The Treatment of Tonsillar Infections.

A. H. Norton, M.D., Haiju, Korea.

During the last decade the tonsils have been the objects of a great deal of attention. Indeed, repeated visits to throat clinics in America would almost convince one that to be still possessed of these structures is as mortifying as to be caught with an appendix or a gall-bladder. Yet it must be admitted that the pathological case against the tonsils is pretty strong, and in this paper I want to call attention to some of the ills, both local and systemic, which seem to be due to tonsillar infections.

In view of the prevalence of nose and throat affections and cervical adenitis in Korea, I very much doubt if we have given the tonsils the attention they deserve in our clinics. A moment's attention to the histological anatomy will show how the tonsils are suited in health to defend the body against the entrance of bacteria, and how diseased tonsils not only lose this power, but become unguarded gateways of infection. Each tonsil is located between the faucial pillars in what is called the sinus tonsillaris, the floor being formed by the superior constrictor of the pharynx. It begins as an invagination from the hypoblast which becomes subdivided into crypts, and later is surrounded by lymphoid tissue. The crypts, extending the whole depth of the gland, are thus lined by mucous membrane continuous with that which covers the inner surface of the tonsil, while the outer surface is separated from the constrictor muscle by a layer of fibrous tissue usually spoken of as its capsule.

Clinically speaking, the crypts seem to be of the greatest importance as foci in which infection begins and finally breaks through. These
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crypts are never free from bacteria and various forms of debris, and were it not for the defensive power of the epithelial cells would furnish ideal culture beds. These cells seem to combat the germs in two ways: first, a certain viscosity of the germs hinders their passage between the epithelial cells; secondly, a bacteriolytic ferment produced by the epithelial cells destroys the germs. It has been shown by Goodale, Jonathan Wright, and others, that fine dust particles find their way into the substance of the tonsils much more readily than germs. The latter observer introduced carmine powder and germs into the crypts and fifteen minutes later excised the tonsils. He found the carmine powder in the substance of the gland, but the germs were found only on the surface where they had been placed. It was observed that the powder was much more easily washed off from the epithelium, the germs appearing to adhere. However, it is known that as soon as the epithelial resistance is broken down, becoming weaker by the bacterial toxins, the germs find a ready admission. This most frequently occurs in those crypts whose mouths open under the plica tonsillaris and therefore are less easily emptied by the compressive action of the muscles during deglutition. Oftentimes the tonsil lies to a considerable extent back of the anterior pillar and is hidden from view by the overlying plica, especially the plica supratonsillaris, so it is not safe to estimate the size of the gland by sight only.

Of greatest importance is the relation of the tonsils to the lymphatics. The efferents from the tonsils (the afferents are thought to be more numerous) drain into the chain of cervical glands under the sternocleidomastoid muscle, thence into thoracic glands, and thence into the thoracic duct, thus gaining access to the whole system by a comparatively direct route. A lowered local resistance on the part of the tonsil may therefore result in a systemic infection by an organism which causes no local lesion. In this connection the findings with reference to tubercular infection of the tonsil are of exceeding interest. Strassman first reported 13 cases of tuberculous tonsils in 21 tuberculous cadavers. Dieulafoy inoculated 96 guinea-pigs with pieces of tonsils and adenoids and 15 developed tuberculosis. A few cases are on record in which the removal of tonsils was followed by fatal pulmonary tuberculosis, and this has been explained on the supposition of a recrudescence of a latent infection in the tonsils. On the other hand, it is a matter of clinical observation that scrofulous cervical glands are not often found co-existent with pulmonary tuberculosis. This may be due to lack of close functional connection between the cervical and pulmonary lymphatics, or by the supposition that one is a bovine and the other a
human infection, or that a certain degree of immunity has been conferred by the diseased tonsils.

Co-ordinate with the above in interest to the clinician, is the part the tonsils may play in admitting organisms of the streptococcus family, or as foci of infection from which toxins are continually discharged into the blood stream. If my memory is correct, Rosenow demonstrated that streptococci taken from the tonsils were capable of causing gastric ulcer, appendicitis, and gall-bladder disease, as well as acute articular rheumatism. I have lately read of a case (Surgery, Gynecology, and Obstetrics, March, 1917, p. 382) of salpingitis thought to be traceable to previous tonsillar infection. Mellon, of Ann Arbor, confirmed Rosenow's findings by producing the above mentioned lesions in rabbits by inoculations from the tonsils. His theory was that the different lesions were due to different individuals of the streptococcus family.

Acute inflammations of the tonsils and peritonsillar abscesses are by no means rare in Korea, but, as a rule, fortunately subside rapidly under treatment. In many cases hot antiseptic gargles and hot fomentations are sufficient, adding, however, in most cases, a good cleansing of the intestinal canal. In more resistant cases the crypts will need to be cleaned out, and campho-phenol applied by means of a cotton-tipped probe. Rapid subsidence of the inflammation follows if this is carefully and thoroughly done. It is universally agreed that acutely inflamed tonsils should not be operated on except to evacuate an abscess.

The question of when to remove tonsils is harder to solve than how to do it. There are many methods by which it can be done with success, and the best method is likely to be the one the individual operator can manage best. While in America I saw different operators using different instruments in different ways with apparently equal results. I saw others who seemed to botch it by whatever method. Complete enucleation is now the only operation in repute, although I saw no less important a surgeon than A. J. Ochsner slice off a young man's tonsils with a tonsillitome before one could hardly tell what he was about to do. The indications for removal are not so well standardized. Andrews, of the Chicago Polyclinic, said that normally the tonsils should disappear, so that any tonsil of appreciable size in an adult was pathological and should be removed. Matthews, of the Mayo Clinic, dissented from this view, but was removing a great many small and, to the ordinary eye, quite normal looking tonsils. Here, however, we are liable to be mistaken as tonsils frequently inflamed are apt to be scleroded and atrophic, and normal appearing tonsils may have microscopic
tubercles. Goodale says small sclerosed tonsils are likely to have larger
crypts and less lymphoid tissue than normal, and are thus less able to
deal with infection. In his investigation, 80% of all tonsils examined
were found to have germs in their deep tissue. *Micrococcus catarrhalis,*
*Pneumococcus,* and *Streptococcus* were found in 25%, *Staphylococcus* in 16%,
*B. tuberculosis* in 14%, *B. coli communis* in 17%, and Friedlander’s bacillus
in 3%. If these findings are representative of universal conditions, it
would seem that removal of the tonsils ought to be undertaken as a
routine measure along with vaccination. This can hardly be necessary
unless the invaders have already become potent for harm. Now and
then a voice is raised pleading for conservative treatment, and claiming
that the tonsils have a function which ought not to be interrupted.
The alleged functions range all the way from internal secretion to a
physico-mechanical part in phonation. Any and all of these, though
possible, are hard to prove, and at any rate I have seen no case records
nor cases proving that patients suffered from the lack of the tonsils
after removal.

At least a few incontrovertible indications for removal can, I
think, be laid down:—

1. Tonsils manifestly diseased and no longer able to perform any
function. These may include:—
   a. Tonsils so enlarged as to be to a degree obstructive.
   b. Atrophic and sclerosed tonsils.
   c. Tonsils with malignant involvement.
   d. Tonsils chronically inflamed and subject to repeated acute
attacks.

2. Cases of cervical adenitis not attributable to nasal or aural
disease.

A mere passing glance at the tonsils is not sufficient to determine
their condition. They should be palpated, and the crypts explored.
If cheesy matter and cellular debris can be expressed, the presumption
is in favor of removal. Sore glands in the neck, in the absence of other
cause, should throw suspicion on the tonsils.

**The Operation of Enucleation.**—As I have already said, the
old guillotine operation as formerly performed, simply slicing off the
protruding part, is now obsolete, and probably should never be per­
formed. All operators, as far as I know, agree that the whole gland
should be enucleated, but there are probably few surgical procedures
which vary more in the details of technic. Some operators rely on
blunt and some on sharp dissection. Knives, scissors, snares, and
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guillotines are all variously used. My belief is, after watching a good many operators and having a limited experience myself, that the method should be adapted to the case in hand.

I wish to speak only of the technique of two methods, believing that one of them at least is adaptable to most cases. The one consists of blunt dissection of the upper pole, finishing the enucleation with the cold wire snare, and the other is an ingenious use of the guillotine, by the method devised by Dr. Greenfield Sluder. The former is adapted to small glands and especially those overlaid by the plica tonsillaris. The latter is well adapted to large and easily moveable tonsils, and as skill in its use develops, its scope will be a good deal widened. The technic employed by Matthews, of the Mayo Clinic, seems to me to be about the best I have seen, and is essentially as follows: the throat is first swabbed with 5% cocaine and, after an interval of about ten minutes, ½% solution of novocain containing 10 minims of adrenalin to 2 drams of solution is freely injected around and back of the tonsil. The effort is to inject just under the membrane in such a way as to cause blanching, and then to deliver a quantity back of the gland in the region of the capsule. After a short interval of waiting for the drug to take effect, the upper pole is freed by cutting through the mucous membrane just back of the anterior pillar and continuing the incision over the upper end and down posterior to the tonsil and just in front of the posterior pillar. Here the use of the tongue depressor is replaced by grasping the tonsil with a Richards forceps and, while making traction, the rather dull Robertson knife is used in a sort of a rocking manner to separate the capsule from the underlying muscle. This is carried on to a point as low as convenient, and then the loop of the snare is passed over the forceps and made to engage the tonsil mass as low down as possible, severing it when assured that it has the whole gland within its bite. Occasionally there remains a small amount of lymphoid tissue at the base of the tonsil, and Matthews is particular to remove this with the snare. This method leaves the sinus tonsillaris empty and clean and in most cases there is very little hemorrhage to bother the operator. The whole procedure scarcely takes as long as it does to tell it. In fact, Matthews has done it in forty seconds. This is an operation in which speed is very desirable from the patient's point of view. Andrews, of the Polyclinic in Chicago, operates in essentially the same way but uses a Tydings knife. In the case of caseous and friable tonsils, it is well to see to it that the grasping forceps bite deeply into the gland, including if possible some of the capsule, otherwise they will pull out and give a good deal of trouble. I have thought that forceps of the
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The volsellum type would be better than the Richards, but have not tried it. The greatest trouble with some patients is the continual gagging, and consequent interference of the tongue. Dr. Matthews obviates this by telling the patient to breathe rapidly and deeply.

I shall now quote Dr. Ballenger's description, in his text-book, of the Sluder operation: "The fundamental facts underlying Sluder's technic are three in number, namely: (a) The guillotine will remove the tonsil with its capsule intact, provided the tonsil is pushed through the fenestrum of the instrument. The advisability of pushing the tonsil through the fenestrum of the guillotine has long been recognized, as is exemplified by the oft-repeated advice to exert pressure under the angle of the jaw during the removal of the tonsil. This manipulation was, however, rarely attended with success. (b) The sinus tonsillaris (bed of the tonsil) is freely moveable, allowing the tonsil to be dislocated forward and upward a distance of about one and one half inches. (c) At a distance of one and one half inches anterior and superior to the tonsil is located a bony prominence on the inferior maxilla, called by Sluder the eminentia alveolaris. This eminence corresponds to the location of the last molar alveolaris. Dr. Sluder puts these facts to practical use in his operation with the guillotine. The tonsil is displaced forward and upward over the tubercle, which in turn pushes it through the fenestrum of the guillotine; the guillotine blade is then pushed home, and removes the tonsil with its investing capsule."

It is generally necessary to help the tonsil through the fenestrum by pushing it with the tip of the left index finger, and when it is passing in it will be a help to push the guillotine blade along a little thus keeping it from slipping back out. When the tonsil is in position to be cut off there should be nothing between the blade and the distal side of the ring but the two layers of mucous membrane. When carried out properly on a suitable case (and those expert in the method claim most cases are suitable) it is surely the neatest operation which can be done on the tonsil.

My first attempt with the Sluder method was a fine success, and I resolved to use it exclusively, but found on subsequent trials that it is by no means easy to induce tonsils of small size to pass completely through the ring of the guillotine. If this cannot be done, I think it would be well to abandon the attempt and use the blunt dissection method as it is difficult to get the balance of a tonsil which has been merely sliced off. Some operators prefer sharp dissection to blunt, but even its advocate, Ballenger, says he is unable to say that it is less liable to be followed by infection, although theoretically this might
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be supposed. On the other hand I believe it requires a much greater degree of skill without proportionate advantage in results. The last named operator has had much satisfaction in dissecting the entire tonsil with rather an ordinary looking scalpel, but I think it would prove troublesome in any but expert hands.

Hemorrhage has been a great bugbear to many who would attempt operation on the tonsils. The danger seems to be greatly overrated, although I can give personal testimony that it is frequently extremely annoying. In my own case it began about three hours after the operation and continued to ooze till on assuming the erect position at the doctor's request, I fainted for a few seconds and this stopped the hemorrhage. I have not had hemorrhage to contend with in any of the cases I have operated on, which I attribute to good fortune rather than to good management. I always insist on the patient's sitting up and refraining as much as possible from continually clearing the throat. Rest is very essential and should be insisted on, although many successful operations are done in the office and the patients immediately return home. I believe it is better to make them all remain in the hospital for at least a day. In case of hemorrhage various means of compression can be tried, but are usually so painful as to call out remonstrance on the part of the patient. I am a great believer in the efficacy of atropine and emetine in hemorrhage. Just how they act, I am not so sure, but I have seldom had them fail me in case of other hemorrhages. If the symptoms become alarming the pillars are sometimes sutured over a wad of gauze placed in the tonsil bed. Boetcher, of the Illinois Eye and Ear Infirmary, ligates the tonsillar artery, but this is considered a manœuvre requiring an excess of skill.

Little if any after-care is necessary, except antiseptic washes for the sake of cleanliness. There will nearly always be a little sloughing of the tissue injured and not removed during the operation, and this will take a few days. After this the healing is usually rapid, the epithelium quickly spreading over the denuded area. Soreness and difficulty in swallowing do not last as long as one would think, and disappear surprisingly soon in case of children. In case of infection the throat will require to be treated much as any sore throat, and I would surely attempt the use of vaccines in such cases, stock vaccines if autogenous could not be obtained.

In conclusion I would urge the more careful inspection and consideration of the tonsils as portals of infection, and also recommend summary dealing with them in case of delinquency. I believe complete removal should always be decided upon whenever it is known that they
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harbor pathogenic bacteria, whether there are local manifestations or not. The tonsils should also be investigated in cases of vague general systemic disturbance where focal infection may be the cause. The fact that their absence appears to be no handicap and their removal no great difficulty, should make us think frequently of the operation even when it offers but slight hope of relief.

THE BLOOD PICTURE IN AMOEBCIC DYSENTERY.

By Walther Fischer, M.D., Shanghai.

There are very few statements in medical literature concerning the blood picture in cases of amoebic dysentery. The most detailed data are given by Schilling-Torgau, who writes: "There seems to be nothing of special interest in the blood picture in cases of non-complicated amebic dysentery, except a moderate leucocytosis. It is still disputed whether there is a specific eosinophilia, as some French authors contend, or not. It seems, therefore, that the eosinophilia of the blood is not altered; perhaps in consequence of local irritation there may be even a local eosinophilia and at the same time an eosinophilia of the blood, the former not being caused by secretory products of the amebæ, but probably to be traced to the morbid process in the intestinal wall (disintegration and resorption of albuminous matter?)."

Castellani and Chalmers say that in dysentery there is sometimes a leucocytosis of 20,000 per cmm or more, and at times the number of eosinophiles is distinctly increased, even when there is no concomitant helminthiasis.

Leonard Rogers holds that the most characteristic change is a leucocytosis, commonly of a high degree (in about 75% of the cases). The differential leucocytic count is of less importance, except that a high proportion of polymorphonuclears is a sign of acute amebic infection.

Gant, in acute cases, finds only slight changes of the white and red cells. Brown gives as typical findings a leucocytosis of 10,500-12,000, viz., neutrophiles, 60% to 65%; lymphocytes, 20% to 25%; eosinophiles, 5%-6%; large mononuclears and transitionals, 10% to 17%; mast cells, 4%.

Stitt holds that dysentery causes an increase in the number of the large mononuclear cells.

Chalmers and Archibald believe they have found the solution of this difficulty (viz., to know whether a patient has been completely cured
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from amoebic dysentery) in the occurrence of a large mononuclear increase as long as amoebae persist, and that by repeated differential leucocyte counts the necessary information can be obtained, emetine treatment being continued at intervals as long as the leucocyte count has not reverted to the normal.

From these statements it appears that there is still much uncertainty on this subject. Having had the opportunity to examine thirty carefully selected cases of amoebic dysentery, I now offer further data for an eventual solution of this question.

1. It was necessary to confine the examinations to unquestionable cases of amoebic dysentery; therefore in every case the diagnosis of amoebic dysentery was confirmed by microscopical examination of the faeces.

2. All cases were excluded in which there was any complication of the amoebic dysentery; for instance, a simultaneous bacillary dysentery, or enteric fever, or some other complication. For such complications in themselves may bring about changes in the blood picture.

