingual tonsils, epiglottis and larynx is emphasized.

In examining the nasopharynx an ulcer, usually of an infectious nature, is found here when least suspected, and in infectious diseases sore throat is by no means uncommon.

The writer's experience has proven that diseases of these regions differ in no way from similar pathologic changes in other parts of the body, and should receive the same therapeutic and surgical treatment.

Conservative and mild measures, however, should be the rule and guidance.—*Ibid.*

RINGWORM ON HANDS AND FEET.—O. S. Ormsby and J. H. Mitchell remark that cases of ringworm occurring on hands and feet are unlike the ordinary skin disease of that type occurring elsewhere, and are examples of what are ordinarily termed dysidrosis or eczema of the vesicular-vesiculopustular or intertriginous type. What proportion of them is mycotic requires investigation, but the number seems to be large. The essential lesion is probably in all cases a vesicle, solitary or multiple, and grouped or scattered. The contents are usually clear and there is no erythema surrounding it as a rule. In the course of a few days the fluids absorb, leaving a brownish macule, and eventually the roof of the dried vesicle becomes torn and scales off, exposing a red, smooth, shiny surface, with a border of upturned scales. The subsequent course depends on the number of vesicles and their location, and probably also on the type of the invading organism. If the vesicles have been discrete they may leave only slightly scaling areas which may still harbor the organism, and instead of scaling off, the roof of the vesicle may produce a yellowish brown keratotic button containing many mycelial threads, and under which there is little or no trace of the usual shiny red surface. If the vesicles have been grouped, however, they may grow together and even produce bullae. Unmolested these may heal spontaneously, or extend, and if irritated by caustics, cause severe eczematous dermatitis. The location of the lesion determines largely the condition which the organisms must proliferate, and hence the type of lesion. In all cases observed, the interdigital surface of the fourth interspace of the toes is most commonly affected. Rarely the process extends backward on the plantar surface of the foot. The reason for this localization is that the shoe causes the fifth toe to be constantly flexed and adducted, and finally the last two toes may become so stuck together that cleansing is difficult, and the continuance of the growth is especially favored. The invading organism in most cases is *Epidermophyton inguinale*. They give an analysis of sixty-five cases seen in ordinary private practice, five-sixths of which were in males. The subjective sensations vary from nothing at all to complete incapacity to walk. The treatment

consisted of three preparations. In the severer cases a preliminary soothing element treatment of naftalan combined with zinc oxid and starch was used, followed by 5 per cent chrysarobin in a chloroform solution of gutta percha painted on until a good reaction occurred. Ordinarily this last was immediately prescribed, and directions given for use five times a day. In another series of cases, an ointment of salicylic acid and benzoic acid, two and four parts, respectively, in thirty parts of ointment base was used. Chrysarobin was used alone in thirty patients. The authors' conclusions are as follows: 1. Eczematoid and dysidrotic lesions of the volar surfaces due to mycotic infection are much more common, at least in the Middle West, than the number of reported cases indicate. 2. The disorder occurs more frequently in men than in women, more frequently on the feet than on the hands, and more frequently in the warm and damp than in the cold and dry seasons. 3. The essential lesion is a deep-seated vesicle, in the roof of which mycelial threads may be found. 4. The areas affected, in the order of frequency, are (*a*) the fourth interspace of the foot, (*b*) the plantar surface of the arch, and (*c*) over the tuberosity of the fifth metatarsus. 5. The disorder frequently follows or precedes eczema marginatum, and is due in many cases to the same organism. 6. The pathogenic fungus may remain dormant in the cutaneous folds of the feet throughout the winter months. With the advent of warm weather an acute attack of vesication, desquamation and maceration may occur.—*Int'l. Am. Med. Assn.*, September 2, 1916.

FOCAL INFECTION.—The laws which govern the perpetuation of pathogenic microorganisms involve a life of parasitism harmless to the host or of varying degrees of pathogenicity. Apparently any specific type of the bacteria discussed may attain the biochemic qualities which permit them to exist in the host as harmless parasites or as injurious agents possessed of a special or general pathogenicity of varying virulence. The varying pathogenic qualities, special and general, may be acquired in the host or in the passage from host to host (man or animal), or may be brought about in culture media. The host confined infection (focal) seems to be a site in which the specific agents may attain specific pathogenicity chiefly in the nature of tissue

tropism (elective tissue affinity). This special quality is not recognized necessarily by cultural characteristics. The power to hemolyze or to produce green color in blood-agar plates by some members of the streptococcus group does not necessarily indicate specific pathogenicity or degree of virulence. The special or general pathogenicity of the host, measured by many factors cited in the paper, may determine the severity, acute or chronic, the extent, local or general, and the site, election of tissue, of the systemic infection. It is believed that these conclusions have been sustained by clinical observations and bacteriologic research.—*Ibid*, September 16, 1916.

FOCAL INFECTION IN SKIN DISEASES.—M. L. Ravitch says that it is an unfortunate fact that dermatologists have too much neglected the search for the true etiologic factors of skin disease and given more attention to nomenclature and classification. There has been a change recently in this regard, and credit is due to Billings and Rosenow, whose theory of focal infection has opened our eyes to the explanation of certain dermatoses of obscure etiology only a few years ago. With the key we now have we can illustrate his statements, and they are only a few selected ones out of many. Not all systemic and skin derangements are due to focal infection. Many obscure diseases may be traced to faulty internal secretions, but these again on their part may be due to focal infection. It all teaches us to be on our guard and thoroughly examine doubtful cases, and above all, he says, let us treat the skin not as a surface only, but as a cutaneous organ, as capable of infection from within as any other organ.—*Ibid*, August 5, 1916.

REED'S BACILLUS OF EPILEPSY (A. J. Hinkelmann). Through the work of Reed,* the question of a specific organism as the exciting cause of seizures of epilepsy has been set forth. Having previously worked from a different basis with an organism believed to be the same as the one isolated by Reed, and having since the appearance of his articles, succeeded in finding the organism in the blood of an isolated case of epilepsy, Hinkelmann adds a few facts to what Reed has already said.

Reed has made very clear the point that the organism is evidently taken into the intestinal tract by way of the mouth, and

*Reed, Charles A. L.—*J. A. M. A.*, Jan. 29, and May 20, 1916.

enters the blood through a cecal or an appendiceal focus, and leaves the question open as to the danger of communication. What would be the consequence in case the organism was ingested by a normal individual, and to what extent may those with predisposing lesions expect to escape infection?

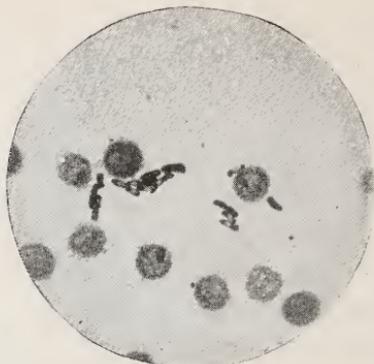
From a basis of experiments conducted during the summer of 1915, and before he had any knowledge of the pathology of the organism, the author says it is a very frequent inhabitant of the intestinal tract of probably the majority of people; that it is one of the regular members of the so-called intestinal bacteria.

The organism has high resistance to germicidal agents, and through this fact it becomes an easy matter to demonstrate its presence in the intestinal flora and also that it is commonly present. It will live in phenol solutions of from 5 to 10 per cent for many hours and a much higher strength is necessary to kill it instantly. Among the very large number of different species of bacteria that are usually found in the intestines, it is commonly the only one that will survive a thorough treatment of the stool with a 5 or 10 per cent phenol solution.

The method of isolation was as follows: From 25 to 30 grams of solid feces were made into an emulsion with 50 cc of a 5 per cent. solution of phenol and allowed to stand for 30 minutes or an hour; cultures were made on agar slants and incubated. I have never made such cultures from the stools of epileptics with the view of noting how numerously the organism is present, but in normal individuals, a loopful of the above emulsion spread over an agar slant will yield from 1 to 6 colonies after twenty-four hours of incubation.

The organism is highly hemolytic, and to this last fact may be due a part of the pathological conditions present in epileptics. Cultures made on blood agar plates will show a hemolytic spot at the point of a growing colony long before the colony itself becomes visible. In the case that came under my observation, I found it abundantly present in the capillaries, and both the spores and the organism could easily be demonstrated in smears from the blood directly.

In view of the fact that the organism does enter the circulation and there multiplies into great numbers and is so generally found in the blood of epileptics, the conclusions of Reed



Bacillus epilepticus directly in blood smear from an epileptic patient five hours after seizure.

as to its specific nature become at least very plausible. It would be hard to conceive that an organism with such a high hemolytic property could enter the circulation and multiply to such numbers as smear preparations from the blood indicate without producing diseased conditions within and resulting in corresponding clinical manifestations without.

At any rate, what has already been established in regard to the organism makes the question one most worthy of serious consideration and extensive investigation. The universal presence of the organism in the intestinal flora is no argument against its probable pathology, but simply adds the blood stream, in consideration of the question of treatment.

If further investigation should finally establish that the *Bacillus epilepticus* is the exciting cause of the seizures of this disease, little probably can be hoped for in the way of prophylaxis or cure through efforts to prevent the organism from entering the intestinal tract or to eradicate it when present. The best attention probably will have to be directed toward those lesions which open the way for it from the intestines into the circulation.—*New York Medical Journal*.

NEWS AND COMMENT.

PRINCIPAL CAUSES OF DEATH.—According to a preliminary announcement with reference to mortality in 1915, issued by Director Sam. L. Rogers, of the Bureau of the Census, Department of Commerce, and compiled under the direction of Mr. Richard C. Lappin, chief statistician for vital statistics, nearly one-third of the 909,155 deaths reported for that year in the "registration area," which contained approximately 67 per cent of the population of the entire United States, were due to three causes—heart diseases, tuberculosis, and pneumonia—and nearly two-thirds were charged to twelve causes—the three just named, together with Bright's disease and nephritis, cancer, apoplexy, diarrhea and enteritis, arterial diseases, diabetes, influenza, diphtheria, and typhoid fever.

The mortality rate from typhoid fever has shown a most gratifying and remarkable decline since 1900, having dropped from 35.9 per 100,000 in that year to 12.4 in 1915, the decrease amounting to nearly two-thirds. This decline is greater, relatively, than that shown for any other important cause of death. The total number of deaths due to typhoid fever in 1915 was 8,332. Improved methods of sanitation, including the betterment of the water supply and sewerage systems, the campaign against the fly, and other preventive measures, have proved their efficacy in a striking manner by a reduction of almost two-thirds in the typhoid death rate during a period covering but a decade and a half.

That the "safety-first" campaign, inaugurated a few years ago, has borne good fruit is brought out by the figures for accidental deaths. For 1913, 54,011 deaths were reported as due to accident; for 1914 the corresponding number was reduced to 51,770, and for 1915 to 51,406; and during this period there was not only an increase in the population of the registration area as it existed in 1913, but an increase in the extent of the area itself. The rate per 100,000 population for accidental deaths fell from 85.3 in 1913 to 78.5 in 1914 and to 76.3 in 1915. There has been a very considerable reduction in fatalities due to rail-

way, street-car, mine, and machinery accidents, and the increase in those resulting from automobile accidents has not been as rapid as the increase in the number of machines in use.

The number of suicides reported for 1915 was 11,216, or 16.7 per 100,000 population. The suicide rate has not varied very greatly during the past 10 years.

DEATHS CAUSED BY FIREARMS.—The census figures bring out the astonishing fact that during the year 1915 firearms caused more deaths than railroad accidents, more than five times as many as railroad and street-car accidents combined, and more than twice as many as automobile accidents. The total number of deaths due to the use of firearms in the registration area in 1915 was 7,994, corresponding to a rate of 11.9 per 100,000. Of these deaths, 3,608 were suicides, 2,885 were homicides, and 1,501 were accidental (including those concerning which the status as to suicide, homicide, or accident was in doubt). The suicidal use of firearms has increased from year to year since 1913; the frequency of accidental deaths due to their use shows a slight decline during recent years; and the homicidal use of firearms shows a decline as compared with 1913 and 1914 but an increase as compared with 1910, 1911 and 1912. No separate data as to homicides by firearms for the years prior to 1910 are available.

RURAL HEALTH—AMERICA'S FIRST DUTY.—In an address delivered before the Senate on the subject of "Rural Health—America's First Duty, Senator Joseph E. Ransdell of Louisiana said: "The estimated economic loss which our nation suffers each year from typhoid fever and malaria alone aggregates \$928,234,880, leaving out of entire account the sorrow, the unhappiness, the misery and the inefficiency which follow in their train." Senator Ransdell pointed out the fact that as valuable as it may be to increase the health of livestock and vegetation, it is of far greater importance that we throw every safeguard around the health of the man who is responsible for that livestock and vegetation. "Over \$9,000,000 lost to us every year! A sum which is sufficient to put our country into a state of preparedness equal to that of any nation in the world, enough money to give us the largest navy afloat and the most efficient army which the world has ever seen, is annually offered up as

a sacrifice to two diseases which are entirely preventable. Enough money to pay the annual expenses of every college student in the United States is absolutely thrown away every year."

THE RICHEST MEDICAL SCHOOL.—Two million dollars has been appropriated to the University of Chicago, by the General Education Board in co-operation with the Rockefeller Foundation, for the establishment of a high-grade medical school. The university will appropriate at least the same amount and will give a site valued at \$500,000. An additional sum of \$3,000,000 will be raised by the university. The new medical school will start with an initial endowment of almost \$8,000,000, which, according to Abraham Flexner, is the largest ever provided for any college of medicine in the world.—*Daily Press*.

MIDWIFERY SCHOOL OPENS.—The new school of midwifery, a department of Loyola University, New Orleans, was opened on November 2, 1916. Fifteen applications were received, several of which were trained nurses. Dr. J. W. Newman is dean of the new department. The course will be held at the Lying-In Hospital, Howard Avenue and Lee Circle, which will be the clinic. No person can enter the class whose moral character is not of the highest type. A new class will be started at the beginning of each month, which will allow persons who desire to take the course to enroll.

NEW SANITARIUM IN ALEXANDRIA.—A modern sanitarium to cost \$50,000 is proposed for Alexandria, La., in the near future. It is planned to donate an entire block of ground in a prominent locality in that city if the order of the Sisters of Charity of the Incarnate Word will erect a modern sanitarium and maintain it. The offer is being made to the Sisters by Drs. R. O. Simmons, G. M. G. Stafford, King Rand and I. F. Littell, who will donate the land, and hearty co-operation of all the physicians in the city and the citizens in general is solicited to make the movement a success.

EXAMINATION FOR ASSISTANT SURGEONS IN THE UNITED STATES PUBLIC HEALTH SERVICE.—These examinations will be held December 4, 1916, February 5, 1917, April 2, 1917, and June 4, 1917, in various cities, for the convenience of candidates taking the examination. Further information will be furnished

by addressing the Surgeon-General, United States Public Health Service, Washington, D. C.

ETHER DAY AT THE MASSACHUSETTS GENERAL HOSPITAL.—The seventieth anniversary of the use of ether as an anesthetic during a surgical operation was observed on October 16, in the new Moseley Memorial Building of the Massachusetts General Hospital, Boston. The meeting was opened by Dr. Henry P. Walcott, president of the corporation and chairman of the board of trustees of the hospital, and addresses were delivered by Dr. Herbert B. Howard, superintendent of the Peter Bent Brigham Hospital, Boston, and Dr. Haven Emerson, health commissioner of New York.

MEDICAL SOCIETY OF THE UNITED STATES.—This newly organized society held its first meeting in St. Louis, Mo., October 3, 4 and 5. Committee reports on organization and arrangement, with the address by the president, Dr. A. H. Ohmann-Dumesnil, and a scientific program in the afternoon, formed the first day's business. The scientific program was continued through October 4 and 5, with a reception for the president-elect, Dr. Emory Lanphear.

HOSPITAL FOR DEFORMITIES RECEIVES GIFT.—Mr. Herbert Kauffman, of Pittsburgh, through Dr. H. C. Frauenthal, has presented the Hospital for Deformities and Joint Diseases, New York, with a gift of \$1,000,000, to be used for the erection of a new building and for an endowment fund.

CLINICAL CONGRESS OF SURGEONS.—The seventh annual meeting of the Clinical Congress of Surgeons was held in Philadelphia, October 23-27. More than 1,600 members were registered from all parts of the United States, Canada, and abroad. The following officers were elected: President, Dr. John G. Clark, Philadelphia; first vice-president, Dr. George Henderson Lee, Galveston, Texas; second vice-president, Dr. Edgar W. Allin, Edmonton, Alberta, Canada; secretary-general, Dr. Franklin H. Martin, Chicago (re-elected), and treasurer, Dr. Allen B. Kavel, Chicago (re-elected). The next meeting place of the congress will be New York City in 1917.

AMERICAN COLLEGE OF SURGEONS.—On October 27 the fifth annual meeting of the American College of Surgeons was held in Philadelphia, when 232 fellowships were conferred. Dr.

Ernest Sidney Lewis, of New Orleans, received the honorary degree. The following officers were elected: President, Dr. George W. Crile, Cleveland; first vice-president, Dr. Robert G. Leconte, Philadelphia; second vice-president, Dr. Rudolph Matas, New Orleans; general secretary, Dr. Franklin H. Martin, Chicago, and treasurer, Dr. Albert G. Ochsner, Chicago.

CLEAN HANDS.—In view of the fact that disease germs lead a hand-to-mouth existence, because of the inability of the human race to keep the unwashed hand away from the mouth, the United States Public Health Service has formulated the following simple rules of personal hygiene, and recommends their adoption by every person in the United States: Wash the hands immediately before eating, before handling, preparing or serving food, after using the toilet, after attending the sick and after handling anything dirty.

VACUUM BOTTLES TO CARRY VIRUS.—In order to carry the tubes of virus into the interior of the Philippine Islands, the Bureau of Public Health has hit upon the plan of packing the tubes in ice in vacuum jars after the fashion of an ice-cream freezer. In these jars ice can surround the tubes of virus, and although the ice may melt before the end of the journey, the water will keep cool a long time after. A test was made by the Bureau of Health in Manila and it was found that after 127 hours (over five days) the ice in the vacuum container had melted, but had risen only to 50 degrees Fahrenheit.

AMERICAN MEDICAL EDITORS' ASSOCIATION.—At the forty-seventh annual meeting held in New York, October 24, 25, 26, the following officers were elected: President, Dr. George Morris Piersol, Philadelphia; vice-presidents, Dr. Geo. W. Kosmak, New York, and Dr. Robert M. Green, Boston; secretary-treasurer, Dr. Joseph MacDonald, Jr., New York.

SAVING IN SERUM AND VACCIN.—Under the system of distributing biologic products, the State Board of Health of Texas reports that from September 1, 1915, to July 1, 1916, the saving to the people of Texas was \$74,717.15, because of the reduction in the price of serum and vaccin points.

NATIONAL BOARD OF MEDICAL EXAMINERS.—The Board held its first examination from October 16 to 21, in Washington, D. C. There were thirty-two applicants from seventeen States,

representing twenty-four medical schools, and of these sixteen were accepted as having the necessary preliminary and medical qualifications, ten of whom took the examination. The following passed: Drs. Harry Sidney Newcomer and William White Southard, John Hopkins University; Orlow Chapin Snyder, University of Michigan; Thomas Arthur Johnson and Hjørleifur T. Kristjanson, Rush Medical School. The second examination will be held in Washington, D. C., June, 1917. Further information may be had by applying to Dr. J. S. Rodman, secretary, 2106 Walnut Street, Philadelphia, Pa.

NOBEL PRIZES RESERVED FOR 1917.—According to an announcement from Sweden on October 28 there will be no Nobel prizes for science or medicine for this year, but the money will be reserved for 1917. The Nobel prize for 1915 has also been reserved and will be awarded to the special fund.

TO ABOLISH HEROIN.—At a meeting of the Committee on Drug Addiction of the National Committee on Prisons, which was held in New York, resolutions were adopted stating that since heroin is not so indispensable a drug that its place cannot be easily taken by other drugs and measures that do not menace public welfare, it was recommended that Federal legislation be asked to prevent the importation, manufacture and sale of heroin. Discussion at the meeting revealed a consensus of opinion that heroism is, among drug addicts, most prevalent among boys and in the early decades of adult life, and, therefore, the chief promoter of vice and crime.

DAMAGES AGAINST A MIDWIFE.—It is reported from San Francisco that on October 24 the Supreme Court of that city awarded damages to the amount of \$25,000 against a graduate midwife who had not taken the proper care of a baby's eyes, with the result that it became blind from ophthalmia neonatorum.

BERI-BERI IN NEW BEDFORD.—Six cases of beri-beri were discovered aboard a schooner recently arrived in New Bedford, Mass., from the West African coast. The patients were the captain, two officers and three sailors of the crew.

INTERN VACANCIES FOR WOMEN PHYSICIANS.—The New York Infirmary for Women and Children, a general hospital of 95 beds (exclusive of new-borns), announces that there will be

four vacancies for interns. The term of service is for one year and the vacancies are to be filled July 1, 1917, and September 1, 1917. For further particulars *apply with credentials* until January 15, 1917, to Dr. Emily Lewi, 35 Morris Park, West, New York City.

ARMY MEDICAL CORPS.—Examinations will be held early in January for appointment of first lieutenants. There are 228 vacancies, and the examination will be held at various stations to suit the convenience of candidates. Application should be made to the Surgeon General, United States Army, Washington, D. C.

SOUTHERN MEDICAL ASSOCIATION MEETING.—At the annual meeting of the Southern Medical Association, which was held in Atlanta, November 13-16, the following officers were elected for the ensuing year: President, Dr. Duncan Eve, Nashville; first vice president, Dr. Stewart Roberts, Atlanta; second vice president, Dr. Bransford Lewis, St. Louis; secretary-treasurer, Dr. Seale Harris, Birmingham. Dr. Robert Wilson, Jr., of Charleston, retiring president, became a member of the Board of Trustees, in place of Dr. B. L. Wyman, of Birmingham, according to the custom of the association, which puts the retiring president in the place of the oldest member of the Board of Trustees. Dr. J. Shelton Horseley, of Richmond, Va., was presented with the gold medal for original research in surgery. Memphis was chosen as the next meeting place. New Orleans was well represented at the meeting. The following were in attendance: Drs. Allan Eustis, R. Matas, J. Symth, R. L. De Buys, E. D. Martin, E. Bass, C. C. Bass, E. C. Samuels, W. J. Durel, J. T. Halsey, L. L. Cazenavette, S. K. Simon, J. B. Guthrie, J. A. Danna, T. J. Dimitry and Oscar Dowling.

STARCH AND TABLE SALT SOLD AS NEOSALVARSAN.—A recent indictment of several parties by the Federal Grand Jury in Newark has revealed what is believed to be a widespread conspiracy to defraud the government out of customs revenue by smuggling salvarsan and neosalvarsan into the United States. Further investigation also showed that a majority of the ampoules contained starch, and others stained table salt. The product has been sold in a number of cities. The packages are

very cleverly executed and their outside appearance even led experienced physicians to be deceived.

THE UNITED STATES CIVIL SERVICE COMMISSION will hold two competitive examinations on December 13, 1916, at the various cities of the United States. One of the examinations is to fill the position of dental intern at St. Elizabeth's Hospital, Washington, D. C., and the other is for physician in the Indian and Panama Canal Services. For further information apply for Form 1312, stating the examination desired, United States Civil Service Commission, Washington, D. C.

MISSIONARY HOSPITAL WORK IN INDIA.—A qualified medical man is required who is in sympathy with religious work. Passage paid and small monthly allowance made. Three years' agreement. Apply, sending copies of testimonials, to Commander Eva Booth, Salvation Army Headquarters, 122 West Fourteenth Street, New York City.

PERSONALS.—Dr. Theodore Engelbach, of Grand Isle, La., has been appointed deputy coroner of Jefferson parish, co-operating with Dr. M. Earle Brown, coroner.

Dr. Tom A. Williams, of Washington, D. C., was recently elected corresponding member of the National Academy of Medicine of Rio de Janeiro.

Dr. Charles A. R. Campbell of San Antonio, Texas, delivered a lecture before the Freshmen and Sophomores of the Tulane School of Medicine, on November 2, on the subject of bats and their relation to the extermination of mosquitoes, almost to the extent of eradication of malaria where bat roosts have been erected. Dr. Campbell is a Tulane graduate of the class of 1889.

Dr. J. L. Greene, formerly of the State Hospital for Nervous Diseases in Little Rock, and Dr. M. F. Lautmann, formerly of the Levi Memorial Hospital, Hot Springs, Ark., will now practice medicine together, with offices in the Dugan-Stuart Building, Hot Springs, Ark.

Drs. Maurice J. Gelpi and Hiram Watkins Kostmayer, of New Orleans, have been appointed resident surgeons at the Charity Hospital.

Dr. H. B. Gessner has decided to remain in New Orleans, having changed his plans for a long absence in Germany for Red Cross work.

LAWYER-DOCTOR.—Congratulations are extended Dr. Philip Jones, secretary California State Medical Society, in having successfully passed the Bar Examination and being admitted to practice as an Attorney and Counselor at Law in the State of California.

REMOVALS.—Dr. D. A. Palmisano, from 1300 Canal Street to 402 Medical Building.

Dr. J. Signorelli, from 305 to 402 Medical Building.

Dr. L. S. Charbonnet and Dr. P. B. Salatich, from 801 Audubon Building to 1141 Maison Blanche Building.

Dr. C. A. Wyatt, from New Salem, Route No. 1, to Joachin, Tex.

Dr. Muir Bradburn, Dr. W. P. Bradburn and Dr. P. A. McIlhenny, from 741 Carondelet Street to 3513 Prytania Street.

Dr. W. E. Balsinger has returned from Chicago and resumed his practice in this city at 711 Machea Building.

Dr. J. A. Bethea, from New Orleans to Army Medical School, Washington, D. C.

MARRIED.—On November 11, 1916, Dr. Lewis H. Levy, of New Orleans, to Miss Jessie Gertrude Burns, of Hattiesburg, Miss.

Dr. James Clifton Cole, of New Orleans, and Miss Betty C. Eastland, of Chicago, on November 30.

DIED.—On November 9, 1916, Dr. J. M. Ledbetter, of Shreveport, La., aged 63 years.

On October 27, 1916, Sister Mary Agnes, for fifty years connected with the Charity Hospital of New Orleans and for forty years superioress of that institution, aged 80 years.

PUBLICATIONS RECEIVED

- LEA & FEBIGER.** Philadelphia and New York, 1916.
Practical Therapeutics, by Hobart Amory Hare, M. D., B. Sc. Sixteenth edition, enlarged, thoroughly revised, and largely rewritten.
Manual of Chemistry, by W. Simon, Ph.D., M. D., and Daniel Base, Ph.D. Eleventh edition, thoroughly revised.
- WILLIAM WOOD & COMPANY.** New York, 1916.
The Medical Record Visiting List or Physicians' Diary For 1917.
Physiological Chemistry, by Albert P. Mathews, Ph.D. Second edition.
- W. B. SAUNDERS COMPANY.** Philadelphia and London, 1916.
The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Edited by P. G. Skillern, Jr., M. D. October, 1916.
The Medical Clinics of Chicago. September, 1916. Volume 2, No. 2.
- THE YEAR BOOK PUBLISHERS.** Chicago, 1916.
The Practical Medicine Series. Volume VI: **General Medicine**, edited by Frank Billings, M. S., M. D., assisted by Burrell O. Raulston, A. B., M. D.
- WASHINGTON GOVERNMENT PRINTING OFFICE.** Washington, D. C.
Fifteenth Annual Report of the Mortality Statistics. (1914). Department of Commerce, Bureau of the Census.
Public Health Reports. Volume 31, Nos. 39, 40, 41, 42, 43 and 44.
The Von Ruck Treatment for Tuberculosis. (Remarks of Hon. Luke Lea, of Tennessee, in the Senate of the United States, September, 1916).
Treatment of Tuberculosis, by Frank J. Clemenger, M. D., and F. C. Martley, M. A., M. D.
The Navy as a Special Field for Medical Work. By the Surgeon General.
- MISCELLANEOUS:**
Profitable Practice, by George Wood Clapp, D. D. S. (The Dentists' Supply Co., New York).
Adenoids and Tonsils, by Algernon Coolidge, M. D. (Harvard University Press, Cambridge, 1916).

- An Adequate Diet**, by Percy G. Stiles, Ph. D. (Harvard University Press, Cambridge, 1916).
- The Annual Report of the Board of Health of the City of New Jersey.** Two hundred and fiftieth anniversary (1666-1916).
- Pruning Investigations**, by V. R. Gardiner, J. R. Magness and A. F. Yeager. (Oregon Agricultural College Experiment Station, Corvallis, Oregon).
- Quarterly Bulletin Louisiana State Board of Health.** Vol. VII. (New Orleans, September, 1916).

REPRINTS

- Contributions to the Botany of Michigan No. 14**, by Oliver Atkins Farwell.
- Railway Regulation and Locomotor Ataxia**, by Frank Trumbull.
- Japanese Medical Literature**, by the Staff of the Research Department of the Severance Union Medical College, Seoul Korea.
- Anatomia Patologica de las Leishmaniasis Dermicas**, por el Dr. Guillermo Almenara.
- The Removal of the Troublesome Useless Uterus: Diagnostic Methods in Glenard's Disease Enteroptosis**, by A. Ernest Gallant, M. D.
- Foreign Bodies in the Rectum**, by Llewellyn Eliot, M. D.
- A History of Bodysnatching**, by Frank Baker, M. D.
- Herpes Corneae "Febrilis"**, by Samuel Teobald, M. D.
- Longer and More Effective Living**, by Eugene L. Fisk, M. D.
- Muscle Training in the Treatment of Infantile Paralysis**, by Wilhelmine G. Wright.
- A Case of Ulcerating Granuloma Successfully Treated by Intravenous Injections of Antimony**, by George C. Low, M. A., M. D., and H. B. Newham, M. D., M. R. C. P.
- El Paludismo de las Aves en Venezuela**, por el Doctor Juan Iturbe.
- Cultivo in Vitro del Plasmodium Vivax**, por el Doctor Iturbe, Doctor Eudoro Gonzalez.
- A Bacillus From Epileptics**, by Wm. Barclay Terhune, M. D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for October, 1916.

Cause.	White	Colored	Total
Typhoid Fever	10	5	15
Intermittent Fever (Malarial Cachexia)	2	1	3
Smallpox			
Measles			
Scarlet Fever			
Whooping Cough	1		1
Diphtheria and Croup	4	1	5
Influenza	1	2	3
Cholera Nostras			
Pyemia and Septicemia			
Tuberculosis	37	52	89
Cancer	19	5	24
Rheumatism and Gout			
Diabetes	3		3
Alcoholism			
Encephalitis and Meningitis	3	1	4
Locomotor Ataxia	1		1
Congestion, Hemorrhage and Softening of Brain	29	11	40
Paralysis	3	1	4
Convulsions of Infancy	1	1	2
Other Diseases of Infancy	10	11	21
Tetanus	1	2	3
Other Nervous Diseases	1		1
Heart Diseases	64	36	106
Bronchitis	2		2
Pneumonia and Broncho-Pneumonia	11	9	20
Other Respiratory Diseases	1	2	3
Ulcer of Stomach		2	2
Other Diseases of the Stomach	1	1	2
Diarrhea, Dysentery and Enteritis	19	17	36
Hernia, Intestinal Obstruction	4	1	5
Cirrhosis of Liver	7	3	10
Other Diseases of the Liver	2	1	3
Simple Peritonitis			
Appendicitis	2	4	6
Bright's Disease	26	17	43
Other Genito-Urinary Diseases	8	13	21
Puerperal Diseases	9	2	11
Senile Debility	1	3	4
Suicide	2		2
Injuries	17	9	26
All Other Causes	27	14	41
Total	329	227	556

Still-born Children—White, 20; colored, 32; total, 52.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 14.30; colored, 26.7; total, 17.65. Non-residents excluded, 15.30.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure	30.03
Mean temperature	72.
Total precipitation	8.51 inches
Prevailing direction of wind, northeast.	

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

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EDMOND SOUCHON, M. D., Tulane University of Louisiana.

E. R. STITT, M. D. Commander, U. S. N.

J. A. STORCK, M. D., Tulane University of Louisiana.

R. P. STRONG, M. D., Harvard University.

ROY M. VAN WART, M. D., Tulane University of Louisiana.

PAUL G. WOOLLEY, M. D., University of Cincinnati.

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No. 7.

EDITORIAL

MAKE A GOOD RESOLUTION.

New Year's is the time for good resolutions. One of the best the physicians of this State can make is to do their duty regarding vital statistics. Notwithstanding the efforts of the State Board of Health, of the New Orleans Board of Health, and some other local boards, many are derelict in reporting births and fail to try to interest their local authorities in providing for the proper registration of these as well as of deaths.

The advisability of having this State included in the registration area of the United States and the many other advantages to accrue when it can make a decent showing regarding the col-

lection of our vital statistics have been so often and so convincingly brought out that we need waste no space to repeat them. We deem it timely to urge our readers not only to do better than before in this respect, but to stimulate all others to do likewise, and we hope our reminder will produce the desired effect.

THE LIBRARY FUND BENEFIT.

The Orleans Parish Medical Society has taken a new and radical departure in announcing a concert and dance which it is to give for the benefit of its library fund on January 27 at the Atheneum.

Whatever may have been the arguments advanced against the policy of an appeal in that form, and some were no doubt of merit, the matter is now settled, the majority evidently considering the reasons in favor to have preponderating force. Therefore it only remains for the members to work heartily for the success of the entertainment, which we believe is now practically assured. As we are going to have the benefit, let us make it a fine one. The need is great or the Society would not have undertaken the enterprise, but over and above this we cannot afford to obtain only a meager success—it must be a profound one.

Not only should all the members of the Society work enthusiastically, but the members of the profession throughout the State should lend a helping hand. The general public, only to be reached indirectly through the physicians, will no doubt be sympathetic and assist accordingly.

The Orleans Parish Society has never asked for assistance before and we hope never will again, but all should respond nobly on this unique occasion.

THE NEWMAN CHARITY.

Within one week in December Mrs. Isidore Newman and Mrs. Henry Newman were placed among the benefactors of the New Orleans poor through the announcement of gifts to Touro Infirmary, according to press reports, totaling \$200,000.

The objects of these gifts are stated as providing for clinic

buildings and for the establishment of an adequate maternity service at the Touro Infirmary.

For a long time the attendance at the Touro clinics has entirely exceeded the capacity for the care of the poor seeking such service, and the gift of Mrs. Isidore Newman's children in honor of her birthday anniversary is both timely and far-reaching. The prompt second gift from Mrs. Henry Newman, her sister-in-law, shows a spirit of philanthropy which has been attached to the many members of the Jewish faith who have brought the Touro Infirmary up to its present efficiency.

Indirectly the medical profession benefits by such public spirit through the provisions made for the poor in an eleemosynary institution with a large population among the poor from which to draw.

May many more New Orleans citizens emulate such glorious examples of public spirit and broad charity.

ANNIVERSARY OF THE MULFORD CO.

In a special number of the *Mulford Digest*, the H. K. Mulford Company commemorates its twenty-fifth anniversary. The number is of unusual interest, containing contributions by well-known scientific men on their work with vaccines, serums, mixed bacterins, and the testicular method for preparing smallpox vaccine. Much of the original work reported was done by the scientific staff of the Mulford Company and illustrates the service the Mulford Laboratories are rendering the profession. The company is to be congratulated in the work it has undertaken and accomplished.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

INCONTINENCE OF URINE IN WOMEN.*

By MAURICE J. GELPI, A. B., M. D.

Assistant Professor of Gynecology, Tulane University, Visiting Gynecologist, New Orleans Charity Hospital.

I wish to call your attention to a few important points in connection with the diagnosis, pathology and treatment of a certain type of urinary incontinence occurring in women. I refer especially to the type of incontinence associated with prolapse of the anterior vaginal septum.

This condition is usually found in multiparæ, though occasionally it is encountered in nulliparæ who are either very stout or very thin. These patients complain that they cannot retain their urine. They state definitely that when they cough or strain, the urine runs out of the bladder in spite of any efforts to prevent it. As a result of the urinary dribbling, which occurs on the least exertion, these women are kept in a state of constant distress. The diagnosis is readily established by the history and physical examination, and the latter will also reveal the true pathology.

Pathology.

With the patient in the dorsal position, if requested to cough, the urine will be seen to either squirt or ooze out of the urinary meatus. This is usually accompanied by an easily discernible bulging and rolling outward of the entire vaginal wall, not necessarily associated, however, with descent of the uterus. As a matter of fact, the cases of uterine prolapse or simple cystocele, not only have no incontinence, but usually have at least a tendency to a certain degree of retention. If the finger is inserted in the vagina, in such a way as to support the anterior vaginal wall without undue compression of the urethra, it will be found that even if the patient strains quite forcibly in the act of coughing, the dribbling will no longer occur. If, to follow further the suggestion of Muret, a catheter is inserted in the urethra, it will be possible to show clearly the typical urethral deformity found in these cases. On first inserting the catheter, it will proceed more or less directly backward in a plane parallel

*Read at the Clinical Meeting of the Louisiana State Medical Society, April, 1916.

with the table. If an attempt is made to follow with the tip of the catheter the anterior urethral wall, the catheter will be found to proceed directly backward into the bladder, very much in the same plane that it occupied on entering the urethra. If, on the other hand, an attempt is made in the same way to follow the posterior urethral wall, the catheter will proceed directly

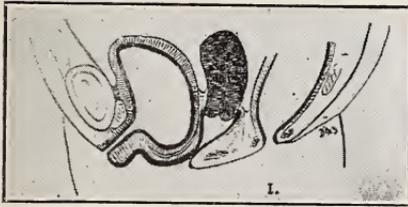


Fig. I.—Simple cystocele, showing prolapse of bladder wall, but urethral walls parallel. No incontinence. (Reproduced by permission of the author, from "Incontinence d'Urine et Prolapsus Vaginal," Prof. M. Muret, *Revue de Gynecologie*, April-May, 1913.)

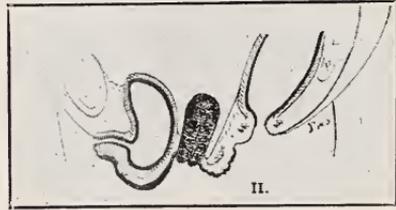


Fig. II.—Cystocele with uterine prolapse. The sagging of the bladder wall is accompanied by descent of the uterus, but the urethral walls remain parallel throughout their course. No incontinence. (Reproduced by permission of the author, from "Incontinence d'Urine et Prolapsus Vaginal," Prof. M. Muret, *Revue de Gynecologie*, April-May, 1913.)

backward for a distance of a half-inch or so and thereafter, in order to make the tip continue to impinge on the posterior urethral wall throughout its course, it will be necessary to elevate the outer end of the catheter so as to bring it at an angle of about forty-five degrees with the plane of the table. This procedure definitely proves the existence of the typical funnel-shape deformity of the urethra, which is characteristic of the type of incontinence in question (Figs. I, II and III). It will be seen, therefore, that the pathology is not restricted to the urethro-vesical sphincter alone, but that the sphincter relaxation is accompanied by a definite sagging of the posterior urethral wall, a funnel-shape dilatation of the urethra, plus also a definite relaxation of the whole anterior vaginal wall, including vaginal mucosa, submucous connective tissue and portions of the pelvic fascia. In such a condition, therefore, the only point of obstruction to the intravesical pressure is found in the anterior one-half or three-quarter-inch of parallel urethral walls (Fig. III).

In discussing the characteristic sagging of the posterior urethral wall, the question naturally arises as to why it is that

both the urethral walls do not sag to the same degree, leaving both walls parallel though occupying a lower plane. The answer is that, automatically, the only support of the posterior urethral wall consists of the structures composing the anterior vaginal septum, enumerated above. On the other hand, in the case of the anterior urethral wall, an additional support is found, in the form of strong fibrous bands extending from in front, below and behind the pubes, to the anterior urethral wall. (Fig. III.) This furnishes an additional support to the anterior urethral wall from above. The support thus afforded is sufficiently strong to hold up the anterior urethral wall even in the absence of support from the anterior vaginal septum below. This point is clearly brought out by Muret, who thus explains the funnel-shape urethral dilatation illustrated in Fig. III.

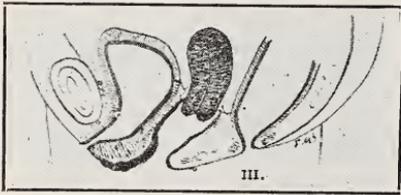


Fig. III.—Prolapse of anterior vaginal septum, with incontinence. Note normal position of anterior urethral wall and its firm attachment to pubes. Note also sagging of posterior urethral wall producing the typical funnel-shape deformity. The only part of the urethral walls lying parallel to each other, is found anteriorly, just back of the meatus. (Reproduced by permission of the author, from "Incontinence d'Urine et Prolapsus Vaginal," Prof. M. Muret, *Revue de Gynecologie*, April-May, 1913).

Treatment.

The treatment naturally divides itself into the palliative and radical. In determining which course is to be pursued in the individual case, several points come up for consideration. However, the desire of the patient as regards operation, the age and physical condition often settle the question. Where for some good reason the palliative treatment is considered the proper course, the fitting of one of the old Skene pessaries will be found to fulfill the pathological requirements and to give excellent clinical results (Figs. IV and V). The same objections of course will be found here as in the use of all pessaries and the relief will only be obtained during the period that the pessary is actually in use. Where there is no contraindication therefor, the radical operation is the ideal treatment.

It should be noted, however, that since the first attempt at operative cure, the surgical treatment has undergone considerable evolution. No attempt can be made here to review all of

the numerous surgical procedures which have been advocated for the cure of incontinence. Reference can only be made to a few of the most practical suggestions appearing in comparatively recent years.

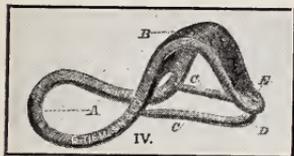


Fig. IV.—Showing the details of Skene's pessary used in the treatment of incontinence of urine, in inoperable cases. (Reproduced by permission of the publishers, from "Treatise on the Diseases of Women," Skene, D. Appleton & Co., N. Y.).

The use of electricity and para-urethral injections of paraffin were early tried and abandoned.

Gersuny suggested and practiced exposure of the urethra and torsion. The urethra was dissected from its bed and twisted upon itself. In this twisted position, the urethra was replaced and held in its bed by sutures. While very ingenious, the objections to the method are obvious.

Pawlik attempted to overcome intravesical pressure by elevating the posterior urethral wall and compressing the urethra. The urethral compression depended upon lateral tension on the vaginal mucous membrane. He accomplished this by means of a mucous membrane denudation on either side of the urethra, followed by suture of the denuded areas in a line parallel to the long axis of the urethra.



Fig. V.—Showing Skene-pessary in place. It affords a firm support to the sagging anterior vaginal septum and the typical funnel-shape deformity of the urethra is effectively corrected. (Reproduced by permission of the publishers, from "Treatise on the Diseases of Women," Skene, D. Appleton & Co., N. Y.).

While an improvement over the torsion of Gersuny, this method also failed to fulfill all the requirements.

With attention still directed principally to the urethra, Albarran devised the operation for advancement of the urethra, in which the urethra was dissected free and the meatus sutured just below the clitoris. Two flaps of vaginal mucous membrane held the urethra in its new position.

Working along the same general lines, Dudley devised the horse-shoe denudation with the convexity surrounding the meatus. The urethra itself was not dissected from its bed. The method comprises essentially the bilateral denudation plus the urethral advancement. Though dependent for success on anatomical dis-

tortion, the operation has produced excellent clinical results. The details of technic are clearly shown in Fig. VI.

Kelly considers that the essential element at fault is the relaxation of the urethro-vesical junction. Attention is directed by

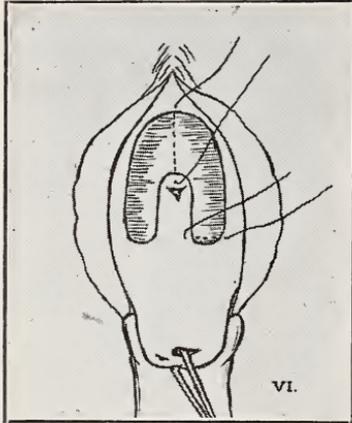


Fig. VI.—Diagrammatic sketch of Dudley's operation, showing horseshoe denudation and method of suture. (Author's original sketches illustrating details of technic not reproduced, on account of objection on the part of the publishers).

him, therefore, solely to this area. A denudation exposing the area is accomplished and the relaxation in the region of and including the vesical sphincter is puckered by means of linen or silk U sutures. Technical details are shown in the accompanying cuts (Figs. VII and VIII). The operation according to the author is productive of very good results.

Baldy reports successful results from his method, which is fundamentally the same as Kelly's. He lays stress on the importance of compression at the

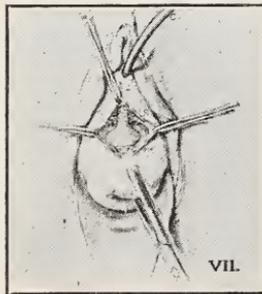


Fig. VII.—Showing denudation as practiced by Kelly. A pezzet catheter is used to bring into prominence the urethro-vesical junction. (Reproduced by permission, from "Urinary Incontinence in Women, Without Manifest Injury to the Bladder," Kelly & Dumm, *Surg. Gyn. & Obstet.*, April, 1914).

urethro-vesical junction. This is accomplished by bringing together the edges of a denuded oval, under considerable tension. So as to release this tension on the suture line during healing, a single relaxation suture is inserted so as to overlap the original suture line (Figs IX and X).

The procedure which in our hands has seemed to fulfill best the pathological indications and produce the best results, is that suggested by Muret. In this technic, special attention is directed to two points,—the correction of the most prominent point of relaxation at the urethro-vesical neck, and the anatomical restoration as far as possible, of the supporting anterior vaginal septum. As the relaxation of the anterior vaginal septum occurs as a result of sagging from every direction,

special attempt is made to restore it to a higher plane, by tension from behind, in front as well as on both sides.

A wide oval denudation of the anterior vaginal wall is first

made. The upper and lower limits of the oval extend respectively from below the meatus to a point on a level with the internal os (Fig. XI). The next step is to constrict the urethro-vesical neck. This is accomplished by means of silk or linen sutures, inserted in the bladder wall but not including the mucosa. These may

be placed in the form of interrupted U sutures as practiced by Kelly and Dumm, or in the form of a single purse string, which effectively reduced the bladder and urethral herniation. So as to secure for the bladder a firm support from below, the edges of the denuded area are sutured so as to take in the slack on on either side, in front, and behind. The middle one-third of the suture line is thus made parallel to the long axis of the vagina, while in front and behind, the free edges are brought together parallel to each other and at right angles to the original line of sutures. The entire suture line when finished is thus made to assume the outline of a capital I (Fig. XII). The stitches are interrupted, of chromic gut and are inserted so as to make each bite include,

not only vaginal mucosa but whatever scar, connective tissue and fascia fibres can be caught up by the needle point. The sutures may be safely tied under considerable tension, though

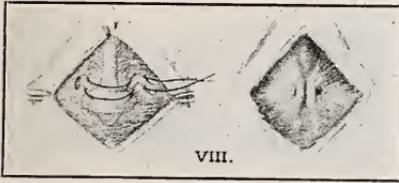


Fig. VIII.—Showing method of constricting urethro-vesical neck, in the Kelly technic. (Reproduced by permission from "Incontinence of Urine in Women Without Manifest Injury to the Bladder," Kelly & Dumm, *Surg. Gyn. & Obstet.*, April, 1914.)



Fig. IX.—Showing the denudation in the anterior vaginal wall and method of suture, according to Baldy. (Reproduced by permission from "Incontinence of Urine, Complete and Incomplete," J. M. Baldy, *Surg. Gyn. & Obstet.*, Nov., 1913.)

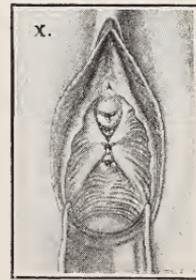


Fig. X.—Baldy operation completed. Showing the relaxation suture to relieve tension on the main suture line. (Reproduced by permission from "Incontinence of Urine, Complete and Incomplete," J. M. Baldy, *Surg. Gyn. & Obstet.*, Nov., 1913.)

this of course must not be overdone.

When in addition to the pathology of incontinence there is present other pathology like retroversion or relaxed vaginal outlet, in order to avoid recurrence it will be necessary to extend the operative correction to these conditions also.

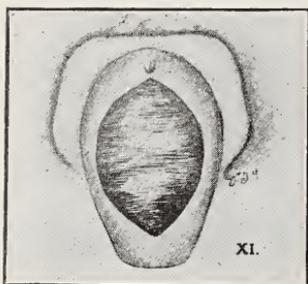


Fig. XI.—Showing the extensive oval denudation as suggested by Muret. (Reproduced by permission of the author, from "Incontinence d'Urine et Prolapsus Vaginal," Prof. M. Muret, *Revue de Gynecologie*, April-May, 1913).

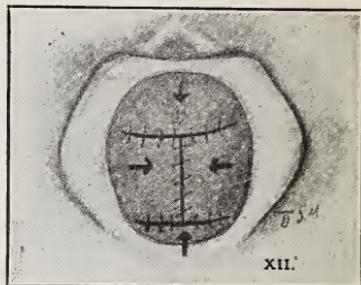


Fig. XII.—Showing the appearance of the suture line in the Muret technic and the direction of the shortening produced. (Modified from "Incontinence d'Urine et Prolapsus Vaginal," Prof. M. Muret, *Revue de Gynecologie*, April-May, 1913).

In conclusion it might be stated that the method of treatment advocated here commended itself to us because of its technical simplicity, its fulfilment of anatomical and pathological requirements, and most of all, because it yielded in our hands the most gratifying clinical results.

LARGE TYPHOID ABSCESS. CASE REPORT.

By J. MAXIME PERRET, M. D.,
Resident Physician, Hotel Dieu, New Orleans.

Typhoid fever is notorious for its numerous complications and sequelæ. On this account, it is always an interesting disease to watch.

The typhoid bacillus is not usually a pyogenic organism. However, abscesses may be caused by it in any tissue or organ of the body. At times it may be the sole cause of the abscess; at other times it occurs in conjunction with the common pus organisms. Large typhoid abscesses are rather rare.

Furunculosis and boils are not uncommon in typhoid, usually occurring toward the end of the disease. These seem to be due to the ordinary pus-producing germs. This is not surprising,

as the disease offers favorable conditions for their development, e. g., lowering of the general body resistance, long confinement to bed, difficulty in keeping patient clean, etc. Incidentally I may say that I have seen furunculosis, occurring during the course of typhoid, disappear as if by magic after the administration of diluted nitro-hydrochloric acid. When an abscess develops in an extremity, months or years after the patient has recovered from typhoid, a periosteal or bone involvement should not be lost sight of.

In the present case, the skiagraph showed a periostitis and slight rarefaction of the bone about the size of a pea. The longevity of the typhoid bacillus in the human body is remarkable, thus the germ has been recovered in pure culture from the gall bladder thirty years after an attack of typhoid; osteomyelitis has developed after five years; in my case it was only after a comparatively short time, six months.

History of the Case.

J. M. R., white, married male, twenty-six years, native of Louisiana, clerk in a shoe store, was admitted to ward 66 of the Charity Hospital on the 5th of June, 1916, complaining of pain and swelling of back of right thigh.

Family History.—Mother had typhoid at age of fifteen years. Otherwise, nothing of interest.

Previous History.—Measles and pertussis in infancy. Mumps in childhood. With these exceptions, he had always enjoyed perfect health up to the beginning of November, 1915, when he contracted typhoid fever, which kept him in bed for six weeks. The disease ran an uneventful course. A week after getting up he returned to work. As he was then engaged in taking the stock, this necessitated the frequent climbing of a ladder. A few days after his return to work, the lower two-thirds of the front of his right thigh began to pain him. He had a slight afternoon elevation of temperature. At the end of a month he consulted a physician, who advised him to remain in bed, which he did for three weeks. During this time the temperature was higher than previously and he would have chills every other day. He was given some medicine in capsules, which promptly relieved the chills.

About February 10, 1916, he noticed a red, painful streak, about one and one-half inches wide, occupying

the middle of the lower half of the anterior surface of the right thigh. There was persistent pain along both sides of right tibia. Associated with this was a slight fever. After a week of suffering, he applied at the Charity Hospital and was admitted to ward 19. A physical examination at that time revealed a localized hard, painful swelling of the anterior surface of the right thigh. The blood picture showed a total leucocytic of 19,444 per c.m.m. The urine had many hyaline and granular casts. For twelve days his temperature was in the neighborhood of 101° F. A diagnosis of post typhoid phlebitis was made. The treatment consisted of supporting the leg on pillows. After a month, he was well enough to be discharged.

A week after returning home he resumed work. He did not remain well long, for at the end of eight days the posterior aspect of the right thigh near knee joint became painful and felt as hard as a board; in two days the hardness had spread to junction of middle and upper thirds of thigh. He was free from fever. He consulted a physician, who prescribed counterirritants and ointments. Medication relieved patient and in a week he was feeling well enough to return to work.

Present Illness.—On June 5, 1916, patient applied for readmission. The hardness and pain with which he had suffered about a month previously returned. His condition was steadily getting worse. He was now having fever. The attending physician made a diagnosis of abscess and advised him to go to the hospital for surgical treatment.

Physical Examination.—Physical examination showed a well-developed and nourished young adult, white male. Patient lies on back with right leg flexed at knee. Lymphatic glands not palpable. Chest: Heart and lungs negative. Abdomen: Negative. Extremities: Lower half of right thigh, posteriorly, is symmetrically enlarged. The skin is red, hot, quite tense, very painful and deep fluctuation may be detected.

June 8, 1916: Under ½% Novocain anesthesia, Dr. F. W. Parham made two incisions over the fluctuating mass. Eight ounces of pus were obtained. There was nothing remarkable in the physical characteristics of the pus. It was white and thick. Rubber tube drains were left in the wound. A specimen of the pus was sent to the Pathological Laboratory with a special request of Dr. W. P. Bradburn to look for *B. typhosus*. A few days

later the laboratory reported that *B. typhosus* had been isolated in pure culture.

June 13, 1916: Widal positive. Blood culture negative.

Post Operative Course.—Temperature dropped down to normal after operation. The wound would not heal, and convalescence was tedious. Six weeks later a secondary operation was performed; a free incision was made and the bone curetted. After a few weeks, patient was discharged cured. However, as there might still be some bacilli lying dormant in the nearby tissues, it is a little early to be sure of the ultimate results.

Review and Discussion of Case

The rarity of large, pure typhoidal abscesses makes the case interesting. From a perusal of the patient's history, it will readily be seen that up to the time of his readmission to the hospital he always had typhoid germs in his tissues. The patient's occupation, necessitating his climbing a ladder, made his thigh become a *locus minoris resistentiae*, which the bacilli then attacked. There is no history of conscious trauma.

The diagnosis of phlebitis made on his first admission seems to me to be open to doubt. I am inclined to think that all along the condition was periostitis with secondary involvement of the soft parts. Rest would cause a temporary improvement, but as the cause of the trouble would not be removed he soon afterward would have a relapse. His first operation, which gave vent to the pus, was only temporary in its good effects, because it was not quite radical enough. The second operation, which attacked the necrotic bone, promises more permanent results.

Finally, my thanks are due to Dr. F. W. Parham, who gave me the privilege of reporting this case, which was in his service, on its second admission to the Charity Hospital, New Orleans.

A TUBO-UTERINE RUPTURE AT THE FOURTH MONTH OF GESTATION.*

By P. MICHINARD, M. D., New Orleans.

This case is reported because:

1. The afflicted tube was intentionally left when its companion was removed.
2. The diagnosis of ectopic was made six weeks before rupture.
4. The operation performed practically without general anesthesia.
5. A short space of time within which the operation was completed.
6. The uterus amputated instead of sewing the rent.

Case.—Mrs. A. S., 25 years, white, never pregnant, was operated on by me at the Charity Hospital, September, 1915, for left hydrosalpinx and left cystic ovary, both being removed, as well as the appendix, as a routine procedure, but with her consent. The right tube was not removed because a careful examination failed to discover any apparent abnormality. She left the hospital October 24, 1915, apparently well.

She called at my office in the latter part of May, 1916, informing me that she was three weeks overdue in her menstrual appearance. She then had all the subjective symptoms of pregnancy, such as morning nausea, drowsiness and tingling at the breasts. The only unusual symptom she had was intermittent pain in the right iliac fossa.

Vaginal examination discovered a soft cervix, enlarged and boggy, but not fluctuating, uterine body. The only unusual condition was in the shape of the body, which was not round but somewhat projecting at the right horn, resembling a uterus bicornis. I knew there was no such uterus, because I would have noticed it in 1915, and certainly not have forgotten it. It was about the size of a large orange, while the projecting mass was somewhat smaller and formed part of the body. This projecting mass lacked the resistance of a fibroid and the elasticity of a cyst. Was it a pus tube? It had the feel of a pus tube. Let me say here that often a case has been operated on as one of tubal

*Read before the Orleans Parish Medical Society, October 23, 1916. [Received for Publication November 21, 1916.—Eds.]

gestation which proved to be a pus tube. But this mass was not immovable and there had not been nor was there fever, conditions that should be expected in pyosalpinx. Therefore, this could be excluded. The mass was not located at the usual site of an ovarian cyst, yet a few weeks ago I removed a small ovarian tumor that had wandered to the summit of the uterus and there developed a short pedicle. But this mass was not cystic in feel, only semi-fluctuating. Ovarian cyst could be excluded. All the signs and symptoms indicated pregnancy, but as the body of the uterus was only boggy and not fluctuating, as could be expected in a uterus containing a small ovum, the only conclusion to be arrived at was that there was either a tubal pregnancy in a uterus bi-cornis or in a rudimentary horn.

If a tubal pregnancy, it could be only at the uterine end of the isthmus, because if at any other part of the tube the mass would be felt some distance from the uterine body. It might be a pregnancy in a uterus bi-cornis or in a rudimentary horn. To differentiate between these and a tubal pregnancy involving a small part of the cornu, is impossible. As I knew there was no uterus bi-cornis a diagnosis was made of interstitial pregnancy, with probably a part of the cornu involved, and immediate operation advised. But when, after the patient's interrogations, I hinted that exceptionally in this form of tubal pregnancy the ovum escaped into the uterine cavity and from there made its exit, she decided to delay the operation.

Had I diagnosed pregnancy in a rudimentary horn I would also have advised operation, because here, unlike gestation in a fully developed horn of a uterus bi-cornis, where delivery at term has ended favorably, there would be no avenue of escape for the ovum, which, even if it did not rupture through the wall of the horn before the thirty-second week (of which cases are on record), would have required a Cesarean section near this period. I mention all of this because people with strong religious scruples demand information as to all possibilities that might avoid the destruction of fetal life. And it was this strong religious scruple that influenced my patient in her decision.

She was then advised of the danger of rupture, all signs and indications of which were explained to her, with the advice not

to delay when the first indication presented itself, but to send to me or to the Charity Hospital for assistance.

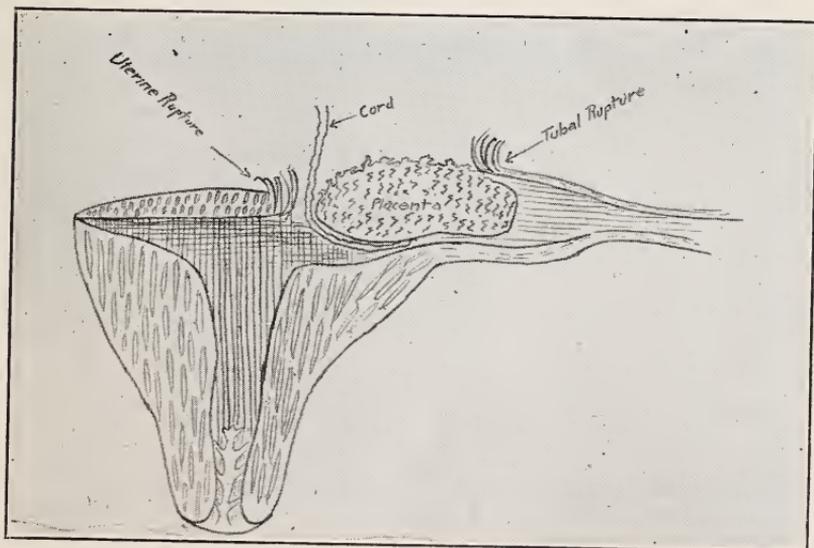
She was not heard from again until July 8, about six weeks after her visit, at 7:30 a. m., when I was called to her bedside. At 8:30 I saw her, when I was told that at 5:30 that morning, while preparing her husband's breakfast, she was seized with sharp abdominal pains and faintness. These soon diminished, but in an hour recurred with greater severity. When I saw her she was pretty well collapsed. Fearing to increase the bleeding I refrained from making any vaginal examination, but at once sent for the Charity Hospital ambulance.

Through the courtesy of the superintendent, Dr. Wilkins, she was assigned to my service. When she arrived at the hospital, at about 10, she was at once sent to the operating room. Again there was a delay for the arrival of the priest. The operation was begun at 10:45, the woman now being badly collapsed, so much so, that with only the analgesia produced by one-fourth of a grain of morphin and 1-150 of atropin, by needle, the abdomen was opened and the ruptured uterus and tube grasped and drawn through the wound. This was done in less than two minutes. With the bleeding under control, blood clots, which filled the pelvic and part of the abdominal cavities, were quickly removed to permit the rapid application of clamps. At this time, when all danger of further bleeding had passed, I had one and a half pints of normal salt solution given intravenously. Through the stimulation of the infusion the brain began to be receptive of pain, when a few inhalations of ether were given. A supra-vaginal amputation of the uterus was made. The operation was completed, the patient on her way to her bed, in less than thirty minutes. I was assisted by my regular assistants, Drs. Groetsch and Gomila. Recovery was complete.

The rent was about three inches long, two inches of which were at the fundus of the uterus, the other at the uterine end of the tube, which was dilated and shaped like the bell of a funnel. The fetus (three months) was in the abdominal cavity, the rent being filled by the placenta.

There are a few points of interest in this case. The first is that no anesthetic other than morphin was given until the brain had been stimulated. I believe many people die who are oper-

ated on during shock, not from the operation itself or reason for the operation, but from the added shock of the general anesthetic administered. These bleeding people are too depressed to feel pain. Morphin, and not ether, etc., is indicated at least for the first hemostatic steps of the operation, with novocain in abdominal wall. Here let me call attention to the remarks of George W. Crile, in his article on Alkalescence, Acidity and Anesthesia, which appeared in the June, 1915, number of *Surgery, Gynecology and Obstetrics*:



Dr. Michinard's case of Tubo-uterine Rupture

"As a result of these researches we are able to state that the H-ion concentration of the blood, its acidity, is increased by excessive muscular activity; excessive emotional excitation; surgical shock; . . . by asphyxia, by inhalation of anesthetics. . . . Morphin and scopolamin do not cause change in the H-ion concentration. Ether, nitrous oxide and alcohol produce an increased acidity of the blood, which is apparently proportional to the depth of anesthesia. Many cases studied were near death, as would be expected, since it is well known that a certain degree of acidity is incompatible with life. At the point of death the blood is always acid. . . . In deep contrast to the action of inhalation anesthetics is that of narcotics."

Second, no infusion was used until bleeding had been controlled. The uterus was amputated because this may be done in

much less time than removing a tube and sewing a jagged rent in the uterus; and, anyway, a healing of such sewing is doubtful. At the risk of imperfect healing only a useless organ would have been retained. Third, there was a certain amount of bright liquid blood in the abdominal cavity, showing that bleeding had recurred after leaving home. This blood, in addition to one pint of normal salt solution, was left in the cavity. Fourth, the time elapsing from the occurrence of the rupture to the moment of operation was only five hours, and the distance traveled only about one thousand yards. Would she have been less shocked had she received morphin at the time of my visit (which I had not with me) and had we waited longer before operating? Judging from the bright liquid blood present active bleeding had recommenced, possibly due to the moving. Consequently, I believe the operation was timely.

It is astonishing how some of these cases behave. At 7 p. m. in May, 1904, with Dr. Hamilton P. Jones of this city, I saw in Mandeville, a summer resort about fifty miles by rail from New Orleans, a case that he had diagnosed as ruptured tubal gestation at the twelfth week. The history indicated that the rupture occurred at 1 p. m., or six hours before my visit. The patient had by this time greatly recovered from the shock attending the rupture. It was not until 9 o'clock that a special train could be equipped to take us to New Orleans, where we arrived about one the following morning. The lady was carried a distance of two hundred yards on a lounge to the baggage car, in which she, on the lounge, was placed, to begin an exceedingly rough trip. On our arrival she was transported to the New Orleans Sanitarium in an ambulance, where she arrived less shocked than when she left Mandeville, at which place, before our departure, she was given morphin and atropin by needle. So good was her condition that I decided to wait until 8 o'clock before operating. At the operation a large rent was found in the ampulla of the left Fallopian tube, which rent was filled by a firm blood clot. The abdominal cavity contained a three months' fetus, a fairly large quantity of large old blood clots with a very small amount of fresh blood, which was probably caused to flow by the preparation of the abdominal wall—at that date by scrubbing, etc.

Here was a case of large rupture, occurring nineteen hours before operation, suffering several hours of rough traveling, which practically recovers from the initial shock with only the slightest bleeding recurring. I mention this case because it contrasts so strongly with the other. Why the difference? Was the coagulability of the blood of one greater than that of the other? Was there an inherent power of recuperation greater in one than in the other? If the answer to both these questions be in the affirmative, is it possible for the surgeon to know it before operating? Several years ago I operated on a woman five hours after a rupture of a six months' tubal gestation; yet before the operation she discussed her case very freely with me. With these two latter cases in mind may we always wait any considerable length of time before operating? From my experience with this condition, seeing some cases become weaker and weaker hour by hour, I believe the sooner we operate the better. In desperate cases, where sterilized material can be quickly obtained, I see no objection to operating at home. I have done three ovariectomies and two abdominal hysterectomies at homes. Operating at homes avoids the shock and disturbance of transportation. Naturally, home operation is a *dernier ressort*.

As to the preservative nonremoval of the left tube at the first operation: Was that tube as normal as it appeared to be? If so, why was the impregnated ovum arrested in its course at the entrance of the uterine cavity; or was the obstruction not in the tube but at its uterine aperture—this being sufficiently large to admit the entrance of a spermatozoa but too small (from some slight endometritis) to admit of the passage of the fecundated ovule? The tube certainly appeared normal to me. Unilateral salpingitis is rare. But on three different occasions I have removed a ruptured tube, the women later having uncomplicated uterine pregnancies. The gross appearance of a tube may indicate a healthy state, a slight thickening alone being in the intima. Anyway, we know little as to the etiology of tubal gestation.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

BACTERIAL CULTURES OF HUMAN SPLEENS RE- MOVED BY SURGICAL OPERATION.*

By ANDREW WATSON SELLARDS, M. D., Boston.

(From the Harvard School of Tropical Medicine and the Massachusetts
General Hospital.)

In recent years, considerable evidence has accumulated which proves that bacteria can be cultivated from the unexposed tissues of the body, especially the lymphatic glands of normal men and the usual laboratory animals. In contrast to these findings, it was formerly assumed that the unexposed tissues of the body are sterile. Absolute freedom of the internal viscera from bacteria would constitute a rather remarkable relationship to our bacterial environment. When we consider the intimate contact of bacteria with skin and more especially the mucous membrane of the alimentary tract, it would be rather unexpected that these structures should form an absolute barrier against the entrance of bacteria. Consequently, it is not surprising to find a fairly definite flora present in the interior of the body under normal conditions. The relative ease with which bacteria may be cultivated from normal tissues naturally becomes very significant in the search for the etiologic agent of an infectious disease, especially when we consider how many diseases there are in which the etiologic agent has been established but in which it has not yet been possible to fulfill Koch's postulates. The organisms of the normal lymphatic glands have added greatly to the difficulty of determining the significance of the organism described by Negri and Miereme¹ and by Bunting and Yates² in Hodgkin's disease. In the present paper, I wish to report the results of bacterial cultures made from human spleens and to discuss especially an anaerobic bacillus which was found. The work is of interest largely on account of the relationship of this organism to the bacillus that has recently been described in typhus

*Read at the Thirteenth Annual Meeting of the American Society of Tropical Medicine, held in Washington, D. C., May 9, 10, 11, 1916. Also printed in the *Journal of Immunology*, Vol. 1, No. 3, p. 321-339.

fever. An article which attracted wide attention in the past year is the report by Plotz³ and his associates on the etiology of typhus fever. Plotz described very carefully an extremely interesting bacillus and presented evidence regarding its etiologic relationship to typhus fever, more especially by serologic reactions, since it was impossible to fulfill Koch's postulates with this organism. In addition to the collection of a large amount of positive evidence, Plotz also carried out an extensive series of control cultures in conditions other than typhus (198 cases) and also in typhus cases after convalescence. The results were very interesting; the bacillus found in the acute stage of typhus fever was not recovered in any of these controls.

In searching for bacteria in the body, under normal conditions it is much easier to obtain them through the lymph glands and the viscera from the circulating blood. During the past two years, I have had an opportunity of making cultures at the Massachusetts General Hospital, upon spleens removed in the surgical service. The majority of these splenectomies were performed for pernicious anemia. The routine of the bacteriological examination was as follows: After thoroughly searing part of the surface of the spleen, a fairly large piece of splenic tissue was cut out under aseptic precautions. Small pieces of this, 3 to 5 mm. square, and 2 to 3 and sometimes 5 mm. in thickness, were used for inoculation. The following media were employed, litmus milk, blood agar (using 1 part of agar to 1 part of human blood), citrated blood (using 1 part of human blood to 4 parts of 2 per cent sodium citrate in normal salt solution), bile broth ($\frac{1}{2}$ per cent sodium glycocholate in ordinary bouillon $\frac{1}{2}$ per cent acid), Ficker's brain medium⁴, Dorsett's egg medium and glucose (2 per cent) ascitic agar, ordinary agar, 2 per cent glucose agar, and 7 per cent glycerin agar. The media containing blood were incubated aerobically at room temperature for the possible development of protozoa; the cultures remained sterile. The litmus milk, Ficker's and Dorsett's medium and the glucose ascitic agar were incubated both aerobically and anaerobically. Especial attention was given to the litmus milk, usually a dozen tubes were inoculated, eight of which were incubated anaerobically and four aerobically. The plain agar, the glycerin and glucose agar were used as controls for ordinary

contaminations and secondary invaders and were incubated aerobically.

Comparatively few of the spleens proved to be sterile. In the accompanying outline, Table 1, I have mentioned only those media upon which growth occurred.

Table 1
Showing the results of cultures from spleens

SERIAL NO.	DIAGNOSIS	RESULT
1	Pernicious anemia	Micrococcus from bile tubes
3	Pernicious anemia	Sterile
3	Pernicious anemia	Micrococcus from bile and milk tubes
4	Pernicious anemia	Micrococcus from bile and milk tubes
5	Simple hypertrophy	Sterile
6	Pernicious anemia	Anaerobic bacillus from milk tubes
7	Infantile primary splenomegaly	Sterile
8	Pernicious anemia	Anaerobic bacillus from milk tubes*
9	Pernicious anemia	Sterile
10	Pernicious anemia	Anaerobic bacillus from milk tubes

*One of the milk tubes also showed a micrococcus.

In all of these cultures, it is noteworthy that no definite diphtheroids were obtained. This result is suggestive of a difference in the flora of the spleen and lymphatic glands.

No growth occurred in any of the tubes of plain agar or of glucose or glycerin agar. None of them were incubated anaerobically, but it is extremely unlikely that the anaerobic bacillus, found in three cases, would have developed since, even upon subinoculation, it would not grow upon these agar media without enrichment with body fluids and it was not obtained by direct inoculation from the spleen into ascitic glucose agar containing a piece of tissue (this tissue being furnished by inoculation of a rather large piece of the spleen under examination).

The micrococcus appearing in cases 1, 3 and 4, grew out both aerobically and anaerobically, but only in fluid media; namely, bile and milk. On subinoculation, however, it grew freely on glucose agar but scantily, indeed, upon plain agar. No attempt was made to establish the identity of these three cultures of micrococci to one another. They differed definitely, however, from the ordinary staphylococcus aureus and albus and from six strains of micrococci isolated from the air. Culturally, the most important characteristic was the necessity of using glucose agar to obtain a good growth. Morphologically, the organisms were distinctly pleochromic. This characteristic was seen very well

with either methylene blue or Giemsa's stain. The preparations stained with methylene blue frequently showed small clusters of six or eight organisms, perhaps half of the organisms staining a solid, uniform color, while the others would stain only at the periphery, appearing just as blue rings, some faintly and some deeply stained.

Tests for complement fixation were carried out with the micrococcus from spleen 4, against the sera of cases of pernicious anemia and normal sera. As further control, antigens were made from a Gram positive coccus obtained from the air and also from the gonococcus, in order to have a representative of the pus-forming cocci. The routine employed for complement fixation was the same as that described later in connection with the work on the anaerobic bacillus.

Complement fixation occurred in four of five cases of pernicious anemia and complete haemolysis resulted in five control cases. However, the same results with equally strong reactions occurred with the antigens prepared from the coccus from the air, whereas, with the gonococcal antigen, the same cases were positive and the reactions were even stronger in two instances. The Wassermann reaction in these cases, using a cholesterinized human heart antigen, was also positive at this time, though previously it had been repeatedly negative. Specific venereal disease could be excluded with reasonable certainty except for a possible question of syphilis in one of the splenectomized patients. Clinically, the most important feature which might bear upon these results, is that the four cases giving positive fixation reactions had been splenectomized from four to eight months previously, whereas, the one case giving a negative reaction had not been splenectomized. Furthermore, upon repeating these tests six weeks later, the reactions were negative in all instances to all of these four antigens. One of the patients, who was subsequently followed for several months, showed reactions that fluctuated from negative to strongly positive.

The anaerobic bacillus occurring in three cases is of interest, both from its possible causative relationship to pernicious anemia and from its striking resemblance to the organism found by Plotz in typhus fever. This bacillus appeared only in the tubes of litmus milk, incubated anaerobically. Growth appeared usu-

ally in three to five days, though sometimes it was delayed until the tenth or fourteenth day. The litmus was either acidified or decolorized and the protein was precipitated, but without the formation of a clot. Of eight or ten tubes, inoculated in this way from each case, there were always two or three in which no growth could be found. Usually no change occurred in the milk unless bacterial growth developed. In some instances, the splenic tissue caused a precipitate of the proteins, but without acidification. After a month, negative cultures were discarded.

Of all the aerobic cultures of litmus milk, there was but one tube showing the development of the bacillus that usually appeared only in the anaerobic cultures. On subinoculation, no growth could be obtained except under anaerobic conditions equally as strict as those required by the cultures developing from this same spleen in the tubes placed in an anaerobic jar. Consequently, although the tube was not placed in an anaerobic jar, it does not seem possible that this development occurred under aerobic conditions. Theobald Smith₂, at the time that he introduced this method, emphasized the possibility of obtaining a high grade of anaerobic conditions in an open tube by the use of a piece of tissue. In considering the frequency with which this organism occurred in the cases of pernicious anemia, there is one feature that should be emphasized. The examination of the cases in Table I covered a period of two years, with an interim of eight months between cases 5 and 6, the first anaerobic bacillus being found in case 6. Although the same routine examination was followed throughout all the entire period, still it is not unlikely that this bacillus was overlooked, as it was not searched for specifically. Consequently, neither the positive nor the negative cases from 1 to 5, inclusive, are of quite the same value as the subsequent ones. Of the five cases, then, in which systematic examination was carried out for this bacillus, it was found in three or four cases of pernicious anemia, one case of pernicious anemia and one control case being negative.

Unfortunately, I obtained no data in regard to the relative numbers of these organisms in the spleen; consequently, there is no evidence at hand to determine whether this organism had colonized and was multiplying or whether it was merely filtered out from the blood by the spleen. The estimation of the number

of these organisms in the spleen is not easy, for it grows with difficulty even on subinoculation, and in the original isolation from the spleen it has so far grown only in fluid media. Although a certain proportion, about one-fourth, of the tubes of milk remained sterile even when inoculated with large pieces of tissue, still it is entirely possible that the organisms may have been present in fairly large numbers. It is not unlikely that only a small proportion of the organisms develop, for the splenic tissue, while providing excellent anaerobic conditions, may, nevertheless, have restrained the growth of these bacteria. There is, perhaps, some indication for this view in the fact that subcultures grew readily on glucose ascitic agar but inoculations of infected splenic tissue failed to give growths on this medium. Another illustration of the restraining influence of body fluids was found in the use of hydrocele fluid of high specific gravity (1.025). Growth took place much more readily when a few drops ($\frac{1}{2}$ cc.) of this fluid were used with 20 cc. of glucose agar than when large amounts (7 cc.) were employed. With the larger quantity, good growth took place, though the first appearance of growth was restrained for several days (three to five) after it had appeared in the tubes containing only a little hydrocele fluid. Tissues fixed in Zenker's fluid and stained by the Gram-Weigert method did not show any definite microorganisms.

Cultures of the bacilli from spleens 6, 8 and 10 showed no pathogenicity for lower animals. Rabbits were inoculated intravenously, and mice, rats and guinea pigs were inoculated intraperitoneally without the production of any noticeable effect.

DESCRIPTION OF ANAEROBIC BACILLUS

Morphology and Staining Properties.—In young cultures, this organism is a small, short bacillus, moderately blunt at the ends and non-motile, measuring usually 1 to 1.5 microns in length. The individual organisms do not vary much in size and shape until the cultures become old. Then distinct pleomorphism appears; many coccoid forms are found and occasionally some forms appear that slightly suggest the diphtheroid group. Young cultures are stained readily and uniformly with the ordinary aniline dyes and very intensely with Gram's stain. Smears from cultures were stained for three minutes with anilin-

gentian violet and, without rinsing in water, were washed for one minute with Gram's iodine; they did not decolorize after fifteen minutes' washing in 95 per cent alcohol.

Cultural Characteristics.—The organism requires anaerobic conditions for its growth and develops best on media that have been enriched with body fluids or tissues. No growth occurs, either aerobically or anaerobically on ordinary litmus milk or on broth or agar, either plain or with the addition of glucose or glycerin. Excellent growth occurs in tubes of litmus milk containing a piece of tissue (rabbit kidney or spleen) and placed in an anaerobic jar or in deep glucose ascitic agar tubes even without any further measures for removing the oxygen. Growth in these tubes extends upward to within 2 cm. of the surface, without gas production, but with the formation of acid and intense clouding from the precipitation of the proteins in the medium. No growth was obtained on the blood agar using the triple N medium of Novy, MacNeal and Nicolle, substituting human for rabbit's blood. On Dorsett's egg medium a scanty growth occurred, which soon died out on subinoculation. A strain of the Plotz bacillus behaved in a similar manner on Dorsett's medium. The bacillus, therefore, in its morphology, its staining reactions and in its cardinal cultural characteristics does not differ from the organism discovered by Plotz in typhus fever.

The anaerobe from spleen 10 was killed by heating for fifteen minutes at 55° C.

The next point that was taken up was the significance of these anaerobic cultures from the spleens of cases of pernicious anemia. As a preliminary step, it was, of course, necessary to determine the relationship of these three strains to each other. The relationship to the Plotz bacillus, however, is a much more interesting feature and also offers valuable information in establishing the position of these cultures from the spleen. Accordingly, a detailed comparison was made of these three strains of anaerobes with each other and with the typhus organism, both in regard to their fermentation of various carbohydrates and in regard to their serological reactions.

In the absence of Dr. Plotz in Serbia, Dr. Libman of the Mount Sinai Hospital in New York very kindly furnished a

strain of the Plotz organism. In his report on typhus fever, Plotz and his associates described in detail the behavior of his organism on various carbohydrates and its serological reactions. Accordingly, I have used these same carbohydrates and have performed serological reactions with human blood serum in a variety of diseases and with the serum of rabbits immunized against these organisms.

The cultures on carbohydrates were carried out as described by Plotz, 3 per cent agar faintly tinted with litmus being used, with an acidity of 1 per cent N acid to phenolphthalein, with 2 per cent of carbohydrate and with one part of ascitic fluid to three parts of agar. The cultures were incubated usually for six days and occasionally for eight days, when the growth was late in appearing. Unfortunately, with the same strain of bacillus and the same carbohydrate the results, in some instances, varied somewhat. It seems that the result depended, in part, upon the luxuriance of growth that was obtained, and this, in turn, varied with different specimens of ascitic and hydrocele fluid. Some difficulty was experienced in making up 2 per cent of inulin in 3 per cent agar. The inulin was made into a thin paste in cold water and this was stirred gradually into the hot agar (100° C.). Solution appeared to be complete, but a precipitate subsequently occurred during sterilization.

The fermentation tests showed that one of these bacilli from pernicious anemia differs slightly from the other two and that none of the three coincide fully with the Plotz organism in their behavior on carbohydrates. Of the ten that were tested, production of gas did not occur in any instance. Fermentation, with the production of acid in sufficient amount to cause precipitation of the protein in the medium, occurred in the following instances: Glucose, maltose, galactose and mannite, and occasionally a faint precipitate with lactose. The strain of culture from spleen 6 gave a faintly acid reaction in three of nine cultures on lactose. The fermentation of mannite constitutes a definite exception to the fermentation reactions of the Plotz bacillus. The cultures from spleen 6 and spleen 8 grew well on mannite and fermented it rather easily with the production of acid and a well-marked precipitation of protein. With lactose, however, there was not much difference between

these organisms and the bacillus found in typhus fever. The fermentation of this sugar was, at most, very slight and usually it did not occur at all. In this connection, it is of interest that although Plotz found no fermentation by any strains of his organisms growing on litmus lactose ascitic agar, still, slight fermentation occurred in litmus milk. This, however, does not necessarily mean that the lactose of the milk was fermented, since Plotz' organism ferments galactose very readily. One possible source of galactose in milk would be the splitting of the lactose by slight bacterial fermentation before sterilization of the milk was effected. In this connection, it should be noted that *B. typhosus* does not split lactose, but does slightly acidify litmus milk.

Turning to the carbohydrates that are not fermented by the bacilli from the spleen, we have the following: Saccharose, arabinose, raffinose, inulin and, in most instances, lactose. Of this list, it should be mentioned that growth was secured on all these carbohydrates, although no fermentation resulted. Considerable difficulty was experienced in obtaining growth on raffinose, arabinose and inulin, and, at best, the growth was always scanty. Growth took place readily on saccharose and not much difficulty was experienced with lactose or dextrine. The three strains of bacilli from the spleen agree rather closely with each other, and their principal difference from the typhus bacillus lies in their reactions on inulin and mannite, the typhus organism fermenting inulin and not mannite, while the reverse is true with two of these cultures from the spleen. However, the strain from spleen 10 does not ferment mannite and differs from the Plotz' bacillus only in its failure to ferment inulin. In this connection, I wish to explain that the technic of the proper preparation of inulin and the cultivation of the Plotz' organism on it was very difficult for me. In fact, the typhus organism is extremely capricious in its growth and Plotz deserves great credit for establishing a practical method for its cultivation. But even when working with a strain of the typhus organism, I was unable to secure clear-cut fermentation of inulin.

None of these cultures from the spleen coincide exactly in their growth on carbohydrates with the typhus bacillus. The differences, however, are not greater than occur, for example, in

different members of the species *B. diphtheriæ* or *B. dysentericæ*. So far as the fermentation tests go, then, if we interpret them in the light of the findings in diphtheria and bacillary dysentery, we must conclude that these organisms from pernicious anemia and from typhus fever are very intimately related members of a single group of bacteria—that they are varieties of a single species.

In the serological work, agglutinations and complement fixation tests were performed. In carrying out the agglutination tests, one is at a disadvantage on account of the tendency that some of these cultures show to clump spontaneously in salt solution without the addition of serum. In view of this difficulty, only a few agglutination tests were performed. My attention has recently been called to a method by which this difficulty can probably be overcome. In working with bubonic plague Strong and Teague⁶ found that 1-10 per cent of sodium chloride would prevent the spontaneous clumping and still furnish sufficient salt to allow specific agglutination.

The following routine was observed in the serological work: For agglutination tests, a young culture five days old, on glucose ascitic agar was used. Olitsky recommends the microscopic method, carrying out the test very rapidly, before spontaneous agglutination can occur in the controls in salt solution, preferably within one hour. With the necessity of observing this time limit, I found it rather difficult to secure satisfactory readings when working with an extensive series of preparations. One strain of the organism from pernicious anemia, case 6, was found which did not clump excessively in salt solution. A very thin suspension was prepared and macroscopic tests were performed. The preparations were left at room temperature for an hour and were read after they had stood over night in the refrigerator.

In the preparation of the antigen for complement fixation, the digestion of the bacterial suspension in distilled water was carried out at 37° C. for periods of ten to fourteen days. This long period seemed necessary for even a moderate breaking up of the strongly Gram-positive bacilli. Moreover, instead of filtration through a Berkefeld filter, the suspension, after digestion, was centrifuged for a short time, at low speed. The supernatant fluid was distinctly opalescent and, on standing, it tended

to settle out only very slowly, indeed. Before use, it was of course made isotonic with salt solution. This method of preparation of bacterial antigens has, in general, yielded products of high antigenic value and comparatively low anticomplementary power, in contrast with the short digestion and filtration through a Berkefeld candle, as advised by Olitsky. The usual standard procedures were followed in the tests for complement fixation. In the titration of the antigens for anticomplementary power, one-half the amount that just permitted complete hemolysis was usually employed. In some special cases, the fixing power of the antigen was so strong that the dose was reduced to one-fourth of the maximal amount that allowed complete hemolysis. The customary sheep-cell, rabbit-serum hemolytic system with guinea pig complement was employed, two hemolytic units being used. Of the serum to be tested, 0.1 cc., undiluted, was employed in a total volume of 2.2 cc. In the selection of rabbits for immunization, it is extremely important to select individual animals that do not exhibit non-specific complement fixation. Not infrequently individual normal animals occur that give positive reactions with both the Wassermann and the gonococcal antigens, reactions which, in the human, are in no way interdependent. It was found that animals giving this non-specific fixation in the Wassermann and the gonococcus tests, also fixed complement with the Plotz organism and with the bacillus from the spleens. Fortunately, Kolmer and Trist⁷ have found that the reaction in normal animals tends to be constant and does not fluctuate from positive to negative. My own experience agrees with this. Accordingly, at the beginning of the experiment, animals were selected for immunization and for normal controls whose fixation reactions were negative to these antigens. Complement fixation tests on the bacilli from the cases of pernicious anemia against the serum of rabbits immunized to these organisms showed a definite cross-fixation. The accompanying outline gives the results for either an antigen or an immune serum of each of the three strains of anaerobes from pernicious anemia.

For comparison of the Plotz bacillus with these anaerobes, some preliminary fixation reactions were carried out by testing an antigen from the organisms from spleen 6 against a corre-

DEGREE OF FIXATION

RABBIT SERUM IMMUNE TO BACILLUS FROM		ANTIGEN FROM SPLEEN VI	BACILLUS FROM SPLEEN VIII
Spleen VI.....	}	1	None
		2	Complete
Spleen X.....		3	Complete
		4	Complete
	}	A	Complete
Normal rabbits.....		B	None
		C	None
			Trace

Complete, No hemolysis. None, Complete hemolysis. Trace, Almost complete hemolysis.

sponding immune rabbit serum, an immune serum from a rabbit injected with the Plotz organism and against a variety of human sera. In order to guard against the occurrence of very general non-specific fixation, the reactions to a Wassermann antigen (cholesterinized human heart) are included. A corresponding set of agglutination reactions were carried out with this bacillus and these sera. The results show both cross-fixation and cross-agglutination. The data are given in Table 2.

These results were confirmed on a larger scale, antigens being used that had been made from bacilli isolated from two of the spleens (cases 6 and 8) and from the Plotz bacillus. These were tested against patients and against rabbits immune to the Plotz bacillus and to two of the strains of organisms obtained from the spleens (cases 7 and 10). For these tests one of the rabbits immunized against the organism from spleen 6 had died suddenly. In its place a rabbit was substituted that had been injected four months previously with this strain of organism.

The results are of interest since cross-fixation occurs freely and practically constantly between the various sera and antigens. There is only one apparent exception and this occurs in the animal that had not been injected for a long period. Its immunity was evidently not of high grade, since absolutely complete fixation was not obtained with its own antigen and it failed to cross fix with the other sera. A duplicate animal immunized more recently than this one did give cross-fixations. Although the serum of this animal, which had not been recently injected, failed to give cross-fixation, yet the antigen gave cross-fixation with the sera of other animals immunized to the organism from spleen 10.

The results of these fixation tests furnish definite evidence of

a close relationship between these bacilli and do not supply evidence of any difference between them.

The data are given in Table 3.

Table 2
Complement fixation and agglutination with organism from Spleen 6

COMPLEMENT FIXATION				AGGLUTINATION OF BACILLUS FROM SPLEEN VI	
Immune to		Antigen from organism of Spleen VI	Wassermann	Dilution of serum	
				1-50	1-100
Organism from Spleen VI..	1	Complete	None	Partial	None
	2	Complete	None	Complete	Complete
	5	Complete	None	Complete	Complete
	6	Complete	None	Complete	Complete
	A	None	None	None	None
Plotz' organism.....	B	None	None	None	None
	C	None	None	None	None
	D	None	None	None	None
	E	Almost complete	Almost complete	Partial	None
Patients' serum					
Diagnosis:	1	Trace	Partial	None	None
	2	Trace	Complete	None	None
	3	Trace	None	None	None
	4	Trace	None	Well	None
Pernicious anemia.....	5	None	None	marked	None
	6	Complete	None	Well	None
	7	Partial	None	marked	None
Secondary anemia.....	8	Trace	None	None	None
	9	Almost complete	Partial	Well	None
Cerebrospinal syphilis.....	10	Complete	Partial	marked	None
Tabes.....	11	Trace	None	None	None
Endocarditis.....	12	Partial	None	None	None
Lobar pneumonia.....	13	Complete	None	Well	None
Aortitis.....	14	Complete	None	marked	None
Peritonsillar abscess.....	15	Trace	None	Complete	Complete
Gastric ulcer.....	16	Complete	None	Partial	None
Myasthenia gravis.....	17	Trace	None	Well	None
Visceroptosis.....	18	None	None	marked	None
Hyperthyroidism.....					

The following fixation tests were carried out with the organism from spleen 8 and with the Plotz bacillus against human sera, three cases of pernicious anemia and five control sera being used. The results are given in Table 4.

Complete fixation in two out of eight cases tested against the Plotz antigen seemed rather unexpected, especially as the antigen was used in only half the quantity that was permissible from

Table 3

Showing cross fixation tests with rabbit sera toward antigens of the Plotz' bacillus and the bacillus from pernicious anemia

IMMUNE SERA FOR ORGANISMS OF		DEGREE OF FIXATION		
		Antigens		
		Spleen VI	Spleen VIII	Plotz' bacillus
Spleen VI.....	1	Almost complete	Complete	Complete
	2	Almost complete	Almost complete	Complete
Spleen X.....	3	Complete	Complete	Complete
	4	Complete	Complete	Complete
Plotz'.....	5	Complete	None	None
	6	Complete	Complete	Complete
Normal rabbit sera.....	A	None	None	None
	B	None	Trace	Trace
	C	None	Trace	Partial

Table 4

Showing fixation with serum of pernicious anemia and control cases

CASE NUMBER	DIAGNOSIS	DEGREE OF FIXATION		
		Antigen		
		Bacillus Spleen VIII	Plotz' bacillus	Wassermann
1	Pernicious anemia.....	None	None	None
2	Pernicious anemia.....	Complete	Complete	None
3	Pernicious anemia.....	None	None	None
4	Cholangitis.....	Complete	Complete	Complete
5	Gastric neurosis.....	None	None	None
6	Arterio-sclerosis.....	None	None	None
7	Gastric neurosis.....	None	None	None
8	Mitral insufficiency.....	None	None	None

Both the antigens of the bacillus of Plotz and of Spleen 8 were used in one-fourth the dose that just failed to cause inhibition of hæmolysis.

the standpoint of its anticomplementary power. Seventeen additional patients were tested to determine whether complete fixation is as frequent as these results indicate and in these cases complete hemolysis occurred in all except three; in these the hemolysis was only partial. The fact that complement fixation may be obtained with this antigen in diseases other than typhus fever does not impair the value of the fixation tests reported by Olitsky in typhus cases. Obviously, in diagnosing a disease by complement fixation tests, it is necessary, first of all, to reduce the quantity of antigen or otherwise to adjust the conditions so that no normal sera will give positive reactions. While it is important to know that non-typhus cases will fix complement rather readily with this antigen, the striking feature in these results is that the reactions of the bacillus from the spleen coincide

precisely with those of the Plotz bacillus. This is further indication of some biological relationship between these organisms.

INTERPRETATION OF RESULTS.

It is evident that there is a close relationship in the essential characteristics of this bacillus cultivated from the spleen and the bacillus isolated by Plotz. The interpretation that suggests itself most readily is that these organisms are normal inhabitants of the body and that, although they are highly parasitic, they are not pathogenic. The slight difference in the fermentation of sugars does not militate against the assumption that these bacilli from pernicious anemia and typhus fever belong essentially to one species. It will be remembered that Plotz found the various strains of his organism to be entirely constant in their fermentation reactions. Nevertheless, it does not seem improbable that a more extended series would reveal some variation. If this bacillus from the spleen should develop in cultures made for the diagnosis of typhus fever it could not be distinguished from the Plotz bacillus except by a detailed study of its reaction on carbohydrates. The small series of agglutination tests indicate the close relationship of the bacillus from the spleens to the Plotz bacillus, and the complement fixation tests are in agreement with this conclusion. However, complement fixation can at times be the least specific of the immunity reactions. Failure to show cross fixation would speak strongly in favor of distinct species, whereas positive results do not merit so much significance.

The finding of the Plotz bacillus in Brill's disease has been advanced as additional evidence of the identity of this disease and typhus fever, but this argument loses its significance more or less completely when this same bacillus is found in an entirely different disease.

If we consider the bacillus described by Plotz to be the cause of typhus fever, then it would be conceivable that this anaerobic organism from these spleens might be the cause of pernicious anemia. Although widely different parasites may produce almost identical symptoms, we do not have any well-established instances in which organisms that are closely related biologically produce widely divergent clinical effects. One example which suggests itself is the skin lesions of *B. lepræ* and *B. tuberculosis*.

However, on closer examination, the skin lesions caused by the two organisms from the standpoint of histology are closely related. Another example for consideration is the skin lesion produced by *Leishmania tropica* and kala azar produced by *L. donovani*, but in this case the differentiation of these forms into two species is now being called into question. With the limited amount of data at hand, it is difficult absolutely to exclude this bacillus, isolated from cases of pernicious anemia, as the possible etiologic factor of the disease, with definite proof that would meet all theoretical objections; at least this is true when we consider the number of diseases in which the etiologic factor is established without fulfilling Koch's postulates and the widely divergent bases upon which investigators in different fields propose new etiologic organisms. Perhaps crucial evidence would be obtained by the examination of normal spleens. The bacteriological study of the spleen is not very satisfactory, except under special conditions. It seemed worth while to report the results of the cultures from these spleens without waiting for controls from other conditions, since surgical removal of the spleen is rather uncommon. However, I should be very much surprised if subsequent examination showed the bacillus found in pernicious anemia to be specific for this disease and that it did not occur in other conditions. Nevertheless, except for the knowledge of the Plotz organism and its relation to typhus fever, I am sure that it would be much more difficult for me to dissuade myself of a possible etiologic rôle of this organism in pernicious anemia.

The simplest interpretation of these results is that the bacillus isolated from the spleen of cases of pernicious anemia and from the blood of cases of typhus fever is merely a part of the normal flora of the body. Such organisms might gain a better foothold during the course of a serious disease, especially in a severe infection or pronounced anemia. There are several suggestive points that support this view. It is significant that antigens prepared from the bacillus isolated from the spleen fix complement indifferently with cases of pernicious anemia and with other diseases. The isolation of organisms evidently belonging to the same species from such widely different conditions as pernicious anemia and typhus fever, constitutes extremely strong evidence that they are not the causative agent of

either disease. On the other hand, it must be kept in mind that in a long series of blood cultures in control cases, Plotz, in no instance, found the organism which occurred so frequently in typhus fever. Furthermore, Olitzsky found that complement fixation gave positive reactions in a high percentage of typhus cases under conditions in which non-typhus cases reacted negatively.

Plotz has evidently discovered a new organism or a new group of organisms which are highly parasitic. They are non-pathogenic for lower animals and probably non-pathogenic for man. The recognition of this anaerobic organism constitutes an important advance in bacteriology. I would like to think that a new etiologic agent had been discovered. However, I am not prepared to accept that either the anaerobic bacillus isolated from typhus fever or from the spleen of cases of pernicious anemia is the specific etiologic agent in either disease.

CONCLUSIONS

1. Bacterial cultures were made of human spleens removed for surgical purposes in ten cases. The cultures from four of these spleens remained sterile. In three instances, a micrococcus was obtained and in three other cases an anaerobic bacillus developed.

2. The anaerobic bacillus in its morphology, in its cultural characteristics and in its serological reactions resembled very closely the bacillus isolated by Plotz in typhus fever. The evidence which is at present available indicates that these anaerobic bacilli, isolated by Plotz from typhus fever and appearing also in cases of pernicious anemia, constitute essentially a single species.

3. The weight of evidence indicates that this group of organisms represents parasitic but non-pathogenic flora of the human body. There is not sufficient evidence to ascribe a specific etiologic role to members of this group of anaerobic bacilli in either typhus fever or in pernicious anemia.

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THE ETIOLOGY OF ROCKY MOUNTAIN SPOTTED FEVER.*

OCCURRENCE OF THE PARASITE IN THE TICK.

Second Preliminary Report

By S. B. WOLBACH, M. D., Boston.

(From the Department of Bacteriology, Harvard Medical School.)

The demonstration of a parasite in the lesions of experimental Rocky Mountain spotted fever in monkeys and guinea pigs was reported in the *Journal of Medical Research* (Vol. XXXIV., No. 1) for March, 1916. The purpose of the present report is to record the presence and distribution of the parasite in experimentally infected ticks—*Dermacentor andersoni*, Stiles (*Dermacentor venustus*, Banks). The ticks in this study were sent from Montana by Prof. R. A. Cooley, State Entomologist, to whom I express my thanks.

Infected ticks were secured by allowing them to feed one or more times upon infected guinea pigs. Their infectivity was subsequently proved by allowing them to feed upon normal guinea pigs. Ticks which were proved to be noninfective by feeding once or twice upon normal guinea pigs were used for controls.

In testing for infectivity of the ticks, each one was confined in a close-meshed wire gauze capsule, fastened with adhesive plaster to the shaved abdomen of a guinea pig. From two to five days were allowed for each feeding. The capsules served also to retain the feces passed by the ticks, the amount of which in each experiment offered an additional index to the amount of blood ingested. It was observed that the feces collect in the form of small balls, which soon become hard and dry and do not soil the skin of the guinea pig.

The procedure usually employed in examining the ticks, infected and control, was as follows: The dorsal surface was removed as carefully as possible under the dissecting microscope. From one-half of the tick, salivary gland, Malpighian tube, leg muscle and a portion of the intestinal diverticulum were removed and smear preparations were made which were stained

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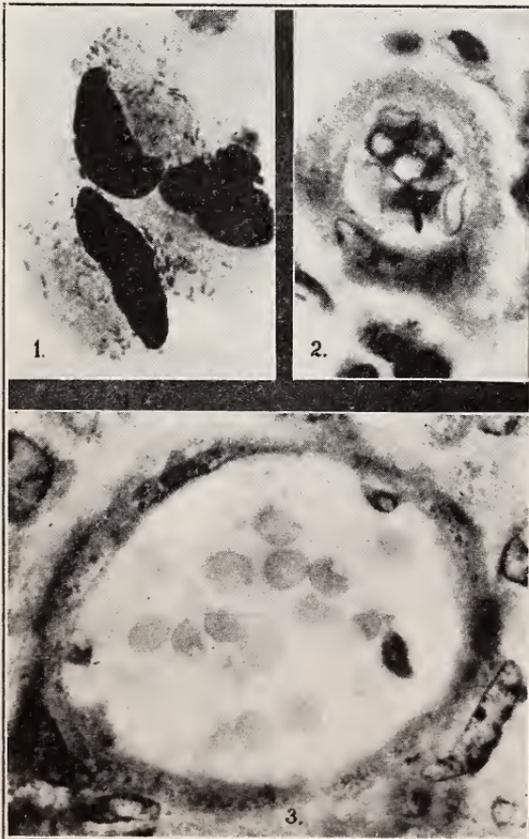
with Giemsa's stain, as well as preparations for the microscope with dark field illumination. The remainder of the organs were then removed in one mass from the ventral plate. The capitulum is left attached to the organs for the purpose of handling during fixation and imbedding processes. The tissues were fixed in Zenker's fixative, imbedded in paraffin, and serial sections made, which were stained by the modified Giemsa method described in the first report. In ticks which were proved to be infective, parasites identical with those found in the tissues of guinea pigs and monkeys were found. In no instance were they found in ticks which were proved to be noninfective.

The distribution of the parasite in the infected tick is wide and subject to some variation. They are found most abundantly in striped muscle, though occasionally they may occur in enormous numbers in the Malpighian tubes, both in the epithelial cells and in the lumina of the tubes. They are very numerous in the ganglion, or brain, in the main nerve trunks, in the salivary glands and walls of the salivary gland ducts. They are numerous in the smooth muscle fibers of the uterus and vagina. They are occasionally very numerous in the esophagus and are always to be found sparsely distributed throughout the intestinal tract. They have been seen in spermatozoa.

It is worthy of note that there is no cellular reaction on the part of the tick to the presence of these parasites, even when they are present in enormous numbers. A similar absence of reaction to the presence of a parasite, *Spirocheta duttoni*, was observed by me in the tissues of the African tick, *Ornithodoros moubata* (*Journal of Medical Research*, Vol. XXX., No. 1). The morphology of the parasite is identical with that found in guinea pig and monkey tissues. It is possible now definitely to state that there are two principal morphological types—one, a lanceolate diplococoid organism, which is considerably larger than the other type, a small, rather slender rod-shaped form. The lanceolate type is also found in the circulating blood and stains fairly deeply with the chromatin coloration, that is, reddish purple; at each end there is a small amount of pale-blue staining material. The smaller, rod-like form stains bluish, or bluish purple, according to variations in the staining technic, and may contain granules, bi-polar or more numerous,

as were described in preparations from guinea-pigs. It is obviously poor in chromatin staining material. To these types may be added a third, which, however, probably should be included with the rod form. It is a minute oval coccoid form which ranges in size down to forms just visible with the best optical equipment. They stain bluish with Giemsa's stain and have been found most abundantly in smear preparations of infected ticks. They are also to be seen in the sections in masses within cells, too compact to be resolved except at the periphery of the clumps.

No new light has been obtained in regard to the exact nature of this organism. The arrangement in pairs, end to end, and in tissues in chains of considerable length supports the evidence already obtained that division is by transverse fission as in bacteria. The lanceolate is the only form found with any con-



sistency in the circulating blood of infected animals, and it is reasonable to suppose that this represents a more resistant stage, although no proof has been obtained on that point. The organism as observed in suspensions of crushed tissues of the tick by dark-field illumination is non-motile. It does not retain the stain of Gram's method.

A detailed account of the experiments upon which the above observations have been made and more exact descriptions of the parasite will be given in a later publication.

Summary.

A parasite has been found in proved infected ticks in large numbers, morphologically identical with the parasite found in the lesions of guinea pigs and monkeys infected with Rocky Mountain spotted fever.

This parasite does not occur in the tissues of ticks proved to be non-infective.

The distribution of the parasite in the infected ticks indicates that the transmission occurs by way of the salivary gland secretions.

Transmission by fecal contamination of the wound caused by the tick does not seem possible because of the character of the tick's feces.

CURRENT LITERATURE

CREOLIN FOR SCABIES (Montgomery).—The following is suggested for the treatment of scabies in infants and commends itself for the reasons that it is simple, cheap, easily applied and as easily washed off and, last and best, it has the quality of an alkaline antipruritic:

Creolin	10
Saponis viridis	30
Adipis benzoinat	qs. ad. 100

To be rubbed on once a day.—*Therapeutic Gazette (Archives of Ped.)*.

IS THE GALL BLADDER USELESS? (V. A. Lapenta, M. D., Indianapolis).—This vesicle acts as a bulb to further the passage of bile, regulating the pressure and serving as a reservoir. When the gall bladder is removed the common duct is dilated and in a way becomes a compensatory bladder. Experiments on dogs showed that the duct became dilated and even bulbous after cholecystectomy. Gall stones after cholecystectomy are frequent. For these and other reasons, protest is made against looking on the gall bladder as in the same class with the vermiform appendix and as unnecessary. Cholecystectomy is often mandatory, but not necessarily the operation of choice in all gall bladder and duct disturbances. The gall bladder is not a functionless organ and its removal should be undertaken only for reason, or, as the author puts it, "for truly great surgery is conservative, and radical only when unredeemable pathological lesions force her hand to summary action."—*Interstate Medical Journal*, November, 1916; pages 993-5.

TREATMENT OF CHOLECYSTITIS AND CHOLANGITIS (R. A. Bate, M. D., Louisville).—In the treatment of cholecystitis and cholangitis complicated by gall stones, the bismuth preparations seem decidedly harmful instead of beneficial. There are several drugs which are supposed to enter into combination with the biliary constituents, and the specific action of these various medicaments may be thus secured. Of these drugs perhaps the valerianate of amylin offers the most promising results. It not only acts as a sedative and quiets the muscular spasm, but

also has a solvent effect upon cholesterin; for these reasons it should be used in all cases instead of morphin, which has been most highly recommended. Of the various fatty substances or oils which have been advocated, glycerin is now coming into prominence. As lecithin is a normal constituent of bile and also a solvent of cholesterin, any medicament containing lecithin is indicated. The explanation of the tremendous popularity of olive oil in the treatment of gall stones is because of the large percentage of lecithin it contains.—*Therapeutic Gazette*, November 15, 1916, page 767.

SCHISTOSOMIASIS.—Schistosomiasis in the Orient is a disease caused by a blood fluke inhabiting principally the blood vessels of the portal system. In a preliminary report W. L. Mann, Cavite, P. I., describes an epidemic occurring in a number of the crew of the U. S. S. *Helena* at Ichang on the upper Yangtze river. All of his patients had been in a landing party to gorges above Ichang, and had bathed in subsidiary streams. The symptoms in the first stage are those of the so-called urticarial or Yangtze fever. The symptoms of urticaria, subcutaneous edema and fever, appeared in from twenty-four to seventy-two hours after exposure to the infected water. In eight out of ten cases there were diarrhea, in seven with cramps, and four of the eight were troubled with nausea and vomiting. There were pain and tenderness over the liver in one-third of the patients, and half of them were troubled with cough and other symptoms of lung infection, in one case even suggesting incipient pneumonia. In the second stage of the disease, when the fever has almost disappeared, the eggs appear in the stool, and the symptoms may be divided into those of convalescence and those that go on to the third stage. This last is most important to keep in mind when treating former residents of the Orient. While continual reinfections are apparently necessary for the production of the tertiary stage, it seems reasonable to suppose that some parasites may persist in the body, causing various symptoms, such as cough, diarrhea, and temporary abdominal pain and tenderness, hepatic disturbances, anemia, fever, etc. The diagnosis, unfortunately, is often difficult. The worms are not numerous enough for ova to be easily located, and eosinophilia may vary. The mental attitude in this disease is pecu-

liar, ranging from calmness and indifference to dulness and confusion. The patient is apathetic, and sometimes even with marked fever goes about his usual occupations. The third stage is rare in foreigners, and consists of hepatic and splenic hypertrophy followed by sinking of the liver, cachexia, emaciation, ascites, and finally general anasarca. Dyspeptic symptoms are pronounced, associated with dysentery and diarrhea. In the first stage the diagnosis is not difficult if accompanied by the usual rash and subcutaneous edema. The eosinophilia, which appears within three or four weeks, is often marked. The ova begin to appear in the stools in about a month after the infection, and are found in bits of bloodstreaked mucus on a hardened stool. It is well to give opium for two days before examination in order to get hardened stools. Reports of the cases are given, and in a number of them benefit was obtained by the administration of salvarsan, and in cases in which there was little probability of a syphilitic affection. The possible relation of schistosomiasis to tropical neurasthenia is suggested. In view of the close relations between this country and the Philippines and other countries where the disease is endemic and the probable state of latency of the disease, it is of importance to physicians in this country, and especially on the Pacific coast, to be on their guard against the disorder.—*Jnal. A. M. A.*, November 4, 1916.

INTESTINAL PARASITES.—E. J. Van Liere, Madison, Wis., has examined the stools of twenty students in the University of Wisconsin for intestinal parasites. There is no doubt but that the Oriental immigrants are a public danger in this way. An inspection in San Francisco by Glover showed that of 1,002 Chinamen examined, the majority had intestinal parasites, and of 1,484 Japanese, a somewhat less percentage were infected. These were largely of the laboring class, while the subjects at the University of Wisconsin were undoubtedly of a much higher class, and less likely to be infected. The feces of twenty male foreign students attending the University of Wisconsin were examined and ten (50 per cent) gave positive results. The infections were as follows, the figures referring to the number of the patient: (1) Hookworm and *Trichocephalus dispar*; (2) *Hymenolepis nana*; (3) *Schistosoma japonica*; (4) *Ascaris lumbricoides*; (5, 6, 7, 8, 9, 10) *Trichocephalus dispar*. The in-

ected individuals in the several instances showed disorders connected with the presence of the parasites. The details of the examination and conditions of the subjects examined indicate that 70 per cent of the twenty students showed symptoms that might be due to parasitic worms and needing medical attention. The examination shows that there is danger of infection from the average foreign student. Other persons doubtless carry parasites at times, but the percentage of infection among foreigners, and particularly Orientals, is very large.—*Ibid.*

LEUKEMIA CUTIS.—S. E. Sweitzer, Minneapolis, reports a case of leukemia cutis and discusses the literature and theories of the disease. The possibility of a leukemia cutis or aleukemic leukemia cutis is well recognized. The case reported has been aleukemic in its course so far, nothing abnormal appearing in the blood in repeated blood examinations. It is also an example of a universal type which is of interest in view of its rarity, only four cases having been reported. Arndt says that the universal form never shows tumors. Sweitzer's case showed no tumors, but did show some flat elevations on the back of the neck. The patient has been under observation since November 14, 1914, and the results of treatment have been studied microscopically. In a careful search of the literature Sweitzer finds illustrations of but two cases that resemble his; Schultz reported one and Arndt the other. Arndt's case was of the universal type. Winfield reported a case somewhat resembling this in its onset and intense itching, and normal blood findings, but the appearance of the patient was quite different, according to the photograph. The histologic picture is absolutely typical. It shows a pure lymphocytic infiltration of the skin, the type of cell being the small lymphocyte. The tendency to regard the leukemias as due to an infection seems to be growing, but no one organism seems to have been accepted by all, though a diphtheroid microbe has been reported. In regard to treatment of leukemia cutis, it would be proper to use the well-known benzol treatment if the blood picture warranted it. Sweitzer has depended in his case on Röntgen ray, superficial and deep, but makes no prophecy as to the outcome. The latest skin sections show some lymphocytic infiltration, much less than formerly, but still present, and the mediastinal glands are still enlarged.

Burnam is working with radium applications, made over the spleen in the leukemias. The absence of radium depots puts this out of reach of the average doctor, but Sweitzer thinks it presents prospects for the future.—*Ibid*, November 18, 1916.

DIET IN BERIBERI.—E. B. Vedder, Washington, D. C., ends an article on the relation of diet to beriberi with the following conclusions: "As there are many conditions under which it is difficult for certain people and institutions to produce a rich and varied diet, I should like to repeat and emphasize the simple dietary rules which I have elsewhere formulated for the prevention of deficiency diseases: 1. In any institution where bread is the staple article of diet, it should be made from whole wheat flour. 2. When rice is used in any quantity, the brown undermilled, or so-called hygienic rice, should be furnished. 3. Beans, peas or other legumes, known to prevent beriberi, should be served at least once a week. Canned beans or peas should not be used. 4. Some fresh vegetables or fruit should be issued at least once a week and preferably at least twice a week. 5. Barley, a known preventive of beriberi, should be used in all soups. 6. If cornmeal is the staple of diet it should be yellow meal or water-ground meal, that is, made from the whole grain. 7. White potatoes and fresh meat, known preventives of beriberi and scurvy, should be served at least once a week, and preferably once daily. 8. The too exclusive use of canned goods must be carefully avoided. I am sure that the strict application of these rules will eradicate scurvy and beriberi, and believe that they would be equally efficacious in eradicating pellagra from the United States."—*Ibid*.

NEWS AND COMMENT.

PUBLIC HEALTH NOTES.—A recent investigation made by the United States Public Health Service in connection with studies of rural school children showed that 49.3 per cent had defective teeth, 21.1 per cent had two or more missing teeth, and only 16.9 per cent had had dental attention. Over 14 per cent never used a tooth brush, 58.2 per cent used one occasionally and only 27.4 per cent used one daily. Defective teeth reduce physical efficiency. Dirty, suppurating, snaggle-toothed mouths are responsible for many cases of heart disease, rheumatism and other chronic affections. The children are not responsible for the neglected state of their teeth. The ignorant and careless parent is to blame for this condition—a condition which hampers mental and physical growth and puts a permanent handicap on our future citizens. School teachers can and are doing much in inculcating habits of personal cleanliness on the rural school child, but this will fail of the highest accomplishment unless parents co-operate heartily and continuously. This is a duty which we owe our children.

COMBATING INSECTS AFFECTING THE HEALTH OF MAN.—Continued advances in the work of combating the activities of insects affecting the health of man are reported by the Chief of the Bureau of Entomology of the United States Department of Agriculture in his annual report, recently issued. In mosquito investigations in Louisiana a species of mosquito hitherto considered a noncarrier of malarial infection was proved to be a carrier. Studies have been made of malaria and measures are being evolved to meet plantation conditions.

The "starvation" plan, aimed to exterminate the spotted fever tick of the Bitter Root Valley, Montana, was followed during the year with encouraging success. The plan consists of the removal of the domestic hosts of the adult tick from the infested areas. The Bureau also conducted a campaign of extermination against ground squirrels and other rodent hosts of the immature ticks. Examination of the rodents killed showed 40 per cent lower infestation by the tick than during the preceding year.

The report directs attention to the demonstrations of the Bureau specialists that the breeding of flies in manure can be prevented by treating the substance with calcium cyanamid and acid phosphate, which at the same time increase the fertilizing value of the manure.

The Bureau also conducted investigations into methods of lessening fly infestation in packing establishments operated under the Meat Inspection Service of the Department.—(*Bureau of Entomology, United States Department of Agriculture.*)

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.—At the meeting of the Louisiana State Board of Medical Examiners, held in this city November 30, December 1 and 2, 1916, the following members were present: Dr. J. G. Martin, president; Dr. Leon J. Menville, Dr. Homer Dupuy and Dr. E. L. Leckert, secretary.

Eighteen physicians were present for examination, of which number sixteen were successful and were granted certificates. The certificate of one applicant, who made the required general average, was withheld pending the adjustment of certain deficiencies in his examination. One applicant failed.

The successful applicants who received certificates are: Henry Beechum Burdeshaw, Alfredo Alonso Cantu, Joseph Raymond Chisholm, Nicholas Kuntz Edrington, Clarence Bartel Erickson, James Thomas French, Upton W. Giles, Walter Ford Henderson, Lucius Walter Holloway, Oliver Leander Humble, Jr. (colored); James William Kirby, John Alexander Lanford, Edward Cabiness Melton, Alonzo Trent Palmer, Clarence Cecil Randall and Sylvain Beer Wolff.

During the session the applications of five physicians for reciprocity were favorably acted upon: William Matthew Dugan, Oswald Alfonso Eaddy, Erle Warfield Harris, Jesse R. Stamper and Presley Ewing Werlein.

On December 1 the midwifery examination was held, at which eleven applicants were present. Six were successful and received certificates: Mrs. Johanna Fruchtnicht, Mrs. Mary Grosz, Nettie J. Klingman, Mrs. Alice Perez, Maria Scullins (colored) and Elizabeth Weaver.

At the same meeting the following resolutions were adopted: "Resolved, That on and after the session of 1918-1919 no

medical school or college or institute will be considered in good standing with this Board, nor will be rated in Class 'A,' that does not require for admission at least two years of work in an approved college of arts and sciences"

"That inasmuch as several States do not demand a period of one year's practice from applicants desiring reciprocity from Louisiana, this Board waive this requirement in favor of applicants coming from these States."

The next meeting of the Board will take place in this city June 7, 8 and 9, 1917.

HYGIENE ASSOCIATION MEETING.—The annual meeting of the American Social Hygiene Association was held at St. Louis, November 20 and 21. The following officers were chosen for the ensuing year: Dr. Charles W. Eliot, president emeritus of Harvard University, and Dr. Abram W. Harris (re-elected), honorary president and president respectively. Robert S. Brookings of Washington University and Dr. Edward A. Alderman of the University of Virginia were elected vice presidents, and President David Starr Jordan of the University of California and Bishop Walter T. Sumner of Oregon, honorary vice presidents. Dr. Herman M. Biggs, New York, and Dr. William A. Evans, Chicago, were added to the Board of Directors. All other officers were re-elected.

NUMBER OF BRITISH MEDICAL STUDENTS DECLINES.—According to a statement in a recent issue of the *British Medical Journal*, the total number of medical students entering Cambridge University was 116 in 1913, 64 in 1914, 41 in 1915 and 25 in 1916.

HEADQUARTERS AMERICAN HOSPITAL ASSOCIATION.—At a meeting of this association, held in New York on November 25, it was decided to establish in Philadelphia permanent headquarters for the association, with Dr. J. H. Walsh in charge. Dr. Walsh plans to conduct a bureau of information.

NEW BREEDING PLACE FOR MOSQUITOES.—A report from the office of the United States Public Health Service at La Guayra, Venezuela, says that there had been an unusual amount of mosquitoes in the offices of the American consulate, and that after a careful search of the usual breeding places it was discovered

that they came from a water cooler of the type in which water from a large inverted bottle passes through a porcelain compartment surrounded by an ice chamber. The cleaning of the ice chamber and careful daily attention to it were followed by the total disappearance of mosquitoes from the offices.

CLOSER PROFESSIONAL RELATIONSHIP.—The *Journal* of the Michigan State Medical Society, in an editorial comment, says: "The American College of Surgeons has appointed a committee to visit South America to inspire a closer professional relationship between these two American provinces. It will undoubtedly be a junket of pleasure, hardly called for. There are pertinent problems in our own midst that should receive attention before stepping beyond our geographical boundary."

ORLEANS PARISH MEDICAL SOCIETY ELECTS OFFICERS.—At a meeting of the Orleans Parish Medical Society, held on December 9, 1916, the following officers were elected: President, Dr. Paul J. Gelpi; first, second and third vice presidents, Drs. Frank J. Chalaron, J. George Dempsey and H. E. Bernadas, respectively; secretary, Dr. Charles A. Bahn; treasurer, Dr. H. W. E. Walther; librarian, Dr. S. Chaille Jamison. Additional members of the board: Drs. W. H. Block, W. H. Knolle and J. W. Newman.

INDIAN POPULATION INCREASING.—Due to sanitary and hygienic conditions introduced among the Indians, through the personal supervision of nurses and physicians, the infant mortality among the Indians is lessening considerably. The United States Indian Service calls attention to an address by Dr. Lawrence W. White, superintendent of a Wisconsin Indian Agency, delivered at the Lake Mohonk Conference, showing that a practical educational campaign will bear excellent fruit. Appropriations for the Indians have slowly increased, from \$40,000 in 1911 to \$350,000 for 1917, and it is proposed to greatly increase appropriations over that figure later on. The total Indian population (1916) is placed at 209,224. Births 6,092, deaths 4,570, births over deaths 1,522.

CHEAPER RADIUM.—According to the bureau's annual report, radium worth more than a million dollars at market prices has been produced by the Federal Bureau of Mines at a cost of

\$340,000. The radium was produced under an arrangement with the National Radium Institute, and most of it will go to two of the country's largest hospitals. In the same report it was announced that the bureau was instrumental in saving \$20,000,000 worth of natural gas in Oklahoma by introduction of new drilling methods.

GASTRO-ENTEROLOGISTS ORGANIZE.—On November 15, 1916, the Southern Gastro-Enterological Association was organized at Atlanta and the following officers were elected: President, Dr. James C. Johnson, Atlanta; vice president, Dr. Jesse T. Rogers, Savannah, and secretary-treasurer, Dr. Marvin H. Smith, Jacksonville, Fla.

TRI-STATE ASSOCIATION MEETING.—The third annual meeting of the Tri-State Association of Tennessee, Arkansas and Mississippi was held in Memphis, November 21-23, with the election of the following officers: President, Dr. James W. Gray, Clarksdale, Miss.; vice presidents, Drs. H. Rogers Hays, North Carrollton, Miss., Richard W. Griffin, Tiptonville, Tenn., and Floyd Webb, Turrell, Ark.; secretary, Dr. James L. Andrefs, Memphis (re-elected), and treasurer, Dr. James A. Vaughan, Memphis (re-elected).

YALE'S DEPARTMENT OF HEALTH.—A department of health has been established at Yale University for the purpose of obtaining sanitary safety for the students' surroundings and furnishing them health supervision and advice. All students engaged in organized athletics, all competitors for the staff of the *Yale News*, the students working in the dining halls and all freshmen will be submitted to complete and careful medical examinations. The members of the university may consult the staff, vaccination against typhoid fever and smallpox will be provided, and students who cannot pay will be taken care of at the Yale infirmary. A permanent endowment fund of \$300,000 will be needed to carry on this work, and it is expected that this sum will be raised.

DRUG ADDICTS IN NEW YORK.—According to a statement made at a public hearing held by the legislative committee investigating the drug habit evil in the State of New York, there are 200,000 persons addicted to drugs in that State.

JOURNALS CONSOLIDATE.—Beginning with the January, 1917, issue, the *Louisville Monthly Journal of Medicine and Surgery* will become the official organ of the Mississippi Valley Medical Association under the name of the *Mississippi Valley Medical Journal*. Dr. Henry Enos Tuley, secretary of the association, will continue as editor; Dr. H. Grant as business editor, and a special editorial committee, composed of the following, will assist in the editorial policy of the *Journal*: Drs. William N. Wishard, Indianapolis; Arthur R. Elliott, Chicago; Willard J. Stone, Toledo, and Louis Frank, Louisville. It is announced that a special epitome department will be established, giving each month a review of some special borderline topic which is of interest to surgeon and internist.

JESUP LECTURES.—The Jesup lectures on "Dynamic Psychology" were delivered by Robert S. Woodward, Ph.D., professor of psychology, Columbia University, New York City, under the auspices of the university and in co-operation with the American Museum of Natural History. The lectures were delivered on successive Fridays, from November 10 to December 29, inclusive.

"JUST AS GOOD" MILK.—According to a recent exchange, a so-called "milk improver" has been put on the market in London, in order to avoid the hardships resulting from the higher price of milk. It is a white powder composed of the correct combination of bone and flesh-forming constituents. A penny's worth mixed with a pint of water and added to a pint of cow's milk produce a quart of "just as good" milk.

CHOLERA STILL RAMPANT IN JAPAN.—Although since cooler weather cholera in Tokio has decreased, the disease seems to have spread in Osaka. —Up to October 10 there were reported 548 cases, with 151 deaths at Tokio, while at Osaka there had been a total of 2,001 cases, with an increase of 20 daily. No foreigner, according to this report, had been attacked by the disease so far as known.

BUREAU FOR HOMELESS CHILDREN.—A Children's Home Bureau was organized in New York City on November 21, in the offices of the charities commissioner, John A. Kingsbury, the object being to find good homes with private families for de-

pendent children. Subscriptions by wealthy persons to the amount of \$150,000 has backed the project. Among the subscribers are Cleveland H. Dodge, Adolph Lewisohn, V. Everitt Macy, Mrs. Helen Hartley Jenkins and Mrs. A. A. Henderson. It is planned to spend \$40,000 during the coming year and the bureau guarantees that it will place 1,000 children in homes in a year. During the past month 103 children have been placed in suitable homes.

RAILROAD COMPANY AWARDED PRIZES.—The grand prize of the American Extension of Safety and Sanitation Society for the two years 1914 and 1915 has been awarded to the Cincinnati, New Orleans and Texas and Pacific Railroad, which was constructed and is owned by the city of Cincinnati. This railroad has also been awarded the E. H. Harriman Memorial Gold Medal by the American Association of Safety, in recognition of the direct effort made for the advancement of employees, "for the conservation of human life," and "for the best record made by an American railroad in accident prevention and industrial hygiene for the public and for its own personnel during the year 1915."

VON GRAEFE PRIZE AWARDED.—The German Ophthalmological Society has divided between Dr. Lindner of Vienna and Dr. Ohm of Bottrop the Von Graefe prize for the best article published in 1911 to 1913 in the *Archiv fur Ophthalmologie*. These articles were, respectively on "Miner's Nystagmus" and on "Trachoma and Inclusion Blepharitis."

SURGEONS ELECT OFFICERS.—At the annual meeting of the Southern Surgical and Gynecological Association, which was held in White Sulphur Springs, Va., December 11, 12 and 13, the following officers were elected: President, Dr. William D. Haggard, Nashville; vice presidents, Drs. J. Ernest Stokes, Salisbury, N. C., and Francis R. Hagner, Washington; secretary, Dr. Herbert A. Royster, Raleigh, N. C.; treasurer, Dr. Legrand Guerry, Columbia, S. C., and member of the council, Dr. Thomas S. Cullen, Baltimore. The 1917 convention will be held in St. Augustine, Fla.

THE AMERICAN CONGRESS ON INTERNAL MEDICINE held its first scientific session on December 28 and 29, 1916, at the Hotel

Astor in New York City, with the president, Dr. Reynold Webb Wilcox, in the chair. The meeting of the Council of the American College of Physicians formed one of the principal features of the convention. The principal subjects of discussion at the meeting were "The Ductless Glands in Cardio-Vascular Diseases and Dementia Precox" and symposium on "Duodenal Ulcer."

ST. JOHN-ST. CHARLES BI-PARISH MEDICAL SOCIETY MEETING.—At the annual meeting of the St. John-St. Charles Bi-Parish Medical Society, held at Reserve, La., December 6, the following officers were elected: President, Dr. J. P. Elmore, Edgard; vice president, Dr. L. T. Donaldson, Sr., Reserve; secretary-treasurer, L. Cheves Tebo, Reserve; delegate and alternate, Drs. S. Montegut, Laplace, and R. H. Johnson, Moberly, respectively.

THE EAST FELICIANA PARISH MEDICAL SOCIETY met at Clinton, La., December 7, and elected the following officers: President, Dr. F. M. Thompson, Slaughter; vice president, Dr. T. W. Evans, Jackson; secretary-treasurer, Dr. E. M. Toler, Clinton. Delegate and alternate, respectively, Drs. T. W. Evans and J. W. Lea.

EDWARD L. TRUDEAU FOUNDATION.—As a memorial to the late Dr. Edward L. Trudeau an endowment fund has been created to perpetuate his name and to continue the scientific investigations that were a life-long interest of the American pioneer in tuberculosis research. The income is to be devoted "to maintain laboratories and carry on research into the nature, causes and treatment of tuberculosis; to maintain regular courses of instruction for physicians and others in the most advanced knowledge of the above subject, under the name of the Trudeau School of Tuberculosis; to offer young physicians the opportunity to engage in research work, while undergoing treatment for the disease, through the establishment of Fellowships."

The second session of the Trudeau School of Tuberculosis will be held at Saranac Lake from January 3 to February 10, 1917. Further information can be had by addressing the secretary, Trudeau School, Saranac Lake, N. Y.

PERSONALS.—George Edgar Vincent, Ph.D., LL.D., president of the University of Minnesota and formerly dean of the facul-

ties of arts, literature and science of the University of Chicago, will succeed Mr. John D. Rockefeller, Jr., as president of the Rockefeller Foundation, this to take effect on May 15, 1917. Mr. Rockefeller has resigned to become chairman of the Board of Trustees, in order that he may give his entire time to the work.

Dr. Alexander C. Magruder, the new president of the Colorado State Medical Society, is a Tulane graduate, having received his degree in medicine from that university in 1900.

Dr. R. M. Sterrett has resigned as advertising manager of the Denver Chemical Manufacturing Company, effective January 1.

Dr. J. G. Martin of Lake Charles, president of the State Board of Medical Examiners, was a visitor in New Orleans during the month in connection with the examination of applicants before the board.

Dr. Joseph A. Danna is away visiting clinics in the North.

Among the doctors of New Orleans who attended the meeting of the Southern Surgical and Gynecological Association at White Sulphur Springs were Drs. S. M. D. Clark and J. A. Danna.

REMOVALS.—Dr. Allen Orton, from Addison to Pratt City, Ala.

Dr. C. C. Thompson, from Pioneer to Oak Grove, La.

Dr. Jerome M. Triolo, from El Paso, Tex., to La Mesa, N. M.

Dr. C. L. Morris, from South Greenfield to charge of Kansas City General Hospital, Kansas City, Mo.

Dr. W. R. Clement, from Jennings to 524 South Boulder street, Tulsa, Okla.

Dr. S. E. Thompson, from Carlsbad to San Angelo, Tex.

MARRIED.—On November 30, 1916, Dr. J. C. Cole, of this city, to Miss Betty Courtland, of Chicago.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Applied Immunology, by B. A. Thomas, A. M. M. D., and R. H. Ivy, M. D., D. D. S. J. B. Lippincott Company, Philadelphia and London.

This work will fill a decided place in modern medical literature. Not only is it valuable for the review of the subject in all of its phases, including the history of immunology, but it is encyclopedic in the information furnished. The terms current in medical journals dealing with advanced bacteriology are made very clear, and detail of technic is afforded to develop an understanding of the terms employed. The methods of the preparation and of the use of sera, vaccins and many tests are comprehensively presented. Besides, several chapters are appended dealing with kindred topics. Altogether an excellent text and a valuable work of reference.

Dyer.

The Physician's Visiting List. P. Blakison's Son & Co., Philadelphia.

This generally and favorably known little publication comes in its usual form for 1917, its sixty-sixth year. It contains some forty pages of references in addition to the blank pages for recording visits, engagements, etc.

The Practitioner's Visiting List. Lea and Febiger, Philadelphia and New York.

A convenient record book for the practitioner, including a number of useful reference tables, all neatly arranged and presented in several styles for varying numbers of patients per week or month.

The Medical Record Visiting List. Wm. Wood & Co., New York.

Again, for 1917, this list or diary is offered to the profession, with thirty-odd pages of information besides the recording pages themselves. The little book has been newly revised and is quite presentable and useful.

PUBLICATIONS RECEIVED

- W. B. SAUNDERS COMPANY.** Philadelphia and London, 1916.
The Medical Clinics of Chicago. November, 1916. Volume 2, Number 3.
Blood Pressure, by Francis Ashley Faught, M.D. Second edition, thoroughly revised.
Constipation, Obstipation and Intestinal Stasis, by Samuel Goodwin Gant, M. D., LL.D.
The Operating Room, by Amy Armour Smith, R. N.
Personal Health, by William Brady, M. D.
- LEA & FEBIGER.** Philadelphia and New York, 1916.
The Practitioner's Visiting List for 1917.
Syphilis, by Loyd Thompson, Ph.B., M. D.
- P. BLAKISTON'S SON & CO.** Philadelphia, 1916.
Practical Bacteriology, Blood Work and Animal Parasitology, by E. R. Stitt, A. B., Ph. G., M. D.
The Physician's Visiting List for 1917.
- THE MACMILLAN COMPANY.** New York, 1916.
The Pathology and Differential Diagnosis of Infectious Diseases of Animals, by Veranus Alva Moore, B. S., M. D., V. M. D. Fourth edition, revised and enlarged.
- WILLIAM WOOD & COMPANY...** New York, 1916.
A Practical Medical Dictionary, by Thomas Lathrop Stedman, A. M., M. D.
A Text-Book of Histology, by Frederick R. Bailey, A. M., M. D. Fifth revised edition.
The Practice of Urology, by Charles H. Chetwood, M. D., LL. D., F. A. C. S. Second edition.
- PAUL B. HOEBER...** New York, 1916.
The Mentally Defective Child, by Meredith Young, M. D., D. P. H., D. S. Sc.
The Healthy Marriage, by G. T. Wrench, M. D., B. S.
The Sexual Disabilities of Man and Their Treatment and Prevention, by Arthur Cooper. Third edition, revised and enlarged.
- WASHINGTON GOVERNMENT PRINTING OFFICE.** Washington, D. C., 1916.
Public Health Reports. Volume 31, Numbers, 45, 46, 47 and 48.
Annual Report of the Secretary of the Navy. For the Fiscal Year 1916.

Report of the Department of Health of the Panama Canal. August and September, 1916.

Index Catalog of the Library of the Surgeon-General's Office, U. S. Army. Second series, vol. xxi.

MISCELLANEOUS:

Report of the Philippine Health Service. From January 1, to December 31, 1915. (Manila Bureau of Printing, 1916).

Annual Report of the Sanitary Commissioner With the Government of India for 1914. (Government Printing Office, Calcutta, India, 1916).

Report on Sanitary Measures in India in 1914-1915. Vol. XLVIII. (His Majesty's Stationery Office, London, England).

Special Bulletin. Prepared by the Division of Industrial Hygiene, State of New York. No. 79: **Anthrax.**

Monthly Bulletin Louisiana State Board of Health. New Orleans, November, 1916.

The Bulletin of the Department of Public Charities. (Municipal Bldg., N. Y. City).

International Health Commission. Effects of Hookworm Disease on the Mental and Physical Development of Children, by Edward K. Strong, Jr., Ph. D. (The Rockefeller Foundation, N. Y., 1916).

REPRINTS

Dissemination of Bacteria in the Blood, by A. J. Hinkelman.

Urinary Lithiasis, by Victor Cox Pedersen, A. M., M. D., F. A. C. S.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for November, 1916.

Cause.	White	Colored	Total
Typhoid Fever	8	4	12
Intermittent Fever (Malarial Cachexia).....	2	1	3
Smallpox .....	.....	.....	.....
Measles	1	.....	1
Scarlet Fever .....	.....	.....	.....
Whooping Cough .....	.....	.....	.....
Diphtheria and Croup.....	3	1	4
Influenza	5	.....	5
Cholera Nostras .....	.....	.....	.....
Pyemia and Septicemia.....	.....	.....	.....
Tuberculosis	35	50	85
Cancer	20	12	32
Rheumatism and Gout.....	2	1	3
Diabetes	9	1	10
Alcoholism	1	.....	1
Encephalitis and Meningitis.....	1	.....	1
Locomotor Ataxia .....	.....	.....	.....
Congestion, Hemorrhage and Softening of Brain.	24	14	38
Paralysis	2	2	4
Convulsions of Infancy.....	.....	.....	.....
Other Diseases of Infancy.....	10	7	17
Tetanus	1	2	3
Other Nervous Diseases.....	2	1	3
Heart Diseases	64	36	100
Bronchitis	2	2	4
Pneumonia and Broncho-Pneumonia	22	25	47
Other Respiratory Diseases.....	2	.....	2
Ulcer of Stomach.....	1	.....	1
Other Diseases of the Stomach.....	5	.....	5
Diarrhea, Dysentery and Enteritis.....	13	14	27
Hernia, Intestinal Obstruction.....	4	2	6
Cirrhosis of Liver.....	5	4	9
Other Diseases of the Liver.....	2	.....	2
Simple Peritonitis.....	.....	.....	.....
Appendicitis	4	4	8
Bright's Disease	20	16	36
Other Genito-Urinary Diseases.....	11	12	23
Puerperal Diseases	2	2	4
Senile Debility	6	.....	6
Suicide	3	3	6
Injuries	10	22	32
All Other Causes	27	9	36
Total	329	247	576

Still-born Children—White, 15; colored, 33; total, 48.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 14.30; colored, 29.06; total, 18.28. Non-residents, 15.78.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 30.16
 Mean temperature 63.
 Total precipitation 0.88 inches
 Prevailing direction of wind, southeast.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

COLLABORATORS

BAILEY K. ASHFORD, M. D., Prest. Amer. Soc. of Tropical Medicine } **Ex officio**
JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

C. C. BASS, M. D., Tulane University of Louisiana.

RUPERT BLUE, M. D., Surgeon General, United States Public Health Service.

H. D. BRUNS, M. D., Tulane University of Louisiana.

C. F. CRAIG, M. D., Capt., U. S. A.

S. T. DARLING, M. D., Federated Malay States.

W. H. DEADERICK, M. D., Hot Springs, Arkansas.

E. M. DUPAQUIER, M. D. (Paris), Tulane University of Louisiana.

A. G. FRIEDRICH, M. D., New Orleans, La.

J. T. HALSEY, M. D., Tulane University of Louisiana.

JOS. HOLT, M. D., New Orleans, La.

F. A. LARUE, M. D., Tulane University of Louisiana.

OTTO LERCH, M. D., Tulane University of Louisiana.

E. S. LEWIS, M. D., Tulane University of Louisiana.

R. C. LYNCH, M. D., Tulane University of Louisiana.

E. D. MARTIN, M. D., Tulane University of Louisiana.

R. MATAS, M. D., Tulane University of Louisiana.

AUGUSTUS McSHANE, M. D., Tulane University of Louisiana.

PAUL MICHINARD, M. D., Tulane University of Louisiana.

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PAUL G. WOOLLEY, M. D., University of Cincinnati.

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No. 8

EDITORIAL

MILITARY PREPAREDNESS.

There has been considerable activity among medical men in the United States with a view to some organization for the proposed military preparedness. In each state committees have been created for the purpose of considering men and hospitals which might be available in time of war.

The movement has gotten considerable headway and has thus far reached the point of compiling lists of available men and hospitals. A classification of men has been made, with a view to the arrangement of units, which later may be grouped around possible base hospitals.

The government has been in touch with the whole movement and the reports by the state committees have been used by the central committee for the purpose of recommending available candidates for the Medical Reserve Corps of the Army. Already several examinations of such candidates have been had and more are projected by the Surgeon General of the Army, so as to bring the number and personnel of the Corps up to the standard desired.

It is anticipated that by the summer of the current year there will be enough men in the Medical Reserve Corps to arrange for summer camps of instruction, so that the members of the Corps may be made familiar with the duties of a medical officer of the Army.

The new organization of Officers' Reserve Corps to be developed from such material will be held available in time of emergency or of actual war.

It is highly commendable that so prompt a response has come from the medical profession and as the movement grows, more and more interest is bound to follow. It is especially characteristic of the medical profession to fall in line with any such demand upon their citizenship and it is also noteworthy that all of this has come about quietly and without ostentation, while the solons in Washington have as yet reached no sane basis for the organization of a general military service. At any rate, it looks as if the medical side of the military development will be well on the way to a solution before the United States Congress will have reached an intelligent basis for legislation regarding a military system.

In this line an important forward movement was initiated in Washington on January 6. The Secretary of War invited the Deans and Faculty representatives from the leading medical schools to meet in conference with the War Department to consider a plan of instruction of Senior medical students in military medicine and surgery.

The conference developed a schedule which is exceedingly comprehensive and will cover the study of army regulations, field service, military law, and the detail embracing also military surgery and hygiene as practised under conditions of military service in peace and in war.

While it is the desire of the War Department to have such instruction given in the medical schools, it is evidently the intention of the Department to provide the proper detail of army medical officers to give the instruction, which will consume regular scheduled hours in the Senior curriculum. The course will probably provide a period of practical instruction, after graduation, in summer camps, where the actual application of the lectures can be put into practise in the fields of tactics, conservancy, administration, discipline, etc.

This is quite in line with the military activity in the schools and colleges and if all the youth is to be encouraged to military enthusiasm by the systematic military phase in undergraduate college life, it is perfectly proper and timely that the medical schools should meet this effort of the War Department for a qualified Medical Corps.

There is an innate patriotism in all of us which needs very small encouragement to break into activity and the medical student will probably welcome this instruction.

The medical career of today and in the near future at best is not alluring and the amount of hard work essential to even mediocre success discounts the ultimate rewards. Any new field of activity for a large number of medical graduates should be welcome.

A recent writer* on the unpreparedness of the United States declares that "After all, what we really need is to recognize the advantages of universal military training" * * * "The truth is that universal military training in a democracy can be trusted not to lead to wars and quarrels with our neighbors, but on the contrary to develop self control and self respect, at the same time causing our neighbors to respect our opinions and the rights of our citizens."

We have already experimented with a voluntary military system which has proved an eminent failure. We are daily looking on at the cataclysm of European civilization and as yet with a complacency which is astounding. The wind, carrying disaster, may veer at any time and we are altogether unready. If the reflex of an energetic activity of the medical profession in all of its ramifications can start a popular en-

*Hiram Bingham in the *Yale Review* for July.

thusiasm, we should go on the way our leaders have begun and work all together to that end.

THE STANDARD OF THE STATE BOARD.

The Louisiana State Board of Medical Examiners at their last meeting in December promulgated the rule for a two years' college course for preliminary education to apply to all candidates for licensure beginning the study of medicine after January 1, 1918.

This is entirely consistent with the general policy of the Board for a number of years, meeting the higher standards of medical education as soon as they have been tried out. A number of states have already set that standard, either dictated by the medical school in the state university, or in the interest of medical education in the respective state. The action has not yet become general, but the Louisiana Board in joining the first dozen shows a proper regard for standards of medical education and supports the local Tulane School of Medicine, which in its current catalog announces a two years' college requirement after January 1, 1918.

The same rule comes up for action at the February meeting of the Association of American Medical Colleges, in Chicago, and it is expected to go into force for the colleges in membership.

With six years of college preparation and special medical education, the graduate hereafter should be at least scholastically equipped and the function of the State Board of Medical Examiners should consequently grow less irksome.

ACKNOWLEDGMENT OF THE NATIONAL MEDICAL EXAMINING BOARD.

The *Military Surgeon* editorially makes favorable comment on the results of the first examination of the National Board. The Secretary's report issued at the end of the year gives a very clear demonstration of the character of the examination and emphasizes the fact that the successful candidates deserved the certificate of the Board.

It is interesting to read the statement of the *Military Surgeon* that one of the licentiates of the National Board had been accepted by the Army Board, without further mental examination, which, in the light of the reputation of the Army Board for its severity, is as thorough an acknowledgement of the quality of the National Board's examination as could be presented. More than this, it is stated that the Mayo Foundation offered fellowships to the five successful candidates, a further voluntary acknowledgement of an educational standard which must go far in establishing the value of the National Board among the factors now potent for real standards.

The National Board proposes to hold a second examination in June and, with the experience of the first examination, there should be a large list of candidates, especially if such attractive opportunities as ready service in the Army or Navy and academic acknowledgment, such as that proposed by the Mayo Foundation, are held out to the successful examinees.

The laborious efforts of the members of the National Board have at any rate met with a prompt acknowledgment of service and the tokens thus far are of the highest order.

A NATIONAL LEPROSARIUM.

On January 25, the Senate voted for the Leprosarium bill, fathered by Senator Jas. E. Ransdell of Louisiana. To him is due the credit for this timely action by the national government.

With the Public Health Service in charge, and with \$250,000 as an initial allowance, there should be no delay in establishing adequate accommodations for the lepers in the United States, probably totaling more than 1,000.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

NOTES ON MILITARY SURGERY FROM PERSONAL EXPERIENCES IN THE PRESENT EUROPEAN WAR.*

By K. WINFIELD NEY, M. D.

Surgeon Presbyterian Hospital, New Orleans.

During my five months' active service in the present European war, about one month was spent at the front, where I visited the First Aid and the Casualty Clearing stations in Northern France and Belgium. For four months I devoted my entire time as Surgeon-in-Chief of the Ninth Auxiliary of the French Red Cross, located at Cherbourg, which consisted of four base hospitals, including one military hospital. While I had considerable experience at the front with men recently wounded, my service at the base hospitals, which was far greater, left me to deal mostly with the after-effects of the more severe injuries, when they had been transferred to these hospitals.

I will try briefly to give you an idea as to the conditions at the front, in order that you may more readily understand the state of the injured when received at these hospitals, where the science of surgery strives to save that which the science of war has failed to destroy. Considering the immensity of this European conflict, in which all the achievements of modern science have been perverted to the destruction of human life—a war of high explosives, long-range guns and poisonous gases, conducted on the sea, under the sea, in the air and under the ground—one may readily understand that, from a military standpoint, it is vastly different from any previous war, both in character and magnitude; and just in the same manner it is different from a surgical standpoint.

In this war, the proportion of shell injuries to bullet wounds

*Read before the Orleans Parish Medical Society, December 9, 1916. [Received for Publication January 8, 1917.—Eds.]

by far exceeds that of any previous war; in fact, the great majority of casualties coming to the base hospitals were the severely lacerated wounds caused by shell fire, where the tissues lost all resemblance to human flesh and looked not unlike mud. This disorganized tissue could be cut away without causing pain or hemorrhage. Frequently these wounds destroy the entire thigh or shoulder, abdominal wall, perhaps both arms or legs, or the entire face.

The bullet wounds caused by rifle and machine gun fire, in my experience, were not so common as shell wounds. They were, as a rule, very severe, and differed from these injuries in other wars by the fact that the modern gun has a much greater muzzle velocity; and most of the wounds were received at short range—often less than 500 yards—and at such close proximity the bullet has an explosive effect, the point of entrance often being so small that it is difficult to find, though the point of exit may be as large as one's fist or even a child's head. When a missile of such high velocity strikes a bone, such as one of the long bones, the force is imparted to the shattered fragments, and they are driven deeply into the tissues in every direction.

Another feature which characterizes the wounds along the Anglo-French front is the severity of their infections. I have never in civil life observed wounds so intensely septic. This can be explained by the fact that in that country, which is thickly populated, the land has been heavily manured with the excrements of man and animal; it supports many cattle and is highly cultivated. The soil is kept quite moist with the frequent rains, so that the bacteria, with which the soil is laden, abound even to a great depth.

The underground warfare in trenches which has for a long time characterized the fighting in France is responsible for the insanitary conditions under which the men are compelled to live, and in which they are wounded. In wet weather the trenches are filled with mud, and often the men are compelled to stand in several inches or more of mud and water; in dry weather in just as much dust. The result is that their clothes are filthy when wounded; and since most of these wounds are from shrapnel, or from deflected and deformed bullets, they are badly lacerated, and the masses of dead tissue furnish ex-

cellent culture media for the micro-organisms which abound in the clothing, pieces of which are frequently carried to the depths of the wounds and there buried. Even the first-aid dressing is often applied in a dug-out by a comrade who is covered with mud or dust. Under such conditions, these severe infections are only to be expected.

But there is another element which has a certain amount of bearing on this question, and that is the state of the man's nervous system when he is wounded. At best, trench life can be described by two words, "Muck and Misery." Many of the soldiers are of the best French families; with sensitive nervous systems; who had never known hardship or toil; and are compelled to live in the trenches for weeks at a time, in mud and filth, without being able to bathe or change their clothing, until they are an offense to themselves and comrades—alive with vermin, suffering from intolerable itch, exposed to wind and cold, and almost daily rains, with but little protection and in constant danger of death by exploding shells, gas attacks, or mining operations, all of which are from an unseen enemy. When wounded, these men frequently fall into mud or water, often wait for hours before being moved or receiving first-aid attention, exposed to cold and wet, and sometimes suffering severe hemorrhage before assistance can be had from the regimental medical officer. I have had many of these men sent into the base hospitals of which I had charge wearing the same blood-stained, muddy clothing in which they were wounded several days before, and whose dressings, when removed, proved to be a regular poultice of pus so offensive that the odor seemed to permeate one's person for hours.

After they are wounded, the men are, as soon as possible (after receiving first-aid attention), transferred to a field hospital located at a convenient point a short distance back of the firing line, where they receive only the most urgent surgery. From there they are removed at once to the Casualty Clearing Station, which is a few miles farther back and more protected from the immediate danger of artillery fire. In the Casualty Clearing Stations the wounded may be permitted to rest for a few hours, or days if absolutely necessary, before being removed to the base hospitals, which removal may mean a journey

of days on slow trains, without adequate medical attention. In the Casualty Clearing Station one has to deal, to a great extent, with the important questions of shock and hemorrhage, and with those cases in which transportation is made impossible by the severity of the injury. Upon visiting the Casualty Clearing Stations one is struck by the absolute quietude of most of the men who have just been brought in. Their one desire seems to be to sleep and rest, and it is often with difficulty that they are persuaded to partake of hot stimulants. These men, with shattered nervous systems, are pictures of utter exhaustion.

In combating shock, pituitrin proved to be a valuable agent when the injuries were severe, and morphin was indispensable. When hemorrhage had been profuse, hypodermoclysis or infusion with normal salt solution containing a little adrenalin chloride gave most satisfactory results, and has been the means of saving thousands of lives.

It is here that wounds are usually superficially exposed and prophylactic antiseptics instituted with the hope of complete wound sterilization. Practically all agents which have been recommended in the advent of antiseptic surgery have been tried and found wanting. These wounds are infected from the beginning with dirt and dust and mud from the clothes and buried pieces of foreign bodies which have been carried to the depth of the wound and buried in the torn tissues and along muscular planes by the force of the projectile. The superficial appearance of the wound is no indication as to its severity; for a very small opening in the skin may be only the external appearance of deep lacerations and great destruction of tissue. The essential treatment of all wounds in military surgery is free incision and adequate drainage from its most dependent portion. While not so imperative as drainage, the question of immobilization is an important one, even in the absence of fracture. Muscular action and movement of infected limbs seem greatly to disseminate the infection. Therefore, the three essentials in all wound treatments are free incision, adequate drainage and efficient immobilization.

Let it not be construed from the foregoing remarks that the prophylactic chemical sterilization of wounds is without effect and should not be attempted. I merely wish to imply that it is

far from being efficient; but its use is justifiable in that we know of nothing better. There is no doubt that it does kill a certain number of bacteria with which it comes in contact, but it certainly does not destroy those which have become imbedded in the tissues. As to what effect these chemicals may have with regard to the inhibition or stimulation of the natural protective elements remains to be determined.

The question of the treatment of infected wounds in military surgery naturally comes under two heads, that of prophylactic wound sterilization, which is done immediately at the front, and that of therapeutic sterilization, which is left to constitute much of the work at the base hospitals.

We know that, as a therapeutic measure, the use of antiseptics in the treatment of infected wounds has been only partially successful, and perhaps many of these wounds would have healed more kindly had the destructive chemical antiseptics been abandoned and the combat left entirely to the defending forces of natural resistance, assisted by such mechanical help as the surgeon might be able to give in the removal of foreign bodies, drainage and immobilization, with the support of the patient and the free use of sunlight and fresh air.

Wright has attempted to inhibit the growth of invading microorganisms by the use of the hypertonic salt solution, which is a 5% solution of sodium chloride, or by the use of salt tablets and salt packs, which are placed freely into all the recesses of the wound; the secretions of the wound, stimulated by the salt, effects its solution, which, acting as a lymphagogue, draws out from the infected tissues lymph which has spent all its antibacterial energy; and draws into the tissues from the bloodstream lymph inimical to microbic growth. It also inhibits coagulation, and so prevents the sealing up of the orifices through which lymph pours into the wound. It will also inhibit bacterial growth and assist in the disintegration of leucocytes with the formation of tryptic ferment, which has much to do with the digestion of necrosed tissue. I have often seen large, foul, sloughing wounds rapidly throw off the disorganized tissue and assume a healthy granulating appearance by this treatment. After granulation is well advanced, the hypertonic solution should be discontinued and the wound treated by the ordi-

nary methods. In this state of wound repair, the abundant pus (which is truly the "laudable pus" of the older surgeons) often contains but very little bacterial element, and frequently no pathogenic bacteria. When the wound assumes this aspect, it may be closed by suture, without fear. The essential is that in closing all dead spaces must be completely obliterated.

A method of treating wound infection with hypochlorous acid, as advocated by Dr. Alexis Carrel, promises to be most effective. Hypochlorous acid solution is easily prepared and very inexpensive, and in strength contains about 0.5% to 0.6% of hypochlorous acid or sodium hypochlorite. This is a powerful antiseptic and may be used in strength sufficient to kill most bacteria, without doing harm to the tissues. Carrel has, at times, varied the technic of his treatment and in his hands it has been most efficacious. However, the treatment requires considerable attention; but it bids fair to be the most successful therapeutic measure in the treatment of infected wounds. The wound is opened up to its depth. All foreign bodies and loose pieces of bone are removed. Numerous small drainage tubes are passed into all parts of the wound, and around them gauze is lightly packed. These tubes are connected above to a bottle or irrigator containing the solution, which is allowed to run frequently through these tubes into the depth of the wound, insuring a continuously fresh supply of the antiseptic. I might also say that the solution thus carried into the wound facilitates drainage. After the institution of this treatment, it is usual to find a great daily reduction in the bacterial count; and when the bacterial count is sufficiently low, and cultures are free of pathogenic organisms, the wound is safely sutured.

Dr. Carrel is using a modification of the original Dakin formula, which is made in the following manner:

To make 10 liters of the solution he weighs exactly 200 gm. of chlorinated lime (with 25% active chlorine by test); 100 gm. anhydrous sodium carbonate and 80 gm. bicarbonate. The 200 gm. chlorinated lime are placed in a 12-liter jar with 5 litres of ordinary water, shaking the whole thoroughly two or three times and setting it aside over night. In another jar the sodium carbonate and bicarbonate are dissolved cold in 5 other liters of water, and then the contents of this jar are

poured at one gush into the jar containing the maceration of chlorinated lime. The whole is vigorously agitated for one minute and then set aside for the carbonate to settle. After half an hour, the clear liquid is siphoned off and filtered through two layers of paper. The liquid fluid thus obtained is then ready for use. It is kept in a cool place, sheltered from the light. It should contain from 0.45 to 5% sodium hypochlorite, with small amounts of neutral sodium salts. The solution is isotonic to the blood serum. The boric acid of Dakin's original solution has been dropped.

How shall we eventually effect the sterilization of wounds, or prevent their infection, has yet to be determined. Certainly, it rests, in great part, with the bacteriologists—whether it be by immunizing with vaccins, as we do in tetanus or typhoid, or by some other physiological process.

Salt tablets and packs placed in the cavity of wounds, at the front, seem greatly to inhibit the bacterial growth, and the salt thus used, being slowly dissolved, has a more lasting effect, which is of great importance in that the wounds may not be dressed for several days during transportation to the base hospital.

I found wounds treated by Wright's method to be always in better condition upon arrival at the base than those treated by any other method.

I wish to say here a word about the too frequent dressing of wounds after granulation has become established and the temperature normal. It has been my experience that whenever these dressings were changed the traumatism inflicted produced only bad results, inasmuch as there was usually a rise in temperature. So long as the dressings remained undisturbed, even though saturated with pus, the temperature ran its normal course; so I made it a rule in my work to change the superficial dressings when it became necessary, but the gauze in immediate contact with the granulating surface was left undisturbed.

Much has been written regarding the use of antiseptic paste as a first-aid treatment of wounds. It was advocated and used early in the war. It is true that its use probably prevents contamination from without, but it does not sterilize the depths of

the wound. It is unscientific from the surgical standpoint in that it transgresses one of the most vital rules of surgery—that of the drainage of wounds.

In septic wounds, recovery was common without symptoms more severe than should be anticipated from the traumatism present; but in certain other cases pathological complications developed, such as gas gangrene, septicemia, etc., without adequate traumatic cause; and in other wounds healing was unduly delayed, sinuses persisted, and often the patient would drift into an asthenic state or a prolonged convalescence, this indicating the invasion of bacteria through a break in the defensive mechanism of the body, or perhaps to the lowering of the powers of resistance through the absorption of the products of putrefaction or toxins.

Treatment of Gun-Shot Fractures.

About 20% of the cases received at the base hospital were gun-shot fractures of the leg, many of which were a most severe type, presenting great destruction of soft parts and bone, with a degree of sepsis endangering both life and limb. These cases were, as a rule, most difficult to handle and often taxed the resources of the surgeon to the utmost, as it was necessary to secure immobilization because of the great pain caused by the slightest movement; and at the same time to maintain continued extension with all the joints in a position of semiflexion, with provision made for frequent dressings, or the adoption of continuous irrigation. This was accomplished by means of an elevated wooden trough splint, the trough of which was made in sectional panels, which could be removed in whole or in part for the purpose of dressing. I also found the sling splint, made of a heavy wire frame, to be of great service, as it was essential that the apparatus be sufficiently simple to permit dressings being made by nurses—the assistant surgeons usually had very little time to make such dressing.

As in all septic wounds, these cases demanded free opening, that they might be efficiently drained. Longitudinal incisions in the leg for drainage often proved failures, because the tension of muscles and fascia tended to close the incision; so that in such cases transverse incision was usually necessary, as the muscular retraction leaves a wound whose lips gape widely. Good

drainage, and that in the most dependent position, is certainly the most important factor in the treatment of all these wounds.

Mechanical fixation by wires and plates in compound fractures is very advantageous, as union is more certain when shattered pieces are held together, and the immobilization is more perfect. This should be the rule, providing the general condition of the patient and the condition of the wound will permit such treatment. Contrary to the generally conceded rule that the wiring and plating of bones in septic wounds is very dangerous, owing to the possibility of generalized infection, I found that patients so treated suffered no ill-effects and had better functional and anatomical results, with a shorter convalescence, than those more conservatively treated. The danger to the patient in mechanical fixation of infected fractured bones certainly has not been substantiated in my experience, nor have I ever had cause to regret its use.

Approximately one-half of the work at the base hospitals consists of removing from bones sequestra and foreign bodies, which are responsible for persistent discharging sinuses. The treatment of chronic bone suppurations was often a difficult question. In spite of all that one might do, sinuses seemed to persist. In more than one hundred cases I used Beck's Bismuth Paste, with a percentage of cures less than 2%. There seemed to be no form of treatment other than radical surgery, which would suffice to cure this persistent suppuration. Many of these cases, when opened, would present large bone cavities, filled with necrosed and granulating tissue, with numerous sequestra. Simple curettage of sinuses and cavities, without complete removal of the walls, were, as a rule, fruitless, so far as closure was concerned. The only satisfactory treatment consisted in the complete removal of the walls and scar tissue, and in filling in the bone cavity (which is made as shallow as possible by cutting down the walls) with flaps of muscular tissue, sutured in place. I repeatedly tried complete closure of these wounds after such treatment, and with disinfection of the tissues with iodine and other antiseptics; but in every case such alarming symptoms developed in regard to pain and high temperature, within twenty-four hours, that I was always compelled to reopen and use drainage.

Infected wounds in soft tissues may be completely excised and sutured, but when bony tissue is involved this procedure seems impossible.

Another part in bone surgery which was forced most emphatically upon my attention was the recrudescence of local infection in completely healed wounds. In numerous cases, after a surgical intervention, even though the incision were placed far from the original wound, the old scars would break down and suppurate freely. This occurs even in compound fractures and fractures involving joints, after passive motion or some slight traumatism. I have seen the temperature rise to 105 degrees by the patient simply bumping his leg against the bed, and in two days drop to normal, only to repeat the above upon slight traumatism. Such cases always demand free incision and drainage. The case referred to had been completely cicatrized for more than three months, and upon opening, a large bone cavity was found filled with necrosed tissue. This recrudescence of local sepsis was, perhaps, our one greatest hindrance in the correction of deformities, and I early made it a rule never to do any plastic operation or make bone grafts for ununited fractures until the wound had been healed for at least three months. Later, I extended this time to six months.

Extraction of Foreign Bodies.

The localization and extraction of foreign bodies is forced into prominence in military surgery. The use of the X-ray in this field is as indispensable as it is in the treatment of fractures. Foreign bodies of metallic nature being so accurately located that their extraction proved, in most cases, to be the least difficult part of my work. It has always been a question—and one very much discussed—as to the indications for removing a foreign body from a healed wound which is apparently causing no damage. It is always indicated in infected wounds, or sinuses, which often heal very kindly after extraction; but when a wound has completely cicatrized, and the location of the foreign body not such as to produce symptoms, it may remain with immunity. However, the mental condition of the patient frequently is such that the surgeon is compelled to remove perfectly harmless pieces of shell or rifle ball.

“A man in the trenches can never understand that a piece of shell in his leg is anything but an unmixed evil. He ponders, he worries, and ultimately it becomes a source of irritation to him. It may cause him real pain, or it may be imaginary, or assumed; but, in any case, it interferes with the proper discharge of his duties.”

Frequently wounds, completely cicatrized, become inflamed, cause pain and produce a rise in temperature for a few days, then subside, until some active exercise again produces trouble. In such cases I always opened up the old scar and would often find a foreign body, such as a piece of clothing, not shown by the X-rays. If I failed to find anything I simply drained and used hot fomentations and usually was rewarded with the discharge of some foreign material.

Acute Gas Gangrene.

Acute emphysematous gangrene is one of the most important incidents among the wounded. Early in the war its presence was an indication for immediate amputation high above the infected area. In these amputations the mortality was extremely high. A more conservative treatment—and I think one which is very much better—is the use of peroxid of hydrogen, with which the tissues are infiltrated above the lesion. Our technic was the making of many small incisions, about three inches above the line of advancing gangrene, through which a pair of artery forceps were thrust and widely opened, separating the subcutaneous tissue and muscular planes. Through these openings the nozzle of a large syringe was introduced and neutral hydrogen peroxid (10 vols.) at body temperature was forced into the tissues under pressure and massage. This was repeated all around the limb, forming a complete belt of oxygen above the gangrene. The wound was then explored, removing all foreign bodies and necrosed tissue, cleansed with hydrogen peroxid, and the limb was dressed with dry gauze and cotton. The shock, after this procedure, is usually marked and morphin should be freely used. The oxygen which is evolved from the peroxid greatly distends the limb, but usually there is an arrest of the infection.

Tetanus.

Tetanus was very prevalent early in the war, but at the present time it is rather uncommon. This is due to the fact that

all wounded men are immediately given a prophylactic dose of tetanus antitoxin. The man is marked with the letter "T" upon his chest, which indicates that he has received this treatment. If, however, there exists any doubt about him having had this treatment, for fear of antiphylaxis, he is given only a half dose. The prophylactic use of antitetanic serum has certainly saved thousands of lives, and it alone is responsible for the greatly diminished number of tetanus cases now seen in the hospitals. This is but another example of that most useful and important branch of our profession—preventative medicine—which has practically eliminated typhoid and has, perhaps, saved more lives than the whole science of war will destroy.

Injuries To the Nervous System.

Gun-shot wounds of the head were greatly reduced (probably as much as 50%) by the use of a steel helmet which was adopted by the French early in 1915; but, in spite of this, wounds of the head were quite common, due to the fact that in the trenches the head is, perhaps, the most exposed portion of the body. The treatment of skull wounds would really demand a paper of itself, but time forbids that I give more than a glance at this important subject. It is exceedingly difficult to differentiate between scalp and skull wounds, and many cases having the external appearance of simple scalp wounds proved later to be associated with deep wounds of the skull and brain. It is important that all such cases be carefully explored and the slightest indication of intra-cranial pressure demands the making of a large osteoplastic flap of the skull for the purpose of cerebral examination and drainage. The importance of a large opening I cannot too greatly emphasize. Chronic and acute suppurative diseases of the middle ear are prevalent, and more than one-half of the men sent in to the base hospitals suffer from ruptured eardrums, due to the bursting of the large shells. These cases are usually infected, and not a few of them develop brain abscesses as a complication.

Injuries to nerves were relatively common. Both complete division of nerve trunks and inhibition of function, due to contraction of scar tissue, were frequently met. On two occasions I did nerve suture, where all the branches of the brachial plexus

had been severed. Nerve injuries were most common in the upper extremity. The median and ulnar were very prevalent. Contraction of scar tissue about the nerves, producing paralysis, was very amenable to treatment. A few days after operation the paralysis would begin to disappear. The operation consisted simply of freeing the nerve of scar tissue and changing its bed by burying it in an adjacent muscle to prevent further formation of scar tissue. In the surgery of nerves I frequently found it difficult to discriminate between healthy nerve and scar tissue; but found that by injecting the nerve with saline solution and ballooning it, as it were, the presence of bands of scar tissue could be readily determined. This proved most helpful in making sections of nerve ends for suture.

In this paper I will not take up the subject of gunshot wounds of the abdomen, but it will suffice to say that if the condition of the patient will permit and the operative facilities are adequate, the abdomen should always be explored.

Many of the cases that are sent to the base hospitals come there with a diagnosis of "general fatigue and tachycardia." These are sent in by the hundreds, and in many instances absolute rest in bed and digitalis failed to cause abatement of the symptoms. These men could stand no exertion, and even at rest the heart action was very rapid. I observed a number of which who had remained in hospitals for months, during which time they developed a gradual enlargement of the thyroid gland. In quite a few of these cases they were relieved only after I had ligated one or more thyroidal vessels or removed a lobe of the thyroid gland. These cases, I believe, indicated the derangements of the ductless glands due to emotions.

Certainly, after this war, Europe will be full of deformed men. What the result will be of such shocks to the nervous system is hard to determine and sometimes we are almost afraid to think. The great bulk of the work, after all, is falling upon our profession, and will continue to do so in this great struggle, in which are arrayed man against man on the one hand, and surgical science against death, mutilation and disease on the other.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

DIAGNOSIS OF "THREE-DAYS FEVER."*

By DR. GEORGE C. SHATTUCK, Boston, Mass.

This paper is based on clinical observations made at the Paget Hospital, near Skoplje, Serbia, in the months of June and July, 1915. During these months the epidemic of typhus which had prevailed then was coming to a close, and mild or atypical typhus, therefore, were to be expected.

Diagnosis in such cases is most difficult, nor do I see how it can be made with certainty in the absence of a reasonably characteristic eruption. At the beginning of the recent European epidemic of typhus, German physicians working in prison camps met with a large number of cases of illness resembling influenza. Their experience has important bearing in the subject of diagnosis. Wiener observed that 10 to 14 days before the development of typhus in many individuals there was headache, malaise, nasal catarrh, cough, and sometimes angina, which disappeared in from 3 to 5 days. There being no reason to believe that the prodromal symptoms of typhus appear so long in advance and disappear again before the true onset of the disease, the conclusion seems inevitable that some other infection preceded that of typhus in those cases.

This infection may have been influenza.

Siebert's experience was different. He observed at first mild influenza-like illnesses, followed by other cases of definite typhus which became more and more severe. He had the impression that among the early influenza-like cases, there were some of abortive typhus, and that similar cases occurred also later in the epidemic. He thinks that mild cases of typhus *without a rash* may run a course suggesting influenza.

These writers saw "influenza-like" illness, either preceding the development of typhus in cases of individuals, or appearing before the epidemic, or among the earliest cases of recogniz-

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

able typhus, but there is no satisfactory method of differentiating mild or abortive typhus from influenza.

If this difficulty exists at the beginning of an epidemic it is likely to recur at the end, when mild and atypical forms of typhus are again to be looked for. Conjunctival injection and other symptoms and signs common in influenza are common also in mild typhus.

The leucocytosis of typhus is often lacking, and probably most unreliable for diagnosis in mild cases.

Another fact of importance is that toward the close of the typhus epidemic several of our patients with typhus had severe bronchitis with purulent sputum in which influenza-like bacilli were stained.

At the same time there developed among the orderlies and others about the hospital many cases of fever lasting three days, more or less, and characterized by conjunctival injection, catarrh, reddening and slight swelling of the tonsils, frontal headache, drowsiness, loss of appetite, malaise with more or less pain and absence of eruption.

Most of the persons in question were immune to typhus, having had it a few months before. Therefore, if the early history of the epidemic and the sputum findings in some of our cases be regarded as evidence that influenza was about, the conclusion follows that the transient fever was due to influenza in a mild form.

But some cases otherwise similar showed a slight rash which faded without becoming petechial, and this group of cases was regarded as representing abortive typhus, so that it is altogether probable that some of these cases may have been abortive without a rash if typhus can occur without a rash.

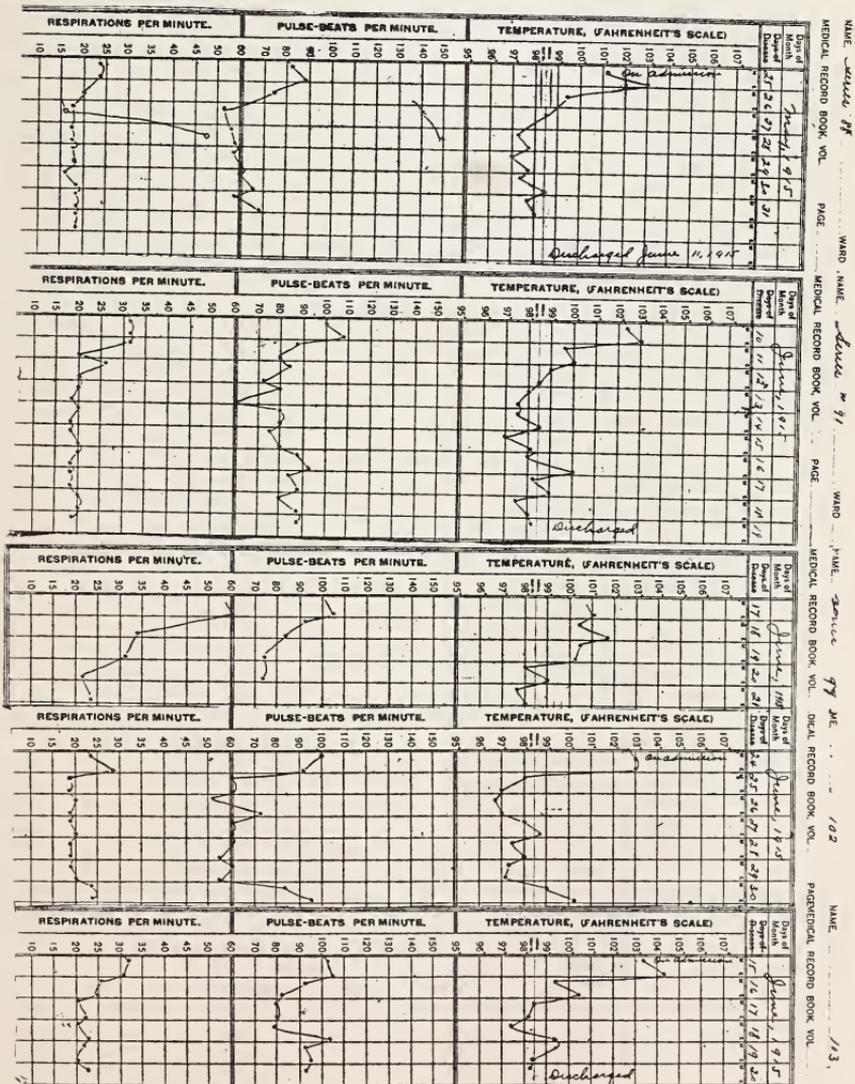
At about this time Dr. Castellani visited the Paget Hospital and said that he believed he had seen many cases of pappataci fever in the town where he worked at another hospital and was running a dispensary.

The question at once arose whether the influenza-like cases in persons immune to typhus might really be cases of pappataci fever.

This view was subsequently strengthened in my mind by several cases of fever among members of our Sanitary Com-

mission, in which the symptoms were strikingly alike and in which no eruption occurred.

From recent literature on the subject of pappataci or sand-fly fever, it appears that the duration of the fever varies from 1 to 5, and perhaps to 7 days; that there is usually a leucopenia with decrease of the polymorphonuclear cells, and that the pulse rate seldom exceeds 80, even with temperatures of 103°. Unfortunately, no white-counts or differential counts were made in the cases which I saw. If the pulse was slow in any of them the fact was not observed, and in the charts of illustrative cases appended the pulse followed the temperature.



The onset of pappataci fever, according to Birt, is sudden, with chilliness, nausea, headache, heaviness and discomfort about the eyes, lumbar pain and stiffness of the muscles of the legs, and somnolence. On the next day there is fever of 101 to 102°. The face is flushed, the conjunctivæ injected, the tongue coated, and there is stiffness and pain in the back and calves of the legs, but no rash. The patient complains of frontal headache and is mentally depressed. The leucopenia is slight. The average white count in 35 of Birt's cases was 5,428, and the differential counts generally showed about 56% of polymorphonuclear cells.

Taylor and Kahn emphasize the fact that pappataci patients complain of pain, but that in malaria the complaint is of fever. They found the fauces injected and the soft palate red.

The diagnosis of pappataci depends on presence of the usual signs and symptoms, the existence of other cases, the occurrence in summer in a region where the sand-fly is found, and the exclusion of other diseases by examination of blood-films, negative serum reactions and sterile blood cultures.

My data is insufficient for a positive diagnosis, but the fact that Doerr and others have studied epidemics of pappataci fever among soldiers in Bosnia and Herzegovina, points to the conclusion that it probably exists also in Serbia.

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Series No. 88. Patient of Writer.

Diagnosis. Abortive Typhus (?).

Clinical Notes:

May 26: Sick 2 days. Complains of pain in temple, thighs and back.

Physical Examination: Rather drowsy, but mentally clear and alert when aroused. Pupils equal and of moderate size. Conjunctivæ moderately injected. Tongue: thin white coat. Throat: soft palate, pillars of fauces and pharynx red. No spots on the mucous membranes.

Heart negative. Pulse of good quality. Blood pressure 90S-60D. Hemoglobin 80%.

Lungs and Abdomen negative. Splenic dulness not increased. Spleen not felt.

Knee jerks present. No stiffness of neck or legs. Thigh muscles slightly sensitive on firm pressure.

Skin: Face covered with a red flush which extends two-thirds of the way down the neck and in front covers a V-shaped area extending onto the sternum. Ears very red. A slight flush extends over the lower part of the neck to shoulders and over the clavicles to the second ribs where it gives place to rose-colored macules.

On sides of chest, flanks and abdomen are a few bright red, clearly defined spots the size of a pin head and a few purplish spots of about the same size which do not disappear on pressure.

On the inner aspects of the arms and of the flanks the *taches bleuatres* are numerous. In the center of some of these is a bright red circumscribed spot like those already described on the sides of the chest and flanks. These spots are believed to have been caused by bites.

On the hips and on the backs of the hands are a considerable number of maculo-papules some of which are capped by a small vesicle. The nature of these spots is uncertain. They resemble acne more than anything else.

June 2. On the day after entrance the temperature dropped to normal. On the same day a rash consisting of groups of very small, irregular papules was found on the flanks and sides in the morning. In the afternoon it had nearly disappeared and in the evening there was no sign of it. Patient's condition today is excellent.

June 11. With the exception of a rise of temperature to 99 degrees on one day, there has been no fever since the temperature dropped. Patient to be discharged to-morrow.

Series No. 91.

Entered June 10. Abortive typhus?

Clinical Notes: June 10. Had been ill for three days and complained of pain in the forehead and arms. Age 27.

Physical Examination—Skin: Cheeks to temples much flushed, ears red, nose slightly so. Forehead and chin pale. Face not tanned. Complexion light. On shoulders, front and back, and on upper chest rose-pink macules and a very few maculo-papules which disappear on pressure. Few on upper arms. Lower arms, sides of chest, and abdomen show no spots of this kind. Few spots on chest and abdomen due to bites. On the legs are many excoriated papules. No characteristic spots. Feet: few spots of doubtful nature. Lower back the same. Pupils equal and react to light. Conjunctivæ not injected. Teeth good. Tongue clean. Throat red.

Heart action regular. Second sounds accentuated. Aortic louder than pulmonic. First sound clear. Pulse of good volume and

tension. Heart dullness normal. Blood-pressure 125S-60D. Hemoglobin 95%.

Lungs: few musical rales.

Abdomen: full and soft; tympanitic.

Liver not felt. **Spleen** not felt. Splenic dullness not increased. No stiffness or sensitiveness of neck or legs. Knee jerks present.

June 12 Patient ate a large quantity of cherries yesterday, but is none the worse. Spots fading rapidly and no new ones coming. Temperature almost normal.

Series No. 97. Patient of Dr. Smith.

Diagnosis: Pappataci Fever (?).

Clinical Notes: **June 17** patient entered. Age 22. Complaining of pain in head and neck and said he had been sick one day.

Physical Examination. June 18. Face including forehead flushed as in typhus. Conjunctivæ markedly injected. Tongue coated. No eruption. Examination otherwise negative.

Diagnosis: Typhus (?).

June 22. Flush slight. Conjunctivæ still slightly injected.

Diagnosis: Influenza?

Series No. 102.

Diagnosis: Pappataci Fever (?).

Clinical Notes: Admitted June 24. Age 30.

Present Illness: Sick for three days before admission. Complains of headache.

Physical Examination: Face flushed. Conjunctivæ injected. Tongue clean. Examination otherwise negative. Spleen not felt. Neck not stiff. Legs slightly so.

Series No. 103.

Diagnosis: Pappataci Fever (?).

Clinical Notes: Entered June 15. Age 27.

Present Illness. Ill for one day.

Physical Examination: Conjunctivæ slightly injected. Abdomen somewhat distended. Legs slightly stiff. Otherwise negative.

THE EPIDEMIC OF DENGUE IN PORTO RICO; 1915.*

By DR. W. W. KING,

Surgeon, United States Public Health Service, Member, Institute of Tropical Medicine and Hygiene of Porto Rico.

(From the Institute of Tropical Medicine and Hygiene of Porto Rico.)

I am inclined to give the following account of the recent outbreak of dengue in Porto Rico not only for whatever medical interest there may be in the subject, but also because of the erroneous articles which appeared in the press of the United

*Read by title at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

States as to the nature and the extent of the epidemic, crediting dengue, a disease very exceptionally fatal, with 80% mortality and making other equally absurd statements, sometimes apparently backed by the authority of members of the medical profession. It is charitable to believe that they were misquoted.

There has been some discussion among physicians in Porto Rico whether the disease in this instance was a recent importation or of local origin, and in this connection it is interesting to note that Bermuda and Havana reported epidemics of the same disease about the same time. From the nature and circumstances of the communication with these places and the previous presence of the disease in San Juan, Porto Rico, it hardly seems probable that it was imported, but far more likely to have started locally. Dengue is apparently endemic in Porto Rico and has at times assumed more or less epidemic prevalence without having much attention paid to it. This time it attracted widespread notice not only in Porto Rico but in the United States and foreign countries, due to its having been miscalled and persistently reported as yellow fever by the surgeon of the army post, and due to the number and prominence of some of its victims. Various lines of business narrowly escaped serious harm, foreign governments threatened quarantine against Porto Rico and in one instance did require precautionary measures to be taken.

That dengue is endemic in Porto Rico seems evident, although certain years few or no cases may be seen. No records or statistics are available, as it has not been a reportable disease until recently, and then only a small percentage of the cases have been reported. However, prominent physicians have told me that they have been accustomed to see dengue cases from time to time, and my experience is in accord with their statements. During a tour of duty in Porto Rico from 1900 to 1906, I occasionally saw such cases, and distinctly remember that at one time they were unusually prevalent in San Juan. Since returning to Porto Rico in 1913 I have treated several cases and have known of others occurring in the practice of my professional friends. Personally, I suffered a severe attack in May, 1915; yet there was no undue prevalence of the disease in San Juan at that time nor up to the time of my temporary departure at

the end of August, 1915. Returning in October, I learned of an unusual number of fever cases in San Juan; that certain of them had been reported as yellow fever, and that this had been officially denied by the Board of Health, which had stated that the so-called yellow fever cases were various diseases, including dengue.

Yellow fever had not been reported in Porto Rico during the seventeen years of the American occupation and, if it had appeared, it was important to me, as chief quarantine officer of Porto Rico, to know it at once and to determine, if possible, how it had entered the island. Furthermore, I was requested by the Governor of Porto Rico to make an independent investigation of the situation for him. Under these circumstances, I endeavored to make as thorough inquiry as time and circumstances permitted. Thanks to the kindness of several physicians, I had exceptional opportunities of seeing or getting notes on a varied assortment of cases of fever in addition to those that came under my personal care. Fevers due to malaria, gastro-enteritis, typhoid, etc., did not seem to be more common than normally, but it was soon clear that we were dealing with epidemic dengue, as evidenced by the frequent occurrence of typical and atypical cases, not infrequently reported under various diagnosis, such as yellow fever, three-day fever, seven-day fever, pappataci fever, malaria, gastric fever, biliary fever, etc. Surgeon General Gorgas, United States Army; Assistant Surgeon General Carter, United States Public Health Service, and Dr. Mario Lebrado of Havana confirmed my report of failure to find yellow fever, and they did find dengue. Pappataci fever has never been reported in Porto Rico, and the analysis of cases reported as such during this epidemic did not bear out diagnosis. Some of them did show a three-day fever, as dengue sometimes does, but others ran a longer pyrexia and did not differ in any important detail from others outside this particular clientele. The chief differential point in the diagnosis of pappataci fever in these cases was slow pulse, which is a frequent symptom in dengue also. The diagnosis of dengue was based upon the following principal symptoms: Rapid onset; febrile paroxysm lasting from five to seven days, accompanied by characteristic pains, leucopenia, lymphocytosis, and followed by the rash;

absence of jaundice, albuminuria, and important respiratory and digestive symptoms. A discussion of the types of the disease and its clinical aspects as I saw them are reported in a separate paper, "Clinical Types of Dengue in the Porto Rico Epidemic of 1915."

Judging from the information which I was able to obtain, the outbreak began about the middle of September, 1915, and rapidly attacked a considerable percentage of the inhabitants of San Juan and its suburbs, Puerta de Tierra and Santurce. The disease spread to the towns of Rio Piedras, a few miles inland, Cataño, across the bay, both in intimate communication with San Juan, but the number of cases in each was proportionately much less than in San Juan. Information in regard to other localities on the island was very inadequate and inaccurate. From some towns some increase in fever cases was reported, shown by the microscope to be malarial. From one other, I received the very suggestive statement of the existence of malarial cases in which the malarial organism could not be found but that quinin caused disappearance of the fever in a few days. Of special significance was the statement that the *quinin often caused a rash*. These cases were probably dengue. In some communities, certain physicians with knowledge of the outbreak in San Juan kept sharp lookout for the disease and have assured me that there were no cases in their localities. Rural dwellers apparently escaped except when they contracted the disease in the city. It may be said from what data were obtainable that the disease in epidemic form was confined practically to San Juan.

The topography, etc., of San Juan may be of interest. The city proper lies at the western end of a rocky island approximately three by one-half miles. It is compactly built, with very few open spaces except streets, and with little vegetation. Houses are built Spanish style in solid blocks, with interior courtyards stone or cement paved. There is excellent natural drainage and good sewerage. Streets are well paved with brick or asphalt, and well kept. This portion of the city, about one mile in length, has the ocean on the north, the bay to the west and south. To the eastward runs the main highway leading to the mainland.

About one-quarter of a mile along this highway, still on the small island, begins the suburb, Puerta de Tierra. It is an ex-

tensive collection of small separate houses occupying a narrow strip of about one mile of low land between the road and the bay. It is inhabited chiefly by working people. Approximately one-half mile further eastward, across mangrove swamps and a channel connecting the ocean and bay, begins the suburb of Santurce, a residence district of all classes according to the section. It occupies a broad sandy ridge well elevated and well drained in the central part but with other portions low and poorly drained. It is roughly about three miles long by one mile wide. Houses are usually surrounded by yards with abundant vegetation of different kinds. The estimated population of these three divisions of San Juan is 20,542, 10,836 and 17,338, respectively.

Starting about the middle of September, 1915, the number of cases increased rapidly, reaching the maximum about the latter part of October. A diminution was perceptible in November but it declined rather slowly until February by which time it may be considered that the epidemic prevalence had terminated. I attended a patient with dengue late in March and sporadic cases will undoubtedly occur from time to time. Estimates of the total number of cases vary exceedingly. Evidently it ran well into the hundreds or possibly thousands if allowance is made for the numerous mild and evanescent cases. Many such occurred often unattended by any physician and are only explainable by considering them a light or abortive type of the prevailing disease. I was frequently told of such attacks, too indefinite for accurate diagnosis but suggestive of dengue, experienced by my informant or occurring in the family or among friends. Typical dengue was common enough in all forms from mild to severe. I saw several patients who appeared dangerously ill, so much so that their attending physicians were much concerned as to the outcome but all of them made good recoveries and I have been unable to learn of any death attributable to dengue directly or indirectly. The Director of Sanitation of Porto Rico informed me that the epidemic had no perceptible effect upon the death rate.

Several factors usually of epidemiological importance apparently played a very minor role if any in this epidemic. The topography and physical characteristics although differing materially in the different parts of the city did not seem to have

any influence. What effect these conditions may have upon mosquitoes theoretically there was none practically because mosquitoes were plentiful in all sections, and in all, the disease was present in more or less the same degree, nor could I learn that it started in any particular part. Admitting the possibility of early cases being overlooked, the earliest ones of which I could get information occurred about the same time and were well distributed in the three divisions of the city.

No sudden or unusual influx of non-immunes into an endemic area had taken place. Neither did the disease show preference for the newly arrived, rather the contrary as all but a small percentage of the patients were native born or residents since considerable time. I did see patients who had been in San Juan only two or three weeks but these cases were quite exceptional.

Weather conditions previous to and during the epidemic were somewhat abnormal. Many expressions of complaint were heard about the unusually warm weather. Official records show an average temperature slightly above normal, more noticeable on account of exceptionally light and variable winds until December when a period of high winds and cooler weather began. Rainfall was only one-third to one-half of the normal before and during the increase of the epidemic and somewhat in excess during the decline. General humidity showed practically no variation.