3. It was desirable to have for examination those cases which, as far as possible, were of a homogeneous class. Hence the patients referred to were all male Chinese, of the ages of 20 to 40 years; and all were poor hospital patients. In this way a possible error was avoided, as dysenteric disease in children furnishes a somewhat different blood picture, viz., a higher percentage of lymphocytes; and by excluding female cases another possible source of error was excluded.

4. Whenever possible, repeated examinations were made of the blood; in most of the cases three or even more examinations were made, and many of the cases were examined for a longer period. With every blood examination there was also a concomitant examination of the faeces. All the examinations were made at the same hour of the day, i.e., at the same period of time after the last meal.

5. It is needless to say that it is absolutely necessary to rely only on smears made with irreproachable technique. Hence all smears and counts were made by the same investigator, thus securing a maximal uniformity, and possibly avoiding other errors.

In the thirty cases of uncomplicated amoebic dysentery, all male Chinese, the result of the examinations was as follows:

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Min.</th>
<th>Max.</th>
</tr>
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<tbody>
<tr>
<td>Neutrophiles</td>
<td>63.2%</td>
<td>43.5</td>
<td>81.5</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>28.2%</td>
<td>11.7</td>
<td>48.2</td>
</tr>
<tr>
<td>Eosinophiles</td>
<td>3.5%</td>
<td>—</td>
<td>19</td>
</tr>
<tr>
<td>Large mononuclears and transitional</td>
<td>5.1%</td>
<td>2.8</td>
<td>8.2</td>
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For comparison the data found in normal, healthy male Chinese are given of the corresponding age (20 to 40 years) and of corresponding social conditions; the technique of examination and the examiner being identical.

Neutrophile leucocytes, average, 50.5%
Lymphocytes ,, 34.05%
Eosinophiles ,, 9.9%
Large mononuclears and transitionals, 5.1%
Mast cells ,, 0.5%

Counts of the absolute number of leucocytes could not be made in every case. In conformity with the statements of the authors mentioned, I generally found a moderate leucocytosis. Leucopenia was never observed.

Attention was paid also to the presence or absence of abnormal forms of leucocytes. There was no typical "deviation" of the neutrophiles, and there was no augmentation of the rod-shaped ("stabkernig") forms. In more than ten cases there were some large lymphocytes, with an eccentrically placed nucleus rich in chromatine, and a dark blue, frequently vacuolated cytoplasm. As a rule there were no more than one or two of these "irritation forms" (Türks "Reizzellen") in 100 counted cells.

As we have stated above, in most of the cases the blood picture was studied at different times during the stay of the patients in the hospital. So it was interesting to learn whether there was a change in the blood picture during the course of the illness. All the cases of dysentery were typical, and not severe. Usually, the first examination of the blood took place at the height of the illness. The last examination was made just before the patient left the hospital, when the clinical symptoms of dysentery, as a rule, had ceased, and amœbæ (vegetative forms) had disappeared from the stools; in some cases there were cysts in the stools at the time of dismissal. We found that with the disappearing of amœbæ from the stools there was no concomitant change in the blood picture. When compared with the picture at the height of the illness, the blood picture at the end of the dysenteric attack showed no changes which could be called typical. Often the leucocytosis persisted for some time after the disappearance of dysenteric symptoms. In eleven cases the number of neutrophiles was higher at the beginning than at the end; in nine cases the contrary was true; and in the other cases there were no changes, or the rates were fluctuating. As to the percentage of eosinophile cells, no rule could be made out. Only in four cases were the eosinophiles
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more numerous at the beginning; more often in the course of the dysentery and with clinical improvement the percentage of eosinophile cells rose, but never to high numbers, the average being 5% to 6%. The large mononuclears and transitionals showed in 14 cases higher rates at the beginning than at the end; the contrary was true in four cases; in the rest of the cases the numbers varied.

As to the lymphocytes, no rule could be formulated.

It may be pointed out that in all the cases the medical treatment of the patients was nearly the same; so it seems unlikely that in any of the cases the blood picture can have been influenced by the treatment in a specific way.

A comparison of our findings with the data given by the above cited authors shows that, as a rule, there is a moderate neutrophile leucocytosis in cases of uncomplicated dysentery. It is probable that the ulcerous processes in the intestines are the cause of this leucocytosis. According to Deeks, the number of leucocytes in the blood of a given patient runs parallel with the purulent infiltration of the ulcers. Though it would be difficult to prove it exactly, this statement is very likely true. But we should remember that in the inflammatory reactions caused by amoebae, the exudative cells, as a rule, are neutrophile leucocytes, lymphocytes, and even plasma cells, and not eosinophile cells. Certainly there is sometimes a local eosinophilia, also, in the neighbourhood of amoebic intestinal ulcers. But such local eosinophilia is often found in non-amoebic processes and even in nearly normal intestines; in amoebic processes in the liver, on the contrary, the eosinophile cells are absent. The assumption, therefore, that a local eosinophilia is typical of amoebiasis is unfounded. And the same holds true for the eosinophilia of the blood. We found that the number of eosinophile cells in the blood of dysenteric patients is even lower than in normal control cases. It may be mentioned that in dysentery the patients were as heavily infected with helminthes as the control cases. Our data show that the number of large mononuclear cells and transitionals is absolutely the same in dysentery patients as in the control cases, and that as long as amoebae are present in the stools there is no increase of these cells. On this point we are unable to confirm the view of Chalmers and Archibald.

SUMMARY.

In cases of non-complicated amoebic dysentery, I found a moderate neutrophile leucocytosis. The eosinophile cells of the blood were not increased but rather diminished. The number of the large mononu-
clear and transitional cells was not altered. Therefore, there is no
typical change of the blood picture in cases of amœbic dysentery,
and no typical change of the blood picture during the course of the
dysentery. Consequently, the blood picture in these cases does not,
as a rule, give much valuable information for diagnostic or therapeutic
purposes.

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AN UNUSUAL CASE OF MULTIPLE CARCINOMATA.*

RALPH G. MILLS, M.D., Seoul, Korea.

The following case attracted great attention in Korea among all
those familiar with the details, and the full report, which is now pre-

tered, will be to them a source of great interest. To others it is hoped
that it will be an interesting addition to the already voluminous litera-
ture relating to malignant tumours and the very difficult problem of
their origin and development.

PERSONAL AND CASE HISTORY.—Mrs. A. L. A. B—. American.
Aged 51 years. Date of death, June 9, 1916.

CLINICAL DIAGNOSIS.—Recurrent carcinoma of the breast and
pleuritic effusion.

FAMILY HISTORY.—Her maternal grandmother died of carcinoma of
the breast and her mother was operated on successfully for the same
condition. An older sister died of carcinoma of the stomach described
as being of the "leather stomach" variety. The paternal grand father
died of carcinoma of the face, and a grand-daughter of this man by a

* Article No. 5, Research Department, Severance Union Medical College,
Seoul, Korea.
An Unusual Case of Multiple Carcinomata.

second wife died of cancer. Two uncles in the same family also were afflicted with cancer and one or two cousins were similarly affected.

Personal History.—Although never very strong the patient recalled only one spell of fever aside from the exanthemata of childhood. She has borne five children, the first and last dying in infancy. There were no complications attending the birth of these children, but her right breast has always given a certain amount of trouble. The children had difficulty in nursing from it; the ducts seemed to be small and the milk always gave out first on that side. She said she was hurt there at one time during childhood. On more than one occasion it “gathered” and had to be lanced. The last child was born in 1901. A tumor of the right breast appeared in January, 1907, and two nodules were removed for examination by Drs. J. H. Wells and E. D. Follwell, of Pyengyang, Korea. The growth was diagnosed histologically as carcinoma in June, 1908; the patient went to America and she was again advised to have the breast removed immediately. This was done in Topeka, Kans., by Dr. McClintock, but the breast only was removed. She returned to Korea in November, 1908. The right axilla was then found to be filled with enlarged lymphatic glands. Radical operation was performed in February, 1909, by Dr. J. W. Hirst, in the Severance Union Hospital, Seoul, Korea. No recurrence was noted for a considerable period, but in the fall of 1910 a small nodule was noticed, about the size of a grain of rice, lying loose in the connective tissue immediately under the skin over the right pectoral region. It was not painful or tender, but felt like a small hardened lymphatic gland. This was removed, but from time to time similar growths occurred here and there without order. They were removed as soon as they appeared, this procedure lasting until February, 1914, when she returned to America. In the following summer another nodule had developed, and there was also a painful and tender thickening at the junction of the second and third costal cartilages and sternum. In August, 1914, she visited the Sanitarium of Dr. Howard Kelly, in Baltimore, where the nodule was removed and the diagnosis of cancer again confirmed. The thickening and pain mentioned above disappeared immediately after an eight-hour treatment with radium. She visited Baltimore again in September, was declared cured, and allowed to return to Korea after a second brief treatment with radium. In the spring of 1915 the swelling in the costo-sternal region returned, but after a period of strapping of the arm to ensure rest of the part it again became normal and painless. In July, 1915, she found nodules in the left breast and immediately returned to America where, in
August, she submitted to prolonged radium treatment in Baltimore under the care of Dr. Curtis F. Burnam. Just before the return and during the voyage she had considerable discomfort because of supposed asthma and, especially on board ship, suffered greatly from bladder trouble. There was a constant desire to urinate and great difficulty in doing so. Catheterization was not able to afford her any relief. After the radium treatment there was great prostration and she sought treatment for the dyspnea.

The patient settled for a time in Wooster, Ohio, where she was under medical supervision for the above-mentioned outstanding symptoms. While in this city one nodule was removed from the anterior border of the right serratus muscle. The dyspnea was considered to be caused by an abnormal condition of the right chest, the nature of which was difficult to determine; there was great dullness on percussion and this was regarded as being probably due to metastases or extension of malignant disease into the pleura and lung.

An X-ray examination was made in Cleveland, but the pathological condition was not more definitely determined, the opinion being divided between cancerous solidity and a collection of fluid, with the presumption in favor of the former. The dullness was found on both sides of the chest, but was more marked on the right side. For some reason the chest was not aspirated to settle this point. The patient returned to Korea in December, 1915. She was so seriously ill en route that her life was despaired of, the chief symptoms being dyspnea, extreme weakness, and there was one convolution.

On arrival in Japan the patient entered the Yokohama Hospital on the service of Drs. McCloy and Wheeler. The right chest was now aspirated and 25 ounces of clear fluid withdrawn. This was pronounced a simple transudate without any signs of malignancy. She improved considerably after the withdrawal of the fluid, but it re-accumulated with symptoms similar to those exhibited before. Fluid was removed on several subsequent occasions. Various minor symptoms were observed but these had slight bearing on the question of malignancy. On reaching Seoul, Korea, she remained in the Severance Union Hospital for more than a month, during which time detailed examinations were made. Periods of constipation alternated with attacks of diarrhea, and flatus was very troublesome. Tinnitus aurium, dizziness, and dimness of vision were very annoying at this time. The various laboratory tests were practically negative; the pleuritic fluid was light straw-colored, clear, of low specific gravity, and contained few lymphocytes and no epitheloid cells in the sediment.
The so-called Davis* test was briskly positive in this case, though it has not given reliable information as to malignant tumors in later experience.

The only noteworthy feature was that the urine was persistently of low specific gravity, 1.005-1.008.

At this time there appeared under the skin of the right chest a nodule similar to those described earlier, and the left breast contained a hard mass the size of a hen’s egg which on palpation suggested carcinoma. It followed the lymphatics into the axilla where a mass of hard and enlarged glands could be felt. About a month later the nodule on the right breast had disappeared, the lump in the left breast had been reduced to a flat hard tissue, the lymphatic channels appeared to be quite normal, and the axillary mass had diminished to what was felt to be a single gland about the size of an almond kernel.

The improvement was only temporary and was associated with the withdrawal of more fluid. After the aspiration the fluid gradually reaccumulated and the various symptoms became more disquieting. On the last day of her illness the dyspnea became so great that she repeatedly called for opiates to relieve the distress. The inability to breathe seemed to be mainly a subjective symptom, for the difficulty was not especially noticeable to the attendant. There was an ever-increasing difficulty in swallowing, and during the terminal period the distension was especially annoying and unrelievable. On the evening before the last day there was a rather sudden loss of motion of the whole body below the neck, but consciousness was preserved. She passed away quietly without sign of pain or distress.

AUTOPSY REPORT.

Anatomical Diagnosis:

1. Nodular scirrhus carcinoma of left breast, of relatively low malignancy.

2. Operative absence of right breast; no evidence of local recurrence of carcinoma.

*In the California State Journal of Medicine, Vol. XI, p. 409, 1913, under the caption, “Hema-uro-chrome, a new Laboratory Test for Cancer and Sarcoma from the Urine,” T. G. Davis outlines a test which is simple in operation and for which great value is claimed. One hundred mils of urine in a flat-bottomed flask is heated slowly with 10 mils of concentrated HCl to boiling, and then allowed to cool slowly and quietly. Thirty mils of ether are then added and the flask tightly stoppered with a rubber cork. It is occasionally inverted during the following six to eight hours during which time a red color gradually develops in the ether layer. In a positive case, as the present one, the test often shows a distinct red color in 20 minutes.
3. Sclerosis of right pleura, parietal and visceral.
4. Pleural effusion, bilateral.
5. Compression atelectasis of right lung.
6. Hypostatic congestion of basal and posterior portions of left lung.
7. Sclerotic malignant shortening and thickening of mesentery of ileum from cecum upward for contiguous six feet of intestine. Slight enlargement of lymph glands at mesenteric attachment of affected part.
8. Diffuse sclerotic thickening of peritoneum of posterior wall of abdominal cavity, especially noticeable in the pelvis where the uterine and ovarian ligaments were attached, thus holding their respective organs firmly in a normal position.
9. Dilatation of ureters above the portion immediately adjacent to the bladder, which was firmly bound in the above-mentioned thickened peritoneum.
10. Cystic kidneys with atrophy of medullary substance to about half the normal thickness and consequent dilatation of the pelvis of the kidney.
11. Chronic interstitial nephritis.

Immediate Cause of Death.—Uremia from mechanical ureteral obstruction, and suffocation from accumulation of pleuritic fluid.

External Appearance.—The body is that of a woman a little above middle age, hair quite gray, body thin but well preserved. The only post mortem changes were a little discoloration over the abdomen and slight rigidity of the arms. There were several scars over the right chest.

The right breast had been removed; the scar was white, not infiltrated, and not abnormal in any way. The right axilla was free from glands or other abnormalities aside from healed scars. The skin over the left breast was raised into little discrete nodules that projected slightly above the surface; these were still more noticeable on palpation as bullet-like nodules in and under the skin. The nodules were sharply limited to the area of the breast, were more closely crowded together near the nipple, but apparently had always been discrete and the skin over them was unchanged in color and condition. A single gland was enlarged in the left axilla but there were no abnormalities between this point and the corresponding breast. On incising this area the left breast was found to be very hard on section, full of the nodules above mentioned, but the adjacent tissues of the skin or chest were
not similarly affected. Some of the more superficial nodules were actually in the skin itself, but the ribs beneath were not involved.

In the loose connective tissues of the under surface of the sternum were several small lobules of orange-colored fat; in connection with one of these was a small whitish nodule, not attached to the bone, nor a part of any evident pathological process.

**Abdominal Cavity.** The peritoneum was generally normal, but the posterior portion of it was thick and leathery. The base of the mesentery was indurated somewhat, rather roughly nodular, and more or less uniformly altered. The portion of the mesentery which supported the lower six feet of the ileum was fully half an inch in thickness and one and a half inches wide from attachment to intestines. The surface of this portion of the peritoneum was also smooth, but beneath could be distinguished the same sort of nodular induration that was firm and almost unyielding to pressure. The mesentery above and below gradually passed to its normal size and relations. Contiguous with that just described, the pelvic peritoneum was even more thickened and tough. It was uniformly indurated with even less evidence of the nodularity, and the process involved the structures with which it was united. The attachment of the sigmoid bound that organ back against the posterior wall firmly, but not in an abnormal position. The ovarian and uterine ligaments were likewise infiltrated; the broad ligament especially was tough and separated with difficulty.

**Pleural Cavity.** The right cavity was almost completely filled with fluid of a yellowish color, tinged slightly with red, and almost clear. The left side was very much thickened, whitish, and tough, but perfectly smooth and without the slightest irregularity of the surface. The surface of the corresponding lung was also somewhat leathery. The left pleura was not thus thickened, but the intercostal muscles could be plainly seen through it.

**Pericardial Cavity, Mouth, Larynx, Esophagus, Thyroid, Heart, and Blood Vessels** were normal.

**Lungs.** The right lung was small, collapsed, and crowded into the upper posterior portion of the cavity. There was very little contained air, so that after removal of the organ it sank in water. The lung tissue was not specially indurated nor changed, aside from the obvious absence of air. The left lung was slightly decreased in bulk, contained air in the upper portions, which were apparently normal, but it was consolidated and full of a thin serous fluid in the posterior and lower lobes and portions of lobes. There was no sharp line of
demarcation between the solidified portion and the apparently normal lung tissue. No remains of former pulmonary disease, adhesions, or calcified areas were found and there was very little pigment.