Culex and *aedes* are the common mosquitoes in San Juan and are constantly present in greater or less number. That the number was greater at the time of the epidemic was generally remarked by both physician and layman. During December, anti-mosquito measures were put into effect, and whether due to them or to natural causes or to both, it is certain that, during the decline of the epidemic and since, there has been a diminution in the number of mosquitoes. In view of the general acceptance of the mosquito transmission of dengue, this superabundance of them is the only epidemiological factor of sufficient importance to explain the outbreak, and the facts seem in accordance with the rule observed in yellow fever by American and French physicians, that epidemics may occur in endemic areas when, in the presence of sufficient non-immune population and other favorable conditions, the number of mosquitoes exceeds a certain

proportion to the number of sources of infection, and will cease when this proportion diminishes below a certain point, even without the total extinction of the mosquitoes.

Another fact in conformity with mosquito transmission was the occurrence of secondary cases in the same house. In two instances, in which I was able to fix the time of the appearance of these secondary cases, it was 13 and 14 days, respectively, from the beginning of the first case to the beginning of the second. In other families several members were stricken about the same date, or within 2 or 3 days, as if bitten by the same mosquito.

The disease did not respect social grade or nationality. It attacked persons of the highest class living under the best hygienic conditions (except for the presence of mosquitoes) as well as those of the poorest and most unhygienic. Porto Ricans were attacked equally with Americans, English, Spanish and others. No preference was shown for either sex.

An exceptional feature of this epidemic was the rarity of cases in elderly persons in contradistinction to the statement of Reboul that "age, sex, race, social conditions, have no influence on the production of dengue." Comparatively few cases were seen in persons over fifty years of age and, in those coming within my knowledge, the maximum age was sixty-four. On the other hand, there was a decided preference shown for youth and childhood, even infancy, and the number of victims within the first decade of life seemed to indicate that it was the most susceptible period. The youngest patient whom I saw was a baby of thirteen months who developed a most typical rash. This scarcity in persons of more advanced years can hardly be attributed to immunity conferred by previous attack because the disease has not seemingly been sufficiently prevalent to immunize so many persons. Moreover the question of immunity in dengue has not been determined. Authors are not in agreement as to whether immunity results, and if so, how long it lasts. In this connection it is worthy to mention that the only history of a previous attack which I could obtain was from the patient of sixty-four years, a physician who distinctly remembered suffering with dengue in the United States fifteen years before. I did get a history of previous dengue, or very suspicious symptoms, from

several persons who were more or less exposed by living in the same house with dengue patients during the present epidemic but who did not contract the disease.

I did not personally see a case in a negro or dark mulatto but my opportunities for doing so were somewhat limited. Neither have I been able to hear of any physician reporting a case in members of that race. At the same time, I have been informed by a city physician whose district includes a large negro population that there was an increase of fever among them about the same time that the dengue was epidemic. Gastric symptoms were frequently met with and the cases were called gastritis or some similar diagnosis. After a purge, the fever disappeared in one to three days. It is probable that some of these were dengue cases.

Considered in its general aspects the epidemic was a typical one in its onset, course and duration. The cases were more numerous, I believe, than was realized even by physicians, and showed great diversity in their individual minor features but with the exception of a comparatively small number, the general clinical picture left no doubt as to the diagnosis. All types of dengue were represented.

The importance of the disease notwithstanding its almost absent mortality, will surely be appreciated by anyone who has suffered a well marked attack or who has seen many cases during an epidemic. The rapidity with which it may attack communities, ship crews, armies, etc., with the result of incapacitating large numbers of persons, often for considerable time, gives it an economic phase lacking in many diseases to which more attention is given. Furthermore the resemblance between dengue and yellow fever during the first days of the attack makes dengue specially important to quarantine and sanitary officers and physicians generally, where both diseases may occur. Early differentiation is a prime necessity if harm to the community and individual is to be avoided. The two diseases have been confused more than once, and more or less disastrous consequences may follow a mistake in either direction even when promptly rectified. The difficulty is immensely increased when the two occur simultaneously as has happened.

THE CLINICAL TYPES OF DENGUE IN THE PORTO RICO EPIDEMIC OF 1915.*

By DR. W. W. KING,

Surgeon, United States Public Health Service, Member, Institute of Tropical Medicine and Hygiene of Porto Rico.

(From the Institute of Tropical Medicine and Hygiene of Porto Rico.)

In a separate article, entitled "The Epidemic of Dengue in Porto Rico, 1915," I have given a brief account of the general features of this epidemic, and in the present paper, I wish to discuss the clinical aspects of the disease as I observed it. I was especially interested, from official, professional and personal motives, in making an investigation of it, and thanks to the kindness of my professional brethren, too numerous to mention individually, I had exceptional opportunities for getting data and seeing a wide variety of cases beside those under my personal care. In this way, I was enabled to see dengue patients of both sexes, in all walks of life, and varying in age from thirteen months to sixty-four years. The rarity of the disease in persons of advanced age was a noticeable feature of the epidemic, childhood, seemingly, being the most susceptible period. Among negroes, I did not see a single case but my opportunities were somewhat limited in that direction. I was informed by a city physician in whose district there are many negro residents, that there was an unusual number of fever cases among them at the time of the prevalence of dengue.

I have more or less complete notes on 41 cases but there were many others that came to my knowledge in various ways and from which I often obtained valuable points. These cases comprised only a small proportion of the entire number which ran well into the hundreds, or possibly thousands, but they were so diversified that I believe they well represented the clinical features of the disease.

Like other acute fevers, dengue may vary exceedingly in its clinical manifestations, not only in degree from the mildest to the most severe, even fatal, but also in the exaggeration, or the reverse, or its important symptoms. These variations may all occur and probably do in the course of any extensive epidemic. At the same time, in reading the accounts of dengue as described

*Read by title at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

by different observers in different times and places, it seems that certain symptoms or types of the disease may be more in evidence in some epidemics than in others, with the result that clinical descriptions vary somewhat. It is very evident that the very mild and atypical cases have sometimes been ignored or given scant notice, and a tendency shown to restrict the diagnosis of dengue to cases of a certain type only, and to characterize others by other names. Rogers' seven day fever is regarded by most authorities as a variety or type of dengue, an opinion which my experience in this epidemic leads me to support for the following reasons. It is possible but hardly probable that dengue and seven day fever, as different clinical entities, should both be unusually prevalent at the same time and place. In the cases coming under my observation, some followed more closely the description of dengue as stated by Rogers in "Fevers of the Tropics," others took more the form of his seven day fever, but a sharp line of division could not be drawn because so many presented features of both forms.

As in similar diseases, any attempt to classify a number of dengue cases into various types is found difficult because of the absence of distinctive points to differentiate the types. The interdemiate and mixed forms occur so frequently, partaking in some degree of one type and again of another, that no classification is free from criticism. That given by Castellani and Chalmers, quoting Megaw, is the most satisfactory that I have seen. It is based chiefly upon the course of the temperature, and names four types which well cover the different manifestations of the disease provided due allowance is made for more or less variation within the type. I observed typical and atypical cases of them all.

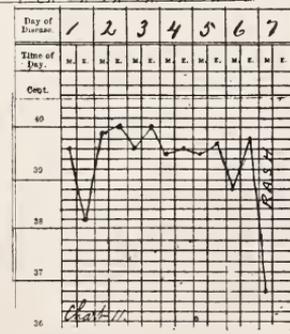
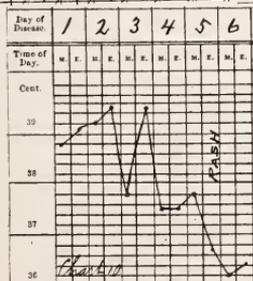
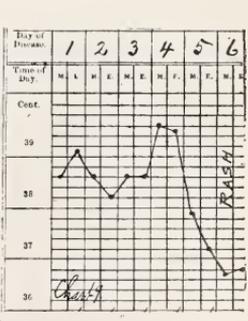
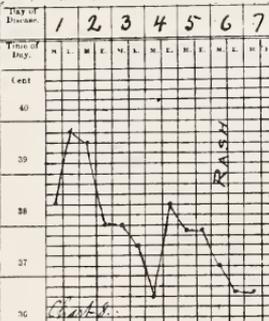
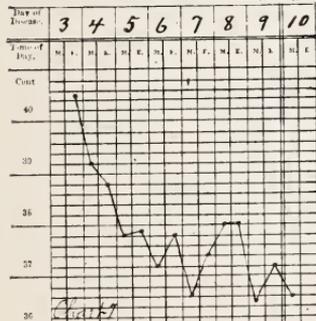
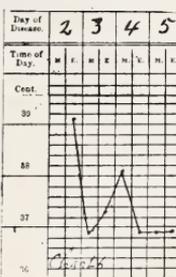
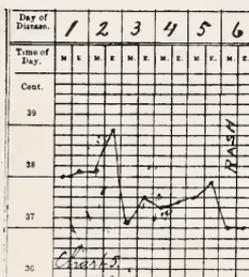
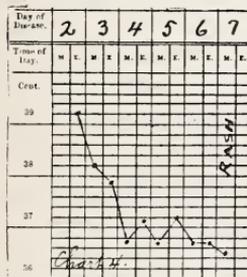
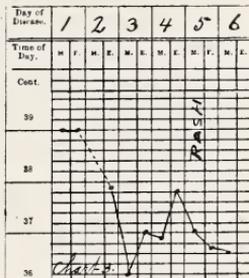
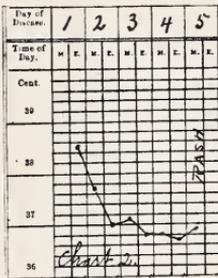
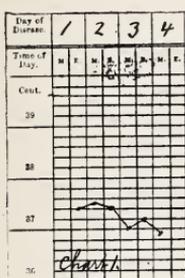
Evanescant type. During this epidemic, there occurred numerous cases of illness which after an onset more or less like that of dengue, experienced in a few hours or one day a rapid amelioration of the symptoms, and complete recovery in a day or two more. The symptoms while suspicious, were in themselves not sufficient for a positive diagnosis of dengue. The following cases affords an excellent illustration of this type.

J. C. Was in his usual good health upon retiring, December 10, but was restless during the night, not sleeping as well as was his custom. Awoke about 6

a. m. feeling feverish and sick, and became progressively worse until about 10 a. m. Skin was hot and dry. Severe headache, especially across the forehead and eyes, accentuated by moving the eyes. Severe aching pains in the limbs, and across the back just above the sacrum. Conjunctivæ injected and watery. Constipated. Anorexia but no nausea. No coryza nor respiratory symptoms except a slight hacking cough at long intervals. About noon there was a very slight chill or chilly sensation followed by sweating. I saw him at 3:30 p. m., by which time the above symptoms had considerably diminished. Skin moist with slight continual perspiration. Temperature 37.7 degrees C. Pulse 84. Blood negative for malarial parasites. Leucocyte count 7900. Urine negative for albumin, positive for bile pigments. A purge was prescribed which gave moderate results by the following morning. He slept well that night and felt well during the following day except that he felt somewhat "knocked out" as he expressed it. Leucocytes 7000. Urine negative for albumin and bile pigments. The attack had practically disappeared in another day and there was no return of symptoms. He was instructed to look carefully for the rash but reported that none appeared.

Cases of this type did not always show such severe and characteristic symptoms, probably the majority did not. It was very common to get a history of slight feverishness lasting one or two days, loss of appetite, malaise, and some aching in the head, back and limbs. I was able to follow closely a patient with such mild symptoms, whose temperature lasted two days without rising above 37.5°C., (Chart 1) but whose leucocytes fell to 2200 with enormous relative increase of small lymphocytes. Careful observation failed to detect a rash. Comparatively few of the patients with this type of dengue felt ill enough to remain in bed even for a day, nor to need the services of a physician. I saw the rash twice in cases of this type, both in children. In one, it appeared on the third day; in the other, on the fifth day although the fever lasted but a day and a half. (Chart 2) From other patients I never obtained a history of its occurrence, and it seems probable that cases of this type rarely present it or, if they do, it may come out but very slightly and perhaps, as in the above case, only after some days have elapsed since the

fever, about the time it would be due had the disease run its full course, i. e. fifth to seventh day. Such late occurrence was also seen in cases of a more severe type in which the temperature dropped to normal after the initial fever and remained so, but the rash did not appear until three days later, after the time



when the secondary rise should have appeared. Unless very well marked, such late appearing rash might scarcely be noticed by the patient, or, if so, would be attributed to other causes, as insect bites, etc. Even were a physician called, he would ordinarily have discharged the patient as recovered, before the appearance of the rash. It seems reasonable to suppose that the causative agent capable of producing, in the particular subject, only short or slight symptoms of fever, pain, etc. and failing entirely to cause some of them, should likewise produce but a weak, indefinite eruption or none at all.

The behavior of the leucocytes in dengue has drawn the attention of various observers, and I am now engaged in making differential counts upon a number of blood smears taken from dengue patients. The counts have not yet been critically studied and will have to be the subject of a future paper. At the present time I can only say that apparently the leucocytes in this type of the disease are subject to the same weakened influence of the causative organism. As a rule the changes were less marked than in the more classical forms. The leucocytes were less reduced, and the variations in the lymphocytes were not so great, but this rule is far from being absolute as shown by the second case above mentioned. When these changes do occur they afford valuable diagnostic aid.

That these cases were true dengue can scarcely be doubted. Aside from their suggestive symptoms, there is the striking fact that they increased and diminished in frequency *pari passu* with cases of the more easily recognized types. Undoubtedly they were a fruitful source of error or omission in diagnoses, in spite of the presence of the epidemic. In sporadic cases, the difficulty is vastly greater, and not a few of them taken individually would be found impossible of diagnosis, but a physician having experience with such cases, should be able to recognize the majority of them after a careful consideration of the symptoms in conjunction with the data supplied by examinations of the blood and the urine.

I have discussed this type at some length because I believe that it has relatively great importance from an epidemiological point of view, and has often been given less attention than it deserves. By analogy we must suppose that cases of this type

may be sources of infection producing more severe attacks in more susceptible persons, and undetected or miscalled may be an important factor in keeping the infection alive in endemic areas.

Interrupted fever type. I found this type much less common than the next, or saddle-back type. Except for the greater fall of temperature after the primary paroxysm, so that the remission becomes an intermission (Chart 3), these two types do not materially differ and might be considered variants of a single double paroxysm type. In either, the remission or intermission may last from a few hours to two or three days, and I have charts showing different levels to which the temperature fell during this period, so graded that it is difficult to say where one type ends and the other begins, neither do other symptoms differentiate them.

Two variations of this interrupted fever were noted:

a—That observed in three severe cases bearing a striking similarity to each other in that there was a relatively mild primary attack of moderate fever, pains and others symptoms, followed by a rather long apyrexial period which in turn was followed by a prolonged and particularly severe second paroxysm with higher fever, more pain, prostration, etc. The intermission lasted two days in one case and three days in the other, during which the patients although feeling "achy" and indisposed, went about their usual occupations. One man went to spend the week end in the country where he engaged in sea bathing and horse back riding, in the belief that he needed exercise to "work off" his ill feeling. In each case an unusually profuse and well marked dengue rash appeared somewhat tardily, eighth or ninth day, and lasted three days or more.*

b. Those cases in which there was the customary primary fever and return to practically normal, but without the secondary rise, or, if it did occur, it was too short and insignificant to be shown on a four-hour temperature chart, or by the feelings of the patient. In other respects they did not differ from typical cases, the symptoms and the course of the attack being similar except that the temperature continued normal. The appear-

*I was unable to secure temperature charts of these cases because the attending physicians had not kept the records.

ance of the rash was hastened by the omission of the secondary fever, but occurred at its proper time just as if the precritical rise had occurred. (Chart 4.)

Saddle-back Type—This was by far the one most commonly seen and may be regarded as the classical type of dengue. It was characterized by initial fever, remission and secondary rise less pronounced in height and duration than the first. The following case is a good example:

K. A. Feb. 12. At 4 a. m., awoke with splitting frontal headache. No definite chill but felt alternately cold and hot. Severe aching pains in the back, arms, and legs. Most pain felt low down toward the sacrum and near the articulations, made worse by pressure or movement. A feeling of tension and soreness in the abdomen, and slight tenderness on pressure. More or less pain in all muscles, even the chest muscles were sore so that deep respiration was painful. No appetite but no nausea. Tongue slightly coated. Constipated. No nasal or respiratory symptoms. Eye balls very painful on movement. Conjunctivæ injected, brilliant, watery and with the faintest detectable yellowish tint. Temperature at noon 38 degrees C. Pulse 78. The clinical picture that of an acute, sthenic fever with excessive pain.

Feb. 13. Fever and pain more marked especially the pain across the eyes, and the abdominal discomfort.

Feb. 14. Temperature nearly normal. Fairly comfortable except for some persistent pain across the eyes, and the abdominal distress.

Feb. 15. Much better. Conjunctivæ clear.

Feb. 16. Some return of discomfort. Chilly sensations. Slight rise of fever.

Feb. 17. Perspired freely during the night. Temperature normal. Feeling comfortable except for weakness and prostration. Faint but definite rash on legs, arms and chest.

There was no further fever but convalescence was rather slow. The temperature and pules curves are shown on the accompanying chart, No. 5.

The blood was negative for malaria. At first examination, 8 hours after onset, the leucocytes numbered 4600 per cmm., and at the second examination, 28 hours later, they were 4400. The leucopenia persisted for weeks after recovery. The lymphocytes were greatly

reduced at first but rapidly increased far above normal.

The urine did not show albuminuria but did show bile pigments on the first and third days with none on the second or later days.

By no means did all cases run so true to type as the one detailed above. More or less variation occurred in the course of fever as well as in the prominence and severity of individual symptoms. The principal differences observed were:

a. Cases in which all the stages were shortened. The primary fever was of short duration, followed by a remission of only some hours or a day and a short moderate precritical rise, whole febrile period lasting only three or four days. (Chart 6.)

b. The opposite to "a," in which all or some of the stages were prolonged, the normal not being finally reached until the seventh to ninth day. (Chart 7.)

c. Those in which the remission was very short, less than one day. In these cases the fever rose again to about the same level that it had attained before, and continued longer, covering the time ordinarily passed in remission, so that the attack was not shortened by the brevity of the intermediate fall. (Chart 8.)

d. Those in which the fever in the second period rose to a higher degree than in the first. In such event, this exaggerated precritical rise was accompanied by a more noticeable return of symptoms than when the rise was slight. In no case were these symptoms comparable to those of the first days. (Chart 9.)

e. Those in which the final return of temperature to normal resembled lysis rather than crisis, two or three days being occupied by the decline. (Chart 10.)

Continued Fever Type—This type of fever without definite remission was decidedly rare. (Chart 11.) To it belonged a severe case in a baby of thirteen months, whom I did not get to see until late in the attack. Unfortunately, the early temperatures were not recorded. The attending physician stated that there had been high and continued fever, much vomiting, rigidity and retraction of the head, leading to the diagnosis at first of meningitis. Crisis took place during the night, and the mother was unable to state whether it was accompanied by

sweating or any critical phenomenon. The patient awoke with normal temperature and broken out from head to foot with the typical mixed form of dengue rash.

Without attempting a detailed description of the disease, I wish to discuss some of the prominent symptoms as observed in this epidemic.

Onset—Prodromata, if present at all, were so slight or indefinite that they may be practically ignored. Onset was sudden. Patients frequently related that after retiring feeling perfectly well, they awoke toward morning with a chill or severe headache. Sometimes the headache and fever developed more gradually, but seldom taking more than a few hours. A definite chill of medium intensity was frequently reported, chilly sensations often repeated during the first day or two were probably more constant. Vertigo was very common, often intense.

Fever—Fever usually rose rapidly, reaching its highest point the evening of the first or during the second day. In 21 cases seen early enough to allow reasonable certainty of observation, the maximum shown on the charts was 38° C. (100.40° F.) or below, in 2 cases; above 38° C., including 39° C. (100.2° F.), in 7 cases; above 39° C., including 40° C. (104° F.), in 11 cases, and above 40° C. in 1 case. During its primary phase it might oscillate somewhat, but soon began to decline, often slowly for a few hours, then more rapidly as by crisis, occasionally in a manner resembling lysis, to the level of remission or intermission, which customarily occurred by the third day, although this time could not be accurately determined because the beginning could seldom be correctly ascertained. Remission as early as the first day must have been rare except in very short cases, while it was not uncommon, apparently, late on the second. In one case, as nearly as the time could be fixed, it was delayed until the fifth day. In another case, the temperature of 40° C. on the second day regularly declined to normal on the sixth day and did not again rise. The remissions maintained a fairly constant level, lasting one, two or three days, most commonly about one and a half to two. Sometimes its duration was only a few hours. The secondary rise was generally about 1°, seldom more than one day in length, and

was ushered in by a slight chill in four of my cases.

Rogers apparently considers that dengue is a "three-day" fever in contradistinction to his "seven-day" fever, and cites a number of observers of dengue epidemics, who held that opinion. At the same time, his references mention an "ephemeral" or "trifling" secondary rise or "relapse," occurring occasionally "from the fourth to the sixth day." It is evident that they attached little importance to this rise, and knowing how "ephemeral" and "trifling" it may be, one cannot avoid the suspicion that it was overlooked or misinterpreted.

Coincident with the initial temperature are the customary febrile phenomena more or less marked, flushed face, injected and watery conjunctivæ with or without photophobia, sometimes tumefaction of the face and puffiness of the eyelids. During the stage of early acute congestion of the face, I noticed on several of the patients a faintest detectable icteroid tint to the complexion and conjunctivæ. It was very elusive and could best be seen by side light, too strong or too weak light, or direct light not being so suitable. It was a very early symptom, disappearing as the fever and intense congestion lessened, and did not return even if the fever rose again considerably. Associated with it was the presence of bile pigments in the urine, a point to be mentioned later.

Pulse—The pulse rate was a variable sign difficult to classify into types because of irregularities in its course, due probably to some of the many factors which may temporarily influence its rate. Passing over minor and inconstant oscillations, it was observed that the pulse rate ran a fairly good parallel to the temperature curve. An abnormally slow pulse during convalescence was not infrequently seen, a fact noted by Cozanet and by Reboul (1), who attribute it to the effect upon the circulation of the "nervous asthenia exceptionally marked which is produced at this period." I was shown one chart recording a pulse under 50 for several days, the lowest count being 43 per minute.

In this connection mention may be made of Rogers' (2) statement and citation of other authors that the pulse of dengue is very rapid and "shows a characteristic difference from

the almost invariably slow pulse of seven-day fever." Reboul (1), referring to the pulse of dengue, states "it is not in accord with the febrile state"; that it "varies between 80 and 120." Castellani and Chalmers (3) give the rate from 90 to 140, and that "it varies directly with the temperature." I found the pulse rate somewhat slower than would be expected with the degree of fever exhibited, the higher rates being more common in children. Of 25 observations of temperature above 39° C. including 40° C., the average pulse was 91; of 69 above 38° including 39°, it was 85, and of 93 above 37° including 38°, it was 79 per minute. Occasionally the increase of pulse rate coincident with the secondary rise of temperature was less in proportion to that with the same degree of primary fever, thus giving a suggestion of Faget's sign. This was noted only where the practical rise was of short duration, and in the case that showed it best yellow fever could be definitely excluded. Where the temperature was sustained longer, the pulse rose correspondingly.

In general, the pulse rate might be divided into:

a. That sustained at an average corresponding to about what might be expected from the degree of fever. I saw this more often in the milder types of the disease, or in children.

b. That which followed a course of relatively slow pulse, seldom above 90 per minute, except that some cases showed a sharp initial more rapid pulse for a few hours. The slow pulse of convalescence may follow after either type.

Pains—Pain is a symptom of such prominence that it has given numerous names to the disease. In the cases under consideration, it was extremely variable in degree from moderate aching to pain of such severity as to require some form of opium. At the same time no case came to my knowledge having such intense paralyzing pain that the patient could not move, instances of which are so frequently cited in the French literature on dengue.

Headache was always present, particularly located in the frontal and temporal regions but sometimes generalized. Painful eyeballs, made worse by movement, was a very common symptom, but less so than headache. Pain in the back and limbs was rarely absent, in one case markedly affecting even the fin-

gers. Patients usually complained of general muscular pain or ache, some being unable to localize it more specifically, others indicating one or more articulations as the location of the most severe pain, but the joints did not seem to be the seat of any inflammation, and often close examination and questioning revealed that the pain was not felt exactly in the articular surfaces but more at the tendinous insertions around the joint. I was struck with the frequency with which the patient located the greatest pain at two special points; in the back low down toward the upper part of the sacrum, and about the junction of the middle and lower thirds of the thigh. The abdomen was frequently the seat of pain or a feeling of tension and soreness, with the greatest intensity about the umbilical or the epigastric regions. Involvement of the intercostal muscles was not uncommon.

The headache at times was the first symptom, but as a rule the fever, headache and general pain began about the same time, and continued more or less together until the remission. The intensity of the pain was not necessarily in relation to the degree of fever except in a very general way. Some patients with high fever did not have nearly as much pain as others with a comparatively low temperature. With the remission of fever, the pains improved, to recur in milder degree with the terminal rise. A lingering of slight pain around the joints or a general feeling of stiffness and muscular discomfort occasionally continued some days or possibly weeks after the fever had returned to normal.

The character of the pain was a sensation of stiffness and soreness rather than inflammatory, an ache in the muscles, constant and annoying, rendering it almost impossible for the patient to find comfort in any position. Movement and pressure increased the pain.

Alimentary Canal—Symptoms referable to the alimentary canal did not play an important rôle in this epidemic. The tongue was always coated white or brownish, sometimes with reddened edges and tip, sometimes resembling "strawberry" tongue. Appetite was always lost. Nausea was frequently absent and vomiting still more rare unless induced by food or medicine. Vomiting was sometimes the first symptom in children. The digestive powers seem greatly diminished, and dis-

comfort occasionally followed the taking of too heavy or injudicious food. Constipation was the rule, at times obstinate, but not infrequently the bowels acted normally, less often moderate diarrhea was encountered. In four cases, all in children, the vomiting of clear fluid containing specks of bright and dark blood was reported to me. I did not see the vomit, but it was accurately observed by the attending physicians. In one patient there was chronically enlarged tonsils, and adenoids were suspected on account of mouth breathing, and in all cases there was high primary fever and congestion of skin and mucous membranes. In every instance, the vomiting of this character occurred during the early stages, and it is believed that the blood came from the congested tonsils or naso-pharynx. Goldberger and McCoy (4), in their report of the Brownsville (Texas) epidemic, 1907, mention three similar cases.

Liver and spleen were never found enlarged.

Respiratory System—Respiratory symptoms were conspicuous by their absence. There was nearly always congestion of the mucosae of nose, mouth and throat, and evidently it extended down into the trachea or beyond. A dry, hacking cough at intervals was fairly common, but was often so slight that it might easily escape notice. It promptly disappeared when the congestion was relieved.

Skin—The skin, dry early in the fever, usually became moist, and more or less perspiration continued during the attack. Crisis was often accompanied by profuse sweating.

An initial rash, definitely marked, was observed twice to my knowledge, but had more cases been seen early enough it might have been noted more frequently. It was scarlatiniform, principally upon the body and face, and lasted one day in one case, four days in the other.

Terminal rash was present in 82% of the twenty-eight patients whom I was able to observe personally at the proper time. The failures were mostly in the milder cases. I was informed of the rash in numerous instances by both physicians and patients, but only too often I was told that it was not looked for even by the physician. This eruption took three forms, (a) an extensive erythema resembling scarlatina but more patchy, (b) resembling measles, and (c) smaller, darker, more sharply-

defined macules, in some instances resembling mosquito bites. Rarely was one type seen without association with one or both of the others, giving quite a characteristic picture. In color, it varied from a brilliancy almost that of scarlet fever to a barely perceptible redness. In one case it was associated with some urticaria to which the patient stated he was subject.

Itching was not uncommon, especially when the eruption was fading, and in several it was quite annoying for a day or two, only after the eruption had been very marked. In distribution, the arms, chest and abdomen were the favorite sites in the order named, but face, neck, thighs and back were frequently invaded. I saw the entire integument, including palms and soles, involved more than once. In degree, it varied from a few scattered macules to such abundance that the finger could hardly be placed anywhere upon the skin without touching the eruption. It was commonly well marked, but when very slight and indefinite it could easily be overlooked. The time of its appearance in the vast majority of cases was immediately following the final return of the temperature to normal after the terminal rise of fever, i. e. fifth to seventh day. In those cases in which I could reasonably well calculate the day, 50% developed the eruption on the sixth, one as early as the third, and another as late as the ninth day. Duration was from a few hours to several days. I heard of, but did not see, one eruption said to have remained two weeks. Generally it had faded in one or two days.

Urine—It was not possible for me to secure accurate data on the total secretion of urine. Patients variously stated that it was normal, or more abundant and light colored, or diminished and dark. In two instances there was almost complete suppression for two or three days of the secondary fever, only a few ounces being passed during each twenty-four hours. Both patients had high fever and were very ill, but presented no special symptoms referable to the inaction of the kidneys. The urine in each case was concentrated, high colored, and showed casts and epithelium. One gave traces of albumin, the other a somewhat larger quantity. Both patients made good recoveries. In other cases, albumin was not found in the urine except where assignable to causes other than dengue. The tests used were nitric acid, and boiling after the addition of sodium chloride

solution and acetic acid. Biliary pigments were very frequently found in the urine, by the Hay test, during the first three days of the disease, never later. The reaction may show only a trace. The observations on this point are too few to draw positive conclusions, but if this symptom is found to be sufficiently definite and constant it may prove to be a point of considerable diagnostic importance if Clarac and Simond (5) are correct in their statement that biliary pigments in the urine appear late, if at all, in yellow fever.

Blood—A leucocyte count of less than 7,500 per cubic millimeter was encountered in twenty-one of twenty-four cases. Of the three exceptions, two were in children, and the third was late in the disease, corresponding to a time when I have, on several occasions, found a transitory excess of leucocytes. The highest count of the twenty-one was 7,100, the lowest 2,000. The leucopenia appeared early, during the first or second day, and has been given as a point in the diagnosis between dengue and yellow fever. It has been stated that leucopenia occurs in yellow fever also, hence this symptom loses in value in differentiating these two diseases unless it can be demonstrated that there are differences in the degree, kind, course, etc., of the leucopenia. In dengue the leucopenia is early, as I have stated, and in some cases was followed by a leucocytosis, more or less transitory, late in the attack or during convalescence. Lymphocytosis was nearly always present. I am now engaged in examining a large number of blood smears taken from dengue patients and hope that in the future I may be able to present some observations upon the leucocytes in dengue. However, a preliminary statement may be made now in regard to the Arneth counts, especially as it has a very decided bearing upon that important question of diagnosis between yellow fever and dengue. Macfie (6) has recently published some observations on Arneth counts in yellow fever, in which he found such early and profound shift to the left that the Arneth indexes in two cases were 93 and 95.5 on the second day, and 90 and 87 in two other cases on the third day. My Arneth counts from dengue cases will apparently show, when tabulated, a slight shift to the left, but nothing comparable to that quoted above. If this difference is found constant, the Arneth count will be most valu-

able as an early sign in differentiating these two diseases.

Convalescence—The slow convalescence so frequently described in dengue was the rule in this epidemic, although a fair number were more fortunate in making speedy recoveries. The lack of energy, physical, mental and nervous, seemed unduly marked in proportion to the length and severity of the actual illness. Appetite was slow in returning. The feeling of mental and muscular fatigue persisted for weeks, and final recovery of the patient's normal health often seemed to be retarded by too early efforts to get up and about. Naturally these effects were less noticeable after the milder attacks, but it was surprising how marked this condition could be following such a mild attack that the physician was not consulted until relief from this depression was desired.

Complications and Sequelæ—Complications were rarely observed. There was some tendency for any pre-existing disease or condition to become aggravated, or if the patient was subject to attacks of any kind, such as filarial lymphangitis, neuralgia, acne, diarrhea, dyspepsia, etc., a fresh attack was liable to be precipitated. No hemorrhagic tendency was observed except the so-called "black vomit" previously mentioned, and the premature appearance of menstruation in some women. A fellow practitioner told me of a case in which pregnancy six months advanced apparently suffered no disturbance.

In my own case, I suffered parasthesia in the distribution of the sensory fibers of the ulnar nerves, slight in the right hand, causing no inconvenience and passing off without treatment in a couple of weeks; in the left hand, on the contrary, it was so marked that it caused great annoyance and interference with the use of the hand for weeks and, while gradually improving, has not yet entirely disappeared eleven months after the attack. I was informed of another patient who remained in a lowered state of health for some months after a very severe attack, and then developed sensory and motor symptoms in the distribution of some branches, including the ulnar, of the brachial plexus. Such nervous manifestations have been prominently mentioned by French writers, and together with the character of the pains, prostration, nervous asthenia and protracted convalescence,

seem to indicate a predilection on the part of dengue for the nervous system.

A complicating nephritis may be considered in the two cases with suppression of the urine, although edema and other symptoms of acute nephritis were absent.

Immunity—The epidemic afforded little light upon the disputed question of immunity. I saw only one patient giving a history of a previous dengue, an undoubted attack fifteen years ago. On the other hand I know several persons who had had dengue from one to ten years previously, and who did not contract the disease during the recent epidemic in spite of being repeatedly exposed by living in the same house with dengue patients.

Relapse—Relapses are as much in dispute as immunity. On this point I have one doubtful and two positive observations. Exactly three weeks after my initial chill, and fifteen days after the fever had entirely ceased, I had another chill lasting an hour and a half, followed by fever of 39° C. and symptoms resembling my first attack. Without medication, the symptoms abated, and the fever disappeared gradually in about thirty hours. In the second case the fever returned on the fifteenth day from the onset of the first fever, and on the ninth day after temperature had become normal. It was preceded by a slight chill and accompanied by pronounced symptoms suggestive of the original attack. The temperature rose to 37.9° C. and fell by a critical sweat in about twenty-four hours, with relief of symptoms. The doubtful case was one to which I was recalled on the twenty-first day from the beginning, and the fifteenth after the end of the primary attack, with the statement that "the dengue was returning." I found the symptoms rather indefinite and temperature only .2° C. above normal. Both had disappeared by morning, hence I prefer to regard it as a doubtful relapse. In all three instances, blood examinations excluded malaria. I am convinced that relapses would have been noted in a larger proportion of cases had it been possible to keep all patients under close observation for some weeks.

San Juan, Porto Rico, April, 1916.

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- 1.—Reboul, H. "Dengue" in "Traite de Pathologie Exotique," vol. III, Edited by Crass et Clarac, Paris, 1912.

- 2.—Rogers, Leonard. "Fevers in the Tropics." London, 1910.
 - 3.—Castellani, Aldo, and Chalmers, Albert J. "Manual of Tropical Medicine." London, 1913.
 - 4.—Goldberger, Jos. and McCoy, Geo. W. "Dengue Fever as observed in Brownsville, Texas, August 1907." U. S. Public Health Reports, Washington, D. C., December 6, 1907.
 - 5.—Clarac and Simond. "Yellow Fever" in "Traite de Pathologie Exotique." Vol. III, Edited by Crall et Clarac, Paris, 1912.
 - 6.—Macfie, J. W. Scott, "Arneth Counts in Yellow Fever," *Journal of Tropical Medicine and Hygiene*, London, February 15, 1916.
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THE AMERICAN SOCIETY OF TROPICAL MEDICINE

Fourteenth Annual Meeting, New York City, June 4 and 5, 1917.

Members intending to read papers should communicate at once with the Secretary, Dr. John M. Swan, 457 Park Avenue, Rochester, New York.

AMENDMENT TO THE BY-LAWS PROPOSED AT THE THIRTEENTH ANNUAL MEETING TO BE ACTED UPON AT THE FOURTEENTH ANNUAL MEETING.

We the undersigned move that Article III of the By-Laws of the American Society of Tropical Medicine be amended by striking out the words, "The President and the Secretary shall be ex-officio members of the Council," and substituting the words, "The officers shall be ex-officio members of the Council." By striking out the word, "In 1905 three Councillors shall be elected for two years and two Councillors for one year. Thereafter each Councillor shall be elected for two years," and substituting the words, "In 1917 one councillor shall be elected to serve one year, and one to serve two years. In 1918 one councillor shall be elected to serve three years, one to serve four years and one to serve five years. Thereafter each councillor shall be elected to serve five years.

In case of death or resignation of any officer or Councillor of the Society, the Council shall be empowered to fill such vacancy until the next annual meeting.

(Signed)

Thomas H. Fenton,
Isadore Dyer,
John M. Swan,
M. J. Rosenau.

CURRENT LITERATURE

INTESTINAL PARASITES: AN ITALIAN REPORT.—Sangiorgi* has examined the feces of 2,620 soldiers in military hospitals in Venice. Of these 1,000 (38.13%) were infested with helminths, the infestation being sometimes double. The summary of species found is as follows:

Number of soldiers.	Species found	Per cent of whole number examined.
429	<i>Ascaris lumbricoides</i>	22.4
389	<i>Tricocephalus trichiuris</i>	21.3
169	<i>Ascaris lumbricoides</i> and <i>Tricocephalus trichiuris</i>	
6	<i>Anguillula intestinalis</i>	0.26
3	<i>Tenia saginata</i>	0.15
1	<i>Tenia saginata</i> and <i>Tricocephalus</i>	
1	<i>Anguillula intestinalis</i> and <i>Ascaris</i> .	
1	<i>Anchilostoma duodenalis</i>	0.07
1	<i>Anchilostoma duodenalis</i> and <i>Tricocephalus</i> .	

The infested were classified by provinces and by occupations. The majority were peasants (contadini) as to residence, and were those who by their work either directly or indirectly (water, dust, etc.) had the more frequent occasions for contaminating themselves from the ground. In general this infestation was more common in the soldiers from South Italy than in those from North Italy. Neither case of ankylostomiasis showed clinical symptoms; one had been a miner in Brazil (native of the province of Forli), the other was a gardener from the province of Salerno. The danger presaged by these sporadic cases is emphasized and routine examination for *Anchilostoma* urged.—*Lodilla Ambrose, Ph. M.*

FILARIA IN ITALIAN WOODPECKER.—Borini† has recently reported the finding of filariæ in a new species of woodpecker. The filariæ encountered previously in various woodpeckers are *obtusicaudata*, *quadriloba* and *insignis*. In this instance the filarial masses were found in the thoracic and abdominal cavities of the *Sitta Cæsia* taken in hunting near Turin. Borini gives a full description of this filaria together with text illustrations,

*Sangiorgi, G. Osservazioni sulle feci dei soldati occorsi negli ospedali militari territoriali di Venezia. Giorn. d. R. Accad. d. Med. di Torino, 1916, lxxix, 177-181.

†Borini, Agostino. Filaria nei sacchi aerei del Picchio murstore (*Sitta Cæsia*, Wolf). Giorn. d. R. Accad. di Med. di Torino, 1916, lxxix, 273-277.

and suggests as a name for it *Filaria Cæsia*, from the hosts in which it was observed.—L. A.

A NEW FLAGELLATE.—Sangiorgi and Ugdulena* report a flagellate found in the course of the examination of the feces of a soldier in the military hospital in Venice. Full descriptions are given and also their methods of cultivating this flagellate *in vitro*. For this new species they propose the name *Prowazekia italica*, as it is the first species of this genus reported from Italy. Eight other species of *Prowazekia* are listed together with the literature.—L. A.

CHENOPODIUM POISONING.—A case of severe poisoning by oil of chenopodium is reported by A. F. Coutant, New York (*Journal A. M. A.*, November 25, 1916), the only one of 300 cases treated with this method under his observation. The advantages of chenopodium over thymol in the treatment of hookworm disease have been pointed out, and are probably well known to the profession, and but few cases of toxic effects from its use have been reported. In the case here described the patient had only taken altogether 20 minims of the drug, in two doses, twenty-four hours apart. The symptoms were severe prostration with intense headache and twitching and tremors of the limbs, with sweating and fever. The patient was irrational for several hours. There was also local intestinal disturbance, with cramping pains in the abdomen and bloody and mucous stools. The patient was suffering from malaria as well as hookworm, prior to the administration of the drug, and Coutant says that "Whether the general condition of the patient, including his chronic malaria, or some undiscovered lesions of the intestine which allowed an unusual absorption of the drug are responsible for these extraordinary manifestations, or whether this is a case of constitutional drug idiosyncrasy, it is impossible to say." The case is specially notable from the comparative smallness of the dose, and this may be the reason for the patient's quick recovery. Coutant recommends greater caution in the giving of this drug to some patients who have chronic diseases.

*Sangiorgi, G., and Ugdulena, G. Reperto di un flagellato (*Prowazekia n. sp.*) nell'intestino umano. *Giorn. d. R. Accad. di Med. di Torino*, 1916, lxxix, 169-176.

CORRESPONDENCE

Villa Americana, December 3, 1916.

Estado do Sao Paulo, Brazil, S. A.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, New Orleans, La.:

Sirs—In your JOURNAL of October I note a case of diarrhea, by Dr. John B. Elliott, Jr., which seems, as he says, caused by parasites. If it does not seem too simple, tell him to try the following recipe:

American (or German) Dover's powders.... 5 grains
Sublimated sulphur25 grains
M. One capsule.

Take one two hours before meals on absolutely empty stomach and use no milk or diet, but a wineglass of claret with a little water during meals. Then one-half hour after meals (t. i. d.) the following (*one large tablespoon at a dose*):

Fowler's solution 80 drops
Tr. nux vom.100 drops
Elixir of pepsin (French formula)..... 20 ounces
M.

Pardon the presumption.

(Signed.)

Cicero Jones, M. D.

P. S.—I use this and have used it for twenty-five years with perfect success in this tropical diarrhea .Of course not alone, always, but colleague seems to have used all the rest. C. J.

NEWS AND COMMENT.

MEETING OF THE EYE, EAR AND THROAT SPECIALISTS.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology was held in Memphis, December 11-13, under the presidency of Dr. John E. Brown, and the following officers were elected: President, Dr. William L. Dayton, Lincoln, Neb.; vice presidents, Drs. Edward Stieren, Pittsburgh, Alexander C. Magruder, Colorado Springs, and John Green, Jr., St. Louis; secretary, Dr. Lee M. Francis, Buffalo (re-elected), and treasurer, Dr. Secord H. Large, Cleveland (re-elected). The next annual meeting will be held in Pittsburgh.

COCAIN AND OPIUM PROHIBITED.—According to a report from the United States consul general at London, December 14, 1916, prohibition to import cocain and opium, except under license, has been declared by the British government. Cocain includes all preparations, salts, derivatives or admixtures containing one-tenth of 1 per cent or more of cocain, or liquid extract of cocoa containing a like amount of the drug. Opium includes any solid or semisolid mixture containing opium.

MEETING OF SOUTHWESTERN PHYSICIANS AND SURGEONS.—At the annual meeting of this association, held in December, the following officers were elected: Dr. Joel J. Butler, Tucson, Ariz., president; Dr. Robert E. McPride, Las Cruces, N. M., editor of the *Southwestern Medical Journal*, vice president; Dr. James W. Laws, Lincoln, N. M., second vice president; Dr. Douglas W. Detwiler, El Paso, Tex., secretary-treasurer, and Dr. Abraham G. Shoortle, Albuquerque, N. M., trustee for three years. Col. George E. Pushnell, M. C., U. S. A., Fort Bayard, N. M., was elected president emeritus.

CORINNE CASANAS FREE CLINIC OPENS.—The formal opening of the Corinne Casanas Free Clinic for the Poor and the Nurses' Home of the New Orleans Presbyterian Hospital took place on January 16, 1917. A large number of prominent citizens attended the opening and inspected the buildings of the clinic and the home. Each visitor brought a package of linen for use in the hospital and clinic. The exercises were opened

with prayer by the Rev. Gordon Bakewell and addresses were delivered by many prominent physicians, among whom were Drs. Isadore Dyer and Charles Chassignac, deans of the School of Medicine and the Graduate School of Medicine, Tulane University, respectively; Dr. Paul J. Gelpi, president of the Orleans Parish Medical Society; Drs. K. Winfield Ney, W. D. Phillips and C. G. Cole, of the Presbyterian Hospital staff. A reception followed and congratulations were extended to the Rev. John C. Barr, D. D., the Board of Managers and the medical advisory committee and all who in any manner were contributing to the comfort and care of the poor. The new Corinne Casanas Memorial cost upwards of \$55,000 and many who inspected the building were of the opinion that, while it was not as large as many others, no other clinic was better prepared to do the work for which it was created.

AWARD FOR RESEARCH ON LEPROSY.—Privat-Dozent J. Kyrle, of the University of Vienna, was awarded 1,000 kronen (\$200) by the Austrian Academy of Sciences to continue his experimental researches on leprosy.

DISCRIMINATING MEASURES AGAINST WOMEN PHYSICIANS IN ITALY WITHDRAWN.—All measures discriminating between civilian men and women physicians in active military service have been withdrawn by the Italian Minister of War, says the *Revista Critica di Clinica Medica*. Women physicians are urged to accept positions in the advanced lines, stating their qualifications and specialties in applying for positions. Those with less than five years of medical practice will be appointed "medical sub-lieutenant"; those with more than five years of medical practice will be medical lieutenants and those with fifteen years' practice will rank as captains.

MORTALITY FROM MEASLES VERY LOW.—While measles has prevailed to a large extent in New Orleans during the last year, the mortality has been very low. Out of the reported 3,800 cases to the Board of Health and the estimated 1,200 that were never recorded, there were only twelve deaths from the disease for the whole year of 1916.

CONGRESS ON INTERNAL MEDICINE ELECTS OFFICERS.—At its second meeting and first scientific session, held in New York,

December 27 and 28, the American Congress on Internal Medicine elected the following officers: President, Dr. Reynolds Webb Wilcox, New York; vice president, Dr. Elias H. Bartley, Brooklyn; secretary-general, Dr. Heinrich Stern, New York; assistant secretary, Dr. Joseph H. Byne, New York; councilors for five years, Dr. Jacob Kaufmann, New York; Dr. Charles G. Jennings, Detroit; Dr. Judson Daland, Philadelphia; Dr. Francis X. Dercum, Philadelphia, and Dr. Arthur W. Fairbanks, Brookline, Mass. As announced by the secretary, the organization already has a paid-up membership of over 300 and many applications for membership.

BABY WEEK FOR 1917.—The Children's Bureau, United States Department of Labor, is making plans for a bigger and better Baby Week for 1917. May 1 is the time settled on by the bureau and the General Federation of Women's Clubs, and they urge that this week be adopted wherever local conditions permit. Persons interested in the planning and management of a Baby Week can obtain, without cost, a bulletin on the subject by applying to the Children's Bureau, Washington, D. C.

LOUISIANA STATE BOARD RAISES STANDARD.—The Louisiana State Board of Medical Examiners, at its meeting December 1, 1916, adopted a resolution providing that, beginning with the session 1918-1919, no medical school or college will be considered in good standing that does not require for admission at least two years of work in an approved college of arts and sciences. Licensing boards have adopted the two-year standard in seventeen States.

ERADICATION OF RAGWEED.—Legislation for the eradication of ragweed near the city will be asked by the New Orleans Directorate of the American Hay Fever Association. The city ordinances concerning weeds, which have been enforced, have practically eliminated the spring epidemic. During the early fall the association made examinations of the air on windy days and much ragweed pollen was found, which was traced to its source outside the city.

EAST BATON ROUGE MEDICAL SOCIETY MEETING.—At the last meeting of the East Baton Rouge Medical Society, the following officers were elected: President, Dr. W. S. Cushman, Baton

Rouge; vice-president, Montgomery Williams, Denham Springs; secretary-treasurer, John McKowen, Baton Rouge; delegate to the society, T. S. Jones, Baton Rouge; alternate, E. B. Young, Baker; delegate to the state society, Chas. Duchien, Baton Rouge; alternate, Geo. M. Sitman, Burtville.

ARMY MEDICAL RESEARCH.—Authority has been given by the Secretary of War for the establishment of a research division under the surgeon general of the Army. This is intended for laboratory work, the main function being the investigation into causes of disease and methods of control. Some 25 medical officers will furnish the personnel for the laboratory work, and these officers will constitute an independent foreign roster separate from the general roster pertaining to assignment to duty beyond continental limits. By this means the transfer of these research officers will be confined to that list; when an officer on duty in Washington is due for foreign service he will be detailed to duty at one of the laboratories abroad, his place at home being taken by an officer of the same class on foreign station who is due to return. These laboratories will be located at general hospitals and department hospitals, in addition to which there will be department laboratories. The laboratory in Washington will be established at the Army Medical School and will serve as the laboratory for the Eastern Department. The other laboratories will be established at Fort Leavenworth, San Francisco, Fort Bayard, Honolulu, Manila, San Juan, and, possibly, in Alaska.—*Army and Navy Register*.

HEROIN OF NO VALUE.—At a recent meeting of the Committee on Drug Addiction of the Committee on Social Hygiene of the National Committee on Prisons, it was regularly moved by Dr. Frederick Peterson and seconded by Dr. Samuel W. Lambert that it be resolved that in the opinion of the committee, the drug heroin is of no real value in the practice of medicine and that its place may be better taken by more efficacious agents that do not menace public welfare.

Resolved, That the committee recommend federal legislation to prevent the importation, manufacture and sale of heroin in the United States.

LIBRARY AND MUSEUM FOR DENTAL INFIRMARY.—The Forsyth Dental Infirmary for Children (Boston) recently inaugurated a new department, to be known as the Library and Museum, the purpose of which is to preserve the results of experiments and discoveries which are daily being made at the institution. The infirmary asks for any suggestions, which will be gratefully received, and will gladly furnish any information.

SEVERS CONNECTION WITH JOURNAL.—Dr. Philip Skrainka, formerly literary editor of the *Interstate Medical Journal*, has severed his connection with that journal and intends to start a new monthly medical journal in February, 1917, the name of which will probably be *Medicine and Surgery*. This journal as regards its literary contents will be of the first order, and the advertising pages will contain only ethical matter. Drs. Rudolph Matas and Isadore Dyer, of New Orleans, are included in the list of collaborators.

NEW SERVICE AT BELLEVUE HOSPITAL.—An Ophthalmological Service has been added to the other departments at Bellevue Hospital, New York. The service is in charge of Dr. Charles H. May, attending surgeon, who will have as his principal assistants Drs. Julius Wolff and John M. Wheeler.

THE TRI-STATE MEDICAL SOCIETY OF ARKANSAS-LOUISIANA-TEXAS held its thirteenth annual meeting in Texarkana on December 19 and 20, 1916 with about 100 doctors in attendance. The following officers were elected for the ensuing year: president, Dr. J. M. Bodenheimer, Shreveport, La.; vice-presidents, Dr. T. F. Kittrell, Texarkana, Ark.; Dr. T. E. Wright, Monroe, La.; Dr. C. M. Rosser, Dallas, Texas; secretary-treasurer, Dr. E. L. Beck, Texarkana, Ark.; councillors, Dr. L. H. Lanier, Texarkana, Ark.; Dr. Oscar Dowling, Shreveport, La., and Dr. Nettie Klein, Texarkana, Texas. Shreveport was elected as the meeting place for 1917.

HENRY S. WELLCOME PRIZES AWARDED.—The Association of Military Surgeons of the United States announces the results in the Henry S. Wellcome prize competition: Capt. Mahlon Ashford was awarded a gold medal and three hundred dollars. First Lieut. Henry C. Coe, M. R. C., of New York City, who received the honorable mention for this prize was awarded a

life membership in the association. A silver medal and two hundred dollars were awarded to Assistant Surgeon General W. C. Rucker, U. S. P. H. S., and to Passed Assistant Surgeon J. R. Burley, U. S. P. H. S., honorable mention for this prize and a life membership. These prizes, which are annually given by Mr. Henry Wellcome, an American living in London, are annually competed for by officers of the Army, Navy, Public Health Service, the National Guard and the Officers' Reserve Corps of both the Army and the Navy.

FISKE FUND PRIZE COMPETITION.—A prize has been offered by the Fiske Fund trustees of \$200 for the best essay submitted before May 1, 1917, on the "Role of Teeth and Tonsils in the Causation of Arthritis." Address Dr. Halsey De Wolf, 305 Brook Street, Providence, R. I., for further information.

SYMPOSIUM ON THE MEDICAL PROFESSION.—The January number of the *Medical Review of Reviews* at some length records what "sixty-six well-known voices, commingling in praise and blame" think of the medical profession. These different points of view of "what other people think of us" are quite interesting and enlightening.

HUMAN EASE A FRAUD.—The Human Ease Medicine Company, of Atlanta, Ga., has been issued a fraud order by the federal authorities denying them the use of the mails. Human Ease was guaranteed to "cure all diseases both in and on man and beast." On analysis the ointment was found to be composed of lard with a little sodium bicarbonate, sodium sulphate and potassium nitrate, flavored with oil of sassafras.

CANCER NOT HEREDITARY.—The annual meeting of the American Association of Life Insurance Presidents was held in New York City on December 15. In a paper on heredity of cancer based on a two-year' study of original insurance statistics bearing on the eighty thousand annual deaths from this disease in the United States, Mr. Arthur Hunter, president of the Actuarial Society, says: "There seems little to support the view that cancer is the result of contagion. Twenty thousand applications for insurances were reviewed and it was found that in 488 cases one only of the parents of the applicant was stated to have died from cancer and in four cases both parents were

stated to have died of that disease. There were 122 times as many cases in which one parent had died of cancer as those in which both parents had died of that disease. There could hardly be a stronger test than in the case of husband and wife. Men and women who are in anxiety of mind on account of the appearance of cancer in their ancestry or immediate family may dismiss such anxieties, as there is no statistical evidence at the present time that the disease of cancer is transmitted by inheritance in mankind."

PERSONALS.—Dr. P. L. Querens, a graduate of Tulane, has successfully passed the Cuban Medical Board of Examiners. Dr. Querens is located in Preston, Cuba, making a special study of tropical diseases, and expects to return to New Orleans in about a year.

Dr. Augustus McShane, for many years an eye, ear, nose and throat specialist of New Orleans, is now located in Greenwood, Miss., engaged in the same practice.

Dr. B. H. Palmer, a recent graduate of Tulane Medical College, has opened offices and laboratory in Tampa, Fla.

New State Board of Health appointments were announced too late for comment this month.

REMOVALS:

Dr. E. A. Carlisle, from Kingston to East Point, La.

Dr. C. E. Verdier, from 1209 to 1216 Maison Blanche Bldg.

Dr. B. H. Palmer, 10-11 First National Bank Bldg., Tampa, Fla.

DIED:

On December 16, 1916, at New Iberia, La., Dr. Jilson Payne Harrison, of Hammond, La.

On January 12, 1917, Dr. Michel Thomas Lanaux, well-known young specialist of New Orleans, aged 33 years. Dr. Lanaux's death was most untimely, and it is regretted by a large circle of friends and relatives.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

A Text-book of Histology, by Frederick R. Bailey, fifth edition. William Wood and Co., New York, 1916.

This new edition of Bailey's Histology professes to have been thoroughly revised and parts of it rewritten. The unexpectedly slight evidence of either having been done has resulted in the addition of 8 pages and 8 figures beyond the totals contained in the fourth edition. Like the fourth, this edition is bound neatly and printed on pages of beautifully white, thick paper.

Also, as with the fourth edition, the part dealing with Microscopic Organology is relatively much more full and complete and indicates a much better grasp of the subject matter than the chapters dealing with Histology proper. Of the total text pages devoted to Organology, considerably more than one-third are given to the Nervous System and Sense Organs. In quality as well as in fullness, this part on the nervous system is the best in the book. For it, thanks are given Dr. O. O. Strong. It is untouched in the revision.

Fifty or more of the total pages of the book are sacrificed, in three special chapters and in paragraphs of the actual text-pages, to re-agents and methods for obtaining and preparing specimens for study. While this subject is of course important, with the modern curriculum and the methods in which the subjects are now usually presented, especially in medical schools, it is quite doubtful whether much space devoted to technic is as valuable as it would be were the book correspondingly enlarged by the pages being devoted instead to the actual subject matter. In practically all schools of higher rank, the preparations for the students to study are made by a trained technician, giving abundant preparations of uniform excellence throughout a class which has no time for the making of poorer and un-uniform preparations.

In the chapters devoted to Histology, those on muscular and nervous tissues are the best. However, the neuroglia is still described with the nervous tissues when it should be

with the fibrous connective tissues, while B, of figure 90 does not represent neuroglia at all, and figure 76 is quite incorrect as to the form and relations of neurofibrils.

Among other discrepancies, the following may be noted: Muscle and bone are discussed both as varieties of tissue and also each in a separate chapter as an Organ System. This seems hardly necessary with limited space, when each of the chapters is devoted as well to their descriptions as tissues, and when neither chapter is comprehensive of its title. In addition, under bone ("The Skeletal System") is discussed bone marrow which is a hemopoietic organ. The skeletal muscles only and the bones and some cartilages might be described together as a locomotor system of organs, space permitting. Other muscle belongs to the organs of which it forms a component. The important subject of blood is not given the attention it demands and the description of white blood corpuscles especially is surprisingly unsatisfying. The prevalence, extent, and significance of syncytia do not seem to be realized, and the distinction between cell and the syncytium and its derivatives is not definitely emphasized. Extents between the contraction-bands of cardiac muscle fibers are confused with cells, and the abundance, distribution and significance of the (interstitial) granules in the sarcoplasm of striated muscle is not realized. Bundles of fibers of white fibrous connective tissues are referred to as fibers. The hyaline cartilage matrix immediately bounding the lacunæ in elastic fibrous cartilage is not noted. "Mesothelium" and "Endothelium" are placed together as a separate class of epithelium when, histologically and by definition, both are varieties of simple squamous epithelium; and transitional epithelium is confused under the class, stratified columnar.

As a whole, the selection of the illustrations from the various sources is very good and the predominating better qualities of the text render the book quite usable.

Irving Hardesty.

The Treatment of Diabetes Mellitus With Observations Upon the Disease Based Upon One Thousand Cases. By Elliott P. Joslin, M. D.,

Dr. Joslin's book is a storehouse of valuable information and helpful suggestions. First he has kept the aim to let his experience of eighteen years be of practical assistance to the general practitioner and to the diabetic patient. But practical as the book is, it is the spirit of the scientific investigator that dominates it. Dr. Joslin's studies in conjunction with Professor Benedict at the Carnegie Nutrition Labora-

tory permit him to write with authority upon many phases of the abnormal physiology of the disease.

Dr. Joslin has focussed the point of his book upon the Allen treatment and when he speaks with so much emphasis and conviction, the profession may well listen with respect. "I would not have wished to write a book on diabetes three years ago; today it is a pleasure and an inspiration because the improvement in treatment is beyond question. The introduction of fasting and the emphasis on physical exercise in the treatment of diabetes by Dr. F. M. Allen of the Rockefeller Institute, has decidedly changed the outlook for this class of patients." Joslin's attitude with regard to the use of alkalis to combat acidosis is worthy of comment. He says: "A diabetic patient undoubtedly needs alkalis but one must bear in mind that it is possible that the administration of small quantities of an alkali over long periods may set free acid bodies existing combined, quiescent and harmless in the body, and thus do harm." Besides it may cause nausea and vomiting and "may deplete the body salts, such as chlorides which are distinctly useful." He thinks if alkalis are to be used it should be for a few days only and in severe cases of acidosis. The reviewer would add that during the past six months he has followed Dr. Joslin's advice and has had no occasion to regret it; he has felt forced to use soda bicarbonate in but one case, in the presence of evidence of impending coma.

A review of the book would be incomplete without a reference to the excellent section upon clinical laboratory methods and the section upon "Aids in the Practical Management of Diabetic Cases." The latter includes a chapter upon "What Every Diabetic Should Know" and upon "Directions for Nurses in Charge of Diabetic Patients," both of which should be reprinted in pamphlet form for patients and nurses. Dr. Joslin rightfully stresses the importance of educating the diabetic patient and of hospital treatment in that it affords the patient the opportunity of taking a course in diabetes.

Dr. Joslin's book is not only an interesting reference book; it is worthy of real study from cover to cover.

I. I. Lemann.

Christianity and Sex Problems, by Hugh Northcote, M. A.
Second Edition, F. A. Davis Company, Philadelphia.

Sex problems have not yet reached the laboratory of present day medical investigation. The borderland topics of eugenics and of public morality are on the verge of consideration, because of the all pervading morbid influences of

the venereal diseases which are held to account for so many derelicts in modern civilized communities.

The accumulation of academic material, however, can only make the way easier later on and the book in review will help some. The medical man seldom views even morbid sex conditions from any but the physical side, but he may come to agree with the author in the main argument that an early morality derived from the teachings of Christian doctrine may safeguard many from the disasters of illicit sex congress.

"Science of sex is positively necessary," says the author, "to the understanding and appreciation of Christian sexual ethics. At present there is too much uncertainty in men's minds about the ethical ideals of sex."

If we are to be influenced by Freud's broad co-ordination of sex impulse in the expression of life's effort, then the field of practical medicine must concede the value and importance of a "science of sex." None of the medieval philosophers sidestepped such influence and perhaps when the materialistic blanket, which today veils the mental environment of most men, has been removed, ethics may once more have place. Just now the world seems hardly ready to engage any problem with a Christian basis.

The book is profoundly worth while and deserves the attention of the physician who may have his own or another's children to think for.

Dyer.

Practical Massage and Corrective Exercises, by Hartvic Nissen. F. A. Davis Co., Philadelphia.

This is a larger and revised arrangement of the Author's "Practical Massage in Twenty Lessons," now presenting the author's experience of a number of years in the field upon which he writes. The book is thoroughly practical and free of any pretense to anything else than the title embodies. We concur heartily with the author in the opinion that the neglect of massage and medical gymnastics on the part of the physician has encouraged a large growth of pretentious quacks in a field which does actually possess many virtues deserving the attention of every medical man.

The illustrations used to demonstrate the text are apt and well arranged; those showing the manipulation in massage seem to be from old plates and should be freshened in another edition.

Any practical text on this subject is worth while and one as simple as this should be in the hands of all physicians.

Dyer.

Infections of the Hand, by Allen B. Kanavel, M. D., 3rd Edition. Lea & Febiger, Philadelphia and New York.

This monograph is still a valuable contribution to surgical technics and deserving of careful reading to gather the estimate of its merits and usefulness. Aside from the co-ordination of the special surgical conditions of infectious origin which may affect the hand, there is large space devoted to the surgical anatomy of the hand as arguing the importance of relations in the treatment of the conditions of infection occurring on the hand. The strong personal equation evident throughout the book, stamps the work as the product of its author, who has labored well.

Dyer.

The Treatment of Infantile Paralysis, by Robert W. Lovett, M. D., P. Blakiston's Son & Co., Philadelphia.

After an introductory chapter covering the pathology, types and symptoms of infantile paralysis, the author takes up the treatment, dividing the subject into several sections, dealing with the acute phase, the convalescent stage, the chronic phase, etc. In each the detail of treatment is thorough and presented with frequent cuts to illustrate mechanical methods to be practised—when indicated.

Rest until tenderness is gone in the acute stage; avoid all therapy in the acute phase and use warm baths in the later part of this stage; prevention of contractions—these are axiomatic with the author and indicate the style of the book.

Dyer.

The Practical Medicine Series. Volume IV: **Gynecology.** Edited by Emilius C. Dudley, A. M., M. D., and Herbert M. Stowe, M. D. The Year Book Publishers, Chicago, 1916.

The Practical Medicine Series no longer needs an introduction to the medical profession of America. The Year Book Publishers were fortunate in the selection of a staff of editors who appreciate the new and the practical in the medical literature of the day and the busy practitioner can resort to these volumes with the assurance that he will find not only the original matter condensed into readable abstracts, but additional comments by the editors, a feature that adds no little to their value.

The same arrangement has been followed as in previous volumes and while the editors lament the dearth of foreign contributions, the subject matter gleaned largely from American literature appears to compare favorably with former editions.

Miller.

PUBLICATIONS RECEIVED

- WILLIAM WOOD & COMPANY.** New York, 1916.
Animal Parasites of Man, by H. B. Fantham, M. A., D. Sc., J. W. W. Stephens, M. D., D. P. H., and F. V. Theobald, M. A., F. E. S., F. R. H. S.
Gunshot Injuries, by Colonel Louis A. LaGarde. Second, revised edition.
- W. M. LEONARD.** Boston, 1916.
Principles of Medical Treatment, by George Cheever Shattuck, M. D. Third edition, revised and enlarged.
- LEA & FEBIGER.** New York and Philadelphia, 1916.
Progressive Medicine. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. December 1, 1916.
- J. B. LIPPINCOTT COMPANY.** Philadelphia and London, 1916.
International Clinics. Volume IV. Twenty-sixth Series, 1916.
- THE YEAR-BOOK PUBLISHERS.** Chicago, 1916.
The Practical Medicine Series. Volume VII: **Obstetrics**; Volume VIII, **Materia Medica and Therapeutics and Preventive Medicine.**
- W. B. SAUNDERS COMPANY.** Philadelphia and London, 1916.
The Clinics of John B. Murphy, M. D. December, 1916.
- MISCELLANEOUS:**
- Monthly Bulletin of the Louisiana State Board of Health.** New Orleans, December, 1916.
The Public Health Committee of the New York Academy of Medicine. 1911-1916. (17 West 43rd Street, New York City).
The Philanthropic Boards Established by John D. Rockefeller. (New York, 1916).
Carbon Dioxide Solidified. (Alda Manufacturing Co., Chicago).
- REPRINTS:**
- Sex Mutilations; Sex Gland Implantation**, by G. Frank Lydston, M. D.
The Use of Oxygen in Cystography, With a Preliminary Report on the Use of Oxygen in Pyelography, by Amedee Granger, M. D.
New Ranges for Old Plants, by Oliver Atkins Farwell.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for December, 1916.

Cause.	White	Colored	Total
Typhoid Fever	4	2	6
Intermittent Fever (Malarial Cachexia).....	1	.....	1
Smallpox .....	.....	.....	.....
Measles	4	3	7
Scarlet Fever .....	.....	.....	.....
Whooping Cough	2	1	3
Diphtheria and Croup.....	3	1	4
Influenza	10	5	15
Cholera Nostras .....	.....	.....	.....
Pyemia and Septicemia.....	.....	.....	.....
Tuberculosis	48	53	101
Cancer	28	7	35
Rheumatism and Gout.....	1	3	4
Diabetes	10	1	11
Alcoholism	4	.....	4
Encephalitis and Meningitis.....	.....	1	1
Locomotor Ataxia	1	1	2
Congestion, Hemorrhage and Softening of Brain.	15	11	26
Paralysis	6	2	8
Convulsions of Infancy.....	.....	.....	.....
Other Diseases of Infancy.....	9	9	18
Tetanus .....	.....	.....	.....
Other Nervous Diseases.....	1	1	2
Heart Diseases	84	41	125
Bronchitis	6	1	7
Pneumonia and Broncho-Pneumonia	33	35	68
Other Respiratory Diseases.....	3	1	4
Ulcer of Stomach.....	2	1	3
Other Diseases of the Stomach.....	4	2	6
Diarrhea, Dysentery and Enteritis.....	17	21	38
Hernia, Intestinal Obstruction.....	1	1	2
Cirrhosis of Liver.....	9	3	12
Other Diseases of the Liver.....	2	1	3
Simple Peritonitis.....	.....	.....	.....
Appendicitis	4	1	5
Bright's Disease	26	21	47
Other Genito-Urinary Diseases.....	8	9	17
Puerperal Diseases	7	1	8
Senile Debility	2	1	3
Suicide	5	.....	5
Injuries	20	14	34
All Other Causes	11	14	25
Total	391	269	660

Still-born Children—White, 20; colored, 17; total, 37.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1,000 per annum for Month—White, 16.99; colored, 31.65; total, 20.95. Non-residents excluded, 18.79.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure

30.06

Mean temperature

57.

Total precipitation

7.17 inches

Prevailing direction of wind, southeast.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

COLLABORATORS

BAILEY K. ASHFORD, M. D., Prest. Amer. Soc. of Tropical Medicine } *Ex officio*
JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }
C. C. BASS, M. D., Tulane University of Louisiana.
RUPERT BLUE, M. D., Surgeon General, United States Public Health Service.
H. D. BRUNS, M. D., Tulane University of Louisiana.
C. F. CRAIG, M. D., Capt., U. S. A.
S. T. DARLING, M. D., Federated Malay States.
W. H. DEADERICK, M. D., Hot Springs, Arkansas.
E. M. DUPAQUIER, M. D., (Paris), Tulane University of Louisiana.
A. G. FRIEDRICH, M. D., New Orleans, La.
J. T. HALSEY, M. D., Tulane University of Louisiana.
JOS. HOLT, M. D., New Orleans, La.
F. A. LARUE, M. D., Tulane University of Louisiana.
OTTO LERCH, M. D., Tulane University of Louisiana.
E. S. LEWIS, M. D., Tulane University of Louisiana.
R. C. LYNCH, M. D., Tulane University of Louisiana.
E. D. MARTIN, M. D., Tulane University of Louisiana.
R. MATAS, M. D., Tulane University of Louisiana.
AUGUSTUS McSHANE, M. D., Tulane University of Louisiana.
PAUL MICHINARD, M. D., Tulane University of Louisiana.
C. J. MILLER, M. D., Tulane University of Louisiana.
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E. A. ROBIN, M. D., Tulane University of Louisiana.
W. H. SEEMANN, M. D., Tulane University of Louisiana.
ALLEN J. SMITH, M. D., University of Pennsylvania.
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J. A. STORCK, M. D., Tulane University of Louisiana.
R. P. STRONG, M. D., Harvard University.
ROY M. VAN WART, M. D., Tulane University of Louisiana.
PAUL G. WOOLLEY, M. D., University of Cincinnati.

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No. 9

EDITORIAL

CANCER INCREASING.

The organized educational propaganda against cancer has become widespread, but as yet it has not reached the point of estimating results. The battle is on, however, and there must be no let up in the campaign until there is a general knowledge of cancer prevention. No stronger argument for this effort has come forward than the report on January 1, 1917, emanating from the Bureau of the Census of the Department of Commerce. This report declares that the mortality from cancer and other malignant tumors has been constantly on the increase for

the past fifteen years. Other facts brought out and of interest are that the disease is more common in cities; that females have cancer more than males; it is more common in whites than among negroes; those in middle life and old age are more often attacked than in early life. Cancer of the stomach and of the liver represent more than three-eighths of the total.

These data are derived from statistics brought down to 1915, in which the general cancer death rate amounted to 79.4 per 100,000 population in the registration area. From 1900 to 1914 the increase in mortality was 26 per cent. The apparent increase may be discounted by the known fact that better and earlier diagnosis of cancer has been made in recent years.

It is interesting to note the mortality rate at different ages, the incidence in 1914 being figured on the 100,000 basis.

Under 25	2.8
25 to 34	13.9
35 to 39	42.
40 to 44	74.6
45 to 49	128.6
50 to 54	199.7
55 to 59	305.9
60 to 64	393.1
65 to 69	516.
70 to 74	672.3
75 to 79	766.6
80 to 84	889.6
85 and above	875.6

The methods of diagnosis and the procedures for the treatment of cancer are always improving, but the appalling death rate (52,420 in the registration area, which would be considerably augmented in the rest of the United States where no records are filed) indicates that as yet prevention has not really started. The average physician has not yet learned to impress upon his patient the need of early diagnosis of cancer, and until this part of the profession, the largest element in the problem, is educated to preach the dangers of delayed cancer, no real ground will be covered.

The etiology of cancer is still in the crucible and it is not possible to tell when the question will reach a solution. Cer-

tain deductions must be drawn from the statistics furnished.

In the first place, the large proportion of cancer of the stomach, liver and intestinal tract, making about 40 per cent of the cancer mortality, must argue the relation of food to cancer. The greater incidence in cities further argues environment and habits of life as contributing factors.

Before now we have reviewed some of the etiologic theories, and we have reviewed the argument for occupational causes, but these are transitory views, changing with the generation advancing them. No conclusion has yet been reached which will satisfy all the phases of conjecture as to the cause of cancer. We have a large problem, so far unsolved.

In this line the champions of heredity and contagion were given considerable food for thought in the address of Mr. Arthur Hunter before the Association of Life Insurance Presidents at their annual meeting in New York on December 15, 1916.

This essayist begins a most interesting address with the general proposition that the cancer rate among those in close attendance upon sufferers from this disease is only normal and that the same normal rate prevails among those whose parents or grandparents died of cancer.

From statistics derived from six of the largest American life insurance companies he concludes that a man or a woman, one or both of whose parents died from cancer, is no more likely to die from that disease than those whose family history was free from that blemish; there is no statistical evidence at this time to show that cancer is transmitted by inheritance.

These conclusions must offer large comfort to those who are apprehensive of familial cancer, while it points again to the belief that we find congenital occasion for cancer with which heredity has nothing to do. In other words, the individual may be born with the tissue cells susceptible of cancer development but not in themselves cancerous. Cohnheim's theory is still worthy of consideration and with these lights it may stand for some time to come.

THE PARISH SOCIETY BENEFIT.

The concert and dance for the benefit of the Orleans Parish Medical Society, given on January 27, proved quite a success from the standpoint of the size and character of the audience as well as that of the financial results.

While exact figures are not yet available it is safe to say that the net proceeds to the society will amount to about five thousand dollars, a sum which the optimists expected to reach and the pessimists did not think attainable.

Great credit is due the officers of the Society and the members of the various committees for zealous and efficient work. While, as usual, a comparatively small number actually *did* things, many assisted and very few shirked, it is not our mission to do any singling out, hence we shall simply congratulate the Society as a whole upon the successful outcome, which should result in placing it on a sound financial basis.

BOARD OF HEALTH MATTERS.

During the twenty-one years that the editors have managed this publication, scrupulous care has been taken not to allow any politics to color its utterances either directly or indirectly. While many errors may have resulted, in the opinion of some, they have at least been only of omission for the very reason stated.

Before and after the last election, the temptation often was strong to say something concerning the various medical positions involved, notably on the State Board of Health, yet we persisted in our determination and made no attempt to influence action in regard thereto from the fear that our words might be misunderstood or be given a personal interpretation. Now that it is all over, we must let something out and express our astonishment that a body of serious medical men should meet, solemnly pass resolutions of admiration, approval and gratitude regarding some appointees, then proceed expeditiously to chop off their official heads and name their successors upon orders from higher up. The members of the Board must be somewhat lacking in their sense of humor or they could not have done it!

As an illustration take the subject of statistics, a vital one for this State in more ways than one. During the incumbency of the retiring registrar and under the stimulus of the President of the Board, the entire system was reorganized and brought up to modern requirements; the progress of the work may be judged from the fact that the entire State, outside of New Orleans, recorded in 1913 only 1,959 births and 1,654 deaths, while three years later the totals were 28,000 births and 14,053 deaths for the same territory. The members of the Board knew all this, they included the registrar in their laudatory resolutions, yet they named somebody else in his stead at the next breath and there was not even the excuse that the progressive and efficient incumbent had been guilty of the least bit of offensive partisanship.

It is well to attract attention to happenings of this nature with a little hope that the profession may take them to heart and that the effect may be productive of good in the future.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

THE COLONIZATION OF EPILEPTICS.

By WM. BARCLAY TERHUNE, M. D.,
The East Louisiana Hospital for the Insane, Jackson, La.

“Oft, too, some wretch, before our startled sight,
Struck as with lightning, by some keen disease,
Drops sudden: By the dread attack overpowered.
He foams, he groans, he trembles, and he faints;
Now rigid, now convulsed, his laboring lungs
Heave quick, and quivers each exhausted limb
Spread thru the frame, so deep the dire disease
Perturbs his spirit; as the briny main
Foams thru each wave beneath the tempest’s ire.
He groans since every member smarts with pain,
And from his inmost breast, with worthless toil,
Confused and harsh, articulation springs,
He raves since soul and spirit are alike
Disturbed throughout, and severed each from each
As urged above distracted by the bane,
But when, at length, the morbid cause declines,
And the fermenting humors from the heart
Flow back—with staggering foot the man first treads,
Led gradual on to intellect and strength.”—**Lucretius.**

That epilepsy is a disease as old as written history there can be no doubt. The word itself, derived from the Greek and meaning “to seize upon,” evidences the animistic hypotheses of an earlier civilization. Biblical references to the disease are numerous, and Grecian mythology contains descriptions of this malady. The classical delineation by Hippocrates, written over twenty-three centuries ago, shows clearly that epilepsy was known to the ancients.

Surely it would seem that such a disease, probably as old as the human race, would be so well understood as to no longer present a problem to medicine as well as to society. And yet fragments of light are just beginning to be thrown on its etiology, and society is awakening to the necessity of caring for and protecting itself from these unfortunates.

It has not been long since the epileptic was regarded with superstition and ignorance. They were said to be "possessed of a demon," and were often inhumanely treated. Indeed, even death has been meted out to epileptics as the result of a misunderstanding of the nature of their ailment.

Fortunately our enlightened civilization has recognized the nature of this affliction and is to-day considering how to best care for these unfortunate individuals.

As the social organism moves toward a higher standard of physical and mental efficiency, it eliminates from the industrial activities of life those who vary from the normal in any direction. The altruism of the day cannot find worthier expression than that which may be wrought out in establishing a right relation of organized society to its defective members.

The epileptic has no place in the social life of a community. From their earliest recollection they are shunned, for society eliminates all things disagreeable if possible. As a rule, they are denied the privileges of an education and are thus prevented from acquiring a training for usefulness and self-support. Eventually they are turned from every avenue of remunerative employment, and having failed in attaining all of those things which make life worth living the State owes them reparation, even to providing a special order of living, care and treatment, to suit their necessities. This need may be met by institutional care.

Epileptic colonization is a subject to which much attention has recently been given throughout the civilized world. The first colony was founded near Bordeaux, France, sixty-seven years ago. The Bethel Colony at Bielfeld, Germany, was started twenty years later and now constitutes the largest epileptic colony in the world. England next established an institution for the treatment of this disease. Ever since institutions for the insane were started in the United States epileptics have been admitted to them. The first hospital for the care of sane and insane epileptics was established in this country twenty-five years ago at Gallipolis, Ohio. Besides Ohio, the following States now have special institutions for the care of epileptics; New York, Massachusetts, New Jersey, Kansas, Texas, Indiana, Virginia, Connecticut, Iowa, Illinois, Michigan, Missouri and

Pennsylvania. It is remarkable that only fourteen States should have provided for the proper care of epileptics, especially when it is remembered that there are almost as many individuals afflicted with this malady as there are persons insane.

It is a mistake to suppose epilepsy to be an uncommon disease. Its manifestations are so diverse that the condition may be present many years unrecognized. The attacks may be so mild as to escape observation; again it may be that they occur only at night, and no one, not even the patient, be any the wiser.

It is conceded that at least one person out of every five hundred of our population is an epileptic. With Louisiana's population of 1,800,000 there must be 3,600 epileptics in this State. There are at present not over two hundred of these in our insane hospitals. This brings us to the conclusion that there must be over three thousand epileptics in Louisiana uncared for and constituting a menace to society.

The segregation of the epileptics should prove an asset to the State. This viewpoint has not been given the prominence it deserves. The financial loss to the State resulting from a great number of defective individuals following their unrestrained proclivities, the interference by them with the work of their normal relatives and other associates, and the harm of one kind or another done by these people, should warrant the State in exerting its authority to control so far as possible individuals who, because of their mental incapacity, cannot assume a normal position in the community.

It is almost the rule that epileptics, when admitted to institutions, show evidences of former injuries which occurred during convulsions. The seizures usually take place without sufficiently definite warning to permit preparation for the attack. These individuals are generally more or less gluttonous, and often addicted to the use of alcohol, which tendencies predispose to more frequent and severe seizures. Such habits are easily corrected by institutional care.

Many epileptics present most distressing symptoms besides their convulsive seizures. Nearly all show mental deterioration of a greater or less degree; often conditions of extreme idiocy exist. Many have periods when active symptoms of insanity are present, and practically all are quite irritable at times.

These people are not only a menace to themselves, but also to others. Often they commit horrible and brutal crimes, apparently without motive, responsibility or even knowledge of their revolting acts. An individual suffering from petit mal or infrequent attacks of grand mal may be employed in positions of responsibility.

States of aberrant and disordered consciousness, of great medico-legal importance, occur in epilepsy. The following is an abstract of an interesting case of amnesia reported by Eaton (*Iowa Bulletin of Institutions, July, 1916*):

Mr. L. had suffered from grand mal attacks since childhood. On May 8 he left his family to visit a neighboring town to collect a bill due him. On the 10th he telephoned his wife that he had been detained. His wife heard nothing more of him until she was notified of his confinement in an institution the following September.

On leaving home he reported for duty as a telegraph operator in a neighboring town. He soon left this place, and on May 30 was installed as agent of the American Express Company at Gridley, Iowa, using the alias of George D. C., this being the name of an acquaintance of his. He held this position fifteen days and then suddenly disappeared. While holding this position he ordered diamonds from a Chicago jewelry firm, for which he receipted as agent of the Express Company. He also carried with him numerous blank express money orders which required only his signature to be converted into cash. Several months later he was apprehended in Michigan on a charge of grand larceny. When arrested he suddenly lost the power to speak, see, hear or eat, and became as helpless as an infant. Four months later he suddenly regained the ability to do all of these things and disavowed all knowledge of his actions from the time he left home.

The case was carefully studied by the staff of the hospital to which he was committed and they all agreed he was not malingering but was passing through a period of amnesia with automatism, during which criminal acts are frequently executed.

Many more cases of a like nature might be cited. This one is mentioned only to emphasize the danger to society from the irresponsible acts of epileptics.

Heredity appears to be an important factor in the transmission of the disorder. Epilepsy is a generic term, however, under which are grouped a number of convulsive conditions, and it is possible that heredity may be only a predisposing cause. It is a fact beyond controversy that there are families in which epilepsy has existed for generations. So if it is true that epilepsy is due to heredity, this is another most cogent argument in favor of segregation, that the future generations may be to some extent saved from the problem confronting us.

The subject of epilepsy, apparently, is not one that interests general practitioners very greatly. I think most physicians do not care to treat epileptics. This is an additional argument for the care of these people by physicians especially trained in such work.

In addition to the duty a civilized people owe to the defective portion of its population, besides the tendency of humanity to protect itself from all sources of danger, there is yet another great advantage in caring for epileptics in special institutions, namely, the scientific study of the causes and treatment of epilepsies. A hospital where many cases are gathered offers an opportunity which the medical profession has always been eager to accept.

There is a great epileptic population now living which must be treated and cared for. Although the condition of these people to-day is far better than it was a few years ago, we have undoubtedly been remiss in administering to their needs. The epileptic village offers the best opportunity for doing this, for by the scientific treatment, education, employment and custody of these individuals, even though our knowledge of the disease is limited, they are improved both mentally and physically. Previous to writing this paper every public and private epileptic colony in the United States, as well as in Canada, was requested to give an opinion concerning the utility and practicability of epileptic segregation; they were unanimously in favor of it.

This paper is written for the purpose of calling the attention of the medical profession to the need in every State for an institution where epileptics may be properly cared for, and to urge every physician to co-operate in a movement to secure such an institution in Louisiana.

AGGLUTINATION OF BACTERIA BY MEANS OF DRIED AND DOSED SERA, WITH SPECIAL AP- PLICATION TO THE DIAGNOSIS OF CHOLERA.*

By GIOVANNI MAROCCO,

Translated for the *New Orleans Medical and Surgical Journal* by
LODILLA AMBROSE, Ph. M.

The process of agglutination of pathogenic germs in the diagnosis of infectious diseases is carried out at the present day with sera in the liquid state. Such a process involves a use of bacteriological technic, which is not readily within the reach of every practising physician, as the lack of special means and of time is inevitable. For this reason it has not gained the general adoption in the conflict with infectious diseases which it would merit for the practical value inherent in it independently of the other diagnostic methods.

With the confidence that this may serve to bring such a method of examination into more general use, I am pleased to present to this honored academy a special procedure devised by me and extensively experimented with in the Institute of Hygiene of the Royal University of Turin, and in the laboratory of the Department of Hygiene of the Commune of Alessandria, which I have the honor to direct. This procedure is based on the use of agglutinating sera in a state of desiccation on little pieces of glass, in the proportions desired for the common tests of agglutination for which they are to serve.

The preparation of such little pieces of glass with dried sera is very simple, inasmuch as it is sufficient to let fall by drops on microscopic slides or similar pieces of glass of small volume and large surface known doses of agglutinating sera, suitably diluted with physiological solution, and then to let them dry at 37°. Such sera thus solidified retain for a long time their integral agglutinating power, where the slides on which they adhere are kept protected from light and dampness; for example, wrapped in filter paper and enclosed in a small metallic box or glass bottle.

Then, in order to obtain with these sera so prepared the ag-

*Marocco, Giovanni. Agglutinazione dei germi per mezzo di sieri essiccati e dosati, con speciale applicazione alla diagnosi de colera. *Giorn. d. R. Accad. di Med. di Torino*, 1916, lxxix, 185-190.

glutination of the germs held in suspension in physiological solution or in culture liquids, it suffices to introduce into these liquids one of these slides bearing the dried agglutinating serum, corresponding in its action to the germ developed in it. Such agglutination will thus be even more evident than that with the liquid sera, because the little whitish clots which are formed deposit themselves by preference on the glass itself, and so are more visible as a whitish cloud on its surface. Only one should be careful in case of need for it immediately after introducing the glass into the liquid, (a) to shake this liquid somewhat around the glass itself in order that the serum may be dissolved uniformly, and (b) to keep the mixture thus made for an hour or two at a temperature of about 37° in water-bath, or even at ordinary temperature, if not much lower, for a longer time.

The value of the agglutinating serum resulting from this mixture may be calculated on the basis of the quantity of agglutinating serum made to dry on the slide and of the volume of the liquid in which it has been immersed. Thus, if, as is more suitable in ordinary practice, 1 cgr. of agglutinating serum is made to dry on each glass, it will have the value of 1 to 1,000, when 10 c.c. of liquid containing the germs are used, of 1 to 2,000, when the volume of liquid used is 20 c.c., and so on.

In two practical applications I have taken pains to experiment and to control more especially this process of mine, that is, in the diagnosis of cholera and of typhus.

For the bacteriological diagnosis of cholera by means of the feces from cholera suspects, or of feces into which I had introduced cultures of specific vibriones—after having planted a loopful of these feces in the usual peptonated and alkalinized water, and after having obtained in this water by increase of the germ an evident turbidity, I made the transfer into a second test of peptonated water in order to isolate the germ better in a rich culture of it. Then, into 10 or 20 c.c. of the two tests, containing in varying degree of purity the specific vibrio, I introduced one of the slides, having fixed on it by drying 1 cgr. of serum agglutinating the same vibrio, so as to have respectively values of 1 to 1,000 or 1 to 2,000. The result obtained was constantly to have agglutination already evident in the first test and still more marked in the second.

The two accompanying figures* show, first, a test-tube with peptonated water in which was planted a loopful of non-cholera feces, and another corresponding tube with the same liquid in which was planted a loopful of cholera feces. Into each was subsequently introduced a slide bearing 1 cgr. of dried serum agglutinating for the cholera vibrio. In the second test, which like the first after the introduction of the glass was kept in the oven for an hour at 37°, is seen very clearly to deposit the flakelets of the agglutinated germs at the bottom and around the slide; while in the first is maintained the total and uniform turbidity of the liquid.

If the same experiment is made on cultures of cholera feces with the introduction of slides with other agglutinating sera dried on them, but not specific for the cholera vibrio, then there is no trace of agglutination.

For the tests of agglutination in the diagnosis of abdominal typhus (typhoid fever) an analogous procedure is followed. The suspected bacillus, isolated first from the feces or from the blood in examination, is cultivated in bouillon or in agar. In the same culture in bouillon, or in physiological solution in which may be dissolved a loopful of culture in agar, the test of agglutination is carried out, taking in each of the two equal doses—1, 5, 10 c.c. of liquid—and introducing into these different tests of liquid of different volume one of the slides with dried serum agglutinating the bacillus of typhus in the quantity of 1 cgr.

If the specific typhus germ has developed in the cultures, there is certainly agglutination, more or less marked according to the cases. And if in like manner agglutination is tried with values of 1 to 100, 1 to 500, 1 to 1,000, one may differentiate the presence of bacilli of typhus and paratyphus, with the consideration that the test is made under conditions in which group agglutination may occur and under such conditions that this does not intervene to make difficult the differentiation of the true typhus bacilli.

I have been able to apply the same procedure to the Widal test, causing to dry in determined doses on slides the serum of

*Simply two test-tubes, one with contents of uniform cloudiness, the other with small amount of cloudiness at the bottom.—**Translator.**

a typhus patient, and testing liquids containing in suspension in desired proportions bacilli of typhus or of paratyphus; thus I obtained agglutination or not, according as the serum was activated or not for one or the other of the two types of germs.

Hence, it is evident that where one has at his disposal on glass different sera dried in this way in determined doses, such as that of 1 cgr. corresponding to one drop of liquid, one will have exact indices for recognizing in simple and rapid manner the presence of the germs for which each of these is agglutinating.

I think this method may render particularly useful service in the fight against cholera; for this fight more than any other prophylaxis it is necessary that every sanitary technician should know how and be able to make promptly and on large scale the diagnosis of the first cases. The application of this method to the diagnosis of cholera is favored by the fact that one may successfully prepare the liquid for experimentation with means readily at one's disposal at any time and place, since one may obtain rapidly in the desired conditions peptonated water with previously prepared doses of mother solution, and the culture of cholera feces in tubes kept in water-bath at suitable temperature.

For such times of need I have had prepared for the ordinary use of the sanitary technicians a small box of metal, itself adapted to serving as a receptacle for boiling the water or keeping it at the desired degree (as sterilizer or water-bath); and at the same time capable of holding for transport (a) a certain number of small bottles containing mother solution for preparing instantly the volumes of peptonated water necessary for the culture of matter suspected of cholera; (b) some test-tubes, each with a capacity of 50 c.c., to be turned to account for the sterilization of peptonated water in the desired volume (10 and 20 c.c.) for the subsequent development of the cultures, and then for making the treatment with dried serum; (c) a measuring ube of 10 to 30 c. c. for dosing the necessary water; (d) a thermometer with division to 100° C; (e) a bottle containing a certain number of slides, on each of which may be dried 1 cgr. of serum agglutinating for the cholera vibrio; (f) two glass rods for the plantings.

The box which serves as a container for the objects necessary to the diagnosis can be adapted to any means of heating; and it can be used to boil and sterilize the peptonated water, it will serve as water-bath to keep this with the cultures on the way to development or to agglutination at the desired temperature, which may be measured with the accompanying thermometer, and it will sterilize all the objects used after the tests are finished.

REMOVAL OF VARICOSE VEINS OF THE LEG WITH LOCAL ANESTHESIA.

By CARROLL W. ALLEN, M. D., New Orleans.

In the removal of varicose veins of the leg, the operation which the author prefers is the removal of the entire vein with such of its tributaries as seem necessary, from the saphenous opening above to the ankle below.

After trying many methods for producing anesthesia, the following plan has been found the most satisfactory.

Usually four points are selected for making the injections, which are the areas through which the incisions will be made; one just below the saphenous opening in the fascia lata, one slightly above the knee, one just below the knee and one just above the ankle. At each of these points a transverse area of anesthesia is established running across the leg at right angles. This infiltration is done in the same methodical manner at each point. Very weak solutions are sufficient for this work, either 1-4% novocain or 1-5% eucain; usually eight ounces are required, to which is added twenty drops of adrenalin solution 1 to 1000. All four areas are infiltrated before the operation is begun; this is quickly done by pursuing the following plan: With the small syringe and fine needle, an intradermal wheal is first produced in the center of each of the four areas to be infiltrated; this point should be about over the saphenous vein. The small syringe is now discarded and the large syringe and long needle used throughout. Starting above at the Wheal near the saphenous opening, the needle is directed subcutaneously close under the skin at right angles to the axis of the leg, injecting as the needle is advanced for a distance of

about two inches. The needle is partly withdrawn and re-directed in the opposite direction, which is similarly injected. Partially withdrawing the needle again, it is directed at a slight angle to the first injection and passed down nearer to the deep fascia for a distance of about two inches, always injecting steadily when the needle is being advanced. The opposite side is treated similarly. Two deep injections are now made down to or slightly below the deep fascia, one on each side of the position of the vein. During these several injections, the needle is not withdrawn from the skin, the angle being changed by partially withdrawing it, and the syringe detached from time to time for refilling. Each of the four areas for infiltration are treated similarly, using about two ounces of solution at each point; about eight ounces in all, slightly more for very stout cases and slightly less for thin ones.

By completing the infiltration of all four areas before the operation is begun, the solution is allowed ample time to thoroughly saturate the tissues, producing the maximum degree of anesthesia and diffusing outward toward the skin, rendering it unnecessary for direct infiltration here. This methodical method of procedure is very quickly done and saves much unnecessary loss of time.

By beginning the anesthesia above and progressively working down the leg, many of the cutaneous nerves which reach the lower parts are effectively blocked by the upper injections and brings each succeeding area of injection somewhat under the influence of the injection above. Whereas, if the opposite order of procedure were followed, we would constantly be encountering fibers from the same nerve in a sensitive state.

My method of operating has some advantages and is particularly suited to local anesthesia. It consists essentially in enucleating the vein from the surrounding tissue by the use of the finger, which is much more certain of removing the entire vein than an enucleator, which often breaks it off, particularly if diseased and friable. An incision is made through the upper anesthetized area just below the saphenous opening and the vein secured, ligated proximally and divided, a stout forcep securing the distal end. By traction on this forcep, the vein is held

taut and its course well outlined; the finger is now worked down circumferentially around it, separating it from the surrounding tissue, any branches that are encountered are either broken off if small or, by locating them with the finger, a bistoury is passed down along side the finger and they are divided. After reaching as far down as can be readily done from the upper opening, the area next below is incised, by traction on the vein above its exact position is readily made out, but if not quickly located, a long probe is passed down through the lumen and can be readily palpated through the tissues and unnecessary dissection avoided. The process of enucleation is similarly continued from this point down to the ankle. The entire procedure is quickly carried out with little trauma to the tissues.

APOTHESINE, A NEW LOCAL ANESTHETIC.

By CARROLL W. ALLEN, M. D., New Orleans.

It is with much pleasure that we note an effort on the part of our chemical manufacturers to provide us with drugs, the original products of their own laboratories and make us independent of foreign sources, which have so long been our only source of supply. Apothesine, recently presented in experimental qualities by an American firm, is a synthetic product of their laboratory. Chemically, it is the cinnamic ester of gamma-diethylamino propyl alcohol hydrochlorid. Apothesine occurs in the form of small snow-white crystals, having a melting point of approximately 137° C. It is easily soluble in alcohol; very soluble in water; and slightly soluble in acetone and ether.

During a clinical experience of several months, I have been very favorably impressed with the anesthetic properties of this product and have performed hernia, hemorrhoid, fistula, varicocele, circumcision and plastic operations. I have uniformly used a $\frac{1}{2}$ solution in 4% sodium chlorid with five drops of adrenalin chlorid solution, 1 to 1000 to each ounce. The anesthesia has been complete in all cases and has invariably lasted in excess of an hour. No immediate or late irritating effect was noted and the wounds healed as well as after the use of any other anesthetic solution. No toxic or other unpleasant immediate or after effects were noted, although large quantities were pur-

posely used to determine this point; as much as four ounces in one case, which represented nearly ten grains of the drug. This limited experience, with the absence of other data, is not sufficient to give it its proper place among local anesthetic agents. Data regarding its toxicity are not obtainable, but from my experience it must be very low. In this connection, the manufacturers state that its toxicity is not greater than that of novocain and considerably less than that of other anesthetics commonly employed.

I have not been able to obtain any more exact information than the above and the time at my disposal does not permit of further observation.

The following are the results of injections made upon myself in studying its action. The preparation experimented with was in liquid form put up with a saturated solution of chloretone for purposes of preservation, which I believe is a mistake, as noted later. The solution was first boiled for ten minutes. Intradermal wheals were made in my skin at various points, using for each injection one c.c. of solution.

1. One per cent of apothesine, injection 9:55 p. m., slight negligible burning if injected too rapidly, which immediately subsided; no sensation if slowly injected. Immediate anesthesia. Within about ten minutes slightly pale area had developed around wheal and center became slightly pink. After fifteen to twenty minutes slight itching sensation. 10:30 p. m. pink center has become more marked. 11:10 anesthesia still complete. 11:25, returning sensation. 11:55, nearly normal sensation. 12:30, not yet quite normal. Complete anesthesia for one hour and fifteen minutes. Pink center to wheal still persists, with a very slight suggestion of infiltration in surrounding tissues.

2. One per cent apothesine, five drops of adrenalin, 1 to 1000 to the ounce, injection 10:02, results similar to last injection, except that pale area surrounding wheal was slightly more marked, with pink center more pronounced. 12:15, anesthesia still complete. 12:30, returning sensation. Complete anesthesia one hour and fifteen minutes. Subsequent appearance of area same as with 1% without the adrenalin.

3. One-half per cent apothesine, sodium chlorid 4%; injection 10:07, no sensation during injection. Immediate anesthe-

sia. Pink center and pale surrounding area as with other injections. 10:35, complete anesthesia. 10:40, returning sensation. 10:45, near normal. 11 o'clock, normal. Thirty minutes' complete anesthesia.

4. One-half per cent of apothesine, adrenalin solution 1 to 1000, five drops to the ounce. Injection 11 o'clock. Immediate anesthesia. Appearance same as above. Forty-five minutes' complete anesthesia.

5. One-half per cent apothesine, sodium chlorid 4%, adrenalin solution 1 to 1000, five drops to the ounce. Injection 10:13. 11:30, complete anesthesia. 11:37, returning sensation. 11:50, nearly normal. Complete anesthesia one hour and fifteen minutes. Appearance of injected area same as above.

6. One-fourth per cent apothesine. Injection 10:33. No sensation. Immediate anesthesia. 10:55, complete anesthesia. 11:05, returning sensation. 11:15, nearly normal. 11:28, normal. Pink center and pale surrounding area less marked than with the stronger solutions.

7. One-fourth per cent apothesine, 4% sodium chlorid. Injection 10:38. No sensation. 11:15, complete anesthesia. 11:19, returning sensation. 11:35, nearly normal. 11:50, normal. Thirty-seven minutes' complete anesthesia. After appearance same as above.

8. One-fourth per cent apothesine, adrenalin solution 1 to 1000, five drops to ounce. Injection 11 o'clock. 11:40, complete aesthesia. 11:45, returning sensation. Forty minutes' complete anesthesia. After appearance same as above.

9. One-fourth per cent apothesine, 4% sodium chlorid, adrenalin solution 1 to 1000, five drops to ounce. Injection 11:13. 11:50, complete anesthesia. 12 o'clock, returning sensation. 12:35, nearly normal. Thirty-seven minutes' complete anesthesia.

The next day, a slightly reddish punctate spot marks the site of the wheals. This is more marked in those in which the stronger solutions have been used and slightly more so where adrenalin had been added. Slight soreness and itching in all spots when manipulated, but not noticeable without manipulation. In the two 1% injections a very slight infiltration of the tissues noticeable. The frequent examination of the areas in

which they were stuck by a needle every few minutes during the period of the examination should be considered in drawing conclusions from their appearance. The anesthesia in all cases was immediate and complete and disappeared very slowly. It was often longer than one-half hour from the time returning sensation was first noted until it appeared normal. The pink appearance in the center of the wheal in the case of the stronger solutions persisted for forty-eight hours, but no similar reaction had been noticed in the clinical use of the drug, although the wound had been closely watched. To determine the cause of this reaction two injections were made into my skin with solutions, prepared by tablets of the same drug which did not contain chloretone. In each case there was no sensation during the injection and the central pink area and surrounding pale areola were less marked and disappeared after a few hours. Otherwise, the resulting anesthesia and its duration were the same. The site of injection, if disturbed by manipulation, gave a slight itching sensation, otherwise it was not noticeable.

To test the effect of chloretone when injected alone, I injected my forearm with ten minims of a saturated solution of chloretone, 8% the same strength with which the apothesine is put up; slight burning occurred if injected too rapidly. When tested with a point of a needle for anesthesia, it was found to be completely anesthetic only in the center of the wheal and wherever the needle was entered, a red punctate spot appeared immediately and remained permanently. Otherwise, the wheal presented no change in appearance from the surrounding tissue. Anesthesia lasted about forty minutes' only in the center; the periphery quickly returning to normal.

I am consequently forced to the conclusion that much of the after appearance of the injected areas in these experiments must be due to the presence of chloretone in the solution and accordingly suggest that this method of preparing the solution be changed, as it probably will, and a drug marketed in powder form, as is the case with other local anesthetics.

In conclusion, I wish to state that I believe this preparation has a decidedly useful future and should be given a fair and impartial trial. In my own observation it compares, at least in its anesthetic producing properties and its low degree of toxicity, very favorably with novocain.

SPRAINS.

By ISIDORE COHN, M. D., F. A. C. S.,

Assistant Professor of Minor Surgery and Instructor of Clinical Surgery, Tulane School of Medicine; Junior Surgeon, Touro Infirmary, New Orleans, La.

The title of this paper is a term which has gained dignity by long usage, and one which is used far too often at the present time. While the word is used too frequently men seem to hesitate to write on the subject, as is evidenced by the scarcity of recent literature. The probable attitude of many who would be well qualified to write on the subject is well stated in the words of Sir W. Bennett (*British Medical Journal*, 1906): "Unless I had been asked to do so, I should not have presumed to contribute to the *British Medical Journal* an article upon such a trivial subject as sprains." Fortunately another attitude toward the injuries is illustrated by the remarks of Mr. Tubby: "The subject scarcely calls for an apology, because, in the first place, it is one on which the text books speak but lightly and pass it over with a few scanty remarks of but little value in any direction." (*Practitioner*, London, 1897).

There was a time when there was an excuse for the frequent use of the term sprain, but to-day, with all of the modern aids to diagnosis at our command, particularly the X-ray, we should be more careful of its use. Many are inclined to apply the term sprain to an injury about a joint in which there is no grossly apparent pathological condition, such as deformity, crepitus or abnormal mobility. Such a procedure is inexcusable in the light of some of the recent writings. Some are even unwilling to admit that a true sprain, according to the older definition, really exists as a separate entity.

In Da Costa's *Surgery* we find the following definition of a sprain: "A sprain is a joint wrench due to sudden twist or traction, the ligaments being more or less damaged." Ross and Wilbert, writing in 1902, stated: "Sprains are a class of injuries of which the pathology has been considered more or less vague and the results of treatment unusually unsatisfactory. In the light of our present knowledge it would appear that the generally accepted definition of a sprain is incorrect and misleading and that the true pathology is that of a fracture, a luxation or both a fracture and a luxation involving the same joint. Many

cases were diagnosed as sprains by the patient himself or by the corner druggist."

Again, in 1912, Ross and Stewart of Philadelphia stated: "The word sprain standing alone we eliminate." They believe that the condition formerly called a severe sprain should be classified a sprain fracture. By this term is meant "a condition resulting from an increase in tension of tendon or ligament or from direct violence at the seat of tendinous or ligamentous attachment to bone, is a separation of all or part of that bone to which tendon or ligament is attached from that bone of which it formed a part. (*Annals of Surgery*, vol. 155, p. 71.) Callender first described this condition in 1870.

Ross and Stewart carried out a series of fifteen experiments to determine the relative tensile strengths of tendons, ligaments and small bony prominences by which the ligaments and tendons are attached to bone. Quoting their own words we read "In these fifteen experiments done by pulling force on tendons and ligaments at some distance from the attachment of them to bone, bone gave way in every test but one." Beside their experimental work they collected 145 cases of sprain fracture from their work and of these they found that thirty-three came for treatment three or more weeks after the accident.

Dr. Ross of Philadelphia, discussing a paper read by Dr. Stewart, stated: "Dr. Stewart's experimental and clinical work is conclusive proof that *sprain* is *fracture* and being fracture should be so treated."

Ashhurst understands that sprains are injuries to joints which cause laceration of ligaments.

Turner Thomas has made experimental cadaveric sprains without an associated fracture.

While we are not prepared to accept as a fact there is no such thing as a sprain, the work of Ross and Stewart, experimental and clinical, is bound to be impressive.

My own experience leads me to conclude that the diagnosis of a sprain should not be made until one has positively eliminated fracture. In other words it is our plain duty to have a radiograph of every case in which there is an injury about a joint. Bennett states: "It has been conclusively shown by the X-rays that sprains, commonly so called, are, in quite a large

proportion of cases, complicated by slight fractures, every sprain should be examined by the X-rays. In the event the X-rays being unobtainable it is wise to regard any case in which the symptoms of sprain near a joint are unduly exaggerated as being complicated by a fracture." Legally we would have no recourse if a patient were treated by us for a sprain and later someone else had a radiograph which showed an old fracture to be the cause of the deformity and disability. I have treated many cases which might have been considered sprains if we had not had the lesson impressed on us by the cases of others which have fallen into our hands and by a study of the literature.

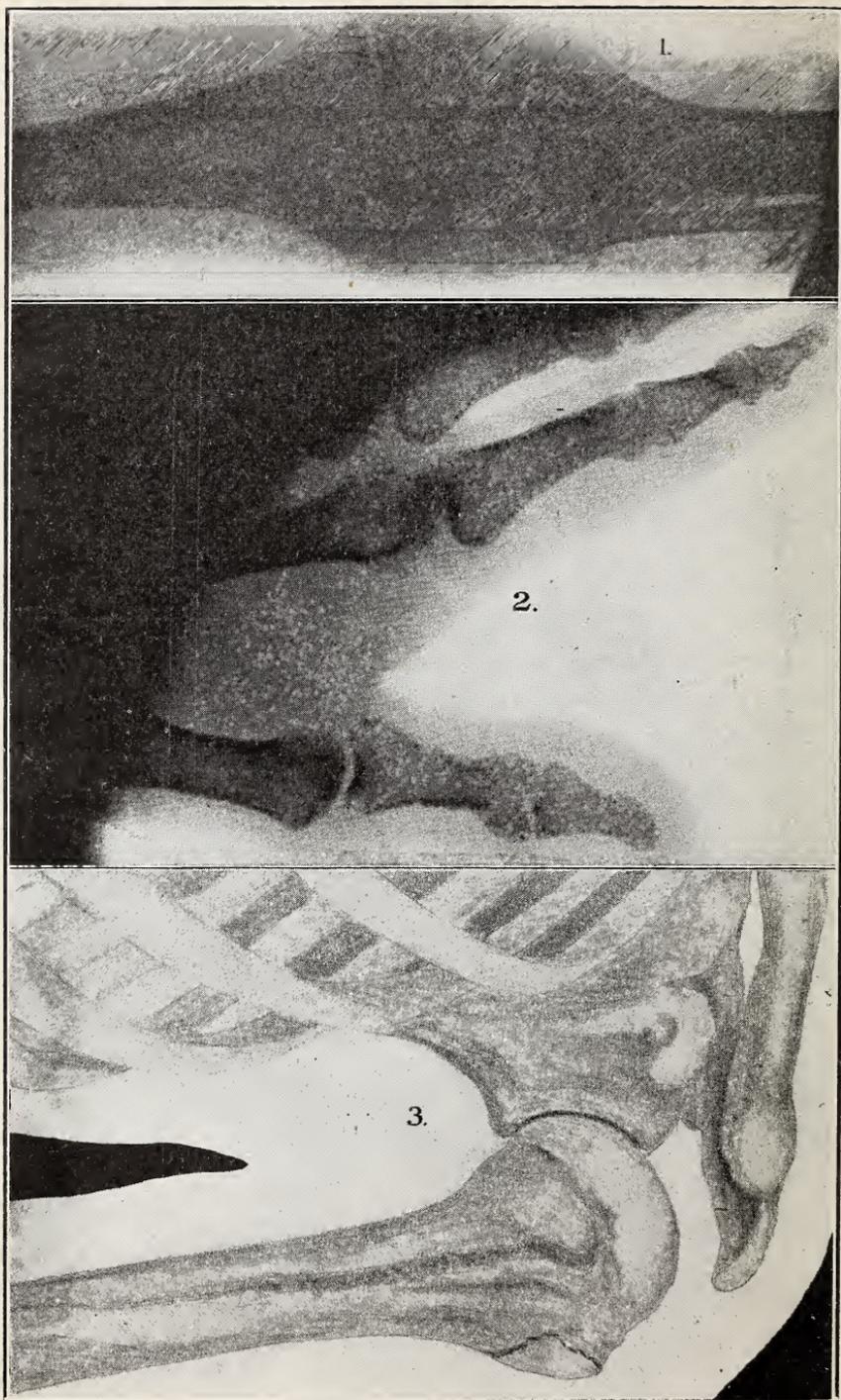
Case Reports.

Case: Mr. M. W. Young man. While playing indoor baseball he attempted to slide to base, the opposing player in an effort to reach the base first stepped on his foot. The next morning the patient telephoned to me that he had a sprained ankle and would I not come early and strap his ankle that he might go to work. When I saw him there was some swelling of the ankle particularly over the internal malleolus and pain on pressing over the dorsum of the foot just below the malleolus and in front of it. Pressure on the sole upward caused pain in and about the ankle joint. Suspecting an injury to the astragalus I had an X-ray picture made by Dr. E. C. Samuel. The picture showed a fracture of the astragalus. A plaster cast was applied and five weeks after the accident he was able to walk without pain. He has no discomfort at present, weight bearing is not impaired and he has no deformity.

Mrs. M. M. Diagnosis *Fracture External Malleolus.*

She fell while going down stairs and "sprained her ankle." Examination showed swelling of the ankle particularly over the external malleolus, pain localized in that region, and some limitation of motion of the ankle. An X-ray picture showed a fracture of the external malleolus. It was treated accordingly and the patient recovered with a useful joint.

A. Mos. Boy 11 years old. While playing with a friend he was thrown down. The parents thought that the boy had sprained his knee and paid no attention to the injury until 6 weeks after the accident, when I was consulted about him. Immediately after the



accident he was able to walk, with only a slight discomfort. The reason for consulting a doctor was a limp and some swelling of the knee.

Examination revealed the injured knee to be about one inch larger than the opposite side, there was fluid in the joint, some limitation of extension and pain over the internal condyle of the femur and the upper end of the tibia.

An X-ray picture revealed a longitudinal fracture of the upper end of the tibia not including the epiphysis.

The child was anesthetized and the leg extended, a plaster cast was applied in this position. At present he is improving.

Mr. Z. While helping to unload a truck he was struck on the knee. Dr. Blank treated him for a sprain and later a "dislocated nerve." He applied to the clinic for treatment at which time it was found that he had some flexion of the knee over the internal condyle and some hydrarthrosis of the knee. An antero-posterior view as well as a lateral view of the knee was requested, but for some reason the antero-posterior view was not taken and a report of "Negative to bone changes" was made. A subsequent lateral view was made and it revealed a fracture of the internal condyle of the femur. The loose fragment was removed, the wound healed without trouble and the patient recovered the ability to flex and extend the knee. The last time he was seen the weight bearing power was perfect and the motions of the joint were not impaired.

A case I reported once before had a fracture of the greater tuberosity of the humerus which was diagnosed as a sprain of the shoulder. He was not treated for a fracture until about one week after the accident.

Mr. D. B. W. On March 16, 1913, while trying to step from a moving car, he fell to the pavement. He was seen by Dr. ——— who very kindly referred him to me on March 24. During the week following the accident the patient noticed that he was unable to use his arm or abduct it.

Examination revealed marked ecchymosis of the arm. There was loss of contour of the shoulder joint. He held his arm close to the body, the arm rotated inward. He complained of severe pain over the greater tuberosity of the humerus.

Limitation of the motion of the shoulder, especially external rotation. In fact he was unable to rotate the

arm voluntarily to any degree, and passive external rotation and abduction was painful. The diagnosis of fracture of the greater tuberosity was made and the accompanying skiagraph confirmed the diagnosis. The plan of treatment followed has already been outlined.

On May 3 he was discharged. At that time there was practically perfect function of the shoulder.

"The wrist, proper, is more subject to these so-called sprains than any other joint." * * * "Probably the injury most generally overlooked at this joint is a fracture of the carpal bone." * * * "Next in frequency are fractures of the styloid process, either of the radius or the ulna." (Bennett.)

Many cases of wrist injuries could be cited from clinic records which confirm the statements made regarding the frequency of fracture and relative infrequency of sprains. Injuries of the metacarpals are often passed over lightly with diagnosis of sprain, until deformity appears after the subsidence of the swelling and a limitation of the usefulness of the hand shows the patient first and the doctor next that something more than a sprain has occurred.

Only recently a case was treated at the clinic which illustrated the truth of this statement. The following is a brief resume of the case. A young white boy was fighting. He struck his opponent on the face. He experienced some pain and applied to a druggist for assistance, salve was applied, he then went to a doctor, who told him that he had sprained his hand. Six weeks after the accident he applied to the clinic for treatment. We found a marked deformity on the dorsum of the hand, limited to the area of the middle of the fourth and fifth metacarpals, a recession of the knuckles corresponding to these joints and a limitation of the power of closing the hand. It was with difficulty that some of the displacement and deformity were corrected.

Other cases could be cited, but I believe that enough has been mentioned to illustrate the points I wished to prove:

That sprains are infrequent as compared to other injuries about joints. That we should eliminate all other injuries before the diagnosis of sprain is settled upon.

In order to do the above one must make a routine X-ray examination in more than one plane.

Last, but not least, one should not accept the patient's or family's opinion of an injury, but should always make a routine examination with the view of eliminating all of the possible injuries about a joint before concluding that a true sprain exists.

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A NEW FRENCH AID IN THE CORRECTION OF DEFORMED FEET.*

By PAUL A. McILHENNY, M. D., F. A. C. S.,

(From the Orthopedic Department, School of Medicine, Tulane University).

When one undertakes the correction of a deformed foot in which structural changes exist, by the "Bloodless" or "Brisement Forcé" method, he should endeavor to accomplish the desired result with as little traumatism to the soft parts as is compatible to the operation. A torn ligament, a fractured bone, or even a lacerated or badly bruised skin may prolong the treatment or produce a questionable result. With a patient in the first decade of life, when one finds the soft parts most elastic, and the bones still "bendable" to a certain extent, it is not often necessary to use force greater than that which may be applied with the hands alone, but in older patients, in whom most resistant contractions are found, it is frequently necessary and even advisable to use a contrivance with which one may more readily stretch the contracted soft parts and so be better able to restore the bones to a more normal position in one operation. Hippocrates spoke of club foot and devised a wrench for its correction, and many surgeons interested in the correction of deformities have had wrenches built according to their ideas; even Lorenz, with his wonderfully powerful hands and arms, found it necessary to plan an apparatus to help him in his "Bloodless" correction of club foot. The most widely known wrench for

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Fig. I.
WRENCH, SHOWING
SLIT IN LEATHER.



Fig. II.

WRENCH APPLIED FOR
CORRECTION OF VARUS.

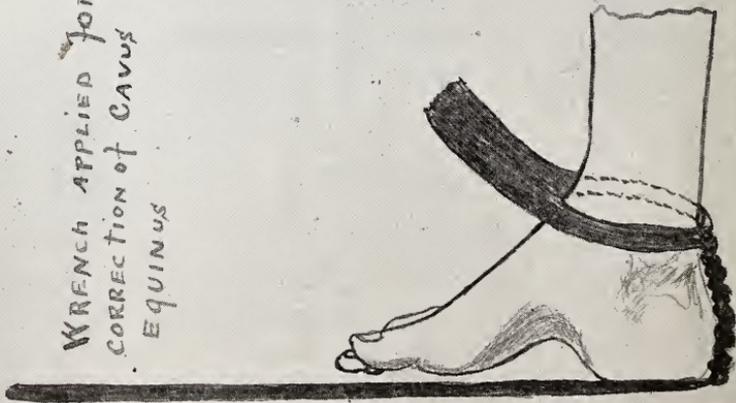


Fig. III

WRENCH APPLIED FOR
CORRECTION OF CAVUS OR
EQUINUS

foot work, which is of comparatively recent conception and which has survived all others, is the "Thomas Wrench," made and popularized by the late H. O. Thomas and his son-in-law, Robert Jones, of Liverpool. Notwithstanding the great prominence attained by many of the "foot-wrench" inventors, all of the heretofore recorded modern wrenches were made of metal and so devised that, in order to hold the foot securely enough to manipulate it, it is necessary to clamp the foot between metal bars, arms or knobs. Even if the gripping part of the wrench is padded with felt or rubber the danger of trauma is still great, and if the wrench is made to grip the foot so tight as not to slip, then when enough power has been exerted to correct the deformity and the wrench is loosened we often find that the skin has been lacerated or possibly bones broken. Any such complications naturally retard the treatment and may even give a bad result. I have, therefore, attempted to invent an apparatus which will be capable of great power and at the same time minimize the chances of traumatizing the soft parts or of producing a fracture. The wrench which I now submit to your consideration consists of a piece of oak about 14 inches long, $2\frac{1}{2}$ inches wide, and 1 inch thick, shaped somewhat on the plan of the handle of a hatchet: the flat or wide end is sawed down its width about 2 inches and the sharp edges are rounded off; a soft, pliable piece of leather 20 inches long and $2\frac{1}{2}$ inches wide is morticed into the split end of the oak handle and is held in place by brass screws which draw the sawed surfaces together; the leather is roughened on one side with a coarse file, and a slit 6 inches long is made from the handle downward; a small patch of leather is sewed across the lower end of the slit to prevent the leather from tearing. When applying it to the foot one begins at the end of leather with the roughened surface next the skin and wraps it around the foot so that when the handle has been reached its flat surface will be against the sole of the foot; the roughened surface prevents the leather from slipping on the skin, and as pressure is exerted upon the handle the leather tightens about the foot, and a *varus* or *valgus* deformity can be readily reduced without traumatizing the soft parts. If there is an *equinus* position to correct, the foot is passed through the slit in the leather to a point just above the malleoli and the

leather twisted until the flat surface of the handle can rest on the sole of the foot; adequate pressure exerted upon the handle will stretch the tendo-Achillis or straighten out a *Pes Cavus*. When an adducted position is to be corrected the leather about the ankle is changed to a lateral position and then twisted till the flat surface of the handle rests against the lateral aspect of the ball of the foot, force then applied will stretch any contracted tissues. As previously stated, all metal wrenches have the great disadvantage of the possibility of producing a trauma of the soft parts when they are screwed down so tightly upon the foot as to enable the operator to correct the deformity. This wrench, as it grips the foot with soft surfaces, obviates that possibility. We have now used it for three years as an aid in the correction of club feet and contracted flat feet and have seen no complications.

REMOVAL OF A FOREIGN BODY (KNIFE BLADE) FROM THE BRAIN.*

By HERMANN B. GESSNER, M. D., F. A. C. S.

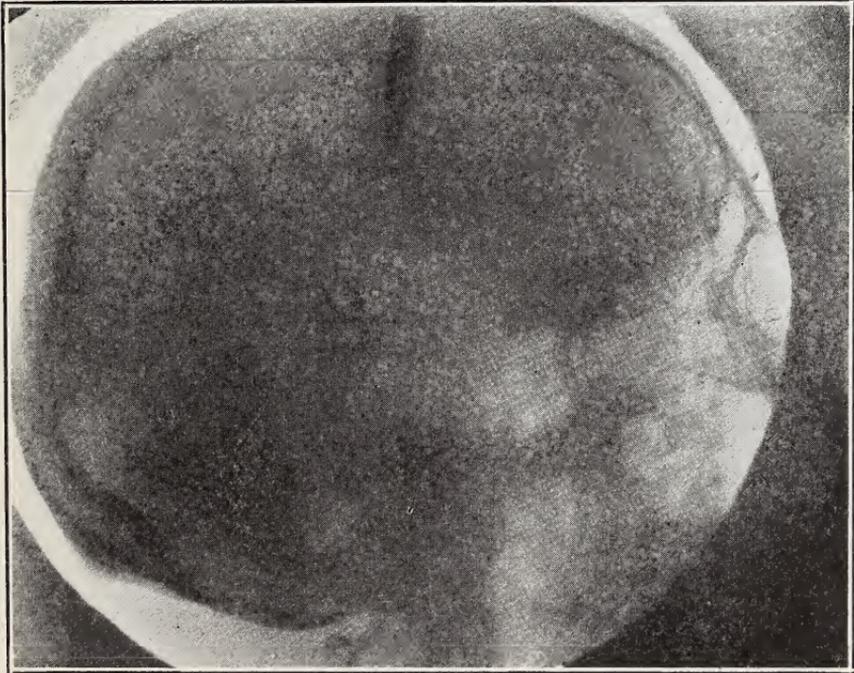
Frank Potts, chauffeur, aged forty-four, was admitted to ward 25 of Charity Hospital September 26, 1916, with a diagnosis of incised scalp wound and probable fracture of the base of the skull. The latter diagnosis was based on a hemorrhage from the left ear. Previous history and physical examination were negative.

On account of the diagnosis of basal fracture he was put to bed; 10% argyol was dropped in the ears and sterile cotton inserted; 10 c.c. of antitetanic serum were administered. After several days in bed, during which the temperature ranged from 101° to 98°, the wounded man was allowed up. On the ninth day of his stay in the hospital he was sitting in a chair and presenting a complete left hemiplegia, with hemilateral facial involvement; mental condition clear but sluggish; blood pressure not recorded, about normal. Dr. Victor C. Smith examined the eyegrounds on the tenth day and reported no edema of the papillæ. Dr. Henry Daspit made a neurologic examination and

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recommended exploration of the right motor area of the cortex on a diagnosis of injury, with probable hemorrhage.

At this time it was learned from his wife that near the scene of his injury a knife had been found with a broken blade, the end of which could not be found. An X-ray picture, taken the tenth day, showed clearly a knife blade projecting through the vertex near the median line on the right, near the anterior supe-



rior angle of the parietal. On the eleventh day operation was done under ether. After palpation of the blade stump through the scalp to make sure of its situation, a flap was turned down, an opening alongside the knife track made with a Hudson drill and rongeur; the knife blade (two inches) was then removed, the track dilated with a hemostat to allow pus to run out to the amount of about a half-ounce; a fine cigaret was then introduced, as well as an iodoform pack to control subdural bleeding; bone wax was used to control bleeding from the bone surface. At this time brain pulsation was scarcely perceptible; as

its tension was moderate and no bulging occurred, the operation was terminated, the drains emerging at an angle of the wound. On the thirteenth day the drains were removed. Recovery was uninterrupted and complete.



PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

A SYSTEM OF PERIPATETICS.*

By E. S. GOODHUE, A. M., M. D., LL. D.,

The doctors seem to be agreed upon an occasional change of residence for all who live in the tropics, giving as a reason that long-continued heat has a deteriorating effect upon the human system.

While I shall not presume to question the opinion of these learned men, I offer, herewith, a short exposition of a theory of peripatetics which I believe to be a cure for nearly every physical ill to which the world has been heir for the last few thousand years.

Were I in the trade, I might label my cure "Professor Conglomerate Jones' Travel Cure," but I am not mercenary, and leave the idea open to infringement.

You have noticed that whenever you go from your own home town to another, especially if you are tired and half-sick, you feel better; your appetite freshens, and sleep gladdens your lids at night. No matter how unlovely may be the place you visit, or how poor the table, or how hard the beds, you improve, at least for awhile. It may be for a day only; it may be for two weeks, or a month, or, in rare cases, for a year.

Here is the rub!

The instant things begin to pall on you, and your appetite grows less, begin to move. Don't stay a blessed second in the place where you are not so well as you have been elsewhere; the world is wide.

I gave this advice to a friend who had "weak lungs." He had gone for two months to a salubrious country, and staid there longer than he should, because the place had a reputation. He began to acquire a tolerance for the climate, just as one will for a drug, until it lost its stimulating effect on him. With the drug,—you either drop it for awhile, or increase the dose.

*Read by title at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

With climate the only way is to change the medicine by travel. Go east, or west, or where the spirit moves, but GO. Pack up and get out of the town, shaking the dust off the soles of your feet and the feet of your soul.

Well, this friend of mine, who was nothing but a skeleton, flushed with hectic, and breathless when he made the least exertion, started for California at once. He did this because the word "California," so long associated with balm and healing sunshine, lay uppermost in his subconscious mind. Finding more damp weather and rain than he expected, he continued his way to Hawaii. The voyage did him good, he began to gain, night sweats grew less frequent, fever abated, and he took on flesh, finding various new foods which agreed with him, especially *taro* and *poi*.

He staid two months, and was about deciding to stay permanently, when I wrote him: "Reconsider your decision. Don't fasten there yet."

By and by he thought that the natives were the plainest people he had ever seen. He wrote that it wasn't pleasant to be exposed to new tropical diseases, and that he considered Hawaii the dullest place on earth outside of New York in August. He had even lost his relish for *poi*.

"My son," said I, in a letter of fatherly advice, "git, and don't ever stay long enough in one place to become disgruntled. Always keep what you make. You have learned that in business, and it's a poor rule that won't work cross-wise. 'Tisn't what you make but what you save that counts in the long run."

He had said this to me many a time regarding money matters, on which he had a right to consider himself an authority.

He then left and went to Samoa.

At the end of a year he sent me a glowing account of his voyages, with an itinerary as follows:

January, 1882. Reached Apia today. Weight 96 pounds. Beastly hot. (I learned this expression from an Australian on the way down). Improved for six days.

Off for Vitu Levu. Weight 97 pounds. Stay three days. Appetite good.

Aukland.—Weight 98 pounds. Two weeks. Appetite good.

Sidney.—Weight 100 pounds. Four days. Appetite good. This is no place for me, but the change is doing me good. I am going to change my medicine tomorrow, and sail due north. Lunched at the Passagran. Still improving. Singapore is too hot for any but the condemned. Weight 101 pounds. When I tell you that I didn't perspire here last night, you will appreciate the extent of my improvement.

Tokyo.—Weight 110 pounds. Stay one month. Appetite fine.

Hong Kong.—Weight 110 and a half pounds. On the way to recovery. No fever for one week. Colombo.—Weight 110 and two-thirds pounds. Stay three hours. Appetite as good as ever.

Calcutta.—Weight 115 pounds. Stay two days. Appetite as good as ever.

Bagdad.—Weight 116. One day. Good as ever.

Cairo.—120 pounds. Stay three weeks. Appetite better than ever. Riding around on camels. Nothing but a little cough. Go from here to Rome.

Rome.—Despite this horribly ancient and pestilential city where malaria and murder walk the streets, I keep on getting fat. I saw the Pope and advised him to try Peripatetics as he is looking thin, and seems to be worrying a good deal. I told him Peripatetics was as infallible as he was, and he smiled sadly.

Natal.—Weight 140 pounds. Stay six months. Called at several ports on the way. I tell all Englishmen about the treatment, and at least three earls suffering from ennui (they call it ungenue but spell it as above), and a dozen other foreigners are getting ready to start. I told them what your line of treatment had done for me, and a British author is going to write it up. He wanted your name which I refused to give him, knowing that you are modest about such matters, and dislike notoriety. He said he wanted to be specific, because there were so many quacks in the United States, you know. Also, he asked if you were a disciple of Aristotle, and suggested that we adopt as our motto, *Hic et Ubique*. I told him the "Keep Agoin'" was good enough for me. He started for Napier Bay yesterday after buying a Universal Peripatetic ticket here. They are selling them here already, so I don't think the English are slow after all. We're not the only people who know a good thing when we see it, if we do see it a mite earlier than other folks.

January, 1883—Rekyjavik. Cold here but healthful. Weight 149 pounds. Stay three months. Appetite ravenous. Eat boiled seal, and drink pure oil instead of coffee for breakfast.

Quebec.—Weight 165 pounds. Appetite boss. I tobogganed, talked French, ate pea-soup, with blood dumplings and sour bread. I get fatter and fatter. No cough. No coffin in sight. Cheeks so red from health that they take me for a Norwegian.

Back to Boston.—Weight 192 pounds. Stay four weeks. Met my old sweetheart and we agreed to get married, or rather she did. She didn't know me at first, but concluded that she could love me as much as ever after she became familiar with my new physique. You see, all the rest of me except about 85 pounds was strange to her. I told her what I owe you as my medical adviser.

Start for California by way of Asheville, St. Augustine, Trinidad, Rio, Callao, Panama, Japan, Honolulu.

Looking at the matter now, it seems to me that I might have found all the climates I needed by a little less travel, but I'm satisfied with the treatment and the fee.

During the next ten years I heard from my friend occasionally, now in South America, now in Africa, Asia, Europe, or some remote portion of the earth. Exactly twelve years after he began his treatment he called on me. He had just arrived from Greenland, with his wife and ten children, all as healthy as himself.

The names of the children were recorded in a book, with the places of their birth. I remember that one was born in Jericho, another in Madagascar, one in Constantinople, one in Liberia, one in Bethany, Mo.; one in Honolulu, one in Spitzbergen, one on Jervis Island, one in Patagonia, and the last one in the Sahara Desert.

So attached was my friend to his idea that he named his children in honor of their birthplaces, calling them for short, Jerry, Madge, Constantine, Libby, Beth, Lulu, Spitz (who resented the name very much), Jervis, Pat and Sara.

Last month I received a letter bearing the Manila postmark. It was from my friend, who said that he weighed 300 pounds,

and was still gaining; that he intended to keep up his travels until he was called on his long voyage across the river.

He thought that he would be the gainer by this, and the only thing which troubled him was the fear that he might have to stay in one place longer than would be good for him. He consulted his pastor about it, who said that heaven was what you wished it to be, and that any sort of an arrangement which suited my friend's taste, would suit St. Peter, and would come within the regulations of orthodoxy. He could probably get an interplanetary coupon.

The only drawback to the Peripatetic System is its expense, but, as my friend remarked to me once, any kind of doctoring is expensive if you stick to it. You can't very well employ a cheap doctor and get your money's worth, but you can travel at a minimum expense.

In traveling, our family plan is to rent rooms or a cottage as soon as we reach a town, then go where we please to get our meals. In this way we save ourselves from the noise of hotels, are not advertised to our loving friends, escape newspaper men and reduce our expenses very much.

Now I think that the change which travel induces, the stimulus of new air, new scene, new food, new beds, new social relations, can be secured in Hawaii for a long period, if not indefinitely. One may take the peripatetic treatment here for years. By the time you get around to the place of beginning (as the notaries say), it will be new.

You can live by the sea, then move up to a reasonable altitude, living on air and the magic of sunrises and sunsets, as I do here in my bungalow, or go to the very mountain top, where it is as cold as Iceland. You may live on the warm beach luxuriating in the pleasant surf, or on cooler windward beaches; spend a while among cultivated tracts of land, or build a shanty in the woods. In fact, the Hawaiians practice peripatetics, and have done so for hundreds of years, especially if they are ill. They move from here to there, living in one place and another, changing their *habitat*, as it were.

Many of the people of means have several residences, a beach house, two or three of them in different locations; houses all the

way up the slope of the mountain at different elevations, going to one or the other as they feel inclined; in each having conveniences ready for them.

You can board with Hawaiians, Portuguese, Gilbert Islanders, Germans, Negroes, Americans, Chinese, Filipinos, Koreans, Japanese, Porto Ricans, Malays, Scandinavians, Russians, Samoans, and sample the different kinds of food these people enjoy when at home. This, in itself, would be variety enough.

I think the ordinary phthisic patient could keep agoin' here till he reached health; neighboring me are living evidences.

BERIBERI

Two cases of beriberi in Chinese and Japanese subjects are reported by A. C. Reed, San Francisco (*Journal A. M. A.*, Jan. 13, 1917). In the first Japanese case there was also clonorchis infection, and in the second case trichocephalus ova were found. The first patient (Japanese) was markedly improved under treatment by rest, mixed diet and mild tonics, though the diagnosis included, besides the beriberi and cardiac hypertrophy, moderate arteriosclerosis, pyorrhea and a low grade chronic nephritis. The second case does not seem to have been a very severe one of beriberi, but the outcome is not stated.

MISCELLANY

VIDE QUID AGAS!

The Annual Congress of public health, State examining and college experts met in Chicago early in February, still further struggling with the problems in medical education in and out of the medical school. Several important conclusions might be drawn from the various sessions. Among these stand out the need of shortening the student period of the intending medical graduate, the need of more general instruction in public health, the consideration of the content of the two-year college entrance requirement, the status of practical examinations by State Boards, the granting of higher degrees for graduate work in medicine.

Each topic met with full discussion and while in no particular was any tangible results attained, the dissemination of ideas may produce some action hereafter.

There seemed to be a general opinion that the present primary and high school period could be reduced so as to leave more time for college and professional school study. The present twelve years consumed in preparation for college seems capable of reduction by two years, the saving coming in the primary school by eliminating foreign languages and in the high school, through a similar elision, also here reducing the sciences to a minimum or by omitting them. Much stress was laid on the place of the so-called "Junior College," or academy, where college work is done, but without college quality, or not altogether acceptable for college credit. The entire country is full of these intermediary institutions, serving the purpose of education of many young men and women, without carrying them to the grade of attainment necessary for a real college degree.

The whole discussion emphasized the general unrest in pedagogics in the United States, without offering any tangible solution. There will probably result some material concession to the materialistic group, which more and more inclines to make the standard one for the average student rather than one built upon the lines of broad education in which the humanities are essential.

The reflex of this point of view was evidenced in the report of the Committee on Medical Education and Pedagogics of the Association of American Medical Colleges, when a report was brought in covering the content of the two years of required college work for entrance, to go into effect in 1918.

A distinct recommendation was made to omit the foreign language requirement in the college credits. As this question of the two-year content is to be deliberated by a committee specially appointed, we may well wait for the report before undertaking further discussion.

The discussion on medical college instruction in public health was illuminating, bringing out the woeful lack of provision for this branch in most medical schools. The excuse of an already overcrowded curriculum is hardly sufficient, in this day when public health is essential and when all physicians are so directly related. The mere notice of the limited registration area of the United States and the indifference of the balance of the States is enough argument for a better basis for the physician, who, after all, is the responsible person in a community.

That the subject is important at this time is further evidenced by the lack of medical graduates qualified for positions with the International Health Commission, the knowledge of which delinquency probably more than anything else has occasioned the Rockefeller Board to endow a special school of hygiene at Johns Hopkins. For several years, however, excellent courses, including laboratory instruction, have been offered and given at the University of Pennsylvania, Harvard and at Tulane; at the last named school this branch has been required for a long time.

In the report of the first examination of the National Board of Medical Examiners, read at the Chicago meeting, it was noted that hygiene was the only branch on which all of the ten candidates failed to obtain a passing grade, occasioning the examiner to comment that this subject seemed to be the most poorly taught among the branches on which the candidates were examined!

While the question of practical examinations by State Boards has been active for several years only a few boards have essayed the task of conducting such examinations. At the Chi-

cago meeting some analysis of the practice and of the results was demonstrated. The general opinion prevailed that in the time consumed, no real estimate of the candidates' knowledge could be determined and that with only a few days for the entire examination on all the subjects required the practical examinations as tried out were of little value. Again the work of the English Conjoint Board and the recent experience of the National Board were contrasted with State Board practice and it would seem that the only solution possible would be longer periods of examinations by State Boards.

Higher degrees in medicine must remain unsettled for some time to come. There was no unanimity of opinion on this question and the discussion brought out several salient facts.

Already several universities have undertaken the establishment of such degrees; each institution has adopted its own courses and its own standards, also its own titles for such degrees. At the start, then, there is confusion, for in one place a D. Sc. is offered, and in another a M. S. and in yet another a M. A. With the further complication of titles by adding the special subject in which the recipient has qualified, very soon there may be all sorts of new degrees and titles in medicine.

More than all this, graduate work in medicine is far from organized. The old clinical "postgraduate" schools have not been relegated and in only two or three universities has any real move been made to put the medical school work in the graduate department of the university. Archaic practices continue, therefore, and until these are set aside for a more academic curriculum, the degrees for advanced work will be worth just as little as the standard of the institutions granting them may command.

There must be standards for graduate work in medicine and these must be generally accepted at all places where real work is done or where it is contemplated. Then, and then only, may a consensus of opinion indicate the quality, character, and the name of the degree to be bestowed on a successful candidate. Otherwise the more degrees for graduate work there are, the cheaper they will become, until it will be the practice in the better institutions to forego such degrees for their very cheapness.

Isadore Dyer.

CURRENT LITERATURE

SAFEGUARDING FOODS AND DRUGS.—In the enforcement of the Food and Drugs Act during the last year, United States Department of Agriculture officials analyzed 29,833 samples of foods and drugs offered for interstate shipment and for export. A physical examination was made of samples from 76,468 shipments offered for import. Of these foreign shipments 6,353 were found to violate the law in some respects and were either excluded from the country or admitted only after the importers had relabeled them to comply with the law. Of the samples of domestic products analyzed 3,535, either because of the nature of the product or because the label on it did not tell the truth, were found to be in violation of the Federal law. In 7,364 cases the department recommended to the Department of Justice that criminal prosecution be instituted against the manufacturers or that the goods be seized. In many cases where there was no evidence of intention to defraud, and where there was merely some easily remedied flaw in the wording of a label, the shippers, after being warned in hearings, voluntarily took steps which made their products fully comply with the requirements. In all, there were held 8,715 such hearings, many of which resulted in the prosecutions indicated and the gathering of evidence for a large number of additional cases, which will be forwarded to the Department of Justice.

The Bureau of Chemistry, in its annual report, also calls attention to the fact that through the system of Service and Regulatory Announcements now in use, manufacturers are given due notice of the requirements and thus are enabled voluntarily to make their products conform to the law. In this way the government achieves its purpose, frequently without entering into needless and very expensive litigation.

In the regulatory work, special emphasis has been given to the control of drug products and foods liable to spoilage and pollution. These frequently constitute a serious menace to health. The food inspectors have been instructed to be particularly watchful for interstate shipments of bad eggs, milk, oysters and spoiled canned goods, and false and fraudulently

labeled medicines and spurious, synthetic drugs.—*United States Department of Agriculture Bulletin.*

CURBING FRAUDULENT MEDICINES.—Attempts to counterfeit or adulterate imported drugs have been more common since the recent high price and scarcity of many of these products encouraged their imitation. It is interesting to note that of the 1,036 cases terminated in the courts during the year, 198 were brought on account of the false and fraudulent labeling of medicines. In all of these medical cases, save five, the courts found for the government, and this, it is believed, has exercised an important deterrent effect on the vendors of nostrums shipped from one State to another.

The work of controlling the fraudulent labels of medicines and mineral waters has been greatly strengthened by the establishment of a separate office to deal with these matters. At the request of the Secretary of Agriculture an officer of the United States Public Health Service has been detailed to take charge of this work. Moreover, through the close co-operation established with the foods and drugs officials of many of the States, the department was able to direct the attention of the local authorities to the presence of spurious drugs in their States and, as a result, much of these fraudulent goods in the hands of local dealers and beyond the reach of the Federal authorities were destroyed by State and municipal officers, who, in many cases, prosecuted those responsible for the local traffic.—*Ibid.*

MILK, EGGS AND OYSTERS.—The co-operation in the sanitary control of the milk supply of small cities, described in the report for last year, has been extended in Illinois, Iowa, Missouri, Kansas, Nebraska, and in New England. It is proposed to repeat this work year after year, extending it each year to new territory. In some localities bad conditions were found, due in the main to insufficient cooling and careless handling. Perhaps the best results of this work has been that it stimulated some of the local authorities to take up similar work independently, so that definite permanent improvement of the milk supply of a number of cities has resulted. The co-operative work on the control of the shipment of decomposed eggs described in the report of last year has been extended to cover much of the territory in which shipments originate, so that eggs are now

candled before shipment far more than formerly and the spoiled eggs destroyed or fed to poultry and stock. At the same time information given to local officials has helped them to curb local traffic in eggs rejected in candling.

The Bureau of Chemistry, after making co-operative sanitary surveys of oyster beds, issued warnings against interstate shipment of oysters from polluted and doubtful beds and, where these warnings were not regarded, undertook prosecutions. As a result, interstate shipment from such territory was stopped.—*Ibid.*

CHRONIC DUODENAL INDIGESTION IN CHILDREN (John Foote, M. D., Washington, D. C.).—This condition is said to occur most frequently in children after the first year, and especially in those who have suffered from dietetic errors, usually with antecedent contagious diseases, or from prolonged intestinal infections, and this is fully covered by Foote in *December International Clinics*. This form of indigestion seems to be accompanied by deficiency or pancreatic ferments, especially lipase. A mild duodenitis, with either passes up the pancreatic duct, or diminished hormone formation, seems responsible for the condition. Diminished bile production may also be a factor. Anemia, loss of weight and mental underdevelopment occur. Large pendulous abdomens are common. Bottle feeding has been employed. Fever may be encountered, vomiting almost never. The number of daily stools varies from 3 to 12. They are thin, contain some mucus and flakes of whitish material and have a very foul odor. They give an acid reaction and microscopically contain not only large quantities of fat soaps, but also a considerable amount of neutral fat, but rarely starch granules. It is to be differentiated from mesenteric tuberculosis and acute duodenal indigestion. The treatment consists in reducing the food elements which have proven indigestible, namely, the fat, and stimulating enzyme production by the administration of hydrochloric acid pancreatic ferments.—*International Clinics*.

ACUTE SYPHILITIC MENINGITIS, (Boris Bronstein, M. D., Odessa, Russia).—Bronstein considers that the term acute syphilitic meningitis should be more particularly applied to acute meningeal phenomena of the secondary period, sometimes preceding, but more frequently accompanying the cutaneous manifestations

of this period. The pathology is essentially a meningo-vascularitis with hypersecretion of the cerebrospinal fluid. Prodromal symptoms, such as headache and insomnia, may or may not occur. Acute syphilitic meningitis at its height, Bronstein says, presents the clinical picture of the tubercular form, differing from the latter by the indistinctness of the symptoms, such as contractures and stiffness of the neck, and by the absence of any marked disturbance of the pulse and respiration. In the luetic form fever is apt to be absent and there may be remissions and relapses. Lumbar puncture reveals a considerable hypertension of the cerebrospinal fluid, albumin in quantity and a marked lymphocytosis with plasmozellen. The cerebrospinal fluid may yield a positive Wasserman even when the blood serum is negative. Other manifestations of syphilis are to be looked for. The immediate prognosis is rarely fatal, but the ultimate prognosis should be reserved. Prophylactic treatment is recommended whenever the cerebrospinal fluid shows a lymphocytosis even when all meningeal symptoms are wanting. The treatment consists in frequently repeated removal of the cerebrospinal fluid in considerable amount, combined with intravenous injection of cyanide of mercury and intraspinal injections of colloidal mercury. Neosalvarsan or salvarsan have a much more rapid action, but must be prudently handled in neurologic lesions of syphilis.—*Ibid.*

A CLINICAL CONSIDERATION OF MIGRAINE (John A. Litchy, M. Ph., M. D., Pittsburgh, Pa.).—Migraine is considered by the author as the most frequent headache, occurring in 700 of his 15,000 patients sick from all causes. He believes that the so-called acidosis in children may often be a forerunner of a well-established sick headache habit. The interesting relation between migraine and epilepsy deserve further study. Among the author's 15,000 patients epilepsy occurred in seven, and both migraine and epilepsy in seventy. Auerbach's theory, which attributes migraine to an actual disproportion between skull capacity and volume of brain, needs further proof. Dr. Litchy shows that the diagnosis is easy when there are headaches which are unilateral, periodical and hereditary, but when only one or two of these symptoms are present, or when there is

only a periodicity of some of the minor symptoms or possibly of the auras, the diagnosis may be difficult. Migraine is frequently mistaken for pelvic disease, for acidosis or cyclical vomiting in children, and organic disease, when some of the auras are present. The psychasthenic and the gastric symptoms frequently lead to confusion in diagnosis. While the underlying causes of migraine are vague and furnish little light as to treatment, much can be done to ameliorate the symptoms by proper handling of the exciting causes that aggravate the patient's general condition and precipitate the attacks. Most thorough investigation and careful individualization are indicated. Systematic administration of the bromide salts and avoidance of undue fatigue are especially recommended.—*Ibid.*

CARREL'S SOLUTION.—“Dissolve in a large bottle 140 grams of dry sodium carbonate in 10 liters of sterile water. Add to this 200 grams of chlorinated lime (bleaching powder), and shake well. After half an hour siphon off the clear fluid into another bottle through a cotton plug or filter paper, and then add 40 grams boric acid to the clear fluid.”

This solution is simply a solution of boric acid in Solution of Chlorinated Soda (Labarraque's solution) and water. It can be made much more expeditiously as follows:

Solution of Chlorinated Soda

(U. S. P. IX.)	.....200 Gm.
Sterile Water	.....800 mls
Boric Acid	..... 4 Gm.

Dissolve. Keep in well-stoppered bottles, in a cool place, protected from the light.—*Journal American Pharmaceutical Assn.*

NEWS AND COMMENT.

AFTERMATH OF INFANTILE PARALYSIS.—In the epidemic of infantile paralysis which swept New York city during the summer, many of its victims were permanently disabled. Of the home cases a higher percentage of serious after effects is shown than in hospital cases. According to a health bulletin just issued, 66 per cent of 2,058 discharged from city hospitals showed evidence of paralysis, 18 per cent showed that paralysis had entirely disappeared and the remainder, 16 per cent, had not shown effects of paralysis at any time. Of 2,715 cases followed in the homes, 1,885 were found seriously paralyzed in either one or both legs and are unable to walk. Five hundred and thirty, though partially paralyzed in the legs, can walk. Paralysis in one or both arms affected 273. The children are being scientifically treated and taught the use of their crippled arms and legs.

LABELED BREAD.—A bill has been introduced in the New York Legislature requiring that bread must be labeled with a statement of all ingredients aside from the usual ones (flour, water, salt and yeast), and prohibiting the use of poisonous or injurious ingredients.

EYESTRAIN AND BAD PUPILS.—The National Committee for the Prevention of Blindness says that the inspection of public schools is showing that eyestrain is one of the most serious causes of failure on the part of pupils to do their work, to say nothing of the personal distress it causes.

THE AMERICAN SOCIETY OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS held its eighth annual meeting at the Cornell Medical School, New York City, December 28 to 30, 1916. Dr. Reid Hunt of Boston, professor of pharmacology and therapeutics in Harvard Medical School, was elected president for the ensuing year.

SOCIETY AWARDS MEDALS.—The National Institute of Social Sciences, at its fourth annual convention in New York, November 19, awarded the medals of the society to Surgeon General

William Gorgas, for his work in stamping out yellow fever in Cuba and Panama, and to Dr. George W. Crile, for his contributions to surgery and allied sciences.

LONDON TIMES AND RED CROSS FUND.—The *London Times* recently announced that its Red Cross Fund, which other London papers are also supporting, has reached the total of \$30,000,000.

AMERICAN ACADEMY OF PUBLIC HEALTH.—This organization with the title of the American Academy of Public Health was organized in Cincinnati on October 23, the following temporary officers being elected: President, Dr. Carl L. Alsberg; Vice President, Prof. H. W. Conn; Secretary, Dr. Charles E. North, 30 Church Street, New York City. It is the purpose of this organization to devote its meetings to open discussion of the reports of committees on public health problems. These will be placed in the hands of the members in advance of the annual meeting, so that they may be prepared to discuss the same. The opinions which the membership of this academy may reach resulting from their deliberations on the problems before them will be published from time to time. The membership for the first year is limited to fifty and five new members may be added to this number each year. Qualifications for membership are based on achievements in public health work and scholarship in public health science.

LONGEVITY OF AMERICAN PRESIDENTS.—The *London Lancet* recently published a comment on the longevity of American Presidents and their causes of death. Their ages at death were as follows: 67, 90, 83, 85, 73, 70, 78, 79, 68, 71, 53, 65, 74, 64, 77, 56, 66, 63, 70, 49, 56, 71, 67 and 58 years. Those at 56, 49 and 58 were respectively, Lincoln, Garfield and McKinley, who were assassinated. The ages of these twenty-four men total 1,663 years, or an average of 69 years, showing, as is believed, that the stress and responsibility of leadership seems to have no effect on longevity. The *Boston Medical and Surgical Journal* says: "This is of interest in comparison with the longevity and causes of death among any series of monarchs belonging to a European dynasty of comparable duration."

A NEW PUBLICATION.—The National Committee for Mental Hygiene is issuing a quarterly magazine, entitled *Mental Hygiene*, to be edited by Dr. Frankwood E. Williams. This magazine will present to a wide circle of readers, in as non-technical way as possible, problems in all articles on the practical management of mental relations of life. No other magazine exists for the purpose, and it should prove of value and interest to all thoughtful readers, to physicians, lawyers, educators, clergymen, public officials and students of social problems. The first issue appeared in January.

INDUSTRIAL MEDICAL ASSOCIATION OFFERS PRIZE.—A prize of \$100 for the best thesis on any subject relating to industrial medicine and surgery, by any undergraduate medical student of the United States has been offered by the American Association of Industrial Physicians and Surgeons. The thesis is limited to 5,000 words and must be in the hands of Dr. Harry E. Mock, 122 South Michigan Avenue, Chicago, secretary of the association, on or before May 1, 1917.

AMERICAN JOURNAL OF SYPHILIS.—This new quarterly has just issued its first number. It is of 260 pages, with a staff of about 100 editors and editorial collaborators. The cover page has an appropriate statement by Sir William Osler: "Know syphilis in all its manifestations and relations and all other things clinical will be added unto you." There are several excellent articles, well illustrated. The social side of the subject is not neglected, as may be seen in an article by Dr. William Allen Pusey on the "Sanitary Attack Upon Syphilis," and one by Dr. Henry H. Hazen on "Teaching of Syphilis."

NATIONAL LEPROSY SANATORIUM.—This institution will be in charge of the Public Health Service and officers of the service detailed to the work will be allowed pay and a half. The home is to be chosen on a site acquired by purchase or on any abandoned government reservation suitable for the purpose, and shall be for the care and treatment of any person afflicted with leprosy who presents himself voluntarily, or for any who may be apprehended under the United States Quarantine Acts, or for anyone consigned to the home by the proper health authorities.

MEETING OF MISSOURI VALLEY PHYSICIANS.—The annual meeting of the Medical Society of the Missouri Valley will be held in Keokuk, Ia., March 22 and 23, under the presidency of Dr. Charles R. Woodson, St. Joseph, Mo. The Physicians' Club of Keokuk will be the host of the society.

NO EXPORTING OF MEDICAL HERBS.—According to the *Commerce Reports*, January 31, 1917, the French government, by decree of January 25, 1917, from and after January 27, prohibits the export, etc., of fruits for distilling, and roots and herbs, flowers, leaves, barks, lichens, fruits and seeds of medicinal character, subject to the usual exceptions.

FELLOWSHIP FOR PUBLIC HEALTH MEN.—The Harvard Medical School, co-operating with the Boston Dispensary, offers a Fellowship to graduates in medicine, leading to the Certificate of Public Health in the School for Health Officers, or to the degree of Doctor of Public Health in the Department of Preventive Medicine. Fellows must give half their time to the treatment of the sick in their homes, in a district of the city of Boston, and half to study at the Harvard Medical School. Appointments may be made for one or two years. The stipend is \$750 per year. Applications stating previous experience, references, etc., should be made to Dr. Milton J. Rosemau, Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass.

BOSTON PHYSICIANS RAISE FEES.—An announcement comes from Boston that in order to meet with the high cost of living the physicians of that city have agreed to double the price of consultation and to raise the price of night calls. The new schedules for visits is: Between 8 a. m. and 5 p. m., \$3; between 5 p. m. and 9 p. m., \$4; between 9 p. m. and 8 a. m., \$5.

FIFTY YEARS OF ACTIVE PRACTICE.—Dr. C. Lester Hall of Kansas City will complete on March 10 fifty years of active practice. A dinner has been arranged by the County Medical Society and the Academy of Medicine of Kansas City to celebrate the occasion in honor of Dr. Hall.

THE AMERICAN ASSOCIATION TO PROMOTE THE TEACHING OF SPEECH TO THE DEAF is authorized to pay \$300 of the income from the Alexander Graham Bell Grosvenor Memorial Fund

for the essay or other form of composition complying with the following conditions, that most clearly details how a mother can best teach and train her deaf child in the home from infancy to school age:

Each essay submitted must (1) be delivered at the Volta Bureau, by prepaid express or mail, before 12 o'clock noon of November 1, 1917; (2) must be typewritten in the English language; (3) must contain at least 20,000 words, as it is doubtful if the necessary instructions and suggestions can be properly presented with a less number; illustrations may be used if the author prefers; (4) must bear a distinguishing mark or pseudonym, but nothing to tell who the author is or where residing; (5) must not be folded or rolled, but placed in a large, plain envelope bearing only the title of the essay and the distinguishing mark of the author; (6) must be accompanied by a small sealed envelope bearing the title and distinguishing mark on the outside and containing the name and address of the author in a signed statement that the essay is entirely the writer's own production; (7) must be wrapped and addressed to The Judges for the Alexander Graham Bell Grosvenor Memorial Fund Prize, Volta Bureau, 1601 35th Street, N. W., Washington, D. C.

If further details are required, write to the *Superintendent of the Volta Bureau, 1601 35th Street, Northwest, Washington, D. C.*

GIFT TO TOURO INFIRMARY.—Through the generosity of Mr. E. Mente, head of the bag manufacturing company in New Orleans, Touro Infirmary recently received the gift of \$50,000. The money is to be devoted to the erection of a model three-story building as a hospital for the poor and will adjoin the free clinic building which is to be erected by Mr. J. K. Newman as a birthday offering to his mother. This will make the Mente Hospital ideal in facility, location, as well as in usefulness.

THE MCINTIRE PRIZE.—Last year Dr. Charles McIntire resigned the secretaryship of the American Academy of Medicine after twenty-five years of faithful service. In commemoration the Academy decided to raise a fund, the income of which should be expended in accordance with Dr. McIntire's suggestions. The Academy now announces two prize offers, the prizes to be awarded at the meetings for 1918 and 1921, respectively. The subject for 1918 is "The Principles Governing the Physician's Compensation in the Various Forms of Social Insurance." The subject for 1921 is "What Effect Has Child Labor on the Growth of the Body?" The conditions of the contests are:

(1) The essays are to be typewritten and in English, and the contests are to be open to everyone.

(2) Essays must contain not less than 5,000 or more than 20,000

words, exclusive of tables. They must be original and not previously published.

(3) Essays must not be signed with the name of the writer, but are to be identified by a nom de plume or distinctive device. All essays are to reach the Secretary on or before January 1st of the years for which the prizes are offered and are to be accompanied by a sealed envelope marked on the outside with the name or device assumed by the writer and to contain his true name inside.

(4) Each competitor must furnish four copies of his competitive essay.

(5) The envelope containing the name of the author of the winning essay will be opened by Dr. McIntire, or by the presiding officer, at the annual meeting and the name of the successful candidate announced.

(6) The prize in 1918 for the best essay submitted according to these conditions will be \$100; that of 1921 will be \$250.

(7) In case there are several essays of especial merit, after awarding the prize, special mention of the others will be made and both the prize essay and those receiving mention are to become the property of the Academy. Essays not receiving mention will be returned to the authors on application.

(8) The Academy reserves the right to decline to give the prize if none of the essays is of sufficient value.

Thomas Wray Grayson, M. D., 1101 Westinghouse Building, Pittsburgh, Pa., is the secretary.

REMOVALS.—The American Public Health Association and the *American Journal of Public Health* have moved their offices to 126 Massachusetts Avenue, Boston, Mass.

Dr. Robert F. Miller has returned to Sherman, Texas, and will resume his practice of eye, ear, nose and throat work, office Merchants and Planters' Bank Building, Sherman, Texas.

DIED.—On January 29, 1917, Dr. James Edward Blanchard, of New Orleans, aged 76 years.

OBITUARY.—Resolutions passed at a special meeting of the Junior Class of the Tulane School of Medicine, called January 19, 1917, on the demise of the beloved demonstrator at the Charity Hospital, M. T. Lanoux, M. D.:

Whereas, God in His infinite Wisdom has seen fit to remove from his sphere of usefulness and activities our lamented preceptor, Dr. M. T. Lanoux, in the dawn of his prime; and

Whereas, his greatest work, inerrably promised, by recent achievements forecast, has been arrested to the loss of suffering humanity; and

Whereas, he has been an honor to local medical life and the hope of many, an inspiration to his classes, who regarded him as a high exemplar; and

Whereas, this genial, brilliant, scholarly gentleman and scientist has laid down his life in the cause of hygiene and in ministration to suffering.

Be it resolved, That the medical class of 1918 hold our departed friend and teacher evermore as a hero-martyr in the performance of duty; and

Be it further resolved, That the attributes which made him a man to imitate and memorialize cause us to cultivate these in remembrance of him and as his living legacy to us;

Be it further resolved, That a copy of this act be spread upon the minutes of our record book to hold his memory in perpetuity; that a copy be given to Dr. C. Jefferson Miller, head of the Division of Obstetrics, and the intimate co-workers of Dr. M. Thoman Lanaux, to-wit: Drs. P. J. Carter, E. L. King and W. D. Phillips, and to Dr. Isadore Dyer, Dean of School of Medicine; also to the bereaved family, to whom our deepest sympathy is extended, offering at the same time the reconciling thought that he whom they mourn is of those of whom St John wrote, "More than this no man, that he lay down his life for his friend"; such was he to all who knew pain or distress.

ALBERT B. PITKIN, President.

A. F. BURGIS, Vice President.

HAROLD A. BLOOM, Secretary-Treasurer.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Obstetrics, Normal and Operative. By George Peasler Shears, B. S., M. D. J. B. Lippincott Company, Philadelphia and London, 1916.

If one is to judge by the number of excellent textbooks on obstetrics that have appeared in America within a comparatively short time, there has been a real awakening in this branch. A new book receives more than the average critical examination, for one is prompted to question the author's ability to add new material worthy of a large volume, or to present old ideas better than they have already been presented.

Dr. Shear's new contribution will soon convince the reader that it has a place as a compact, convenient volume, possessing the stamp of individuality and shorn of many features rarely referred to by the practitioner and now mastered by the undergraduate. I refer chiefly to the absence of extensive chapters on Anatomy, Developmental Anomalies, and Embryology, subjects which while essential to the practice of obstetrics, have become so wide in their scope as to demand separate volumes and special instruction.

The author has endeavored to give briefly and plainly the essentials, i. e., about as much as the student ought to know, or is likely to remember; enough also to serve, if desired, as a groundwork for further study. He has shown that he possesses the happy faculty of depicting in a clear, concise style the ideas he wishes to convey and impresses the reader immediately with his ability as a teacher and practical obstetrician.

The volume contains numerous original and well-selected illustrations, all of which measure up to the high standard of modern medical art.

Miller

Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes. By Charles A. Elsberg, M. D., F. A. C. S., W. B. Saunders Company, 1916, Philadelphia and London.

Elsberg's monograph constitutes a distinct contribution to medical literature for it represents the record of the experiences of a pioneer in this field. It should claim attention not only from the surgeon to whom of course it is primarily and principally directed, but also from neurologists and all interested in the differential diagnosis of spinal cord lesions. The physical make-up of the book leaves nothing to be desired. The illustrations are excellent and the type beautifully large and clear.

I. I. Lemann.

The Medical Clinics of Chicago, issued bi-monthly. Issues of July, September, November, 1916. W. B. Saunders Company, Philadelphia and London.

This series continues to be an assorted mixture of important well considered lectures and of mediocre ones upon threadbare topics. The country over, much printer's ink is wasted (not to mention the paper in these days of its scarcity) upon medical papers and lectures not worth reproducing. Because a lecture serves a useful purpose in instructing the small group of hearers, is no adequate reason for its preservation in printed form. It is not to be denied that the easy, almost colloquial, style of these lectures makes them easy reading, but it is also not to be denied that the value of the series to the subscriber could be greatly increased by intelligent editing and pruning.

I. I. L.

Blood-Pressure, From the Clinical Standpoint, by Francis Ashley Faught, M. D., second edition, thoroughly revised. W. B. Saunders, Philadelphia and London, 1916.

The author states in his preface that his "chief effort has been to reduce a very large and complicated subject to a practical working basis, one which may be applied to everyday conditions, which after all is the chief concern of the practitioner." He has by no means overlooked or neglected the physiological studies upon which this working basis must be founded. The data presented are valuable and arrayed in a manner to afford the maximum service to the reader seeking information and light. A monograph upon this important subject should find a place in the library of every well informed medical man.

I. I. L.

PUBLICATIONS RECEIVED

- P. BLAKISTON'S SON & CO.** New York and Philadelphia, 1916.
- A Manual of Organic Materia Medica and Pharmacognosy**, by Lucius E. Sayre, B. S., B. H. M. Fourth edition, revised.
- W. B. SAUNDERS COMPANY.** Philadelphia and London, 1916.
- The Medical Clinics of Chicago.** January, 1917, Vol. 2, No. 4.
 - The Care of Patients Undergoing Gynecologic and Abdominal Procedures Before, During and After Operation**, by E. E. Montgomery, A. M., M. D., LL. D., F. A. C. S.
 - A Textbook of General Bacteriology**, by Edwin O. Jordan, Ph. D. Fifth edition, thoroughly revised.
 - A Textbook on the Practice of Gynecology**, by William Easterly Ashton, M. D., LL. D. Sixth edition, thoroughly revised.
 - Diseases of the Skin**, by Henry W. Stelwagon, M. D., Ph. D. Eighth edition, revised.
 - Manual of Nervous Diseases**, by Irving J. Spear, M. D.
- THE YEARBOOK PUBLISHERS.** Chicago, 1916.
- The Practical Medicine Series.** Volume IX: **Skin and Venereal Diseases**, edited by Oliver S. Ormsby, M. D., and James Herbert Mitchell, M. D. Volume X: **Nervous and Mental Diseases**, edited by Hugh T. Patrick, M. D., Peter Bassoe, M. D., with the collaboration of Lewis J. Pollock, M. D.
- REBMAN COMPANY.** New York, 1916.
- An Inquiry Into the Principles of Treatment of Broken Limbs**, by William L. Fluhrer, M. D.
 - The Diagnosis and Treatment of Abnormalities of Myocardial Function**, by T. Stuart Hart, A. M., M. D.
- FOOTE & DAVIES COMPANY.** Atlanta, Georgia, 1917.
- Better Babies**, by Samuel A. Visanska, Ph. G., M. D.
- WILLIAM WOOD & COMPANY.** New York, 1917.
- The Maintenance of Health in the Tropics**, by W. J. Simpson, C. M. G., M. D., F. R. C. P.

WASHINGTON GOVERNMENT PRINTING OFFICE.

Washington, D. C., 1917.

Public Health Reports. Volume 32, Numbers 1, 2, 3, 4.
Report of the Department of Health of the Panama Canal. November, 1916.

MISCELLANEOUS:

Clinical Gynecology, by James C. Wood, A. M., M. D.,
 F. A. C. S. (Boericke & Tafel, Phila., 1917).

Proceedings of the Tenth Annual Meeting of the Association of Life Insurance Presidents. New York, December 14 and 15, 1916.

Relative Values in Public Health Work, by Franz Schneider, Jr. (Department of Surveys and Exhibits, Russell Sage Foundation, N. Y.).

Monthly Bulletin Louisiana State Board of Health. New Orleans, January, 1917.

Abraham Lincoln, by Curran Pope, M. D. (Address delivered before Muldraugh District Medical Association, Larue County, Ky.).

Soochow Hospital Extras. (An appeal for a larger hospital in honor of Dr. Park's 60th birthday).

REPRINTS

A Case of Amoebic Abscess of the Liver Occurring Twenty Years After the Original Attack of Dysentery, by George C. Low, M. A., M. D.

The Treatment of Lamblia Infections, by Clifford Dobell, M. A., and George C. Low, M. A., M. D.

Fern Notes, by Oliver Atkins Farwell.

A Sudanese Actinomycosis, by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and Capt. R. C. Archibald, M. B., R. A. M. C.

Yodoterapia y Salicilo-Yodoterapia Endovenosa; os Nematoides do Tubo Digestivo de que Modo Infestam o Organismo Prophylaxia? Pelo Alfredo A. da Matta.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the
City of New Orleans.

NOTE.

As the report of the Board of Health for January, 1917, was not yet issued on February 26, we are compelled to omit our Mortuary Report in this issue.

Both the January and the February report will be published in our April number.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

COLLABORATORS

BAILEY K. ASHFORD, M. D., Prest. Amer. Soc. of Tropical Medicine } Ex officio
JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

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EDITORIAL

INFLUENZAL INFECTIONS.

Dr. George Mathers, of Chicago, contributes an illuminating article on the specific organisms of human grip and equine influenza (*Journ. Am. Med. Assn.*, March 3, 1917). For centuries, epidemics of acute respiratory infections have occurred at irregular intervals, and have always defied preventive measures. These infections have not only exacted a death-toll of their own, but, by lowering the vitality of individuals, they have notably increased the mortality from associated or pre-existing diseases.

That the causative factor in epidemics of grip has a distinct

character is clearly shown by the close similarity of symptoms and complications during several centuries and under varying degrees of civilization. This factor has a universal distribution, and most variable pathogenicity. The most important bacteriological work in this field was done in the great pandemic of 1889 to 1892. The larger group of investigators found streptococci, pneumococci and staphylococci in the sputum and post mortem material from cases of influenza, and regarded the disease as a streptococcus, or mixed streptococcus and pneumococcus infection. In 1892, Pfeiffer published his great work on influenza, in which he described a small Gram-negative hemoglobinophilic bacillus as the causative factor. Pfeiffer isolated influenza-bacilli from the sputum and bronchial tissues of persons suffering from the disease, but he was unable to find these in the bloodstream, or satisfactorily to reproduce the disease in animals, although many attempts were made. Recent investigators have repeatedly found these bacilli in various diseases, such as whooping-cough, tuberculosis, chronic bronchitis, and many other diseases; and, with the exception of influenzal meningitis, the influenza bacillus is not considered as of prime importance. Furthermore, this organism has not been found regularly associated with epidemics of acute respiratory infections since 1890.

A severe epidemic of acute respiratory infections spread over the United States in the winter of 1915-16, which closely resembled the epidemic of 1890. During this outbreak, Mathers studied sixty-one cases. In all of these cases, the nasal discharge and sputum were examined, and blood-cultures were made in a few instances. In forty-six cases, hemolytic streptococci were found in predominating numbers, and in six of these cases these organisms were isolated from the nose and throat in pure cultures. Green-producing streptococci were found in thirty instances, with one pure culture, and pneumococci in thirty cases with four pure cultures. Staphylococci were isolated in fifty cases, *Micrococcus catarrhalis* in six, and Friedlander's bacillus in one case. The influenza-bacillus was found in only one case. Trumieliff's *Bacillus rhinitis* was found in the nasal discharge in two cases, and fusiform bacilli were not uncommonly observed in anaerobic cultures. The *Bacillus influenzae* was not found in any post mortem material. The question

of filtrable viruses cannot be excluded in such diseases, but in three early cases in which virus-cultures were made, no results were obtained.

The results seem to indicate that the virulent hemolytic streptococcus must be considered as a very important factor in the etiology of the grippal diseases. Whether or not the infection is primarily a streptococcus infection is not yet determined; but, as the disease progresses, this organism rapidly becomes of paramount importance.

There have been numerous coincident widespread epidemics of acute distempers among horses and other animals. These equine epidemics closely simulated the human epidemics of respiratory infections. Such an epidemic occurred among horses in the United States during the winter of 1915-16. Great numbers of horses were attacked, and the disease spread rapidly along the various shipping routes to all the great concentration markets in the country. Mathers studied this epidemic in the Union Stock Yards veterinary hospitals in Chicago. The examinations included bacterial cultures from the blood and nasal discharges obtained during all stages of the disease, and from fresh post mortem material. This work, carried out on more than a hundred horses, yielded strikingly uniform results. Hemolytic streptococci were isolated in pure or mixed cultures from the nasal discharge before death, and from infected tissues after death in almost all instances. Other organisms, such as staphylococci, green-producing streptococci, Gram-negative bacilli, and *Bacillus subtilis* were found occasionally in the cultures from nasal discharges. The *Bacillus tetani* was also found in a few instances.

Dr. Mathers' investigations strongly tend to show that the hemolytic streptococcus was a factor of primary importance in the etiology of this epidemic infection in horses, though final demonstration must wait on further investigations.

The hemolytic streptococci from human and equine sources, although similar in many characteristics, differ widely in pathogenicity, and seem to be highly parasitic for their specific hosts. The pathological anatomy of the two epidemic respiratory diseases, human and equine, however, are quite analagous and typical of streptococcus infections.

It is to be regretted that Dr. Mathers has not found a special name for his hemolytic streptococci, human or equine. One fact stands out prominently from his investigations, and that is that the classical *Bacillus influenzae* is a negligible quantity in the human "grippal" diseases as well as the equine analogues. Dr. Mathers' study of two diseases, apparently caused by two organisms of similar morphology and cultural characteristics, occurring under similar epidemiological conditions and characterized by identical pathological changes, emphasizes the importance of comparative pathology in the development of human medicine.

INSTRUCTION IN PUBLIC HEALTH A NECESSITY.

State Medicine has moved into its proper place in the last few years. All of us recollect the time when the health authorities occupied rather perfunctory offices, which, in many places, were desirable political sinecures.

The conception of State Medicine, however, has been broad and contemplated not only the regulation of a sanitary community but the prevention of disease; the scope provided the control of the practise of medicine in all of its branches and purviews. Gradually the state has acknowledged the function of State Medicine until to-day the incumbent of the office of the health official must be more than a mere graduate of a medical school.

The interpretation of a sanitary code requires a wide knowledge of the semiology of contagious diseases as well as of the laws which govern their control. The laboratory side is often relegated, but should at least be known well enough for its proper direction. Public utilities, foods and drugs, carriers, sanitary practises, biological variants in health or disease, and even certain engineering phases are related to present day sanitation as it should be conducted.

The task is a large one—almost too large for a single office. The review of any report of the Census Bureau is a direct argument for this. Although the United States has recognized the need of health boards for fully a hundred years, the country as a whole is woefully delinquent in some of the elemental things related to the health control.

As yet there is no state or governmental control of vital

statistics. Everywhere this is a voluntary matter. The result is a general neglect by the public of records which in older countries are supremely important; so far as birth record is concerned, the visible evidence is essential to citizenship.

This is but one among the number of neglected phases of public health.

The expanded office of the U. S. Public Health Service has been a large factor in bringing about public interest in health matters and the work of this bureau of the Treasury Department has, through the earnest endeavor of some of its personnel, created active public health work among the people themselves—notably in the hookworm campaign. In time the hookworm campaign may be held directly responsible for the general interest in sanitary practises throughout the Southern States and the whole ferment has brought new light into state attitude towards sanitation generally.

The Rockefeller Board, with its organized officials interested in epidemic sociological diseases, has been brought into the field, with unlimited means at its disposal to work out a universal plan for disease eradication and control. There has been enthusiastic co-operation on the part of officials and of the medical profession and also by state authorities. Foreign countries have accepted this splendid purpose of the Rockefeller Commission and, already, surveys are under way in a number of countries—but the work is seriously embarrassed by the lack of men qualified to render service.

Hygiene for years has been a step child in the medical curriculum. With medical jurisprudence it has occupied its place as a perfunctory response to an obligation, but not wholly understood. The real scope of hygiene is not impressed upon the medical student, who accepts the obligation of the course in exactly the spirit in which the course is given him, with the result that he finishes his medical course with a hazy idea of the subject and scarcely is able to define the term which covers it.

Hygiene must be understood as the conservation of individual and community health and, when the obligation of such a definition is accepted, this subject in the medical curriculum would move from the last to the first place.

Not all medical schools are entitled to the charge of neglect in this regard, but so few of them fulfill any sort of satisfactory

instruction in hygiene that it is perfectly fair to make a general demand for better service hereafter.

It is entirely proper that the systematic courses in medicine and surgery and their subsidiary divisions should be fully taught in the medical school, but this is a day of preventive medicine and preventive medicine is just one phase of hygiene.

No physician is really trained until he is familiar with modern obligations in preventing disease and in keeping the public healthy. Laws alone will not keep a community sane; it is necessary that the laws should have intelligent interpretation in their administration. The graduate from a medical school should have such qualifications.

The public is now so well informed of sanitary needs that it is not satisfied with mere political appointees. A medical man may have all kinds of respect for his general ability, but he can no longer pose as an expert when he knows and the public knows that in this regard he is an imposter.

Engineering schools have met the situation by training sanitary engineers and in more than one city the question has arisen as to whether the sanitary engineer is not really better qualified as a health officer than is the medical man. The engineer is trained in efficiency. He is accustomed to care of detail. A large part of the work in sanitation has no immediate reference to disease and the engineer can easily co-ordinate under his control a group of medical men who can satisfy the purely medical phases of the community work.

All of this has come about from the acknowledgment that the medical man who usually seeks the place of sanitary official is not trained. A reflex of this defect was emphasized in the first examination held by the National Board of Medical Examiners, when it was found that not one of ten candidates passed the examination in hygiene—occasioning the comment from the examiner that this was no surprise, as the large bulk of men who came up for the examination for admission to the Corps of the U. S. Public Health Service showed a woful lack of knowledge of hygiene and that they were positively ignorant of the laboratory side of the subject.

The Rockefeller Board has endowed Johns Hopkins with funds for a special institute of hygiene and this will satisfy some of the need for trained men. The University of Pennsylvania, Har-

vard and Tulane have given systematic instruction in hygiene for several years, but even in these schools, there is a notable lack of enthusiasm for such work. The medical student does not appreciate the importance and the value of such courses and no measures have been taken to stimulate such instruction.

The growing demand for state authority in Public Health and the requirement for trained men to fill the public health offices fill more and more stimulate the needed instruction, but the necessity for such instruction is pressing at this time.

Sooner or later, every phase of State Medicine falls within the life work of the physician and the time has come when the physician should be educated to meet the problems as they come and not to side-step them.

*Isadore Dyer.**

LOUISIANA STATE MEDICAL SOCIETY.

The next meeting of our state society will take place this month from the seventeenth to the nineteenth at Alexandria. We would have been happy to give our readers some information regarding the meeting, but have been unable to secure any. While other societies seem anxious to obtain all the publicity they can and we are frequently earnestly solicited to publish notices of society meetings, our request for news has been ignored by our own society.

Nevertheless, we hope and trust the April, 1917 meeting will be eminently successful and urge all members to attend. Alexandria is centrally located, possesses a magnificent hotel; its local profession has already given proof of its hospitality and ability to engineer a good meeting; everything points to an agreeable and satisfactory session.

ERRATUM.

In last month's JOURNAL, the gay and festive printer took liberties with the title of Dr. Paul A. McIlhenny's paper which should have read "A New WRENCH to Aid in the Correction of Deformed Feet." Evidently a pro-ally, the printer in his enthusiasm made it say "A New FRENCH Aid, etc." This is the more regrettable as the wrench is a device of Dr. McIlhenny himself.

*Discussion presented to the Conference on Community Health Work, New Orleans, March 16, 1917.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

HOOKWORM INVESTIGATION IN THE ANTIMONY MINES, SINHWA, HUNAN PROVINCE, CHINA.

By W. S. CHOW, M. D.,

House Officer, Hunan-Yale Medical Hospital, China.

The prevalence of hookworm infection among miners has long been recognized in many parts of the world. In a report entitled "Hookworm Infection in Foreign Countries,"¹ published in 1911 by the Rockefeller Sanitary Commission, references to particular districts abound, and a preliminary study of the incidence of the disease in the mines of Central China was made in 1914 by Dr. A. C. Reed, of the Hunan-Yale Medical Hospital at Changsha. Dr. Reed's report² was confined to the deep mines at the Pinghsiang colliery, province of Kiangsi. The present study, made possible by a grant from the International Health Board of the Rockefeller Foundation, is an inquiry into the prevalence of hookworm in the Sinwha mining district of Hunan province.

Reports on the presence of ankylostomiasis have been made from many districts of Hunan, but have been based largely on routine hospital observations and, with the exception of the Pinghsiang report, have not been part of a general survey. They have involved neither a first-hand study of conditions at the mines nor a special medical approach to the population to facilitate fecal examination. No report of any kind has been published on the incidence of the disease in Sinhwa and it was considered of importance from a public health point of view to undertake this work, particularly so because the rapid development of the antimony mining industry has in the last few

1. "Hookworm Infection in Foreign Countries," a report by the Rockefeller Sanitary Commission, 1911. Cf. pp. 61, 64, 77, etc.

2. "Investigation of Hookworm Infection at the Pinghsiang Colliery, Central China," by A. C. Reed, M. D. *American Journal Public Health*, 1914, iv. 1130.

years drawn tens of thousands of workmen from other occupations, chiefly farming, to the Sinhwa district, and it was shown that sanitary measures had been almost wholly neglected and that disease, especially of the digestive system, abounded.

Location of Survey.

The place selected for the survey was "Hsi Kwang Shan" ("antimony-mine mountain"), a valley located in a wedge of hills between the Tze and the Yuen rivers, near the center of Hunan province and about twenty miles southeast of the city of Sinhwa. The altitude is approximately 2,500 feet above sea level; the latitude 27° North. Surrounding the valley are miles of mountains and hills said to be rich in minerals. Here and there are terraced rice fields and taro patches, which, during the dry season suffer from drouth, so that crops fail and foodstuffs have to be imported from other districts, causing prices to rise 50% above those in surrounding districts.

The geological and meteorological factors influencing the prevalence of disease in Sinhwa are different from those at Pingsiang, Changteh, etc. The soil is clayey and dry; coal is not present and the abundance of antimony ore suggests a different geological formation. The air is bracing and free from the humidity of the lower river valleys of Hunan. Mining methods, also, are essentially different from those at Pingsiang. At the latter place deep shafts and long adits combine to keep the workmen at a great distance from the outlet, thus immuring him in unhygienic surroundings and encouraging personal uncleanness. At Sinhwa shallow boring keeps the workers near the surface, where conditions are more easily made healthy. The relation of the mines to the surrounding agricultural district in Sinhwa is so clearly defined that it is possible both to study the direction in which infection travels and to institute separate methods of control in each area.

Antimony Mining in Sinhwa.

According to local report, the first mining for antimony in this district was undertaken about ten years ago by natives of the immediate vicinity. As soon as the presence of the ore was reported at the capital, the Provincial Mining Bureau sent down an engineer to begin operations for the government, and in 1911

private firms and individuals began to stake claims. In 1914, due to the demand for antimony for munitions of war, there was great increase in mining activity at Sinhwa. At present, wherever antimony is to be found throughout Hunan province, groups of men are seen tunneling into the dry, clayey hillsides.

Conditions in the Mines.

Coming to "Hsi Kwang Shan," one finds a long line of mining operations. Within a stretch of four miles at least two hundred groups of men are at work, separated by intervals of only a few yards. On the surface the claims have been staked with a moderate degree of regard for boundaries, but underground the thin partitions frequently break through, causing much confusion and quarrelling.

The shafts are dark, poorly ventilated and poorly drained. They run in zigzag directions following the vein of the ore, with an inclination of not more than twenty feet downward and forward. No shaft goes deeper than one hundred feet. One enters through an opening about 4x4x3 feet and crawls the entire distance to the bottom of the shaft.

Underground the soil is surprisingly dry, with practically no water or dampness even at the greatest depths. While the temperature outside ranges between 70° and 80° F. in summer, the temperature within the mine is somewhat increased by the heat from the lamps and the poor ventilation.

Sanitation and Water Supply—There are no sanitary conveniences either in the mines or above ground in the dwellings of the coolies. No public privies are provided; urine and feces are disseminated along the roads and on the hillsides. During the rainy season the waste matter is washed down and settles in pools and ditches. There is no sewerage system into which these stagnant ditches may drain, so that permanent cesspools result.

There is practically no local water supply. Water for drinking and washing purposes is carried by coolies from the river, which is more than six miles away. Judging from taste and smell, the water is rich in magnesia and sulphur content; unquestionably, much organic matter also is present. During a stay of twenty-three days the writer suffered from so-called

"newcomer's diarrhea." Ten days elapsed before we could drink the water with any degree of comfort.

Method of Conducting Fecal Examination.

In approaching a new field in Central China, it is essential first to win the friendship of the community. This was done at Sinhwa by opening a small dispensary for the treatment of out-cases. A good stock of medicines and surgical supplies had been brought from Changsha for gratuitous distribution and a judicious use of these made it possible to win over many persons who would not otherwise have presented themselves for examination. In each instance, before giving treatment, we explained with great emphasis that correct diagnosis would depend largely on careful fecal examination. Each patient was presented with a small porcelain jar to take home and given instructions to bring a portion of the stool to the dispensary.

The specimens of feces thus secured were examined by the method adopted by the International Health Board. All specimens which were negative on the first and second examinations were centrifuged and re-examined. It is interesting to note that 70% of positives were found by this method, which takes time, but has the advantage of great accuracy. In all positive cases thymol was given. It was difficult to follow the results of treatment because most of the farmers came from long distances and all of them refused to stay for treatment. Consequently, thymol was given in measured doses to be taken at home.

In all, examinations was made of the stools of 210 persons, of whom 63 were workers in the mine, 12 were merchants, 17 were farmers, 86 were coolies who work above ground and 32 were women, children, students and artists. The results are tabulated below.

TABLE SHOWING INCIDENCE OF HOOKWORM AND OTHER INTESTINAL PARASITES, SINHWA, HUNAN, 1916.

Occupation	No. Examined	Hookworm Cases		Ascaris Cases		Tricho-ceph. Cases	
		Ova present	%	Ova present	%	Ova present	%
Miners	63	4	6.35	63	100.00	5	7.94
Other coolies	86	6	6.98	86	100.00	12	13.95
Farmers	17	12	70.59	17	100.00	4	23.53
Merchants	12	3	25.00	11	91.66	0	00.00
Miscellaneous	32	2	6.25	30	93.75	1	3.13
Totals	210	27	12.86	207	98.57	22	10.48

Of the total number of 210 cases, 12.86% were found infected with hookworm, 98.57% with ascaris lumbricoides and

10.48% with *trichocephalus dispar*. The division into occupations was made to help trace the original focus of infection. The percentage of hookworm infection appears low in the general average, but a study of the table reveals the significant fact that among farmers there is an incidence of 70%. In view of this high rate, we believe that the surrounding farming district is the source of the hookworm infection. Further inquiry as to the histories of the infected coolies brought out the fact that they had worked in the mines only a short time and that they had previously been farmers. It, therefore, seems more than likely that the original foci of hookworm infection are the farming districts of Sinhwa.

The figure for *ascaris*, 98.6%, is not high. In the course of a routine examination of feces among the in-patients in the Hunan-Yale Hospital, Changsha, 250 cases gave an incidence rate of 92% for *ascaris*, which figure is very nearly as high as the average in the mines, in spite of the better living conditions at Changsha.

Conclusions.

1. In antimony mines where the altitude is high and the soil on the surface is dry and porous, with practically no standing water, there is little chance for hookworm eggs to hatch. The danger lies in the fact that infected feces are carelessly disseminated. Unless sanitary conditions are installed, the mines will eventually prove an endemic center for hookworm.

2. An examination of 63 persons who work in the mines and 86 coolies who work above ground showed 13 persons infected, all of whom had until recently been farmers. They were undoubtedly infected in the rice fields before they entered the mines.

3. Eradication of hookworm disease in the antimony mines can be accomplished without great difficulty, provided stringent measures are taken to institute a system of regular examination among the workers. Each infected case should be isolated and treated before permission is given to enter the mines.

4. The mine owners must be educated to prepare suitable privies and to arrange for their regular cleaning.

5. It is even more important to educate the coolies. They should be taught the nature of hookworm disease, its mode of

infection, and how to prevent it by the regular use of sanitary privies.

6. Any attempt to lessen the danger of importing hook-worm disease into the mines of Sinhwa province must deal with the fields where the farmhands, from whom comes the supply of miners, are infected. To deal with the fields, means to attack the entire problem of the use of human excrement for fertilizer—a custom which prevails throughout China.

REMARKS ON THE TREATMENT OF BURNS WITH PARAFFIN MIXTURES, AS DEVELOPED BY THE EXPERIENCE OF THE PRESENT EUROPEAN WAR.*

By RUDOLPH MATAS, M. D., New Orleans.

The perennial interest that attaches to the treatment of burns and the innumerable suggestions that are constantly cropping up in the literature for the treatment of the graver types of this most frequent and painful injury, proves quite clearly that in spite of all the vast deal that has been said and written on this subject—from the dawn of medical history to the present time—there is still much room for improvement in the classical and routine methods that are now in vogue. This accounts, in part, for the widespread interest shown in the lay and professional press in this country in the results claimed for the "Ambrine" treatment, since it was introduced by its originator, Dr. Barthe de Sandfort, of Issy-les-Moulineaux, near Paris, in the beginning of the present war.

So much has been written, and especially in the public press, on the treatment of burns by the use of ambrine, that it may be well to introduce the discussion of the subject by a preliminary statement of the conditions arising from the peculiarities of the present frightful methods of warfare, which have added to the vast number of the ordinary causes of burns, another and especially formidable type, known as "War Burns." The gravity and importance of this new horror of the present war may be gathered from the account given by a correspondent in the Western front to the *Medical Record* of New York of January 27, 1917, in which he states:

*Read at the meeting of the Touro Infirmary Clinical Society, February 7, 1917.

"Among the new engines of warfare that have been employed in this most awful of all wars, none are more awful or have been the cause of more horrible suffering than those engines for projecting liquids or explosive shells, filled with these liquids which char the flesh of the face and hands, and when projected against a person, burn up the clothing like April snow before the sun, leaving the integument and aponeurosis blackened and shrivelled."

"The stifled groans of agony wrung from the unwilling lips, blackened, swollen, cracked and disfigured that I hear at my front line hospital, make me mentally shrink as I pen these sentences and, despite the exercise of will, cannot be banished to the forgotten recesses of memory."

It is in connection with the treatment of these fearful injuries, created as it were by the new conditions of war, that the new remedy ambrine has come into prominence. It will therefore be of interest to give some account of the history of this new method of treating burns and incidently of its originator, who has already told the story of his discovery in the Bulletin of the French Academy of Medicine (April 14, 1914) and by many journalists and others who have visited his hospital at Issy-les-Moulineaux, a suburb just out of Paris.