Liver, Gall Bladder, Spleen, Pancreas were normal.

Gastro-intestinal Tract. Only abnormal as indicated for mesentery.

Adrenals. These were the seat of metastatic carcinoma.

Kidneys. The two were identical, were definitely enlarged, firm, and the pelvis of each was cystic in character, being at the time of removal full of fluid under some tension. On section the lobulations of the pelvis were found greatly dilated and this had seriously encroached upon the amount of the medullary portion which was paler than normal and less marked radially. The capsules were stripped off with difficulty. Both ureters were dilated above to the diameter of the first finger, less so below, and were of normal diameter or less immediately above the bladder. The walls of the ureters were thin and translucent.

Bladder. Normal.

Genitalia. Normal, considering the age.

Histological Report.

1. Nodule from Surface of Left Lung. The visceral pleura is thickened and continuous with it is a small nodule full of fibroblasts, some endothelial cells and carcinoma cells. A few capillaries with rather thin walls are present whose general shape is tortuous. The lung tissue beneath and in the immediate vicinity is somewhat similar in structure, full of fibroblasts, aberrant blood vessels, and a few malignant cells. The sub-pleural tissue is slightly anthracotic in small patchy areas. A little deeper still, but yet within the area in which the lung tissue is unrecognizable as such, lies a small body similar to a lymph gland but not associated with any remains of bronchial tissue. This area is quite well circumscribed, and contains portions of blue lymphoid tissue; also a considerable amount of endothelial proliferation in some of which is an irregularly distributed anthracosis. The remainder of the section is typical of an atelectatic lung with connective tissue overgrowth, atypical blood vessels, and occasional endothelial and cancer cells.

2. Nodule from under the Sternum. The section is essentially a piece of white connective tissue in the interstices of which are streaks and aggregations of cells, probably of a malignant nature.
These aggregations are quite irregular in distribution, and fill up the spaces between the fibers that were once parallel but are now crowded apart. The cancerous cells are of the same character as noted in the previous section, but have no characteristic grouping and are intimately mixed with fibroblasts and endothelial leucocytes. In one portion is a small bit of infiltrated fat tissue which, with the associated metastatic growth, had constituted the nodule for the sake of which the section was taken.

3. Subcutaneous Nodule. This is a section through the skin and the rather firm fibrous subcutaneous tissue with a few sweat glands and their ducts. In the deepest portion is a small area of carcinoma tissue of the glandular type, surrounded by a rather unusual amount of connective tissue in the form of a capsule. The connective tissue follows the contour of each lobe of the growth and apparently limits its development.

4. Adrenal. This is the seat of metastatic carcinomatous growth.

5. Kidneys. The picture here is typical of chronic interstitial nephritis with considerable atrophy and dilatation of the ducts.

6. Right Parietal Pleura. The connective tissue is the seat of extensive hyaline degeneration, with a few fibroblasts in the linear interstices. In the deep layers, which are most involved in the hyaline change, occur scattered groups of cancer cells, occupying spaces of varying size and shape with occasional suggestions of a glandular arrangement. Still deeper the malignant tissue is more abundant, but here also it is intimately mixed with abundant new-formed connective tissue. In the muscle, fatty tissue, and loose connective tissue, occur small collections of these carcinoma cells.

7. Mesentery. This tissue is unrecognizable as such, consisting chiefly of connective tissue of varying degrees of density. In certain areas the fibers are essentially parallel and in other places they enclose bits of normal adipose tissue or blood vessels. The most dense portion of the connective tissue appears to be the seat of slight hyaline degeneration, the nuclei are rather widely separated and an occasional endothelial leucocyte is encountered. Carcinoma cells are found in irregularly disseminated groups, usually in the elongated crevices between the fibers, but without suggestion of a gland-like grouping. Round cells are here and there mingled with them. In one portion of the section carcinoma tissue is seen in which a few cells are grouped about the center of an ill-defined reticular network filled with a colloid-
like substance. The shape of these areas is characteristic of metastatic tumor growths. An obliteratorative endarteritis affects nearly all the vessels in the section and is represented by various stages of the process. The granulation tissue within the vessel walls is non-malignant in nature and in the walls of those in the early stages is to be found a round cell infiltration.

8. LUNG, LEFT UPPER LOBE. The lung tissue is quite atelectatic, the alveoli are greatly distorted, and the walls are more or less thickened and filled with round cells. In a few small places are collections of cells, probably of cancerous origin. The blood capillaries in the alveolar walls are dilated and tortuous in some places, and greatly reduced in other places.

9. LUNG, LEFT LOWER LOBE. The pleura is slightly thickened, fibrous, and vascularized. The alveoli are solid with an edema fluid containing very few cells. The walls of the alveoli are a little thickened from the distension of the blood capillaries, but there is no evidence of a chronic passive hyperemia.

10. BREAST.—This section was taken from one of the nodules felt by external palpation of the left breast and is a typical scirrhus glandular carcinoma. The picture is a continuous one of strings and whorls, clumps and groups, of widely scattered cancer cells all intimately associated with fibrous tissue. In a few places only does an alveolar or glandular arrangement appear.

11. OVARY. Typically senile.

12. PELVIC PERITONEUM. This section is a thick mass of loose connective tissue and fat including two small lymph glands and some blood vessels. The vessels are in the main normal, but two were obliterated by non-malignant granulation tissue. The lymph glands were the seat of slight endothelial proliferation. The adipose tissue was normal except for an occasional encroachment by malignant tissue, the noticeable feature of the section being the presence of disseminating masses of colloid carcinoma. These masses are faintly reticular with small groups of carcinoma cells in the centers. Bands of adult connective tissue occasionally interrupt these masses and were continuous with heavier bands in the interstices of which were similar cells, some accompanied by colloid material and some not.

13. SPLEEN. Nothing special.

14. LIVER. The absence of fatty change was noticeable.
15. **Lung.** The section was taken from the middle lobe of the right side close to and including the pleura. The pleura is greatly thickened and is made up of connective tissue, fibroblasts, and carcinoma cells, intimately mixed together. The component cells are not in aggregations of any size and the malignant cells bear no recognizable relationship to each other. This tissue passes imperceptibly into that of the lung proper. The alveoli are more or less full of edema fluid and their walls are slightly tortuous from the overfilled vessels. Except just under the pleura the lung tissue is free from cancerous cells.

16. **Lung.** Section taken from beneath the pleura of the right lower lobe. The tissue is hardly recognizable as lung, on account of the advanced state of atelectasis. Consolidation is complete and the alveolar walls are collapsed and overgrown with new-formed connective tissue. Fibroblasts are everywhere in evidence and it is evident that the function had been completely destroyed. The blood vessels are all thick walled and, in a few, slight endarterial changes had taken place. Cancerous cells are not very abundant, being confined to a couple of circular metastatic growths and an implantation area in an artery that was quite overgrown with granulation tissue.

**COMMENT.**

The coexistence of two carcinomata is not such a great rarity, even though they present different types of growth. However, the fact that the amount of tissue resistance to one was so great, and to the other so slight, is rather remarkable. Unquestionably the breast cancer developed first and as such challenged the defensive forces of the body. The power of the latter in the contest is evident in every feature of the history and in every bit of tissue examined, minutely or grossly. The arrangement of the tumor cells in single layers against the solid walls of connective tissue produced by the host was very suggestive. The architectural powers of forming glandular tissue, or of that which was even remotely suggestive of it, were apparently paralyzed. The cancer cells were also somewhat degenerated in appearance. The question naturally presents itself as to how long she could have lived if the second tumor had not made its appearance.

The notable relief and improvement that followed the use of radium leads to the inevitable conclusion that this agent must have exerted a powerful influence upon the malignant growth. The exact nature of this influence is hard to distinguish from that due to the resistance of the body, but there is one very suggestive fact. The
section of the hard nodule, removed in January, 1907, was found to be a typical glandular carcinoma of the breast without these signs of cell degeneration. Being metastatic in a gland, it naturally did not present any local evidence of tissue resistance. However, the capsule was thickened and the tissues from which it was removed were sclerotic, compelling the opinion that at least some of the resistance existed from the start, irrespective of the subsequent changes produced by the action of radium.

The assumption is made that the two forms of cancer growths arose independently; but to prove this completely would be difficult. No definite primary growth for the colloid tumor was found, and no special center of dispersion was demonstrated. The very different character of the two growths, the freedom of the diaphragm and adjacent regions from involvement by either type, and the close adherence of each to its own characteristics furnish strong arguments in support of the position. The difference in the grade of tissue reaction was perhaps the strongest proof of all.

The date at which the second cancer developed is a matter of pure conjecture. The first evidence of pelvic or urinary trouble was in the spring of 1915, in the interval between the two radium treatments. Bladder trouble and dyspnea from fluid accumulations were present with greater or less frequency from that time until the end. A question often asked was whether the occasional aspirations would be of real and permanent value. The pleural effusions were at first assumed to be cancerous in origin, but repeated examinations declared them to be non-malignant in character, and the pleura at autopsy was absolutely smooth. The subsequent discovery of the double hydronephrosis and the interstitial nephritis cleared up this diagnostic uncertainty.

How long the second cancer had been developing before it gave rise to local symptoms is uncertain. The fact that death occurred within a year after they began and that there was much less fibrosis in this than in the breast cancer appear to indicate that it was of short duration. Unquestionably it was the one to which the immediate cause of death is to be attributed.

The fact that a rapidly growing tumor originated independently during the protracted growth of another toward which great resistance was exhibited is difficult to reconcile with any ideas of acquired tissue immunity. The body was unquestionably resistant toward the first and presumably towards metastases arising from it. Secondary growths occurred, but they were combated in the same manner as the primary lesion. This hypothesis is based upon the supposition that the various
nodules and lymph glands removed during the nine years of the disease were parts of the same process. If the conditions had been reversed and had there been a rapidly growing tumor during the course of which a second had made difficult progress against tissue resistance, the explanation would have been simple along the lines of established experimental facts. However, if tissue resistance is not the same toward every sort of malignant growth then, as in this case, there might be no apparent connection and each a law unto itself. The two growths would then be mere coincidence and a simple expression of the fact that two sets of irritants were acting simultaneously and capable of producing a double reaction upon a basis more or less susceptible by heredity or accident.

Note.—In a recent issue of Johns Hopkins Bulletin (October, 1918), there is an interesting paper by Ralph H. Major, on "Multiple Primary Malignant Tumors, with Report of a case of Carcinoma and Sarcoma in the same Individual," which deals with the whole subject very fully. To the paper is added a classified list of all cases previously reported and a good bibliography.

CERTAIN MEASURES TO PREVENT THE DISSEMINATION OF DISEASE.*

JAMES S. MCELREST, M.D., Chief of the Medical Service, Base Hospital, Camp Sheridan, Ala.

While much has been written recently concerning the modifying influence of war upon modern surgery, it will probably be found that we shall also have to revise in a radical manner our works on medicine. The chapter on pneumonia must be entirely rewritten; indeed, we can truthfully say that it has been largely rewritten within the past three months.

It is impossible to discuss here all of the new things which we have learned since the intimate contact of hundreds of thousands in the army camp has offered such fertile fields for the spread of disease. The rapid spread of respiratory infections, the clinical types seen, the high mortality in the post-measles bronchopneumonias, the part played by the Streptococcus hemolyticus, the frequency and the high mortality of empyema with its surprises at necropsy, all are of great interest, but we have had as yet insufficient time for their satisfactory consideration.

From all our rich experiences of the past winter, however, there is one thing which we seem to have learned fully and finally; that is, the value of preventive measures. To me this has been our greatest lesson,

*From The Medical Clinics of North America, May, 1918.
and it is of special value in that it is applicable to the civil hospital as well as to the armed camp. If we are to prevent the spread of respiratory and other contagious diseases three measures are necessary: (1) the avoidance of overcrowding; (2) the universal use of the cubicle method of isolation; (3) the employment of masks for patients and attendants.

Pneumonia is the one disease that we fear most and toward which preventive measures are chiefly directed, but the same means which will prevent the spread of this disease are applicable also to scarlet fever, meningitis, diphtheria, measles, influenza, tonsillitis, and many other diseases. In fact, when we consider the "droplet" as a means of disseminating these diseases, we cease to wonder how great a proportion of all bacterial invasions occur in this manner, and are tempted to extend widely the application of our preventive measures.

The necessity for ample floor space between beds and for plenty of air is obvious. In the Base Hospital at Camp Sheridan we have escaped the great pneumonia epidemics which some of the camps have experienced, and all types of pneumonia seen by us have been mild, with a relatively small incidence of empyema. We have attempted to explain this fortunate circumstance in various ways, but after comparing our experience with that of certain other hospitals I am convinced that the ample floor space which we have been able to allot each patient, and our consequent escape from overcrowding, have been the most important factors. We have endeavored always, particularly in pneumonia, measles, and scarlet fever, to provide 1,000 cubic feet of ward space for each patient.

The soldiers with acute lobar pneumonia have been placed on the veranda, with universally good results, and many of the patients with bronchopneumonia following measles or influenza have also been treated in the open, but there seems to us to be a difference in the way in which these two groups of patients take the "open-air" treatment. During cold, disagreeable weather the patient who has developed bronchopneumonia as a sequel to bronchitis or measles certainly seems very miserable and unhappy on the veranda. It is difficult to make him comfortable and his cough is at times very annoying. The explanation of this difference may be sought in the fact that the one is suffering with a disease of the lung, pure and simple, and the other, in addition, has an irritable upper respiratory tract. We have become convinced that the open-air treatment can sometimes be carried too far, and that for certain patients ample space in a well-ventilated ward during the winter is frequently to be preferred.
Measures to Prevent Dissemination of Disease.

The space allowed each patient should never be less than 1,000 cubic feet, and continuous free ventilation of the entire ward should be assured. This is a measure of infinite importance.

The Surgeon-General directed early in the winter that the cubicle system of isolation be adopted in those wards in which patients with contagious diseases were being treated. Wires were stretched across the entire width of the ward, six and a half feet from the floor, between the beds, and sheets were hung upon these wires in such a manner as to isolate each bed in a sort of cubicle. The space below and above the sheet permits the free movement of air, but no patient can by talking, coughing, or sneezing throw his bacteria-laden droplets of moisture to the bed of his neighbor. The evident effect of this barrier in preventing the transfer of disease from one patient to another offers eloquent testimony as to the great rôle played by the droplet in spreading contagious diseases.

In certain instances the influence of the cubicle was remarkable. At a time when we had a ward full of patients suffering with measles, and everybody was coughing and sneezing, respiratory infection was almost universal among these patients. True, as soon as a case of bronchopneumonia was recognized the patient was transferred to another ward, but in spite of this precaution the dreaded complication increased. Finally, more room was provided for the individual patient, and each bed space was converted into a cubicle. The coughing and sneezing immediately ceased and the bronchopneumonia disappeared. The transformation was graphic. This marked the end of bronchitis and pneumonia as a dominating factor in the measles ward, and the lesson is not easily forgotten.

In April we were overtaken by an epidemic of so-called influenza, and the number of patients in the hospital suddenly increased from 400 to 900. It became necessary to place these soldiers in wards with patients suffering with other affections, and these latter began rapidly to come down with influenza. Because of this we then decided to extend the cubicle system to all the medical wards without exception, and the beneficial effect of this measure was immediately felt. As illustrative of its influence, take our experience in a certain ward. Not until late in the epidemic was it necessary to place any of the grip patients in the psychopathic ward, at which time we had already instituted the general use of the cubicle, and as a result, contrary to our earlier experience in other wards, none of these psychopathic patients developed influenza.

The hospital of the future, both civil and military, must make provision for the protection of its patients by placing every bed in
It may be that fixed partitions or movable screens will be found preferable to sheets hung upon wires, but some such system will come. Another winter in the base hospital will, I believe, find all the medical beds in cubicles.

One more means of protection has been found of real value. The wearing of masks by physician, nurse, attendant, and patient. It has been our custom to require masks of physicians, nurses, and attendants in all contagious wards, but the experience of Capps at Camp Grant has caused us to extend this measure to all patients under quarantine who are out of bed. A certain "miscellaneous" ward, for instance, is quarantined because of the appearance among the patients of a case of scarlet fever or diphtheria. Everybody knows how frequently the period of this quarantine must be repeatedly extended because of the appearance at intervals of still other cases, but such "cross-infection" can be entirely eliminated if Capps' suggestions are followed, and each patient wears a mask when out of bed except when alone in the toilet or bath. I am sure that by means of the mask we have limited the complications in our contagious wards.

The mask consists of two layers of gauze cut square, with a piece of tape sewed at each corner, and is sufficiently large to protect the nose and mouth. In this recent epidemic I wore a mask constantly when making the rounds of all wards, and it is the first time I ever passed unscathed through a grip epidemic. Other officers had a similar experience. For my own protection I would not to-day think of examining a pneumonia or a meningitis patient without a mask, and if none were at hand would protect my nose and mouth with a handkerchief.

The value of these preventive measures has been forcibly borne in upon me, and I write of them here because of their importance to the hospital of the city as well as of the armed camp.