The lukewarmness with which the medical profession, even in France, received the first announcement of this so-called discovery, is in striking contrast with the remarkable or extraordinary enthusiasm with which the ambrine treatment was received and heralded in the public press in which the words "wonderful," "miraculous," "marvelous" are frequently repeated in the writings of correspondents in their accounts of what they have witnessed at this now famous hospital for burns.

So extraordinary have been the claims that have been made for this remedy that a reasonable scepticism has been roused as a result of an extreme and indiscriminate laudation, and were it not for the testimony of credible and thoroughly unprejudiced observers who have lately investigated the results of Dr. de Sandfort's treatment, it is probable that a really valuable acquisition would have been condemned in the face of the overzealous and injudicious advertising that this treatment has

been given at the hands of non-medical writers. The doubts cast upon the genuineness of the so-called discovery has been aggravated by the fact that "Ambrine" is a proprietary product, manufactured and controlled by a manufacturing company, and that the originator, Dr. Barthe de Sandfort, has kept his formula secret and has failed to reveal its components even in his original contribution submitted to the French Academy of Medicine on April 14, 1914, and has allowed this company to exploit his remedy at a high price in this country (\$5.00 per pound).

The exploitation of ambrine as a secret remedy by a commercial corporation in the midst of a great crisis, when humanity at large is in the throes of one of the greatest catastrophes of history, has detracted from the professional esteem in which the originator would have been held had he been more liberal in his interpretation of the mission of the physician, which is, above all, humane and philanthropic.

This accounts no doubt for the scant sympathy which "Ambrine" has received at the hands of the medical profession and the tardiness with which the undoubted merits of this mode of treatment have been recognized. However, it is not my purpose here to discuss the purely ethical side of this question, but solely to report upon the therapeutic value of this remedy which, if it can accomplish even one-tenth of what has been claimed for it, would be worthy of the foremost place among our resources in the therapy of burns. Fortunately, recent inquiries, and especially those of so capable, unprejudiced and judicious an observer as Major A. J. Hull of the Medical Corps of the British Army in France, fully sustain the value of ambrine as an application of remarkable efficiency in the treatment of burns of all degrees; and while much that has been claimed for it as miraculous and marvelous may be discounted as an enthusiastic exaggeration, my personal experience in the use of this paraffin compound, limited as it is, is sufficient, I believe, to confirm, in my mind at least, the great value of this mode of treatment. I therefore feel fully justified in engaging your attention to its merits and in telling you of its results in my personal experience with the original substance and with the substitute that we have had occasion to try in its place.

Before going further, it may be well to state that Dr. Barthe de Sandfort originally came to his discovery by treating himself for rheumatism. After taking the cure at Dax, where the hot mud baths gave him much relief, he desired to continue the treatments at home. Not being able to transport the Dax mud, he bethought himself to try a substitute, and, after experiments, he combined paraffin with the resin and oil of amber, which, when melted together and applied hot, made a firm and thick application affording relief.

“He brought this new treatment to the attention of his colleagues, who laughed in his face. Years later, he went on service to a railway in China and was in Yunnan at the time of the incendiary insurrection, and many badly burned Chinese were brought in for treatment. Remembering that Ambroise Paré treated such cases with hot oil, he tried the effect of covering the burn with his melted ambrine which at once glazes over, forming a coat impervious to the air, and his patients ceased to suffer; in a few days all infection disappeared, the surfaces began to repair and grow new skin, which eventually covered the burned surfaces in such manner as to leave no cicatrix and no evidences that a burn had existed. Upon his return to France in 1904, he again related his experience to his colleagues with his new remedy, but they ridiculed him and his wax.

“After learning of the introduction of these burning engines into this war, he placed himself and his discovery at the disposal of the War Office, but he received no recognition. However, he employed his new treatment at every opportunity that presented itself, and as his successes convinced him more than ever of its utility he interested prominent people, demonstrating before them the marvelous results following his treatment.

“He secured the installation of a few beds in his present quarters to receive patients, and as the benefits became known the demand for place increased, until the influence of friends and the demonstrated utility of the treatment compelled recognition, and now the War Office has not only ordered that the victims of burns be sent to him, but has established the treatment, which is very simple, in the front line hospitals, and the poor boys, who heretofore suffered the tortures of the inferno, are given immediate relief from

their agony; the burns are cured, and surfaces restored to their normal state.”

The correspondent of the *Medical Record*, from whose letter of January 27, 1917, I have quoted these paragraphs, writing an account of his visit to Issy-les-Moulineaux, states with much enthusiasm that during his visit he saw the men with faces burned and swollen have their dressings removed, the burned surfaces carefully cleansed, care being taken not to disturb the delicate spots of film of new forming skin, and fresh dressings applied without pain or discomfort.

“I saw one patient whose thorax and abdomen had been denuded with small sections of the ribs exposed, the surface was slowly being covered by new granulations and great islands of new skin were in process of formation over the abdomen. Had this man not been subjected to the prompt application of this treatment at the front, he would probably have been dead in twenty-four hours. As it is, he has been under treatment for five months, and will probably emerge with no evidence of his terrible experience thanks to the courageous persistence in the face of opposition and ridicule, of Dr. Barthe de Sandfort.”

My first acquaintance with De Sandfort's ambrine began last October (1916), when I received a letter from Mr. T. Brady, Jr., of Brookhaven, Miss., a well-known lawyer of that city, who had at one time been a student of medicine in Tulane and whose humanitarian instincts were aroused by seeing a glowing account of the effects of ambrine in the *Outlook* magazine (September 2, 1916, p. 333). This had prompted him to write to Dr. de Sandfort for the formula of ambrine and for details regarding its mode of application. In response to his petition, he received a polite letter from Dr. de Sandfort, in which he enclosed specimens of ambrine and also several photographs of soldiers who had suffered from extensive burns of the face and other parts of the body, and who had recovered with scarcely any evidence of the usual disfiguring cicatricial contractions. He admitted that ambrine was a compound of paraffin oil of sesame and resins, but was not at liberty to divulge its exact composition, as the formula and manufacture of this substance was now the property of a private corpor-

ation which was exploiting it as a proprietary and secret remedy. Mr. Brady was referred to the Ambrine Company for further particulars as to its cost and composition. I availed myself of Mr. Brady's courtesy to consult our good friend, Dr. Lobenhoffer, chemist of the Touro Infirmary, whose analytical ability we all recognize, in order to experiment with various compounds of paraffin which might serve the same purpose in treating burned cases in our clinics. Dr. Lobenhoffer has had the matter under advisement for some time, but while we were planning to work on this problem, the *British Medical Journal* of January 13 has come to us with an interesting article by Lieut. Col. A. J. Hull, F. R. C. S., of the Royal Army Medical Corps, in which he gives an excellent account of his study and observations of the effects of Sandfort's ambrine. Much impressed with the real value and unusual merits of this product, but balked in its use by the secret and proprietary character of its formula, as well as its cost, Major Hull began an experimental research on a series of paraffin compounds which possessed the same, or, at least, closely similar physical and therapeutic properties of the original ambrine. After many trials he finally settled on two formulas designated as No. 7 paraffin and another substitute which is less expensive. These two formulæ he has used to make a mixture which has yielded practically all the results obtained by ambrine.

Dr. Lobenhoffer has very kindly undertaken to reproduce Hull's formulas and I now show you sample of the No. 7 paraffin, together with specimens of the original ambrine which were received directly from Dr. Sandfort by Mr. Brady last October. While these substitutes are not identical, they are very similar, and if Major Hull's observations are correct, as I have no doubt they are, the substitute known as No. 7 paraffin should prove just as suitable as ambrine in all essential particulars.

I have not had an opportunity to try Hull's No. 7 paraffin mixture in our Touro clinic, because no cases of burns have been admitted for treatment since the compound has been prepared, but yesterday (Tuesday) Dr. G. R. Gerson, my resident officer at the Charity Hospital, applied this mixture in two cases (two badly burned women, second and third degree burns of the chest and abdomen) in ward 73, and apparently the mix-

ture has been most pleasant to the skin, causing no pain; on the contrary, proving a very soothing application. Of course it is entirely premature to make any statement as to the ultimate effects, but we shall watch these patients very carefully in order to report them later when the observations will have been completed. In the meantime I will avail myself of Major Hull's excellent paper to state some additional facts in regard to the mode of action of this remedy and to explain the technic of its preparation and application.

First allow me to quote Mayor Hull's personal observation and comment on the merits of Dr. Barthe de Sandfort's ambrine:

“Observations of Dr. Barthe de Sandfort's treatment, and experiments with ambrine, carried out in a military hospital, gave one the impression that the treatment was valuable. Burns healed with rapidity; constitutional symptoms rapidly abated; pain was reduced to a minimum; scarring appeared to be obviated, or at any rate was not apparent. The need for grafting large burns appeared to be avoided. The burns healed so rapidly with healthy granulations that there appeared to be nothing to be gained by grafting. The patients were singularly free from sepsis. The conclusion arrived at from experimenting with the ambrine treatment was that mild burns healed with singular rapidity, and severe cases recovered which would have been unlikely to recover by the ordinary methods of treatment. Observers who had large experience of burns treated by picric acid, ointments, and other methods in ordinary use, were unanimously of opinion that the paraffin method was superior to the older methods. The experience of those who had witnessed the results of burns after liquid fire attacks was that the ambrine treatment would save many lives, and accelerate the recovery of all burns.”

“The excellent results obtained would therefore appear to be due to mechanical causes. The protection of the burn from the air, the protection of the newly-formed granulations from damage, the splint-like effect of the wax in holding the damaged tissue immobile and at rest, appear to be the attributes which produce the effect. The heat of the applications and the conservations of heat to the surface may encourage the lymph flow, determine the supply of blood to the new

capillaries, and favorably affect healing. The relief from pain and rapidity of healing is due to the fact that the burn is held at rest in a plaster-like cast of paraffin, and a suitable nidus in which the epithelium will proliferate is provided."

"The absence of scarring depends upon the fact that skin can be reproduced in two ways. First, by direct proliferation of the epithelium in the depth of the wound. This method of healing is only possible in wounds of the first and second degrees, which form the vast majority of all cases of burns coming under treatment. Secondly, by the extension of the epithelium from the edge of the wound in cases of burns of the third and deeper degrees. These burns are comparatively rare, and are only cases suitable for grafting. The effect of the paraffin in the first class is to protect and stimulate the growth of epithelium, islets of which can be seen growing over the base of the burn. In the second class the epithelium spreading from the edge is protected and stimulated."

After relating the many experiments in which various substitutes were tried, he says:

After progressively improved results, a paraffin was finally arrived at having the mechanical properties of ambrine and containing a small amount of antiseptic. This is now in routine use known as No. 7 paraffin.

The results obtained by the use of No. 7 paraffin have surpassed the results obtained by ambrine or any other tried preparation. Severe burns of the third degree, accompanied by sloughing, and in a very septic condition, have cleaned and taken on healthy repair under this treatment. Severe burns of both palmar and dorsal surfaces of the hands, extending to the tendon sheaths, have healed in three weeks without contracting cicatrices. Extensive burns of the flexor surfaces of the limbs, the regions most likely to be altered by contracting cicatrices, have healed without apparent scarring. Burns of the face heal with a new, healthy skin without scarring.

Severe burns due to cordite, petrol and liquid fire have been healed with this preparation; there have been no untoward results.

Patients who have been admitted with septic burns of extensive areas have rapidly recovered from constitutional symp-

toms, the temperature usually becoming normal in a few days.

The treatment is practically painless, and patients rarely complain of pain after the first application. It has never been found in the least necessary to give an anesthetic for the first or subsequent dressings. The rapidity of healing, the absence of sepsis or pain, the healthy new skin resulting without contractile cicatrices or deformity, have been really remarkable. Burns become clean more rapidly than under ambrine treatment. Sloughs of deep tissues, in some cases down to bone, readily separate, and the burns become clean.

Mode of Application.

The paraffin treatment is begun at the first dressing; very exceptionally, in very septic burns, the paraffin is replaced by hot boric fomentations for two days, after two days of paraffin treatment.

The burn is washed with sterile water and dried. The drying is accomplished by placing a dry piece of gauze over the burn. An electric drying apparatus, such as is used by a hairdresser for drying hair, if available, is a convenient method of drying the burn.

The burn is next covered with a layer of paraffin at a temperature of 50° C. The No. 7 paraffin has a melting point of 48° C. The temperature may be estimated by waiting until the wax shows a solidifying film upon the surface. A broad camel-hair brush, sterilized in wax, has been found to be a rapid and painless method of applying the paraffin. A spray may be used, but sprays readily get out of order, are troublesome to use, and the dressing takes longer. In theory a spray should be used in order to prevent any damage to the epithelium. In practice we have found a brush, skilfully used, sufficiently satisfactory. Sprays are indicated in very painful cases. A metal spray of rather large bore should be employed. The spray must be immersed in hot water during use.

A thin layer of absorbent cotton, cut the same size as the area of the burn, is placed over the wound after the first layer of paraffin has been applied. This layer of cotton is covered with a second layer of paraffin. The cotton is cut in thin sheets and pressed between layers of paper in order to obtain thin layers

of cotton. The dressing is completed by applying cotton and bandage. The burns are usually dressed daily. In the later stages, when the burn is clean and only a small amount of pus formed, the dressing is changed every forty-eight hours.

Blisters are not interfered with in any way at the first dressing, the paraffin is applied after washing the burn. At the second dressing the dead layers of skin are cut away. Sloughs usually separate after a few dressings. The separation of sloughs is accelerated by applying a layer of jaconet over the cotton and paraffin beneath the cotton and bandage dressing.

Formula for No. 7 Paraffin (Hull).

Resorcin	1	per cent
Eucalyptus oil	2	"
Olive oil	5	"
Paraffin, soft.....	25	"
Paraffin, hard	67	"

Melt the hard paraffin and add soft paraffin and olive oil. Dissolve the resorcin in absolute alcohol (soluble in 2 in 1), add the alcohol resorcin, and lastly add the eucalyptus oil when the wax has cooled to about 55° C.

A smaller amount of resorcin may be used. The whole of the resorcin does not remain in suspension, and we have used a paraffin containing 0.25% resorcin with good results. (Hull).

Difficulty having been experienced in obtaining resorcin in large quantities, betanaphthol, which has the additional advantage of being a cheaper antiseptic, has been substituted for resorcin in more recent preparations, as follows:

Betanaphthol	0.25	per cent
Eucalyptus	2.0	"
Olive oil	5.0	"
Paraffin, soft	25.0	"
Paraffin, hard	67.75	"

Since the reading of this paper on February 7, 1917, our experience with the paraffin treatment has considerably increased, so that we now have notes on at least ten cases drawn from the Charity Hospital and Touro clinics. After exhausting the first few samples of the original ambrine received from France, Hull's formula No. 7, modified as above described, by substituting B-naphthol for resorcin, was used exclusively both at the Charity Hospital and at the Touro Infirmary. Mr. Walker,

pharmacist at the Charity Hospital, supplies this preparation at a cost of less than 18 cents per pound, and a like estimate is made by Dr. Lobenhoffer at the Touro. The mixture, when melted, is of a light yellow amber color and emits a very agreeable aromatic odor in which the eucalyptus predominates. This aromatic odor remains after the dressing is applied for many hours, causing a very agreeable contrast with the foul emanation that is exhaled by the severely burned patients under the ordinary moist or dry dressings.

In the application of the mixture, the general instructions given by de Sandfort and Hull have been closely followed.

In our class demonstrations, we have used the dry hot air blast (hair dresser's electric model) and we have found this convenient, but not necessary. Gentle mopping of the secreting surfaces with sterile gauze and exposure to the air are sufficient preparation for the melted compound. This is applied in the liquid state at an agreeable temperature of 100° F. or less, with an absorbent cotton mop held in a long uterine forceps. The melted paraffin cools and hardens quickly as it is spread gently over the surface. When the second layer is applied over a thin cotton film, a large flat painter's brush is a better agent for the even distribution of the liquid—but the cotton mop is always preferable for spreading the mixtures directly over the burned surface. No doubt, a good spray would be best suited for the even and painless application of the mixture; such a spray is sold by the Ambrine Company, and a very good working model has just been devised and described by Dr. W. G. Hudson of the Dupont Powder Works, at Wilmington, Del. (*New York Medical Journal*, February 17, 1917.)

Our experience has shown that with a cotton mop and a brush, the spray is unnecessary. Burns in the more movable regions should be covered with several layers of the mixture, over superimposed layers of cotton, in order to insure greater immobility and rest.

The soothing effect of the mixture and the immediate cessation of pain in all our cases representing every type of burn has been perhaps the most notable and gratifying feature of the treatment. All pain ceases after the burned or blistered sur-

faces are covered with the paraffin, and relief continues as long as the wax is kept in place.

The wax is removed with the greatest ease as it is lifted up in large scales and sheets. In septic and suppurating conditions, the dressings should be changed at least once daily, or whenever the secretions tend to accumulate to any notable extent under the wax-like shield or "carapace." In deep burns of third degree with extensive sloughing, the sloughs appear to be detached under the protection of this dressing with greater rapidity and less pain than by any other process; epidermization progresses more rapidly under this wax than under any other dressings that we have ever tried. Blistered surfaces and superficial sloughs which do not extend beyond the corium, heal with a perfectly smooth surface, leaving no appreciable scar.

We now hold under observation a test case in which the entire skin of the axilla and inner surface of the arm and chest have been burned to the muscle layer; granulation and epidermitization have progressed at a very rapid rate and we are waiting to see if secondary cicatricial contraction with webbing of the arm will follow after this treatment as after the usual routine methods.

This and a group of other cases, observed at the Charity Hospital, in which the paraffin mixture has been applied, will be reported in detail at a later date by Dr. G. R. Gerson, our resident intern, who has had them in charge.

A FEW REMARKS ON GASTRO-ENTEROLOGY FOR THE GENERAL PRACTITIONER.*

By A. L. LEVIN, M. D.,

Adjunct Professor New Orleans Post Graduate School of Medicine, New Orleans.

The subject of gastro-enterology should be of interest to you, for the simple reason that the human stomach more than any other organ in the body is constantly used and abused. Almost one-third of your cases, if not more, deal with some form of gastro-intestinal disturbance; still, this branch of medicine, for some unexplainable reason, is as yet a very neglected

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baby in the hands of our medical schools. We overload the brains of our young students in medicine with major surgery; hardly 5% of a class will be qualified to practice that art; what about the remaining 95%? Are they prepared as they should be to handle intelligently various diseases of the gastro-intestinal tract? It is difficult to answer that question in the affirmative. All our medical schools of the South make that branch an optional one, and the student is attested qualified by three visits to the gastro-intestinal clinic. Is there any wonder that we are still, in spite of our advanced age, unable very often to diagnose gastric carcinoma sufficiently early to do something for the victim? We have not discovered a method, as yet, reliable enough to diagnose an early carcinoma. When we do lay our medical hands on that horrible disease, the poor victim is about ready to entrain for his final trip. We still often make such mistakes as to treat an inoperable carcinoma for ulcer of the stomach. To illustrate:

Mrs. H. G., age 56, gave a past negative history as far as the stomach is concerned. In April, 1915, she suddenly took sick with a violent pain in the epigastrium followed by a very large hemorrhage. She was found on the floor in a pool of blood; almost exsanguinated, she was rushed to the Touro Infirmary. Ulcer of the stomach was suspected, surgery in that case was out of the question. Palliative treatment was instituted. She recovered sufficiently, in time, and was sent home. The physician in charge of the case kept a watchful eye on her and in September, 1915, she was again brought to the Touro Infirmary with the idea of applying some radical treatment. At that time, the following symptoms were present: Peculiar cachexia, pain in epigastrium on pressure, made worse by food, localized, tenderness at Boas' point, mass at that time could not be detected with positiveness. Gastric analysis showed high acidity; occult blood repeatedly was positive. Diagnosis of ulcer was confirmed by the X-ray. Medical treatment for ulcer of the stomach was decided upon and she went through a regular Lenhardt treatment, somewhat modified. She responded somewhat to the treatment, showing improvement; gained a few pounds in weight, and after three months of hospital life, she was sent home to be kept under observation. Altogether she gained 7 lbs. in weight.

When she began to improve, the occult blood was negative. After a month of home life, suddenly her health began to fail, pain returned, the occult blood became positive again and loss of weight followed. Surgical intervention was the only recourse to be taken. But what a disappointment! On opening the abdomen, an inoperable carcinoma was found.

Just imagine, such a large organ as the stomach, which is easily accessible to be measured, inflated, palpated, for contents to be analyzed chemically and examined microscopically; it can even be trans-illuminated and inspected by a gastroscope, and with all those means at our command, according to Mayo and Monihan, in 62% or 72% of ulcer of the stomach, carcinoma will develop on the site. Can you, gentlemen, estimate the value to humanity if we, the watchmen so to speak, could detect the fire before it has spread beyond control?

Now let us consider for a moment the functional disturbances, when the stomach plays the part of the scapegoat, as it were, are we skilled enough to detect the sin quickly? When we descend further down the tract, what do we find there? Since the amebicidal action of emetine has been demonstrated, it is being promiscuously used as a weapon against any foe that dares to attack the intestinal tract, from an ordinary catarrh down the toxic and bacillary lines even to a chicken bone in the rectum, as Dr. Storck has recently reported. Shall the sin of our medical schools be visited upon us? Certainly not. We have a remedy, namely: medical organization for scientific purposes, or post-graduate work in the country. You are gathered here to-day for that same purpose. Allow me to impart to you the little knowledge and experience I have gathered in the past nine years around the hospitals of New Orleans.

It may be of interest to you to know a few of the important events in the development of gastro-enterology. Kussmaul, in 1869, laid the foundation for an exact mode of diagnosis in gastric disturbances. Any man who is interested in diseases of the stomach should not fail to read that article where he explains how he treated with a stomach pump a country girl, suffering from a dilation of the stomach due to pyloric obstruction, for the first time in its history. It was a clumsy affair, but the relief he secured for that unfortunate girl was

remarkable. In 1870, Jurgensen invented the stomach tube, introducing the principle of syphonage into the practice of gastric lavage. It was guided into the stomach by means of a wire stylet. In 1875, Ewald demonstrated that an ordinary rubber tube without any guide could be easily introduced into the stomach. In 1871, Leube demonstrated already the importance of the stomach tube for diagnostic purposes, and twelve years later, in 1883, he established his test meal as a means of determining the state of motor sufficiency of the stomach, concluding that a normal stomach should be empty seven hours after a meal consisting of soup, broth, steak and bread. This test is practiced to-day as a test for motility of the stomach. Riegel, in 1881, demonstrated the absence of hydrochloric acid as a usual occurrence in cancer of the stomach. The chemistry of gastric digestion and the presence of free hydrochloric acid and lactic acid in the stomach contents has been fully described in the classical work by Ewald and Boas in 1885 and 1886. Ewald, at the same time, described fully his test breakfast, and described its importance and advantages in the diagnosis of gastric diseases. Ewald's test breakfast is in practice to-day for the purpose of determining gastric secretion. The test for determining free HCl was discovered by Ginsberg in 1887, and Uffelmann, as we know, gave us the test for lactic acid. Reichmann, in 1882, was the first to draw our attention to a peculiar symptom associating with a continuous secretion of gastric juice in the fasting stomach, the condition was termed gastro-succorhea. I have seen but a few cases in my experience, one of them is interesting from the fact that the gastric analysis showed an achylia and the artificial administration of HCl gave excellent results, but the greatest credit is due J. P. Pawlow (1902) and his pupils, as he is the real father of the physiology of gastric digestion. I have pointed to but a few of the many contributions in this important field of medicine. Time is limited to go into details about the various instruments that have been devised recently for the examination and investigation of the diseases of the stomach.

Now, my friends, let me give you my advice, very briefly, as to how to handle intelligently gastro-intestinal cases, and lay emphasis on but few of the many possible errors of diagnosis.

Take a careful history of your case; make a thorough physical examination of the entire body; and last but not least examine secretions, excretions and blood. I do not deem it necessary to go into details about those points relating to the taking of a history of a case, although for the sake of simplicity we follow a systematic plan of questions, namely:

1. Pain—dull ache, gnawing, cramp on simple pressure; dependent on food or not; localized or vague.
2. Heaviness, fullness and bloatedness; after taking solids or even after taking liquids.
3. Nausea and vomiting; character of vomitus—food, fluid or blood; periodic or regular after each meal.
4. Belching; tasteless or having the taste of food; sour or bitter; coming on after meals or even on an empty stomach; loud or quiet.
5. Weight.
6. Condition of bowels.
7. Habits.
8. Past illness.

Each question has some significance to help you in forming an idea of the possible diagnosis and the whole completed serves as an initial step toward that goal. Dull ache more or less constant, probably carcinoma, although I have seen cases of malignancy without pain; gnawing pain relieved by food for a while to recur later on is typical of ulcer, provided the pain is localized; vague pains traveling from place to place point toward a neurosis; localized pain in the epigastrium more to the right costal arch and not dependent on food would make one suspicious of gall-bladder trouble, especially if you obtain a history of periodic attacks. A cramp pain suggests the involvement of muscular structure; gnawing—mucous membrane. Heaviness, fullness and bloatedness denote that the musculature of the stomach is below par, provided they come on after ingesting solids; when liquid will cause it, the chances are that you are dealing with a neurotic. Sensation of a rising ball in the throat is a neurotic symptom, due to an esophageal spasm. The usual morning nausea of alcoholics and the nausea caused by a gravid uterus is known to all of us, also nausea due to intestinal toxemia; bear in mind nausea nervosa; several cases of that type recently taxed my resources to the limit. The periodic vomiting in gastric dilation is characteristic; if the vomitus contains food eaten a day before, it designates stagnation, due either to atony or obstruction; when blood is present in vomitus, endeavor to determine its source. Large quantities

of fluid, especially when the stomach is empty, mostly at night, points to a condition known as gastro-succorhea. There is a type of vomiting which is persistent and which, with other symptoms, I have described recently in my paper on "Syphilis of the Stomach," points toward a syphilitic cachexia or syphilis of the stomach. Belching, if it is loud, tasteless and performed any time at will, is neurotic in origin and is caused by swallowing air or aerophagia. Weight is an important factor; remember the following rule: Age, at and above middle stage of life, stomach symptoms and loss in weight are the three main factors which strongly point toward carcinoma, until you can positively rule it out. A gradual but steady gain in weight in a doubtful case of that type is a favorable sign. Constipation very often has a train of gastric symptoms in its wake, due to absorption of toxins.

In making your physical examination, bear in mind the number of T. B. cases which begin with stomach trouble. I have seen many a patient who consulted me for indigestion, not suspecting in the least that he was a victim of the white plague. I advise you, therefore, in your stomach cases to examine the lungs very carefully. Cardiac insufficiency is very often an underlying factor of dyspepsia; the shape of the chest, if of a stillar type with relaxed abdominal walls, points toward a splanchnoptosis or Glenard's disease. Large fibroid uteri were sent to me with a history of stomach trouble for many months or years and the doctor's medicine did not do them any good. No wonder, the doctor has never put his hands on the patient's stomach to feel the large tumor. After a careful physical examination, order an Ewald test breakfast, and if suggestive, the Leube-Rigel test meal for motility. Do not fail to make a urinalysis, not to overlook a nephritis; examine also the urine for the presence of indican. I am very much interested in that subject and lay stress on it in some cases. The subject is fully explained in my paper on "Clinical Significance of Indicanuria." The blood should be examined, if indicated, to exclude various anemias and systemic infections. After you have gathered all the facts necessary, make an appeal then to the X-ray for help, if you need any. Do not depend upon it entirely, as it is often misleading and very often the stomach

tube will determine for you certain facts more efficiently than the X-ray; so please, gentlemen, do not exchange your stomach tube for the X-ray.

To emphasize several points which I have mentioned, I will relate the following case:

"J. W. 45, colored barber, came to gastro-intestinal clinic on February 3, 1913. He then gave the following history: Past month and a half constant dull ache in epigastrium, no relation to food, worse at night. Usual symptoms of indigestion, morning nausea, but no vomiting. Physical examination: Heart, systolic blow transmitted, compensation good; abdomen, palpable mass in right upper abdominal quadrant, freely movable with respiration, round-inner aspect irregular. Test breakfast: quantity small, HCl faintly positive. Was treated medically for a while, he gained 3 lbs. in weight and improved somewhat in general. He did not show up for further treatment until March 23, 1916. He admitted to me then that he had been treated by others without any results and that he is now suffering worse than ever with severe pain in the epigastrium which is constant, worse at night, very severe pressure pain after a meal and persistent vomiting. In the last three months he lost 20 lbs. in weight. On examination I detected the same mass in the right upper quadrant probably somewhat larger. I sent him for a Wassermann test; he gave four plus positive. X-ray showed marked deformity at the pylorus, ptosis, very suspicious of carcinoma. Anti-syphilitic treatment instituted, patient improving very rapidly.

At last I wish to say a few words in regard to disturbed bowels. Never treat a case of diarrhea unless you have examined the stool microscopically for parasites, intestinal indigestion or bacillary forms; determine the presence or absence of rectal lesions by a proctoscopic examination which is very simple and can be easily carried out by one man in his office. Determine the nature of the lesions when found. Remember, also, that emetine is a toxic drug. Do not use it too freely, and do not depend upon it to cure amebic dysentery. I have pointed to but a few, and very briefly at that, of the many conditions of the gastro-intestinal tract. I hope that our medical schools in the near future will place the study of the diseases of the

stomach and bowels upon a firm scientific basis. Much has already been accomplished. May the great work continue, and may much in the future that is new, true and great be accomplished under the auspices of the organized profession of the State of Louisiana.

EIGHTEEN MONTHS OBSERVATION ON THE MENTAL AND PHYSICAL STATE OF CHILDREN FOLLOWING THE REMOVAL OF TONSILS AND ADENOIDS.*

By CHARLES JAMES BLOOM, B. Sc., M. D.

Senior Pediatricist Presbyterian Hospital, Junior Pediatricist Touro Infirmary, Visiting Pediatricist Charity Hospital, Instructor in Pediatrics, the Tulane University of Louisiana, New Orleans, La.

Introduction.

During the past decade medical literature has abounded in articles referable to tonsils and adenoids, pathology, histology, bacteriology, embryology, etc.; each has had its inning.

Diversified and various opinions have been propounded regarding the aftermath of this condition, many authorities giving glowing accounts of the wonderful improvement of the physical state; of the marked change of the mental status; of the disappearance of the factors necessitating their removal, and, on the other hand, pediatricians and rhinologists of equal medical prominence antagonistically emphasize "no results," "symptoms more pronounced than ever," "mental backwardness shows retardment," these statements tending to illustrate the many deliberate opinions expressed.

But the basis of this deduction apparently was wanting, for little conclusive and detailed data were given. Having been one, who for many years had suffered from the effects of diseased organs and realizing what relief the author has had since their removal, plus the tendency of the age to promiscuously remove these glandular organs regardless as to whether nature had been given a fair chance to act as her own physician these facts prompted me to study in detail this vital subject.

The data were secured in their entirety by the writer while

*Read before the Attakapas Clinical Society, January 4, 1917, Jennings, La.

a resident physician in the Touro Infirmary, from June, 1913, through May, 1916.

The number of cases at the start were one hundred and fourteen (114) but due to the fact that a great number of the patients failed to return for satisfactory deductions, this series may be reduced to fifty-seven (57) cases.

Mode of Procedure.

The patients were taken as they were admitted, namely, private and charity alike, no efforts being made to secure children of a particular nationality, age or sex.

At the time of operation, their physical and mental states were recorded, the former through examination, etc., the latter through the medium of their reports. From this time on monthly examinations, weights and measurements were made, thereby giving the writer a splendid opportunity for definite conclusions.

Age, Sex and Nationality.

The following is the age distribution:

Age 4 years	4 cases
Age 5 years	5 cases
Age 6 years	11 cases
Age 7 years	4 cases
Age 8 years	7 cases
Age 9 years	4 cases
Age 10 years	5 cases
Age 11 years	3 cases
Age 12 years	9 cases
Age 13 years	3 cases
Age 14 years	2 cases
Total	57 cases

Under 6 years 35%; over 6 years 65%.

This series included twenty-nine males and twenty-eight females.

These children were all Caucasians, born in this country and considered American provided these represented the third generation born in this country.

American—33 cases (90% of German extraction).

American—(Hebrew) 1 case

Polish—(Hebrew) 1 case

Italian	3 cases
German	9 cases
English	1 case
French	3 cases
Spanish	2 cases
Swede	1 case
Irish	3 cases
Miscellaneous	14 cases

The Italian children exhibited but little improvement.

School Grade.

Age 14 yrs.	Highest 9th;	Lowest 4th;	Average 6th	A
Age 13 yrs.	" 5th	" 5th	" 5th	
Age 12 yrs.	" 5th	" 4th	" 4th	A
Age 11 yrs.	" 6th	" 3rd	" 4th	
Age 10 yrs.	" 5th	" 2nd	" 3rd	
Age 9 yrs.	" 4th	" K*	" 2nd	A
Age 8 yrs.	" 3rd	" 2nd	" 2nd	A
Age 7 yrs.	" 1st	" 1st	" 1st	
Age 6 yrs.	" 1st	"	" K*	
Age 5 yrs.	" K*	"	"	

History.

(A) Family

- (1) Rheumatic
- (2) Luetic (Syphilitic)
- (3) Tuberculous

(B) Personal

- (1) Physical Examination
- (2) Present Complaint
- (3) Previous Illness
- (4) Tests (Wassermann) (T. Z. O.) (Tuberculin)

Acting upon the advice of some of our medical fraternity, the viewpoints of rheumatism, syphilis and tuberculosis being predisposing factors were considered with the following results.

Family History.

(1) *Rheumatism*—Of the fifty-seven cases in question, forty-five gave a negative history and twelve a positive but indefinite history.

Three parents had complained of rheumatic disturbances; a brother and sister in another instance had suffered from an analogous condition; on the other hand, however, grandpar-

*Kindergarten.

ents in eight cases were afflicted with "inflammatory rheumatism."

So barely twenty-one per cent gave evidences of this "rheumatic tendency" as a predisposing factor.

(2) *Syphilis*—Syphilis has always been held by many to be the cause of practically all ailments—in fact, particularly in the South, the burden of proof rests with the physician to show definitely that a given case is not influenced by this disease—in short, when in doubt call it syphilis.

In studying the family history regarding miscarriages, eleven gave histories of having from one to eight miscarriages, in forty-six cases, the histories were of no significance. Therefore, only 19% of the total number revealed a history really significant.

In considering the question of hypertrophied tonsils and adenoids, the question of lues as an etiological factor was also noted.

Of the number of cases in question, forty-five Wassermanns were made. The original and Tschernogubow were the tests used. Of the number of cases where tests were made, forty-four or ninety-seven per cent proved to be negative and one, or three per cent positive.

This fact tends to make one feel that although it is evident in our particular section that hypertrophied tonsils and adenoids are more prevalent than in other parts of our country, still the stigmata of lues apparently is not one of the causative agents of this pathological condition.

(3) *Tuberculosis*—In consideration of the fact that many authorities have been prone to believe that many cases of diseased tonsils had as the active factor the tuberculous focus, stimulated the writer to regard the question of tuberculosis of the lymphatics, particularly the tonsils and the cervical lymph nodes. Of the forty-one tuberculin tests made, nine, of twenty-one per cent were positive. Thirty-two, or seventy-nine per cent were negative. Of the nine where positive reactions were seen, four cases gave a family history of some form of this disease; namely:

1. Mother and uncle (father's side) pulmonary tuberculosis.

2. Father, pulmonary tuberculosis.
3. Grandmother and grandfather, pulmonary tuberculosis.
4. Two aunts (mother's side) pulmonary and osseous tuberculosis.

Of the nine cases in question, five gave negative physical findings. Of the remaining four cases, one had incipient pulmonary and glandular tuberculosis; one had pleurisy; one had tuberculosis of the left thigh, and the fourth case a marked case of pulmonary tuberculosis.

Personal History.

(1) *Physical Examination*—At the time of the operation, a thorough physical examination was made. At the end of six, twelve and eighteen months of the respective cases subsequent examinations were resorted to.

Strange to relate, although the majority of these cases were warranted in having their tonsils and adenoids removed, still there were only ten cases where abnormal conditions were noted.

Hypertrophied viscera, three cases; namely, two cases of enlarged liver and one of an enlarged spleen. Deformities also numbered three; namely, funnel chest, Lordosis and right shoulder higher than left shoulder, but two cases gave evidence of an endocarditis; one a mitral stenosis and the other a mitral regurgitation. The remaining, one case marked pulmonary tuberculosis, and another having Hutchinson teeth. The remaining cases revealed naught.

(2) *Present Complaint*—To give one a fair idea as to the causes of the numerous enucleations of the tonsils and adenoids included herein it seemed that a concise history as given by the patient might not be out of order. For no matter what one's opinion might be regarding this procedure, the fair-minded know that others whose opinions are equally accepted might have arguments to the contrary. The following are the notes as given by the parents:

1. "Coughs since five years of age."
2. "Chokes in throat, hoarse all the time, earache occasionally, mouth breather, restless nights."
3. "Fainting spells, continuous cough and mouth breather."

4. "Mouth breather."
5. "Coughs continually and mouth breather."
6. "Asthmatic attacks."
7. "Mouth breather, frequent attacks of tonsilitis and bronchitis."
8. "Tonsilitis and mouth breather."
9. "Chronic tonsilitis and peritonsillar abscess."
10. "Sore throat every winter."
11. "Running ear, earache and frequent colds."
12. "Tonsilitis and mouth breather."
13. "Chronic tonsilitis for three years, very difficult in breathing."
14. "Frequent colds and mouth breather."
15. "Colds continually."
16. "Frequent colds and sore throat."
17. "Tonsils enlarged."
18. "Sore throat continually, mouth breather."
19. "Mouth breather."
20. "Mouth breather."
21. "Sore throat since diphtheria; mouth breather."
22. "Under-size and under-developed."
23. "Frequent colds."
24. "Backward, breathes through mouth and slight headache."
25. "Mentally backward, headache and mouth breather."
26. "Chronic discharge left ear, suppurative glands of neck."
27. "Mouth breather."
28. "Chronic tonsilitis, earache, mouth breather and deafness."
29. "Inflamed tonsils and mouth breather."
30. "Abscess right ear and mouth breather."
31. "Chronic discharge of both ears."
32. "Cough and hoarseness."
33. "Under size, sore throat and tonsilitis."
34. "Earache, abscess of both ears."
35. "Sore throat and mouth breather."
36. "Sore throat and frequent colds."
37. "Expectoration, indistinctness of voice, mouth breather and frequent colds."
38. "Retro-pharyngeal abscess, frequent sore throat."
39. "Cold in throat."
40. "Frequent sore throat."
41. "Chilly sensation all the time and headaches."
42. "Chronic tonsilitis."

43. "Earache, increasing deafness, mouth breather and tonsilitis."
44. "Something sticking in its throat."
45. "Mouth breather."
46. "Chronic tonsilitis."
47. "Frequent croup, colds and sore throat."
48. "Sore throat and mouth breather."
49. "Sore throat."
50. "Frequent colds, mouth breather, foul breath."
51. "Frequent attacks of croup."
52. "Sore throat."
53. "Frequent attacks of tonsilitis."
54. "Chronic tonsilitis."
55. "Chronic tonsilitis."
56. "Sore throat and mouth breather."
57. "Mouth breather and tonsilitis."

In twenty-two cases there was one cause for their removal; in twenty-two cases there were two causes; in eight cases there were three causes; in four cases there were four causes; in one case there were five causes.

Sore throat; tonsilitis with temperature, 32 cases (56%)—General improvement.

Mouth breather, 25 cases (45%)—One half of cases improved.

Frequent colds, 7 cases (12%)—General improvement.

Earache, 5 cases (8.5%)—Doubtful improvement.

Cough, 4 cases (7%)—No improvement.

Otitis Media (chronic), 3 cases (4%)—No improvement.

Headaches, 3 cases (4%)—No improvement.

Undersized, underdeveloped, mental backwardness, acute otitis media, indistinctiveness of voice, croup, hoarseness, deafness, 2 cases each (3½%)—No improvement.

Foul breath,* chokes, restless, fainting spells, asthmatic attack, bronchitis, peritonsillar abscess, difficulty in breathing, enlarged tonsils, suppurative cervical glands,* expectoration, retropharyngeal abscess, chilly sensation, 1 case each (1¾%)—No improvement except as indicated by *.

To recapitulate—the indications justifiable for the removal of tonsils and adenoids in order of importance are:

- (1) Sore throat and tonsilitis (frequent attacks) (with temperature).

- (2) Mouth breather (excise adenoids first). (If no improvement within reasonable time then remove tonsils).
- (3) Frequent colds.
- (4) Acute otitis media (frequent attacks).
- (5) Suppurative cervical lymph nodes.

There are exceptions to all rules but remember :

"Whatever creed be taught or land be trod,
Man's conscience is the oracle of God."

Previous Illness.

It had always been my impression that previous illnesses were important factors regarding enlargements of the tonsils and adenoids, particularly those complaints wherein the exciting cause seemed to be located within the bounds of the tonsils.

	No. of cases.	Per cent.
Diphtheria	9	15
Measles	49	86
Mumps	22	38
Scarlet fever	8	14
Chicken pox	10	17
Bronchitis	4	7
Whooping cough	29	49
Pneumonia	1	1.7
No. of Diseases.	Cases.	Per cent
None	3	5
1	16	28
2	10	17
3	20	35
4	5	8
5	2	3
Questionable	1	1

The largest tonsils from actual weight were those obtained from individuals having previously had measles and scarlet fever; the smallest specimens were secured from those children who previously had mumps and whooping cough. A significant fact brought out by these data is almost total absence of pneumonia previous to the removal of these organs. Is it due to the enlargement of these glands with added resistance? This question is one which cannot be answered off hand, but should be the incentive to additional research along this particular line. Also the question of the absence of these glands in relation to pneumonic infections.

Teeth.

Twenty-two per cent had serrated teeth, twelve per cent suffered from decayed teeth and eighty-eight per cent had good teeth.

Weight of Adenoids and Tonsils.**Weight Adenoids.**

Boys average.....	1	gram	
largest	2	gram	700 milligrams
smallest			60 milligrams
Girls average.....	1	gram	300 milligrams
largest	3	gram	950 milligrams
smallest			50 milligrams

Weight Tonsils.

Boys average	Right	1 gram	600 milligrams
largest	Left	1 gram	400 milligrams
largest	Right	3 gram	
largest	Left	3 gram	400 milligrams
smallest	Right		300 milligrams
smallest	Left		500 milligrams
Girls average	Right	1 gram	700 milligrams
	Left	1 gram	700 milligrams
largest	Right	4 gram	
largest	Left	3 gram	
smallest	Right	1 gram	
smallest	Left	1 gram	

Mental Status.

Relative to the mental status prior to and following the respective operations, the results obtained by same were remarkable.

Of the fifty-seven cases under consideration, ten were under the school limit. Therefore, considering forty-seven cases wherein reports were available, the following is the result of this particular investigation:

In passing let me impress that these data are the result of either a statement from the teachers of these pupils regarding their work at school before and after the operation, or obtained directly from the individual reports of the pupils.

In seven cases no reports were received and of the forty remaining cases, four, or ten per cent, showed no progress and thirty-six, or ninety per cent, showed appreciable improvement. Of the four who failed to be improved by a removal of tonsils and adenoids, one was a child with syphilis, and one other belonging to the class designated as morons.

To cite some of the paragraphs received from their teachers as follows:

"Some improvement." "Better work than previous year." "More effort displayed." "Improved wonderfully." "Improvement first term, not so much second." "Before removal, not transferred, after removal transferred." "Very much improved both mentally and physically." "Has made progress." "Remarkable improvement." "Not transferred before removal, but after." "More attentive." "A very small but gradual improvement." "Am happy to tell you that he is studying more since tonsils and adenoids were removed." "Greatly improved." "Attention better." "More concentration."

Encourage the removal of these organs between the ages of six and eight years—then striking results will be obtained by the time the child enters high school—otherwise if the operation is postponed until a time after 8 years the improvement will be less appreciable—remembering carefully the indications already mentioned.

CONCLUSIONS.

1. Children exhibiting some alterations in the normal histology of tonsils and adenoids, give marked evidences of mental retardment.

2. Rheumatism, syphilis and tuberculosis from hereditary and environmental points of view have but little significance as causative agents of diseased tonsils and adenoids.

3. This series of fifty-seven cases did not exhibit the pathological entities attributable to tonsils and adenoids, namely, endocarditis, myocarditis, rheumatic fever, chorea, etc.

4. In all there were twenty-nine causes for the removal of these glands—the marked improvement was evidenced only in cases where (1) persistent sore throat and tonsilitis with temperature; (2) frequent colds; (3) frequent attacks of suppurative otitis media; (4) mouth breather and suppurative lymph nodes were the factors of their removal.

5. Adenoidectomies should always be practised where the child is a mouth breather before the tonsils are enucleated.

6. The largest tonsils (by weight) were those removed from

patients who previously had measles and scarlet fever; the smallest from children who had mumps and whooping cough prior to operation.

7. Only one child gave a history of pneumonia before the tonsils and adenoids were removed.

8. No relation between abnormal and diseased teeth on the one hand and glands on the other.

9. *Weight Status.*—The weight curve showed appreciable improvement after ten (10) years of age; gains were noted between 6 and 10 years, inappreciable before this time. Children with diseased tonsils are practically all underweight, namely 3% to 26%.

10. Gratifying results were obtained in ninety (90) per cent of forty cases where reports and statement were secured and especially marked in cases where frequent colds, tonsilitis (with temperature), and mouth breather were the factors for their removal.

11. Frequent temperature traced to the tonsils and adenoids should be the indication for immediate removal after the acute symptoms have subsided, despite the fact that the child might be between the age of 12 to 24 months, respectively; on the other hand, if there is no temperature but the patient suffers from symptoms attributable to tonsils and adenoids, do not remove these organs until the child reaches the age of 6 years. Finally, it is my hope that these modest findings will not be misunderstood, remembering this is the view point of a pediatrician.

AN EARLY CASE OF LEPROSY.*

By PERCY LENNARD QUERENS, M. D.

Assisant-Surgeon, Nipe Bay Hospital, Preston, Cuba.

As early leprosy is infrequently seen, possibly due either to ignorance on the part of the patient, or attempts to conceal the condition, also to errors in diagnosis, the following case is presented as one of interest to the general practitioner who seldom has the opportunity of making a detailed study of this uncommon infection. The following history is typical:

*Published with the permission of the General Medical Superintendent of the United Fruit Company.

M. H., a native Cuban, negro race, aged twenty years, was admitted to the hospital August 7, 1916. There is a negative family history concerning tuberculosis, cancer, and leprosy. There is nothing of interest in his early life that would have any bearing on the present condition.

Two years and three months ago he lived with a known leper, eating at the same table, occupying the same room, but in a different sleeping hammock. This lasted one year. Three months after leaving he developed a sensitive bubo in the right groin which became as large as his thumb, and associated with fever. No venereal condition was present. The bubo then disappeared gradually, not being followed by any skin rash. Two months later there began to appear on the face, forehead, and ears, small nodules which have slowly increased in size. Later he began to suffer from frequent epistaxis, the nose being very sore; general muscular pains and some slight fever. He has had neither gastro-intestinal nor genito-urinary symptoms. Lately he has noticed that his voice is becoming hoarse and feels slightly dizzy at times.

On examination we find a moderately developed and nourished adult, five feet eight inches in height, and weighing one hundred and forty pounds. The most striking feature is the face, which presents a typical picture, though one that may be misleading. There are first noted scattered nodules varying from a small pea in size to that of a marble, with a tendency to localize over the superciliary ridges, nose and helix of the ear; a few are found on the forehead, chin and cheeks. They are firm in consistency, movable, with a sessile base, and easily identified from the surrounding tissue. The area above them is anesthetic, and they are painless on pressure. On the tip of the nose a few smaller ones are grouped, while on the septum larger ones are present which partly obstruct the external nares. The scalp is negative, with no appreciable loss of hair. The conjunctivæ are congested; corneæ are clear, and scleræ are negative. Vision is unaffected, though pupillary reflexes are sluggish. The mouth and tongue are negative; the naso-pharynx is congested, likewise the larynx.

The glands, including both the anterior and posterior cer-

vical groups, submaxillary and posterior auricular, are enlarged, hard and discrete, though not tender on palpation.

The upper extremities are negative for both the presence of anesthesia and tubercles. The larger nerves, wherever palpable, are unaffected.

The skin of the chest is dry, hyperesthesia is present; no nodules are detectable. The inguinal and femoral glands are enlarged, discrete and slightly tender. Cremasteric reflex is present. The testes are atrophied and insensitive to marked pressure; there is no evidence of past lesions about the genitalia.

The thighs exhibit irregular sized areas of loss of pigmentation with decreased sensation; the knee-jerks are exaggerated.

The external surfaces of the lower third of each leg are characterized by an area of anesthesia, irregularly rectangular, twelve centimeters and five in width, well defined from the adjoining skin surface, being light brown in color, glossy in appearance and with absolute loss of sensation; beyond the margin into the area of healthy skin the sensation gradually improves. The center of the area on the right leg is occupied by a scaly, ulcerated patch, about six by two centimeters in size with irregular shallow edges, showing no tendency toward epidermatization; within are sparse anemic granulations that scarcely bleed on irritation.

On the left leg there is no ulcer, but a few dry scales cover the central portion, beneath which the skin shows signs of impending destruction.

There is above each heel an area of anesthesia, with a small ulcer over the right similar to that on the outer aspect of the leg.

The Babinski reflex is exaggerated.

Of the special senses vision is unaffected; audition is faulty, a watch not being heard at five feet, and within the mouth it is scarcely heard. Sense of smell is unaltered. Taste is unaffected. Heat and cold are appreciable in all areas except those where anesthesia is present. Differentiation between the sharp and blunt point is apparently simple.

Scrapings from an incised tubercle of the ear reveals the following: Acid-fast bacilli in large numbers enclosed within

large giant cells, large numbers of young connective tissue and plasma cells.

The blood is negative, likewise the urine and feces. Temperature 98° F. Pulse 80.

APPENDECTOMY REDUCED TO ULTRA SIMPLICITY: THE INGUINAL CANAL AS A MEANS OF ACCESS; A ONE-INCH INCISION AND ONE SUTURE CLOSURE; LOCAL ANESTHESIA WITH TOTAL CONFINEMENT OF THREE DAYS; REPORT OF FIFTY-ONE CASES.*

By J. T. NIX, JR., M. D.

Adjunct Professor of Surgery, New Orleans Post-Graduate School of Medicine,
New Orleans.

The coexistence with right oophoritis or salpingitis of a chronic or sub-acute appendicitis, the comparative frequency of the occurrence of the appendix in the sac of a right inguinal hernia, together with the ease of its removal in the course of herniotomy suggest the idea of the inguinal canal as an avenue for appendectomy.

Old anatomists tell us that the appendix lies at McBurney's point, but more recent observers have established the fact that it is seldom found there, but usually further down and external.

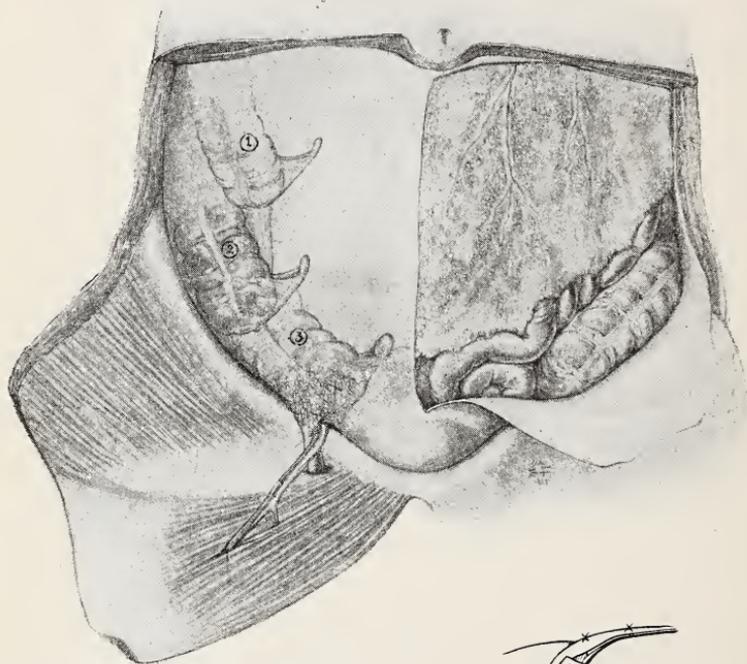
In the cadaver, when the mesocolon and meso-appendix are contracted from death and shriveled from preserving fluids, the appendix corresponds more nearly to McBurney's point than in life, and as all standard anatomies were written from the cadaver the vermiform process is always described as being located at this site.

In life the proximal colon lies in the right iliac fossa on the concave smooth floor of the ileum and overlying muscles. The appendix never corresponds to McBurney's point but is always lower down and external. If for any reason the cecum becomes distended, the internal obliquity of the iliac plane together with gravity when the body is erect cause it to slide on its peritoneal floor, downward and inward from its normal position. Corre-

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spondingly, the vermiform process, at the very end of the cecum is moved toward the inguinal canal and lies at a point very near the internal abdominal ring.

Therefore in the cadaver, the appendix is nearest McBurney's point. In life the healthy appendix is always external and below this landmark, and in appendicitis, the vermiform process lies near the internal abdominal ring.



- ① CECUM IN CADAVER... APPENDIX AT MCBURNEY'S POINT.
 ② NORMAL CECUM WITH APPENDIX BELOW AND EXTERNAL TO MCBURNEY'S POINT.
 ③ DISTENDED CECUM... APPENDIX NEAR INTERNAL ABDOMINAL RING: APPENDICITIS.



- SAGGITAL SECTION THROUGH MCBURNEY'S POINT.
 ① PERITONEUM AT MCBURNEY'S POINT IN CONTACT WITH PARIETAL WALL.
 ② PERITONEUM AT LOW INCISION AWAY FROM ABDOMINAL WALL.

When I speak of the appendix I do not mean the tail, which is angular, free, and may be pointed in any direction, retrocecal, anterior, posterior, or lateral, but I refer to the attachment of the appendix to the cecum, its base, which is a fixed point and always at the lower border of the cecum. Therefore we locate the appendix not by looking for the appendix itself, but by first finding the ileo-cecal valve, then the base of the appendix which is three-fourths of an inch away.

Incision—Make a small cut one-half to one inch in length over the inguinal canal, the lower end being about one inch from the right pubic spine. Dissect through the fat and with small retractors expose the external oblique aponeurosis and the columnar fibers of the external ring.

Separate the fibers of the external oblique, but leave the ring intact. Retracting the divided aponeurosis exposes the conjoined tendon and below that the round ligament in the female and the spermatic cord in the male.

We are now in the inguinal canal proper. The conjoined tendon could be retracted upward, but in order to establish a firmer closure the strong fibers of the tendon are separated as in the gridiron technic. Retracting the divided conjoined tendon exposes a little pad of fat which protects the internal abdominal ring and separates the peritoneum at this point from the abdominal wall.

The deep epigastric artery and vein usually can be seen pulsating in the depths of the incision. By retracting upward with a small curved forceps the peritoneum is caught and divided with scissors, thereby opening the abdominal cavity. A small bluish loop of large bowel can be seen through the incision. This is the lower border of the proximal colon, and the appendix is only about one-half to one inch away. With very little difficulty the base of the vermiform process is reached and the appendix delivered into the opening. If it is retro-cecal and adherent, delivery is impossible and the retrograde sub-peritoneal enucleation can be easily performed.

Fifty-one cases have been operated on by this technic during the past year. I will review two of the typical cases:

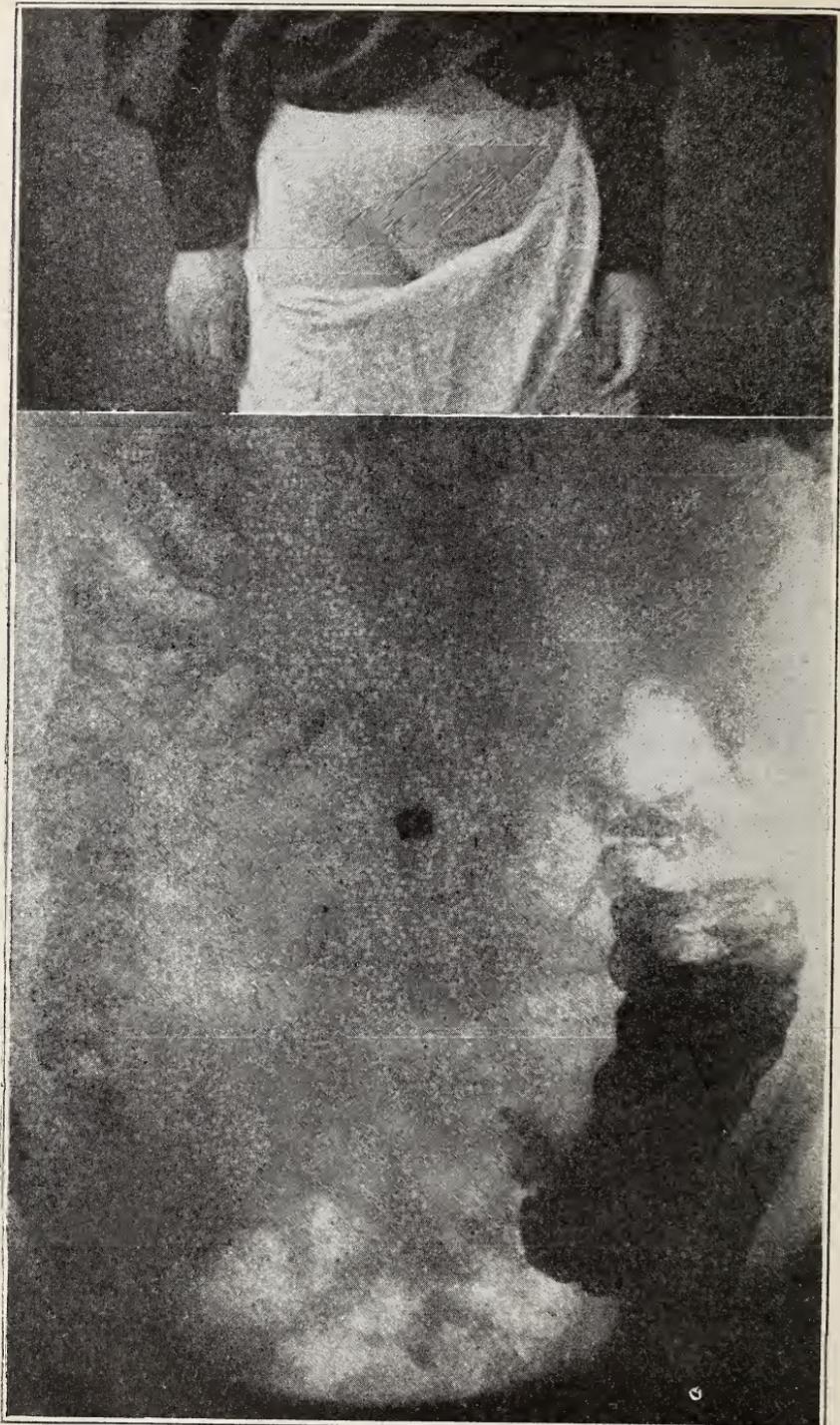
Miss E., Napoleon Ave., New Orleans, April 18, 1916.

Complaint: Digestive disturbances, constipation, paroxysms of acute pain and tenderness in the right iliac fossa and near McBurney's point. No menstrual irregularities, slight leucocytosis.

Diagnosis: Recurrent appendicitis.

July 15, appendectomy, sixteen minutes. Appendix was filled with fecal concretions, injected and adherent. It was removed retrograde and sub-peritoneal, being peeled out from base to tip.

July 16, first day post operative, castor oil one-half



ABOVE—One week after operation. Patient left institution in 48 hours.
BELOW—Shows position of appendix in appendicitis, near internal ring.

ounce and soft diet the same afternoon. There was no reactionary disturbance, no gas pain, and only slight nausea following etherization.

July 7, second day post operative, the patient felt perfectly normal, was allowed to get up and went home the same day. The suture was removed on the fourth day.

Second case: S. H., male, forty-five years old, all classical symptoms of acute appendicitis.

June 15, 1915, appendectomy. The appendix was acutely inflamed, strangulated, and at the point of rupture. A rubber tissue tube drain was inserted and removed after twenty-four hours.

June 16, castor oil one-half ounce, and light diet in the afternoon.

June 17, patient was let up and permitted to leave the institution next day.

Ten of these operations have been performed under local anesthesia. It takes about five minutes longer, but the result is even more striking. In some cases gas pains seem to be more pronounced after local anesthesia. This, however, can be avoided by giving a hypodermic of morphin with pituitrin immediately following the operation.

In only three cases of the entire series was it necessary to change the incision.

1. Adult, male, nineteen years old.

Numerous large glands covered the cecum and were removed before the appendix was accessible. The skin incision was lengthened in the same direction but the muscle was divided upward according to the "Battle" technic. The patient was kept in bed nine days.

2. Adult female, eighteen years. After opening the abdomen digital exploration revealed double pus tubes. The incision was converted into a Pfannenstiel and both tubes removed. The patient left the institution on the tenth day.

3. Adolescent girl, fifteen years old. Malposition of the appendix. It was adherent and misplaced high behind the ascending colon, the tip being very near the lower border of the liver. Technic same as in first case.

Special advantages of this incision:

1. It is over the prevesical space where the peritoneum is

not in contact with the abdominal wall and consequently there is little possibility of a post operative hernia.

2. The unusually low incision permits the index finger to be inserted and the pelvis explored, a requirement imperative in females.

3. To meet complications the incision is easily converted into a Pfannenstiel for pelvic work, a Battle or large McBurney for higher abdominal work.

4. The site selected as best for an entrance into the abdominal cavity is that which nature has found best as an exit—the inguinal canal.

5. The incision is small and permits of very little exposure, manipulation, and traumatism of gut, consequently there is less post operative disturbance.

6. The patency of the internal and external abdominal rings is not disturbed as the opening is between these points.

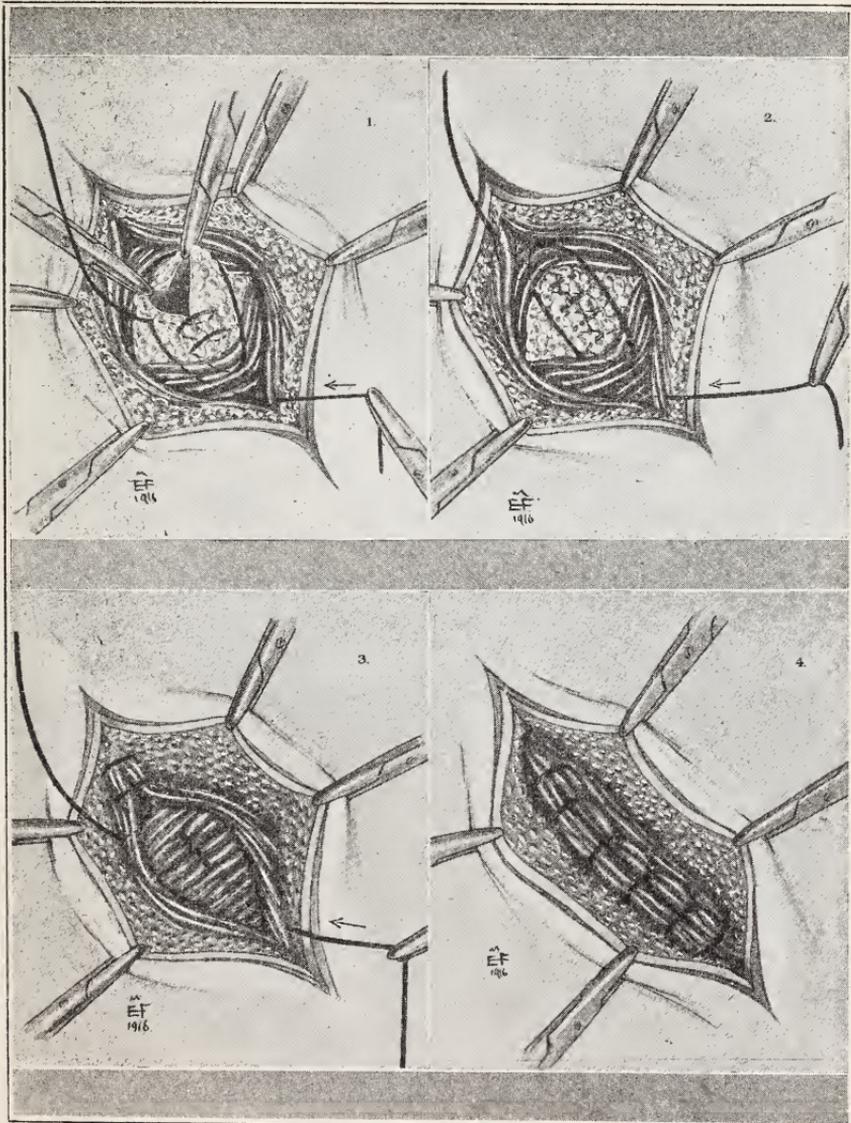
7. Because of the above reasons, after the dangers of peritonitis and secondary hemorrhage have passed it is perfectly safe to let the patient get up and walk in forty-eight hours and leave the institution on the third post operative day.

Closure—The special suture employed may be described better by referring to the drawings. Number two chromic cat gut is used on a medium size Hagedorn needle.

Fig. 1. Needle is inserted thru one edge at lower end of external oblique incision, penetrates and passes beneath the lower division of conjoined tendon crossing above peritoneum to under surface of upper portion of tendon, which it punctures from below outward; recrossing from above and in the opposite direction to the lower edge, it again perforates this section of tendon and is inserted in the lower end of the longitudinal peritoneal incision which it closes from below upward by a continuous suture.

Fig. 2. Peritoneum is closed entirely and from its upper end the suture continues through deep muscles and emerges from the side and end of the external oblique incision opposite to the point of insertion. Second layer of muscles is not closed.

Fig. 3. The ends of the suture are now drawn producing tight closure of peritoneum and approximation of the divided transverse muscles which form the conjoined tendon.



1. Insertion of suture through lower end of external oblique incision, passing through second muscular layer, crossing over peritoneum to under surface of divided muscles, completion of figure of 8 turn around transverse muscles, and continuous closure of peritoneum.

2. All points of 1 are brought out with emergence of suture from upper end and oblique edge of external oblique incision.

3. Traction on suture closes peritoneum, approximates divided transverse muscles, and obliterates dead space.

4. Final step of suture shows continuous closure of external oblique incision opposite in direction to that of peritoneum. Distal and proximal ends of suture are tied at port of insertion.

Fig. 4. Suture is now continued from above downward closing rent in external oblique and securing the entire closure by

a single knot tied with distal end at the point of insertion.

One figure of eight silkworm gut suture is used for closing the skin.

The one-knot-continuous tier suture for external oblique, internal oblique, and transverse muscles, and peritoneum shortens the operation, lessens the danger of infection by imposing on the tissues less work, less cat gut to be absorbed, strengthens the closure by obliterating dead space and hastens firm union through the agency of these factors.

Any cough or strain, which otherwise might have a deleterious effect, tightens the suture and causes better approximation.

In appendicial abscess and cases of ruptured appendix, the small incision should not be used as free drainage is required. The operation, however, is applicable in more than eighty per cent of all cases.

RECAPITULATION.—Appendicectomy by selective technic becomes leveled to the plane of lighter operations. The horror of the knife, the dread of stitches, the fear of the anesthetic, and the intolerance of incapacitation are relieved and satisfied by the assurance that the incision shall be only one inch or less in length, that one suture alone will have to be removed, that the brevity of the operation, sixteen minutes, proportionately decreases the annoying sequelae, that a general anesthetic is seldom necessary that total disability is reduced from ten to three days, this being made possible by the firm, compact, one-knot closure tightening a normal opening in the abdominal wall. The low operation permits of the greatest accessibility and allows free pelvic exploration.

The simple methodical operation belongs to the province of minor surgery.

Before concluding I wish to thank Prof. Hardesty and Dr. Bayon for their kind suggestions and the use of their library.

DISCUSSION.

DR. H. B. GESSNER: In recent years, I have always removed the appendix when doing a right inguinal hernia operation, if it was easily brought down. I believe Dr. Nix's operation is applicable to some cases, but doubt the 80 per cent, which he mentions. My objections are that the small incision does not permit a proper examination of the abdomen. Many cases with symptoms of chronic appendicitis have gastric ulcer, gallstones, etc., and a proper diagnosis cannot be made without exploration. The systematic exploration of the abdomen in chronic cases is one of the most valuable innovations in surgery.

DR. P. B. SALATICH: Dr. Nix read a very splendid paper. I feel as Dr. Gessner does, that a large incision is preferable, for if there are any adhesions, or any trouble connected with the stomach or pelvic organs, these can be easily attended to by enlarging the incision. My preference is always for the Battle

incision, and I use this incision in all my cases. As to allowing the patient to sit up early I generally let my patient up, in the rolling chair, about the fourth day. A careful history should always be taken as to any trouble gynecologically, in young women, coming to the surgeon for appendix trouble, and if a history of some disturbance is present, an examination should be insisted on, so as to correct this trouble, at the same time that the appendix is removed. It is false modesty on the woman's part, and neglect on the surgeon if this is overlooked.

DR. HALSEY: In '84 Robert Morris, of New York, advocated a one and one half inch incision for appendectomy, and after years of investigation, the very small incision has been discarded.

DR. W. A. HENRIQUES: From the viewpoint of the roentgenologists, a large incision is unquestionably preferable.

DR. NIX (in closing):.. Replying to Dr. Gessner. We find many cases in which the appendix is retro-cecal and adherent. In such instances the vermiform process cannot be delivered into the incision, but the base of the appendix, a fixed point, can be easily located and the appendix peeled out retrograde and sub-peritoneal. In only three of fifty-one cases was it necessary to enlarge this incision.

This operation is by no means offered as a substitute for the long median incision in exploratory abdominal work, but it is intended to replace the small McBurney or Battle so universally used.

When the time comes that we are no longer able to make any abdominal diagnoses and every diseased appendix is removed through a long six inch incision, when there no longer appears on the bulletins of scheduled operations behind the name of almost every surgeon—"appendectomy," and the operation is done through a McBurney or Battle incision, then I most willingly cast my lot with the rest and abandon all small incisions for appendectomy. Remember, however, that by digital examination through this site the pelvis can be freely explored and, if necessary, the incision enlarged as a Battle or Pfannenstiel.

Reply to Dr. Salatich: "The incision is no stronger than the catgut that is used" and "I use the Battle incision and frequently let my patients get up in four days and leave on the sixth."

In the Battle incision the lines of division through the successive parietal layers are superimposed one over the other and a distinct area of least resistance is created. I would not permit a patient with a Battle incision to get out of bed before the seventh or eighth day. In the operation Dr. Salatich prefers, I agree, the incision is no stronger than the catgut used, but at the inguinal canal, between the external and internal rings, with no division of muscle but simply the separation of a thick bundle of fibers, the conjoined tendon, where the peritoneum is not approximate to the abdominal wall, but is separated by a pad of fat, it is impossible to herniate even though the catgut be faulty.

Replying to Dr. Halsey: Many one inch incisions have been advocated in the past and abandoned—very properly so. A similar incision at any other point on the abdominal wall, possessing no special advantages except its lack of size represents bad surgery.

I have been unable to find any previous description of this operation in the literature.

Replying to Dr. Henriques: X-ray pictures of the appendix are hard to find. This one plainly shows colonic ptosis, however it brings out emphatically the point I wish to impress, viz., the appendix is not at McBurney's point, unless anomalous, but is lower down and external. Whenever the cecum is distended or ptosed, the base of the appendix corresponds to a point very near the internal abdominal ring.

COMMUNICATIONS.

TYPHOID FEVER AND HOG CHOLERA.

Huntington, Tenn., March 3, 1917.

EDITORS NEW ORLEANS MEDICAL AND SURGICAL JOURNAL:

For many years I have had an idea that typhoid fever and hog cholera were closely related, if not the same disease, modified by being in different animals.

Having had a painful observation of the trouble fifteen or twenty years ago. In the instance referred to, the hogs commenced dying in the early spring from cholera. The range of the hogs, and where they died and rotted, was a sloping hillside, above the family residence, so that heavy rainfalls would wash the decomposing fluid matter from the dead hogs' bodies down toward, if not in, and around the yard where the people lived, who were the sufferers.

On the hillside, where the decomposing carcasses lay, about one hundred yards above the residence of one of the families, was a well, fifteen feet deep, supplying water for family use. Over the end of the delivery spout of the well I noticed a cloth. Upon investigation it was found that the water in the well was infested with small white worms and that the cloth was placed over the spout as a filter. Close by the well was a hog wallow, where sick and well hogs took their daily bath. The water from the hillside and fattening hog pen flowed all over the yard and about the well of the other family.

I mention these facts so that the reader may get a clear idea of the situation. Every member of the two families exposed in this way had more or less fever during the month of June of that year. Five or six cases were diagnosed to be typhoid fever. Two of the members died, one from relapse from imprudent eating.

From these and other facts collated, I have decided that the two diseases are certainly closely allied, typhoid caused by what is known as the bacillus typhosus, hog cholera closely associated with the bacillus of the colon group, almost undistinguishable from the bacillus typhosus. The pathological lesions of the intestines are very similar.

In 1856, I commenced the practice of medicine at Clarksburg, Carroll County, Tenn., with my brother, Dr. Henry McCall, in the midst of the most extensive epidemic of typhoid fever I have ever witnessed. One or more cases of the disease was in 50%

of the families in that community. Very few deaths occurred. The treatment was a small dose of calomel or blue pill at night, moved off next morning with castor oil. Mucilage of turpentine was given throughout the treatment of the disease. Castor oil was administered to move the bowels when thought necessary. Any complications occurring were treated according to indication. To prevent passive congestion of posterior position of lungs, and hypostatic pneumonia, the patients were directed to change positions in bed occasionally and not to lie on back too much. Keep clean. This is about the treatment of typhoid fever sixty years ago. Hog cholera was common throughout the country then, but not viewed by anyone as a possible ally of typhoid fever.

The profession of medicine is broad and has an endless field for study, and as progressive men we should ever be on the alert and note the environments of the epidemic conditions and habits of the people who suffer therefrom.

Of late years I have made special inquiry where there was an epidemic of typhoid fever in the country to ascertain if hog cholera had previously existed in the infected district also, and vice versa, and the answer has generally been in the affirmative.

Signed:

J. W. McCall, M. D.

STATE BOARD OF MEDICAL EXAMINERS.

New Orleans, March 17, 1917.

DRS. CHASSAIGNAC AND DYER, Editors:

Dear Doctors—At a special meeting of the Louisiana State Board of Medical Examiners, held March 17, Dr. J. A. Henderson, who has been appointed a member of this Board by the Governor to fill the vacancy caused by the expiration of my term of office, was elected Secretary-Treasurer. Dr. S. L. White, Vice President, and Dr. Homer Dupuy forwarded to the Governor their resignations as members of the Board.

In closing my term of office I could not allow the occasion to pass without extending to you, both in the name of the Board and myself, sincere thanks for the many courtesies of which we have been the recipients.

With kindest regards and best wishes for the continued success of the work of the JOURNAL, yours very truly,

Signed:

E. L. Leckert, Secretary.

CURRENT LITERATURE

TWO NEW FLY-KILLERS.—Two excellent fly-killers have recently been suggested by Phelps and Stevenson of the U. S. Public Health Service. They are formaldehyde and sodium salicylate, and are described as much safer and more efficient than the familiar arsenic preparations. For household use, solutions are prepared by the addition of 3 teaspoonfuls of the formaldehyde as found on the market, to a pint of water. Or 3 teaspoonfuls of sodium salicylate are dissolved in a pint of water.

Nearly fill a glass tumbler with either of the above solutions, place over this a piece of blotting paper cut roughly to circular form somewhat larger in diameter than the tumbler, and over this invert a saucer. Invert the whole device and then insert a match or toothpick under the edge of the tumbler to allow access of air. The blotting paper will remain in the proper moist condition until the entire contents of the tumbler have been used; the strength of the formaldehyde solution will be maintained. A little sugar sprinkled upon the paper will increase the attractiveness for the flies.

The authors state that either of these preparations may be safely used where there are young children, although the addition of the sugar is not recommended in such cases. The formaldehyde has an unpleasant taste, and in the concentrations recommended a harmful dose could not be taken. No bad effects would result from a considerable quantity of the salicylate.—*U. S. Public Health Reports*, Nov. 3, 1916.

HYPERIDROSIS.—Localized hyperidrosis is a common disorder which of itself may be only a minor annoyance, but not infrequently, when complicated by bromidrosis, dysidrosis or hyperkeratosis, it is of greater importance and may incapacitate the patient, making walking painful, and also the use of the hands, or the knowledge that an unpleasant odor clings to one may interfere with social pleasures. Stillians, (*Journal A. M. A.*, Dec. 30, 1916), says that treatment heretofore had been unsatisfactory until it had been shown that it could be controlled by the Röntgen ray. This, however, is expensive and not altogether safe, and he recommends to the patient as an inexpensive local application a 25 per cent. solution of aluminum chlorid. In prescribing this the fact that it is incompatible with alkalis,

sulphur, phosphorus and selenium must be remembered. A 25 per cent. solution in distilled water, applied gently on the part every second or third day and allowed to dry on before the clothing is allowed to touch the skin, will cause a rapid amelioration of the excessive sweating, and one application a week may be made to ward off recurrences. The drug causes an itching or stinging sensation, which usually subsides spontaneously if the part is not scratched. Excessive or careless use followed by scratching may cause a dermatitis, but he has never seen this happen when usual care was exercised. If itching does occur in spite of precautions, an ointment of cold cream with 12 per cent. boric acid may be used, or a calamine lotion with or without 0.5 per cent. phenol (carbolic acid) may be used. He has used this aluminum lotion in twenty cases without failing in one to give relief. Most were cases of simple hyperidrosis of the axillæ or feet, but three were cases of persistent vasicular eruption of the feet with excessive sweating. He reports the worst of these. Care has always been taken to reduce and active inflammation before using the aluminum lotion. He knows of no other drug equally effective with so little danger, and it has done wonders in the limited series of cases in which he has employed it.

HUMAN ANTHRAX.—Brown and Simpson, (*Journal A. M. A.*, Feb. 24, 1917), give an account of an epidemic of human anthrax involving twenty-five cases, and traced to a single source. Twenty-three of the twenty-five reported cases were in persons handling hides, which were traced to an importation from Hankau, China, and were shipped to three tanners in Massachusetts. Three of the cases resulted fatally, and the authors report these in tabulated form. There was considerable diversity of treatment: incision, antiseptic compresses, cauterization, mercuric chlorid dressings, and serum treatment, which they consider the most promising. Excision seemed to be less satisfactory than the expectant method. They suggest greater precautions against the production of the disease, and offer the following conclusions: "1. Anthrax infection is an important occupational disease. 2. The federal authorities should gather information as to the distribution of anthrax infection among cattle in all hide-producing countries. 3. Renewed efforts should be made to discover an efficient method of disinfection which does not injure the hide and is not prohibitive in price. 4. Tannery workers should be safeguarded against this infection. 5. The serum treatment should be thoroughly tried."

NEWS AND COMMENT.

THE AMERICAN SOCIETY OF TROPICAL MEDICINE will meet June 4 and 5, 1917, at the New York Academy of Medicine.

FEDERATION OF STATE MEDICAL BOARDS.—At the annual meeting of the Federation of State Medical Boards of the United States, held in Chicago, February 6, 1917, Dr. David A. Strickler, Denver, was re-elected president; Dr. Walter L. Bierring, Des Moines, Iowa, re-elected secretary-treasurer, and Dr. Conrad H. Suttner, Walla Walla, Wash., a member of the executive committee.

MEDICAL COLLEGE OFFICIALS ELECT.—The twenty-seventh annual meeting of the Association of American Medical Colleges was held in Chicago, February 6, and Dr. William S. Carter, Galveston, was elected president; Dr. Edward H. Bradford, Boston, vice-president, and Dr. Fred C. Zapffe, Chicago, re-elected secretary-treasurer.

PUBLIC HEALTH SERVICE FOR YOUNG MEDICAL MEN.—The ninth annual meeting of the National Committee for Mental Hygiene was held in New York, February 7. It was announced that during the past year over \$30,000 had been contributed for general expenses by four donors, one of whom had also pledged \$1,000,000 towards an endowment fund. For surveys of conditions among the insane and feeble-minded and for other special purposes, the sum of \$34,000 had been contributed by the Rockefeller Foundation. The following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice-presidents, Prof. Charles W. Eliot, Boston, and Dr. William H. Welch, Baltimore; treasurer, Mr. Otto T. Bannard; medical director, Dr. Thomas D. Salmon, New York; associate medical director, Dr. Frankwood E. Williams, Boston, and secretary, Mr. Clifford W. Beers.

OFFER OF RED CROSS BASE HOSPITAL.—As a memorial to Col. Eli Lilly of Indianapolis, the Eli Lilly Company, Indianapolis, has offered the local chapter of the American Red Cross \$25,000, to establish a base hospital of 500 beds. Dr. Carleton B. McCulloch is to be director of the hospital.

JAPAN LOSES MEDICAL COLLEGE AND HOSPITAL.—On February 20 fire destroyed the Osaka Medical College and Hospital, the largest in Central Japan. The 470 patients in the hospital were all, it is believed, removed in safety. The loss exceeds \$1,500,000.

INTERSTATE QUARANTINE REGULATIONS.—February 12, 1917, amendments were made to the interstate quarantine regulations promulgated by the Treasury Department, January 15, 1916, relating to the following subjects: water for drinking or culinary purposes provided at stations by interstate carriers; interstate transportation of persons having contagious or infectious diseases; sanitation of camps occupied by migratory workers, and prohibiting the interstate transportation of oysters and clams grown or handled under insanitary conditions. Public Health Reports for February 23 contain the text of these amendments.

GIFT TO UNIVERSITY OF ILLINOIS.—According to report from Urbana, Ill., Congressman William McKinley has given to the University of Illinois the sum of \$120,000 to establish an infirmary to be the basis of an extensive health service for the students and teaching staff.

RADIUM MAGAZINE.—A new magazine, *The Radium Quarterly*, recently published its first issue and, as its name implies, is devoted to the subject of radium therapy. The magazine is conducted by the Radium Institute of Chicago and is to be published four times a year, at a subscription price of \$1.00 a year.

REPORT ON HOOKWORM.—The results of the campaign in one year's war on hookworm in Panama, R. P., is shown in the annual report of Dr. Burres, director of the Rockefeller Commission in Panama. There were 30,094 persons examined and 50,491 treatments administered during this campaign. This organization is part of the Rockefeller International Health Commission, which has branches in many parts of the world. Dr. Burres states in his report: "Apart from the great amount of clinical work accomplished there is carried on a campaign of instruction in matters of personal hygiene and public health which has far-reaching results and does quite as much good as the actual treatment for hookworm. These results are obtained by the school and public lectures given in all the districts

where the work is carried on, and by individual talks and the distribution of literature."

MENACE OF BACKYARD FENCE.—A campaign for the elimination of the high-board fence and the substitution of a light iron fence in its stead is being undertaken by the Tenement House Committee of the Child's Elevation Society of New York. Some of the disadvantages given against high-board fences are that they require constant repair, increase fire danger, furnish shelter for thieves and rubbish, and shut out light and air.

AMERICAN RED CROSS EFFICIENCY.—According to a report from Washington on February 9, the American Red Cross, in the event of war, could in a few days mobilize a sufficient personnel and equipment to take medical care of an army of 1,000,000. Mr. Eliot Wadsworth, acting chairman of the organization, estimated that the force which could be mobilized immediately in case of war would include the following:

Twenty-six completely equipped army and navy base hospitals units, with a total personnel of 1,250 nurses and 599 nurses' aids.

A hospital base reserve of 415 nurses and 525 nurses' aids.

Thirty-one partly complete navy detachments of 20 nurses each.

One hundred and fifteen emergency detachments.

A corps of expert instructors in surgical dressings, totalling about 120.

The American Red Cross is better prepared and more efficient to-day, it is believed, than it has ever been for any other national emergency.

AID OF THE BELGIAN PROFESSION.—Dr. F. F. Simpson, treasurer of the Committee of American Physicians for the aid of the Belgian Profession, reports the total receipts for the quarter ending February 28, 1917, \$7,961.26; total disbursements, \$7,310.04, and a balance of \$651.22.

THE JOURNAL OF UROLOGY.—This journal, the first number of which appeared in February, is intended to be the archives for papers dealing with the urinary tract and correlated subjects, whether from a medical, surgical, clinical or experimental point of view. It aims to publish a number of interesting his-

torical papers and in its type and illustrations will conform to the highest standards. The editors invite those who have any papers ready or nearly completed, which would be suitable for the *Journal of Urology*, to submit them for early publication. The editor is Dr. Hugh H. Young, Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Md.

EXAMINATIONS IN OPHTHALMOLOGY.—The first examination of the American Board of Ophthalmic Examinations was held at Memphis, Tenn., December 14 and 15, 1916, with twelve applicants before the board. The successful applicants will be duly certified after its next regular meeting. The 1917 regular annual examination will be held just before the New York meeting of the American Medical Association, at which time only those whose applications were filed before March 1 can go up for examination. Details regarding these examinations and their requirements can be obtained from the secretary, Dr. Frank C. Todd, 506 Donaldson Bldg., Minneapolis.

THE BUBBLING FOUNTAIN.—An epidemic of streptococcus amygdalitis at the University of Wisconsin is said to have its source from a "bubbling fountain" in that institution. Strep-tococci were found on more than half of the fountains lodged on the metal piece surrounding the mouth of the water pipe. Says the editor of the *Buffalo Medical Journal*: "We have often wondered just how effective the current of water might be against the rinsing of various mouths, including those of dogs, birds and horses and against the grimy hands of boys who squirt water from these sanitary (?) supplies."

NEW HEAD OF CITY BOARD OF HEALTH.—Dr. W. H. Robin was elected superintendent of public health and chairman of the Board of Health of the City of New Orleans, to succeed Dr. W. T. O'Reilly, whose death occurred last month. Dr. F. R. Gomila was appointed secretary at a salary of \$2400 a year. Dr. George C. Hauser succeeded Dr. Gomila as assistant bacteriologist.

BAR THE TUBERCULAR.—Phoenix, Arizona, by an ordinance adopted last July, has made it unlawful for any hospital, hotel, boarding or rooming-house knowingly to receive, lodge or board any persons suffering from pulmonary tuberculosis, unless under a permit from the city health officer.

CHILDBIRTH COMPLICATIONS CAUSE DEATH.—According to

Dr. Grace L. Meigs of the Children's Bureau, complications of childbirth caused in the United States, in 1913, more deaths among women from 15 to 44 years of age than any disease except tuberculosis. At least 15,000 women die each year from such complications, and during the last ten or fifteen years no substantial decrease can be found in the death rate from childbirth. The chief reason for such mortality, says Dr. Meigs, is that women and their husbands do not yet realize that every woman needs, and has a right to, skilled care at the time of the birth of her children. A bulletin on this subject has recently been issued by the Children's Bureau, Washington, D. C.

NATIONAL MEDICAL EXAMINATION.—The National Board of Medical Examiners will hold its second examination in Washington, D. C., beginning June 13, 1917, and lasting about one week. Successful applicants may enter the Reserve Corps of the Army or Navy without further professional examination, if examination papers are satisfactory to a board of examiners of those services. Application blanks and further information may be obtained from the secretary, Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

PERSONALS: On March 3, Drs. J. M. Baldy and I. D. Metzger, of the Pennsylvania State Examining Board visited New Orleans for an inspection of the Tulane School of Medicine and of the hospitals of New Orleans.

The friends of Dr. F. W. Parham will be pleased to learn of his recovery after a severe surgical experience in the removal of a diverticulum, with no malignant feature. While the Doctor is still at the Mayo Clinic convalescing, he expects to be back home and his work soon.

The friends of Dr. C. C. Bass will be glad to learn that he is recovering from an attack of pneumonia which has kept him confined to bed for some weeks.

REMOVALS: Dr. S. E. Thompson, from San Angelo to Kerrville, Texas. Dr. J. L. DuBose, from Gay to Jacksonville, Texas.

DEATHS: On March 3, 1917, Dr. Allen Anthony Kennedy, one of New Orleans' promising young physicians.

On March 10, 1917, Dr. William T. O'Reilly, president of the New Orleans City Board of Health, aged 56 years.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Gynecology, by William P. Graves, A. B., M. D., F. A. C. S.
W. B. Saunders Company, Philadelphia and London, 1916.

So many excellent text-books on this subject have appeared in rapid succession that an author who expects enthusiastic approval of a new book must arrange his text in some more practical form, or else present new material for consideration. That Dr. Graves has succeeded in satisfying both of these requirements no one can deny after reading this splendid volume of 770 pages, which while larger than the average text-book does not appear to contain a single irrelevant page.

The first feature of the work to win admiration is the illustrations. All of the half-tone and pen-drawings were made by the author, who displays unusual talent as an artist. This additional advantage of being able to illustrate his text has enabled him to eliminate many unnecessary illustrations and to emphasize more clearly the essentials in technic and anatomy.

One notes in the beginning chapters the absence of the usual sections devoted to anatomy and in their place a more elaborate discussion of the physiology and relationship of gynecology to the general organism. Over 150 pages are devoted to this very interesting phase of modern gynecology, and no other text-book contains a more complete and yet condensed discussion of the present status of the endocrine glands in gynecology.

The author has succeeded in producing a work equally as valuable to the practitioner as to the undergraduate student. The excellent description of operative measures, made doubly valuable by the illustrations, should commend it as a ready reference for the surgeon, while the numerous microscopic drawings and the space devoted to pathology leaves nothing to be desired by the student.

The entire text reflects the work of a scholar, an artist, a pathologist, and a surgeon of ripe experience—a combination of faculties rarely observed.

Miller.

The Surgical Clinics of Chicago. W. B. Saunders & Co., Philadelphia and London, 1917. Vol. I.

The first number of this new publication consists of 215 pages devoted to the relation of surgical cases and the details of surgical technic from various surgical clinics of Chicago. It is to appear monthly and seems to be a companion volume to the "Medical Clinics of Chicago," which has been issued with much success for nearly two years.

The first number contains contributions by twelve of the leading surgeons of Chicago, who have presented in a concise form the pathology, history and operative details covering a wide range of the surgical field.

In addition to the ordinary case reports, excellent illustrations are introduced, besides a summary at the beginning of each contribution, to aid the busy reader in obtaining the essential facts.

The editors have set a high standard for future numbers and there is no doubt of the prompt acceptance of the publication by the profession.

Miller.

The American Year Book of Anesthesia and Analgesia. By F. H. McMechan. A. M., M. D. Surgery Publishing Company, New York, 1916.

The steady advance of scientific medicine and the accumulation of knowledge and experience in all its branches has gradually encouraged the development of specialties in fields which a few years ago attracted little attention and apparently offered little inducements for the entire attention of the scientifically trained physician.

The anesthetic specialist is now a necessity and with many of these whose skill and ability are well recognized, their services are much sought for by both surgeon and patient. With local anesthesia the surgeon is the anesthetist and the successful application of this form of anesthesia to major operations requires special knowledge and skill, which are acquired only after much careful study and attention to this branch. The development of general anesthesia and its practical administration has been the result of a gradual evolution of the past 75 years, since the days of Crawford Long. Local anesthesia had its beginning with the introduction of

cocain into surgery by Karl Koller in 1884. Hailed as a great surgical novelty long sought for and eagerly awaited, it was in general use throughout the world within a period of a few months. This indiscriminate and promiscuous use of a drug but little known, soon brought it into disfavor with the rank and file of the profession. The period of experimentation followed during which its use was placed upon a firm and scientific basis. The maximum dilutions for effective use determined and the minimum toxic dose established, was accomplished by the pioneer workers in this field—Schleich, Reclus, Halstead, Carning, Matas, Cushing, Crile, Braun, Barker and others. This period was at its height about 1900. An interval followed during which local anesthesia attracted little general attention, but with the advent of adrenalin and the discovery of safer anesthetic drugs, it has come into its own and in the hands of many men is now a close competitor with general anesthesia in a large majority of all operations performed.

Within the last few years, several excellent text books of American authorities have been presented, which cover almost the entire range of surgery. The quarterly supplement of Anesthesia and Analgesia of the *American Journal of Surgery* edited by Dr. F. H. McMechan the first of its kind in America, is a most excellent and valuable publication, which is now supplemented by the American Year Book of Anesthesia and Analgesia by the same author, which has just made its first appearance, a publication of over 400 pages, replete with valuable and instructive articles on both general and local anesthesia, in which the physiological and practical clinical sides of general anesthesia are discussed in all its phases by leaders in this field. The articles on local anesthesia are by men many of whom are famous in this field and who are largely responsible for the popularity of this branch today. The volume illustrates the enviable progress in these fields and should prove a great success and reflects great credit upon the skill and ability of the editors in getting together such a galaxy of able authors.

Allen.

The Practical Medicine Series. Under general editorial charge of Charles L. Mis, A. M., M. D., Vol. VI., General Medicine edited by Frank Billings, M. S., M. D., assisted by Burrell O. Raulston, A. B., M. D. Series 1916. The Year Book Publishers, Chicago.

The present volume deserves the commendation hitherto given former issues. The synopses given are timely, well chosen and well done. The volume on General Medicine of this series is always well worth attention.

I. I. Lemann.

PUBLICATIONS RECEIVED

C. V. MOSBY COMPANY. St. Louis, 1917.

The Newer Methods of Blood and Urine Chemistry, by R. B. H. Gradwohl, M. D., and A. J. Blaivas.

Practical Urinalyses, by B. G. R. Williams, M. D.

Clinical and Laboratory Technic, by H. L. McNeil, A.B., M. D.

Handbook of Suggestive Therapeutics, Applied Hypnotism, Physic Science, by Henry S. Munro, M. D. Fourth edition, revised and enlarged.

THE MACMILLAN COMPANY. New York, 1916.

Man—An Adaptive Mechanism, by George W. Crile, F. A. C. S. Edited by Annette Austin, A. B.

LEA & FEBIGER. Philadelphia and New York, 1917.

A Manual of Therapeutic Exercise and Massage, by C. Herman Bucholz, M. D.

REBMAN COMPANY. New York, 1917.

Text Book of Surgical Operations, by Prof. Fedor Krause and Emil Heymann M. D. Translated into English and edited for American readers by Albert Ehrenfried, A. B., M. D., F. A. C. S. In six volumes. Vol. II.

WILLIAM WOOD AND COMPANY. New York, 1917.

A Reference Handbook of the Medical Sciences. By various writers. Third edition, completely revised and rewritten, edited by Thomas Lathrop Stedman, A. M., M. D. Complete in eight volumes. Vol. VII.

W. B. SAUNDERS COMPANY. Philadelphia and London, 1917.

A Laboratory Guide in Pharmacology, by Torald Sollmann, M. D.

The Surgical Clinics of Chicago. Vol. I.

WASHINGTON GOVERNMENT PRINTING OFFICE.

Washington, D. C., 1917.

Public Health Reports. Volume 32, Nos. 5, 6, 7, 8, and 9. **Mortality From Cancer and Other Malignant Tumors in the Registration Area of the United States.** 1914.

Report of the Department of Health of the Panama Canal for the Month of December, 1916.

MISCELLANEOUS:

- Quarterly Bulletin of the Louisiana State Board of Health. New Orleans, December, 1916.
- Second Annual Report of the National Committee for the Prevention of Blindness. November, 1916. (130 E. 22nd St., New York City).
- Specific Vaccine and Serum Therapy. (Eli Lilly & Co., Indianapolis).
- Twenty-Ninth Annual Report of the Purdue University Agricultural Experiment Station. (Lafayette, Indiana, June 30, 1916).
- Transactions of the Society of Tropical Medicine and Hygiene. November and December, 1916. (11 Chandos Street, Cavendish Square, W., London).

REPRINTS

- Anomalies of the Gall Bladder and Bile Passages; Injuries of the Spinal Cord; Some South American Travel Notes, by August Schracner, M. D.
- The History of the Use of Intravenous Injections of Tartar Emetic (*Antimonium Tartaratum*) in Tropical Medicine, by George C. Low, M. D., C. M.
- Medical Organization Under Health Insurance, by Alexander Lambert, M. D.
- Primer Caso de Leishmaniosis Cutanea en Venezuela; Algunos Datos Sobre el Diagnostico Bacteriologico y Epidemiologia de la Fiebre Tifoidea de Caracas; Consideraciones Sobre la Technica de la Reaccion de Wassermann e Interpretacion de los Resultados Obtenidos en 1025 Examenes, por Dr. Juan Iturbe.
- A National Liquor Commission, by Henry Barrett Chamberlin.
- The Use of Oxygen in Cystography, With a Preliminary Report on the Use of Oxygen in Pyelography, by Amedee Granger, M. D.
- Studies in Cancer. No. 1; The Blood—Pathological Data; Cancer: Its Cause, Prevention and Cure; the Eclectic Treatment of Cancer; the Cancerous and Precancerous State; The Basis of Cancer Therapy; A New Contribution to the Etiology and Pathogenesis of Cancer, by Dr. E. M. Perdue, A. M., M. D., D. P. H.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for January, 1917.

Cause.	White	Colored	Total
Typhoid Fever	6	2	8
Intermittent Fever (Malarial Cachexia).....			
Smallpox			
Measles	17	4	21
Scarlet Fever	1		1
Whooping Cough	2	1	3
Diphtheria and Croup.....	3		3
Influenza	15	14	29
Cholera Nostras			
Pyemia and Septicemia.....	2	1	3
Tuberculosis	56	67	123
Cancer	26	9	35
Rheumatism and Gout.....	1	3	4
Diabetes	5	3	8
Alcoholism	1		1
Encephalitis and Meningitis.....	2		2
Locomotor Ataxia	2		2
Congestion, Hemorrhage and Softening of Brain. Paralysis	24	20	44
Convulsions of Infancy.....	1		1
Other Diseases of Infancy.....	22	8	30
Tetanus	1		1
Other Nervous Diseases.....	4	2	6
Heart Diseases	66	57	123
Bronchitis	5	2	7
Pneumonia and Broncho-Pneumonia	50	46	96
Other Respiratory Diseases.....	8	1	9
Ulcer of Stomach.....	1	1	1
Other Diseases of the Stomach.....			
Diarrhea, Dysentery and Enteritis.....	13	14	27
Hernia, Intestinal Obstruction.....	1	2	3
Cirrhosis of Liver.....	12	3	15
Other Diseases of the Liver.....	3	5	8
Simple Peritonitis.....			
Appendicitis	5	1	6
Bright's Disease	19	25	44
Other Genito-Urinary Diseases.....	7	8	15
Puerperal Diseases	4	6	10
Senile Debility	5	1	6
Suicide	5		5
Injuries	25	30	55
All Other Causes	25	18	43
Total	445	354	799

Still-born Children—White, 10; colored, 21; total, 31.

Population of City (estimated)—White, 276,000, colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 19.35; colored, 41.65; total, 25.26.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure	30.12
Mean temperature	60.
Total precipitation	4.12 inches
Prevailing direction of wind, southwest.	

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

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JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

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Vol. LXIX

MAY, 1917

No. 11

EDITORIAL

OUR DUTY.

The psychology of a great crisis is everywhere present in this great country. The evidences are manifold. Every day numerous patriotic waves spring into being with the flutter of new banners flung with their red, white and blue to the breeze.

The youth of the country is stimulated with the strong spirit of duty and almost everywhere a gradual response to the nation's demand is shown by the ever growing number of recruits.

Those too old to enlist are quietly training for service at home and the industrial and economic forces of the people are lining up for an effort at efficiency, so as to develop a proper bulwark for the active military forces, in case of need.

Conservation is the keynote which has been sounded and to which the whole country must respond. The cartoonist and the editor in the daily press attack luxury and extravagance, while the thinking men and women watch the market for the vital changes in the prices of commodities. The traffickers in produce have noted the growing less demand for unnecessary supplies, and the government already plans to regulate the supply and the cost of the necessities of life.

The wisdom of devising a Council of National Defense is now apparent and the organization of such a body has made the way for the co-ordination of all sorts of effort.

As citizens, the members of the medical profession are interested in all phases of the problem—for they are fathers and taxpayers like the rest. On them, however, rest particular burdens in these days of preparation for strenuous times.

“Under existing conditions it is desirable that every physician as well as every other loyal citizen of America should be prepared to render active service to the Federal Government, remembering that the protection afforded by the government has made it possible for its citizens to enjoy liberty, peace and prosperity.”

So propounds the Council of National Defense the standard for the medical profession to follow.

That the effort for medical preparedness may be efficient, organization has proceeded to the point of a general plan through which every State and every county, district or parish in the State may be co-ordinated for active participation in effort.

Then a central State committee and county committees are to be organized, each detailed to particular activities to be developed as the need progresses.

The duties of the county committees have been outlined by the Council of National Defense:

From time to time specific duties will be assigned to the various state and county committees. These duties will be in accord with the policy of the Council of

National Defense, and should be executed promptly and precisely by those who are called upon to co-operate in this manner with the Council of National Defense.

The committee will call to their assistance those who have been appointed field aides by their various state committees and such other physicians as they may desire to have co-operate with them.

Among the specific duties which the county committees are requested to perform at this time are the following:

First: That these committees co-operate with the National and State Committees of the Committee of American Physicians for Medical Preparedness in their efforts to gain needful information regarding the civilian medical resources of their own communities, and in their efforts to co-ordinate civilian medical activities for prompt mobilization in case of need.

Second: That they secure applicants:

(a) For the Army Medical Corps. If the President should call the full complement of troops already authorized by Congress, the Regular Army would need about 1,200 additional medical officers. If a million men should be called, a corresponding increase would be required.

(b) For the Medical Officers' Reserve Corps. If war should come, 20,000 to 30,000 medical reserve officers should be enrolled.

(c) For the Naval Medical Corps which needs about 350 additional officers.

(d) For the Coast Defense Reserve Corps of the Navy. Several hundred high-class reserve medical officers are desired.

(e) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

In the preparation for National Defense the first thing needed will be medical officers.

Physicians recommended for such service should be of the highest type. They should be free from suspicion of addiction to drugs or drink.

Medical officers who go to field duty should by preference be under the age of forty-five.

Third: That they co-operate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

Fourth: That they co-operate with the Red Cross in their efforts to bring that organization to the highest point of efficiency.

Before the present activity of the Council of National Defense, in May, 1916, the Congress of American Physicians and Surgeons, through its component societies, organized a Committee of Medical Defense, and this committee has combined its efforts with the Council. During the past year the committee has classified some 20,000 medical men, according to their particular qualification for service. An inventory of hospitals has been undertaken, with a view to having the fullest information in case of need. A plan has been considered for military training of senior medical students, to whom during the current college session systematic instruction in military medicine and surgery and sanitation is being given. A special group of qualified men has undertaken the standardization of medical and surgical supplies and equipment.

The medical organization is, then, not laggard in its conception nor in its attack upon the problems before it, but it is still a matter of knowledge that the rank and file of the profession is slow to join forces with the leaders in these efforts.

The cry comes out of Washington that more of the younger men are wanted for active service in the army organization—men under the age of thirty-five. They need not join the regular Army Corps unless they so wish, but as many as possible should join, *now*, the Medical Officers' Reserve Corps, which means practically the acceptance of service during the war. The rank of first lieutenant, with a salary of \$2,000 a year and certain perquisites besides, should appeal to recent graduates, even if the stimulus of a patriotic call does not urge them to this service.

We understand that the Louisiana State Committee of the Council of Medical Defense is soon to detail examiners to call on every Parish Medical Society for the purpose of qualifying candidates and that a systematic effort is to be made to enroll every available medical man in the State of Louisiana. We are sure that there are many men waiting for such an opportunity, and for any of those who may be interested full particulars may be had by addressing Dr. Urban Maes, secretary of the State

Committee, Maison Blanche, New Orleans, or application may be made at once to the Surgeon General of the Army, War Department, Washington, D. C.

THE ALEXANDRIA MEETING.

The thirty-eighth annual meeting of the Louisiana State Medical Society was held in Alexandria on April 17, 18 and 19, the House of Delegates having its first meeting and disposing of most of its business one day earlier.

The session was a pleasant and successful one, the members of the Rapides Parish Medical Society proving to be courteous and efficient hosts. With the Hotel Bentley as headquarters and the City Hall, just opposite, for the meeting place, the arrangements were most convenient.

The attendance was about as usual, totaling 207, of whom 56 were from New Orleans. It was a little more noticeable than ordinarily that a large number were not in attendance during the entire meeting, the majority either leaving early or coming late.

In addition to the reports, addresses and oration, there were forty-five papers listed, nearly all of which were read and were of decided interest.

The entertainments consisted of an automobile ride and lunch at the Country Club on the first day; a ride and lunch at the Hospital for the Insane at Pineville, an afternoon tea and a dance in the evening on the second day; the banquet on the last day, following the annual oration by Hon. John Overton, of Alexandria, which was both humorous and eloquent. All were delightful functions and were thoroughly enjoyed.

The officers elected to serve during the coming year were: President, Dr. Clarence Pierson, Jackson; First Vice-President, Dr. C. V. Unsworth, New Orleans; Second Vice-President, Dr. A. B. Nelson, Shreveport; Third Vice-President, Dr. E. L. Leckert, New Orleans; Secretary-Treasurer, Dr. L. R. DeBuys, New Orleans (holds over).

Councilors—First Congressional District, Dr. W. H. Knolle, New Orleans; Second, Dr. Homer Dupuy, New Orleans; Third, Dr. B. W. Smith, Franklin; Fourth, Dr. J. E. Knighton, Shreve-

port; Fifth, Dr. C. P. Gray, Monroe; Sixth, Dr. J. J. Robert, Baton Rouge; Seventh, Dr. E. M. Ellis, Crowley; Eighth, Dr. E. Lee Henry, Lecompte.

As the papers and discussions will be published in the *JOURNAL*, we shall not attempt to give a report thereon at the present time. The experience acquired at this meeting tends to confirm the impression that it is most wise to limit the number of papers; also that it is inexpedient as well as unfair to permit some readers to go beyond the time allotted, as others are rushed in consequence and their papers cannot be discussed adequately.

Tuesday, Wednesday and Thursday of the third week in April, 1918, were chosen for the next session, with New Orleans as the meeting place.

BACK TO THE FIRST LOVE.

At its recent meeting the Louisiana State Medical Society elected this *JOURNAL* as its official organ for the next three years. The articles read before the Society and the discussions thereof will be published and space will be given as a medium of communication with the members, who will receive the *JOURNAL* regularly.

We are much pleased by the action of the Society, especially on account of the manner in which the arrangement was consummated. We firmly believe that the *JOURNAL* will be an asset to the Society and we shall endeavor so to co-operate with its officers and members that the combination will be agreeable and profitable in the end to both sides.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

SYMPOSIUM ON MEASLES.*

I.

SYMPTOMS OF MEASLES.

By SIDNEY F. BRAUD, M. D., New Orleans.

In beginning to speak upon this topic I think that it may be well to divide the symptoms into three stages: 1. The pre-eruptive stage; 2. The eruptive stage; and 3. The desquamative stage. Again a larger subdivision has been made into the mild and the severe cases. This subdivision we need not consider as their difference only lies in the severity of the symptoms.

1. *The Pre-Eruptive Stage:* This stage according to most of our text books lasts from two to four days. During the recent epidemic, which is still prevalent, we have found that the pre-eruptive stage has been of longer duration. It has been so long in some cases that we were almost led to believe that the condition was not measles, but rather one of influenza. We were disappointed, however, when, perhaps on the sixth, or even on the seventh day, as I have seen in two cases, the eruption appeared. During this stage a diagnosis is possible only with the appearance of the Koplik's spots which, unfortunately, I was not able to find in the largest percentage of cases which came under my observation. The symptoms at this time are simply those of malaise, discomfort, headache and pains in the back, and an indefinite temperature curve. The best guides during this stage are (1.) The coryza which has been rather severe in some and very mild in others; (2.) The sneezing; and (3.) The discharge from the nose. After a day of sneezing they will develop a hoarse, hard cough, which is very stubborn to treatment.

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The temperature at this time is very indefinite, the evening temperature being higher than the morning. The bowels are usually normal. I saw four cases in one family which interested me in some measure as the first symptom that appeared with each was a diarrhea.

The Eruptive Stage: This stage usually lasts from five to six days, requiring about three days for the full appearance and about the same time for the disappearance. The first appearance is made behind the ears, on the neck and at the roots of the hair over the forehead. In about thirty-six hours the whole face is covered. On the second day we find the chest and back covered. On the third day we find the trunk covered and spots are seen on the extremities. The eruption is of a maculo-papular nature. In the majority of the cases which have come under my observation, the rash was so thick that it was confluent on the face, chest and back. The eruption fades slowly in the order of its appearance. This of course is the usual way of appearance but I have seen the whole body covered within 36 hours. During this stage we find an aggravation of the local and constitutional symptoms. They are usually so for at least 36 hours and then we find a general subsidence of the constitutional symptoms. The temperature is at its height about the same time that the rash is at its height on the face. In this recent epidemic we have seen a temperature during this stage as high at 105° and in one case, which I saw, 106° . This temperature would be deceptive inasmuch as the chest and ears could be excluded. This high temperature fortunately could be controlled and would only remain so high for a few hours. With the drop of the temperature which is rather quick after the full appearance of the rash on the face, we find our patient more comfortable and the only annoying symptom at this time is the cough. I have omitted the throat and the eye symptoms as these will be taken up in full detail later on.

The Desquamative Stage: This stage usually lasts from five to ten days. The nature of the desquamation is fine scales. The patient during this time suffers no discomfort with the exception of the cough which may be still persistent and the eyes may be still sensitive to light.

II.

EAR, NOSE AND THROAT COMPLICATIONS OF
MEASLES.*

By HOMER DUPUY, M. D., New Orleans.

Nose: The profuse rhinorrhea which ushers in and accompanies the measles even through convalescence undoubtedly has its source of supply in the nasal accessory sinuses. The discharge soon becomes purulent and in many cases sanguineous in character. The rhinorrhea is to be interpreted as due to a pansinusitis. Retention of pus, the result of deficient drainage, in one or more sinuses acutely affected, usually causes a dull subjective pain in the frontal or infra-orbital regions. The difficulty of eliciting this symptom in young subjects is manifest. In two adult cases it was quite marked, and the intense pain called for treatment. In no instance, however, did a sinus trouble lead to a proven retention of pus with its accompanying local and constitutional manifestations. In the matter of nasal treatments during measles I believe that vigorous measures are positively harmful.

We are not exaggerating when we state that it is improper blowing of the nose filled with germ-laden secretions which is frequently the determining factor in the causation of middle ear infections. This applies especially in measles. Prophylaxis relating to ear affections certainly requires that we can at least condescend to teach patients, young and old, the correct way of blowing the nose. *Blow one side at a time.* This minimizes the danger of forcing infected nasal and post-nasal secretions into the eustachian tubes and thus protects the middle ear. Irrigations of the nose with a syringe is condemnable. Gentle spraying of the nose with the head well forward is practicable, and less dangerous to the ear. When nasal breathing is greatly impeded to the discomfort of the patient, or when the secretions are so copious that they threaten to enter the eustachian tubes, I have found a solution consisting of adrenalin inhalant, one drachm, to one ounce of liquid albolene to be very effective.

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We drop this solution into each nostril while the patient is lying on the side with the head tilted slightly backward. This seems the safest posture for all nasal instillations.

Ear: This is obviously one of the most serious head complications of measles. Pus in the temporal bone is potent in mischief from many directions. In the cases coming under my observations about ten per cent presented middle ear abscesses. Two adults developed endomastoiditis requiring operation. There were several threatening mastoid features in children but in no instance did the mastoid involvement lead to surgical interference. This may seem exceptional. The infectious childrens' ward offered abundant material for observation; there were few cases of mastoid complications considering the number of cases presenting middle ear suppurations. The explanation to be offered is that in hospital practice it may be that an earlier diagnosis is made of ear complications. There is no hesitation about calling in a consultant otologist, consequently, there is no delay in making a diagnosis, and in the presence of the least suspicious local and systemic symptoms the patient gets the benefit of a tympanotomy. Such a measure frequently aborts mastoiditis.

In the two adult cases which came to operation the clinical picture presented was that of severe infection. Intense subjective pain and marked mastoid tenderness. There was extensive destruction of the inner cellular structure of the bone. These pathologic changes were of rapid development and occurred within eight days of the initial ear symptom. We expected the microscope to show streptococci invasion but the staphylococci proved the prevalent organisms.

Two clear cut types of middle ear affections were observed. In the first earache was the signal of distress. In older children there was the usual complaint of pain in the ear. When thus continued over twenty-four hours despite the use of hot water bags and local anodyne ear instillations tympanotomy was practiced. In most instances the pain disappeared, but a persistent temperature remained not due apparently to the other possible complications which may attend the measles. Under such conditions a reddened

drum membrane, bulging or not, was accepted as an index for tympanotomy. This never failed to show pus, serum, or an usual quantity of blood, in the tympanum. In a few cases unusual difficulties presented themselves when the full force of the measles proper had spent itself and when owing to septic temperature curves the ear was suspected. Refinements in diagnosis were necessary in order to place the blame where it belonged. Sometimes it was a clash of honest opinions between the attending physicians and the otologist. Here is an example of what sometimes occurred:

Baby Snookums. Aged two years. Eruption from measles has practically disappeared. Temp 99° - 98° for over twelve hours. Then a sudden rise to Temp. 104° . Restless, tossing head occasionally from side to side. Crying apparently from pain somewhere. Ears suspected. Examination confirms suspicions. Double tympanotomy. On one side only blood obtained, on the other, some pus beyond doubt. Irrigated ears every three hours. In twenty-four hours following tympanotomy one ear had ceased discharging despite the existence of a perforation, the other discharging slightly. It is noticed that the child two years old with temperature 103° - 104° breathes sixty to sixty-five times a minute. Unquestionably a disproportion here. But the lungs are negative to examination. It is sought to blame the ear—the mastoid, the lateral sinus, in fact, everything but a centrally located lobular pneumonia. This is of slow evolution and finally shows up. One thing certain, after several free drum membrane incisions, when the ears no longer discharge, we must look elsewhere for the high temperature. In children especially a mastoid involvement is associated with a profuse otorrhea.

The other type of ear trouble following measles is the one in which if there was any ear ache at all it was so slight and so transient that it escaped notice. It was a persistent septic temperature without marked constitutional disturbance which directed attention toward the ears. There was no otorrhea. Bulging drum membranes called for tympanotomy. The drainage of the middle ear was promptly followed by normal temperature. It is interesting to note, that in children over two years old in order to perform a *technical!y perfect tympanotomy*, I used a few whiffs of ethyl chloride

for anesthesia without increasing the respiratory irritation which features so in measles. Infants were tympanotomized without anesthesia.

I made it an invariable rule to open *both membranes in infants* whenever their ears were suspected. It is so difficult to properly see the drum membrane in young subjects that I regard it good practice, so as to safeguard the patient and clear up all diagnostic errors, to tympanotomize both ears.

In my examination of practically every child who had measles in the Charity Hospital during the last epidemic I found every *drum membrane off-colored*, slightly hyperemic. I was careful to exclude any manipulations as causing this phenomenon. It was interpreted as due entirely to the increased tension in the middle ear brought on by the violent coughing during and after measles. This off-colored drum picture was noted particularly during convalescence. It shows unmistakably how much the integrity of the middle ear is disturbed during measles, and how easily it becomes a point of weakened local resistance inviting serious infections by its contiguity to the nose and naso-pharynx.

Throat: It is my intention to stress the complications occurring in the larynx only. Laryngitis with marked dysphonia and croupy cough was frequently observed when the measles was at its height. Some young subjects on crying had slight inspiratory stridor showing some narrowing of the glottis by the local inflammatory process. It is important to differentiate between this common attendant of measles and other laryngeal affections which may occur in the wake of this disease, just as its active manifestations have completely disappeared, leaving possibly some hoarseness and a cough. It is more than an academic question to consider the possibility of a laryngeal diphtheritic infection so quickly following the measles as to make us fool ourselves into the belief that we are dealing with a simple measles complication. Certainly the larynx already inflamed presents a favorable soil for such an infection. Three subjects, one in the Hospital, two in private practice, aged respectively three years, sixteen months, and seven years, I am convinced, had laryngeal diphtheria just when the measles was about over. A sudden rise of

temperature, a croupy cough, dysphonia and in one case complete aphonia, a *persistent and increasing dyspnea*, with supra-sternal and diaphragmatic depression, this was the group of symptoms pointing to the possibility of diphtheria. True there was nothing in the fauces or the nose to suggest diphtheria. Primary laryngeal diphtheria, however, is not uncommon. When limited to the region the microscope discloses the diphtheria bacilli. With personal experience behind me there was no hesitation in using the serum in doses ranging from 20,000 to 40,000 units.

The serum-therapy seemed to clinch the diagnosis. Such rapid improvement, both in the dyspnea, the dysphonia and in the lowering of temperature that I cannot escape the conviction that we had here clinically and therapeutically proven cases of diphtheria limited to the larynx. Such an infection oftener than we suspect may be the cause of those fatal instances of supposed laryngeal edema during measles. Watchful waiting under such conditions invites a fatality.

This personal contribution based on observations from hospital and private practice could not have been so extensive without the co-operation of Dr. Edmund Moss who kindly allowed me access to the infectious wards of the Charity Hospital, and also that of Interne Krone, who materially assisted in the work.

III.

OCULAR COMPLICATIONS OF MEASLES.*

By C. A. BAHN, M. D., New Orleans, La.

As approximately 75 per cent of those afflicted with measles complain of ocular symptoms and as we are now in the midst of an epidemic, the subject is one of popular interest. A ten minute article permits of but a very brief resume and few therapeutic suggestions.

As you know, following an incubation period of seven to ten days, the patient experiences a chill, coryza, and catarrhal inflammation of the respiratory tract (the most important manifestation of the disease) and is very often accompanied

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by an acute catarrhal conjunctivitis. The temperature rises to 103° by the fourth day when the papular eruption appears upon the face and chest with the pathognomonic Koplik spots. These symptoms usually subside about the eighth day.

The most common ocular complication is acute catarrhal conjunctivitis which ranges from a slight injection and lachrimation to intense redness, thickness, and opacity, with profuse muco-purulent discharge. I believe this is the same process seen in the respiratory tract, and depends upon the virulence of the measles contagium plus secondary infection by the ordinary pyogenic bacteria; of which *Staphylococcus pyogenes*, *Streptococcus*, Koch-Weeks bacillus, Morax-Axenfeld, etc., have been isolated. With or without treatment, the conjunctival catarrh usually subsides about the tenth day. The treatment includes specific medication, cleanliness, and relief of pain, photophobia, and blepharospasm. Our nearest approach to specific medication is: zinc solution, 1-5 per cent, in Morax; optochin, in pneumococcus infection; and calomel powder dusted into the eyes daily, in the other forms. I am convinced that the organic silver solutions are of no benefit in acute catarrhal conjunctivitis, and actually do harm by giving the public a sense of false security as (their dark color and staining qualities carry to the lay mind a bactericidal impression). Their use, months or years after being dispensed, and by patient, family, and friends, for any and all ocular affections, and their indelible staining of the conjunctiva and cornea after prolonged use, make them positively harmful.

The following cleansing washes may be used: chloretone, ½ gr.; boracic acid, 10 grs.; camphor water and water, each 4 drams; for the camphor water, cherry laurel water may be substituted. I do not believe that they have any healing effect whatever, or hasten recovery in the slightest degree. They are pleasant to use, and give the patient something to do. If that is what you wish accomplished, use them. After three minutes instillation, it has been proven that eye solutions in uninflamed eyes are but 1-20 of their original strength. In inflamed eyes, this would be nearer 1-100. They wash out the anti-bodies which check infection, and substi-

tute a borax or boric acid solution which is so bactericidal that it becomes cloudy with fungus when exposed to the air over a week. Vaseline with or without any of the mild mercurial preparations prevents the lids from adhering, does not destroy the anti-bodies, lubricates the eye, and may or may not have any direct bactericidal effect. Dark glasses, prophylaxis, and eye rest should be advised.

Next in frequency is phlyctenular conjunctivitis or keratitis. The typical phlyctenule, often multiple, is a one or two millimeter round, gray elevation near the limbus surrounded by a leash of blood vessels. It undergoes mechanical erosion, leaving a superficial crater-like ulcer, which may or may not become secondarily infected. It usually heals in ten days, but may last weeks or months, involving the deeper parts or even perforating the cornea. Phlyctenular disease is seen especially in the young, and is common after any of the exanthemata. The treatment is practically the same as for acute conjunctivitis with the addition of one per cent atropin, if necessary, to allay the photophobia by ciliary rest, or eserin, 1-5 per cent solution, in impending peripheral corneal perforation to draw away the iris. Many cases of phlyctenular disease show tubercular lesions.

The ulcerative form of blepharitis marginalis is frequently seen after measles. This like the preceding is closely associated with eczema. The lid margins are thickened, injected, ulcerated, varying with the character and severity of the secondary infection. The local treatment resolves itself into the cleansing of the lids by alkaline washes, such as sodium bicarbonate, 2 per cent, or castile soap water, and the application of dusting powders, such as calomel, zinc oxid, aristol, etc., which increase scab formation, or protection by vaselin, with or without two per cent yellow oxide of mercury, etc.

Chalazia, the small nodules, so often seen in the upper or lower lids, often follow the exanthemata. They are essentially a pyogenic infection plus retention cyst of the meibomian ducts, and usually rupture with quick healing. Hot applications followed by vigorous massage, with plain vaselin or yellow oxid, 1 to 2 per cent, doubtless hasten their course. Incision and curetage may be employed, if necessary.

Among the rarer ocular complications of measles, the following are reported: Albuminuric neuroretinitis (Parsons); Edema of the lids without or with exanthematous spots (von Michel); Gangrene of the lids (Hirschberg); Ulcer of cornea and loss of eye (Schmidt-Rimpler); Phlyctenular ophthalmia, (Herchel); Corneal ulcers (Bezold, Fischer, Beyer, Trantas); Iritis, metastatic ophthalmic, pseudo-glioma, (Sturm, Treacher, Collins); Myopia, due to posterior scleritis (Jacobson, Muller); Albuminuric retinitis and a retinitis similiar, but without albuminuria (Satow); Optic neuritis, usually bilateral and occurring on and after the third week of the disease; Optic atrophy and restoration of vision; Amaurosis, without ophthalmic microscopical anomalies, probably uremic in origin (Negal); Acute dacryo-adenitis (Lindner); Periostitis (Struber); Bi-lateral orbital cellulitis (Gallemarts); Clearing of trachomatous panus or necrosis of leucoma adherens (Hirschberg).

Symptoms of eye strain and strabismus are often dated from measles. In practically all cases, the measles is simply an exciting factor, as would be any other constitutional disorder, trauma, or excessive use of the eyes, engrafted on a congenital predisposing cause.

To conclude, eliminating the acute catarrhal conjunctivitis and measles eruption seen in the conjunctiva, the ocular complications are not specific and occur in any of the exanthemata. Measles, being the most frequent, present more cases of ocular complications.

THE D'ESPINE SIGN, A VALUABLE AID IN THE DIAGNOSIS OF PULMONARY AND TRACHEO-BRONCHIAL GLANDULAR TUBERCULOSIS IN CHILDHOOD.*

By CHARLES JAMES BLOOM, B. Sc., M. D., New Orleans, La.

“As early as the year 1876, at the Société de Biologie at Paris, Parrot announced the results of investigations made in connection with the relationship between the changes in the lung and those in the tracheo-bronchial lymphatic glands, which was continually being found by him and his students, and was therefore considered

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to be the rule. It was called "la loi des adénopathies similaires" (law of similar adenopathies) or, briefly, Parrot's law. According to this law, there is, in the child, whose organs are immature, and considerably better adapted for such investigations than an adult's, no affection of the lungs, which would not also be present in the adjoining lymphatic glands: and, vice versa, there would be no change in the tracheo-bronchial lymphatic glands without analogous ones in the lung. This law would also hold good in the case of tuberculous affection of a tracheo-bronchial lymphatic gland there would be a similar one in the lung; this change in the lung might sometimes be difficult to find, as it might scarcely exceed the size of a pin's head, but it was always found by Parrot in his numerous autopsies." (1)

Professor Adolphe D'Espine of Geneva in 1889, working along the same lines as that of Parrot, wrote an article on "The Early Diagnosis of Tuberculosis of the Bronchial Glands in Children." In 1904, Professor Brouardel expressing the thoughts of the former, said: "The first signs of bronchial adenopathy are furnished exclusively by the auscultation of the voice and are found almost always in the immediate neighborhood of the vertebral column between the seventh cervical vertebra and the first dorsal vertebra, sometimes in the fossa," *suspineuse*, "sometimes in the interscapular space. They consist in a quality (*timbre*) added to the voice, which may be called whispering (*chuchotement*) in the first stage and bronchophony in a more advanced stage." He then goes on to say that "it is most important to distinguish the exaggerated normal voice sound from the bronchial voice sound. He says that "the tracheal sound is heard normally through the seventh cervical spine, where it ceases abruptly. In bronchial adenopathy the bronchial sound extends into the space between the seventh cervical and the fourth or fifth dorsal spines. This space corresponds to the last portion of the trachea and the bifurcation of the bronchi, which is at the level of the third dorsal vertebra." He recommends the use of 3-3-3, in French, for making the test, and says: "If auscultation of the loud voice or cry gives no result, the child should be made to speak in a low voice." A sound is then heard which he designates as "whispering

(1) The Primary Lung Focus of Tuberculosis in Children.

(chuchotement).” “This sound has the same value as bronchophony.”

The author's attention was not attracted to this very valuable sign until the summer of 1914, when Dr. Chas. Hunter Dunn demonstrated at the Infants Hospital at Boston the significance of this very important sign in the diagnosis of tuberculosis of the glands and of the lungs. In a series of sixty-five post-mortems held, a diagnosis of tuberculosis had been made in twenty-five of this number, in eight cases out of the twenty-five the D'Espine sign was the only factor which led him to make the diagnosis of pulmonary tuberculosis of the tracheo-bronchial lymph glands.

In 1915, at the annual meeting of the Louisiana State Medical Society, the writer brought before that body, the question of “the D'Espine Sign.” Since then he has been watching this question with relation to its significance in the diagnosis of tuberculosis, and conclusions in its favor have been most gratifying. This paper covers a series of seventeen cases, where “the D'Espine Sign” was positive, and the diagnosis made before these respective cases were diagnosed as such by X-ray in the outdoor clinic of the Presbyterian Hospital, New Orleans.

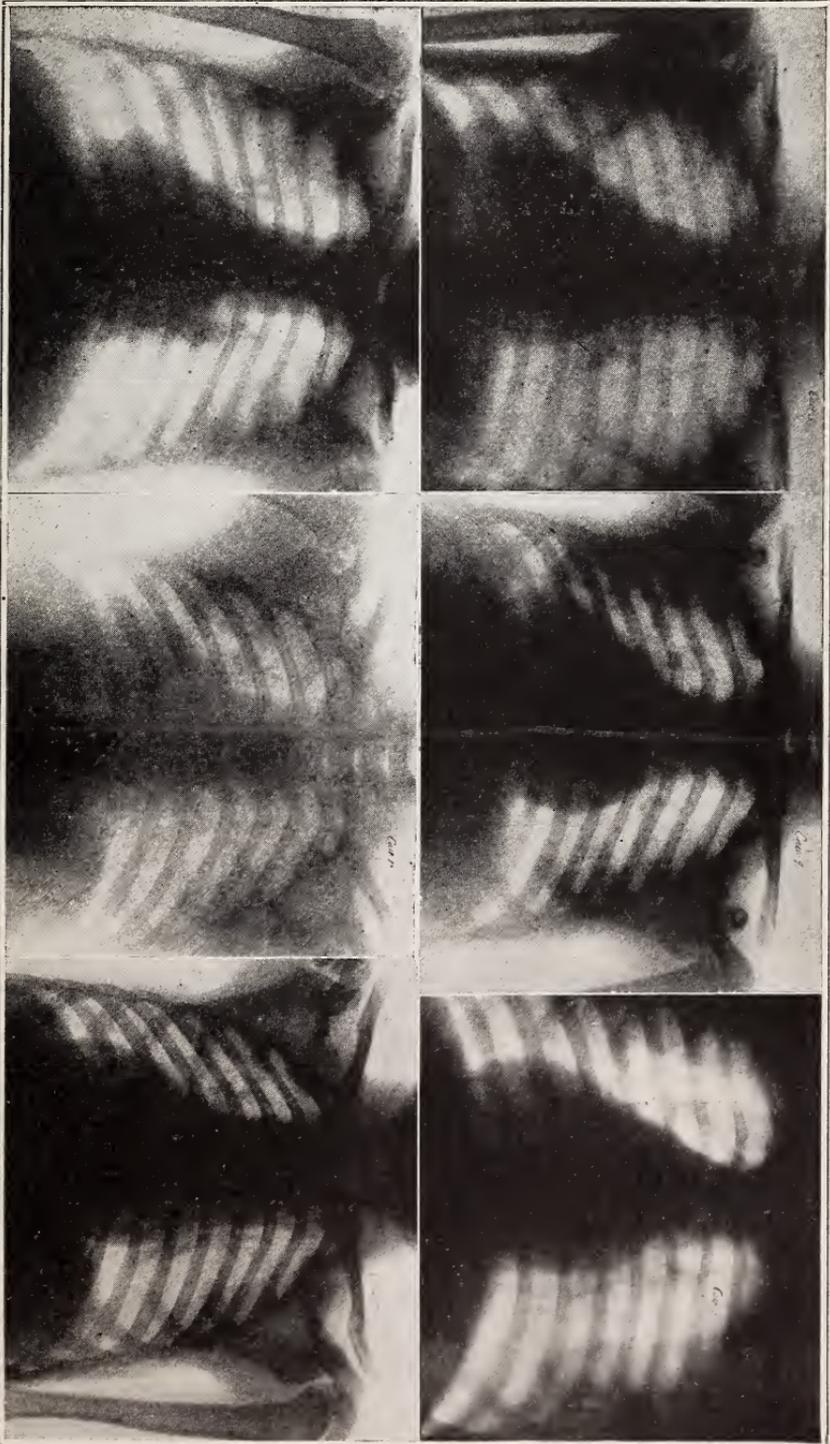
In order to bring out more forcibly the causes of this important sign, it might be well to briefly give the distribution of the lymph glands of the thorax.

The lymph glands of the thorax form five named groups, with subdivisions.

(1) *Lymphoglandulæ Sternales*.—The sternal lymph glands form two groups of which lies at the margin of the sternum along the line of the corresponding internal mammary artery. The glands are variable in number (4-18) and in size.

(2) *Lymphoglandulæ Intercostales*.—The intercostal lymph glands are lateral and medial. The lateral glands lie in the posterior parts of the intercostal spaces, the medial are placed in front of the heads of the ribs.

(3) *Lymphoglandulæ Mediastinales Anteriores*.—The anterior mediastinal lymph glands form two groups, a lower and an upper. The lower group consists of 3 or 4 glands, and situated, posterior to the sternum, in the lower part of the anterior mediastinum.



Cases 5, 9, 10, 13, 16, and 17—Dr. Bloom's Article.

The upper group consists of from 8 to 19 glands which lie posterior to the manubrium sterni and anterior to the manubrium sterni and anterior to the thymus and the great vessels of the superior mediastinum.

(4) *Lymphoglandulæ Mediastinales Posteriores*.—The posterior mediastinal lymph glands, 8-12, lie along the descending part of the thoracic aorta and the thoracic part of the esophagus.

(5) *Lymphoglandulæ Bronchiales*.—Under the term bronchial lymph glands are included all the lymph glands which are closely associated with the walls of the intrathoracic part of the trachea and with the main bronchi and their intra-pulmonary branches. The glands are extremely numerous and they are conveniently classified, by Bartels, into four groups. (1) Tracheo-bronchial, right and left; (2) the glands of the bifurcation, also called intertracheo-bronchial; (3) Broncho-Pulmonary; (4) Pulmonary.

(a) The Tracheo-Bronchial Lymph Glands are those which are situated in the lateral angle between the trachea and the bronchus, on each side. On the right side they vary in number from 5 to 9, on the left from 3 to 6. Those on the left are in close relation with the left recurrent nerve.

(b) The Lymph Glands of the Bifurcation (intertracheo-bronchial) lie below the trachea, in the angle between the two main bronchi. They are situated between the roots of the great vessels anteriorly and the esophagus and the aorta posteriorly.

(c) The Broncho-Pulmonary Lymph Glands.—Each group of broncho-pulmonary glands, right and left, lies in the hilus of the corresponding lung, in the angles between the branches of the bronchial tube.

(d) The Pulmonary Lymph Glands lie in the lung substance and usually in the angles between two bronchial tubes. Their afferents are derived from the lung substance, and their afferents pass to the broncho-pulmonary glands.

The particular group of glands that interests us most in demonstrating this sign, are those included under the heading of the *lymphoglandulæ bronchiales*.

Case	Clinic Number	Sex	Age	D'Espine Sign	Clinical Diagnosis	X-ray Diagnosis	Tuberculin
1	39	Female	11	2-D	Tracheo-Bronchial-Glandular & Pulmonary Tuberculosis	Glandular & Pulmonary T. B.	Neg. Slightly Pos.
2	45	Female	8	3-D	"	"	Neg.
3	69	Male	9	3-D	"	"	Neg.
4	87	Male	10	2-D	"	"	Neg.
5	165	Female	13	3-D	"	"	Neg.
6	174	Female	9	3-D	"	Plus Enlarged	Pos.
7	225	Male	1	4-D	"	Plus Thymus	
8	230	Male	12	2-D	"	Glandular & Pulmonary	Neg.
9	230	Male	8	1-D	"	"	
10	263	Male	13	2-D	"	Tuberculosis	Neg.
11	265	Male	5½	2-D	"	"	Neg.
12	335	Male	10	3-D	"	"	Neg.
13	344	Male	6	3-D	"	"	Neg.
14	369	Female	10	3-D	"	"	Neg.
15	375	Female	6	3-4-D	"	"	Neg.
16	378	Female	8	4-D	"	"	Neg.
17	399	Male	6	4-D	"	"	Pos. Neg.

In closing, I wish to impress the following facts:

(1.) In infancy the anterior-posterior diameter of the chest is relatively small.

(2.) That there is a general non pathological adenopathy found in children. Therefore, with these thoughts in mind, we can realize how the slightest alteration in size of these glands might aid in helping one to make a diagnosis. This series represented but one-third of the number of cases to be presented in the near future.

(3.) The D'Espine sign is a valuable aid in the diagnosing of tracheo-bronchial-glandular and pulmonary tuberculosis in childhood.

(4.) In this series of seventeen cases, in each case a positive sign was obtained by physical findings and corroborated by the radiologist.

(5.) The tuberculin reaction proved positive in three of the seventeen cases.

(6.) The D'Espine sign is more significant under ten years of age; a negative D'Espine does not eliminate a positive diagnosis.

(7.) A positive D'Espine does not always indicate a positive pulmonary or tracheo-bronchial glandular tuberculosis—but it does signify an enlargement of the tracheo-bronchial glands.

I am indebted to Dr. Adolph Henriques for his valuable assistance.

DISCUSSION.

DR. ALLAN EUSTIS: I have been very much interested in Dr. Bloom's paper and believe that d'Espine's sign is of great diagnostic importance. I do not believe that Dr. Bloom intended to convey the idea that it is pathognomonic of tuberculosis of the bronchial glands, as we find a positive d'Espine sign in measles, in influenza, and any bronchial adenopathy. I wish to call attention to two spots midway between the vertebral column and the apices of the scapulæ over which bronchophony and pectoriloquy are also demonstrable in cases of bronchial adenopathy. I wish also, to call attention to another similar area in normal individuals, not mentioned in text-books, and situated over the right scapula just above the spine.

DR. ADOLPH HENRIQUES: In all the cases mentioned, the diagnosis was made before the radiographs were taken. I was able to confirm all of these except the seventeenth case. Some contend that in all of these cases, we should find changes in the hilum of the lung, but this does not apply to young patients. In these cases, however, there were changes in the bronchial tubes, especially on the right side. We must be careful in making the diagnosis of tuberculosis, as it could easily be mistaken for gumma, etc. Six years ago, I presented a paper on the subject of X-ray examination in pulmonary tuberculosis, which, at that time, was lightly received. Subsequent facts, however, have brought out that X-ray examination is a valuable diagnostic aid in pulmonary tuberculosis, and very often the first stages can be first determined by X-ray.

DR. W. J. DUREL: Six months ago, in the *Journal of the A. M. A.*, a discussion was carried on which showed that d'Espine's sign is seen in other conditions. It is but one of the physical signs of tuberculosis and is not pathognomonic. Tuberculosis is usually a disease of childhood. Would like to ask Dr. Bloom how many Von Pirquet tests were made on the cases mentioned. A single Von Pirquet test would mean nothing, especially as over 90 per cent of our patients show a positive test. Let us not think that all glandular conditions are tubercular. We should be especially careful in making a diagnosis of tuberculosis with D'Espine's sign.

DR. BLOOM in closing: The more I study pulmonary tuberculosis and glandular tuberculosis in children the less I think of the value of the tuberculin reaction. Statements have been made repeatedly that the D'Espine sign has been found in other conditions, namely, lues, status lymphaticus, Hodgkin's disease, sepsis, etc.

Replying to Dr. Durel: Two tuberculin tests were made in each case.

TRANSLATIONS.

RAUBITSCHKE ON PELLAGRA.*

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL by
LODILLA AMBROSE, Ph. M.

This monograph is based on a large personal experience at the autopsy table, and in animal experimentation, and on a study of 1472 publications.

The history of this disease is of surpassing interest in itself. The disease was first described completely in 1762 by a Spanish physician, Casal. The history shows how the dependence of the disease on the consumption of maize, gained recognition only gradually—a view which even until today has received support as a scientific fact. So also the idea that pellagra has a clinical picture, with well defined symptoms, has prevailed only by degrees.

Raubitschek explains the manifestations of the disease on the basis of the anatomico-pathological changes, and follows the general division into skin symptoms, gastro-intestinal symptoms, and nervous symptoms. Metabolism, gastric juice, blood—have been examined in numerous works, which are in part very uncritical and unsatisfactory, without any result of value coming out of it all. "In the blood of pellagrins there are present no substances found constantly, which would be a specific for pellagra", as Raubitschek was taught by his own control-investigation. So also pellagra (except on the skin) leads to no sort of characteristic organic changes; this the author was able to determine by means of numerous autopsies in his own institute (Czernowitz, Bukowina, Austria).

More important are the histo-pathological changes in the brain, spinal cord and peripheral nerves, which were verified by observers who are above criticism; the spinal cord in particular is, as a rule, the seat of changes (degeneration of the posterior column and lateral pyramidal tract, etc.).

In the case of the study of the etiology, "one can only be amazed at the way this chapter of casual investigation be-

*Raubitschek. Pathologie, Entstehungsweise und Ursachen der Pellagra. (In Ergebnisse d. allg. Pathologie, usw., von Lubarsch und Ostertag, xviii. Jahrg., 1. Abt 1915, pp. 662-786.) Abstract in *Zentralblatt für Chirurgie*, Leipzig, 1915, xliiii, 272-273.

came a playground for spirits lacking all scientific education." Today the concept of pellagra as an infectious disease is almost universally abandoned, and forever; even the toxic hypotheses, although having a better foundation, afford no solution of the etiological question which is free from objection. It has certainly been established in the most recent years, that in the etiology of pellagra the action of intense sunlight reaches a decisive significance. So Raubitschek demonstrated experimentally that nourishment exclusively with good or bad maize is harmless, but under the influence of the sunlight, "a noxa arises, which in addition to local skin symptoms affects also the collective organism of the experimental animals." By the maize feeding there is sensitizing of the skin to sunlight, similar to that by eosin (Aschoff). Negroes are immune to pellagra; only the parts of the skin exposed to the sunlight are diseased, not those covered by clothing; experimental animals kept in the dark do not become sick.

To this theory so well founded experimentally, Babes proposed this striking fact, "that there are prisoners who have become pellagrins, who for years have been shut up, and certainly have not been exposed to the sunlight." Just as little suited to the sensitizing theory is the further assertion of Babes, that the first nervous disturbances can appear even in the winter, not exclusively in the spring. Hence Babes assumes, that the deleterious effect of the sunlight in the case of individuals fed on maize only puts in an appearance, when those persons are weakened through syphilis, alcoholism or malaria.

In Austria the government measures taken against the disease, which in certain localities affects as high as 45 per cent. of the population, are very comprehensive, and aim at in the first place, change in the kind of nourishment or use of good maize only, further, the fighting of the disease which has already broken out, and finally, the bringing about of wellbeing, even if in modest degree, by promotion of industrial undertakings, etc. The fighting of the disease is a social question of first rank. *Engelhardt* (Ulm).

Addendum by Translator.

The original work, a section of the scholarly publication edited by Lubarsch and Ostertag, has apparently not come

to the United States in these war times, for it does not appear in the *Index Medicus* for 1915 or 1916, and it has not been received on the order of The John Crerar Library, Chicago.

Castellani and Chalmers, 2d ed., 1913, cite an article by Raubitschek* reporting on his experimental work. The concluding paragraphs of the original article by Raubitschek are, as follows:

“Finally, if you look over the findings of experimentation as submitted and the results of our thorough verification, which were instituted with the express purpose of testing critically some theories of pellagra-genesis on the basis of the facts,—if you do this, then you see, that no sort of valid proofs for an infectious or toxic theory of pellagra-etiology could be discovered. On the contrary all these negative findings seem in a certain sense to confirm our view—which we were in a position to support exhaustively and experimentally in another place—that the pellagra-etiology is to be looked for in an entirely different field. In our estimation all the observations and our animal experiments speak for a photodynamic etiology of this disease, which is brought about by maize nourishment in this way—a substance of the maize-fruit (lipochrom soluble in alcohol) proceeding from the intestine outward sensitizes the individuals, and then a subsequent intensive exposure to light leads to the well known injurious local and general symptoms which we designate as pellagra.

“**Summary:** In the flowing blood as well as in the organs of pellagrins with our present bacteriological methods specific germs are not to be demonstrated. Especially as examined with our existing cultural technic does the blood of pellagrins show itself free of germs without exception.

“In the serum of pellagrous individuals do not occur any kinds of antibodies or substances, which as tested by our present sero-logical methods would be specific for pellagra.

“Pellagra has a photodynamic etiology, for, although it is occasioned by an unbalanced nourishment with maize of good or bad quality, this disease develops its deleterious activities only under the influence of sunlight.

“It is possible, that by other forms of nourishment (rice, millet, etc.), also together with the influence of the sunlight similar diseases are caused.”

*Raubitschek, Hugo. Zur Frage einer spezifisch—diagnostischen Reaktion bei Pellagra. *Deutsche med. Wchnschr.*, 1912, xxxviii. 2169-2171.

NOTE ON THE INVASION OF THE LYMPHATIC GLANDS BY THE OVA OF SCHISTOSOMA MANSONI.*

By JESUS RAFAEL RISQUEZ,

Professor of Pathological Anatomy in the School of Medicine, Caracas, Venezuela.
Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL by
LODILLA AMBROSE, Ph. M.

A little more than a year ago we began a methodical investigation of the anatomo-pathological lesions produced among us in the cases of bilharziosis. In accordance with this plan we have studied in its turn the state of the lymphatic vessels in this disease. And at times we have encountered glands of this system so much infected by the ova of *Schistosoma mansoni* that we believe it to be of interest to publish in advance a preliminary note the result of the study of some of our cases. We reserve publication of them in their entirety for the time when we can do it opportunely in conjunction with our work on the pathological anatomy of the parasitic entity mentioned above.

The seventeen preparations accompanying this note relate solely to four of the cases of bilharziosis examined at autopsy by us in the School of Medicine. And with reference to them we will give a brief description of the materials which we used for the sections, of the histological technic employed, and, finally, of the anatomical and parasitic elements which compose them.

Anatomo-Pathological Material.

The material studied corresponds to the cases, numbers 48, 82, 93 and 114 of the book of protocols of autopsies of the department of pathological anatomy of the School of Medicine.

The lymphatic glands studied were taken from the intestinal mesenteries in the cases 48, 82 and 114, and from the gastro-hepatic epiploön in case 93.

All these glands were increased in volume, and some of them go as far as to measure more than a centimeter in their larger diameter.

*Risque, Jesus Rafael. Nota sobre la invasion de los ganglios limfaticos por los huevos del *Schistosoma mansoni*. *Gaceta medica de Caracas*, Venezuela, 15 setiembre, 1916, xxiii, 135-136.

The color in some is very pale rose, and somewhat deeper in the rest.

Technic Employed.

In treating this point it is only just to make special mention of Luis Rivero, assistant in the department; who has rendered us efficient aid in the technical part of these investigations.

After being suitably isolated, the glands were very well fixed in Borien's liquid. Sections were then made in two planes, horizontal and vertical. In this manner we obtain in addition eight fixations in paraffin, following the technic known by all.

From each one of these we make four to five preparations, and from the total of about forty sections made are taken the seventeen marked with Roman numerals which we present on this occasion.

The stains used in these were hematein, the van Gieson, and hematein-eosin.

Elements of the Preparations.

In the study of these sections we have to consider the capsule, the glandular tissue, the lymphatic vessels, and the ova of the *Schistosoma mansoni* which we have encountered in them.

Capsule.—It is thin in the glands of case 48 (preparations i to v); and enlarged in the rest. It is formed of large cells with expanded nucleus arranged following the circumference of the organ.

In some preparations, as in those of case 82, are seen clearly the thin walls, which, starting from the capsule, divide and subdivide the mass of the glandular tissue. In these thin walls are observed the same cells with expanded nucleus which we have been in the capsule.

Glandular tissue.—In the interior of the gland and bounded by the capsule and the thin walls described above, are seen agglomerations of round cells with smaller round nucleus, well stained, and of lesser dimensions than a leukocyte. There are in connection with these cells other larger ones of the same form and with single or multiple nucleus.

Among these cellular agglomerations are perceived clear spaces, and in some preparations (case 114), these spaces are noted in greater abundance, and in the interior can be seen large stellate cells undoubtedly of the conjunctive type. These same elements are encountered also disseminated among the other cells described.

Lymphatic vessels.—In our preparations can be seen clearly the longitudinal sections of the originating branches of the lymphatic vessels both afferent and efferent, in those marked with the numbers iii, vi, and vii; the horizontal sections of the same in viii and xi, and those of the vessels of the hilum in ii, iv and xii.

Ova of the parasite.—We have encountered the ova of the *Schistosoma mansoni* in greater or less proportion, whether in the masses of the tissue proper of the gland, or within the originating branches of the vessels afferent or efferent.

In the preparations stained with hematein or hematein-eosin, the ova of the parasite are easily differentiated by their yellow color, which is more or less deep, and contrasts with the blue, violet or rose of the rest of the elements.

As is natural, its aspect is quite varied according to the section made through it by the knife of the microtome; but the sections are frequent in which figure the characteristic lateral spine of the ovum of *Bilharzia*.

Up to the present time we have not been able to verify the invasion of the glands of intestinal mesenteries. In the glands of the gastro-hepatic epiploön, although infarcted, we have not seen the ova of the parasite.

In preparations vi and vii, case 82, are seen the sections of some lymphatic vessels which are anastomosed to form an efferent trunk of the gland; and both in the converging branches and in the principal trunk can be observed many ova of the *Schistosoma* arranged by the influence of the lymphatic current.

The number of ova which each preparation contains varies greatly according to the cases; in the sections of number 48 there exist 2 to 5 ova per preparation; in those of number 82 can be counted in each section, 40, 70, and more, ova of *Bilharzia*.

From these numerical results it would probably be possible to conjecture a relation with the severity of the *Bilharzia* infection of the glands, since in the first case the invasion is slight compared with the second in which it is really amazing.

In fact, if it is considered, (a) that in one single section of the infected gland we have been able to count an average of 50 ova of the parasite, (b) that the sections referred to were made with a thickness of a hundredth of a millimeter, and (c) that the total length of the gland is more or less than a centimeter, one can calculate by a simple arithmetical operation the thousands upon thousands of ova which at a given moment infect so diminutive an organ. And so how easy it is to foresee the disturbances which can be occasioned in the animal economy of a lymphatic current loaded to such an extent with foreign elements.

Note by Translator.—Manson, 5th ed., 1914, and Castellani and Chalmers, 2d ed., 1913, do not report the finding of the ova of and species of *Schistosoma* in the lymphatic glands.

MISCELLANY

ALCOHOL IN CHINA.*

By DR. W. H. PARK, Soochow, China.

When I was a boy at school I read in my geography that opium was more harmful to the Chinese than alcohol was to the people of other lands, and the impression made on my mind was that while Chinese used opium they did not use alcohol.

Last year one of the most celebrated physicians in China published the statement that in investigating and treating the diseases found in China, we were practically almost free from having to take into account the many troubles due to alcoholism. I am learning to be very chary of all statements about what is *not* to be found in China. The botanists used to say that the tulip tree, the sassafras and the hickory as found in America were not to be found in China, but not long ago they found the tulip tree and also the sassafras (both may be seen in Kuling), and now they are about to go wild over the discovery of a real hickory tree in Shanghai.

Not long ago, in discussing wounds with Dr. Russell, I made the statement that Chinese did not strike each other in the face, and on the nose, and in the eyes in fighting, but when they struck they reached for the body instead of the face, and yet the very next day I saw two women with black eyes, one of the eyes almost knocked out, from fisticuff encounters.

When I first came to China—thirty-four years ago—I was told that diphtheria was not known in this country, and yet the first missionary child to pass away under my care died of diphtheria. Also, when I had not been in China many years, I was shown a pamphlet by one of the most eminent foreigners then in China, giving all the reasons he could think of why consumption remained unknown in this country and yet you know, and I know, that if there is any one disease that *is* well known in China, it is this same disease, consumption,

A learned professor in the Soochow University said the

*Read before the Soochow Missionary Association, October 5, 1916. Copied from the *Shanghai Times*, October, 1916.

other day, in response to my inquiry, that he knew nothing of any brewery in this neighborhood, and yet there is, and for long years has been, a good sized brewery within a stone's throw of the University Campus. In fact it was right where it is now long before the Soochow University was ever thought of.

In the first draft of this paper I wrote that "wine" as a translation of the word *Tseu* was wrong, because real wine made from grapes was not known in China, and yet the very first person I talked to on the subject told me of a place in China he had visited where the Chinese made real wine from grapes.

Opium and Alcohol.

The statement that opium injured the Chinese more than whisky did Americans was probably true enough, but the inference that while they used opium they did not use alcohol, and the statements that they are now not much troubled with diseased conditions due to alcohol are both contrary to all my observation, knowledge and experience. The first Chinese I ever saw killed by drink was a neighboring cobbler who used to pass my house every day on the way to the bridge where he had his stand. His face was always red, for he drank his regular allowance every day, as most Chinese drinkers do, and I always chided him for drinking, and he always laughed and said "Never mind," but in a few years, and while he was still a young man, he was seized with uncontrollable vomiting and in less than ten days was dead from acute alcoholic gastritis. Another neighbor, originally a gentleman and a scholar and a man of large affairs, died while still in his prime, from heart disease that was aggravated, even if not caused, by his habit of constantly getting drunk. He always got drunk at night and would then retire to his room and, sitting on his bed, would rock to and fro, cursing himself for being such a fool, until, finally, falling over in drunken sleep, would pass it off, till the next time.

Another neighbor, a writer for a big firm, got to "seeing things" and when his family sent for me I found him with a full and sufficient case of delirium tremens.

Another neighbor brought a bride from one of the northern provinces and before she had been in Soochow very long she went crazy for want of drink. Since childhood, they said, she had been accustomed to the fiery samshu they drink so much of in the northern provinces, and its withdrawal, after reaching Soochow, had created a crisis.

Another neighbor, a big doctor, from being as fat as a bear grew thinner and thinner (from consumption we all thought, but it was consumption of alcoholic drinks as we afterwards found out) and it was only by quitting at apparently the last moment that he was saved from an early grave.

Another bibulous neighbor used to have recurrent attacks of keratitis that came near making him permanently blind. He was finally persuaded by me to quit drinking and give the money he was accustomed to spend for liquor in donations to the Soochow Hospital. But alas, after donating ten dollars and abstaining for a while he began to have relapses and so did his eyes, and he was ashamed to come to me any more but called in the services of one of my pupil doctors.

The Old Days.

The old days of these happenings were the terrible days of the opium regime when there were three or four opium suicides per day in the city of Soochow, and we doctors never went to bed at night without the fear of being called up to treat one or more cases before day, and we used sometimes to have to decide whether a case was one of dead drunk or of opium poisoning. I was called one afternoon to a case of supposed opium poisoning among some Kiang Doh refugees living in boats outside the Pan Mun and found the patient, a young man, lying on the ground just about where the Pan Mun cotton mill now stands. I felt his pulses (the Chinese doctors always feel both pulses and so do I, though I do not go in for the total twelve pulses that some of them profess to feel) without any suspicion of aught but opium, but when I counted his respirations I began to get suspicious and when I put my face down close to his to examine the size of his pupils, and got a whiff of his breath, I became more than suspicious, and rising with a gesture, which I cannot now imitate, it has been so long ago, I an-

nounced the certainty to his old mother who was standing anxiously by, and when she heard it was a case of drunk, the tirade she turned loose on that unconscious son of hers was wonderful to hear. She was already making fuss enough, but when the chair coolie came forward with a bill for five dollars and an intimation of something extra required for having come so far, she simply passed all bounds, and we were glad enough to get away with 30 cents for chair hire.

For some of the conditions caused by drink, the Chinese have certain ancient and common names. For instance that of the cobbler referred to above they would call *tseu kah*, samschu gorge. The condition of the big merchant who had heart disease caused by drink, and also the various nervous manifestations of the use of alcohol they call *tseu foong*, samschu humors or spirit wind. The condition of the once fat doctor who went into a decline, and all cases of tuberculosis seemingly due to drink, they call *tseu lao*, samschu consumption. The eye patient was said to have *tseu seh*, samschu damp, and this term is also applied to all skin eruptions and general dropsies due to alcohol. For all too common abdominal dropsy due to the action of alcohol on their liver, they have the very sensible name *tseu koo*, samschu ascites. For delirium tremens and all alcoholic insanities they have the name *tseu tie*, samschu crazy, or upside down diseases.

So much for my neighbors of the days gone by, and I am sorry to say that my neighbors of the present day are both almost and altogether such as were my neighbors of old, except that they ought to know better than to drink as they do. Not long ago one of them came to me for stomach trouble just after a trip to Peking, due as he frankly stated to boozing while in the capital, and when I frowned he explained that if he did not drink with the big men there he would be counted unsociable and could not hope for promotion in his line of business. I gave him the best I had in my shop, including a lecture on the evils of drink, and was very happy to hear him say a few weeks afterwards that he was entirely well. I was not very happy, however, when he came to me last week for some more of my "medicine water." He was going to Peking again, he said, and he was a great believer in preparedness.

Some Instances.

Last year a neighboring coolie was led to the hospital with both eyes burned out from falling face foremost, while drunk, into a vat of freshly slacked lime. Last week a carpenter, aged 64, came to the hospital with his arm cut to the bone by his own hatchet, because he fell on it while drunk. He had long been accustomed to rice beer, but some youngsters persuaded him to try samshu and it was too much for his standing ability. Another neighbor—one of the richest men in this part of Soochow—but I refrain, for of the telling of the “longs and shorts” of one’s neighbors there is no end, and to turn to my hospital and clinical experience. Here I find the indictment against alcohol just as great as among my neighbors. Twenty or thirty years ago I would have joined those who say that diseases from alcohol are not very much in evidence in China, for in those days I ran a general clinic where we treated all comers for 2½ cents apiece and had so many patients I barely had time to give each one more than “a lick and a promise”, but now I run a special clinic where I only see those who pay a dollar apiece, our “amen church members” and their poor friends, and my neighbors, who pay nothing, and the number of my patients is so reduced I have time to get a history of each case, and I give a fairly careful examination, and even have the sputum and other secretions examined in certain cases, and I find alcohol as a cause of disease in China looms just about as large as any other cause, except, perhaps, tuberculosis.

I will not say that I literally see diseased conditions due to alcohol every day of my life. I am having all sorts of interruptions while trying to write this paper (August, 1916). Had to stop just then to see a man with drunkard’s vomiting and a cough that he is sure is leading him to a drinker’s consumption just as fast as the days are flying by, and he is probably right too. He has quit, but as a bystander remarked, it may be a case of “shut the door after the thief is gone”—*zeh tseu quai mun*. In fact a majority of the drinkers who get bad enough to pay a dollar to come to see me have quit before I ever see them, and this often makes it difficult to get a true history of their cases. If a man says “now don’t drink” I know right where to place him, but if he is a suspicious case and merely

says "don't drink", I have learned by experience to ask him since when did he quit. I used to think this quitting when they got sick showed some extra glimmerings of common sense but I have later come to the conclusion that most of them quit either because they can't swallow it any more or else they hope by breaking away to live to drink another day.

The greatest number I have knowingly seen in one day was in February, of this year, when eight of ten special patients were alcoholic. The most pitiful case I have seen was in the same month when a little boy aged 5, Chinese count, was brought to my clinic with general dropsy and skin eruption due to Bright's disease, and when asked as to the cause he himself piped up "*tseu seh*", samshu-damp, and the servants said he had been drinking ever since he was three years old.

The most noisily complaining patient I have seen this year was a woman, and she had chronic gastritis with gin drinker's liver, etc. "Don't talk to me about drink," she said, "I can't even drink tea without misery in my inwards, and as to rice, not a grain has passed my mouth for over three months."

One of our professors used to say to us, "If you go on sprees and drink whiskey in large quantities, it will ruin your reputation, your brains and your stomach. If you take it regularly, even in small quantities, it will ruin your stomach, your liver and your kidneys, and your brain and reputation had better look out for themselves. You pay your money and take your choice." The Chinese drink regularly as a rule, and one day in July, out of seventeen special patients I had five who had ruined their stomachs and livers or their kidneys with drink.

In addition to the ancient and common names for diseased conditions caused by alcohol, already quoted, the Chinese have certain equally ancient and common proverbs that show very clearly what they have always thought of the influence of drink in general, as well as its effects on the body in particular. According to two of the well known proverbs, so well known that they are quoted by the story tellers and even the beggars on the streets:—"There are three things that drown men in perdition, yea four that ruin them body and soul." One names them as *tseu seh ze che*, i. e. wine, lechery, riches and tempers, and the other says they are *chuh tsah piau to'o*, i. e. drink, dress, whoremongering and gambling.

Following my arrangement of these proverbs as above and referring to bodily ailments only, I will say that in my opinion there are three things that cause the bulk of diseased conditions, yea four that give the doctors most of their work to do, and they are *tseu, seh, lao, zoonng*, i. e., wine, lechery, tuberculosis and parasites (the malarial parasite, hookworm, etc., etc., etc.). It will be observed that however much these proverbs and my list differ as a whole they all agree on two things and the one always mentioned first is alcohol.

But to show that I have not gone daft on the subject I will say that diseased conditions due to alcohol are not the only troubles ferreted out in this special clinic of mine. For instance, appendicitis. This is another disease said in some quarters not to be in China, but it is. I will not say that it is as common here as it is in America but that the more careful we are in our examinations, the more of it we find, and if we had as many doctors in China able to diagnose the disease and remove the appendix in proportion to population as we have in America, we would soon bottle up enough appendices to astonish the world. Also chronic lead poisoning due to drinking from pewter wine jugs and tea pots, and using pewter water boilers and leadened lined cooking pans. Also tobacco hearts and blindness (amblyopia) from the excessive use of tobacco. Also this summer I have been called upon to remove leeches from the throats of frightened women who imagined they swallowed the leeches when drinking from a teapot left sitting in the wet grass by the bank of the canal while they were working in the fields. One of the women brought a leech in a bottle to show me the kind of creature she thought she felt stuck in her throat. Also on September 15 I found a man with jaundice whose accompanying liver pains were in his left side, just where the Chinese doctors say the liver is situated, and the next day I found a woman's heart on the right side of her body instead of the left. Also—but I refrain again, for of telling medical tales, like talking of one's neighbors, there is no end.

Answers and Comments.

One patient said he did not drink, but if I insisted he might try just a little to please me.

A coolie said the price of liquor has gone up since the government tax has been increased, and not so many men get drunk now as formerly, for when drinkers get drunk and vomit up expensive samshu they lose too much money.

A dealer said less drinking since price has gone up. People can quit drinking whenever they want to, but they never quit opium unless they have to.

A brewer when asked what they did with the cast off mash said they sold it to farmers to fatten their hogs. It is never given to growing pigs, he said, for it is so strong it stunts their growth. To get drunk on it is good for grown up hogs for it makes them lazy and increases their fat.

A traveling man said there are places where he cannot get this, and other places where he cannot get that, but never a place where he cannot get alcoholic drinks.

A patient with alcoholic neuritis said his horrible agony was due to a slap from a disembodied spirit or devil just escaped from the pains of purgatory.

A patient with dropsy denied drinking much, but said his condition was caused by eating six frogs and three eel points in one day and then three bowls of vermicelli in three days without taking proper precautions.

A literary man said there may be more drinking now that opium is hard to get, but if there was any less drinking while opium was easy to get nobody had ever noticed it.

A patient said he had to get about half drunk every night before going to bed or he would have insomnia sure.

A drunkard said, when I asked him if he ever had quarrels and fights and broke up things while drunk, that he did not. He always got drunk at home and at night and when he got good and drunk he would go to bed. In getting drunk the Chinese seem to be like the Jews of old "they that be drunken are drunken in the night" and on the day of Pentecost, Peter proved that he and others were not drunk because it was too early in the day for such doings. It is owing to this custom that travelers and others see so few drunken people on the streets of China.

A rich land owner, when told to quit samshu as it was ruining his health, said "but I haven't anything else to do and if I quit drinking I will be lonesome to kill."

A drinking farmer, when asked how it was that the men had to drink while doing hard work in the fields, but most of the women who worked right along with the men did not need to drink, said the men did not need to drink, they drank because they liked it.

A lady complaining of all sorts of stomach and bowel troubles and bad feelings generally, and after having her secretions examined with negative results, asked if it were doing her any harm to sit up nights and drink and gamble. Said she would rather sit up at night and drink and gamble than to do anything else in the world.

An opium smoker from a village near Shanghai was prevailed upon to enter our Refuge and break the opium habit. After a few years he came back suffering from chronic gastritis due to drink and I prevailed upon him to stop drinking. Last year he came back smiling, bringing a drinking friend and as soon as I caught sight of him I said "What mean thing are you doing now?" and he said he had taken to gambling, he had to do something bad or he would not feel good.

A leper, the owner of a brewery, said his disease did not come from drink but from the blowing upon his face of poisonous winds.

A high class lady, in discussing the question, said she did not believe the Chinese hurt themselves with drink like the foreigners she had heard of in Shanghai and in foreign countries did anyway. I then asked her if she had ever known any relatives or friends to injure themselves with drink. She gasped, and then said, come to think of it, she believed she had. There was her cousin so and so who drank, and because he drank, his wife said she might as well drink too, and they both drank themselves to death and died without any children, before they were thirty-five years old. Then there was another, and another and still another until about that time some one came in, and then I had to leave to go up town to see a big pawn shop keeper who was dying with cirrhosis of the liver and ascites from drink, and she never had time to finish the list.

Ten out of ten is the highest answer received to the question as to how many men out of ten drink in a given section, and two or three is the lowest estimate given, and six or seven

is the average answer received. In other words, according to the people themselves, and I have asked many men from many parts, sixty or seventy per cent of the men in and around Soochow are accustomed to the use of alcoholic drinks, and the knowing ones add that drinking is much worse in the south and a great deal worse in the north than it is anywhere around Soochow.

A drinker from Kan Suh, six thousand li to the northwest, tells me that in his province eight out of ten men drink Kao-liang, strong samshu made of millet seed, and five out of ten women, and they all mostly begin drinking when about ten years of age. I do not guarantee this, but "gin you the tale as it was gun to me."

Chinese Alcoholic Drinks.

The drinks of the Chinese might be called legion for they are indeed many, but in a general way they may be divided into two classes, the fermented and the distilled. The fermented are not so strong as the distilled of course, and in this part of China are made of glutenous rice. The rice beer is called yellow *tseu* from its color and also *zau shin tseu* from Zau Shin in the Cheiang province, where the best is supposed to be made.

Some of the distilled liquors are very strong. A Chefoo man living in Soochow tells me that the best is made in Tsin-anfu, Shantung Province, and it is so pure that when a match is applied to it, it will burn down to the last drop. "This" said he, "is the kind of liquor we northern people like to drink. None of the pamby watered stock like the most of the samshu found around Soochow for us." A Buddhist priest gave me two bottles a few years ago that looked like pure sparkling spring water, and this, by the way, is what Chinese think we foreigners are taking when they see us drinking cold water. My Chefoo friend thought so last week when he took a peep into our dining room, and turning to me with shining eyes, said "That is samshu isn't it? But I am afraid if you got it in Soochow, it is no good, and I am going to send you some of the real article." Let not the missionary be too much scandalized by such a thought, for when the unsophisticated native sees the foreign ladies and

gentlemen turning off glass after glass of what he thinks is the finest of samshu he is filled with the profoundest admiration and respect. "Foreign man wine capacity grand."

Mr. T. R. Jernigan of Shanghai takes me on the most delightful shooting trips every winter, and on these trips we always have some very interesting experiences. Last winter we met up with one bearing on the subject of which I am now writing. We were eating our lunch and drinking water poured into glasses from a thermos bottle. The usual crowd gathered around us and a lively discussion soon arose as to the kind of samshu we were drinking. Some said it was foreign and some said it was native, and all agreed that it must be very fine. It is true that it did not spread much fragrance around, but the foreign gentlemen would not be drinking it if it were not first class. At Mr. Jernigan's suggestion I handed a small glass to the leading samshu expert among them and we had great fun watching his performances. He received it most solemnly and tenderly, smelled it most carefully, tasted it most gingerly, and, finally, after various grimaces, smackings and gulplings he announced, with a comical look of disappointment on his face, that it must be foreign for he had never tasted anything like that before in all his life.

In addition to the regular liquors, the country is supplied with numerous brands of medicated samshu (stomach bitters) put up in bottles with labels setting forth as many virtues, and promising as many cures as any American patent medicine you ever heard of. They are just about as efficacious too, for the other day I was called to see a man on his dying bed and his wife said he had been guzzling medicated wine for about seven years and she was sure the wine was what had brought him to his present condition. The mills of the gods grind slow, but they grind exceeding fine. Some of the medicated wines look like liquors, and are made from secret formulae that are handed down in certain families from one generation to another, and are considered quite valuable assets. I know one such family with plenty of money living in a town not very far from Soochow. The most awful thing I have ever heard of in this line came to my notice only a few days ago. A man from Shanghai, far

gone in laryngeal phthisis, in giving a history of his case, told how he had a cough and was getting weaker and weaker, and his mother said he needed a tonic, and she bought some medicated wine from some peasants made by soaking in it the body of a destroyed infant, and for three nights in succession made him drink a cup of the vile stuff, the cup on the last night being the biggest of all, and his throat got worse from that day and he had not been able to speak above a whisper from that time until the present moment.

How Much Do the Chinese Drink?

The most wine I have ever heard of at one sitting, was twenty catties (twenty-six pints) but the man who made this boast was in the hospital for the opium habit and nobody believed a word he said.

The most I have myself seen was at a feast of three hours duration this spring when three men drank forty or fifty cups apiece (estimated, not counted) the cups holding about one and one-half ounces each but I was told that this was not considered very much in the way of drinking.

The most life-long drinking of yellow wine I have heard of in my clinic was in March of this year when a farmer aged seventy-two came because he had reached a condition when he could not take another drop of liquor, and could not swallow anything else either, and he admitted that he had been taking about three catties (four pints) of rice beer of his own make every day, more or less for the last forty years or more. I wondered how many rooms the size of my office this amount of beer would fill but did not enter into the calculation. In about two weeks he came back for some more medicine and wanted to know, with a grin, if I thought the time had come when he might begin drinking again. The very day after this was written I had two men in the clinic who could just about match this old man in the amount of liquor taken and their troubles were as follows—one first had, as a result of drinking, so he said, an ischio-rectal abscess, and after the abscess a carbuncle, and after the carbuncle *tseu seh* (which I found to be a vesiculo-purulent dermatitis medicamentosa) on his lower extremities and then he quit drinking and came to the hospital. The other had ob-

structed portal circulation causing abdominal dropsy and a well developed caput medusæ, and he said since he could not drink native liquors any more, he would like to buy some foreign liquors from me and try them for a while. He had not taken a drink in three months and was getting pretty dry.

The hardest distilled spirit drinker I have met came the first week in August in the person of a rice beater for one of the big distilleries at Wong Kuen on the borders of the Great Lake. He said he began drinking when he was about twelve years of age and in his best days could drink two catties (2 2-3 pints) of distilled liquor and get drunk and fall all over himself and skin his head and yet be up and at work early the next morning any day. I asked him about the present and he said: "Makes me vomit to look at it." He had alcoholic paralysis in addition to the stomach trouble indicated by this reply, and does not have to get drunk now to fall all over himself and skin his head any day.

The greatest gulping of foreign liquors was claimed by a bleareyed colonel who said he was drinking with a foreigner once in Tientsin and after he was already about drunk the foreigner poured out a big tumblerful of "blandy" and dared him to drink it, and he took the dare, and the next thing he knew was when he came to three days afterwards and was in great trouble trying to get his bearings.

The Chinese seem to divide themselves into two classes in regard to alcohol, those who can't drink and those who can. In quizzing my patients I observe that if a man adds "Can't drink" to his assertion that he does not drink, he considers the subject closed and there is no need of further questions. Very often those who say they can't drink *feh we chuh*, add that they also do not use tobacco nor do they smoke opium.

Of those who can drink, some say they drink only at feasts or when meeting a friend, some only when they have hard work to do, some only occasionally when they feel like it, some only when they have the cash, some only when the weather is cold and some only when the weather is hot or wet, the reasons being for all the world, just like the reasons I have heard in America, only there is little or no element of excuse in the answers in China. The reasons are

given for information and not as excuses, for the habit of drinking is not yet on the defensive in this country.

In addition to these occasional drinkers there are myriads of men, how many no man can tell, lots of women and some children who seem to settle on a certain amount of liquor and take that amount every day of their lives as long as they live or as long as they can manage it. The amount in yellow wine, or rice beer, runs from half a catty to three or four catties per day, and in distilled spirit or samshu, from half an ounce to three or four ounces per day. Some stick to one kind all the year around, but certain connoisseurs take samshu in the summer time and rice beer in the winter time, because the samshu is taken cold and is supposed to be cooling and the beer is taken hot and is supposed to be heating.

Chinese Feasts.

At feasts in Soochow the hot rice beer is used and the host seats his guests by calling their names as he pours the wine into their cups beginning with the guest of honor and so on down to the last. When all are seated the host takes his cup and holding it aloft for a few seconds, presents it in turn to his guests and they all do the same to him, and then all are supposed to drink their cups to the bottom and drain the dregs and this performance is repeated again and again and again, course after course, for thirty or forty courses, of meats being served in the meantime and the wine serving as a basis for the feast as it were, instead of rice, until the very last course when a small bowl of rice is served, and with it the feast is ended unless indeed someone suggests *Mora*, and then if the game begins the end is not yet. The cups are filled to the brim and the loser sure enough has to drain his to the last drop. The fun grows fast and furious and if the wine is strong enough the end may be confusion worse than confounded. The best *Mora* player in this part of Soochow is said to be a lad of only sixteen. He was pointed out to me at a feast not long ago as he sat at a table waiting in vain for more opponents, after worsting two or three full grown men, and looking all disconsolate because he had no more worlds to conquer.

Ordinarily, in this part of China, rice forms the basis for

all meals and meats, vegetables and drinks, etc., are only the adjuncts, but among certain classes wine takes the place of rice at the principal meal of the day just as it does at a feast. I first ran across this custom while visiting a wealthy family in Chang Suh. The head of the family was my patient and when dinner time came, a red nosed accountant was appointed to take the foot of the table instead of his master and keep me company while eating. When we started to take our seats he asked me did I drink wine or did I eat rice, and when I said rice, he called out to the servants "rice for one and liquor for one", and as I ate rice and helped myself to the meats and vegetables he drank rice beer and helped himself to the meats and vegetables until the last course when he joined me in a bowl of rice. Last summer we had a rich man in the hospital whose custom at home was at the principal meal of the day to take wine entirely and never touch rice at all.

In the cities, towns and country wherever people do congregate liquor is sold, and it is kept on tap in the public houses in long tin cups let down into water kept hot by little stove-pipe-like air-tight charcoal furnaces that run through the middle of the tubs.

National Customs.

The customer buys his liquor and takes it to a table, or in the better class places is served at a table, and sitting down drinks it slowly, eating between sips, pickled turnips, sour crout, dried fish, bean cured cheese of the Limburger variety or some other such delicacy, any or all of which he has either brought himself or bought from the proprietor or from some convenient peddler or a nearby restaurant. Men, women and even children may be seen in these places, the children with their parents or some grownup person and the women with their husbands or male companion of some sort.

People living near these public houses are served with pots of hot wine whenever they want it, and a familiar sight on the streets of Soochow is to see boys going around with long string cords, collecting and stringing the pots that have been sent out from the liquor shops the day or night before.

In the country most of the well-to-do farmers make their

own liquors and drink them themselves, and serve them out to their hired hands, or their friends and acquaintances whenever they get ready, and without let or hindrance from the government or anybody else. When I was called to the country this last spring, and received forty dollars for the trip and caught that thousand dollar attack of hay fever, I saw enough beer jars piled up in the wine room of the patient I visited to make the annex to a first-class brewery.

One form of dissipation the Chinese men are very fond of is very much like, I imagine the Prodigal son indulged in when he wasted his substance in riotous living. For instance on August 12 I was called to see a wealthy young man over near the See Mun and before going into the sick room I asked about the cause of the young man's trouble, and his uncle replied, "went to Shanghai and drank flower wine and came home and spit blood and has been going from bad to worse ever since." The flower wine drinking is really a form of treating, for a man does not like to drink flower wine all by himself. He invites a number of congenial spirits, or they invite him, and they all meet in some well-known place given up to such things and have a "flower" banquet, the flowers meaning singing girls, and they often introduce the game of Mora and try to make each other drunk, or else get to gambling (poker is the favorite game these days) and spend the night at that or else perhaps after they all get inflamed with wine, some one challenges the rest to go with him and they all accept and adjourn in a body to a house of ill-fame. In the old days some of the big men of Soochow used to lend their names for the renting of houses where "flower" feasts could be held, and the authorities dare not interfere (or did not interfere) owing to the importance of the men whose names were on the doorposts. One of these big men had a stroke of apoplexy in one of these very houses once, and I was asked not to tell where I found him when called upon for a professional visit.

The "flower" boats of Soochow and other places in China also have a name that is not so beautiful and innocent as it looks and sounds.

Alcohol in the Arts and in Cookery.

I do not know if alcohol is used to any great extent in the arts in China, but I do know that in this part of the country a great deal in the art of cooking. Certain meats and fish are thought not to taste good unless a little alcohol is used in the cooking, and since those able to buy the meats and fish are always able to buy the alcohol, the alcohol is always used as a matter of course.

CONCLUSIONS.

Alcohol is one of the biggest things in China. Alcoholic liquors are made everywhere, sold everywhere, bought everywhere and used everywhere.

Alcohol was here in all its rankness before opium was ever heard of, it was here in all its rankness during the whole of the opium regime, and now that opium is going, though not yet gone, I am sorry to say, it is here in all its rankness still, and bids fair to become a greater curse than ever before.

Alcohol has the same effects on the people of China as it has on any and all other peoples of the earth who use it. To argue otherwise is to stultify one's self just as certain Britishers used to stultify themselves on the opium question by arguing that opium is peculiarly adapted to the Chinese constitution. Mr. Samuel Wilson in the Outlook of June, 1915, says: "The moderate drinker sacrifices from 10 to 15 years of life in exchange for the occasional glass of beer, cocktail or highball." Apply this percentage to the millions of moderate of moderate drinkers in China and we get enough years of life lost every year to "stagger humanity."

Foreign liquors are being introduced into China and if foreigners find as much money can be made out of their sale as used to be made out of the sale of opium they also will be found peculiarly adapted to the Chinese constitution.

Missionaries should take the lead in agitating against alcohol just as they did in the campaign against opium, but it will not be as easy to get up public sentiment against drink as it was against opium smoking, for, in spite of the Chinese proverbs I have quoted and their well known names for the diseased conditions due to the use of alcohol, the Chinese seem to have no feeling at all that a man in drinking is doing

wrong or injuring himself, but they drink liquor just as much as a matter of course as they drink tea or eat their rice. In some places, not to offer wine to a guest is taken as an insult. In many Chinese ceremonies wine is prescribed, and without it, the participants would not know how to act. The common name for a feast is an alcohol spread.

Some Comparisons Between Alcohol and Opium.

Since opium has been, and is now, such a burning question, in China, and since alcohol is becoming such a world-wide question I am constrained to give a few comparisons between them as I see and hear of them in China.

In the early days I knew two rather able men, tell it not in Gath, publish it not in the streets of Ashkelon—preachers, and one took samshu with his dinners and the other, it was whispered, settled his dinners with a little opium, and the one died almost in the full odor of sanctity but the other went down to his grave with the stigma of opium sot attached to his name.

People come to the hospital nearly every day who will admit they have been made ill by alcohol, but rarely one ever comes, or ever has come, who will say that the disease from which he suffers has been caused by opium.

Many drinkers abstain when they find alcohol is injuring them but an opium smoker never. The worse he feels the more he smokes, and when advised to quit he says he will do so when he gets well.

Friends smile indulgently when telling of the exploits of a drinking patient, but no one ever smiles when telling how much a smoker can smoke.

When a drinker gets too sick to drink his friends say it will do him good to abstain, but when a smoker gets too ill and weak to draw the pipe they get ready for the funeral. Opium dries up the secretions of the body and causes weakness, constipation and general ruination, but does not often cause diseases of an acute or painful nature.

Opium smokers do not bear operations well, and when a smoker gets sick from any dangerous disease, or sustains a serious injury of any kind, he is generally a goner. To give medicine to an opium soaked sot is about as much use as to

prescribe for a dead man, and as for advice it is assented to most profusely but is never taken.

All the things said in the above paragraph about opium smokers apply with equal force, item by item, to confirmed drunkards, but, some of the troubles of moderate drinkers are amenable to treatment if taken in time, and some moderate drinkers will listen to advice and a few of them have even been known to take it.

Alcohol excites to dissipation. I used to hear of fathers who when their sons were wasting their substance with riotous living would hire opium smokers to induce the sons to smoke opium with a view of calming them down and saving the family inheritance.

Opium masks the symptoms of diseases, but alcohol causes exacerbations. Many cases of unmentionable diseases are prolonged almost indefinitely by the use of alcohol.

Put one hundred men who have never used opium to smoking regularly every day, and one hundred men who have never used alcohol to drinking regularly every day and at the end of six months see what you will have. I cannot pretend to say how many confirmed drunkards you will have among the drinkers, you may have some, and you may have none, but I think I can give a pretty shrewd guess as to how many confirmed opium smokers you will have among the smokers, and my guess will be an even one hundred. Opium is the machine gun that gets them all, and alcohol the rifle that gets a plenty, and the got ones are as bad off in the one case as in the other. But counting up the gotten ones, the inebriates and the sots, does not tell the full campaign. If so the number of confirmed drunkards being so much less in proportion to the number of confirmed opium smokers, the balance would be greatly in favor of alcohol.

The true way is also to take into account the diseases, suffering and premature death among the vast army of moderate drinkers who never reach the firing line of inebriety, and when this is done alcohol is strong enough to "consolidate its position" and fiercely hold its own.

During the many years I have been in China as head of the Soochow Hospital, I have had occasion to employ many men of many grades, and I have found both drinkers and

smokers among them, especially among the chair-coolies of which I use a great many, for I ride in a sedan chair nearly every day of my life and have probably ridden in sedan chairs more miles than any other American, and what I have to say from personal experience is that while the ordinary drinkers are bad enough, opium smokers are impossible and the drunkards are no better than the opium smokers.

Near a certain bridge in Soochow live a man and his wife who run a small shop, and she is a drunkard and he is an opium smoker, and when they get to quarrelling, as they often do, she yells "opium devil" and he yells "samshu devil" and the neighbors say it is a case of "*pur kiun poh liang*", which being interpreted means six of one and half a dozen of the other.

CURRENT LITERATURE

LONGEVITY OF ASCARIDS OUTSIDE THE BODY OF THE HOST.

(An interesting study by Maurice C. Hall, Ph. D., D. D. V., M., on the longevity of round worms outside the host and its bearing on treatment is contributed to the *Journal of A. M. A.* for March 3, 1917.)—Whartery in the Philippines, had previously kept alive the eggs of *Ascaris lumbricoides* for from six or twelve days in Kronecker's solution (physiological salt-solution to which six centigrams of sodium hydroxide per litre is added). Hall placed a number of the ascarides from man, first in a 5 per cent, dilution of liquor formaldehyde for a few minutes, and, second, transferred them to either Kronecker's solution or normal salt solution. The solutions were kept at a temperature of from 20 to 85 Fahrenheit.

The last survivor in the physiological salt solution, a male, was alive on the fourteenth day after removal from the host, and died on the fifteenth day. The females survived for nineteen days in Kronecker's solution; two of these survived for twenty-four days, and one of these was alive on the twenty-sixth day after removal from the body of the host, and died the next day. In another experiment in which ten specimens of *Ascaris* were kept in physiological salt solution one worm was still alive on the fifteenth day. It appears, then, that ascarids may survive for fifteen days in physiological salt-solution and for twenty-six days in Kronecker's solution.

The bearing of these observations on treatment is obvious. The idea prevails that when a worm-infested individual fasts for twelve or twenty-four hours, the worms become hungry as a result of this lack of food, and that when an anthelmintic is administered, especially when it is given in some such vehicle as milk, the hungry worms will ingest the anthelmintic, and thereby become poisoned.

There are two or three objections to such a belief. In the first place, when these worms can survive for twenty-six days in such an unnutritious medium as Kronecker's solution, it is unlikely that they would suffer the pangs of hunger after twelve or twenty-four hours in contact with the col-

lapsed walls of the intestines, and the relatively abundant content of food, epithelial debris and secretions which is still present after such an interval. Moreover, the parasites may live at the expense of the wall of the digestive tract, and not on the food in the lumen. It is not necessary to suppose that the anthelmintics must be voluntarily ingested by the parasite worms in order that these may be destroyed. It is likely that they are either ingested without volition, or that they exercise their lethal affects in some cases by absorption, as may be the case with such volatile anthelmintics as chloroform. In any case the preliminary purgation, previous to anthelmintic treatment, is a very desirable procedure. But its utility lies in the fact that it removes the bulky food-mass, which might otherwise protect the worm against the anthelmintic action.

McShane.

NEWS AND COMMENT.

NEW TUBERCULOSIS JOURNAL.—The National Association for the Study and Prevention of Tuberculosis announces a new tuberculosis journal, the first technical publication of its kind in English in this country, devoted exclusively to tuberculosis. A staff of seven experts, appointed by the board of directors of the association, will determine the editorial policy of the new journal and will consist of Dr. Edward R. Baldwin, Saranac Lake, editor-in-chief; Dr. Lawrason Brown, Saranac Lake; Dr. H. R. N. Landis, Philadelphia; Dr. Paul Lewis, Philadelphia; Dr. M. J. Rosenau, Boston; Dr. Henry Sewall, Denver; Dr. P. S. Veeder, St. Louis. Dr. Allen K. Krause, of Baltimore, is the managing editor.

The first issue of this new monthly appeared recently, under the title *The American Review of Tuberculosis*. In view of the ever-growing interest in tuberculosis work, the National Association considers that the present time is an excellent one to offer all workers in tuberculosis a medium in which they can present their work. The first number of the new journal contains articles by Walter L. Rathbun on "The Classification of Pulmonary Tuberculosis"; by A. H. Garvin, H. W. Lyle and M. Marita on "Chronic Nontuberculous Lung Infection"; by S. A. Petroff on "Serological Studies in Tuberculosis," and also a department of medical notes, abstracts and reviews.

THE TWENTIETH ANNUAL MEETING OF THE ASSOCIATION OF MEDICAL OFFICERS of the Army and Navy of the Confederate States will be held in the New Willard Hotel, headquarters of the United Confederate Veterans, Washington, D. C., June 4, 5, 6, 7 and 8, 1917.

All those who were surgeons, assistant surgeons, or acting assistant surgeons and chaplains of the Confederate army or navy, and all those who served in the army or the navy as soldiers or sailors—not then medical officers—but who, after the war, became regular practitioners of medicine in good standing; and all regular practitioners of medicine whose fathers or grandfathers served in the Confederate army or navy are eligible to full membership.

Further information will be supplied upon application to the Secretary, Dr. Samuel E. Lewis, 1418 Fourteenth Street, Washington, D. C.

DRAINAGE CANAL REDUCES TYPHOID DEATHS.—The weekly bulletin of the health department of Chicago, issued April 1, gives credit to the drainage canal for a pronounced decrease in Chicago's death rate from typhoid fever. The bulletin shows a decrease from 31.8 in 1903 to 5.16 in 1916. The drainage canal, opened in 1900, reversed the current of the Chicago river and discontinued the pollution of Lake Michigan. A canal is now under construction which it is expected will still further reduce the death rate by proper controlling of the sewerage from lake boats and with all dumping restricted to areas protected by bulkheads.