THE FACE MASK IN THE CONTROL OF CONTAGIOUS DISEASE.—In an article in *Jour. Amer. Med. Assoc.*, March 30, 1918, J. A. Capp formulates the following rules for the prevention of cross infection by the masking of patients:

1. A face mask must be worn continuously by all patients when out of cubicle.
2. In the latrine the mask may be removed only by permission and under the direct supervision of ward nurse.
3. Wash basins and bath tub are not to be used. For washing face and brushing teeth use running water over sink. Shower may be used under supervision. Use only liquid soap from container.
4. Only one patient will be allowed in the wash room at one time. Remove mask on entering and replace before leaving wash room.
5. Masks may be removed when patients are in bed.
6. Sheets between beds are not to be drawn back.
7. No smoking allowed.
8. Corps men, nurses, and surgeons should wear masks and gowns when on duty in the ward. A guard should be on duty continually near the wash room.
9. All eating utensils should be sterilized after each meal.
CHLORIDE OF MAGNESIUM AS AN ANTISEPTIC IN SURGERY.

D. SPORRIGTIS, M.D. (Paris), Peking.

In an article which appeared in the *Presse Medicale*, September, 1915, entitled "Cytophylaxie," Delbet and Karajanopoulos report a very careful study they have made of surgical antiseptics. After a number of experiments with the various antiseptics in use, they conclude that not only is it impossible to eradicate all the microbes from a wound, but that in the attempt to sterilise an infected wound, no matter what antiseptic is used, while a certain number of microbes are killed, yet at the same time there is a destruction of leucocytes which are the cells most necessary to be careful of in a wound, since their phagocytic properties play a prominent part in the struggle against infection.

In their experiments the authors used for comparison a solution of sodium chloride, 8:1000, known as physiological serum, as this gives the maximum phagocytosis. The antiseptic solutions studied were the following:

- Bichloride of mercury, 1:1000; cyanide of mercury, 1:2000; carbolic acid, 2.5:100; hydrogen peroxide at 12 volumes, pure, and diluted one-third; the action of iodine vapour, for one-half minute to five minutes; formalin, 2:100; ether; Labarraque's fluid; permanganate of potash, 1:3000; Dakin's solution.

All these substances alter the white cells greatly. Some destroy the red and white cells to such an extent that they cannot be recognised in a preparation. The chief of these destructive antiseptics are ether, permanganate of potash, and Labarraque's fluid. Dakin's solution differs a little in that it has a selective action on certain white cells, while the other solutions destroy them all. Formol acts in the same way. With bichloride of mercury the preparations are excellent, the white cells are histologically perfect, but physiologically their functions are almost lost; the cells are simply fixed.

The average phagocytosis was 29-20 with cyanide of mercury, whereas the average phagocytosis of the solution of sodium chloride is 129. In the most favourable cases the average phagocytosis with antiseptics has been from 80 to 100, also less numerous than with the solution of sodium chloride.

It was interesting to note that the antiseptics were more bactericidal than cytocidal in their action. To obtain more light on this point
Delbet and Karajanapoulo made further tests of the contents of tubes employed in their former experiments with the microbes, *B. pyocyaneus*, *B. coli*, *Streptococcus*, and *Staphylococcus*. In three of the tubes, in which the antiseptics were respectively carbolic acid, 2.5 : 100; formalin, 2 : 100; and ether, the contents had remained sterile, but the cells as well as the microbes had been destroyed. From the other tubes sowings were made. With *B. pyocyaneus*, one out of three sowings was positive. With Dakin's solution, two out of three were positive with *B. coli*. With Gramm's fluid, two out of four were positive with *B. pyocyaneus* and cocci. With oxycyanide all four were positive. With Labarraque's fluid, two sowings were positive; and three were positive with hydrogen peroxide.

These facts give some idea of the impotency of antiseptics. It must be noted that their action took place in a closed vessel for one to one and a half hours, and one cannot imagine a contact so intense or so continuous in a wound.

On the other hand, the quantity of solution used was considerable, twenty drops of antiseptic solution for five drops of white cells. In a wound the antiseptics are in contact with an indefinite number of cells, and diapedesis brings new ones without ceasing.

With iodine vapour, obtained by heating iodoform, one may graduate the effect by making it pass through the test tubes for a certain length of time.

The results of these experiments were very clear. When the broth cultures remained sterile, all the cells were destroyed; when the cells were left physiologically active, the sowings were always positive. But the inverse is not true, for in some cases all the cells were functionally destroyed, yet the sowings were still positive.

Up to the present no substance has been found which kills the microbes without killing the cells; but substances have been found which certainly kill the cells, but do not definitely kill the microbes which are mixed up with the cells, such as the following: hydrogen peroxide, Labarraque's fluid, and Dakin's solution. The others, cyanide of mercury and hydrogen peroxide, do not kill all the cells, but they kill fewer microbes.

It is not surprising that in the tubes the antiseptics had not killed all the microbes. The explanation is very simple. Certain antiseptics have a greater affinity for the proteins of the body cells than for the microbes; they fix on the former so that in spite of the large doses used there is nothing left to act against the microbes.

Drs. Delbet and Karajanapoulo have also studied other substances which have not any antiseptic properties, but which are employed in
the treatment of wounds, such as sodium chloride, 8:1000, (physiological serum); the nucleinate of soda, 2:100, isotonic with sodium chloride; the nucleinate prepared by Longuet; Ringer-Locke's solution; ordinary sea-water; isotonic sea-water; horse serum prepared by Leclainche and Vallée; and warmed horse serum prepared by R. Petit.

The term of comparison is still the solution of sodium chloride already mentioned. With this solution 1,450 polynuclears were phagocytic to 3,757 microbes, being an average of 129 to 50 polynuclears.

The average phagocytosis with Leclainche and Vallée's serum is 109, while the same with physiological serum is 148. With R. Petit's serum (warmed horse serum) the average is 111. The nucleinate solutions have given still less satisfactory results, the average being 107. The nucleinate of soda has an adverse action against the white cells, while Longuet's concentrated solution destroys everything completely. Natural sea water has also given bad results. Ringer-Locke's solution is not at all favourable to the white cells, the average of phagocytosis being 87.

After all these experiments it is easy to see that of all the solutions employed to heal wounds, that of sodium chloride, 8:1000, is the most favourable to the white cells of the human body, which are so precious in the struggle against infection.

But the researches of Drs. Delbet and Karajanopoulo did not stop there; they have sought whether another substance does not exist having a still more favourable action on the white cells, capable even of increasing their properties as phagocytes. They have tried chloride of manganese, chloride of strontium, calcium chloride, and magnesium chloride. With the first three the results were very bad, the phagocytosis being reduced to the lowest proportions.

With magnesium chloride, 12.1:1000, the phagocytosis was increased in an extraordinary degree; 1200 polynuclears immersed in a solution of magnesium chloride of this strength have taken up 4,578 microbes, the average for 50 cells being 208. 1250 polynuclears of the same matter put in a solution of sodium chloride, 8:1000, in the presence of the same microbes only took up 2,503, the average for 50 polynuclears being 119.

The increase of phagocytosis under the influence of solution of magnesium chloride, 12.1:1000, is therefore from 75 to 100 by comparison with sodium chloride, 8:1000, which itself gives 63 to 100 more than Ringer-Locke's solution, and 154 to 100 more than isotonic sea-water. The average number of microbes taken up per 100 polynuclears is 345 with sodium chloride, and 429 with magnesium chloride.
The authors insist very particularly on two points concerning the solution. First, that it is necessary to use pure and dry magnesium chloride; secondly, the solution must be absolutely correct at 12.1 to 1000, as numbers of their experiments have shown that a very slight difference, more or less, in these proportions gives absolutely different results.

In a series of remarkable experiments, they have studied the action of magnesium chloride solution injected into the vascular system. After these experiments the magnesium chloride not only keeps its cytophylactic action in the organism and in the blood, but it is there in a very active form. The solution of magnesium chloride at 12.1 to 1000, although hypotonic is not toxic, nor hemolytic.

Passing to my own work, I have tried Professor P. Delbet's method much more willingly since I have succeeded with it for some time already in the dressing of wounds from operations or accidents with the solution of sodium chloride (physiological serum), and it has given me better results than other antiseptics.

The good results which I have obtained during the last three years with solution of magnesium chloride are so remarkable that I feel obliged to publish them. I have chosen the worst cases for my reports, and it is necessary to note that most of them were patients who had received severe railway injuries. Many of these cases arrived at the hospital after having travelled sometimes from 300-400 kilometres, the care received during the journey being quite insufficient, sometimes none at all.

On all the wounds I applied a sterilised compress which had been soaked in a solution of magnesium chloride of the strength stated. I put among these compresses a small glass tube which showed through the dressing of the wound, and every day I injected a small quantity of chloride without touching the dressing, which was renewed every two or three days during the treatment, or even less frequently.

Case No. 1.—Miss T. . . . Aged 29. As a result of a fall from an aeroplane in which she had ascended as a passenger, she had a compound fracture of the patella and an opening of the knee joint, several injuries about the face and limbs, burns on the back, and bruises on the right arm, etc. In the knee joint was some earth, also a piece of cloth. After a good wash with magnesium chloride the wounds were painted with tincture of iodine. A general anesthetic was used. I saw to the suture of the patella, the ligaments, and the bruised parts, provided for drainage and dressed with magnesium chloride. In spite of my own unfavorable prognosis and that of my two distinguished colleagues who assisted me, a bad prophecy from a local point of view, I had the satisfaction of seeing my patient's injuries heal without suppuration, and so well that the articulation retains all its flexibility, and she is able to walk quite quickly without any pain.
Chloride of Magnesium as an Antiseptic in Surgery.

As this young lady was a relative of a superior officer, His Excellency the President of the Republic, having witnessed the accident, asked to see the patient after her recovery, and he thought it extraordinary that after such an accident she could walk as before.

**Case No. 2.—Mr. L. . . . .** Commander of Cavalry, had a fall from his horse, sustained a compound bi-malleolar fracture, the tibio-tarsal articulation was widely opened, and the foot was almost detached. When I saw the wound several hours after the accident, I thought that the only operation indicated was tibio-tarsal disarticulation. Then I decided to try to save the foot, and I took this decision because of my absolute trust in magnesium chloride. I sutured the bone and the ligaments, attended to the injured parts, and dressed them with magnesium chloride. I had the satisfaction of seeing the injuries heal in a very short time, and without pain. The patient recovered in such a manner that he could take up his service again, and even after long marches he does not feel any distress or pain.

**Case No. 3.—Mr. P. . . . . Aged 30.** Wounded by strokes of a hatchet on the head, the right arm, and on both hands. Deep fracture of the skull; a deep wound of the arm; the tendons of the left hand severed; a deep wound on the back of the right hand, and a wound in wrist which cut the extensor tendon of the index finger. After having raised the deep and superficial splinters of bone, and after a good wash with magnesium chloride, then drainage and suture of the injured parts, I sutured the extensor tendon of the right hand, joined the ends of the extensor tendon of the index finger by a long catgut suture, the two ends being too far apart to be able to suture them directly together. The dressing was magnesium chloride. The results were reunion by first intention. All the tendon sutures were successful so that the patient can use his hands as before.

**Case No. 4.—Mr. C. . . . . Aged 50.** While working with a mechanical saw he was struck by a large splinter of wood, the left testicle was completely exposed, the skin of the scrotum detached and the edge torn. The skin was turned right back like the finger of a glove. It was stitched with thread, drainage provided for, and the injured parts, after having restored the edges to their place, were dressed with magnesium chloride 12.1:1000.

**Case No. 5.—Mrs. F. . . . . Aged 42.** She had her thigh broken in a railway accident. When I saw the patient three days later, I found the thigh bone ground into three separate bits, the skin gangrenous almost to the top of the thigh and the gangrene deep in several places, the temperature 40.5°C. The patient was delirious, and her condition very bad generally. Under the circumstances I contented myself with burning out the gangrenous parts, and covered with a large magnesium chloride dressing. Three times a day I injected the chloride solution through the tube and I changed the dressing every day. On the ninth day the improvement was so great that I could attend to the disarticulation of the hip and with some shreds of skin that remained after the suturing I was able to cover the stump. The healing was relatively rapid, although there was suppuration.

**Case No. 6.—Mr. P. . . . . Aged 58.** Crushing of the thigh. Amputation of a small part. Result of operation good, healing complete. This patient died as the result of a double parotitis.

**Case No. 7.—Mr. Tch. . . . . Aged 75.** Compound fracture of the thigh. The patient on his arrival at the hospital was in a very bad condition generally. Temperature 39°C. The wound suppurated abundantly and was filling rapidly. Immobilisation, drainage, and dressing with magnesium chloride. The wound healed with consolidation of the fracture.
CASE No. 8.—Mr. Ch. . . . . Aged 48. Strangulated inguinal hernia, sloughing of intestine. Resection of the gangrenous parts. Dressing with magnesium chloride. Result, healed.

CASE No. 9.—Mrs. Li. . . . . Aged 46. Epithelioma of the breast. Operation, total ablation of the breast and clearing of the axilla. Drainage and dressing with magnesium chloride. The wound healed rapidly.

Out of eleven cases of puerperal infection, I obtained ten recoveries. The eleventh patient was in a state of coma when I was called to see her. As treatment I have used intra-uterine lavage with solution of magnesium chloride, followed by a vaginal dressing with the same solution, and drainage.

Out of forty-nine amputations of the leg I only had four deaths. Amongst the deaths was that of one patient who had both legs broken and who was absolutely exsanguinated on his arrival at the hospital. Another patient had both legs and most of the left arm crushed; he died the day after the operation. The third died at his house, having left the hospital before healing was complete. The fourth died of embolism. Out of three disarticulations of the shoulder, three recovered. Out of nine amputations of the thigh, in addition to Case No. 6, I have had eight recoveries. The ninth patient, who had both thighs, the right arm and the left fore arm crushed, died 48 hours after his arrival at the hospital. For this patient I could only arrest the bleeding as his general condition did not permit me to do more.

All these reports concern large wounds, which for the most part were infected before the patients reached the hospital. I do not mention the lighter injuries, nor aseptic operations; I have attended to these in the same way by magnesium chloride.

Wishing to see the difference between the treatment by chloride and that by other antiseptics, I have chosen several cases in which the infected injuries or the inflamed lesions were almost identical. The results obtained are still in favour of treatment by magnesium chloride.

CASE No. 10.—Crushing of three fingers of the right hand and three of the left hand by a rock. The right hand was dressed with magnesium chloride and the left with a solution of carbolic acid, 2:100. In both hands there was suppuration, but at length the healing was complete on the right hand, dressed with magnesium chloride, in twelve days, whereas it needed thirty-four days for the left hand which was dressed with carbolic acid.

CASE No. 11.—Double inguinal adenitis with discharge. On the same day both sides were operated on: the right side was dressed with magnesium chloride, and the left with mercury bichloride 1:1000. The right side healed in twelve days, the left in thirty-four days.

CASE No. 12.—Crushing of both feet by a train. One foot was dressed with magnesium chloride, the other with sodium chloride. The right foot dressed with magnesium chloride healed more rapidly by several days than the other.

PRIMARY TREATMENT OF GUNSHOT WOUNDS.—Primary suture after an operation which anatomically reconstitutes the parts is the ideal method, but it can be performed only when circumstances permit the surgeon to work with deliberation, and the patient to remain under uninterrupted supervision for several days. When wound excision is made within a few hours of injury, antiseptics are not essential to success. The wound can be flushed out with saline or a solution of magnesium chloride. Medical Annual, 1918, pp. 606, 619.
Fig. 1. "Hongkong Foot." Chronic intertrigo and hyperkeratotic type with several pyodermic lesions on the plantar surface.

Fig. 2. Epidermophyton infection of both hands. Note the scaly and rimose condition of the skin.

Fig. 3. "Hongkong Foot." Pure culture showing white fluffy air mycelium.

Fig. 4. "Hongkong Foot." Experimental infection.

**EPIDERMOPHTHON INFECTION.**
ECZEMATOID EPIDERMOPHYTON INFECTION IN CHINA.

Hermann Dold, M.D., Shanghai.

Eczematoid inflammations of the feet of a vesiculo-pustular, dyshidrotic type, are found very frequently among the Chinese and, though much more seldom, among white foreigners living in China.

The trouble usually begins with itching between the toes, most often between the fourth and fifth toes. Sooner or later, there is an eruption which assumes the character of an intertriginous, vesiculo-pustular eczema. From the interspaces of the toes the process may, and often does, spread to the planter and dorsal regions, and finally covers the whole, or almost the whole, surface of the foot. The disease, therefore, presents itself in greatly varying forms, ranging from a slight desquamating erythema to a general eczema of the entire foot, with secondary pyogenic infection of the tissue.

Various denominations are given to this pathologic condition. The Chinese call it 足溼 (tsu kuo), 燍脚丫 (lan chiao ya), or 臭田螺 (hsiu tien lo); in Shanghai the disease among Europeans is often termed "Hongkong foot." Sometimes the condition is simply regarded as dyshidrosis or as an ordinary eczema.