INFANTILE PARALYSIS, MALARIA AND CONTROL OF CANCER CONFERENCE.—On April 10, Mr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company, and Dr. H. R. Carter, Assistant Surgeon General, United States Public Health Service, were in New Orleans for a conference and discussion on infantile paralysis, malaria and the control of cancer. Two meetings were arranged by the Louisiana State Board of Health, a conference in the afternoon for physicians and a meeting at night for the physicians and laymen. Mr. Hoffman gave some new data on infantile paralysis as yet unpublished and his address on the control of cancer brought forth the interest that this subject usually carries with it. The discussion on malaria, concerning which Dr. Carter has made extensive investigations in various parts of the United States, proved of value and interest to the audience. Dr. W. H. Seemann, president of the State Society, spoke briefly on medical organization.

THE AMERICAN PEDIATRIC SOCIETY will hold its twenty-ninth annual meeting at the Greenbier, White Sulphur Springs, W. Va., May 28, 29 and 30, 1917. A preliminary program has been issued which promises to be of much interest to those who will attend the meeting. The profession is cordially invited to be present.

MEETING OF RAILROAD SURGEONS.—The convention of the Joint Association of Surgeons of the Illinois Central and Yazoo

and Mississippi Valley railroads was held in New Orleans, March 31, at the Grunewald Hoteel. Among the prominent visiting surgeons was Dr. W. H. Wilder, district surgeon for the Illinois Central at Birmingham, who delivered an address on "Preparedness in Industrial Medicine and Surgery." Among the New Orleans doctors who were speakers at the meeting were Drs. Rudolph Matas and Carroll W. Allen. Mr. Hunter C. Leake, a New Orleans attorney, spoke on "Medicine Within the Law," an appeal to the men of law and medicine to observe the higher ethics of the profession so as to cause a discontinuance of shady practices in connection with damage suit cases. Many other interesting papers were read, and the day concluded with a stag dinner.

ALIENISTS AND NEUROLOGISTS TO MEET.—The annual meeting of the Alienists and Neurologists will be held Monday, July 9-12, 1917, in the Red Room, La Salle Hotel, Chicago, under the auspices of the Chicago Medical Society. Dr. George A. Zeller will act as chairman. The program will be mailed July 28, with abstract of each paper. Contributors to the program are solicited. This is a society without a membership fee. For further information, address secretary Alienists and Neurologists, room 1218, 30 North Michigan Avenue, Chicago.

AMERICAN PROCTOLOGIC SOCIETY MEETING.—The nineteenth annual meeting of this society will take place at the Hotel Astor, New York City, June 4 and 5, 1917, under the presidency of Dr. Alfred J. Zobel, of San Francisco. The profession is cordially invited to attend all meetings.

MEETING OF AMERICAN MEDICAL EDITORS.—The annual meeting of the American Editors' Association will be held at the McAlpin Hotel, New York City, June 4 and 5, under the presidency of Dr. G. M. Piersol, editor of the *American Journal of Medical Sciences*. A most interesting program is being prepared and it is contemplated that the session will be the largest ever held in the history of the association. The forty-eighth anniversary of this society will be celebrated by a banquet on the evening of June 5, at the McAlpin Hotel.

CHARITY HOSPITAL NURSES GRADUATE.—On April 18, twenty-one women received diplomas as trained nurses at the New Orleans Charity Hospital. Speeches were made by mem-

bers of the board of administration and the diplomas were presented by Mr. A. J. Laplace, a member of the board. Dr. S. W. Stafford, superintendent of the hospital, told of the work in training the nurses, declaring that it cost the State \$365 a year to train a nurse and that no nurse may graduate who does achieve at least 75 per cent rating in every branch of her work. A reception followed the exercises.

The following were graduated: Misses Florence Glenn, Mobile, Ala.; Adel Fontan, Covington, La.; Ethel Milligan, Mathiston, Miss.; Susie J. Hunt, Jackson, La.; Doris Garrould, Evangeline, La.; E. Fontan, Covington, La.; May Murray, Bay St. Louis Miss.; Lillian Cowan, Moss Point, Miss.; Josephine Webre, Rosedale, La.; Lydia Mayeaux, Mansura, La.; Ruth Whigham, Chattahoochee, Fla.; Mary Baranco, New Iberia, La.; Georgia Lambright, McKinney, Tex.; Myra Lalanne, Washington, La.; and Mary McGovern, Aline Pinero, Hillye Freed, Mamie Schultz, Monita Barrileau, Charlotte Lappleau and Mrs. E. McKnight, of New Orleans.

MEDICAL INTERN.—The United States Civil Service Commission announces an open competitive examination for medical intern, for both men and women, on June 6, 1917, at various cities in the United States. This is to fill a vacancy at St. Elizabeth's Hospital, Washington, D. C., at \$900 a year, with maintenance. For further information, apply for Form 1312, to the Civil Service Commission, Washington, D. C. Applications should be filed in time to arrange for the examination at the place selected by the applicant. Exact title of the examination should be stated in the application.

A HEALTH SURVEY OF NEW ORLEANS.—A health survey of New Orleans, conducted by the Metropolitan Life Insurance Company, is to be started within the next month. The company will bring 168 men here to do the work.

DEFECTS OF SPEECH WORK CONTINUED.—According to the wish of Dr. G. Hudson Makuen, whose death occurred last February, Mrs. Mary G. Steel, who for sixteen years assisted Dr. Makuen, will continue the work with defects of speech at Dr. Makuen's office, for the present, and at the Philadelphia Poly-clinic.

MEDICAL UNIT IN PALESTINE.—In order to combat typhus

and other plagues now reported prevalent in Palestine, Hadassah, the women's Zionist organization, recently raised \$30,000 to establish a medical unit in that country. The large individual contributors are: Mrs. Julius Rosenwald, Chicago, \$1,000; Mrs. Daniel Guggenheim, \$500; Mrs. Nathan Strauss, \$500; Miss Rosie Bernheimer, \$500; Mrs. Max Richter, \$250, and Mrs. Robert Hirsch, \$250. Members of the organization toured Ohio and Pennsylvania and Texas and California in the interest of the project.

BASE HOSPITAL PRESENTED TO GOVERNMENT.—A five hundred bed base hospital has been presented to the United States Government, through Roosevelt Hospital, by Mr. Clarence H. Mackay and his mother. The unit organization has been completed and should war be declared it will at once enter service as Red Cross Base Hospital No. 15. Dr. Charles H. Peck is director of the unit. Dr. James I. Russell is chief of the surgical service, and Dr. Rolfe Floyd, chief of the medical service.

TUBERCULOSIS IN THE TRENCHES.—Dr. Herman M. Biggs, Commissioner of Health, New York State, who has been engaged in investigating the tuberculosis problem among the French armies for the Rockefeller Foundation, announces that he has found the disease has made great inroads among the men in the trenches. Immediate institution of relief measures will be recommended.

PURE FOOD AND DRUG ENFORCEMENT.—The officials of the United States Department of Agriculture, in the enforcement of the Food and Drugs Act during the year, analyzed 29,833 samples of foods and drugs offered for interstate shipment and for import. Samples from 76,468 shipments offered for import were physically examined. Of these foreign shipments, 6,353 had violated the law in some respects and were either excluded from the country or admitted only after the importers had relabeled them to comply with the law. Of the analyzed samples of domestic products, 3,535, either because of the nature of the product or because the label on it did not tell the truth, were found to be in violation of the Federal law. There were 1,364 recommendations to the Department of Justice for criminal prosecution against the manufacturers or that the goods be seized.

The Bureau of Chemistry, in its annual report, calls attention to the fact that manufacturers are given due notice of the requirements, enabling them to make their products conform to the law, through the system of service and regulatory announcements now in use. The Government in this way achieves its purpose frequently without entering into needless and very expensive litigation. Special emphasis has been given, in the regulatory announcements, to the control of drug products and foods liable to spoilage and pollution, which frequently constitute a serious menace to health. The food inspectors have been instructed to be particularly watchful for interstate shipments of bad eggs, milk, oysters and spoiled canned goods and false and fraudulently labeled medicines and spurious synthetic drugs.

THE AMERICAN DERMATOLOGICAL ASSOCIATION will meet May 24 to 26, inclusive, at the Hotel Sinton, Cincinnati. For further information, address the secretary, Dr. Oliver S. Ormsby, 25 E. Washington St., Chicago.

THE VERMILION PARISH MEDICAL SOCIETY met in Abbeville, La., April 7, and elected the following officers: Dr. W. A. Poche, Kaplan, president; Dr. J. T. Abshire, LeRoy, vice-president; Dr. C. J. Edwards, Abbeville, secretary. Delegate to the Louisiana State Medical Society: Dr. C. J. Edwards; alternate, Dr. W. A. Poche.

THE EAST FELICIANA PARISH MEDICAL SOCIETY met in Clinton, La. Dr. C. S. Holbrook, of Jackson, read an interesting and instructive paper. A motion was carried to thank Dr. Clarence Pierson and staff, of the Jackson Insane Asylum, for their offer of aiding the physicians of this and other parishes in doing whatever laboratory work they may have. The next meeting of the society will be the first Wednesday in June.

INFANTILE PARALYSIS IN SOUTH AMERICA.—Because of the prevalence of infantile paralysis in South America, Chile has established special inspection stations at Arica, Puntas Arenas and in the Andean passes.

HEALTH CAMPAIGN AMONG NEGROES.—The death rate among New York negroes is so high, being almost double that of the population at large, that the Department of Health, in cooperation with the National League on Urban Conditions Among Negroes, recently conducted an educational campaign lasting two

weeks. According to report, colored babies born in that city have only half the chance of living through the first year that white babies have.

UNCLAIMED CATS AND DOGS FOR EXPERIMENT.—The California Legislature has a bill providing that unclaimed cats and dogs in city pounds may be sold to universities and medical schools at 50 cents and one dollar, respectively, the animals to be kept in a sanitary manner and not to be subjected to surgical operation without full anesthesia.

MEDICINE AND SURGERY.—The first issue of this new journal made its appearance beginning with the April, 1917, number. The editor-in-chief, Dr. Philip Skrainka, and the associate editors, who number quite a few of the best in the profession, are to be congratulated in this new effort in the way of medical and surgical journals.

PERSONALS.—Dr. A. W. de Roaldes, our distinguished collaborator, whose continued illness has caused his withdrawal from active work, was elected an honorary member of the Louisiana State Medical Society at its recent meeting.

REMOVALS.—Dr. A. W. Montague, Jr., from Texas Baptist Memorial Sanitarium, Dallas, Texas, to Cincinnati General Hospital, Cincinnati, Ohio.

NORTHWEST MEDICINE, from 719-22 to 1101-12 Cobb Bldg., Seattle, Wash.

MARRIED.—On April 12, 1917, Dr. Harold J. Gondolf, to Mrs. Leah Knobloch Moore, both of this city.

On March 27, 1917, Mr. Albert A. Jones, of Kansas City, Kansas, to Miss Esther Ballew Cline, daughter of Dr. Isaac M. Cline, head of the New Orleans weather bureau.

On April 4, 1917, Dr. Adolph Jacobs, to Miss Hilda Levy, both of this city.

On April 17, 1917, Dr. Thomas Andrew Maxwell, to Miss Vivian Grace, both of this city.

DIED.—On March 24, 1917, Dr. Charles S. Braddock, Jr., at Haddonfield, N. J., aged 54 years. Dr. Braddock was formerly Chief Medical Inspector of Siam and a leading expert on cholera and smallpox.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Text Book of Surgical Operations, Vol. II, Pp. 269-715. By Prof. Foeder Krause in association with Emil Heymann, M. D. Translated into English and edited for American physicians by Albert Ehrenfried, A. B., M. D., F. A. C. S., Rebman & Co., New York.

This second volume of Krause's six volume text book is devoted to the surgery of the head and neck. The work is divided into nine chapters as follows: Surgical Procedure in the Upper and Lower Jaw, Surgical Affections of the Oral Cavity, Surgical Procedures on the Pharynx, Surgical Procedures on the Salivary Glands, Injury of the Salivary Glands, Surgery of the Facial and Cranial Nerves, Surgery of the Brain, Surgical Treatment of Epilepsy, Surgery of Brain Tumors and Operative Treatment of Brain Abscesses, Purulent Meningitis, Cranial Tuberculosis and Brain Injuries, Closure of Defects in the Skull, Plastic Restorative of the Dura, Encephalocele and Pericranial Sinus.

This work is certainly thorough and painstaking in its attention to details and is of incalculable value as a reference work to the general surgeon. The specialist in this region would probably find many valuable suggestions, the product of the great experience of a writer with such mature judgment.

The resections of the maxillæ are along the usual lines, but valuable information may be gathered by careful study of the chapters on Resection of the Tongue. We note that the author discourages the use of X-rays, radium and thorium for malignant disease in this region. The dictum of Thiersch that pharyngotomy should be preceded by gastrostomy for feeding purposes has been borne out by some of our recent experiences. This suggestion might also be made in total laryngectomy. The anastomosis of the facial and spinal accessory nerves for facial paralysis does not seem to offer any choice over the myolastic methods. While the

various neuralgias are discussed, scarcely enough consideration is given to tri-facial neuralgia and true tic-douloureux and the treatment by alcoholic injection of the nerve trunks or the Gasserian ganglion itself is not taken up at all.

By far the most complete and valuable part of the book is devoted to the Surgery of the Brain. Such important subjects as anesthesia and hemostasis are taken up in detail. In the making of the osteoplastic flap, we note that little attention is paid to the combination of the Hudson burrs, the Martel guide and the Gigli saw used in combination which make a rapid and safe way of cutting the osteoplastic flap. We are glad to note that practically all methods of cranio-cerebral topography have been dismissed for the simple technic of Kronlein. In the operation on the brain itself, the removal of the tumors by suction is ingenious and practical. Cushing's technic for operations on the hypophysis is given brief consideration without comment and is illustrated with Cushing's original drawings.

The illustrations in the work supplement the text in a most excellent manner and with a little study are valuable aids. The print and paper are good, facilitating the reading of this excellent treatise.

Urban Maes.

The Practical Medicine Series. Vol. VII: Obstetrics. Edited by Joseph B. DeLee, A. M., M. D., and Herbert M. Stowe, M. D. The Year Book, Publishers, Chicago, 1916.

This handy volume is well known to the profession. It has appeared annually for several years, and a very satisfactory review of the really new advances in obstetrics may be found, together with comments of the editors. One advantage of the series is that separate copies may be purchased.

Miller.

Care of Patients Undergoing Gynecologic and Abdominal Procedures, Before, During and After Operation. By E. E. Montgomery, A. M., M. D., LL. D., F. A. C. S. W. B. Saunders Co., Philadelphia and London, 1916.

This is a profusely illustrated handbook of one hundred and fifty pages, arranged for the intern, nurse, or the novice, when called upon to select instruments, or, direct the after-care and comfort of post-operative cases. The book contains many useful hints and no doubt will be found useful for the purposes outlined by the author.

Miller.

The Practice of Gynecology. By William Easterly Ashton, M. D., LL. D. W. B. Saunders Co., Philadelphia and London, 1916. Sixth edition.

Ashton's Gynecology hardly needs more than the formal announcement that a new edition is being presented by the

author. It has been one of the most popular books on this subject for a number of years and the present edition has been carefully revised. The chapters on Microscopic Examination of the Tissues, Examination of the Abdomen, Constipation, and Saline Injections, have been considerably changed. The prophylactic treatment and early diagnosis of cancer of the uterus has been carefully considered, but it is to be regretted that the beneficial effects of radium in inoperable cancer is not even mentioned.

The book will undoubtedly continue to enjoy the popularity justly earned by former editions.

Miller.

Better Babies—A Guide to the Practical Care of the Mother and Young Child. By Samuel A. Visanswa, Ph. G., M. D. Foote and Davies Company, Atlanta, Ga., 1917.

This volume of 254 pages is one of the more recent contributions to the literature relative to pediatrics. While the reviewer does not desire to be unduly critical, he finds a good many negative qualities: "Designed for Physicians, Nurses and Mothers." This scope is too broad—it is impossible to combine the various thought, feeding problems, etc., so that the appeal will be effective in its various channels. The distribution is very poor. Subjects are placed at random. The book lacks careful preparation and shows the absence of clear cut chapters.

However, the periods covering "Teething Not a Disease," "Dont's for Mothers," "Good Antidotes," "The Medicine Cabinet," contain practical information and should prove interesting.

The best section of this volume is entitled "New Navel Band and the Better Way of Putting a Diaper on a Baby."

The illustrations are clear and the arguments in favor of its application are most convincing. On the whole, it is a most unique contribution to the literature covering the subject.

C. J. Bloom.

The Operating Room. A Primer for Pupil Nurses by Amy Armour Smith. W. B. Saunders & Co., Philadelphia and London.

Next to the nurse herself, books for the nurse should interest the physician, as he is equally concerned in the training and efficiency of his most valuable assistant who next to him shares the responsibility for the treatment of the case.

In the above book, Miss Smith presents to pupil nurses, the fruitage of years of practical experience; herself well trained in an excellent school under able superintendents, she has added to this knowldege until in time she has herself filled

this responsible position at the head of some of our best institutions.

The book is replete with valuable information and contains much material which should prove highly valuable to the directress and graduate, as well as pupil nurse. The preparation and handling of material and a description of the various kinds of pads, dressings and appliances, are amply discussed. A list of the instruments and armamentarium needed for the more commonly performed operations, with a glossary of common medical terms and an excellent index, complete this volume.

C. W. Allen.

Pediatrics and Orthopedic Surgery. Volume V of the 1916 Practical Medicine Series Published by the Year Book Publishers, Chicago.

This book reviews in an able way the essentials of progress during the past year in these fields. With an excellent index all the valuable material contained within this small volume is made readily available. All noteworthy advances in diagnosis, dietetics, hygiene and therapeutics have received ample attention. The care and treatment of infants in the war zone of Europe offers some interesting and valuable conclusions. The Schick test in diphtheria is well reviewed, describing the outfit technic employed and results obtained in a large number of cases, establishing for this reaction a valuable position particularly in the differentiation and institutional management of this disease. Syphilis and tuberculosis have received due attention and some valuable suggestions as to treatment and general management are advanced, with a review of the results and value of the several diagnostic reactions. Some very valuable suggestions and advice are offered on the treatment of fractures, which will well repay the careful study of the general surgeon, as well as the specialist.

Allen.

A Manual of Nervous Diseases, by Irving J. Spear, M. D. W. B. Saunders Co., Philadelphia and London.

This manual is destined to become popular among the students of medicine and the general practitioner, for it embraces a review of the anatomy and physiology of the nervous system in such a way as to make it neither too brief nor too voluminous and presents facts and theories essential to a clear understanding of the mechanism of organic nervous diseases. The presentation of the subject is facilitated by the aid of illustrations and diagrams. The method of examination of the patient here described will appeal to the general practitioner as it is clear and requires no special apparatus beyond electric batteries.

The various diseases (organic and functional) of the ner-

vous system are first grouped and then presented singly; the etiology, pathology, symptoms, course and prognosis with the differential diagnosis and treatment of each being clearly given.

Special attention has been given to differential diagnosis and to treatment, the most recent accepted facts being particularly mentioned.

Cazenavette.

A Textbook of Nervous Distases, for Students and Practicing Physicians, in thirty lectures, by Robert Bing. Translated by Charles L. Allen, M. D. Rebman Company, New York.

This is the only authorized translation of Robert Bing's work. It covers over 450 pages of text with 111 illustrations, with many original sketches. It presents the subject of nervous diseases in a new robe. Instead of adhering to the usual text book method of presentation the various diseases and neurological entities are discussed in a series of thirty lectures or monographs. Some subjects because of their importance cover more than one lecture and others not less important but for the sake of limiting the size of the work and avoiding repetition, are grouped together. Of particular interest has been found those lectures covering the "Syphilogenic Diseases of the Central Nervous System," wherein the author presents the latest views regarding the treatment of such conditions. One lecture is devoted to the "Arteriosclerosis of the nerve centers." This subject is not found in the usual text book on nervous diseases. Here the author presents those manifold phenomena which are explainable on the ground of diffuse disturbances of nutrition in the brain and spinal cord, consequent upon alteration of their vessels.

We could go on and mention many other lectures as worthy of consultation but space will not allow this. Throughout the work the treatment of nervous diseases is gone into carefully, many formulas being given.

It will suffice to say that the author's own views and experiences are forcefully expressed, while the observations and opinions of other authors are not lacking. This was done with the hope of presenting to the non-neurologist a well rounded view of our specialty. The reviewer is of the opinion that this has been overdone; and when the ultra-scientific terms used to designate the various nervous manifestations are considered, it is doubtful whether the author's aim has been attained.

Cazenavette.

Principles of Medical Treatment, by Geo. Cheever Shattuck, M.D., 3rd Edition. W. M. Leonard, Boston.

The best brief work on Treatment we have yet read. The third edition is improved by several additional chapters, especially the article on tuberculosis by Dr. John B. Howes.

This little book contains only essentials, but is arranged with such preciseness that one obtains the most valuable information at a glance. It is rather surprising that little notice is taken of Fisher's valuable contributions to the treatment of nephritis; the discussion of the treatment of the nephropathies is the weakest in the work.

S. C. Jamison.

A Text-Book of Human Physiology. By Albert P. Brubaker, A. M., M. D., Fifth Edition. P. Blakiston's Sons Co., Philadelphia.

The reader is first impressed with the fact that this new edition is thoroughly illustrated.

In the opening pages is a discussion of the chemie composition of the human body, followed by a chapter on cell physiology to which more space could have been well devoted.

The general physiology of the several tissues is well handled.

It is to be regretted that the author did not incorporate with his book more of his knowledge of foods, as this is a timely subject and should be most complete.

The blood and its circulation is well considered and the arrangement of the sequence of events carefully worked out.

The physiology of the nervous system is also well presented.

Laboratory exercises, which are of the utmost importance to the modern student of physiology, have for some reason been omitted in this book, notwithstanding the fact that in the closing chapter one finds twenty-five pages devoted to a review of apparatus!

Chillingworth.

The Newer Methods of Blood and Urine Chemistry. By R. B. H. Gradwohl, M. D., and A. J. Blaivas. C. V. Mosby Company, St. Louis.

The authors have compiled a splendid collection of the latest proven methods of blood and urine chemistry. They have endeavored to give only the best method for each test, which will be appreciated by the reader in that it will avoid confusion and complication.

Thought is evident in the selection of the handy helpful illustrations which accompany the text.

The chapter on blood sugar is complete and up to date and can be accepted as a reliable guide for workers in this field.

The subject of acidosis is discussed and explained in all its known phases, and the methods of determining alveolar tension and the reactions of the blood are made clear.

Chillingworth.

PUBLICATIONS RECEIVED

WILLIAM WOOD & COMPANY. New York, 1917.

Food and the Principles of Dietetics, by Robert Hutchison, M. D., F. R. C. P. Fourth edition.

Anatomical Names, Especially the Basle Nomina Anatomica ("BNA"), by Albert Chauncey Eycleshymer, B. S., Ph. D., M. D., assisted by Daniel Martin Schoemaker, B. S., M. D., with biographical sketches by Roy Lee Moodie, A. B., Ph. D.

P. BLAKISTON'S SON & COMPANY. Philadelphia, 1917.

Hughes' Practice of Medicine, by R. J. E. Scott, M. A., B. C. L., M. D. Eleventh edition, revised and enlarged.

J. B. LIPPINCOTT COMPANY. Philadelphia and London, 1917.

International Clinics. Volume 1. Twenty-Seventh Series, 1917.

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MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for February, 1917.

Cause.	White	Colored	Total
Typhoid Fever	2	1	3
Intermittent Fever (Malarial Cachexia)		2	2
Smallpox			
Measles	21	5	26
Scarlet Fever			
Whooping Cough		1	1
Diphtheria and Croup	7		7
Influenza	12	20	32
Cholera Nostras			
Pyemia and Septicemia			
Tuberculosis	53	64	117
Cancer	26	9	35
Rneumatism and Gout		1	1
Diabetes	6	1	7
Alcoholism	3		3
Encephalitis and Meningitis	1		1
Locomotor Ataxia	1		1
Congestion, Hemorrhage and Softening of Brain	25	17	42
Paralysis	3	2	5
Convulsions of Infancy	1		1
Other Diseases of Infancy	11	5	16
Tetanus			
Other Nervous Diseases	4	2	6
Heart Diseases	84	44	128
Bronchitis	2	2	4
Pneumonia and Broncho-Pneumonia	53	49	102
Other Respiratory Diseases	3	1	4
Ulcer of Stomach	1		1
Other Diseases of the Stomach		1	1
Diarrhea, Dysentery and Enteritis	23	12	35
Hernia, Intestinal Obstruction	4	1	5
Cirrhosis of Liver	6	1	7
Other Diseases of the Liver	1	2	3
Simple Peritonitis			
Appendicitis	5	1	6
Bright's Disease	32	19	51
Other Genito-Urinary Diseases	11	16	27
Puerperal Diseases	1	2	3
Senile Debility	8		2
Suicide	2	2	4
Injuries	17	10	27
All Other Causes	17	18	35
Total	440	311	751

Still-born Children—White, 21; colored, 12; total, 33.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 19.13; colored, 36.59; total, 23.84. Non-residents excluded, 21.33.

METEOROGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 30.15
Mean temperature 59.
Total precipitation 13.19 inches
Prevailing direction of wind, southwest.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for March, 1917.

Cause.	White	Colored	Total
Typhoid Fever	1	2	3
Intermittent Fever (Malarial Cachexia)			
Smallpox			
Measles	4	2	6
Scarlet Fever			
Whooping Cough	1		1
Diphtheria and Croup	3	2	5
Influenza	7	3	10
Cholera Nostras			
Pyemia and Septicemia		1	1
Tuberculosis	67	69	136
Cancer	14	8	22
Rheumatism and Gout	1	2	3
Diabetes	3		3
Alcoholism	1		1
Encephalitis and Meningitis	2	1	3
Locomotor Ataxia			
Congestion, Hemorrhage and Softening of Brain	16	11	27
Paralysis	3	1	4
Convulsions of Infancy	2		2
Other Diseases of Infancy	14	10	24
Tetanus			
Other Nervous Diseases	4		4
Heart Diseases	55	35	90
Bronchitis	3	2	5
Pneumonia and Broncho-Pneumonia	24	37	81
Other Respiratory Diseases	6	1	7
Ulcer of Stomach			
Other Diseases of the Stomach	1	2	3
Diarrhea, Dysentery and Enteritis	10	8	18
Hernia, Intestinal Obstruction	5	1	6
Cirrhosis of Liver	10	2	12
Other Diseases of the Liver	3	2	5
Simple Peritonitis			
Appendicitis	3	3	6
Bright's Disease	32	14	46
Other Genito-Urinary Diseases	13	13	26
Puerperal Diseases	7	2	9
Senile Debility	2		2
Suicide	3	1	4
Injuries	10	20	30
All Other Causes	33	20	53
Total	363	275	638

Still-born Children—White, 16; colored, 14; total, 30.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 15.88; colored, 32.35; total, 20.25. Non-residents excluded, 17.90.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 30.10
 Mean temperature 66.
 Total precipitation 3.03 inches
 Prevailing direction of wind, south.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

EDITORS

CHARLES CHASSAIGNAC, M. D.

ISADORE DYER, M. D.

COLLABORATORS

BAILEY K. ASHFORD, M. D., Prest. Amer. Soc. of Tropical Medicine } Ex officio
JOHN M. SWAN, M. D., Secty. American Soc. of Tropical Medicine }

C. C. BASS, M. D., Tulane University of Louisiana.

RUPERT BLUE, M. D., Surgeon General, United States Public Health Service.

H. D. BRUNS, M. D., Tulane University of Louisiana.

C. F. CRAIG, M. D., Capt., U. S. A.

S. T. DARLING, M. D., Federated Malay States.

W. H. DEADERICK, M. D., Hot Springs, Arkansas.

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OTTO LERCH, M. D., Tulane University of Louisiana.

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R. MATAS, M. D., Tulane University of Louisiana.

AUGUSTUS McSHANE, M. D., Greenwood, Miss.

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PAUL G. WOOLLEY, M. D., University of Cincinnati.

Vol. LXIX

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No. 12

EDITORIAL

CHANGE IN INTERPRETATION OF HARRISON LAW.

No doubt the following recent announcement of the United States Treasury Department will prove interesting and useful to our readers:

"The ruling contained in T. D. 2194, holding synthetic substitutes subject to the provisions of the Act of December 17, 1914, and requiring manufacturers of, dealers in, and physicians prescribing any such substitutes, as therein defined, to register and otherwise conform to the Harrison narcotic law and the regulations issued thereunder, is hereby revoked, to take effect this date."

This means that physicians will no longer be bothered to carry out the details of the Harrison law when writing prescriptions

containing novocaine, for instance, or when purchasing such synthetics for office use.

We have never understood the reason for their inclusion, anyway, and they had not been included in the first interpretation of the law. Evidently further consideration by the Treasury officials have made them reach the same decision which we hope will now be final.

THE MEDICAL OFFICERS RESERVE CORPS.

There are two facts which should be presented to all physicians in the United States for their serious consideration. The first is that *every man who is not bound by obligations to others dependent upon him should offer his services to the Surgeon General of the Army at Washington at the earliest possible moment.* This will permit an estimate of available medical men for the positions in the army to be raised at an early date. The second fact is that all physicians should seriously consider the individual services they can render and should then co-operate with the State Committees on Medical Preparedness whenever they can.

All organization of large bodies is bound to be slow and the task of co-ordinating the medical group of officers in the army is immense.

The application for the Medical Reserve Corps is coming in slowly and it is worthy of comment that men of forty to fifty-five are responding as rapidly as the younger men.

The application for service with the Medical Reserve Corps should be made only after mature deliberation. This should include the determination to accept a commission in the army as a member of the Reserve Corps if the application is favorably acted upon. The time to have "cold feet" is before the application is made, not afterwards. In making application, the candidate for a commission should understand that his services will be needed for the period of the war and that no matter what sort of practice he may have followed in civil life, as soon as he joins the Medical Officers' Reserve Corps he is liable to

be assigned for duty within a few weeks, even days, thereafter.

When assigned to duty he will be expected to do just what he is told to do.

As rapidly as possible local examiners are being appointed in the several States, with distribution in the principal cities, so as to hurry the enrollment of officers in the Medical Reserve Corps. In Louisiana only a few examiners have been so far appointed, but this should not delay applications.

The New Orleans Board of Examiners will furnish all information regarding forms and procedure of examination and every physician in Louisiana who can conclude that he should respond to the call may write to Dr. Isadore Dyer, P. O. Box 770, for full particulars.

SALVARSAN OR ARSENOBENZOL.

We were preparing a convincing editorial urging congressional action for the purpose of voiding or suspending the patent rights on Salvarsan—but what's the use? We learn that Mr. Emerson, from one of the Ohio districts, has already introduced a bill which is entitled "A bill to abrogate the patent upon the article known as Salvarsan" which has the advantage of being both clear and concise. It has been referred to the patent committee and reads as follows:

Whereas, The use of salvarsan is now necessary to the medical profession and the output of the article is so handicapped because of certain patent rights; therefore

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the patent rights issued upon the article known as salvarsan is hereby abrogated and set aside and declared null and void.

The only thing for us to do is to urge our congressmen to give their active support to the measure.

Whatever place future observation will grant to the chemical in the permanent cure of syphilis, it is generally conceded that it exerts the most prompt effect in controlling lesions, and in

that manner, if in no other, it is of most valuable aid in treatment. Its scarcity at intervals during more than two years has been seriously felt, but was due mainly to the prohibitive rights secured for it in this country. It can be and is being made in several countries, but could not be made and sold here or imported into this country under any other name, hence the intolerable monopoly and the impossibility of using a definite chemical compound for the good of the sick.

We hope rapid congressional action will correct the abuse and we know that Salvarsan under any other name will act just as well.

NOTICE.

THE AMERICAN SOCIETY OF TROPICAL MEDICINE

The American Society of Tropical Medicine will hold its fourteenth annual meeting, in the lecture room of the Margaret Fahnestock Training School of the New York Post-Graduate Medical School and Hospital, 304 East Twentieth street, New York City, June 4, 5, 1917.

The program includes several interesting titles with original subjects.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

HYPOTHYROIDISM, WITH REPORT OF A CASE.*

By S. CHAILLE JAMISON, M. D., New Orleans.

Three distinct pathological entities are included under this general title; these are cretinism, Gull's disease, and cachexia strumipriva. The first disease is due to congenital absence of the thyroid gland, the second is due to the complete or partial failure of the gland, and the third to its operative removal.

The case that I wish to report tonight is one of Gull's disease. A brief review of the signs and symptoms is, perhaps, not out of place.

The patient usually consults a physician because of the mental langor, the turpitude, the drowsiness, and vague general pains from which she suffers. At other times the swollen appearance, or the dyspnea drives her to the doctor. The most characteristic and striking sign is the edematous appearance of such cases; this, of course, is not a true edema, but is due to the deposition in the tissues of a mucin-like substance, deposits of this substance tending to occur especially in the skin of the face, the shoulder pads, and, to a less degree the extremities. Such deposits in the skin of the face produce a fixed, mask-like expression, with an absence of the normal lines, a widening of the nose, a waxy color, and narrowing of the palpebral fissure. The hair becomes dry, coarse and brittle; areas of alopecia may occur. The tongue is dry and usually enlarged; the teeth are decayed and worn. The pulse is slow and the blood pressure low. There is, in the course of time, a reduction in the percentage

*Read before the Orleans Parish Medical Society March 12, 1917. [Received for Publication April 11, 1917.—Eds.]

of hemoglobin, and also of the erythrocytes. The mononuclear elements of the blood, and the eosinophiles, tend to increase.

Various psychoses may occur, although the commonest is of the melancholic type.

Dependent entirely on the stage of the disease, the case may appear well nourished or cachexia may be more or less marked; the cachexia is certain to supervene in the course of time.

The genital organs are early and markedly affected. The hair of the axilla and on the vulva becomes scanty; the breasts shrivel; menstruation ceases and the uterus atrophies.

Constipation is a constant accompaniment of the disease. The urine is decreased in amount, but abnormalities are incidental.

Case History: Americus Johnson, 123 N. Prieur street, was admitted to my clinic, at the Charity Hospital, January 10, 1917. She is a chocolate-colored negro female, 30 years old.

Complaint: "Swelling, and shortness of breath."

Family History: Father died of asthma. Other members of the family cannot be accounted for. All members of the family are supposed to have "kidney trouble."

Past History: The usual diseases of childhood. "Rheumatism" for the past four years. Headache and sore throat during the past week. Denies venereal disease.

Menstrual History: First menstruation at 18 years. Menstruation has always been irregular, at long intervals, very scanty, and of one or two days duration. Her breasts have never developed, and hair appeared on her body very late.

Present Illness: This attack began one week ago with weakness after eating, swelling of the face, thickness of the tongue, and shortness of breath.

Physical Examination: The patient has a stupid, sleepy expression, which does not change much when she smiles or frowns. The tongue is dry and large, with the indentations of the teeth well marked. The teeth present nothing of note. The lungs are normal. The heart is not enlarged; the sounds are clear. There are no murmurs. The pulse is 60, the respirations 11

per minute. The systolic blood pressure is 115 mm (palpatory: radial artery). The abdomen is easily palpable, but there is no abnormality noted. The patient is moderately well nourished, and, except for the face, the "swellings" that she mentions can not be defined.

Laboratory Findings: The urine is normal to the usual chemical and microscopical examinations. The hemoglobin is 60%; the differential leukocyte count is normal. Total erythrocyte and leukocyte counts were not made. The Wassermann and Tschernogubow are negative. Constipation is marked.

Treatment and Outcome: Thyroid extract tablets, 5 grs. t. i. d. The improvement has been marked, rapid, and continuous since. The patient is still under observation. The only incident that deserves comment is a rapid pulse which she developed at the end of six weeks; this was taken as a warning and the tablets were discontinued for three days, at the end of which time the pulse is 72 per minute.

Comment: This is the first time that this disease has been recorded in the negro. The preponderating number of such cases are in the female. In this particular case the edematous appearance was only noted in the face. The diagnosis can be made certain in such case by the response to treatment, which is specific. Certainly the fact that the vegetative nervous system was not tested out, is to be criticised.

DISCUSSION OF DR. JAMISON'S PAPER.

DR. EUSTIS stated that he was very much interested in this condition, and had seen quite a few early cases of myxedema with slight swelling of hands and feet. A large percentage of the cases of swelling of extremities Dr. Eustis believes due to perverted thyroid function. The effect of thyroid extract is enhanced by adding 1-30 of a grain of arsenous acid. In a recent case, general metabolism was greatly increased by this treatment as proven by the decreased temperature. Many of these early cases do not go on to the final stages, but remain stationary.

DR. ROUSSEL stated that although many of the journals contain discussions on hypothyroidism, but few mention hyperthyroidism. The former cases have a low mentality. We all know what to do for hypothyroidism, but I want to know what to do with hyperthyroidal cases.

DR. JAMISON, in closing: I believe this condition is especially frequent in the negro female. We frequently see obese women who have taken thyroid extract with bad results, and we should make an accurate diagnosis before administering the drug. Physiologists tell us that a more accurate diagnosis of thyroid increased or decreased is obtained by the vegetable nervous tests. Such as the increased sensibility of the pupil to atropine and homatropin, likewise to eserine and pilocarpin. Replying to Dr. Roussel, the treatment of hyperthyroid has in the past been considered largely surgical, and but little effort has been given towards its relief by medical treatment. We see approximately fifty cases of hyperthyroid to one of hypothyroidism.

MULTIPLE CARTILAGINOUS EXOSTOSES.*

By J. T. O'FERRALL, M. D., New Orleans.

In asking your attention to the subject of multiple cartilaginous exostoses I feel that I am bringing before you a subject of much interest and one which we have studied little until recently. Formerly the condition was considered a rarity but this has been disproved by recent reports of large series of cases; the late review of the entire literature and the report of twelve cases by Dr. Ehrenfried standing out boldly as the most valuable contribution.

According to this complete and accurate review, especially of the cases reported in the United States, six hundred cases have been recorded all over the world in about three hundred and fifty articles. The first case reported in the United States was by Gibney in 1875; this case was again shown by him in 1879. In 1876 he reported a case affected with the condition, as were the patient's father, brother and his three children. Many other interesting cases are referred to by Dr. Ehrenfried and among those substantiating the theory of heredity is a case reported by Dr. H. L. Taylor in which the patient and his three children were affected. The most interesting and remarkable instance of the hereditary side of the condition is that reported by Dr. Percy in which four generations of a family were investigated including one hundred and thirteen people. Of this number twenty-six were affected, twenty-two males and four females.

The etiology of the affection is obscure, however, for the cases most frequently seen are in early life or give a history of having existed since that time. Many patients declare the bony tumors have been noticed since birth and from the fact that so many cases are apparently hereditary this early existence is proven.

Males seem to be affected in the proportion of three to one over females. This proportion holds good in regard to the transmission of the condition. Cases have been reported, however, in which transmission took place through unaffected parents, possibly from a previous generation.

*Read before the Orleans Parish Medical Society, March 12, 1917. [Received for Publication April 11, 1917.—Eds.]

It is interesting to note that in these cases the exostoses often remain stationary or continue to grow until puberty or until skeletal maturity, when they either cease growing or diminish in size and at times disappear. An instance of this fact will be mentioned in one of the cases reported at this time. Of course in a large number of instances the patients carry the bony growths throughout life.

The symptoms consequent upon the occurrence of these exostoses are very varied and depend directly upon the location and size. Dislocated joints, especially the smaller ones, sciatica, interference with the function of the pituitary gland due to an exostosis in the sella turcica, erosion of a popliteal aneurism, synovitis, mechanical interference of joint motion, paralysis from intra-spinal exostoses, various deformities of the extremities and other skeletal abnormalities represent the symptoms in actual reported cases, with recoveries in some cases after the removal of the offending exostoses. The tumors occur in varying sizes and numbers but as a rule in the proximity of the epiphyses, the shafts of the bones being entirely free. Any joint, even the smallest, may be the site for one or several exostoses. My experience, however, indicates that the joints subjected to the greatest amount of traumatism and motion are the ones most likely to be extensively involved, i. e., knees, ankles, cervical spine and elbows.

The pathology of these exostoses is that of a disturbance of the bone forming cartilage as a basic cause. They are generally benign, less than five per cent of secondary malignant enchondroma have occurred in the reported cases. Abscess formation has occurred as the result of pressure.

The treatment of the condition is usually non-operative. Keeping the patient in the best physical condition and under constant observation until the age of puberty has been reached, with the hope that the exostoses will diminish in size or disappear. At any time that acute local symptoms develop, referable to a particular exostosis, same can be removed and relief obtained. Otherwise operative interference is probably contraindicated, as it often stimulates increased growth. In one of my cases this has occurred but without inconvenience to the patient.

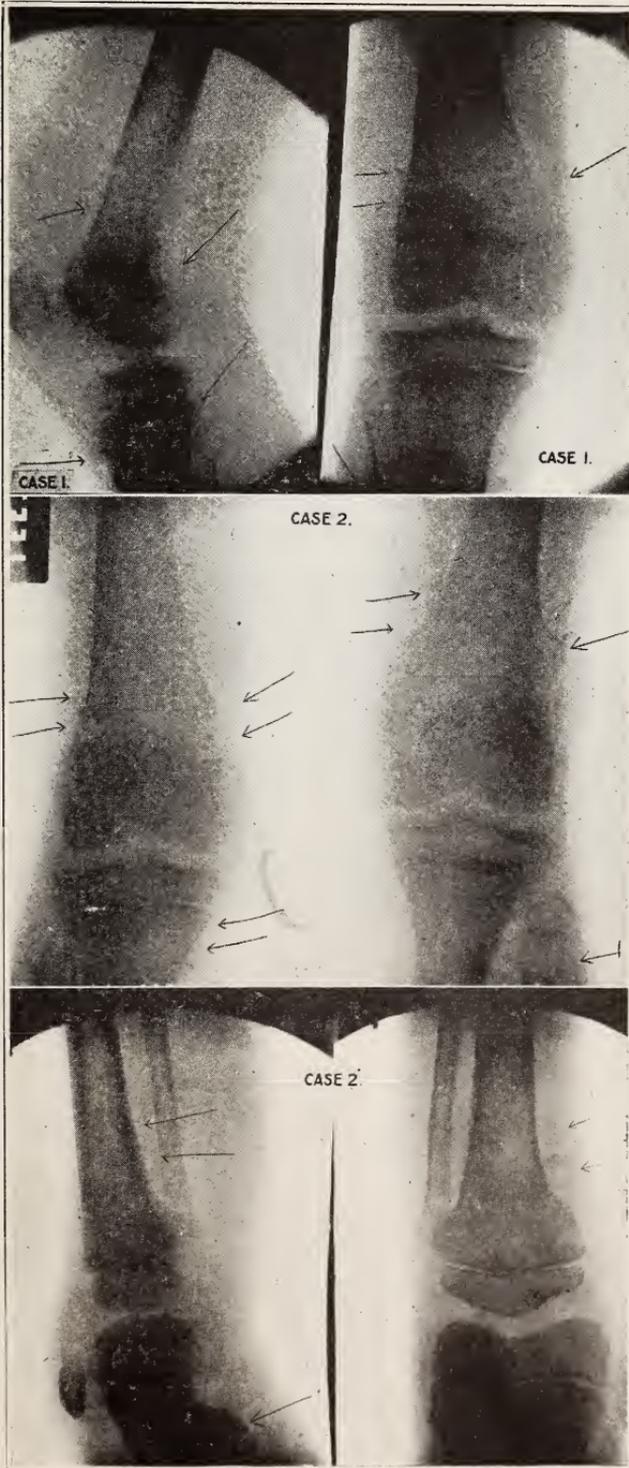
The two cases which I wish to add to those previously reported applied for treatment at the orthopedic clinic of the Touro Infirmary and gave the following histories:

Case 1. Chester L., age 8 years, admitted to the clinic August 24, 1915. His father and mother with one small sister are living and in perfect health. There is no history obtainable relative to the occurrence of exostoses in former generations. The boy has always been well, having escaped the usual diseases of childhood. When three years old he fell from a window and slightly injured his right knee. No trouble was experienced at that time but in the past year the parents have noticed a bony growth over the internal aspect of the right leg just below the knee. In the past few months the growth has developed very rapidly and now is a definite mass the size of a bird's egg.

The physical examination revealed a bright, well developed and nourished boy. Nothing abnormal was discovered except a bony tumor the size of a marble firmly attached to the bone at the upper tibial epiphysis on the inner side. Smaller less resistant tumors were found at the lower femoral epiphysis on the inner side. No other exostoses were found at this time. Radiographic examination was made which showed a large osteo-cartilaginous overgrowth at the upper end of the tibia and several smaller ones above the femoral condyles. The Wassermann examination was negative.

Because of the rapid growth of the tibial exostoses the boy was referred to the ward for operation. A large part of the growth was removed and the recovery uneventful. A radiograph one week after discharge, however, showed the exostosis again growing rapidly. A series of radiographs made a few days ago show the exostosis operated upon apparently stationary and no increase in the size, location or number of the others. His general health is satisfactory and no inconvenience is experienced from the exostoses.

Case 2. Marie M., age 10 years, admitted to the clinic May 9, 1916. The father, mother and two sisters are living and well. The mother denies the occurrence of any miscarriages. No history of the existence of bony tumors in the family could be brought



out. The patient's previous history was negative as she had always been well. For three weeks the left knee had been swollen, greater at night, without apparent cause. No pain was complained of but the knee would stiffen up. For two months previous to her knee trouble the patient had suffered with her eyes and was then being treated by the eye clinic. For a number of months bony growths had been noticed near joints and "under the skin." They have given no trouble; however, have increased in size.

The physical examination presented a thin but well developed child wearing smoked glasses. Her eyes showed a markedly injected conjunctiva and photophobia. A specific iritis existed. A well defined set of Hutchinson's teeth was also present. There was a synovitis of the left knee joint with a large amount of fluid distending the capsule. Full range of motion of the joint, however, was possible and no tenderness found. Exostoses were easily palpable at the lower one-third of the femur on both sides, in the right popliteal space, upper one-third of the left tibia, lower one-third of the left radius and upper one-third of the rt. humerus. A diagnosis of specific synovitis with coincident congenital exostoses was made. The radiographic examination showed a number of exostoses at the sites stated and no erosion of the bones of the joint affected with the synovitis.

The synovitis was treated in the usual way with fixation with adhesive plaster and the patient was advised to continue the iodides given by the eye department. Repeated strapping of the joint was practiced without relief and the joint was aspirated. The first time six ounces of clear amber fluid was obtained. The joint rapidly filled again and a larger amount of the same kind of fluid was obtained with little improvement. Mercury in combination with the iodides was then instituted and the patient promptly began to be relieved from her iritis and synovitis. She has remained well since and is now a very strong healthy girl.

A series of radiographs recently made shows the exostoses unchanged except the one on the left forearm which is much smaller. A new one has appeared, however, at the lower one-third of the fibula.

The accompanying radiographic prints will illustrate to you the character and location of these exostoses around the knee joints of these cases.

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DISCUSSION OF DR. O'FERRALL'S PAPER.

DR. EUSTIS: This subject was carefully reviewed in the *Journal of the A. M. A.*, several weeks ago. I saw a case of a lady of thirty with exostosis some years ago, and recently saw her child, now five years of age, with the same condition. Both cases showing multiple exostosis. In another case, I operated upon a boy with an exostosis as large as an orange. Dr. Batchelor, who was present, believed the case to be one of sarcoma.

DR. DIMITRY: Specific iritis in a child of ten uncomplicated by corneal changes is a rare condition and I am inclined to doubt the diagnosis of specific iritis, believing that the case was one of interstitial keratitis.

SUCCESSFULLY TREATED FRACTURE OF UPPER THIRD OF HUMERUS.*

By LUTHER SEXTON, B. S., M. D., New Orleans.

This case is reported to show the importance of the surgical axiom, that "the fracture should always be in the middle of the splint." This particularly applies to the fractures of the femur and humerus in their upper thirds where strong muscular attachments tend to shorten the limb by over-riding of the broken ends of the bones.

Mrs. D., age seventy-five, weight 160 pounds, fell from the steps to the hard pavement, a distance of about six feet, striking the shillinger pavement with arm, the entire impact of the body weight, superimposed, producing a transverse fracture of upper third of the humerus. She heard the distinct snap of the breaking bone and found the arm fall by her body upon arising from the fall after assistance came. Preternatural mobility, crepitation, the cardinal symptoms of fracture were present followed by ecchymosis, pain and swelling. The fracture was just below the surgical neck; the lower fragment was drawn inward by the pectoral muscles and upwards by triceps, running from the coaracoid process to the humerus.

She preferred to be treated in her own home, so the advantages of skiagraph picture to show proper reduction af-

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ter application of splint was not possible, nor was the assistance of a general anesthetic. To relax the muscles and overcome the pain a one-quarter grain of morphia and 1/150 of atropia was given hypodermically half an hour before attempted reduction, while the splints, padding and bandages were being prepared. We have found that the right angle cardboard splint, cut to fit the arm so as to hold the forearm and elbow joint as well as the upper fragment is the most suitable splint for this fracture. The upper end of the inside splint which fitted into the axilla was hollowed out and padded so as not to obstruct the return flow of blood through the veins or press upon the brachial plexus. The upper angle of the outer splint was cut from binders board and left long enough to cover over part of shoulder as a cap and to extend up back of the shoulder until the point of fracture was half way between the elbow and end of outer splint. The inside of the splints was well padded before being applied, the angle of the splints at the elbow was rounded off and held by three brads, or rivets. The long extended splint, which came up behind the shoulder was softened by warm water at the shoulder joint so as to conform itself to the body. The fracture was reduced by extension, counter-extension and manipulation, the broken bones were held in position by starched bandages, neatly applied around the splints, the humerus was then bound to the body. This dressing was removed and reapplied at the end of the second week and fracture massaged. At the end of the fourth week it was finally removed, the fracture being united. The arm was afterwards supported by a swing suspended from the neck. We considered this result quite good, considering the age of the patient and the treatment accomplished at home without the aid of accessories of a general hospital.

Mr. A., weighing three hundred pounds, fell upon the right arm, breaking the humerus just below the surgical neck. The X-ray showed the upper end of the fracture drawn outwards, the lower segment drawn inwards, separating the ends of the bone one inch. The great size of the arm and weight of the man made the treatment of this case very difficult. We rein-

forced the bed, by placing wide boards under the springs forming a back splint for the fracture, making a fracture bed out of the ordinary hospital bed. We applied Z. O. plaster to the forearm and extended the arm by Levis extension apparatus just as is done in fractures of the femur. We permitted the patient to lay upon his back and side alternately, thus resting him and preventing pressure ulcers.

After two weeks of extension, we applied the perforated tin shoulder splint and the right angle cardboard splints, keeping the forearm extended, directly forward. The patient made an uneventful recovery. In both cases, the bandages were held in place after having been snugly applied by Z. O. plaster strips or an outer bandage of starched crinolin. In this case, we bound the arm to the body by a wide folder bandage made from half of sheet, and snugly sewed to retain it in position.

The same result in treatment can be duplicated by any doctor, who can properly cut out and apply splints and bandages, always remembering to keep the fracture in the middle of the splint perfectly immobilized. Major surgery usually requires the asepsis of a first class hospital, but the small town and country doctor can learn to treat fractures and do minor surgery without the expense of railroad fare and hospital to his local patient. To all such who have not had an internship experience, we commend the many post graduate courses, where the cutting and application of splints and bandages are a daily procedure. A stock of binders boards and material and accessories, should be in every doctor's office, who attempts surgery. After twenty years experience in treating fractures in a large clinic, we recommend the following general rules and conclusions, which can be modified to suit the particular case: Reduce and apply well padded splints to a simple fracture without waiting for swelling to subside as less pain is produced and better approximation obtained. Hypodermics of morphia and atropin will often take the place of a general anesthetic, unless it is a very muscular or nervous patient, with fractures of the femur or humerus, when a general anesthetic is required. X-ray pictures are great helps in diagnosis and seeing that the frac-

tured bones are properly approximated; but by extension, inspection, mensuration and comparison to the well side, the normal position of the parts can be reasonably assured where an X-ray picture is not possible. Nature resents the intrusion of foreign material in any tissue. One surgeon often puts in plates, bands, wire and screws to be taken out by another. Our experience is that good functional results can be obtained in most simple fractures by splints, casts, and bandages properly applied. In compound fractures with over-riding ends and difficulty of approximation plates or bands are indicated.

The Middledorf triangular splint is used more in England than in this country. The triangle of this splint must abduct the lower fragment so as to approximate the upper end of the broken bone. The criticism of the Middledorf splint is its size and confinement necessary to applying the same. It may not be an objection, however, to keep the patient in bed for two weeks in a fracture at the upper end of the humerus in order to secure perfect union.

The anterior and posterior board splint is the best appliance for Colle's fracture. The silicate of potash or liquid glass may do for the arid regions of the West, but softens too quickly in a moist damp climate. Extension and counter-extension are necessary to overcome muscular action in all cases of fracture of the humerus and femur and may be obtained by applying Z. O. straps on each side of the arm or leg to which the weight may be attached after other splints have been applied to hold the fracture in place. Firm fracture beds are as essential as splints in the proper treatment of fractures of spine, pelvis, femur and humerus. Fracture cases that are not able to get into roller chairs should have their beds next to the window to insure plenty of fresh air. The entire body weight should not be supported by a recently healed fracture of leg or femur as the callus will yield and a deformity results.

Downward traction and manipulation of upper fragment ought to bring the two bones together. The inside splint should be so padded that it fills the hollow space next to the chest and prevents the shaft of the humerus from being

drawn in toward the body. The arm is sometimes dressed in abduction to insure better apposition of the fragments. If the skiagraph shows only the separation of the epiphysis or only a small portion of the surgical neck it may be safer to remove it by operation than to risk leaving it as a foreign body in the joint. The sling for fractures of the humerus should only support the hand, as the weight of the arm acts as an extension in the treatment of the fracture. If the fracture is below the insertion of the deltoid, the upper fragment is displaced outward by the deltoid, while the lower is drawn up to the axilla by the triceps and brachialis.

In the treatment of over-riding of the fragment Z. O. plasters can be applied to the arm and a weight applied to the elbow whenever the patient is in an upright position. The elbow and forearm must be immobilized to prevent their motion being transferred to the fracture. The usual cause of fractures of humerus are direct violence, though muscular action as in throwing curved balls has been mentioned as a cause.

The predisposing causes of fracture in these two cases was the insecure footing incident to old age; the direct cause was the impact of the body upon the arm against the hard surface. The extravasation of blood is usually more marked when a large bone is broken, the blood being distributed in the line of least resistance causing a large area to become very dark and ecchymosed, though unaccompanied with much pain or swelling except at the seat of the fracture. The fracture of the humerus should not be unnecessarily manipulated on account of the sharp edges of the broken bones and the proximity to the large nerves and blood vessels. Only the extension necessary to reduction with proper manipulation should be employed. The larger the bone broken the greater the age of the patient, the more liability to shock and hemorrhage following the injury. We may expect a rise of temperature from such a fracture after the first twenty-four or forty-eight hours, lasting from two to four days. The absorption of fibrin ferment has been given as the explanation of this traumatic fever. In habitual drunkards and neurotic and debilitated individuals you may have deler-

ium tremens or traumatic insanity following the break of the larger bones of the body. Proper reduction is no more essential than perfect immobility of both fragments of the fracture, which is usually accomplished by suitable splints, plaster of Paris, and proper suspension of the fractured limb. We have had no experience with fat embolism resulting from broken up fatty tissue and absorption following the fracture of large bones in which the medullary fat is ground up into the fracture. The fat seems to be filtered out of the circulation through the functions of the lungs and kidneys; fatal recorded cases of fat embolism have been from dyspnea, syncope and coma. These symptoms rarely occur before the third day or last more than a week after the fracture. Some surgeons have advised the open method of treatment of fractures of the humerus; when the upper fragments of the break was so short and devoid of blood supply that its chance for atrophy seemed probable, and union with the lower fragments seemed impossible. The small upper fragment in some cases of this kind has been known to atrophy and act as foreign substance in the joint, necessitating their removal at some later period. In very thin persons or when the skiagraph shows the separation of epiphyses, it might be admissible, but we have always been dubious of the advisability of converting a simple into a compound fracture, especially when a joint is involved. The same violence, which causes the fracture near the joint may also cause a dislocation, which as a matter of course, should be corrected under an anesthetic at the same time that the fracture is reduced. The possibility of non-union in fracture of the humerus close to a joint should always be kept in mind. Too much manipulation of the part should be avoided in order not to destroy any periosteal connection about the fractured end of the bone. At the point of fracture a rarefying inflammation takes place, plasma exudes into the tissue, connective tissue cells proliferate so that the broken ends of the bone are enveloped in a fibrino-plastic exudate which is changed by vascularization from adjacent vessels into granulation tissue, which is afterwards hardened by the deposition of osteoblasts. For all of these minute processes to go on undisturbed, resulting in

the perfect union of the bone, it is necessary that the fractured end be immovably fixed, and it is for this reason that the suggestion of treating fractures of the arm or leg in splint dressings should invariably be suspended in a swing attached to the tops of the bed so that the ends of the bones are not pulled apart by the movements of the patient.

DISCUSSION OF DR. SEXTON'S PAPER.

DR. A. C. KING: In many cases of fractures of the humerus, we have to operate whether we want to or not. The patients are more liable to infection immediately after injury, hence it is desirable to wait from eight to fourteen days before operation. The kick of an automobile crank is an oblique fracture. Board splints are liable to pressure atrophy. The Walker apparatus is excellent, but expensive. The molded plaster splint is cheaper and satisfactory.

DR. K. W. NEY: We are inclined to be afraid to operate following fractures. Lane emphasizes the fact that the open method is most satisfactory providing the tissues are not handled. All who do the open method favor it. There is comparatively little increased risk, if we are clean. The X-ray is indispensable. The device of Drs. Parham and Martin is an excellent one. In compound fractures, we nearly always have infection. The bacterial count should always be made. After the eighth or tenth day, if properly treated, the bacterial count is usually much diminished, when the mechanical fixation of the fracture may be safely and permanently made. The failure of mechanical fixation of fractures is always due to defective technic or to the introduction of foreign bodies before the wound is in proper condition for such treatment.

DR. L. J. GENELLA: Among the causes of delayed healing of fractures of the humerus, is too short complete rest in bed. The latissimus dorsi, the largest muscle in the body, is attached in such a way that unless the patient is in bed, it is impossible to immobilize the part by any mechanical means.

DR. SEXTON in closing: The several gentlemen who have discussed the paper apparently missed some of the points that it brought out. Those of us who were trained in hospitals some twenty years ago were taught very little of the open method of treating fractures, yet most excellent functional results were obtained.

Replying to Dr. King: The advantage of using the board splint in Colles fracture is that we are better able to move the fingers and wrist, also that massage can be employed decreasing the period of disability. I hoped more discussion would be brought out concerning the necessity of placing the fracture in the middle of the splint and immobilizing joints nearest the fracture.

Replying to Dr. Genella: The Middendorf splint so extensively used abroad is a very cumbersome apparatus, and I believe that part of its advantage is that it keeps the patient flat in bed. I believe that plaster is as good as a splint in fractures of the leg. Splints have the advantage that they can be easily removed, with massage and manipulation, lessen the possibility of paralysis and aukylosis.

Replying to the argument for the use of plates in simple fracture, I have had such splendid functional results by the use of splints, bandages and plaster of Paris that I have not found it necessary to introduce a foreign material into bone structure, particularly is that true of the two cases just reported where the fracture was so near the shoulder joint that the plates would have been a part of the articulation had they been inserted. In the body of my paper I endorsed the use of plates in over-riding compound fractures after nature had coffer dammed the tissue. The asepis of applying bone plates is impossible of accomplishment except in a first-class hospital. We sometime run to fads in our method of treatment. I have seen a simple fracture of the ulna plated when I am sure it would have gotten well if merely suspended in a sling. I sent in to the Charity Hospital last week a poor fellow who had been on crutches 12 months whose tibia had been plated for a simple fracture and who has no union to-day. The periosteum is to the bone exactly what the skin is to the surface. Bands or plates necessarily destroy the periosteum. Bands around the growing bones of younger subjects would not be endorsed by any one. So long as we can secure such splendid functional results even with a mild deformity is better than the plate in the case which I spoke of with non-union at the end of 12 months' treatment.

COMPLETE VS. INCOMPLETE HYSTERECTOMY.*

By E. L. KING, A. B., M. D., New Orleans.

(From the Department of Obstetrics and Clinical Gynecology, College of Medicine, Tulane University of Louisiana.)

Incomplete, or supravaginal, hysterectomy is stated by most authorities to be safer than complete hysterectomy. Norris¹, however, says that his study of statistics shows very little difference in the mortality rate. The dangers are stated to be, first, increased blood-loss due to more extensive dissection; second, infection due to the opening of the vagina; third, increased danger of ureteral injury. On the other hand, the possibility of carcinoma developing in the cervical stump, the danger of leaving the cervix in the case of a sarcomatous fibroid, and the persistence of an annoying leucorrhœa from an infected cervix, must be considered.

Several cases which have come under the observation of Dr. C. Jeff Miller and his assistants during the past few years have caused us to consider this question seriously. Case 1 was a case of inoperable carcinoma of the cervical stump; the patient was a physician's wife whose uterus had been removed for tumor *fifteen years* previously. Case 2 was apparently an ordinary fibroid; supravaginal hysterectomy was performed, and the pathologist reported myosarcoma. She died of recurrence in less than a year. Case 3 was a similar case; the cervix was subsequently removed by the clamp method. She developed pyonephrosis, no doubt induced by pressure of recurrent masses on the ureter. The kidney was removed, with entire relief for several months. Later, a similar condition developed in the other kidney and caused her death. Case 4 was also a fibroid case, in which the cervix was negative on vaginal examination. Supra-vaginal hysterectomy was performed in the summer of 1916, and on examination early adenocarcinoma, springing from the upper portion of the cervical mucosa, was found. The cervix was removed later from below. This patient is still doing well, but has a small recurrent nodule which I am treating with radium. Cases 5, 6 and 7 were infectious cases in which it was necessary to remove the cervix later on account of troublesome

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leucorrhœa. We have also seen several cases of this latter class which have not been subjected to a secondary operation. We cannot, of course, say positively that the ultimate results in the above mentioned malignant cases would have been different had a complete hysterectomy been done, but the chances of subsequent trouble would certainly have been lessened, especially as in these cases (2, 3 and 4) the malignancy was confined to the body of the uterus.

A search of the literature reveals considerable discrepancy in the reported percentages of malignancy in fibroids. Chas. P. Noble², in a study of 2,274 cases, gives the following:

Carcinoma corpus uteri	42, or 1.8%
Carcinoma cervix uteri	16, or 7%
Sarcoma	34, or 1.4%
Chorioepithelioma	2, or .001%
<hr/>	
Total	94, or 3.9%

Graves⁴ puts the figure for sarcoma as between 1 and 2%, and also states that the sarcoma of a fibroid is the least malignant form of uterine sarcoma. Tracy⁸, in a study of 100 cases, found 7 cases of carcinoma of the body of the uterus, 2 of the cervix, 1 of the ovary (secondary in the uterus), and 1 case of sarcoma of the uterus. But, as he remarks, it is wrong to draw conclusions from so small a number. In a previous study of 3,561 fibroid cases, reported by various authors, he found the malignancy to be 4%; he also quotes several authorities, who reported malignancy varying from 4 to 8%, with a higher percentage in women over 40. He is of the opinion that the increased percentage of malignancy in recent reports is no doubt due to better laboratory facilities and more careful study of the tumors.

Complete hysterectomy would also seem to be indicated in the cases of pelvic infection (chiefly Neisserian), in which the involvement is so extensive that both tubes and ovaries must be sacrificed. Norris³ states that, in dealing with a gonococcal lesion of this character, it is better to remove the uterus, either by a complete hysterectomy or by the supra-vaginal method, being sure to core out the cervix, removing or destroying *all* the

mucous membrane. We know that the deep cervical glands will harbor the gonococci almost indefinitely, and thus cause persistent leucorrhea and continue to be a potential source of infection. Dudley⁵ says: "If in consequence of great infection it becomes necessary to remove the uterus, the surgeon should avoid the half-way measure of removing only the corpus, for if the cervix be left it may continue to be the source of persistent and pernicious infection in the adjacent structures, even to the extent of filling the pelvis with stump exudate. In fact, to remove the corpus and leave an infected cervix would be inexcusable, for the cervical glands are especially adapted to the reception, the retention and the distribution of infection."

Let us consider the arguments in favor of supra-vaginal hysterectomy and the relative mortality rates of the two operations. Graves⁶ states that if complete hysterectomy were performed as a routine for fibroids, the mortality would be higher than the incidence of malignancy in the cervical stump. Crossen⁷ takes a similar view, saying that the technical and physiological advantages of leaving the cervix are beyond question. Noble⁹ says that, in all cases of fibroids in which there is no positive indication for removal of the cervix, he does a supra-vaginal amputation. Tracy⁸, in 84 cases, performed 64 supra-vaginal amputations with one death (due to pneumonia on the eighth day), and 20 complete hysterectomies with 1 death (due to renal insufficiency 52 days after the operation). Deaver¹⁰ states that supra-vaginal amputation is the operation of choice, being simpler and less liable to infection and other complications than the complete operation. Several of these authors also mention the fact that in the incomplete operation the pelvic floor and the utero-sacral ligaments are not so much disturbed, and that thus better anatomical results are obtained. None of them give exact figures as to the relative mortality. There is no doubt that, taking into consideration all cases in which hysterectomy is done, the supra-vaginal amputation is easier and safer, but we wish to bespeak a more frequent resort to complete hysterectomy in properly selected cases.

During the past few months we have been performing the complete operation much more frequently, using the technic described by Crossen¹¹ and by Baldwin¹². The infundibulo-

pelvic, broad and round ligaments and uterine arteries are clamped and cut as usual. The bladder is freed from the anterior uterine wall, as in the incomplete operation, but the dissection is carried further to the sides, which minimizes ureteral injury, and downward until the vagina is uncovered below the cervix. This is determined either by catching the vagina between the thumb and forefinger, or by tapping it and eliciting a hollow sound. Strong traction is made upon the uterus, the anterior wall of the vagina is opened, and the anterior lip of the cervix is caught and pulled upward out of the vagina. The vaginal wall is clamped from before backward, and severed. When properly done there is no bleeding from the cut edges of the vagina, all vessels being clamped before cutting them. In some cases, the vagina is left partly open, and the gauze then acts as a drain. Gloves and instruments touching the vagina are discarded, and the stumps of the broad, round and infundibulo-pelvic ligaments are sutured to the vaginal stump. Previous iodization of the vagina, using a 3½% solution, is important in order to minimize the chances of infection. Neglect of this precaution was no doubt responsible for the loss of a patient last summer. About twelve days after the operation, this woman had several severe secondary hemorrhages from the vagina (no doubt due to sloughing), and died as a result.

The operation has been performed most often for fibroids (as a rule with badly lacerated cervixes), also for the severer types of pelvic infection. A review of the last 13 cases (11 fibroids and 2 infections) shows that the patients have convalesced nicely, though all of them have had fever, highest as a rule the day following the operation. The earlier cases had higher fever, 102 to 104 degrees; the later ones have averaged 101 degrees the following day, becoming normal soon thereafter. We believe this to be due chiefly to improper preparation of the vagina, and will not be content until the convalescence becomes practically afebrile. On comparing these with the last 13 supra-vaginal amputations (10 for fibroids and 3 for infection), we find that these cases have also had fever, which, as a rule, did not last as long as that after complete hysterectomy, and averaged about a degree lower. This also

should be reduced. We must bear in mind, however, that all these were rather difficult Charity Hospital cases, and that the fibroids were practically all complicated by infections of the adnexa.

From a consideration of all the above factors, we are of the opinion that, *granted that the operator is sufficiently skilled in pelvic surgery*, complete hysterectomy is indicated (1) in fibroid cases where the cervix is badly lacerated or infiltrated; (2) in easy fibroid cases, with no complications, in which the complete operation will add very little to the duration or danger of the procedure; (3) in the severer types of pelvic infection, especially Neisserian, with a badly infected cervix; (4) in some cases where drainage is desired, when the vagina can be left partly or completely open for this purpose. *But* we would not advocate it when the condition of the patient is poor or the local lesion is such that the removal of the cervix would present technical difficulties that would outweigh the advantages to be gained. A live patient with a cervix is better than a dead patient without one.

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DISCUSSION OF DR. KING'S PAPER.

DR. PHILLIPS: The operation of complete hysterectomy is more difficult and every case must be suited individually. A young woman with a fibroid, no malignancy, cervix in good condition, would justify a partial operation. Whereas the reverse would necessitate a complete hysterectomy. It is important that we cauterize neck of the cervix. By working under the cervix, the operation is simplified.

DR. EUSTIS: I would like to ask Dr. Phillips why he used iodoform gauze and why the surgeons are still using it. It is certainly very difficult to sterilize.

DR. HARRIS: The Doctor mentioned potential malignancy. By this, we mean that the patient shows certain marked changes, of which although not cancerous, are more prone to become so. There are no such findings as to justify a precancerous stage. The surgeon should give the pathologist more details about specimens sent.

DR. MAURICE GELPI: The tendency to-day, unquestionably, is to do more complete hysterectomies. Yet, it cannot be denied that in the hands of most of us, both the mortality and morbidity are considerably greater when the cervix is removed than when it is left in. For these reasons, therefore, pan-hysterectomy cannot be advocated as a routine measure without exception. When for some

reason or other, it is deemed safer to do supravaginal amputation, I found that the reaming out of the cervical canal with a sharp knife is a very useful, compromise measure. By this means, practically the entire cervical mucosa can be removed without the attendant difficulties or dangers of complete hysterectomy.

Another point of value in connection with the avoiding of post-operative infection from the vagina, consists in careful preliminary iodination. For the past two or three years we have been preparing the vagina by mopping out with one to 1000 iodine and benzine, drying and flooding the vagina with 3½ per cent tincture of iodine. In some instances we have poured in the iodine with a tablespoon—occasionally the iodine has been injected into the cervical canal with a syringe. By this means we believe that many times we have avoided the post-operative cellulitis, which appears in the form of an indurated, painful rind, occupying the cul de sac or lateral fornices, following a pan or supravaginal hysterectomy.

MEDICAL UNITS IN THE FIELD.*

By O L. POTHIER, M. D., New Orleans.

In presenting this subject for your consideration I feel that it is one that is not well understood by the majority of medical men and less by the general public. The medical Department of any army is one of the most important branches of the service, on account of the responsibilities that devolve upon it, and which I will endeavor to demonstrate this evening.

Though we find the Roman armies, and those of the middle ages were provided with physicians, the medical service was either voluntary or of such a nature as to render it almost useless. Really it was not until the Napoleonic wars that we find a semblance of organization of the medical service. It is true that in 1700 some amelioration had been made, and in 1725 partly mobile hospitals were used, yet it was during the Napoleonic wars that the litter bearers made their appearance, and that the barber-surgeon was supplanted by trained surgeons. In 1850 light field hospitals were organized to accompany troops, and during the Crimean war litter bearers forming part of them were established. At this time there was no method to transport the injured to the rear. It was during the Civil war, with the change of weapons that the need for such organization was felt, and that Medical Director Letterman introduced his plan of transportation, the independent Ambulance Corps. He did this on his own initiative, though it was opposed by the then Commander in Chief. In August, 1862, General McClellan impressed with their efficiency issued an order accepting them. In 1864 Congress finally passed an act establishing a uniform system of ambulance service throughout the military forces.

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Since the medical, or as they are now designated the sanitary units, in the field have been amplified and organized so that they work conjointly and give early and prompt relief to the sick and wounded.

As constituted now the Medical Department of the Army is composed of the Medical Corps, the Medical Reserve Corps, the Dental Corps, the Dental Reserve Corps, composed entirely of commissioned officers; the enlisted personnel of the Medical Department, composed entirely of enlisted men, and the Nurse Corps, composed entirely of nurses. According to new regulations the Hospital Corps has been abolished as such and becomes the enlisted Personnel of the Medical Department. The administration of The Medical Department during peace and war is vested in The Surgeon General of The Army, who transmits his orders through the different department surgeons, they in turn to the division surgeons and post surgeons, the division surgeons to the regimental surgeons and the unit commanders.

The units in the field are the following: Battalion Sanitary personnel, 1 captain or 1st lieutenant and 8 enlisted men; Regimental personnel, 1 captain or 1st lieutenant and 33 enlisted men; Ambulance companies, 5 captains or 1st lieutenants and 150 enlisted men; Field hospitals, 1 major, 5 captains or 1st lieutenants and 73 enlisted men. Camp hospitals the personnel of which is not yet organized as it is a new unit.

Before taking up the duties of the different units, I wish to call your attention to those of the medical officer and his requirements. Since I have been in command of sanitary troops, I have been asked so frequently about the duties and requirements of the medical officer, that a consideration of them now will not be amiss.

First of all he must be proficient in his profession, prompt in making a diagnosis and arriving at a decision; able to diagnose and treat any form of ailment, in emergency able to perform any operation, whether pertaining to general surgery or special surgery; for there will be moments where he will be obliged to act and act promptly, without the opportunity for advice, having to rely entirely on his own judgment and resources, having for assistants only his enlisted personnel. In

other words he must possess all the qualities that go to make an able physician and surgeon. He is the guardian of the health of the troops with which he is serving, and is responsible for their efficiency. He is responsible for the enforcement of all regulations covering sanitation and hygiene, and when overlooked by his Commanding Officer or other line officers, must report these facts and insist that his recommendations be observed. When it comes to the sanitation and all measures pertaining to the health of the troops, he is well nigh supreme, and he can enforce any regulation calculated to maintain the sanitary conditions of camps, posts, and troops; for he will be held strictly responsible for any infraction of sanitary regulations, or the appearance of any preventable disease. Though of inferior rank and under the command of the commanding officer, the latter leaves all medical matters in his hands. It devolves upon the medical officer to be on the alert and to report all infractions to the commanding officer, and should the latter pay no heed to his suggestions and reports, to then go higher up and demand recognition, which is usually granted. It is rare, however, that such measures are needed, for the line officer of today realizes the importance of the regulations of the Medical Department and abides by them. The medical officer, whatever may be his rank, must be ready, at a moment's notice, to assume whatever duty that may be assigned to him by the head of The Medical Department; for he may be transferred from one post to another at any time. There is one thing that he must constantly, and especially during warfare, keep in his mind, and that is to preserve the efficiency of the command with which he is serving, so that it will always be ready to do service, that it will not be encumbered by non efficient. These should be removed at the earliest possible moment and in such a manner as not to hinder the work of the efficient. In combat this is of paramount importance. He is and should be further an adviser to his commanding officer.

Besides his medical ability the medical officer must be a military man, and possess all the qualities of a line officer. He must be a tactician, understand map reading, the elements of strategy and of tactics sufficiently to deduct the consequent results. Learn to obey implicitly orders received and execute

them to the letter and immediately. When in command distribute and co-ordinate the sanitary troops under him so that they may be of the greatest utility to the combatant. It is on officers of the Medical Department that devolves the duty of insuring relief and order during and after an engagement, and this promptly and with the least possible suffering to the injured, without interfering with the combatants troops. It devolves upon the medical officer to return to the front malingers, to see that the wounded and sick are properly treated and directed to the rear. During marches he must know the usual rate of march of the units he is with and see that the men are not overtaxed. The rate of march of infantry and foot troops is $2 \frac{1}{4}$ to $2 \frac{3}{4}$ miles per hour or twelve to fifteen miles per day, cavalry $3 \frac{3}{4}$ to 12 miles per hour or 25 miles per day, artillery alone 15 to 20 miles per day, wagon trains the same as infantry 12 to 15 miles per day, depending on the roads. Besides this the medical officer must be familiar and know how to prepare the different paper forms of the service, numbering about 450 different forms, including reports returns, sick reports, etc., too numerous to be enumerated; he is responsible for the proper preparation of these papers. Added to these duties the medical officer has to make the examination of all applicants and is responsible for all recruits enlisted. From the foregoing we can very well say with Dr. Bloodgood that "The medical profession is the nation's first line of defense."

Having considered the most important duties of the Medical Officer, we will now pass to the duties of the Medical Units in the field.

The medical units in the field are: The battalion sanitary troops, the regimental sanitary troops, ambulance companies, field hospitals, station for slightly wounded, camp hospitals, evacuation hospitals, base hospitals, to which may be added the general hospitals of the interior, though not properly belonging to the field, yet in relation with the field units by the number of cases sent to them. To understand the functions of the different units one has to understand the units composing an army, and their distribution in the theater of operations.

The tactical unit is the division, which embodies within itself

all the different arms of the service and renders it able to operate alone. An army corps is composed of two or more divisions, a division of two or more brigades, a brigade of two or more regiments, a regiment of three battalions, except artillery, a battalion of four companies, except artillery, a company of two or more platoons, a platoon of two or more sections, a section of two or more squads, a squad of eight files. The division is commanded by a major-general and among his staff is the Division Surgeon, who is both a staff and commanding officer; having under his command all the sanitary troops of the Division, which are equivalent to two regiments or a brigade. Besides the sanitary troops attached to the line troops the division has a sanitary train composed of 4 ambulance companies, 4 field hospitals, 4 camp hospitals. During the march these units march with the trains of the division at the rear; the road space from the head of the division to the rear being from 12 to 15 miles, or one day's march. The ambulance companies are under the immediate command of the director of ambulance companies, and the field hospitals under the immediate command of the director of field hospitals, these directors are under immediate command of the division surgeon.

The theater of operations is divided into the zone of the advance, the zone of the lines of communication, the base, the service of the interior. The theater of operations is under the direction of the Secretary of War; the zones of the advance and of the lines of communications are under the command of the commanding general; the zone of the lines of communications is under the command of the commanding officer of that zone. The sanitary troops extend from the zone of the advance to the service of the interior. At the front immediately in the rear and as close as possible to the firing line are the regimental aid stations, situated in the rear of their regiments. To these the sick and wounded are directed and assisted by the enlisted personnel assisted by the members of the regimental bands acting as litter bearers; the sick and wounded are from these stations carried about two miles to the rear. The ambulance companies dressing stations, situated about two miles to the rear. The ambulances ply from the dressing stations to as near the front as is prudent, sending also forward their litter

bearer sections, the ambulances transport the sick and wounded to the rear in the lines of communications to the field hospitals situated 5 to 6 miles to the rear or further depending on circumstances and the weapons used. In the rear of the field hospitals, which are situated in the lines of communications, ambulance companies called evacuation ambulance companies evacuate the sick and wounded to the evacuation hospitals and camp hospitals. These latter are a new unit and up to now have never been used, their position is somewhere near the evacuation hospitals or base hospitals, but their position has not yet been determined. Near these are the stations for the slightly wounded, who after being detained long enough to recover from their wounds are distributed to the base hospitals and the hospitals of the interior. From the evacuation hospitals and camp hospitals the sick and wounded are transported by hospital trains and ships, to their final destination. From the moment that an enlisted man of the medical department finds a sick or wounded soldier the latter is tagged with the diagnosis tag, the diagnosis and treatment being written on the tag by a commissioned officer at the aid station. This tag is not removed until the patient is received in a hospital where final disposition is made of him. These tags are then collected and sent back to the regimental surgeon to whose regiment the patient belongs, so that the surgeon may complete his casualty list which is forwarded to the division surgeon. This is done after each engagement, so that the commanding general is kept informed of his casualties and of his effective strength.

To enable the division surgeon and the directors of ambulance companies and field hospitals to estimate the requirements for transportation and accommodations for the sick and wounded the following is used, which is only approximately correct and should be considered absolute: Forty per cent of the casualties will not need transportation and 60% will need transportation. This is divided as follows: Twenty per cent killed, 8% non-transportable, 12% slightly wounded and able to march to advance base section, which gives the 40% not needing transportation, 28% able to walk to dressing stations and field hospitals, 20% requiring transportation sitting up, 12% requiring transportation recumbent, which gives the 60% per cent requiring

transportation. Using this table as a guide and estimating the approximate casualties of an approaching engagement the disposition of the division surgeon may be taken at the beginning or during combat to meet the eventualities. One ambulance will accommodate 4 recumbent patients and 1 sitting up, or 9 sitting up. Added to these the returning ammunition wagons will accommodate 3 recumbents and 1 sitting up, or 6 sitting up. The division surgeon has 48 ambulances and approximately 12 wagons per regiment engaged at his disposal.

At the aid stations the sick and wounded are given the first treatment, and those treated on the field are verified and sent on to the dressing stations, or to the station for slightly wounded. At the dressing stations the dressings are readjusted, replaced, fractures verified and if necessary the dressing readjusted, the wounded and sick are given food and refreshment. The cases are here separated into severely and slightly wounded, and they are immediately evacuated to the field hospitals or evacuation hospitals. Only very urgent cases are operated on at the dressing stations. Usually this practice is discouraged and the cases are generally sent to the field hospitals, which are better prepared to take charge of such cases. All cases at the dressing stations must be either transported back to the rear to the field hospitals or those able to walk are sent to the rear in charge of sanitary personnel to the station for slightly wounded or to the field hospitals. At the field hospitals cases are admitted and treated, those who necessitate long treatment, such as fractures and operative cases, who can stand transportation are sent to the rear to the evacuation hospitals; only emergency cases are operated and treated and then evacuated. No case is permanently admitted to the field hospitals, for they are mobile organizations and move constantly to keep in touch with the troops. The cases that are light and recover in a few days are discharged and returned to the front, for the medical officer must not lose sight of the fact that he must maintain the efficiency of the troops. His aim must be to cure as rapidly as possible and return to the front as many as he can, for it is one of the functions of the medical department to keep up the efficient strength at the front.

As we see it is at the front and in the lines of communica-

tions that the medical is most efficient. It is here that the skill of the medical officer will show itself in the treatment given in the first instance and in the timely operative interference on cases that cannot wait. It is for this reason that the men here must be constantly on the alert to keep everything moving so that all the sick and wounded will get the promptest and best attention, for it is here that a delay or an error in treatment may cause the loss of many lives which could have been spared. I cannot refrain from again repeating that implicit obedience to orders is paramount; one has to learn to sink his individuality and work for the good of the larger number, apparently neglecting individual cases, remembering always that efficiency is what is required whatever may be the cost, and efficiency in an army is the saving of the greater number to return to the front and increase the fighting efficiency of the force. The medical man that enters the service with the idea that he will be given opportunity to do brilliant operations and the like better not enter, for he will be sadly disappointed. These cases are exceptional, and are of no military value, for the subjects are nonefficients and are consequently lost to the efficient force. The surgeon that attends to details and returns the greater number to the front is the one in a military sense who does the greatest work. This principle, apparently inhuman, is, however, the most humane, for it shortens the war by giving his country the greatest number of fighting men. In these days of formidable weapons and warfare these requirements are difficult of fulfillment, yet their attainment is what all military surgeons should strive for.

Last and not least, the medical officer should instruct his sanitary personnel in the fact that they are noncombatants and that they are the messengers of peace on the battle field, and that they should treat the sick and wounded with the greatest regard though prompt in their attention. That this attention is to be given to the wounded of the enemy as well as to those of our own army. They should mitigate the sufferings and hardships of the soldiers at all times and comfort them when in need of medical attention. The medical profession here as elsewhere continues its mission to humanity.

CAMP SANITATION AND THE TRAINING OF SANITARY TROOPS.*

By W. A. LOVE, M. D., New Orleans,

By the term Sanitary Troops is meant those soldiers that are enlisted to serve under the direction of the officers of the Medical Corps, and while their duties are for the most part truly sanitary in character in times of peace, these men must also have such training as will fit them to care for sick and wounded in time of actual hostilities. It is necessary that the hospital corps man shall have a wider and broader education than the soldier in other branches of the service and this necessitates that the corps men shall be selected and not picked at random. Qualifications for the enlisted personnel of the hospital corps are peculiar in that a man who has no natural inclination or liking for the work cannot be made a valuable soldier in this line unless he possesses a natural aptitude, and to enlist in the sanitary corps without this aptitude will mean that the soldier will be discontented for the full term of his enlistment.

Having in hand a body of men for service with the medical department, there is necessary the appointment of non-commissioned officers and also of others to act as saddler, horseshoer, farrier, cook, teamster, mechanic, etc., each having to be trained to fit his position and to do the work apportioned to him. In addition to the training that these "Specialists" must receive, each of these and the remaining privates must receive the same general education to fit them for the trying and exacting duties that shall fall to their lot in the care of their injured comrades.

We will discuss briefly, and first of all, what character of training the men as a whole must have.

Many persons unfamiliar with military life will ask why it is necessary that the sanitary troops shall spend so much time in drill work upon the parade ground? It is true that in the care of the wounded there is little time to follow prescribed rules and regulations as to drill, but this very necessary exercise teaches discipline and the obedience of orders.

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It also teaches teamwork which is so essential to the successful accomplishment of large bits of work that must be done speedily and without lost motion. After a soldier has had a few weeks of training on the drill ground, he instinctively learns to obey orders without questioning, and to do immediately and accurately what he is told to do under any and all circumstances. Considering conditions that might make it necessary for medical corps officers to collect wounded while under fire, this unquestioning discipline can be seen to be absolutely necessary. The men learn to look to one head for orders and to obey the direct will rather than their own inclinations. Therefore, in field service, the time of at least two hours per day is allotted to actual foot or mounted drill.

To detail the character of the drill with which the medical corps officer must be familiar before he can properly instruct, we will divide the drill into two parts: 1st. Dismounted or Foot drill and 2nd. Mounted and Transportation drill. In the dismounted drill, the men are maneuvered in squads, platoons or files in a manner resembling infantry drill, and are taught all of the essentials from the elemental school of the soldier to the proper handling of himself in the more intricate and double time movements and platoon formations. In addition he must be taught the systematic handling of the litter, both loaded and unloaded, and must be schooled on the passing and crossing of obstacles. He must know also how to load a patient into an ambulance, how to improvise a litter when none is at hand, and also how to carry a patient with comfort both to himself and the patient without the use of a litter. This last training may seem superfluous, but let two of you try to pick up and carry a man weighing 160 pounds without teamwork and see what a task it is and how comfortable an experience for the patient. After training, it is an easy task for a hospital corps man to place upon his back another who weighs twenty pounds more than himself and carry him with ease.

The mounted drill is divided into the teaching of horsemanship to the individual, and the handling of four mule wagons or ambulances, either in wagon or ambulance drill

or in line of march. Not only the actual handling of the animals but the care of them must be learned and the Medical Corps officers must be the teachers. Those of us who have served recently in federal service have had to give this instruction and what we did not know we had to learn, and all of it had to be done just so. Of course the animals suffered and we know that the old army horses and mules had many a laugh at our expense, but we had to learn in the only school available, that of actual experience. Two hours per day were allotted to horsemanship and the training was compulsory. It is necessary that medical troops shall be versatile as they may be called upon to serve with mounted troops as well as infantry and base hospitals. Under the new regulations of the army, teamsters are not supplied to the sanitary troops from the quartermaster corps and certain of the men have to be trained to handle four mule teams or to drive motor trucks under any and all circumstances. It looks simple to say that a man must drive four mules or a truck but when he must maintain his place in a line of march over all kinds of roads and under unfavorable conditions, that man must be a teamster in the true meaning of the word. The medical corps officer must teach this work whether he knows how or not. He must learn how and usually he must teach himself.

The work of the hospital corps in the field, and especially of the field hospitals, has been likened to that of a six ring circus in that where there are sick and wounded to care for, there is canvas to be erected to shelter them. The canvas of a field hospital when completely put up covers about one city square and all must be put up according to regulation. This takes training and teamwork, therefore drills must be frequent in the pitching of shelter tents, wall tents, hospital tents, flies and the voluminous 300 pound ward tents. These latter require eight men to erect and they accommodate 32 patients. There is the bedding for sick and wounded that must be unpacked and laid out, the nurses to be provided and the patients to be fed, and all of this must be done according to the book, and the medical officer must boss the job. The men are there to do the work, but not the think-

ing. To learn the handling of the field canvas alone takes some six months of instruction in order to have the necessary system in an outfit. The line troops arrive at a bivouac and erect shelter tents and are ready for the night, but the corps men must make the camp for themselves and then must build the tented city to care for the wounded. How to do this is not learned in a day and daily practice is necessary to obtain speed and efficiency.

The trained hospital corps man must have instruction in first aid, nursing, the action of drugs, hygiene, camp sanitation, dietetics, application of splints and dressings, and operating room work. At least one or two hours per day of lecture work and practical demonstration over a period of one year, at the shortest, must be given to obtain efficiency in these lines. The medical corps officer at last finds something to teach that he knows something about, but even here he must formulate his instruction so as to give practical and valuable knowledge rather than theoretical training. Although better acquainted with this part of his daily work, the writer found it really the most difficult as he had to remember at all times that he was teaching men from all walks of life and not medical students and must make the instruction interesting.

All of the enlisted men had to be taught the most important lesson that a soldier can learn, that of personal hygiene. He must know how the rules of bodily cleanliness, clothing cleanliness; cleanliness of mess hall, quarters, bath rooms, outhouses, and sexual cleanliness. All of these things must conform to a regulation and the officer must see that the regulation is enforced. Only by constant watching and reprimanding of the delinquents can the habit of cleanliness be taught, and the lesson once learned results in healthy conditions for the organization. The Medical Corps sets the standard for all of the troops in hygiene and sanitation and the medical corps officer who has poor sanitation in his own enlisted personnel cannot expect to exact cleanliness of the line troops.

What has gone before is briefly the character of training necessary for the enlisted men of the sanitary corps as a

whole, but certain special training must be given those non-commissioned officers who are to act as competent foremen to the commissioned officers. Sergeants must be trained to the duties of drill instructor, stable chief, office chief, mess supervisor, supply sergeant, and medical property sergeant. They must be trained to act both in garrison camp and in the field. They must be able to perform the duties varying from those of anesthetist to head nurse, and from kitchen and commissary steward to chief teamster. Each may have his specialty but the training must be such as to make it possible to shift one to the duties of another. The lectures and instruction to these non-commissioned officers must be separate and in addition to that given the privates; and the medical corps officer has to learn all of these lessons so that he can give the proper instruction.

Additional instruction is also necessary so that the men may learn the rules of military custom. To this end, a course in court martial procedure and in the Articles of War is necessary so that each and every man shall know what are his rights and what are the daily rules that he shall follow. A large portion of the errors committed by new recruits are the result of ignorance rather than evil intent and this latter instruction is one of the earliest that should be given so that all may be forewarned.

To detail all of the instruction that becomes necessary in the course of training that is taken by the individual hospital corps man would take more time than is justified in a brief paper of this kind. It is the hope of the writer that the discussion will amplify these few remarks that are made to apply to what my predecessor has had to say regarding the duties that shall fall to the lot of those of you who shall see field service in the present war.

In treating the subject of camp sanitation, two types of camp must be considered: First, the semipermanent camp and, second, the bivouac or true field camp, such as is made while on the march and in the presence of the enemy. The Medical Corps officer is more of a sanitarian than a surgeon in so far as his field service is concerned and the recent border experience when compared with the experience of 1898 will

show how important the consideration of sanitation in the camp really is.

The rules of camp sanitation are those of common sense modified by regulations that force the man who is lacking in common sense to the acceptance of a routine that, if carried out, insures safety. This paper will endeavor to briefly outline the rules of the War Department as regards handling the camp problems.

Water Supply—In the semipermanent camp, the water supply is usually piped to the camps and instructions are circulated as to its condition and as to what additional purification may be necessary. Filters of the Darnel type are furnished, one to each company, so that filtration may be carried out if deemed necessary. This filter is of the cloth type and is effective against nearly all types of pathogenic bacteria, is also portable, easily cleaned and simple in mechanism.

On the march, water is procured when possible from sources of pure supply, but if water of questionable purity is to be used, the chlorination method of sterilization is used. Bags known as Lister bags are furnished for this purpose, these bags being collapsible and made of heavy canvas and have a capacity of about thirty gallons. Sealed ampoules of chloride of lime, one and one-half grams, are carried with each company kitchen and the contents of one ampoule is sufficient to chlorinate the contents of one Lister bag.

By these routine measures, the water supply can be vouched for at all times and water borne gastro intestinal diseases and fevers successfully guarded against.

Disposal of Garbage—The accepted method of garbage disposal is by incineration. In the semipermanent camp, each company kitchen has in its front yard an incinerator of the open pan type that is worth its weight in gold, but is a constant source of annoyance to the sanitary officer of the camp. Trying to enforce absolute cleanliness about this incinerator is the hardest task that those in charge of sanitation have to undertake, with the possible exception of the fly problem. This incinerator is three feet wide and six feet long and the pan is placed upon walled sides about two and one-half

feet high. It is made of brick and the floor is paved with the same material and one end is walled up; this makes a three-sided brick box that sits upon a brick floor. The roof of the incinerator is composed of a pan four feet long and a funnel stove and stove pipe to carry off the smoke of the fire. The pan portion of the roof is six inches deep and in it is boiled the kitchen liquid refuse and the dish water to their final disposal by the evaporation route. Into the fire is thrown all solid refuse from kitchen and mess dishes, and the process of direct incineration does the rest. All cans and tins are burned out and, after being perforated so that they will not hold water, they are hauled away to be dumped in the camp dumping ground or to be buried. The incinerator fuel is wood, helped out by the use of crude oil to help combustion.