A very similar affection of the feet was reported by Martin Costa, to occur in Brazil, and Cantlie described a disease which he called "foot-tetter" (dermatitis plantaris bullosa). He had encountered this condition in Hongkong and South China. Castellani, in Ceylon, reported on a form of inflammation of the feet, which he named "Dermatitis rimosa of the toes." As to the question of etiology of this inflammation he remarks: "The condition seems to be a pyogenic infection starting in some cases on slight lesions produced by a localisation of epidermophyton cruris to the toes. This localisation was first observed by Sabouraud." Cases of dermatitis bullosa plantaris (Cantlie) were also examined by Castellani and he reports: "In two of our cases this streptococcus infection developed on some superficial lesions due to a localisation of epidermophyton cruris to the soles of the feet."

The statements concerning the etiology of these affections are rather indefinite and cautious. The number of examinations on which they are based does not appear to have been very large. The fungi, it is stated, were not regularly found, but only in some cases. Besides, there is still lacking strict proof of the etiological rôle of these fungi, a group of organisms of rather common occurrence, especially in the tropics. It is therefore not to be wondered at that Plehn, in reviewing
the literature on this subject, comes to the conclusion that the assumption of fungi being the cause of these affections is as yet unproved.

From my own experience with this disease in China, I have little doubt that the conditions described by Martin Costa in Brazil, by Castellani in Ceylon, and by Cantlie in Hongkong and South China and the so-called "Hongkong foot," which condition I am going to describe here, are closely related, if not identical to eczematoid epidermophyton infections, such as have been described already by authors in various countries of Europe and America.

CLINICAL ANALYSIS.—I have had the opportunity to examine in all 98 cases of so-called Hongkong foot, of which 81 were men and 17 women. The age of the patients varied from 11-49 years. No younger children were encountered, but this may be partly due to the fact that the polyclinic, from which most of the cases were taken, is chiefly frequented by adults.

The various manifestations of the disease may be classified in four main types: 1. The vesicular type. Sudden appearance of a sago grain-like vesicular eczema accompanied by intense itching. 2. Chronic intertriginous type. Desquamation of the skin in the peripheral zones, formation of whitened sodden masses of epithelium between the toes. 3. Chronic hyperkeratotic type. Formation of masses of overgrown horny layer, especially on the plantar surface. 4. Pyodermic type, due to secondary infectious.

As already stated above, the disease is very frequently to be met with in China. It occurs in the northern, middle, and southern provinces of China, increasing in frequency towards the south. Most of the cases, which form the basis of this report were from Shanghai and Nanking.*

The disease is more frequent during the hot season. It heals or at least diminishes in winter and recurs in summer, but there are cases which persist through the whole of the year. The occurrence of the disease in several members of a family was occasionally observed, but as the affection is so common among the Chinese, I do not think this is of any great significance.

In ninety-four cases the disease occurred only on the feet (Figs. 1 and 4); in two cases only on the hands (Fig. 2); in two cases only in the genito-crural region; in one case the feet and one hand, and in another case both feet and the right axillary region were simultaneously affected.

*For permission to report these cases from Nanking, I am greatly indebted to Dr. Scheidemann.
MICROSCOPICAL EXAMINATIONS.—All the ninety-eight cases were examined microscopically for the presence of fungi. In ninety-five of these, fungi could be demonstrated. Only in three instances did the microscopic inspection fail to detect them. It must be said, however, that in these cases only a single examination was made. Later experiences showed us clearly the value of repeated examinations in dubious cases.

As to the technic of the examination, the whitish caseous masses of epithelium should be discarded, but the peripheral parts, where the process is spreading, the roof of the vesicles, and the itching and desquamating parts of the skin offer the best chances for finding the organisms. Provided suitable material be chosen, it is easy to demonstrate the fungus in the diseased tissue. Scales or the roof of vesicles—if such are present—are removed with a sharp blade and immersed in a solution of 30% sodium or potassium hydroxide, until sufficiently softened and disintegrated. The material is then transferred to a slide and a cover glass placed over it, slight pressure being applied until the piece of tissue is pressed out into a thin smear. This process of disintegration may be accelerated by boiling the tissue in the solution of potassium hydroxide. In the material thus prepared one finds slender mycelial threads and usually chains of spores. These are often of a rather quadrilateral shape and the size of the spores varied greatly in the specimens I have seen. Sometimes the spores are not arranged in chains, but are discrete or lie scattered in heaps.

CULTIVATION.—In thirty-one cases we tried to culture the fungus on Sabouraud's Maltose-Peptone-Agar (4% Maltose, 1% Peptone) rendering the medium acid, and in fourteen cases the attempts were successful.

The cultivation of the fungus is by no means easy. Despite the greatest care contamination with all sorts of bacteria is frequent, especially with cocci and ordinary moulds, and as the fungus requires at least from four to five days to develop, it is often overgrown by such contaminating microbes.

The culture at first exhibits a yellowish-green, lemon-like color. Later on, the surface becomes powdery and the centre somewhat acuminate. Afterwards a pure white, fluffy, air-mycelium appears (Fig. 3). From this description it is evident that the fungus in question has the characteristics of Epidermophyton inguinale (Sabouraud).

In three out of the fourteen cases we found a fungus similar to Epidermophyton inguinale, except that the color of the colonies was pure white from the beginning.
Among the other organisms which we encountered as contaminating microbes, the most frequent were cocci, ordinary moulds, and blastomycetes.

To check our results we examined in the same manner healthy skin, and also the skin in other diseased conditions of the feet for the presence of these fungi. Out of thirty cases we found only in two a few spores and filaments of a fungus on, and partly within, the layers of the epidermis. We can offer no explanation as to the significance of these findings.

From the results of these investigations it seems almost certain that the disease in question is caused by the Epidermophyton inguinale (Sabouraud), and that the conditions described by Martin Costa in Brazil, by Castellani in Ceylon (Dermatitis rimosa of the toes), and by Cantlie in Hongkong ("Foot-tetter," "Dermatitis bulbosa plantaris"), are manifestations of infections with the same or closely related fungi. All these conditions may be properly classified as "eczematoid epidermophyton infections."

Invasion of the skin by this fungus has of late been repeatedly reported, both in Europe and in America, the latest comprehensive account of this subject being given by Ormsby and Mitchell, who themselves examined sixty-five cases and succeeded in obtaining pure cultures in seventeen cases, of which six were typical cultures of Epidermophyton inguinale.

In a strict sense, however, the etiological relationship of the Epidermophyton to the disease in question has not hitherto been firmly established, as, so far as I know, no experimental production of the disease with pure cultures of the fungus had been attempted.

Experimental Transmission.—We are in a position to record two cases of successful transmission of the disease in man by bringing material of pure cultures into close and prolonged contact with the skin.

**CASE I.** Material of a pure culture of Epidermophyton inguinale, grown from one of our cases of so-called "Hongkong foot," was taken and finely ground in a mortar, a few mils of normal saline being added, just enough to make a thick emulsion. Small pieces of sterile gauze were soaked in this emulsion, and one piece was placed in the space between the fourth and fifth toes of my left foot. Needless to say, my skin before the beginning of the experiment was free of any infection with this fungus.

Four or five days after the infected gauze had been placed in the fourth digital interspace of my left foot, itching was felt, which became more intense in the course of the next few days.

The gauze was removed eight days after the beginning of the experiment. The surface of the skin between the affected toes exhibited a slight erythema with scaling at the periphery, and some whitish sodden masses of epithelium well down between the toes. On microscopical examination the scales were found to contain
the fungus in typical forms and arrangements. Energetic treatment with tincture of iodine effected a prompt cure.

**Case 2.** The foregoing procedure was repeated on a larger scale in a Chinese, who offered himself for such an experiment. The man was free from any infection with fungi. In this case the pieces of infected gauze were inserted between the second, the third, and the fourth interspaces of the left foot, which was then bandaged to keep the pieces of gauze in their places. Five days after the start of the experiment itching commenced which became intensified during the following days. On the tenth day the bandage and gauze were removed. There was a marked erythema of the skin between the toes, also in some places vesicles, singly and in groups, areas of scaling, and whitish sodden masses of epithelium especially deep between the toes. Owing to a secondary infection with cocci the condition grew worse in the course of the following weeks (Fig. 4), but eventually a cure was effected with chrysarobin in traumaticin.

**SUMMARY.**

1. Eczematoid epidermophyton infections, which in Europe and North America seem to occur comparatively seldom, are very frequently met with in China.

2. The favourite seat of infection is the foot, i.e., the interspaces of the toes, especially the fourth interspace; but infection may also occur on the hands, the genito-crural region and on other parts of the skin.

3. The disease is encountered in China in four main types:

(a) The vesicular; (b) the chronic intertriginous; (c) the chronic hyperkeratotic; (d) the pyodermic type.

4. The so-called "Hongkong foot," the "Dermatitis rimosa of the toes" (Castellani), and the "Dermatitis plantaris bullosa" (Cantlie), are in all probability identical diseases. They, as well as many cases of eczema of a dyshidrotic and intertriginous type, appear to be manifestations of infection with the Epidermophyton.

5. Out of 98 cases of so-called "Hongkong foot" which were examined microscopically, in 95 cases a fungus was found more or less abundantly on and within the layers of the epidermis.

6. On the other hand, out of 30 persons examined in a similar manner, whose skin was either healthy or affected by some other disease, a fungus was encountered twice only and then the spores and threads were few.

7. In 31 cases of so-called "Hongkong foot," cultivation of the fungus was attempted. In 14 cases this was successful, and yielded a growth more or less characteristic of Epidermophyton inguinale (Sabouraud).
8. These microscopical and cultural results are essentially in accord with the earlier findings of other authors, especially those of Ormsby and Mitchell.

9. In two cases we succeeded in producing the characteristic symptoms of the disease by placing pure culture material of Epidermophyton into close and prolonged contact with the skin between the toes.

10. This experimental result would seem to settle completely the question of the primary etiological rôle of the Epidermophyton in the eczematoid conditions mentioned.

REFERENCES.

2. Cantlie (vide Castellani and Chalmers, Manual of Tropical Medicine, 1913).
3. Castellani and Chalmers, Manual of Tropical Medicine, 1913.
6. See especially the papers of:
7. Ormsby and Mitchell, op. cit.

STUDIES IN SANITATION IN CHINA.

NATHANIEL BERCOWITZ, B.S., M.D., Kachek, Hainan.

III. THE RELATION OF SEWAGE TO AGRICULTURE AND THE PUBLIC HEALTH.

The disposal of sewage in China involves many problems. In the first place intensive farming as practised by the Chinese necessitates the use of human faeces and urine as fertilizer. In the struggle for existence in China the balance is very delicately adjusted, and the use of this cheap and exceedingly valuable fertilizer keeps many millions from starvation.

And yet, on the other hand, the use of this fertilizer is a menace to the welfare of the nation. As is well known, acute intestinal infections, typhoid, cholera, and dysentery, exist and become epidemic because of lack of sanitary measures with reference to human faeces.
Fig 1. Experimental Garden: Material from Septic Tank used as Fertilizer.

Fig 2. Experimental Garden, unfertilized.

THE RELATION OF SEWAGE TO AGRICULTURE AND THE PUBLIC HEALTH. BERCOVITZ.
and urine; and the chronic anaemia of hookworm, with the physical and mental deterioration of the individual infected, becomes widespread for the same reason.

With the necessity for the use of this fertilizer the problem of the sanitary engineer is to determine a method by which it can be used with safety to the individual and community. And to be quite safe involves the destruction of pathogenic ova and bacteria before use in gardens or fields.

There are different methods by which this may be accomplished. The prolonged use of intense heat would certainly be effective. Such a scheme, however, would call for special apparatus and the use of valuable fuel. It would seem rather difficult to persuade a Chinese farmer that the expenditure would in any way be worth while. The economic loss would be too great, and the use of heat altogether impracticable.

The use of bactericides might be advocated. There are several difficulties in such a proposition. The first is the selection of a suitable chemical. Such a chemical must have the following properties: it must be certain in its action as an antiseptic, and at the same time it must not be injurious to the plant which is to be fertilized. Another difficulty would be the instruction of the farmer in the use of the chemical so that it should not become a source of danger through acute poisoning to members of the community, and the live stock. The expense would also have to be considered, and in view of the large quantities of fertilizer used, and in view of the amounts of the chemical necessary to sterilize the fertilizer, the use of a bactericide becomes prohibitive.

An exception might be found in the use of chlorinated lime, small quantities of which in the presence of organic matter liberate chlorine, a most powerful antiseptic. This would, as in the case of other chemicals, be ineffective for the solid faeces. Furthermore, its rapid deterioration, especially in a warm, humid climate, would be against its practicability.

There remains for consideration the septic tank. As is well known, by the process of fermentation the faeces undergo liquefaction, during the course of 36 to 48 hours, with the destruction of bacteria except those of the type predominant within the tank. This type will naturally be saprophytic, as the bacterial flora of the intestinal tract, except in cases of overwhelming infection, is non-pathogenic. The destruction of pathogenic bacteria, and of the ova of intestinal parasites would therefore be assured. As a result of this process, the material
The question as to its value as fertilizer must next be considered.

In order to determine this point an experimental garden was planted, and the material from the second and third chambers of the septic tank in use in the Kachek hospital was used as fertilizer, with due controls. Four kinds of plants were selected, and three rows of each of these were planted. The first row of each plant was fertilized with material from the second chamber of the septic tank; the second row of each plant was fertilized with material from the third chamber of the septic tank; and the third row of each was the control, and was unfertilized. In every way the conditions were equal. The seed for each row was equally weighed out. In the case of the grains, shoots from propagating beds were taken, and here again the number of plants for each of the three rows of each grain were equal. The nature of the soil, and the conditions of heat, rain, light, and shade were the same for the whole garden.

The result of the harvest is shown in the following table:

<table>
<thead>
<tr>
<th></th>
<th>First row, using material from 2nd chamber of septic tank</th>
<th>Second row, using material from 3rd chamber of septic tank</th>
<th>Third row, using no fertilizer; control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>42 oz.</td>
<td>20 oz.</td>
<td>12 oz.</td>
</tr>
<tr>
<td>Millet</td>
<td>5.0 oz.</td>
<td>2.9 oz.</td>
<td>1.7 oz.</td>
</tr>
<tr>
<td>Ku Vae</td>
<td>84 oz.</td>
<td>66 oz.</td>
<td>49 oz.</td>
</tr>
<tr>
<td>Tiak Kha</td>
<td>11.5 oz.</td>
<td>8.0 oz.</td>
<td>6.5 oz.</td>
</tr>
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As will be seen the material from the second chamber of the septic tank is a powerful fertilizer. The material from the third chamber of the septic tank was considerably less powerful, but even so the harvest from the second row was considerably more than the harvest from the third (control) row.

The results of this experiment are very suggestive, and it would seem that the principle of the septic tank should form a rational basis for the solution of the problems connected with the use of human faeces and urine as fertilizer.

What, then, would be a practical application of the septic tank to conditions as they exist in China? Any system to be successful in China must be exceedingly simple, with a minimum of possibility for error or damage. It is believed that the septic tank possesses these requirements.

The principle of the septic tank is not altogether new with the Chinese, for it is the custom in many places to pour the excess night-soil into large open vats where it remains until needed. During this
time it undergoes fermentation with destruction of pathogenic bacteria and ova. If all the night soil were treated in this way there would be no danger from its use as fertilizer. However, as it is only the excess which is poured into these vats the problem remains the same.

On a recent visit to a village not far from Kachek several "toilets" were seen in different places, constructed as follows: a thick pine-apple hedge was planted, inclosing a space about ten feet in diameter, with a low bamboo fence at one side as the opening. Within this area a hole was dug, and an earthen water jar placed in it, the brim of the jar being about three or four inches above the level of the ground. These jars were used as receptacles for faeces and urine, the whole arrangement being a primitive idea for a toilet. When the jar was full it was emptied, and the material carried off to the fields. This arrangement was made for the purpose of conserving the material, and could easily be made satisfactory from a sanitary standpoint if a permanent two chamber receptacle were made to allow time for the fermentation process to take place, the material for fertilizing being taken only from the second chamber.

It would seem that an idea worked out along that line in the villages of China would not be altogether impracticable. In fact, it should appeal to the Chinese not as an innovation, but as a modification of what they are already accustomed to.

When the septic tank was built in Kachek, and the material offered to the Chinese as fertilizer, there was at first some prejudice because of the liquid state of the material. This prejudice, however, very shortly passed away, and the second and third chambers of the septic tank have not been full for several months. The demand exceeds the supply.

To what extent does the septic tank destroy pathogenic ova and bacteria? This is an all important question. Experience has shown that certain diseases such as typhoid, dysentery, cholera, and hookworm disease are spread by faecal contamination. It is also well known that the presence of one type of bacteria in overwhelming numbers causes the disappearance of other types of bacteria which may be present in small numbers.

The action of the septic tank depends upon the presence of bacteria which break down the organic matter of the faeces and urine. There will naturally be a conflict of organisms, with the predominance of one type and the destruction of other types. This predominating type will be anaerobic. If fifty persons use a latrine, and one of the fifty has typhoid fever the predominating type of bacteria will cause the disappearance of the typhoid bacilli.
Harrington and Richardson, in commenting upon sewage irrigation as practised in the sewage farms of Paris, Berlin, and other European cities, made the following statements:

"In the Berlin (sewage farm) works in a population of more than 1,500 there was one death from typhoid fever in five years."

"At the farms at Gennevilliers, where the sewage of Paris is received, the general death rate is low. An extensive epidemic of typhoid fever in Paris would be supposed to be the forerunner of another of greater comparative severity where its sewage containing the bowel discharges and urine of sick and well alike is treated, but experience has demonstrated that such is by no means the case, for in 1882, when Paris suffered from an unusually extensive outbreak of that disease there was not a single case at Gennevilliers."

"So far as is known there is as yet no proof that sewage irrigation has ever been responsible in any way for the occurrence of extensive outbreaks of typhoid fever, dysentery, cholera, or, indeed, of entozoic trouble."

It should be noted that no outbreaks are ever due to diluted sewage carried from a distant municipality. The reason for this is the underlying principle of the action of bacteria on organic matter over a given length of time. The use of fresh faeces would be dangerous.

What is the status with reference to the ova of hookworm? Stitt says "... there is very little danger of the spread of hookworm disease ... where there is proper disposal of the faeces by burning, boiling, or treatment in a septic tank." Manson says: "I believe the Chinese plan of storing night soil in large cemented watertight pits is a good one. It is known that if the ova of *Ankylostomum* are kept in pure faeces the embryo is developed and escapes from the egg ..., but it is also known that unless the embryo be supplied with a certain amount of air and earth it soon dies. The thing to be avoided, therefore, is the mixing of fresh faeces with the earth. By the Chinese system the embryos of *Ankylostomum* are killed, and, at the same time a valuable fertilizer is secured for the agriculturist."

To prove this specimens were taken from time to time from the second chamber of the septic tank. Repeated examinations failed to reveal the presence of ova of hookworm in the material, and no embryos were seen. It is evident that these must have been destroyed, because there have been many cases of hookworm in the hospital, and faeces from these patients before treatment were washed into the septic tank.

With reference to the ova of *Ascaris lumbricoides* there is a different story to tell. These have been found as late as ten days after
entering the third chamber of the septic tank. In a sample of the material from the second chamber, kept in a jar for fifteen days, ova of *Ascaris* were found undergoing degeneration. The shell was broken through, and the interior of the egg attacked by myriads of exceedingly motile unicellular organisms of the *paramecium* type.

Manson and other observers have noted that the ova of *Ascaris lumbricoides* are long lived, and will survive in faeces until a suitable hatching place is found. It is true that a great many cases of abdominal distress and other slight ailments are due to these worms. It would be unwise to condemn the material from the septic tank for this reason in view of its safety otherwise. The septic tank is certainly an improvement over present conditions.

In the market towns and cities the plan would be as follows. Where there is a sewage system the material could be flushed into large septic tanks and pumped from a central pumping station to distributing points, or to nearby fields. Where this would be possible the sewage could have the additional treatment by heat or chlorinated lime; and the sale of the material would pay expenses. This is an ideal for the future—but one which must not be lost sight of, for the scientific sanitation of Chinese cities may not be so far off.

At the present time, however, in most cases it would seem that cities and towns could provide septic tanks in convenient places where the night soil from houses could be poured; public latrines could all be connected to septic tanks, these latrines being built as models. Those who come to collect the material for fertilizer would take it from the second or third chamber of the tank. Such a system would be practicable in most cities and towns to-day.

As a prerequisite, however, there must be adoption of laws with the appointment of duly qualified health officers to carry out the laws. In China’s present distracted state it would be asking too much to expect that this plan could be carried out very extensively. It is suggested, because the awakening conscience of the Chinese is going to demand in the future a system for the disposal of sewage with no economic loss to the community. For that day the doctors of China must plan.

This experiment as just recorded is incomplete. It is proposed to repeat the work using untreated human faeces and urine in the way the Chinese use it as a control. Then there remain the problems of concentration, and the use of water in the septic tank; these must be worked out by sanitary engineers with relation to the value of the material as fertilizer. The selective use of this material should be
studied with reference to the use of fertilizer for different plants, as it is known that different bacteria differ in their fertilizing properties for different plants. In other words the problem calls for extended research on the part of physicians, bacteriologists, and agriculturists, with this great purpose in mind, the hygienic and sanitary uplift of China.

References.

Sewage Disposal in Shanghai.—Following upon the decision of the Municipal Council of Shanghai in 1916, to permit the installation of the water-closet system in dwelling houses, etc., Professor G. J. Fowler, D.Sc., F. I. C., was requested to visit Shanghai and advise as to what method of water-closet drainage was best suited to local conditions. He arrived in May, 1918, and in June submitted his report to the Council. This report is set forth in the Municipal Council Report, 1918, with departmental reports, and extracts from the minutes of the Health Committee and of the Council.

Briefly, Professor Fowler recommends that, in order to safeguard the water supply, it is advisable to have a separate sewage system for water-closets, which, by means of ejectors, will bring the sewage to a purification works where it can be treated by the “activated sludge” method. This method consists in blowing air in a fine state of division for a few hours through the sewage contained in a tank, which purifies by rapid oxidation through the medium of the suspended matter in the sewage previously activated by bacterial growth. Such matter, on the cessation of blowing, rapidly subsides as sludge. This sludge has a considerable value as a fertiliser and is calculated to give back to the farmer much of that which he loses by not receiving nightsoil. The effluent is inoffensive and may be discharged into the stream which furnishes the source of the water supply with a reasonable degree of safety.

As Professor Fowler’s scheme is incomparably better for the safe disposal of water-closet sewage than the use of “septic tanks” in connection with individual water-closet installations, and as the expenditure involved, though great, seems not more than so progressive and important a community can bear, the use of septic tanks is prohibited although Professor Fowler considered that they might be used under certain conditions. But as a separate sewage system with purification works is considered the best for Shanghai by the sewage expert and also by the local public works and public health administrations, effort will be concentrated solely on this plan without distraction along less efficient alternatives.
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Editorial.

The recent burning, with a great deal of official ceremony, of 1,200 chests of opium in Shanghai of the value, if sold in China, of over $20,000,000, has attracted much public attention. Some regard the proceedings as a hopeful sign that in a short time the opium evil will be completely eradicated and are correspondingly jubilant. Others think it is all "look-see pidgin," an outward show, nothing more than a cleansing of the outside of the cup and the platter; they allege that the Chinese plan is to get rid of Indian opium in order to promote the growth of opium in China and to obtain higher prices for it. In support of this allegation they point to Manchuria, Kirin, Honan, Anhwei, Szechwan, Yunnan, Kwangtung, Kwangsi, Fukien, Shensi, Kweichow, to mention only those provinces concerning which we have clear and reliable evidence, where there is certainly a recent and very wide increase of poppy cultivation in spite of the laws and regulations against it. As the medical profession in China is naturally very much interested in the whole question, it may be well to consider it here, although most of us are familiar with the facts and probably have already formed a decided opinion concerning the whole matter.

The political and moral aspects of the opium question cannot be justly understood if it is held that the vice was somehow fastened upon the Chinese against their will by foreign nations. The habit of opium smoking was introduced to China,
probably from Java, towards the close of the seventeenth century. At first all the opium was imported from abroad. The evil spread. Imperial edicts were issued against it in 1729, in 1796, and again in 1800. Had the people then been willing, it could have been nipped in the bud. In 1838, a very determined effort to suppress it was made by the reigning Emperor and his Viceroy at Canton. But the Chinese, with the connivance of their own officials and foreign merchants, continued to smuggle the drug in large quantities into the country, where it found a ready and profitable sale. The friction over this and other incidents led to the "Opium War" in 1840 between Great Britain and China.

In 1858 the trade was formally legalized and the importation of Indian opium thereafter increased steadily for thirty years. The question came to be asked by many Chinese, why not grow the poppy ourselves and make money by it, instead of enriching foreigners? So the growth of Chinese opium began. In 1888 it had become so extensive that the importation of Indian opium began to decline. The habit of opium smoking had now become very common among all classes and little was heard of reform.

The profoundly humiliating war of the Chinese Anti-Opium Movement with Japan in 1894, the suppression of the reactionary Boxer movement, the work of Christian missions throughout the land, and various other influences, all tended to awaken the Chinese to a sense of their national needs and dangers. Perceiving that the alarming increase of the opium vice was weakening the nation, morally and physically, a strong anti-opium movement developed. In response to its demand the Manchu Government issued an edict in 1906 ordering the abolition of opium smoking within ten years. Early in 1907, the British Government agreed to reduce the exportation of Indian opium to China by one-tenth annually for ten years. This arrangement seems to have been partly due to the belief already mentioned that the anti-opium movement was not altogether sincere; that as soon as there was no competition from abroad there would be a great increase in the native production. The British apparently were not willing to run the risk of exciting great discontent in India by compelling the Indian people to suffer financial loss for the sake of the Chinese, unless the latter gave
unmistakable proofs of their sincerity. Under this arrangement the cultivation of opium in China steadily decreased during the earlier part of the decade.

In 1911, the Manchu dynasty was overthrown and a Republic established. The people were not ready for this highest and most difficult form of government and the country fell into disorder. The cultivation of the poppy was renewed in several provinces. In 1917 the importation of Indian opium ceased in accordance with the terms of the agreement with the British. The legitimate foreign opium trade in China and the legitimate cultivation of opium in China itself thereupon came to an end. The “Opium Combine” of foreign opium merchants in Shanghai was left with 1,200 chests of the drug still unsold. Because of the great demand for it and the difficulty of obtaining new supplies the price of this opium rose rapidly until it was worth from twenty to twenty-five million dollars. In 1918, most of the important government officials in Peking formed a syndicate to buy it and retail it to the country at large on the pretence that it was needed for medicinal purposes. This was too much even for the Far East. There was a storm of protest from Chinese and foreigners alike. On behalf of the China Medical Missionary Association, its Executive Committee passed a resolution protesting against the purchase, which was forwarded to the British and American Ministers in Peking for presentation. To this storm the Chinese Government had to bend. A presidential mandate was issued ordering the opium to be publicly burned.

The cultivation of the poppy and extensive smuggling of the drug still goes on, however, in many parts of China, and there is indisputable evidence that Chinese government officials aid and abet this disregard of laws and agreements. Within the last few days the President of China has issued another mandate prohibiting poppy cultivation.

To complete the survey it should be added that an immense amount of opium is being smuggled across the Burmese frontier. It is pleasant to state that the British Government in January last announced its intention to take measures on its side to stop
this smuggling. On the other hand, it is most disheartening to report that thousands of Chinese are now addicted to the use of morphine by hypodermic injection, a far worse vice than opium smoking. This horrible trade is promoted by the Japanese. During the war they have taken to the manufacture of morphine and now send tons of the drug annually to China. Last year it is estimated that eighteen tons were imported. In some districts in the province of Chihli, morphine is used to such an extent that 'girls were seen buying it, and it was injected into tired animals to make them do a further stage.' The Chinese seem to be powerless in the matter.

It is evident that opium smoking is not an isolated evil. To abolish it completely and the evils on which it depends is a stupendous task, for it means the thorough reformation of China. The following seem to be the greatest and most urgent requirements to attain this end:

1. The creation of a strong public sentiment against the opium evil in all its forms, based on moral grounds, not solely on political expediency.

2. The introduction of social reforms. Millions of the people should be delivered from the poverty, ignorance, disease, and general wretchedness, which often lead to opium smoking just as the poverty and squalor of the slums of our own great cities lead to alcoholism. Many of the Chinese first take to opium to alleviate the distress or pain of disease. The lure of the drug lies in the pleasant sense of well-being which it gives; for a little while the victim feels that he has been raised above all the ills of life and is content.

3. The rigorous prohibition by foreign governments of the exportation to China of opium and its derivatives unless really required for medicinal purposes. While the Peace Conference in France was being held, the Japanese Government announced its determination to take every possible measure to stop the smuggling of opium into China. It has also decided to abolish its own Government Opium Monopoly, which affects not only Formosa where it was established in 1897 with the object, so it was said, of gradually reducing the consumption of opium, for which purpose it proved utterly ineffective; but also Kuantung and Tsingtao,
two places in which there are said to be no less than 25,000 Chinese opium smokers. Japan is doing well in taking these steps to help China out of her difficulties.

4. China's greatest need, politically, is strong good government. There are a few good officials in China, like Governor Yen, of Shansi, who is doing his utmost to keep his province free from opium, but most of the officials are weak, inefficient, and venal. The questions may be asked: Why are such men allowed to come to the front? Why do not all decent Chinese insist upon good government and some of them come forward and shoulder political responsibility? Perhaps the answer gives the master-key to China's political difficulties. The "Opium War" broke down the barriers between China and the Western world. China was brought into close contact with a civilization it did not understand and yet despised. "The structural character of the people, the deep-rooted qualities and defects produced by 2,000 years of the Confucian system of ethics and ancestor worship have made it quite impossible for the nation rapidly to adapt itself to the new environment forced upon it." It is confronted by problems which neither the experience of the nation, nor the statecraft of even the better officials, can solve. Hence the general weakness and disorder.

Yet something must be done, and done soon, if the country is to be saved from disintegration. It is our own opinion that, under the protection and guidance of a strong friendly nation, China should be given a government which shall guide the people along fairly familiar paths to a state of civilization which may be distinctively Chinese and yet in harmony with the highest civilization of the West. Perhaps the Peace Conference, if desired, may find some other and more rapid means for the establishment of law, order, and financial integrity.

5. Fundamentally, the problem is spiritual. If a people cannot, or will not, work out its own salvation, other nations cannot save it. They may help to pull down its strongholds of evil, but constructive work is even more necessary; high ideals may be set forth, but there must also be the bringing of spiritual power into the life of the nation to make it possible for those ideals to be realized. Herein lies the supreme value of the work of Christian missions in China.
MEDICAL MISSIONARIES FROM CHINA IN SIBERIA.

In January, 1919, Dr. R. V. Taylor, Jr., of Yangchow, who had been working in western Siberia under the American Red Cross, was recalled to China owing to the death of his colleague, Dr. J. T. Anderson. In the North-China Daily News he gave a long and interesting account of his experiences. The following is a selection of those parts bearing more or less directly on medical work; it is regretted that limits of space forbid the reprinting of the article in full.

"We arrived in Vladivostok from Shanghai on Tuesday, September 24, 1918. We were met on the jetty by Dr. Teusler and Bishop Tucker. They told us that we had arrived at a most auspicious time, as the "Sanitary Train No. 1," which had been secured with some difficulty from the authorities of the Chinese Eastern Railroad for the use of the American Red Cross, was already standing on a siding, waiting to start out in a few days.

During the time we were there we were given an introduction to the enormous problem of running a great central Red Cross Office, where supplies were constantly pouring in, which required classification and storage in the gigantic warehouse, preparatory to being sent out at every opportunity to the men rendering Red Cross service out near the fighting fronts.

Dr. Manget, a member of our Shanghai Unit, was asked by Dr. Teusler to remain in Vladivostok, to help him in the office there, and to represent him when he himself should go with the next train out across Siberia.

Dr. Polk and Dr. Ingersoll, with Miss Pitts and Miss Hood, and thirteen Chinese girl nurses from Soochow, remained in Vladivostok, to render most valuable service, through a daily clinic and a small, refugee hospital, to the continuous stream of miserable humanity pouring into that already overcrowded city.

The rest of us, Drs. Lasell, Hadden, and Gutelius (dentist), and eight nurses, Misses Farmer, Hobein, McBride, Forman, Gardner, Miller, Myers, and Vanwynaeg was left Vladivostok on September 29, for an unknown destination somewhere four or five thousand miles across the vast expanses of Siberia.

Bishop Tucker was placed in charge of this train of twenty-three cars, and we were accompanied by Dr. Boucek, captain in the Czecho-Slovak army, with three lieutenants, and sixty Czech soldiers, twenty-five of whom were "Sanitary Train Men," and twenty-five
were stretcher bearers, the rest being artisans such as butchers, shoemakers, carpenters, and the like.

In Harbin we were joined by Drs. Ingram and Tipton, Dr. Ludlow and four or five nurses remaining in Harbin, where the American Red Cross was assisting in the hospital already established by the Russians. Before Dr. Ludlow and his wife left Harbin for the front, they were able to render much appreciated service to the American engineers stationed there.

Our Red Cross had already established a hospital at Buchedoo, eighteen hours' ride from Harbin, which was as far as we could go to the actual line of hostilities: but now that General Gaida, with his Czech soldiers, had broken through the Bolsheviki line beyond Buchedoo, and scattered their forces, the fighting was carried to another line just beyond Ekaterinberg, and the hospital in Buchedoo found itself, through no fault of its own, with very few patients, and several thousand miles behind the lines.