On the march the fire pit system is used to dispose of solid garbage. A pit one to two feet deep is dug, sloping gradually to the windward so as to give give good draught, and in this pit a fire is kept burning upon which all kitchen and mess refuse of solid character is thrown. When camp is moved, this pit is partly filled with the empty, incinerated and perforated cans and is filled with earth. All liquid refuse is poured upon the ground in a place removed from camp and so situated that the sun can reach the spot at all times. On the march there is little liquid refuse, as the dry cleaning of dishes is usually practiced and the paper and straw burned. Water is usually at a premium.

Kitchen Sanitation.—The rules for kitchen sanitation are essentially two: Cleanliness and protection of food from flies. The former is observed only by constant cleaning of the kitchen and of the cooking utensils, and to make sure that this is being done, daily inspection by the sanitary officer is necessary. This duty falls upon the mess officer in line troops and his work is subject to the criticism of the sanitary inspector of the camp. The protection against flies is assured by the use of wire screening in semipermanent camps and by careful covering of food while on the march.

Human Excreta.—In semipermanent camps, the covered latrine is used for the disposal of human feces and urine. This latrine is a pit that is sunk in the ground and is usually two feet

wide, sufficiently deep to reach a porous substratum of earth and long enough to supply ample seat room. If it is to be used by a company of one hundred men the length must be sufficient to provide ten seats, allowing about two and one-half feet per seat. By widening the latrine to four feet the seats may be placed back to back, thus economizing space. A consideration of how long the camp is to remain in one place is the guide as to how deep to dig the original pit. The cover of the latrine is made of wood and is fly proof, as the drop seat covers are so made as to fall into place over the individual openings when the hole is not in use. The latrine is carefully policed daily and is also burnt out daily with straw and crude oil. The latrine is roofed and walled or enclosed by tentage.

During the night a galvanized iron can is placed in the center of the company street at a point most convenient to all of the tents and for the collection of urine. At reveille this can is emptied into the latrine and the interior of the container is burned out with straw and crude oil.

On the march a straddle latrine is constructed immediately when camp is made. This trench is made sufficiently long to accommodate the number of men in the company, and is about one foot wide and one and one-half feet deep. The earth that is excavated when the trench is dug remains in a convenient pile near the trench. After defecation, each man is required to cover up his excreta with earth. This latrine is screened off with canvas, or is covered by tentage. In wooded sections, shrubbery may be used as a screen. Upon breaking camp, the latrine is filled and the earth is carefully banked to prevent washing during subsequent rains.

Picket Line Refuse.—In semipermanent camps the picket line is cleaned daily and all of the manure is hauled to the camp dumping ground, where it is windrowed in long mounds and is burned. When the ground becomes saturated with urine, and the flies are consequently attracted to the picket line, the animals are removed and the wet ground is covered with straw upon which is sprinkled crude oil and is burned off.

On the march the picket line is burned off in the same manner, and all manure is windrowed, covered with straw or hay and burned. In leaving a camp site, it must be remembered

that the company following you may have to occupy the same site and that the men may have to pitch shelter tents where your picket line has been and you should clean up accordingly before leaving.

Drainage.—Surface water in semipermanent camps is carried off by ditching. In selecting a camp site the natural terrain should be considered, as the head of the camp should be up the slope and the rear should, as far as possible, drain the natural waterways or to lower levels. The ditches should be of the proper slope to carry the water off as rapidly as the rain shall precipitate it.

Bath water from field shower baths should be ditched off when possible. A perfectly level terrain, such as prevails in and around the camp site that the Louisiana Field Hospital recently occupied at Brownsville, may necessitate the construction of a sink hole to dispose of this waste water. The geological formation of the land must be considered in making these sink holes. At Brownsville there is a surface stratum of loam to a depth of five feet and then an indefinite stratum of sand. The sink hole of the before-mentioned organization was constructed under the writer's supervision and was six by six feet, lateral dimensions, and was thirteen and one-half feet deep. Another point to bear in mind in making these sink holes is the nearness of the latrine. If the latrine is near the sink hole, this latter hole must not be deeper than the latrine, for if so the water that accumulates in the sink will be polluted by the human excreta and will be a consequent source of foul odors. The sink hole is roofed and rendered mosquito-proof to a large extent, but bi-weekly doses of oil are necessary to prevent breeding of larvæ.

All ponds and waterways near camp should be oiled frequently so as to do away with the breeding places of mosquitoes and as an added precaution, the mosquito bar regulation should be rigidly enforced in all vicinities which the mosquito inhabits.

Sanitation of Quarters.—Here again the rule is absolute cleanliness. In each tent the occupants are required to maintain cleanly conditions, and this is enforced only by daily routine inspections with penalization of all who do not conform to the regulations. This cleanliness also pertains to the area about the

tents and to the parade grounds. The custom is to try, in so far as is possible, to keep the camp as clean as an old maid house-keeper wishes her parlor to be.

Time does not permit of an analysis of the personal hygiene of the troops, but it is the hope of the writer that the discussion of this and the other papers read at this time will bring out the accepted and highly successful measures that are used to make our army a clean one.

These duties of instruction that have been briefly outlined all fall to the lot of the Medical Corps officer in the field, and let us hope that you may have been enlightened in some small way as to what will be expected of you when you take the field to educate the troops along lines of health and usefulness.

THE ORGANIZATION OF A BASE HOSPITAL.*

By HERMANN B. GESSNER, M. D., New Orleans.

I shall begin my presentation of the organization of a base hospital by quotation from the Manual for the Medical Department, U. S. Army, 1916:

757—Base Hospitals are Medical Department units of the line of communications under the supervision of the surgeon, base group. They will occupy buildings, if suitable ones are available.

758—The base hospitals will be numbered from 1 upward in a single consecutive series for the entire military establishment. They will be further distinguished by adding the designation of the field army to which they belong, as "Base Hospital No. 9, 3rd Field Army."

759—These hospitals should be established at the base and, when necessary, in accessible situations along the line of communications. The number to be assigned to each line of communications when first established is determined on the basis of the number of troops to be served and the percentage of sick and

*Read at the "Red Cross Meeting" of the Orleans Parish Medical Society, April 9, 1917. [Received for Publication May 10, 1917.—Eds.]

wounded which may reasonably be anticipated in the particular campaign in question. (See par. 152).*

(a) New base hospitals may be established when those already in operation have become too far separated from the army, when they are needed to supplement the services of more advanced hospitals, or when new sites will be more convenient to handle wounded.

(b) On the eve of battle it may be necessary for the surgeon, base group, to open additional base hospitals near the front or to augment the personnel and supplies of those already established there.

760—The personnel allowed a base hospital, as given in Tables of Organization, are ordinarily assigned as follows: 20 medical officers, 1 colonel (commanding), 1 major (operating surgeon), 18 captains and lieutenants (1 adjutant, 1 quartermaster, 1 pathologist, 1 eye, ear, nose, and throat specialist, 2 assistant operating surgeons, 12 ward surgeons); 1 dental surgeon; 8 sergeants first class (1 general supervision, 1 in charge of office, 1 in charge of quartermaster supplies and records, 1 in charge of kitchen and mess, 1 in charge of detachment and detachment accounts, 1 in charge of patients' clothing and effects, 1 in charge of medical property and records, 1 in charge of dispensary); 16 sergeants (1 in dispensary, 2 in storerooms, 1 in mess and kitchen, 4 in office, 2 in charge of police, 6 in charge of wards); 14 acting cooks; 115 privates first class and privates (68 ward attendants, 3 in dispensary, 5 in operating room, 1 in laboratory, 14 in kitchen and mess, 6 in storeroom, 4 orderlies, 5 in office, 4 outside police, 1 assistant to dentist, 4 supernumeraries); 46 nurses, female (1 chief nurse, 1 assistant to chief nurse, 41 in wards, 2 in operating room, 1 dietist).

761—So far as adaptable the regulations for general hospitals will govern the interior administration of base hospitals. (See pars. 283 to 316.)

*Par. 152. Certain general deductions may be made from experience in war, which will serve as hypotheses on which plans for the operation of the sanitary service may be based. Casualties may be estimated at 10% of the troops engaged, with the understanding that certain organizations may suffer very much heavier losses, while some may suffer less. Of the casualties, the killed may be estimated at 20%, seriously wounded, 8%; less seriously wounded but requiring transportation, 32%; the wounded able to walk to dressing stations or field hospitals, 40%. The demand for bed capacity in the rear of the zone of the advance will depend upon the frequency and severity of the engagements. There have been instances where after several months' campaigning it has reached 40% of the strength of the Army maintained at the front. For field problems it should be assumed that a bed capacity equivalent to 10% of the total force in the Zone of advance is immediately available when troops take the field, and that facilities have been provided for promptly supplementing that number should the occasion require.

762—The base hospitals are designed to receive patients from the field and evacuation hospitals, as well as cases originating on the line of communications, and to give them definitive treatment. They should be well equipped for such treatment and there should be sent to the home territory only patients who require special treatment or whose condition is such that they may be regarded as either permanently disabled or likely not to recover within a reasonable time. If, however, the number of new cases from the front is taxing the base hospitals beyond their capacity or the facilities thereof are inadequate from any cause to meet the demands upon them more extensive evacuation of patients must be effected. On the eve of battle the base hospitals near the front should be cleared as far as possible to make room for new patients.

763—Unless otherwise provided the personnel, supplies, and equipment for the evacuation of patients from advanced base hospitals to the rear will come from the hospitals receiving them.

764—The commanding officer of the hospital will indicate under "Remarks" in his daily report made on Form 83, the number of patients who require transfer so that arrangements may be made accordingly. He should himself supervise the selection of patients for further transfer in order to keep down to the lowest possible figure the number of men lost to the Army.

765—Base hospitals ordered to close will dispose of their patients as directed by the surgeon, base group.

Field Hospitals.

699—The function of the field hospitals is to keep in touch with the combatant organizations and to provide shelter and such care and treatment as are practicable for the sick and wounded of the division who are brought in by the ambulance companies until the sanitary service of the line of communications takes charge of them. A field hospital can meet these requirements only when it is relieved so promptly by the sanitary units in the rear that its mobility is not interfered with. Prompt evacuation of the sick and wounded is necessary also to secure for them the facilities for treatment and the comforts which are available on the line of communications.

795—The primary function of the evacuation hospital is to replace field hospitals so that the latter may move

with their divisions, or to take over their patients with the same object in view. So far as it would not interfere with this function the evacuation hospital may be used for ordinary purposes on the line of communications.

It may be of interest to outline my observation of the preparation of a base hospital during the summer of 1916. From Fort Sam Houston, San Antonio, Texas, I went to Camp Stephen Little, Nogales, Arizona, with Major (now Lt. Col.) Geo. A. Skinner, who brought with him specifications for the erection of buildings. The unit ward to be built was of frame, 100 by 20 feet, with an 8 foot porch all around, and a ventilating space at the top called a louvre. The site was furnished by the city at a nominal rental; water, sewer, electric, and in the course of time, gas service were provided. The materials were provided by the quartermaster in charge; labor was employed by the day. The buildings put up in order were: A surgical ward, medical ward, a kitchen and mess building, a building for toilets and shower baths to accommodate ambulant patients, a laboratory building, 2 buildings for female nurses. Forty-five days after we arrived in camp we were able to do major surgical work in our own operating room, equipment and supplies had been received by this time, an X-ray outfit included. Pending the completion of these preparations we did major work at St. Joseph's Hospital, conducted by the Sisters of Mercy.

In conclusion let me say that my experience was in every way delightful. The only unpleasant feature of my campaign experience was the uncertainty as to its duration.

PRESIDENT'S ADDRESS.*

By WILLIAM H. SEEMANN, M. D., New Orleans.

As one of the pleasant privileges that come to the outgoing President and one of the penalties inflicted on the Society, is the custom of the presidential address. As a rule, it must be admitted, doctors are fairly good talkers, but not generally of the forensic type; this gentle impeachment is admitted on the speaker's part.

It has been usual for the past Presidents, following the human custom, to talk about something not in their line; I shall claim the right to enjoy the same privilege in speaking of the relation of Medicine to war.

I remember the great surgeon and literateur, Nicholas Senn, who among the many and varied subjects which his versatile pen illuminated, writing, in the *Journal of the A. M. A.*, an article on "Aesculapius in War." His theme was selected and his ideas stimulated by the martial condition existing at the time—it was the time of the Spanish-American War; so now, every patriotic American has felt the tingling of loyalty in his veins and has introspectively asked himself what he might do to help his nation in her need.

The physician, perhaps above all other professional men, excepting possibly those of the ministry, is the truest disciple of the great Physician, the most devoted follower of the Prince of Peace; his philosophy, however, is bound to be activated by his education and he must agree with the great Athenian political philosopher, Plato, that "All states are in perpetual war with all—for that which we call peace is no more than merely a name, whil'st, in reality, Nature has set all communities in an unproclaimed but everlasting war against each other."

The primal instinct of self-preservation and the immutable law of the "survival of the fittest" are both doctrines that have been evolved and sustained by these facts; and the doctor reasoning from analogy, on account of the familiar and

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continuous cellular conflict in disease which he, as it were, as a medical military observer, has to see, is more able and more ready to accept the philosophy of Socrates' pupil.

From the standpoint of eugenics, the study of the effect of war on a nation has always been a subject of great interest to doctors, also the effect of war upon the development of the science and art of medicine.

Even the gentle and temperamental Ruskin was, from a pacifist view, extreme enough to say that "All the pure and noble arts of peace are founded on war. We talk of peace and learning, of peace and civilization; but I find that these are not the words that the muse of history has coupled together. I found in brief that all great nations learned their truth of work and strength of thought in war; trained by war and betrayed by peace; in a word, they were born in war and expired in peace."

Of course in many parts of the paragraphs I have quoted, even Ruskin later admitted there was great room to question the almost extreme views, but when we realize how near betrayal this great and noble nation of ours came by peace, we can well ponder and ask ourselves the question: Whether there is not truth in Ruskin's words, especially when we know from the context that he meant to tell us that in time of great emergencies, especially of a national kind, most men are wont to put aside selfishness and to awaken to a recognition of the higher and nobler parts which divine Providence has cast them for.

As a great democracy like ours has been christened a melting pot, so might I compare war to the fiery ladle that dips out of the mass the individual elements for cupellation to learn whether they have become amalgamated with the whole or to find a lot of worthless foreign substance.

• In this great analytic movement, the doctor does not escape the test and be it said to his glory that history has never recorded him as wishing to escape. While the epic of artillery evolvment, the wonder of air plane development and the horror of submersible attack have all occupied most of our minds, the prosaic and even at times not unromantic development of the doctor in the science of war has also always

deserved and sometimes gotten the attention and occasionally the plaudits of mankind.

It is a far cry from Ambroise Paré to Alexis Carrel, and all must recognize it; yet Paré, even as the barber surgeon devotee of his patron, Colonel Montejan, subsisting on an occasional donation, varying from a crown from a common soldier to three hundred crowns from the king, typified the answer to the call of humanity which every true physician must make, when the test comes; and some of our modern stellar performers might read a sermon in Paré's modest record of his own achievements when speaking of a bad surgical case which under his care had recovered, he said "I dressed him and God healed him"—and no one who has followed in the "reel" of history this great promoter of the use of the ligature in surgery in his humble "Apologia" from Turin to Rouen can but acclaim his unselfish and continuously painstaking devotion to duty.

I will not take up your time presenting a digest of the literature which describes the transformation which has occurred in military medicine since the days of Paré's "Unguentum Comitissae" to our present day when we see the unattached irresponsible individual barber surgeon of Paré's day supplanted by a highly organized and trained body of efficient workers, ready and responsible.

The Medical Departments of an army and navy today are as systematically arranged and as methodically run as any other branches of public service or any other line of endeavor.

In order to further increase the efficiency and to meet the needs of these departments in times of need, there has come into existence a council on National Defense, affiliated with the American Red Cross, which has for its purpose the arranging and cataloging of medical men, as regard to their qualifications in order that their services may be more quickly and efficiently made use of in time of national emergency such as exists today.

The peerless guardian of our national destinies, President Wilson, said in his speech to Congress that: "Neutrality is no longer feasible or desirable where the peace of the world is involved and the freedom of its peoples, and the menace

to that peace and freedom lies in the existence of autocratic governments backed by organized force, which is controlled wholly by their will, not by the will of their people. We have seen the last of neutrality in such circumstances."

And behind these sentiments a patient nation that has watched with breathless anxiety and uncertainty the trials and struggles of this greatest of Americans to avert war and to preserve peace, stands no longer anxious, no longer uncertain but with the certainty of a peerless leader and the consciousness of a just cause, they are waiting the word to march on to victory.

Our past in the achievement of the noble aims of our country in its unselfish sacrifice to preserve liberty must be determined by circumstances. There will be lots of work afield and lots of work at home and we must all realize that although we cannot all be majors or even captains in uniform, we can all be marshals of our own consciences and as each man is indubitably a positive influence for good or evil, we can at least do no less than help mold the opinions of our communities to a righteous sense of their obligations. Our services may be needed soon—who knows? or may not be needed at all—but remember that he also serves who stands and waits, and he stands and waits best who is best prepared.

So it behooves us to look around and to investigate the needs of the situation as it affects us and not to wait until we are searched for.

There has been some serious effort made to list the men of medicine in this state according to their activities and in the organization of this effort it has been necessary that certain leaders be appointed; this does not mean, however, the activities of other leaders must be curtailed or that other organizations with properly co-ordinated activities will not serve a good purpose and be as heartily welcomed. Every man and woman has a duty and every man and woman is expected to do it.

In our entry into the maelstrom of this most terrible of wars, the die has been cast and there is no recall nor would

we wish for one; on the contrary, we must each one work and give to the extent of our strength and our fortune that our country may be triumphant and in the language of Carlyle she may "achieve the final undisputed prostration of force under thought, of animal courage under spiritual."

PERTINENT EVIDENCE RELATIVE TO MODERN VIEWS ON TUBERCULOSIS.*

By WALLACE J. DUREL, M. D., New Orleans.

It is proposed to discuss in this paper, the salient modern factors pertaining to the Infectiousness, Prevention, Diagnosis, Treatment, Management and Care of the tuberculous.

It is a well recognized fact today that tuberculosis is not the result of only the direct action of the T. B. upon the tissues but, that it is equally dependent upon the qualification of the blood and tissue cells, to resist and limit the invading tubercle bacilli, in numbers and in their virulency.

Viewing the above from a practical point of view, we realize the fact that the danger of infection by the T. B., in ordinary public, office and home life, is not such a menace to the average individual; and that attempts to prevent infection by sanitary milk and anti-spitting laws, are not alone sufficient to eradicate the dreadful White Plague.

Today we must all understand, that to prevent infection, it is indispensable for anyone to follow a proper "Mode of Living," i. e., proper exercise, with a sufficient amount of rest; a regular and well balanced dietary; an abundance of ventilation and open-air life; dust proof apartments; proper clothing, etc.

This is far more important than to be in constant fear of inhaling the "pestiferous" tubercle bacilli.

Our health rules, regulating the disposal of sputum and other excreta, are very good; but, certain regulations in the care and management of our homes, factories, offices, and such places where man lives a part or the whole of his time, are more important.

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This can best be done and carried out by the medical profession, assisted by Public Welfare Societies, Boards of Health, and the "good will" of the public.

The startling evidence that tuberculosis, in the great majority of cases, is a disease contracted during childhood, suggests the importance of a close examination of school children, for the detection of any tuberculosis or other defects, in the bronchial glands or lungs; with also a thorough "inquiry" into the "home" environment of all children.

The proper construction, sanitation, and ventilation of school-rooms and homes of our young generation, with the establishment of open-air schools and farms the "Preventorium" for those found to be defective, will be productive of better returns than anything we can do at present.

Those in whom we have not been able to prevent infection, it is essentially important to recognize the existence, as well as the virulency of the infection—before it has progressed beyond medical aid.

Here again, the doctor is responsible, in a great many cases, for the advanced stages of the disease; not necessarily by his inability to diagnose the disease in its incipiency; but by his utter indifference in the care and welfare of the tuberculous.

Our medical schools are partly responsible for this indifference of the medical profession, as seen in a recent resolution passed by the National Society for the Study and Prevention of Tuberculosis, whereby it was shown by our most reputable teachers in medicine that, tuberculosis was a branch of medicine very meagrely taught, thus depriving the medical student from becoming familiar with the most modern views on tuberculosis.

Let us hope that our Southern medical colleges will follow the example of other medical schools, thereby giving the medical student all the opportunities and facilities to perfect himself in this branch of medicine.

In order to recognize "active" pulmonary tuberculosis in its incipiency, it is just as essential to acquire a thorough family, personal, and clinical history, as to determine the

physical findings in the lungs, of the T. B. in the sputum; or the tuberculin reaction.

In the family history, we should particularly inquire whether there has been a direct and constant contact and exposure to an "Open" case of tuberculosis. In the personal history, it is very important to determine the "Mode of Living and the environment of the patient, during childhood and later in life; and also, the previous occurrence of any disease, especially measles, influenza, pleurisy, adenitis, etc."

In the Clinical History, the following cardinal clinical symptoms of incipiency are, at present, the only means of determining the "activity" of the disease:

1st. Temperature record from 7 a. m. to 9 p. m., every two hours, shows a morning temperature of 96.8 to 98.0, with an afternoon rise of 99.2 to 100 F.

2nd. Instability and acceleration of the pulse.

3rd. Disturbed digestion.

4th. Loss of weight.

5th. A feeling of lassitude and depression, and chilly sensation.

6th. Cough—generally of a hacking type, and more in the morning.

7th. Lowered blood pressure.

8th. A history of hemoptysis. (This is not always an evidence of tuberculosis). None of the above symptoms are *PATHOGNOMONIC* of tuberculosis.

In "latent" tuberculosis of the bronchial glands and lungs the above symptoms are not present, though lesions can be detected by physical examination of the chest.

It is essentially important, in *MAKING* the diagnosis of tuberculosis—to determine whether the patient is suffering from a simple tuberculous infection, or a "latent" tuberculosis; or an "active" tuberculosis—(Tuberculous disease).

In determining the lung findings in tuberculosis, one must specially note any changes in the expansion of the upper and lower lobes; and also any atrophy and rigidity in the muscles of the neck and upper chest walls. Slight dullness and tympany can be usually found by percussing both lungs after inspiration, and then after expiration.

The site of predilection for incipient lesions, is in the inner third of a triangle bounded by the vertebral spines, the Scapula spine, and the trapezius muscle. Lesions in the anterior surface of the chest are of graver prognosis, and seldom seen in incipiency.

On auscultation, it is always well to remember that we must be suspicious of any changes in the clear vesicular respiration.

The prolonged expiration, and the harsh, rough, granular, intermittent or wavy breathing; the localized wheezing, d'Espine's sign, and fine moist rales are not pathognomonic of tuberculosis.

Tubercle bacilli in the sputum are found in only 40% of incipient cases of tuberculosis. Therefore, in approximately 60% of incipient cases, the only pathognomonic evidence of "OPEN" tuberculosis is not present.

In cases of "CLOSED" tuberculosis the presence of a tuberculous infection or of a "latent" or "active" tuberculosis, can only be determined by the administration of the tuberculin tests—the skin tests denoting the tuberculous infection, and the sub-cutaneous test localizing the foci of infection.

The complement fixation test still lacks affirmative value as a positive evidence of "active" tuberculosis.

The X-rays only give a topographical distribution of the lesions.

The correlation of the lung findings with the clinical symptoms is not a fixed rule in "active" tuberculosis, for many cases with very few lung findings, will present pronounced and severe clinical symptoms, with high temperature, rapid loss of weight, chills and night sweats, pronounced cough, etc. Other cases will show extensive lung lesions, but with normal or slight rise in the temperature (99 to 100.6 F.), and no stomach disturbance, loss of weight, etc.

In the latter cases, we are more apt to find the early appearance of tubercle bacilli in the sputum.

Advanced cases of tuberculosis with free and abundant sputum always show tubercle bacilli in the sputum.

A persistent high lymphocytic count, is a good prognostic feature in all stages of tuberculosis; and a high neutrophilic

Index, with a *LOW* lymphocytic count, is persistent, denote a bad prognosis.

Cardiac insufficiency and bronchiectasis; pneumococcic and coccic, influenza and colon bacillus infections, etc., when presenting *LUNG* findings and clinical symptoms stimulating tuberculosis, can best be differentiated from tuberculosis, by a careful study of the clinical symptoms and skiagraphs, with repeated sputum examinations and tuberculin tests.

Repeated tuberculin tests and sputum examinations when "negative" practically exclude the tuberculous nature of the infection, except in the presence of another acute infection, or acute pneumonic phthises, or miliary tuberculosis. A close study of the history and clinical findings, in such cases, is essentially important.

In the treatment of tuberculosis, let it be known and understood, that the results reported by Institutions and Authorities in the East, North and South (at lower altitudes) prove conclusively, that high altitude and ozone air, play but a very small part (if any) in the cure of tuberculosis. Wherever a patient may take the "cure" he is obliged to follow the Basis of Hygienic Treatment, i. e., *REST*, *DIET* and *OPEN-AIR LIFE*. Absolute rest, until all symptoms of "activity" of the disease have disappeared for a month or so. Sitting up, walking, and graded exercises, with periods of rest, are only permitted when no symptoms indicating "activity" can be noticed.

The strict adherence to the open-air life (sleeping porch or tent) with an abundance of fresh and dustless air, is not only essential during the "active" stage of the disease, but should be continued for a few years after the disease has been eradicated.

The taking of a well balanced mixed diet, without excesses in overfeeding, is primarily important in the cure of tuberculosis.

The milk and egg diet cannot, and is not intended to replace a mixed diet, and should not be abused of, as it has been done in the past.

In the auxiliary treatment, the *TUBERCULINS* have proven, in the hands of many, an indispensable weapon in

bridging over to recovery the lagging and slowly improving case, that failed to respond to the basic treatment. The *TUBERCULINS*, however, must be carefully and intelligently administered. The essayist prefers giving the *TUBERCULINS* guided by the *NEUTHROPHYLIC INDEX*.

Creosote (beechwood), iodides, tinct. iodin (old formula) have proven of great benefit in the treatment of far advanced cases, in the tuberculosis wards of the Charity Hospital.

Artificial pneumothorax, in proper cases, has proven of some advantage, especially in far-advanced cavity cases. The correction of any functional disturbance in the stomach and blood especially, is a factor that most of us overlook in the treatment of tuberculosis.

Cough mixtures should be seldom or never prescribed. Hyperemia methods (poultices) and cold applications have their place in the treatment of pulmonary congestions and abscess formation, in tuberculosis.

In order to effectively apply these methods of prevention and treatment, it is imperative that we should have the following:

1st. The examination of all school children for the presence of a tuberculous infection; and the establishment of open-air schools and "farms or Preventoria" for defective children. A close examination of the food supply and milk.

2nd. Regulations tending towards proper sanitation and ventilation of offices, factories, public places, and homes of all classes in the community.

3rd. More rigid enforcement of anti-spitting laws, with care given to the cleaning up and sun-light disinfection of dwellings occupied by tuberculosis patients. Fumigation to be only secondary to the latter.

4th. Displacing the "Indifference" of the medical profession, in the care of the tuberculous, by giving more time and facilities for the teaching of this branch of medicine in our medical schools. Also more interest displayed by the medical profession in educating the public relative to a proper "Mode of Living."

5th. The organizing of more dispensaries and tubercul-

osis clinics, with competent staffs of well trained and interested visiting nurses; Sanatoria for *ONLY* the "active" (not latent) incipient and moderately advanced cases, who cannot receive the proper care and treatment at "*HOME*". Hospitals for far-advanced cases, requiring constant nursing and medical attention and who are bed-ridden.

The magnificent gift of Hon. Judge Breaux—"The Breaux Annex" to the Charity Hospital, is a living tribute, demonstrating the great benefit derived from such institutions—both as a preventive and hospital relief measure.

6th. The establishment of "Farms" or "Camps" for those who have been treated in sanatoria and hospitals, and do not require any more aggressive treatment or medical care, but, some supervision in their "Mode of Living;" and who are absolutely destitute and homeless, and thus unable to carry out at home, the necessary anti-tuberculous "Mode of Living" required to bridge them over from the quiescent and arrested stages to complete recovery.

Dr. Sloan's "Farm-Colony" near Baltimore, has proven the efficiency and necessity for such institutions.

In our experience in the tuberculous department of the Charity Hospital, the disposal and evacuation of these cases becoming quiescent, or improved, and who are destitute and homeless, has been a most trying and serious problem.

DISCUSSION ON THE PAPER OF DR. DUREL.

Dr. George J. Dempsey, New Orleans: I do not think it would be right for a paper of this importance to go by without some discussion. I congratulate Dr. Durel on the simple manner in which he has presented this subject. He has made no attempt to go into the mysteries of diagnosis, the cures and reliefs, etc.

In attempting to open the discussion on such a subject, the five minutes allotted to one is not enough. However, I will try to discuss certain phases of the subject.

This work, from an educational standpoint, which has been carried out in the city of New Orleans and throughout the state by the Louisiana Anti-Tuberculosis League, is well known to the men of the society. As Dr. Durel has well

said, educational methods should be established and instituted. We have tried to do this and have met with some results. We should have institutions also for the advanced cases of tuberculosis, for there is no way of getting rid of the disease until we get hold of the advanced cases and get them under control.

In the city of New Orleans with a population of 375,000, and about one-third of them negroes, we have a large problem to contend with. We lose about a thousand people from tuberculosis annually, and 50 per cent of them are negroes. Just imagine what we have to contend with. These negroes go into our kitchens, they nurse our children and take care of our households. Sometimes they occupy the bedrooms or sleeping quarters when the families are away; the consequence is we are more exposed than ordinarily. We have no provisions at all for negroes with the exception of the Charity Hospital. We expect to provide for about 112 patients in one of our hospitals. As I have said, with a population the size of New Orleans, and considering that we lose on an average of a thousand a year, you can imagine how much chance we will have to control tuberculosis. I venture to say, we have five thousand cases of tuberculosis in the city of New Orleans in the different stages of the disease. Therefore, those who are interested in this work should combine their efforts and try to institute teaching throughout the country parishes, and then at the end of ten years we may be able to get sufficient sanatoria and hospitals to do something from the tuberculosis standpoint.

Dr. George S. Bel, New Orleans: In listening to Dr. Durel's paper, I find that he has covered the subject so thoroughly and nicely that I can only concur in nearly everything he has said from a clinical standpoint.

Dr. Durel has done more for the education of the public and the medical profession in our community than any other one individual I know of. He is a pioneer specialist in tuberculosis in our section, and there is no question about the doctor's ability to bring this subject before such an intelligent audience. I wish to compliment him on the manner in which he has handled the subject.

There are a few points I want to bring out, but I can hardly do so considering the vast importance of the subject and the short time allotted for discussion.

The doctor mentioned that the X-ray was good for topographical location. Any X-ray that can locate anything is a mighty valuable part of armamentarium and the use of it is absolutely essential for progress. In the use of the X-ray it is very necessary to have an expert interpreter, and when you have such an interpreter, in my clinical experience the findings correspond with the physical findings. The X-ray cannot be successfully used by everybody, but in the hands of an expert radiologist who can interpret the pathologic findings, just as our colleague and friend, Dr. Durel, has found in his ability to diagnose these cases, which we all grant, the X-ray is very valuable indeed. I want to say in justice to the X-ray, that I believe in it, and in my own individual practice it has corroborated the physical findings, and the expert radiologist is not only capable of locating certain pathologic conditions, but he is able to diagnose lesions primarily in their incipency.

For instance, I have had a radiologist tell me that this or that individual had calcified tubercle, and the individual died of pneumonia later on. I remember a case that died in the hospital of typhoid fever, and it proved to be one of calcified tubercle. Now, if the radiologist is capable of demonstrating that before death or during the early part of the disease, I should think it is highly commendable, and I would advise you gentlemen to employ the X-ray. It is a valuable adjunct to our armamentarium in diagnosis, and it gives me great pleasure to say that I use it, as a rule, in all cases.

Early tuberculosis in my experience is not an unilateral disease. As a rule, you will find it on both sides in its incipency; beginning at the hilum primarily of the bronchial glands, spreading to the hilum, more on the right side than on the left, but it is a rare occurrence to find tuberculosis in its incipency only in one lung. Again, it is very rare that it is found in my clinical experience at the apex, or it is rare that it attacks the apex. It is usually where the doctor says, along the hilum, extending from the second to the sixth rib.

Bronchiectasis is an unusually rare condition so far as the physical findings during life and at the dead house are concerned. We find that bronchiectasis is a condition that is beautifully described in our textbooks, but we know that around the bronchial tubes there are cavities and slight dilations of the bronchi. If you go into the post-mortem room and witness an autopsy performed by a competent pathologist, you will find it is a rare occurrence to find bronchiectasis. Dr. Durel is correct in saying that bronchiectasis does exist, and I agree with him in that statement, but it is a rare occurrence as an individual disease, and I think any good pathologist will bear that statement out.

Dr. William H. Harris, New Orleans: In reference to Dr. Bel's statement as regards pathologic lesions found at the autopsy table, I would like to say that it is a very common occurrence in routine post-mortem work to find the lesions of tuberculosis often extinct at the lymph nodes at the hilum of both lungs. There comes up a good deal of discussion as regards the enlargement of the glands we find there. We know that the lungs drain into them a good deal, and the bronchial lymph nodes at the hilum of the lung are practically always mitotic. Microscopic examination of these same glands quite frequently will show evidences of tuberculosis at the base. We feel that this structure is often attacked and not infrequently without any injury to the pulmonary tissue itself. Of course, we seldom hold post-mortem examinations upon cases that have died of incipient tuberculosis in the active stage. It is not often we find them dying of other conditions where we find these lesions present. I should say usually that in post-mortem work both lungs are bound to be involved, generally one lung more so than the opposite lung, but occasionally we do find instances in which one lung is involved; and as regards the matter of bronchiectasis there is a true dilation of the bronchial tube which is not a frequent finding at the post-mortem table. We have to differentiate between true bronchiectasis and pseudobronchiectasis the same as we have to differentiate between a true aneurysm and a pseudoaneurysm or dilatation of the aorta. We may have a slight fusiform condition of the bronchial

tubes, and it may be a question whether or not it is a true bronchiectasis. There is one other feature I would like to lay stress on, namely, it has been our experience to see a good many cases of blastomycosis of the lung post-mortem. I have seen quite a few such cases, and we cannot there make a diagnosis by looking at the lung with the naked eye whether it is blastomycosis or tuberculosis. There is very little chance on the outside with stethoscope and fingers to make a diagnosis of blastomycosis from an examination. I think it is timely to state that it is a good thing to be very careful in cases in which we do not find advanced tuberculosis or tubercle bacilli after repeated examinations, to be on the watch for this particular disease which seems to be more prevalent than we realize, namely, blastomycosis of the lung.

Dr. Adolph Henriques, New Orleans: I came in a little bit late and did not hear all of Dr. Durel's paper. However, I would like to discuss that part of it which I did hear.

To my mind a solution of the tuberculosis problem lies in the early diagnosis, and the early diagnosis of pulmonary tuberculosis is not a simple matter. I have had the opportunity to examine cases of scores of physicians, and it has been my experience that over 90 per cent of physicians cannot recognize early tuberculosis by the ordinary methods. Early tuberculosis of the lungs requires an expert ear to recognize it. If we wait until the disease has advanced, we do not need the expert; the people next door can recognize it. That is not the time we should recognize it. In many instances we have to diagnose it before it has advanced to the apex.

I have examined over 700 lung cases with the X-ray and I have found that in the majority of these cases the disease does not begin at the apex of the lung. When we find disease in the apex of the lung, as a rule, the disease is no longer incipient. Dr. Bel has brought out some good points in that respect, that the disease begins in the majority of cases at the hilum of the lung and seems to extend upwards to the apex or towards it, but not necessarily reaching it. The disease is found frequently in both sides of the lung. We have made these observations independently of one an-

other, and it appears we have coincided in our ultimate conclusions. We find in many of these cases the disease is more posterior than anterior. If we can recognize the disease early enough it is then a question, I believe, of simply months for patients to get well instead of years and, perhaps, never.

Dr. I. I. Lemann, New Orleans: I would like to emphasize one statement of Dr. Durel's, namely, the statement relative to the danger of phthisiophobia. It is a point with which I am in hearty sympathy with him and have been for many years. It seems to me, we are in very great danger on the one hand of encouraging interns and nurses to neglect tuberculous patients, and on the other hand to deny the tuberculous patients, especially those we cure or whose cases are arrested, opportunities for making a living. I have known interns, who, after being assigned to wards in which there were cases of tuberculosis that had been segregated, to make very perfunctory rounds for fear they might become infected. I have known nurses to take the same attitude towards tuberculous patients. It seems to me, we ought to stress the statement of Dr. Durel that there are two factors in connection with infection from tuberculosis, the factor of the tubercle bacillus and the factor of the human individual; and the human individual who maintains himself in good condition by proper modes of living, by proper exercise, by proper rest, by proper hours of sleep, and by proper dietary, is going to maintain himself in a condition where he is going to put up a winning fight against any invasion by the tubercle bacillus. In the second place, by adopting and by stressing the point of view of Dr. Durel, we can guarantee to tuberculous individuals the right of earning a livelihood. Once you put a stigma on the tuberculous man or woman, you will find him or her denied this and that avenue of employment. I have seen this feeling growing more and more in the professions which demand a physical examination before admission or employment, which is a menace to the opportunity of earning and maintaining a livelihood. We have seen trades and occupations which are particularly well adapted to tuberculous patients, yet practically denied them by

questions into their history and by physical examination. Let us take, for instance, letter carriers. Can any one, in a way, think of a better trade for a man whose case is thoroughly arrested than that of a letter carrier? Yet, if he undergoes a physical examination and has to have his history gone into, the chances are that if he wishes to adopt the occupation of a letter carrier he would be rejected. While I think it is well that open cases of tuberculosis should be rejected in offices and factories and places of that sort, still, on the other hand, there is a tendency to carry the restrictions too far.

I think Dr. Durel is rendering us a service by sounding this warning—the danger of driving the campaign against tuberculosis too far so as to create in the public mind a fear or dread, and we have already noticed such a great fear of pythisis that we are afraid of our own shadow and are afraid of employing anybody who has any touch of tuberculosis.

Dr. Durel (closing): After fourteen years' experience and fourteen years of watching in connection with this field of work, I find that it takes a lot of good will and encouragement because we have overcome criticism. Unfortunately, until a recent date, it was the public's impression that this work was taken up from a pecuniary point of view, and I believe the people still have that in mind. Even some of my confreres today look upon it probably as a money making scheme. I have had to overcome that feeling, and I ask you to do the same. Never mind criticism, it is the welfare of the public we are after, and we are going to be criticized in any work or movement we undertake. We should work steadily, and if we do so, we will accomplish in time what we want.

The remarks made by Dr. Dempsey and by Dr. Bel touched my heart, and I feel amply compensated for what I have done.

As far as the use of the X-ray is concerned, I employ it extensively in diagnosis. I could not in a short paper of this kind discuss the X-ray extensively as an aid to diagnosis. We all know that the X-ray is a great help in differentiating tuberculous conditions from the normal. The great problem

in diagnosis is to determine whether a given case is one of active tuberculosis or latent tuberculosis. Because a patient has a lesion in the lung or because he responds to the tuberculin test, do not ship the poor fellow away to some institution. The main point is whether he is active or latent enough to be treated or not. I assure you, we have accomplished something in the progress of tuberculosis therapy. Both lungs are generally involved. In the very incipient cases you will find tuberculosis in the bronchial glands. The primary lesions are in the bronchial glands. There is a lack of interest displayed by the profession as a whole in this work. We want you to help us. You are the ones to do the fighting; you are the ones that are going to solve the problem. Of course, our boards of health and the publication of pamphlets on the disease will help us very materially. The Anti-Tuberculosis League in Louisiana will help us, but we are the preventors. We must do the work.

As to the phthisiophobia or dread of this disease, I wish I had had a little more time to go into this in my paper. Since I have taken charge of the tuberculous ward in the Charity Hospital I have had a daily fight almost with the interns; they would not go to the ward and take the interest that they should in tuberculous patients. The nurses manifested the same attitude towards these patients. It is not a question of being afraid of the disease. I have said to the interns and nurses that in approaching or caring for these patients they should see to it that they did not infect them; that the tuberculous patients should keep a handkerchief before their mouths when they cough; that moist sputum is most infectious.

As to the matter of hospitals for advanced tuberculosis patients, I cannot lay too much emphasis on that phase of the subject. The details of these hospitals I did not go into, but I will simply say that with our Breaux Annex, where we can take advanced cases of the diseases, and with the Dibert Memorial we are making progress.

BULLETIN OF THE LOUISIANA STATE MEDICAL SOCIETY.

Edited by DR. L. R. DE BUYS, Secretary-Treasurer.

GREETINGS.

It gives me pleasure to greet you through the pages of the *NEW ORLEANS MEDICAL AND SURGICAL JOURNAL*, the official organ of the Louisiana State Medical Society, selected at our last Annual Meeting at Alexandria. The policy of the *JOURNAL* in the past which has been very laudable and its promptness in appearing make it especially advantageous to the Society in having such a mouthpiece through which to address its members.

Arrangements have been made to furnish the *JOURNAL* to the present members beginning with this issue; and to the new members of the Society with the issue of the month following the reception of their dues which means, for example, that the member who submits his dues in the month of February will receive his *JOURNAL* beginning with the March issue which will be issued on March 1.

The furnishing of the *JOURNAL* to the members is a great additional expense to the Society, but not to the members, as the Society will bear the cost of subscription. It is essential for the Society to handle the subscriptions in a business like way in order to protect itself. This opportunity is taken, therefore, to remind each member of the advantages of not permitting a lapse in his membership which would affect the files of his *JOURNAL*. For instance, if the membership of the Society for 1917 is 1000 and on January 1, 1918, the Society will have a bone fide membership of 500, it is not to be expected of the Society to send the *Journal* to the other 500, whose dues have not been received in advance as required by the Society, (Chapter IX, Section 2). As there is always a fluctuation in membership from year to year to a greater or lesser extent the Society, should it continue to send the *JOURNAL* to those who do not continue membership,

would be expending money it would not have a right to, which would diminish the funds of the Society and thereby effect the value of membership to those who do not wish to allow the advantages of their membership in the State Society, including Medical Defense, to lapse.

The space allotted to the Society will also be used to inform our members of what our other members are doing. Each Parish and District Society is invited to send to the Secretary-Treasurer whatever information it believes may be of interest to the Society. Also any personal information from members will be gladly received and given due consideration whenever possible.

Our Society is now offering as much as any other state organization and a great deal more than the vast majority of them, and our aim is to make our membership so valuable that the eligible physicians in the State will be made to feel what they are deprived of to such an extent as to make it impossible for them to stay without.

If every member will consider himself a special committee of one on membership to interest and secure as many additional applications from physicians who are eligible, as is possible, our Society will continue to offer more and more and the final result will be attained and our ambition realized.

At the present time the Society is offering:

1. Medical protection through Medical Organization.
2. Increased strength through increased membership. (1916 membership was nearly twenty per cent greater than the greatest membership before. 1917 membership far ahead of 1916 for the corresponding dates).
3. Proposed Medical Legislation, the repeal of physician's license tax. (A distinct saving).
4. Promotion of social and fraternal relations.
5. Promotion of respect of community.
6. Eligibility to membership in Southern Medical Association and American Medical Association.
7. Endorsement of State Society as recognition of good standing.

8. Endorsement of the State Society when sought before appointments by many organizations.

9. Bureau of information for locations vacated and applications for locations.

10. Medical Defense: a protection no physician can afford to be without and of itself worth more than the annual dues.

11. A Medical Journal: THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, a monthly magazine which has a subscription price of \$2.00 but which will be furnished the members of the State Society at no extra cost to them, the Society bearing the expense.

12. All the foregoing besides the Scientific Value of membership carried on through:

- (a) Parish Medical Organization,
- (b) District Medical Organizations, and
- (c) The Louisiana State Medical Society.

From the foregoing it can be clearly seen how the eligible physician is depriving himself of what justly belongs to him and lies within his reach.

A Suggestion: Beginning with this issue of the JOURNAL each member should keep the file of his Journals not only for reference but because in years to come it will be of decided advantage and interest to have a complete set of the transactions of the Society. So keep all the issues together.

Application blanks will be gladly furnished upon request.

CURRENT LITERATURE

In a bulletin from the laboratory of Dr. Juan Iturby this writer and Dr. Eudoro Gonzalez, of Caracas, Venezuela, publish the results of their studies on the BACTERIOLOGY OF TYPHOID FEVER.

A new road was opened in the pathogeny and biological diagnosis of *typhus abdominalis* when Neufeld, Castellani and Shottmuller demonstrated that typhoid fever begins as a bacteremia, and that it is only during the second week that the infective agent becomes localized in its site of predilection—the intestinal lymphatic glands and, especially, the gall-bladder.

From this it follows that the only reliable diagnostic method during the first few days is hemoculture; in the second period of seven days, agglutination is the best test for establishing a sure diagnosis.

During the last three years, the writers above mentioned made a comparative study of the results obtained with agglutination and hemoculture in the different stages of the disease variously called the *slow fever of Caracas*, *typho-malarial fever*, *infectious fever*, and which a bacteriological examination shows to be nothing more or less than typhoid fever.

It is desirable to set forth here certain technical recommendations which are indispensable in the reactions mentioned. In regard to hemoculture, it is necessary to observe certain requisites that they used in investigating *B. typhosus* in water. Bile, which is the best medium for cultivating bacilli of the typhoid group, should be freshly collected and placed in Erlenmeyer flasks for twenty-four hours; it is then filtered, distributed in sterilized test-tubes in quantities of 5 c. c. each, and sterilized at 115 degrees C. for forty minutes. However, in spite of this precaution, the bile becomes altered in two or three weeks, the bile-salts and other products being deposited at the bottom; hence, it is best not to use bile that is more than ten days old.

After carefully sterilizing the bend of the elbow, a sterilized syringe is used to withdraw from 5 to 10 c. c. of blood from the medium-basilic vein, which is carefully deposited in a tube of bile, the culture is placed in an oven for twenty-four hours

at a temperature of 37 degrees C., and then inoculated in successive dilutions in Petri-dishes according to the Drigalski-Conradi method. As a general rule, in about fourteen or sixteen hours after making the plate-cultures, when bacilli of the typhoid exist, blue colonies are seen in the form of dewdrops, which are identified with anti-typhoid serum, or by Kuhnemann's ectoplasmatic staining. For sero-agglutination, the authors always used cultures of *B. typhosus* in 3% peptone solution in order to prevent the cloudiness (*grumos*), which usually appears in cultures in beef-broth. They regard as a positive reaction whenever agglutination takes place in proportions of 1:100 or 1:150.

In 110 cases examined, the following results were obtained in the first three weeks of the disease. In the first week hemoculture gave 14 positive and no negative; second week, 3 positive and 10 negative; third week 1 positive and 10 negative. Agglutination: First week, 6 positive and 21 negative; second week, 32 positive and 2 negative; third week, 11 positive and no negative. Comparing the two methods, we have the following percentage of results: First week, hemoculture 100½, agglutination 25.9%; second week, hemoculture 23%, agglutination 94.1½; third week, hemoculture 10 per cent, agglutination 100%.

In the relapses, which usually occur at the end of the fourth or fifth week, hemoculture shows, in the majority of cases, the presence of *B. typhosus*.
—*McShane*.

DIFFERENTIAL DIAGNOSIS OF ÚLCERATIVE GRANULOMA AND ITS TREATMENT WITH TARTAR EMETIC.—Dr. Alfredo A. da Matta, of Manaos, Brazil, gives an interesting review of ulcerative granuloma in the *Gaceta Medica*, of Caracas, Venezuela, No. 4, 1916. The disease seems to exist in all of the American countries. The apparent infrequency of granuloma arises from the inability of many clinicians to recognize the responsible pathogenic agent, the *Calymmato bacterium granulomatis* of Aragon and Vianna.

The affection is slow and insidious; the microbe invades healthy tissues so slowly that the patient is oftentimes able to continue at his work for a long time. The favorite site of the disease is the inguinal region, the penis, and the scrotum. It may

more or less easily extend to the pubic region, the inner side of the thigh, the perineum, and even to the anus and coccyx; this extension depends upon the virulence of the microbes, the receptivity of the patient and the duration of the disease. Cases of ulcerative granuloma are much rarer in women than in men, especially when situated on the external genitals.

At first considered as of venereal origin, the treatment of ulcerative granuloma was limited to mercury, salvasan, 914, the iodides, and certain other drugs, and always with a negative result, if not, at times, accompanied by an exacerbation.

Nowadays, the diagnosis is made quickly and with precision by finding the specific parasite. A smear is made on a glass slide with a minute fragment of tissue taken from *beneath* the superficial part of the ulceration, and preferably from an area recently invaded, where the microbes are most numerous; the smear is fixed with methylic alcohol, and finally stained with Giemsa. This procedure has given the best results in the clinics of Brazilian physicians, and we owe to Aragaon and Vianna, whose masterly studies were made in the Oswaldo Cruz Institute. The parasite of ulcerative granuloma is facultatively aerobic; it possesses great vitality and sets up fermentation. Rabbits and rats inoculated with pure cultures die in from 24 to 48 hours. This same parasite was suspected by Donovan; by Siebert in 1907; by Flu in 1911, and by Rabello in 1917. Aragaon and Vianna set all doubts at rest on the subject, and they named the organism *Calymmato bacterium granulomatis*.

The cutaneous affections that might be mistaken for granuloma are: Tuberculosis of the skin, lupus, syphilides and ser-piginous chancroid. The microscope, as well as the clinical history, will enable us to differentiate.

As before remarked, all treatment remained practically negative until tartar emetic was used. The eminent Brazilian physician, Dr. Gaspar Vianna, conceived the ide of applying tartar emetic to the granuloma. This remedy had previously given him good results in the treatment of tegumentary leishmaniosis. The lesions of ulcerative granuloma, at one time regarded as incurable, yielded to the chemico-therapy of tartar emetic so

promptly that it has come to be looked upon as a veritable specific. This constitutes the so-called Brazilian method.

The use of tartar emetic was at one time widespread. Broden and Rhodain used it intravenously in African trypanosomiasis. Vianna also used the intravenous route. The drug is commonly used in a 1% solution. Dr. Matta has occasionally used as high as a 4% solution. The initial doses should not exceed two to four centigrams of tartar emetic at each injection, gradually increasing them to sixteen centigrams. Dr. Matta rarely gave beyond ten centigrams. The injections are given in series of from three to five, every day or every two or three days, according to the size of the lesions and the susceptibility or tolerance of the patient. At the end of each series the patient rests for from four to eight days; Dr. Matta deems that interval to be necessary in order to avoid the phenomena of a tardy saturation, which vary with each individual.

When improvement sets in, as shown by the modification of the granulomatous tissues, the doses should be gradually diminished until they reach the initial dose; in the following series the increasing doses should be given.

When the lesions disappear, being replaced by cicatricial tissue. Dr. Matta lays great stress on the therapeutic value of a final series of injections which brings about a radical cure. This extra medication is based on the fact that experience has shown that even if a very minute patch of active granulomatous tissue should remain in a zone of cicatricial tissue, the ulcerative process will resume its destructive course and end in a complete relapse.

The tartar emetic rapidly modifies the aspect of the lesions of granuloma. The pus and sero-pus first disappear; the surface of the lesions remains entirely clean; the granuloma becomes whitish; the neoplastic tissues lose their characteristic induration. From the very first injections, the intense pain is relieved and the torturing pruritus disappears. The lesions recede, diminish in size, the ulcerative process is checked, restoration of the tissues of certain zones takes place, and all of this in a relatively short time; and, finally, the granulomatous area

is occupied by a strip of white cicatricial tissue, of variable size and irregular outlines.

The technic for the preparation of the solution of tartar emetic consists of sterilization in the cold by means of a Chamberland or Berkerfeld filter. A flask is sterilized in an autoclave, the flask being provided with a Berkefeld or Chamberland tube, the end of which is fitted with a funnel; this flask has two outlets, one for the needle and another for an air bulb. The tubes are closed with pressure-forceps, a 1% solution of tartar emetic is placed in the funnel, dissolved in physiological serum or sterilized water, which filters through the Chamberland tube and falls into the flask.

The solution should be made fresh. It loses its strength in about four or five days, which is long enough to cover a series of injections. When freshly prepared, the solution of tartar emetic is more energetic and reliable; in about eight days insoluble crystals are deposited, and in fourteen to fifteen days persistent flocculi, also insoluble, are formed.

The reaction from the tartar emetic consists of a slight fever, headache, pseudo-rheumatic pains, some cough, with a sensation of itching or constriction of the throat. The cough and constriction are the most frequent phenomena. All these symptoms cease when tolerance is established; a few drops of adrenalin solution (1 to 1,000) in an ounce of water will also give relief. The contraindications to the treatment are: Organic heart disease, general malnutrition, degenerative lesions of the nervous system, broncho-pulmonary diseases and hepaticorenal affections.

—McShane.

CHOLECYSTOSTOMY VERSUS CHOLECYSTECTOMY (John B. Deaver, M. D., in *Surgery, Gynecology and Obstetrics*, March, 1917. Volume XXIV).—If there is any question in abdominal surgery more difficult to decide with finality and on the basis of incontrovertible evidence than this same problem of cholecystostomy versus cholecystectomy I am not aware of it.

If we could only eradicate the notion that gall-stones are the essential indications for surgery in cholecystic disease, it would be a great gain. If it were understood *that the infec-*

tion is the back, bottom and sides of this Pandora's box of upper abdominal troubles, there would be less difficulty in pointing out that gall-stones are but a single sequel and by no means the most important one of this condition. It is the metabolic disturbances, the lowered resistance, the organic degenerations consequent upon the infection that contribute by far the greater part of the surgical mortality.

Cholecystostomy will not cure all cases. We must remove the gall-bladder, which is the seat of hydrops, or empyema, or when the cystic duct is strictured or contains an impacted stone. The strawberry gall-bladder must be excised if more than temporary relief is to be secured. We have long known that the prospect for permanent cure is not great if we leave behind a gall-bladder which is greatly thickened or distorted, and the only possible excuse for leaving a gangrenous or suppurating gall-bladder is in case the dangers of immediate removal contraindicate this step.

In 65% of the cases of recurrence after cholecystostomy the cause of recurrence was traceable directly to failure to remove the gall-bladder.

The remainder of the recurrences was due to stones, which had been overlooked, in the common or hepatic duct.

This brief analysis shows that from the standpoint of the end-results infective conditions of the biliary tract are best treated by removal of the gall-bladder. This is in line with the much-quoted recent work of Rosenow on the persistence of bacteria within the walls of the gall-bladder and with the fact long known that catarrhal infections of the gall-bladder are for practical purposes non-existent, all infections being interstitial infections.

My feeling in regard to these two operations, speaking generally, may be stated thus: Cholecystectomy is preferable in the hands of the master of biliary surgery, since the mortality is but little higher in selected cases and the percentage of cures of the infection of the tract is greater. Cholecystostomy is slightly safer, is in many cases an eminently successful operation, and the surgeon may always reflect that two operations

on a living patient are better than one on a dead one. He should remember, also, that prolonged drainage is the secret of sterilization of the biliary tract and by this means may convert unsuccessfully cholecystectomies into successful ones.

Cholecystectomy in the *presence of jaundice and in the absence of a markedly and microscopically diseased gall-bladder* is in my judgment out of place. Under these conditions cholecystostomy is the operation of choice.

Jaundice in the absence of inflammation and obstruction of the common duct is most probably due to cholangitis which calls for drainage. Drainage by way of the gall-bladder is much more simply made than is drainage by the common duct.

In the individual case I incline now to cholecystectomy when the gall-bladder is obviously diseased and presumably the primary and residual seat of biliary infection.

This covers the vast majority of cases. —Isidore Cohn.

THE INDICATIONS FOR CHOLECYSTECTOMY (Fred B. Lund, M. D., *Surgery, Gynecology and Obstetrics*. March, 1917. Volume XXIV).—We have gradually come now to regard cholecystitis, or infective inflammation of the gall-bladder, as more important than the presence of stones, as usually antecedent to stone formation, and fundamental. The cholecystitis is primary and the stone formation, though of great and often overshadowing importance, secondary. In regard to operative treatment, as time has gone on, we have learned something by our failures; among other things that gall-stones may recur after cholecystostomy, and that cancer of the gall-bladder may ensue upon this operation. In an experience of 347 operations upon the gall-bladder and bile ducts, I have had three cases in which stones have reformed after removal, and 3 cases of cancer of the gall-bladder, developing after the removal of stones. Mayo, Finney, etc.—symptomatic cure after cholecystostomies has been not more than 75%; therefore 75% had symptoms.

Fifteen or twenty years ago, some of the bolder spirits among us advocated the removal of the gall-bladder, almost as a routine; i. e., where the conditions of the patient or anatomical

conditions did not render it dangerous. However, the majority of surgeons were against this procedure, and upon that side, it is to be noted, the great influence of the Mayo clinic was thrown. The reason for the preservation of the gall-bladder was the supposed need for the bile drainage through the tube tied in it to relieve the infection of the ducts. The same clinic and others of influence and importance have in recent years so changed in practice as to perform cholecystectomy in 90½ of their cases of gall-bladder disease.

In cholecystectomy, a conservative surgeon—and by conservative, I mean one who conserves the lives of his patients—will always carry a drain down to the ligature on the duct, and if drainage is necessary in the given case, the bile will find its way to the surface in two to six days and take care of itself. It is remarkable in how large a portion of cases this gush of bile does not take place.

In acute cholecystitis without stones we are dealing with a condition which may, but probably not, be cured by drainage. Here cholecystectomy is indicated. In chronic cholecystitis without stones we have a thickened, stiff-walled gall-bladder, usually adherent to the pylorus, omentum, colon, etc., and forming stronger adhesions as time goes on.

Acutely inflamed gall-bladders, especially gangrenous gall-bladders, should be removed if the operation is not too difficult and the patient's condition too poor. Gangrenous gall-bladders, if not taken out, have to slough out, and the patient is subjected to long-continued, low-grade infection while this is taking place.

Under what circumstances, then, should we remove the gall-bladder? I have for years maintained that the gall-bladder should be removed under the following conditions:

- (1) In cases of very thick, acutely inflamed, bright-red, or gangrenous gall-bladders due to the impaction of a stone in the cystic duct.
- (2) In cases of chronically thickened gall-bladders. Here (a) the thick walls cannot contract and drive out the bile, so that what bile gets back into the gall-bladder is sure to stagnate there; and (b) after cholecys-

tostomy, the walls do not contract, so that we get a mucous sinus for a long time, or for life.

(3) In cases of gall-bladders very much distended with clear fluid from impaction of a stone in the cystic duct. Here the duct has been closed and probably ulcerated and strictured by the irritation of the stone, so no bile gets back. In these cases, removal is usually technically simple.

(4) Wherever suspicion exists of malignant disease.

(5) In chronic cholecystitis without stones, but with moderate thickening and ulceration of the mucous membrane, giving little yellow spots on the mucous surfaces, the so-called "strawberry gall-bladder." These do not get well with drainage alone.

(6) In chronic cholecystitis without stones but with adhesions to the surrounding organs, especially the pylorus, which cripple the latter and cause symptoms. Here, also, drainage alone is only temporarily efficient. The gall-bladder is a constant focus for low grade infection and adhesions, which will continue to form and perhaps spread until its removal; all these processes being attended with discomfort and invalidism to the possessor of the organ.

To these should perhaps be added in view of the definite cases of recurrence after operation that have occurred in my practice, and also of cancer of the gall-bladder, and of the recent experience and quoted statistics of many of our best surgeons:

All cases of gall-stones in which the operation is not for any reason unusually difficult or dangerous; and

All cases of cholecystitis without stones where the same conditions exist.

There can be no question that modern technic, the use of adequate and properly-located incisions, the use of the gall-bladder as a tractor to bring the liver practically outside the abdomen and keep it there while the common duct and cystic duct are tied, and excising the bladder from below upward, etc., have done very much to render the operation simple and safe; and for that reason as well as those given above, the indications should be extended.

In what conditions should cholecystostomy be performed?

(1) In all cases of acutely inflamed gall-bladders, with or without stones, in which the patient's condition or the technical difficulties render the removal of the gall-bladder unsafe.

(2) In cases of pancreatitis with jaundice. Here cholecysto-enterostomy should be performed if possible; if not, cholecystostomy.

(3) In cases in which the common duct is strictured, or is likely to become so, and in which the gall-bladder has not been already removed, or is not too thickened and contracted to be of value for purposes of anastomosis.

—Isidore Cohn.

ANEURISMAL OBSTRUCTION OF VENA CAVA SUPERIOR WITH SPECIAL REFERENCE TO THE CAVAL SYNDROME.—Skillern (P. G. Jr.) reports in the *International Clinics* an example of this condition and also gives a brief review of the literature. The caval syndrome is described as consisting of enormous oedematous swelling of the head, neck, trunk, upper extremities, and marked obstruction of the veins. These clinical manifestations depend upon the formation of a collateral circulation, the extent of narrowing of the vena, and the size and extent of the pathologic process which causes the compression.

The first result of compression is obstruction of the venous blood in the entire territory of the vena cava superior. Through dilatation of all veins and capillaries in the territory of the upper half of the body an enormous cyanosis is often caused. The result of the obstructed outflow of venous blood while more blood is continually being brought to the part is the appearance of edema. From the distribution of the edema and its further advance one may draw diagnostic conclusions as to the site of compression. The lower half of the body is almost always free from edema, but the latter appears here as well, when through overdilatation of the inferior vena cava obstruction in the tributaries of this vein results, or when through cardiac weakness edema appears in the lower extremities and scrotum. Usually, however, even in this case the swelling of the upper half of the body remains in characteristic contrast to the very much slighter

edema of the lower. Not only the subcutaneous cellular tissue, but also the deeper parts are involved by the edema, especially the mediastinum. Of importance also is edematous infiltration of the mucous membranes, for thus edema of the glottis may give ground for suddenly appearing death.

In the *diagnosis* of compression of the superior vena cava but little difficulty is encountered. The diagnosis is based upon the obstructive signs appearing in the territory of the vena cava superior, i. e., upon the direction of a collateral circulation and the prominence and characteristic course of the veins belonging to it. In favor of aneurism as the cause are the appearance of a dull, pulsating area and the Oliver-Cardarelli symptom.

NEWS AND COMMENT.

CREDIT DUE U. S. ARMY SURGEONS.—*The Journal of the Michigan State Medical Society* says: "The medical department of our Army has made the whole world a debtor. It was an army surgeon who slew the hookworm in Porto Rico; it was an army man who fought to the death with yellow fever in Havana and conquered it; it was an army man who made the disease-breeding swamps of Panama into a one of health; it was an army man who perfected camp sanitation and disease prevention during mobilization. And so one might continue to enumerate the world-wide influence that has followed the studies and discoveries of the men now enrolled in the medical department of our army. Noble, whole hearted, thinking not of or for themselves, but for their country and country's good. We may well be proud of our professional brothers thus serving our country. Small though the credit awarded them, great and enduring are these, their achievements."

NOTICE TO MEDICAL STUDENTS, PRE-MEDICAL STUDENTS AND TO THOSE WHO INTEND TO STUDY MEDICINE.—In answer to the unrest among students regarding their duty in the present national crisis, which has occasioned the most earnest consideration of the national authorities embracing the government services of the army and navy and the membership of the Council of National Defense, the following notice has been issued by the Council of National Defense:

"In the present national crisis a continuous supply of adequately trained medical officers is absolutely essential for the maintenance of armed forces in the field. It would be folly for the country to prepare for the immediate emergency alone—we must face the possibility of the war lasting for years. It is, therefore, the patriotic duty of all college students intending to study medicine to remain under instruction until the country can avail itself of their trained services.

"Medical schools are in a sense 'munition works' necessary to produce trained medical officers for the army and navy. All medical students must, therefore, in the interest of national safety continue their work until graduation. With the

exception of such men as the navy can utilize, all graduates are urged to secure a hospital training which the surgeons-general of the army and navy consider essential for their arms of the service."

INCREASED CHARGES IN A MEDICAL SCHOOL.—According to report, the George Washington University, Washington, D. C., will increase charges in its medical school from \$150 to \$175 a year, and in its dental school from \$125 to \$150 a year, to take effect next fall. The increased cost of supplies has brought this about.

TUBERCULOSIS MODERN WARFARE PERIL.—Dr. Herman Biggs, commissioner of health of New York, who was sent by the Rockefeller Institute, upon invitation of the French government to study the tuberculosis problem in France, states that tuberculosis is the greatest disease peril of European warfare. Living in the trenches and dugouts as do the European soldiers is not conducive to health as is living in the open air. Dr. Biggs asserts that there are 400,000 to 500,000 cases of tuberculosis in the military and civil population of France at this time and is informed that what is true of France is likewise the condition in Austria-Hungary and Russia.

TO USE OPIUM TAKEN BY LAW.—The National Academy of Sciences received the report at its meeting in Washington during the past month, that large quantities of opium seized by officers sent out by the government to enforce the anti-narcotic laws will be used in making valuable hospital drugs which have been made scarce by the war.

PROHIBITION AND DRUG NOSTRUMS.—It is rapidly being discovered that high-content alcoholic drug nostrums are having enormously increased sales in "dry" states, so that the conclusion is forced upon us that prohibition is a farce until there is a suppression of the nostrum swindle.

STATEWIDE TUBERCULOSIS CAMPAIGN.—The Louisiana Anti-Tuberculosis League has launched a state-wide campaign against tuberculosis. The plan is to have a "drive" from May 26 through June 2. During this time every home is to be visited, literature is to be distributed therein, automobile tours in the industrial districts are to be made, when

talks on tuberculosis are to be given in the simplest language, and subscriptions are to be asked ranging from ten cents, upwards. Membership in the League is one of the principal objects of the campaign. It is the desire of the League to collect a fund large enough to build a sanitarium where those who are beyond cure may be cared for, and to maintain and improve conditions at Camp Hygeia, the home for those in the first stage of the disease.

JAMES BUCHANAN BRADY NEUROLOGICAL INSTITUTE.—The New York Hospital is the recipient of a gift of \$4,000,000, by the will of the late James Buchanan Brady, to establish a department of neurology, and Johns Hopkins Hospital, Baltimore, is the recipient of a gift of \$300,000 to be used in the erection of the James Buchanan Brady Neurological Institute.

THE ARMOUR YEAR BOOK is a very attractive one, containing much interesting information about a wonderful industry. It is a digest of the Armour industries and the methods by which they conduct their business. The facts as contained in the book are presented with the aim of creating a better understanding of Armour & Co.'s function in the gathering of livestock and produce and the preparation, sale and distribution of the finished products.

TO CONSIDER COMPULSORY HEALTH INSURANCE.—According to Prof. Irving Fisher, the United States is the only great industrial nation without compulsory health insurance. In view of this need, the National Conference of Charities and Corrections has provided an entire division on the subject of social insurance for its meetings at Pittsburgh, June 6-13. In order to accommodate medical men who attend the meeting of the American Medical Association in New York, the program has been arranged to occur the latter part of the conference period. The chairman of this series of discussions is Max Senior of Cincinnati.

DEATH FROM ANTHRAX.—William Grossman, a landscape gardener of Pleasantville, N. Y., after only three days' illness, died in Bellevue Hospital from anthrax. The source of infection is unknown. Only one out of four patients, suffer-

ing with the disease and treated at Bellevue Hospital during the last three years, has recovered.

CHILD WELFARE RESEARCH.—The Legislature of Iowa has voted \$25,000 a year to establish and maintain a child welfare research station in Iowa City. The State university will carry on investigations relating to prenatal care, feeding, prevention of disease, social conditions affecting child life, the part home life has in educating the child and forming its character, and methods of applying psychology to the development of the child.

STATE DRUGGISTS MEET.—The thirty-fifth annual convention of the Louisiana State Pharmaceutical Association met in New Orleans, May 6-9, and after busy sessions, elected officers for the ensuing year, as follows: President, Eugene H. Daste, New Orleans; first vice-president, John R. Taylor, New Iberia; second vice-president, John T. Balter; secretary, George D. McDuff; treasurer, Dr. Geo. S. Brown; corresponding secretary, Miss Aurelia B. Kuhn. The new executive board comprises: Joseph P. Walker, Joseph H. Berner, Sidney J. Peters, John E. Guess and John T. Benedict. New Iberia was chosen as the next meeting place.

THE CHIMIOThERAPY REVIEW, which Dr. J. Laumonier manages, and the first number of which has just appeared, will be devoted to the science of chimiotherapy and fill a want in French medical literature. It will be published in French at No. 3 rue de Sevigné, Paris.

HEALTH SURVEY IN LOUISIANA.—Dr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company of America, has recently completed an extended trip through Louisiana in the private car of the State Board of Health, with officers of the board and Dr. H. R. Carter, Senior Surgeon, U. S. P. H. Service, in a state-wide campaign for malaria eradication, improved accuracy and completeness in birth and death registration, and public health matters generally. The principal stops were made in New Orleans, New Iberia, Lake Charles, DeRidder, Shreveport, Monroe, Tallulah, Baton Rouge and Alexandria. Over twenty public meetings were held, including medical societies, high schools, churches, etc.

In view of the fact that the death rate among the negro population, from all causes, as well as from malaria, is excessive, a special effort was made to reach them. It is anticipated that as a result at least a number of parishes will qualify for admission to the United States Registration Area.

An address embodying the results of the trip and matters and data pertinent thereto will probably be given at the forthcoming meeting of the American Public Health Association in New Orleans.

PREVENTING INFECTIOUS DISEASES.—A bulletin has been issued by the United States Public Health Service, calling the attention of the public to the importance of preventing communicable and infectious diseases, and to a number of bulletins issued free by the government to aid in bringing about this desirable result. Among the free bulletins are the following: "Good Water for Farm Homes"; "Typhoid Fever—Its Causation and Prevention;" "Prevention of Malaria;" "The Prevention of Pellagra;" "Tuberculosis, Its Predisposing Causes;" "Hay Fever and Its Prevention;" "Infantile Paralysis;" "Malaria—Lessons on Its Cause and Prevention;" "Fighting Trim—The Importance of Right Living;" "What the Farmer Can Do to Prevent Malaria;" "The Care of the Baby."

AWARD OF MEDALS.—The National Institute of Social Science recently awarded a gold medal to Dr. George W. Crile of Cleveland, in recognition of his work in relieving shock in surgery and in the field of blood transfusion. Medals were also awarded by the institute to Surgeon General Wm. C. Gorgas, for his work in the Spanish war and in the Philippines and Panama; Mayor John P. Mitchell of New York, for services in behalf of dependent children, and Prof. M. I. Pupin of Columbia University, for electrical inventions.

CALIFORNIA WOULD HAVE NATIONAL LEPROSARIUM.—California is the only state in the Union which has expressed a willingness to welcome the future national leprosarium provided for by the passage of a federal law last January, according to W. M. Danner, secretary of the International Mission of Lepers.

ST. LOUIS COLLEGE OF PHARMACY GRADUATES.—The St. Louis College of Pharmacy held the commencement exercises of the Class of 1917 on May 16, in the Sheldon Memorial Auditorium. The valedictory address on behalf of the faculty was delivered by George E. Moore, Ph. D., director of the Missouri Botanical Garden.

TO TRAIN MEDICAL OFFICERS.—Lecture courses for senior students on military medicine and and surgery will be begun with the 1917 session in the medical schools of the United States. The movement will be under the supervision of Surgeon General William C. Gorgas, U. S. A., and Surgeon General William C. Braisted, U. S. N. The object is to supply qualified medical officers to the army and navy.

PERSONALS.—Dr. Chas. T. McGregor and Dr. A. M. Kahn, of Denison, Tex., are stationed at the naval coast defense station in New Orleans.

Captain Thomas Collins Austin, M. C., U. S. A., who finished his course of lectures in military medicine and surgery to the senior students at Tulane University, has been summoned by the War Department to report to the base hospital in St. Louis.

REMOVALS.—Dr. M. L. Flynt, from Mount Olive, Miss., to Mart, Tex.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Physiological Chemistry—A Text-book and Manual for Students, by A. P. Mathews. Second Edition. Wm. Wood and Company, New York.

This work does more than meet all the requirements of a standard text-book as to subject matter; logical arrangement and clear exposition; it is an inspiration to its readers. The author has written the work in the hope that it "may raise as many questions in the minds of those who read it as it answers." This unique attitude has given the work a charm and value rarely attained in a text-book. Essential facts and present day conclusions are given their proper emphasis, but the reader is also made cognizant of the limitations to our present knowledge of biological, physical and chemical phenomena; he is stimulated with the desire to know more of the many unexplored fields in the realm of physiological chemistry.

Mathews belongs to the physico-chemical school of biochemists and in the utilization of the illuminating advances in the field of physical chemistry for the explanation of vital processes the author has rendered a distinct service to the student of physiological chemistry. The chapter on the Physical Chemistry of Protoplasm is a masterful and authoritative presentation of the importance of this new science to biology and medicine. The work has an added value in that the biological and physiological processes are made the basic ones; thus the chemical aspects of vital activity are emphasized instead of making the work one for the treatment of a special field of chemistry.

A bibliography at the end of each chapter gives a list of well selected references, chiefly from the recent literature. About one hundred and fifty pages of laboratory directions form the third part of the book and includes the most recent quantitative and micro-methods.

The second edition corrects some errors of the first edition,

amplifies the bibliography, and extends the discussion of colloids and their surface phenomena. *W. E. Garrey.*

A Manual of Pharmacology, by Harold Sollmann, M. D. W. B. Saunders Company, Philadelphia and London.

Dr. Sollmann has assembled and put into this work an enormous amount of information on the subject of the properties, actions, and uses of drugs. While this renders the work all the more valuable as a reference book, the very mass of material contained therein, in the reviewer's opinion, makes it a hard task for the student to obtain from it what he needs in the time at his disposal. In a careful reading of the work the reviewer finds little with which he disagrees, and few or no omissions of the important newer knowledge of pharmacology. Of course, in a branch where so much still remains to be learned, there must necessarily be many differences of opinion as to the interpretation and conclusions to be drawn from the facts as at present revealed. Especially valuable are the sections dealing with opium and its alkaloids, with cocain, and with the digitalis group. The article on alcohol and that on ether and chloroform and the allied hypnotics are also especially to be commended. The reviewer would have expected from a colleague of Crile a more extensive and satisfactory discussion of nitrous oxide. The book, taken as a whole, represents better than any other known to the reviewer, the present status of pharmacologic knowledge. It is to be hoped that a wide sale will bring the author a reward commensurate with the industry and ability displayed by him. *J. T. Halsey.*

Practical Medicine Series, Volume VIII, Series 1916. Materia Medica and Therapeutics and Preventive Medicine, The Year Book Publishers, Chicago, Ill.

The character of the volumes making up this series is so well known to the profession that when the statement is made that this present number is up to the standard of its predecessors almost enough has been said. Of particular value to the general practitioner are the sections dealing with drugs and with the biological products such as organ extracts, serums, and vaccins. In small compass one finds here concise but sufficiently full reviews of what is new in these chapters. The reviewer believes, however, that the editor would add to the value of these abstracts were he to make his own personal comment on the correctness or value of the statements and suggestions made by the authors. *J. T. H.*

International Clinics, Volume Three, Twenty-sixth Series.

J. B. Lippincott Company, Philadelphia.

This volume contains a large number of interesting and useful articles, among which, as of particular interest may be mentioned one on the treatment of obesity, three articles dealing with the X-ray diagnosis of pulmonary conditions, a brief but satisfactory discussion of the Schick test, and one on methods and value of rectal examination. The volume closes with a sketch of Armand Trousseau, a master clinician.

J. T. H.

A. Laboratory Guide in Pharmacology, by Harold Sollmann, M. D. W. B. Saunders Company, Philadelphia and London.

This Guide, used by Dr. Sollmann in his own classes, contains a large number of well chosen and clearly described experiments for class work in the pharmacological laboratory. Any student, after having done even a small portion of the experiments contained in this work, will have had a first class experience in pharmacological methods.

J. T. H.

Practical Therapeutics by Hobart Amory Hare, M. D. B. Sc., Seventh Edition, Lea and Febiger, Philadelphia and New York.

This new edition of a work, which has, the reviewer understands, had a wider sale than any other text book sold in America, is up to the standard of the preceding editions. It has been reviewed so often in this journal that renewed comment on it is superfluous.

J. T. H.

Organic Materia Medica and Pharmacognosy, by Louis B. Sayre, B. S., Ph. M. P. Blakiston Son & Company, Philadelphia.

Professor Sayre has thoroughly revised and brought up to date his presentation of pharmacognosy and organic materia medica. The work is proving, and will continue to prove useful to students and teachers of this subject.

J. T. H.

Care and Feeding of Infants and Children for Trained Nurses, by Walter Reeves Ramsey, M. D. J. B. Lippincott Company, Philadelphia.

The author, with the assistance of two nurses of large experience in the management of babies and children, has compiled a reasonably small work which contains a large amount of practical instruction and useful knowledge. It should be useful not only to trained nurses, but also to mothers anxious to do their full duty by their offspring.

J. T. H.

Nervous and Mental Diseases, Vol. X of The Practical Medicine Series, 1916. Edited by Hugh T. Patrick, M. D. Peter Bassoe, M. D., with the collaboration of Lewis J. Pollock, M. D. The Year Book Publishers, Chicago.

This is the tenth volume of the Practical Medicine Series of 1916 and is a most valuable book for the busy general practitioner who wishes to keep up with the advances in neurological lines. It contains material drawn from world-wide sources, well arranged and up to date. The comments and views of the editors on the various subjects do not form the lesser part in the value of the book. *L. L. Cazenavette.*

Diseases of Children, by Edwin E. Graham, M. D. Lea & Febiger, Philadelphia and New York.

On the whole the author has fulfilled the promise of his preface to present a work modern and practical. No attempt has been made to discuss theories of disease at length. Pathological findings are stated concisely but usually adequately and the bulk of the space has been devoted to symptomatology, diagnosis and treatment. The result is a text and reference book highly useful to student and busy practitioner. Some omissions are notable. Such it seems to the present reviewer is the total absence of any consideration of diabetes in children. One may also venture to question the advisability of morphin and codein in the treatment of cyclic vomiting (p. 266). Likewise the statement that the acetonuria of this condition should call for a restriction of the carbohydrate dietary is contrary to that little that is known of the production of acetonia. *I. L. Lemann.*

The Examination of the Urine and Other Clinical Side-Room Methods, by Andrew Fergus Hewat, M. B., Ch. B., M. R. C. P. (Edin.). Fifth Edition. Paul Hoeber, New York.

This little book covers in a practical way the examination of urine, blood, feces, sputum, etc., and in a manner easily followed by the average student or practitioner. The handy size (12 mo.) "vest pocket edition" also commends it. The methods are modern and the present edition has been revised to date. *Dyer.*

Progressive Medicine. A Quarterly Digest, Etc. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. Volume XIX, Nos. 3 and 4. Lea & Febiger, Philadelphia and New York.

The same standard of excellence characterizes these two numbers as usually is found in this comprehensive review of current medicine. In the present volumes, diseases of the

Thorax, of the Skin (including Syphilis), Obstetrics, Nervous System, Digestive Tract, Kidneys, Genito-Urinary apparatus and Surgery of the Extremities are covered. Nearly a hundred pages are devoted to modern therapeutic remedies. The authors are always among the best known of contemporaneous medical writers, so the reader should get a large amount of prompt compensation for reading these books.

Dyer.

Harvard Health Talks. Harvard University Press, Cambridge.

The Cambridge press has issued several small brochures, two of which, "An Adequate Diet" by Stiles, and "Adenoids and Tonsils" by Coolidge, are before us. Each is full of merit in satisfying the object of the series, which is to present the salient features of each topic in plain language but yet in exact statements which shall be educational. A number of years ago such monographs were issued from the pens of such men as Fothergill, Playfair, Liveing and their contemporaries and they proved most acceptable as digests of current ideas on the subjects they covered. These Harvard books, because they are small and because they are compendary, must find a like place.

Dyer.

A Practical Medical Dictionary. by Thomas Lathrop Stedman, A. M., M. D., Fourth Edition, Revised. Wm. Wood and Co., New York.

The present edition has been demanded just two years after its predecessor and this in itself bespeaks the popularity of this publication. The effort has been made to bring the terms up to date and to include all the discoveries within the time which has intervened since the third edition. Among the medical dictionaries this volume holds itself as standard for reference.

Dyer.

Mentally Deficient Children. Their Treatment and Training, by G. E. Shuttleworth, B. A., M. D., and W. A. Potts, M. A., M. D., 4th Edition. P. Blakiston's Son and Co., Philadelphia.

A considerable reference to institutional investigation and care of the feeble minded of the United States may be found in this estimable book by two distinguished English alienists, but the bulk of the observations are derived from experience in Great Britain. Under all circumstances the authors have contributed a work of large value, and especially in this day when the whole of this country is engaged in the problem of providing for the feeble minded. The psychologic clinics

in most of the large cities, dealing more particularly with school children and especially with defectives or exceptional cases among them, promise a large fund of material for future effort at relief.

The complete detail given in the compendium in review will make it of valuable service to all workers in this particular field, for it covers a large variety of the many phases of the question.

Dyer.

The Mentally Defective Child, by Meredith Young, M. D., D. P. H., D. S. Sc. Paul B. Hoeber, New York.

This little book has been specially written for school teachers and for those interested in the educational care of exceptional children. It is evidently intended as a guide to the early recognition of such and physical characteristics are emphasized. Types are instanced and means of testing the more obscure cases are detailed, the Binet-Simon tests for example. About a third of the book is given to references to legislative acts governing procedures in defective children.

Dyer.

Physics and Chemistry for Nurses, by Amy Elizabeth Pope. G. P. Putman's Sons. The Knickerbocker Press, New York and London.

The material presented in this book is far above the intelligence of the better trained nurses and the text would appear rather difficult of digestion to most nurses. As a practical work it has less place than as one of reference for the better educated nurse, for whom it really has a place. The chapters on physics and foods are clear and thoroughly adaptable for nurses' consumption, but those on chemistry are much too advanced. These criticisms should in nowise discount the praise which has been deserved by the author's effort, for the book shows throughout the evidence of painstaking care in its preparation and the many illustrations show judicious selection.

Dyer.

Constipation, Obstipation and Intestinal Stasis, by Samuel Goodwin Gant, M. D., LL. D. Second Edition, enlarged. W. B. Saunders Company, Philadelphia and London.

In the introduction to this work, Gant states: "The subject of constipation is a broad one, and covers a field which is of interest to both physician and surgeon, because of the frequency of the condition and its far-reaching effects. Constiveness may exist in the absence of any demonstrable cause, on an inherited or acquired basis, or as the result of some traceable cause, or as the result of some traceable pathologic

lesion." All of this we think true, and further that "it is responsible for an inestimable amount of discomfort and suffering." In the 51 chapters into which this book of 564 pages is divided, we find every phase of this protean condition either stressed, or given the just consideration which its importance merits. Here will be found chapters on etiology; mechanical causes; symptoms and consequences of constipation; diagnosis; educational, psychic, diatetic, treatment; hydrotherapy; massage; mechanical vibration, electricity and other physical therapeutic procedures; medical treatment; treatment of the complications and consequences of constipation; treatment of constipation in infants and children; surgical treatment of mechanical constipation; intestinal operations; congenital malformation of the bowel; strictures; malignant and benign tumors of the colon and sigmoid flexure; foreign bodies; fecal impaction; adhesions; angulations; diverticula and rectocele; abnormal mesentery, volvulus; hernia; invagination; Lane's kinks, and general enteroptosis. Almost every imaginable condition to be met with in the intestinal tract, or in any other organ contributing in any manner to constipation, obstipation or intestinal stasis, is touched upon, and where warranted, dealt with in extenso. We consider this volume a very excellent book, quite in advance of the first edition, and well worth close perusal. The publishers, too, have done their work well, good paper, fine illustrations, and substantial binding add greatly to a work of this character. Dr. Gant's book has our hearty approval.

J. A. Storck.

Manual of Chemistry. By W. Simons, Ph. D., M. D., and Daniel Base, Ph. D. Eleventh Edition. Lea and Febriger, Philadelphia and New York.

An excellent review fills the opening chapter of chemical physics, which is followed by the principles of general chemistry, the non-metals being taken up in a systematic manner, followed by a consideration of the metals. Some of the important toxic symptoms of the metals might well have been included, as well as the modified arsenic test of Clark and Woodman.

The carbon compounds occupy a considerable portion of the text and their chemistry is presented very clearly. The reviewer questions the use of this book for students of medicine, as the modern trend of medical education is that the medical student should matriculate with his general chemistry behind him. As a text book for students of pharmacy and dentistry it should prove excellent. *Chillingworth.*

Principles of Treatment of Broken Limbs. Flurrey. Reberman & Co., New York and London.

The book is interesting from a historical standpoint, representing as it does a chapter in medical progress. We can easily see that it is the handiwork of one of the older men who has not accepted readily the importance of the more recently introduced methods, which seems so necessary to our generation. For example (page 9) "The guides for the correct adjustment of the fragments at the time of their immobilization are: the assurance of touch, palpation; the proper outline of the limb as disclosed by its uninjured fellow; and possibly the revelations of the fluoroscope or X-ray." The description of the method of applying plaster casts is certainly antiquated. The author's description of the dressing of compound fractures with plaster casts and antiseptic gauze as an occlusive dressing is very different from the open extension methods described by Hull, and others writing from experiences gathered in the present war. Exception may be taken to the suggestions that permanent dressings should not be applied to fractures of the femur until primary swelling has subsided, as well as to the idea that the surgeon should supervise the anesthetic.

The author introduces an interesting chapter on the pre-antiseptic and early antiseptic periods in surgery as witnessed by him in Bellevue Hospital, all of which has historical importance. After carefully examining the book it would seem that the principal fact which the author wishes to convey is the usefulness of the perforated tin splints which he has introduced to strengthen plaster casts. *Isidore Cohn.*

Blood Pressure—Its Clinical Applications, by George William Norris, M. D., 2nd edition, revised and enlarged. Lea & Febiger, Philadelphia, 1916.

Norris' book is readable and serviceable. The section on the physiology of blood pressure by Dr. J. Harold Austin is particularly well done and will serve as a guide to the sources of original research in this field. It is to be regretted that necessarily so much of our text books on medicine must be devoted to the practice of medicine that a discussion of the fundamental facts upon which that practice is based is crowded to the background. Such treatises as the present are therefore to be welcomed and to be recommended to the student and the practitioner in order that a better correlation may be established between our science and our art. The chapters devoted to the consideration of blood pressure in abnormal conditions are comprehensive, adequate and clearly and succinctly put.

I. I. Lemann.

PUBLICATIONS RECEIVED

- P. BLAKISTON'S SON & CO.** Philadelphia, 1917.
Clinical Bacteriology and Hæmatology, by W. D. Este Emery, M. D., B. Sc. Fifth edition.
A Compend of Human Physiology, by Albert P. Brubaker, A. M., M. D. Fourteenth edition.
Rest, Suggestion and Other Therapeutic Measures in Nervous and Mental Diseases, by Francis X. Dercum, A. M., M. D., Ph. D. Second edition.
- W. M. LEONARD.** Boston, 1917.
Case Histories in Obstetrics, by Robert L. DeNormandie, A. B., M. D., F. A. C. S. Second edition.
Pulmonary Tuberculosis, by Edward O. Otis, M. D.
The Starvation Treatment of Diabetes, by Lewis Webb Hill, M. D., and Rena S. Eckman, with an introduction by Richard C. Cabot, M. D. Third edition.
- PAUL B. HOEBER.** New York, 1917.
Cancer: Its Cause and Treatment, by L. Duncan Bulkley, A. M., M. D. Vol. II.
The Internal Secretions, by E. Gley, M. D. Translated from the French and edited by Maurice Fishberg, M. D.
- REBMAN COMPANY.** New York, 1917.
Diagnosis From Ocular Symptoms, by Matthias Lanckton Foster, M. D., F. A. C. S.
- J. B. LIPPINCOTT COMPANY.** Philadelphia and London, 1917.
Text-Book of Ophthalmology, by Hofrat Ernst Fuchs. Authorized translation from the twelfth German edition; completely revised, reset and enlarged, by Alexander Duane, M. D. Fifth edition.
- W. E. SAUNDERS COMPANY.** Philadelphia and London, 1917.
Diseases of the Genito-Urinary Organs and the Kidney, by Robert Holmes Greene, A. M., M. D., and Harlow Brooks, M. D. Fourth edition, thoroughly revised.
Principles of Pharmacy, by Henry V. Arny, Ph. G., Ph. D., F. C. S. Second edition, revised.
Diseases of the Stomach, Intestines and Pancreas, by Robert Coleman Kemp, M. D. Third edition, revised.
State Board Questions and Answers, by R. Max Goepf, M. D. Fourth edition, thoroughly revised.

WASHINGTON GOVERNMENT PRINTING OFFICE.

Washington, D. C., 1917.

Public Health Reports. Volume 32, Nos. 14 and 15.

Maternal Mortality, by Grace L. Meigs, M. D. (United States Department of Labor, Children's Bureau).

United States Naval Medical Bulletin. April, 1917. (Bureau of Medicine and Surgery, Navy Department).

Report of the Health Department of the Panama Canal. February, 1917.

MISCELLANEOUS:

China Medical Board. First annual report. (The Rockefeller Foundation, 61 Broadway, N. Y.).

International Law and Autocracy, by Geoffrey G. Butler, M. A. A public lecture delivered before the University of Pennsylvania.

Annual Report of the United Fruit Company Medical Department. (Press of Geo. H. Ellis Co., Boston, 1917).

The Armour Year Book for 1917. (Armour & Co., Chicago, 1917).

Quarterly Bulletin Louisiana State Board of Health. (Louisiana State Board of Health, New Orleans, 1917). Vol. VIII, No. 1.

The Institution Quarterly. Vol. VIII, No. 1. March 31, 1917. (Springfield, Illinois, 1917).

REPRINTS

Equine and Bovine Streptococci as Causal Agents of Human Infections, by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and Alexander Marshall.

Acnitis in an Egyptian Soldier, by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and A. F. C. Martyn, Captain R. A. M. C.

The Alcoholic Problem Considered in Its Institutional, Medical and Sociological Aspects, by Charles B. Towns.

Sex Gland Implantation, by G. Frank Lydston, M. D.

Sur Les Tétanos Post Seriques. par Auguste Lumière.

The Value of Blood and Urine Chemical Examination in The Diagnosis of Nephritis, Diabetes Mellitus, Rheumatism and Gout; Blood Chemical Methods in the Estimation of Renal Function; The Hecht-Weinberg-Gradwohl Test in the Diagnosis of Syphilis; A New Animal Operating Table, by R. B. H. Gradwohl, M. D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for April, 1917.

Cause.	White	Colored	Total
Typhoid Fever	3	.....	3
Intermittent Fever (Malarial Cachexia) .....	.....	.....	.....
Smallpox .....	.....	.....	.....
Measles .....	.....	2	2
Scarlet Fever .....	.....	.....	.....
Whooping Cough .....	.....	.....	.....
Diphtheria and Croup	4	2	6
Influenza	4	7	11
Cholera Nostras .....	.....	.....	.....
Pyemia and Septicemia .....	.....	.....	.....
Tuberculosis .....	.....	.....	.....
Cancer	43	51	94
Rheumatism and Gout	25	5	30
Diabetes .....	.....	2	2
Alcoholism	2	1	3
Encephalitis and Meningitis	1	.....	1
Locomotor Ataxia	2	1	3
Congestion, Hemorrhage and Softening of Brain	2	.....	2
Paralysis	26	6	32
Convulsions of Infancy	1	1	2
Other Diseases of Infancy .....	.....	.....	.....
Tetanus	7	7	14
Other Nervous Diseases	1	2	3
Heart Diseases	2	3	5
Bronchitis	57	34	91
Pneumonia and Broncho-Pneumonia	3	2	5
Other Respiratory Diseases	20	28	48
Ulcer of Stomach	6	1	7
Other Diseases of the Stomach.....	1	.....	1
Diarrhea, Dysentery and Enteritis.....	19	11	30
Hernia, Intestinal Obstruction.....	6	3	9
Cirrhosis of Liver.....	1	1	2
Other Diseases of the Liver.....	1	.....	1
Simple Peritonitis .....	.....	.....	.....
Appendicitis	4	1	5
Bright's Disease	29	17	46
Other Genito-Urinary Diseases	11	8	19
Puerperal Diseases	4	1	5
Senile Debility .....	.....	.....	.....
Suicide	1	.....	1
Injuries	25	18	43
All Other Causes.....	21	20	41
Total	333	236	569

Still-born Children—White, 14; colored, 25; total, 39.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 14.47; colored, 27.28; total, 18.06. Non-residents excluded, 15.49.

METEOROLOGIC SUMMARY (U. S. Weather Bureau.)

Mean atmospheric pressure29.99
 Mean temperature68.
 Total precipitation 4.11 inches
 Prevailing direction of wind, southeast.

158574

ST.