Dr. Lasell was left in Buchedoo to join Dr. Hiltner, and Dr. Lewis linked himself up with our train. There were five nurses in Buchedoo to assist Drs. Lasell and Hiltner should any new patients come their way. They had already treated a few typhoid patients and others among the Czech forces at that time located in Buchedoo, but because of the radical change in the military situation it became evident that the Buchedoo hospital would either have to be closed, or changed into a tuberculosis sanitarium, or a hospital for convalescents able to be moved back from the now far flung front.

We finally arrived in Omsk, about October 20, 1918, where we were met by Dr. Newman, who, as the representative of the American Red Cross, had been attached to the staff of General Gaida, with headquarters at Ekaterinberg.

After some consultation at the Omsk American Consulate, Bishop Tucker decided that we should move on to Cheliabinsk and Ekaterinberg, in order to ascertain from the central Czech authorities where our assistance was most urgently needed.

We had already contributed some medical and surgical supplies to a few of the neediest Russian hospitals along our way. At Cheliabinsk we met the Czecho-Slovak Surgeon-General, and he expressed ardent gratitude that we had at last arrived. He said that he wished us to establish at once our first hospital at Tiumen, a town beyond Omsk on the line from Omsk to Petrograd. We, therefore, at once made preparations to first visit Ekaterinberg in order to present ourselves to the Czecho-Slovak National Council stationed there and then return to Tiumen.
While we were in Cheliabinsk we saw the Czech chief surgeon, Dr. Herring, perform several very excellent and ingenious operations, and after we left we heard that he had successfully transplanted a piece of bone from the leg of a wounded man who had just died into the lower jaw of a living man, whose jaw had been carried away by a shell. The splendid X-Ray equipment in this hospital had been out of order for a year under Russian and Bolsheviki management, but in a few days a Czech electrician had restored it to its former position of usefulness, and we saw a series of most excellent plates that Dr. Herring had taken only a few days before.

We left twelve cases of supplies with Dr. Herring, and went on to Ekaterinberg, where Bishop Tucker remained for a week to see his brother, Dr. A. W. Tucker, and Dr. Lee, who were coming for a day or two of rest from their work as two of the doctors to the Eighth Czecho-Slovak Regiment, then engaged in fighting on the Perm sector.

In Ekaterinberg we found the Czech hospital, with two hundred and eighty patients, in charge of only two Czech doctors. This hospital, like the one in Cheliabinsk, formerly belonged to the Russians, and then to the Bolsheviki, and was captured by the Czechs, but is much smaller and less well equipped than the Cheliabinsk hospital. We saw a number of desperately wounded men, and while we were in this hospital, the nearest to the front line, two fresh squads of wounded soldiers were brought in in large motor lorries, lined with hay, and we were told the surgeon would be operating late into the night. Six Russian Red Cross nurses were assisting here.

On arrival in Tiumen, we found that the director and owner of the splendidly equipped commercial school, a member of a millionaire Russian family of five brothers, two of whom had been killed by the Bolsheviki, was anxious to do all in his power to co-operate with us. He immediately evacuated more than half of this building for our use as a hospital.

In a few days we had set up our equipment, and were beginning to receive patients. We first took in sixteen wounded Russians one cold night, when they were standing in a car on a side track at the station, with no place to go. They only remained with us a few days, however, as we were able to have them removed to a nearby Russian hospital, in order to make room for the two hundred and fifty Czech patients expected to arrive immediately. I cannot speak in detail of these patients, of their frozen, gangrenous feet, of the man with lockjaw, of the Russian officer shot through his forehead, and of all
the others, with ruined elbow joints, and deformed hands, and broken bones. . . . But we were busy on November 12, when the news of the signing of the armistice came to us. Our hospital staff immediately had a conference, and we began discussing whether we could not turn our hospital and supplies over to the Czechs, and perhaps arrive home for Christmas, now that the war was over.

Then Dr. Teusler arrived in Tiumen on Sunday, November 17, and our dreams of returning home for Christmas vanished. He was more than pleased with the hospital in Tiumen, and said he was planning to open a hospital of one thousand beds in Omsk, but he wished first to visit Ekaterinberg to confer with the Czecho-Slovak Grand Council before making a definite decision.

On the day of Dr. Teusler's arrival I received the telegram announcing the death of Dr. Anderson, which necessitated my immediate return to Yangchow. Owing to the unsettled condition of the railroads, there was no regular train service, so after securing permission from the Czech military authorities in the railroad station, I began at once to fit up one of the American Red Cross box cars, in preparation for my long return journey across the more than four thousand miles of frozen Siberia.

We left Tiumen in our "special car" Monday night, November 18, six days after the death of Dr. Anderson. We were unfortunate in only being able to secure attachment to a slow train to Omsk, and consequently did not arrive there till Thursday morning, using three days for a trip which is easily made in a little more than twenty-four hours by a fast express train. In Omsk I found, on a side track, one half of Dr. Teusler's train, with the following personnel: Drs. Dilley, Lasell, Hiltner, and Ludlow, and about fifteen nurses. They had been in Omsk some days attending to the preliminaries in securing the evacuation of a large Russian barracks, which at the time of my passing through was still more than half full of young new Siberian troops. The day I left Omsk it was decided by the doctors left there that they would go to Tiumen the next day, and wait there for Dr. Teusler's return and final decision with reference to opening and equipping a base hospital of one thousand beds in Omsk.

I left the Siberian situation at that point, and am sorry at the present time not to be in possession of any further information with reference to our hospital work out there."

The intense cold and other hardships of the return journey are well described.
The whole Senior Class of young women student physicians from the Soochow Women's Hospital in charge of Dr. Van (Chinese) and two foreign doctors, Dr. Ingersoll and Dr. Ethel Polk, which went to Siberia in September, sent back interesting reports from Vladivostok. There were thirteen students in the unit to act as nurses, besides the three doctors. Ten of the thirteen nurses are from the Province of Kiangsu.

While waiting for their boat in Shanghai on their way north, the girls stayed at the Young Women's Christian Association on Quinsan Road, and the employed workers and members there became so interested in the undertaking and in the young women themselves that they asked to take the responsibility for paying the salary allowance of the ten Kiangsu girls—$380 a year. Traveling and regular expenses are paid by the Red Cross.

When the unit arrived in Vladivostok, they found all living arrangements very crowded. Refugees and troops of all nations were gathered there, and the girls found no house where they could stay. For the first few days, they lived on a railroad train, sleeping in two sleeping cars and eating foreign food in the dining car. The foreign doctors found the food very good, but it was hard for the nurses to live on it. Many of the nurses were homesick, too, but they stood it bravely.

When they did find rooms to live in, there were only two, and for three weeks the thirteen nurses had to live in these two rooms. Now they have found somewhat more comfortable quarters.

The unit is working for the refugee women and children now flooding Vladivostok in such numbers. The doctors hold their daily clinic in two railroad box cars and, with the aid of the nurses, care for hundreds of cases every week. Some of the nurses are on night duty in the hospital on Prussian Island, others are scattered in different places in the city where their help is needed.

At one time doctors and nurses together were called to look after one hundred and fifty cases of sore throat at the Jewish Barracks. "The woman in charge of the refugees there spoke highly of the efficient way in which the Chinese doctor and nurses treated these throat cases," writes Dr. Ingersoll. Most of the patients whom they
treat at their clinic are suffering from diseases caused by lack of proper food, from exposure, and from the hardships they have faced.

Just before the unit left Shanghai on its way to Siberia, word came that they should not go. The medical authorities in Vladivostok feared that well-bred, retiring Chinese girls would not be able to take care of themselves, and that regrettable incidents might happen. It was then too late to turn back, so they went on but naturally did not receive a very warm reception on arrival in the North. "Now, however," writes Dr. Ingersoll, "the authorities have nothing but praise for the work of the Chinese doctor and nurses and say that they really are indispensable.''

Dr. Van writes, "We feel that our help is so little among these many soldiers and refugees of every nation, so badly in need of clothing and food, as well as medical attention, but it is a pleasure to realize that we really do know how to serve others."

The foreign doctors of the unit cannot say too often how proud they are of the way in which their nurses have borne discomfort and homesickness—even hardships—bravely and cheerfully, and of the good work which they are doing. In this international crisis it will make a larger contribution to a "better understanding between the East and the West" than the efforts of many people whose names appear oftener in public circles.

A CHINESE CHEMIST'S SHOP.

The Chinese retail drug trade still prospers in Shanghai, in spite of the adverse foreign influences all around. Although there are European, American, and Oriental doctors with modern scientific education only too willing to be employed, the Chinese sticks to his time-hallowed methods of suicide. When he is ill he goes to a doctor who knows nothing about either the illness or the body of his patient; and from the doctor he gets a prescription which he takes to a man who does not know how to make it up. After that, he recovers. If by some chance he is sent to a foreign hospital where his illness is correctly diagnosed and treated, he either escapes or dies as a protest.

Chinese retail drug stores are roughly divisible into two classes. Of these the more prosperous have no windows but rejoice in a large blank wall, the happy emblem of a Chinese mind, with one or two characters flaming on it. Inside, in the feeble light which filters
through the one small door, there are two counters at which the assistants dispense the drugs which have worked their ways in Chinese stomachs for the past three thousand years. The less wealthy have windows and doors like ordinary shops, and there is none of the dim religious light of their rich neighbors. But the element of superstition is there just the same, and the same ignorance is dispensed with the same inaccuracy.

The Chinese pharmacopoeia is founded on ignorance and embodies the mistakes and misreadings of the centuries; at present it is interminable and unintelligible. Written in the styles, and with the expressions, of long past days, it is now in great part Greek to the student. A man suffering from cold on the chest and wishing to be treated in exactly the same way as Wu Lai-tzu was treated in the days of Sung, because he likes Wu Lai-tzu’s style, and because Wu Lai-tzu has left a sonnet which can be read backwards, forwards, sideways, and upside down, recording how he, Wu Lai-tzu, took his medicine, and two days afterwards was able to observe that it was beautiful to drink tea in the bamboo grove, or to watch the moon rise above the misty lake, with his accustomed pith and originality; this man might be in a little quandary because critics are in two schools as to whether Wu took three ounces of dried toad’s ears and two drams of calomel, or three ounces of prussic acid and two drams of fulminate of mercury. But he doesn’t really care, because he is quite clear in his mind that one set of critics ought not to be allowed out of their establishment, and so goes to the nearest chemist with a light heart. And the chemist is in no difficulty either. He tosses little things like that off every day of the week.

The basis of most Chinese medicines is vegetable. Many of their tonics and syrups are comparatively simple stews of some of the commoner sorts of fruits, such as pears and plums. But to enhance their value in the eyes of the patient, and to keep the bills up, other ingredients are mixed with them. One such prescription may be translated somewhat as follows:—

"The prevailing bad weather has attacked the body; the food has remained in the stomach, and the body is hot and the stomach defective. The pulse is floating and slippery, and the tongue yellowish. The cure to be adopted is a cleansing of the stomach."

Take—Wood-lice shells, one mace.
Elephant’s teeth, three mace.
Orange peel, one mace.
A red fungoid growth from the root of a tree, three mace.
Bamboo leaf, three mace.
Bats' spines, three mace.
Fragrant root (Angelica refracta), two mace.

Which sounds as though it ought to do it. The symptoms seem to be
the same as those described in "The Secrets of Alexis, containing
remedies against divers diseases, wounds, and other accidents. London,
printed by William Stansby for Richard Meighen and Thomas Jones,
and to be sold at their shop without Temple Bar under St. Clement's
Church, 1615," under the following concise heading: "Another drink
very good in case the patient have therewith any great doulour in his
belly (as it often happeneth) by reason of exulceration and gnawing
of the guts." But we are straying from China.

Chinese doctors do not have to pass any examination before they
set up in practice. They are apprenticed to another doctor, and then
in due time take the offensive themselves. Their success depends
upon their own efforts and, of course, the luck they have with their
first cases. The Chinese as a people approach doctors with their own
peculiar blend of complete scepticism and complete credulity. Readers
of Macaulay will remember the wonderful description of the scene
where the dying sceptic, who had himself dabbled deeply in chemistry,
had loathsome drugs and wild remedies tried on him, and then, after
one of his most characteristically cynical witticisms, took the com­
munion of the Roman Catholic faith. So does the Chinese approach his
doctors with doubt in his brain, but with a strong hereditary superstition
in face of the unknown.

The sincerity of the Chinese belief in their medicines stands the
 sternest test, that of money. Chinese medical treatment is very dear,
far dearer than foreign. It is impossible to describe within a short
compass the complicated and infinitely differentiated niceties of Chinese
medical practice. All that can be attempted is to give some idea of
one small chemist's shop.

This one is open to the street. Outside, hangs the usual shop signs,
but there are none in English. Inside, a counter is arranged like a
bar, so that people can stand at the front and two ends. On one side
the spare space is filled up by the presses in which some of the
medicines are kept: at the other there is an alcove, in which there is
an altar to the God of Healing, where incense burns in a small earth-
filled bronze vessel. On the walls above the furniture hang black
enamelled boards with golden characters containing the usual senten-
tious apothegms. At the back of the shop are shelves filled with blue
and white porcelain jars. The larger ones have square pewter covers:
these contain liquids, principally tonics. In the first there is a syrup of pears and other medicines which will ward off the approach of the feebleness of age. Next to it is a distillation which will ensure the easy delivery of women. These liquids are all ladled out with the same iron spoon which robs the medicines of any sameness to a patient, for if the first dose be ladled out with the spoon which has just been used for stewed onions, and the second time when it has been used for a decoction of asafoetida, a pleasing variety ensues.

Above are smaller jars, with octagonal based caps. These contain seeds and plants of the more expensive kinds. In front of them are little snuff bottles filled with ready mixed powders. The drawers which run round two sides of the shop are filled with an odd assortment of cures. These small bones belonged to monkeys, and are now sold to mothers who wish to spare their daughters pain when their feet are being bound. The monkey bones are boiled and the child's feet are washed in the juice, which softens the bones of the foot and so reduces the pain while the bones are being gradually crushed by the process of binding. They are not very dear, being worth eighty cents an ounce.

In another drawer are some small dry leathery looking bags, which have a polished surface. One is split, and shows that the contents are a dusty brown powder. They are the gall bladders of bears, invaluable in the treatment of sore eyes. Bears having a limited supply of gall bladders, they are worth $10 an ounce. They are said to come from Annam, but more probably come from Yunnan. Other medicines must be mixed with them, as they are too strong unadulterated.

The contents of a tiger's stomach, with the exception of the larger viscera, which have uses of their own, will cure those who can afford $4 an ounce for the treatment of any vomiting they may be troubled with, no matter its cause.

It would have interested Dr. Koch to know that consumption can be cured by the judicious use of otters' livers, mixed with certain herbs.

The horn of the rhinoceros is a boon to the wealthy, for it has a general curative effect on diseases and is a wonderful general tonic. Unfortunately there are not many rhinoceri, and they have small horns and few, and further show no willingness to part with what they have, so the price runs high: about $20 an ounce. This can be taken for almost any illness, and with other drugs acts like the bursting charge in a shell.

Snakes are not great contributors to man's health, though there is one snake, which is at its best in Chekiang Province, which banishes
rheumatism. The snakes are kept whole, the viscera having been removed, but the bones of the body left intact and the meat of the ribs and skin allowed to dry. The bones of the head are removed completely. No one part is better than any other, and when one buys an ounce one takes one's chance as to what part one gets; it all depends how many people have been at the same snake before.

The chemists who prepare the medicines do not have to undergo any specific training. They are apprenticed young, and during their three years' apprenticeship they pick up the general run of the trade. As the drugs are not of any constant strength, and since no one knows what is the matter with the patient or what is the precise effect of the drug he is taking, small errors in compounding do not cause any inconvenience. The qualities most in request are willingness and savoir faire, and if a lad displays these he will, when his articles are out, become a fully fledged assistant, and in time may rise to a partnership or start on his own. The shops are not connected with the doctors, and do not pay the latter any percentage on their prescriptions. A large trade is done in ready prepared medicines, and advice is given free to those who are too poor to afford a doctor. The small plasters so commonly used on the temples to reduce headache are very cheap, a dollar buying about 500, and there are a large number of packets of medicines of various kinds waiting purchasers, which take the place of our pills, blood mixtures, and cough tonics.—Gerald King, The Far Eastern Review, January, 1919.

Chinese charms and incantations.—Others trace charms to Lao Tsz (老于), the contemporary of Confucius and founder of the system of philosophy and mysticism known as Taoism. His name is frequently mentioned in the formula used in charms and incantations and it is said that the “Heavenly Master” derived all his knowledge from him direct.

It was not, however, until the Han Dynasty (B. C. 206 to A. D. 221), during the reign of Emperor Shun Ti, that a thorough and complete system of charms and mystic writings was first evolved. Chang Tao Ling (張道陵), popularly known to foreigners as the Taoist Pope, was the first to compose a book of charms for the curing of diseases and the expelling of devils. Mayer sums up his life in the following words:—“Born at Tien Muh Shan (天目山) in Chekiang, he is said to have mastered all the writings of Lao Tsz at the age of seven. Refusing Imperial offers to go to the Court, he retired to the Stork Mountain (鷹山) in Szechwan, and subsequently to the Dragon and Tiger Mountain (龍虎山) in Kiangsi, where he devoted himself to the study of alchemy and mysticism and received from Lao Tsz knowledge of charms and spells. He finally succeeded in discovering the elixir of life and, having swallowed a pill, ascended as an immortal to the skies, being then aged 123 years. He was the first official head of the Taoist Church and styled by his followers as the ‘Heavenly Master’ (天師). His descendants follow the same profession and the succession is perpetuated by the transmigration of the soul of Chang Tao Ling into the body of some youthful member of the family, whose heireship is supernaturally revealed as soon as the miracle is effected.” This heir also bears the name of “Heavenly Master” and is the recognised head of the fraternity.—National Medical Journal of China, March, 1917.
This is said to be the first case of gout reported from Japan, hence more than usual prominence is given to it.

The deceased was a man, aged 57 years, who began 20 years ago to have gouty nodules in the metatarso-phalangeal joint and later developed nodules in various other places. He finally died of uremia. The anatomical findings were gouty arthritides, contracted kidney, arterio-sclerosis, thyroid hypertrophy, pulmonary emphysema and pleuritis, dilatation and hypertrophy of the heart.

Histologically,urate deposition was found in the kidneys and joint capsules and also much calcification in other organs. Urates were in the renal medulla, particularly in the papille, as needle and plate-like crystals. The former type of crystals especially were thickly aggregated, had produced some peripheral reaction, and here and there had been absorbed or were represented by a homogeneous mass. The flat crystals were more scattered, had sent processes into the adjacent tissues and had not provoked such a tissue response. Giant cells were not much in evidence and it was apparent that cells had little to do with any process of resorption that might have taken place. When these crystals were injected into the knee joint of a dog, they were soon reduced in number by the action of the tissue juices, not by the means of cells.

The crystals in the joint capsules were all of the needle variety; occasionally one was found with a transitional tendency. Apparently all the varieties were identical chemically; the different form was due to changes in the physical conditions accompanying their deposition. However, the needle crystals were more easily dissolved by alkalies, and preparations show that the urate deposition occurs in the same situations as lime salts. The blood vessels of the adrenals were for the most part affected with hyaline degeneration.


The usual period of incubation of spirochaetosis is ten to fifteen days with extremes of five to six days and a month or more.

Much has been written in the past as to the causal organism, which has been covered to some extent in Abstract No. 235. Other information on the subject is given in Abstracts, Nos. 32, 59, 79, 104, 137, 240, 366, and two contemporaneous articles. The authors in the present paper claim to have been the discoverers of the organism, having found it first in a case on August 7, 1915; they reported the case to the Tokyo Medical Association on November 20, 1915, and published a full report in the Tokyo Igakukai Zasshi, December 5, 1915. The name Spirochaeta morsus-muris is said to have been given to the organism by the authors in an article published in the Byori Gakkai Zasshi of November, 1916.

The spirochete is usually short and stout, two to five microns long, six to ten if the flagellae be included. There is a turn for about every micron in length and the
body is very rigid. Motion is generally rapid, the shorter spirochaetes being the more active. Cultivation tends to increase the length, which reaches in some cases to 19 microns. Under unfavorable conditions degenerated forms are encountered, indicated by irregular shape, thickenings, transverse segmentation, and filament formation. One or two granular bodies, staining by Giemsa, were seen within the bodies of some of the spirochaetes which moved rather sluggishly.

The reasons for holding this organism to be the cause of rat-bite fever are summarized briefly by the authors. It is found in the part bitten by the rat, in the regional exanthema, adjacent lymph glands and the blood of those sick with the disease, but is absent in other affections and in the healthy. It disappears on recovery of the patients, but reappears in a relapse. No other organism has been found which occurs with regularity in any of these conditions. Clinically, the disease is affected by salvarsan like other spirochaete diseases; and animal experiments bear out the conclusions given above as to causation and the ability to recover the organism in the lesions produced. (Thus far the reviewer has seen no account of the disease being produced in man by voluntary inoculation.) Ted has studied the condition immunologically and the lesions in monkeys agree with those of man and the lower animals. Cat-bite fever is apparently one and the same disease.

Tokyo Igakukai Zashi
(Mitteil. d. med. Gesellsch. z. Tokio)
Vol. xxxii, No. 6, March 20, 1918.


This name has been given by Drs. Shiota and Moteki to a condition often seen during the recent war and occasionally seen before in times of peace. It was previously called a "form of bad granulation tissue." But the observation of many cases in the Red Cross Hospital in France, to which the author was attached, leads him to believe it must be a distinct clinical entity. It seems to be a superficial infection of otherwise normally appearing granulation tissue, which temporarily retards its progress. It is rather more frequent in wounds with a large surface. The disease commonly begins with a rise in temperature, but this is often absent when the wound is small. Almost immediately a change in the appearance of the granulation tissue is noted; there is a swelling of a part of the wound which darkens in color or becomes gray and then edematous. Individual granulations enlarge, and they become yellowish from an accumulation of leucocytes. The areas about these points break down and superficial ulceration takes place. Lateral extension is rapid and with the involvement of the new-formed epithelium healing is greatly delayed. The secretions increase in amount and become sero-purulent in character. Hyperemia sometimes is so marked as to suggest erysipelas, and small areas of capillary hemorrhage may be seen. The course is from four to five or even eight days or longer; sometimes there is remission or recrudescence.

The organism most commonly found is the streptococcus and in a goodly number of cases the staphylococcus appears, trauma being apparently an active causative factor.

No specially effective treatment has been discovered; the indications are to use such measures as will restore the granulations to a healthy condition. An attack is not conducive to healing such as commonly follows erysipelas.


Developmentally, the ductus reuniens is the homologue of the lagena sacculi of fish and amphibia, and has been written about previously by a number of
The China Medical Journal.

authors. The application of newer methods has convinced the author that certain mistakes have been made and he therefore restates the case, as he believes, more correctly. Various animals have been examined including hens, mice, dogs, guinea-pigs, puppies, and cats.

The ductus reuniens of higher mammals is a plain band-like tube, which is open not only at birth but during development. In the hen it is cylindrical, with simple lumen, free and wide open. The lumen in other mammals is narrowest at the secundar end of the cochlear third. (Detailed dimensions of the structure in all these animals are given in the text.) The diameter of this narrow portion is different in various animals. It is widest in the mouse and puppy, narrowest in the dog and cat, and is medium in the guinea-pig. The lumen of the hen is even wider than that of the higher animals, so that it can be said, as a rule, that the width of the lumen is in inverse ratio to the state of body development. The change in the diameter of the lumen is not dependent upon the age to any direct extent, that of the young and the partly grown being essentially the same. The ductus reuniens in the hen has a special structure, called the tegumentum vasculosum, which is lacking in the higher forms.

Tokyo Igakukai Zasshi
(Mitteil. d. med. Gesellsch. z. Tokio)
Vol. xxxii, No. 7. April 5, 1918.


This disease, which is congenital or peculiar to certain families, is characterized by an unusual lowering of the osmotic resistance of the red blood corpuscles and by certain clinical symptoms such as chronic icterus, splenomegaly, urobilinuria, acholic stools and severe anemia.

The common blood picture shows a decrease, more or less, of red blood corpuscles and hemoglobin, anisocytosis, polychromasia, erythroblasts with pyknotic figures, the presence of a few myelocytes and a considerable increase in the large lymphocytes. There is an increase in the stainable "substantia granulo-filamentosa" which the author believes is closely connected with the hemolytic process.

As compared with pernicious anemia gastric acidity is normal. The splenic enlargement is an essential part of the disease inasmuch as there is a corresponding contraction of the venous sinuses and an engorgement of the pulp, which can be readily demonstrated histologically. The liver is sometimes enlarged and its activity is decreased, but this is not the cause of the hemolytic jaundice.

Examinations with the X-ray have been found valueless. In treatment the only hope is splenectomy. The endurance of the weakened erythrocytes and the relief of some of the serious symptoms is to be ascribed to the compensatory activity of the accessory spleen and the hemolymph glands.

As to pathogenesis the best information indicates that it is a constitutional disease; there is increased splenic blood destruction, and the bone marrow receives an hematopoietic stimulus which leads to the development of the splenomegaly.


None of the iron absorbed in the intestine is discharged directly into the blood or lymph vessels, but is stored in a finely divided state in the endothelia of the papillae, the cells of which hypertrophy in proportion to the intensity of the process. In a continuous absorption some of these cells become loosenened and
Fig. 1. Aorta, from adolescent; transverse folds very small.

Fig. 2. Aorta, showing typical sclerosis.

Fig. 3. Aorta, longitudinal folds with commencing sclerosis.

Fig. 4. Section of child’s aorta. Q. l. transverse folds; T. depressions.

Fig. 5. Adult aorta. Q. l. transverse folds; T. former depressions filled with newly formed connective tissue.

AORTIC SCLEROSIS.
Fig. 6. Aorta, central zone of sclerotic area. Q. 1. traces of folds; B. sclerotic tissue.

Fig. 7. Aorta, section through the longitudinal folds, L. 1., which are more pointed than the transverse.

Fig. 8. Section through longitudinal folds of sclerotic aorta. B. sclerotic tissue; L. 1. traces of longitudinal folds. An elastic tissue preparation.

Fig. 9. Same as Fig. 8. but stained with Sudan III.

AORTIC SCLEROSIS.
migrate into the surrounding tissues by a peculiar amoeboid motion and eventually reach the veins into which they pass.

When the iron content of the circulating blood becomes too large, following the injection of considerable quantities of ferritin solution, the excess accumulates in the wall of the caecum, where the cells of the lymph endothelium and mucosa become full of granules, and the protoplasm hypertrophies to a varying degree. Still further amounts cause a wandering into the surrounding tissues and these mobile cells migrate toward the tip of the papillae and out between the fixed cells to reach the lumen of the intestine. But iron that has once reached the mucosa from the capillaries may be partly returned by the agency of the lymphoid endothelial cells that wander into the lymph channels. The cells of the mucosa are filled first with the iron, the excretion going on into the caecum; later, iron-bearing cells can be distinguished as mononuclears going toward the lymph vessels of the proximal portion of the colon and the appendix.

A former article on this subject appeared in the *Tokyo Igakukai Zasshi*, January 5, 1918.

**Tokyo Igakukai Zasshi**

*Mitteil. d. med. Gesellsch. z. Tokio*

Vol. xxxii, No. 8, *April 20, 1918.*


This article theorizes on the nature of heart block and the connection that the vagus may have with it. A short abstract in German gives the author's views on the subject, as based upon some simple experiments.

(460) **BRAIN, CONTENT OF FATTY ACIDS AND CHOLESTEROL.** Pp. 73-85. T. Nagayama.

This is largely a discussion of methods employed and is summarized briefly by the author in German.

**Tokyo Igakukai Zasshi**

*Mitteil. d. med. Gesellsch. z. Tokio*

Vol. xxxii, No. 11, *May 5th, 1918.*


On the basis of abundant material (there is evidently much arteriosclerosis in Japan) the authors are convinced of the importance of certain folds of the intima in the initiation of the sclerotic process. Small transverse folds or reduplications of the intima, in more or less definite clearness, were found in the aorta of about one-third of the bodies examined. These folds are commonly regular, slender, parallel lines, slightly raised above the surface but not sufficient to enable them to be photographed with much satisfaction. They occur only in the descending aorta, beginning below the scar of the point of entrance of the duct of Botalli, are on the posterior wall to the left of the median line, approaching the middle are found on the right posterior wall near the celiac axis, and below come to the median line again in the abdominal aorta. They seem to have no relation to the point of origin of the larger arteries.

The folds are absent in the fetus and in very young children, but begin to appear as delicate lines about the third or fourth month, growing with the body, and in old age are somewhat irregular in their course.

Histologically, in a cross section the lines appear, at it were, as hills and valleys, the hills being composed of matted elastic tissue fibers. After puberty the enlargement of the aorta separates these folds to a certain extent and gradually...
the valleys begin to fill with new-formed connective tissue. By the time old age is reached not only are the valleys full but the hills have been overrun with this tissue, producing a sclerotic condition. In such a section the periphery shows the folding plainly, but as the lumen is approached it becomes progressively more difficult to recognize it. Sudan III preparations show the transverse folds of the aorta of the child to be free from fat, while after puberty the amount becomes progressively greater. This is very diffuse in the valleys, but is in large droplets in the crests of the folds. This is in marked contrast to the formation of the connective tissue which is most noticeable in the valleys. The connective tissue seems to fill in the hollow places as if in an effort to level up the aorta.

The authors seek to explain this folding on the basis of unequal development of the aorta in response to the increase in the blood volume and the growth of the body. After adult life is reached further alteration takes place by the formation of the less desirable connective tissue. The formation of the new connective tissue, and especially the transformation of it to hyaline material, supports this hypothesis; while the decreasing amount of blood that accompanies life after the fourth decade is perhaps accountable for the development of more of this tissue in the valleys than in the folds. Atheromatous degeneration, which begins with hyaline degeneration of the connective tissue and with deposition of lipoids, is consequently found first in the folds. The facts therefore indicate that the formation of connective tissue in the transverse folds, which ultimately results in their sclerosis, is not compensatory to a degeneration affecting either the muscular-elastic longitudinal sheet, the hyperplastic zone of elastic fibers, or yet of the media, but is due to the fact that the valleys representing the place of least stress from blood tension are the sites of election for compensating tissue in the sense of substitution. After the age of forty the lumen of the aorta becomes too large and the excess is taken up by the formation of connective tissue. Aortic sclerosis is therefore looked upon as being a physiologico-pathological phenomenon of accommodation, and if this is the case it is evident that the fatty and atheromatous degeneration is purely secondary.

In the upper portion of the aorta, above the diaphragm, are to be seen in most adults longitudinal folds that are much more pronounced than are the transverse ones. Sclerotic and fatty change in these is also quite common. The method of transition from the normal to the sclerotic is much the same as in the transverse folds, except that the deposition of fat in the crests of the folds is not nearly so pronounced. The work reported by Kon, Tsunoda, and Umehara to the Pathological Society, on the artificial production of arteriosclerosis in animals by inducing an alimentary lipoidosis or xanthomatosis, was mentioned by the authors as agreeing with the principles laid down here.


There seems to be no essential difference between the results of the two operations. The purpose of the investigation was to obtain a better understanding of uremia. It included a complete comparison of the blood in these conditions with the normal. The short abstract in German by the author will doubtless be sufficient for those interested in the subject.

Kyoto Igaku Zasshi
Kyoto Journal of Medical Sciences


Certain histocytes lying in the adventitia of the liver capillaries assemble more carmine grains than do the Kupffer cells. In amphibia and fishes a brown
pigment is normally present in the same relative amounts. In the auricular muscle fibers of the Batoidei and Teleostomi are specific endothelial cells of histocyte nature that line the intertrabecular lymph sinuses.

In the intermuscular connective tissue of the heart of Palinurus (a decapod) are found numerous stringy cell aggregations that contribute to the cellular increase of the blood by occasional dislodgment of individual cells. Morphologically, they resemble the cell cords of the blood islands of vertebrates which are hematogenic in embryonal life.


This is a study of inflammation produced in the heart by introducing a silk thread into the wall of the ventricle and staining the various cells as they form and degenerate in the various processes.


A part of the author's summary is as follows:

1. The active principle is the benzene nucleus, but the action is somewhat modified by the addition of other radicles.

2. Hexahydrobenzol, cyclohexanol, and chinit are not true aromatic bodies but are closely related in their actions. Hexahydrobenzol is more active than benzol and this principle agrees with the different toxicity of pyridin and piperidin, but does not hold for cyclohexanol which is not more powerful than phenol in its effects on vessels.

3. The action of monoxybenzols or phenols is stronger than that of benzol, dioxybenzol, or trioxybenzol, and the last was as powerful as the one just preceding. Thus the combination with one hydroxyl increased the power, but the further addition of others of the same kind was no advantage. An analogous relation exists between sodium benzoate and salicylate and between cyclohexanol and chinit.

4. Of the three isomeric dioxybenzols, the one with greatest vasodilator power was the meta combination, resorcin.

5. Guaiacol acted more powerfully than pyrocatechin.

6. Of the anilin derivatives, phenacetin > antifebrin; laktophenin > anilin. Phenylhydrazin is more active than the related anilin.

7. The combination of two nuclei raises the toxicity. Naphthalin > benzol; benzdin > anilin; chinolin > pyridin.

8. Menthol and camphor, related chemically, are identical in action.

9. Pyridin and nicotine, chinolin and chinin, are similar in their dilator power.

These substances are all vasodilators and similar in action, the difference being mainly one of degree. The nerve is stimulated first, then the muscle fiber and the end is vascular paralysis. With few exceptions the constrictor action of adrenaline and barium is prevented if there is sufficient time for the dilator to start its action.


Two tumors, extirpated from young farmers, showed on the cut surface definite bleeding and marked new-formed tissue with caseation. The disorganization was so complete that rests of normally formed tissue could not be distinguished.

Histological study demonstrated the fact that each contained an associated carcinoma, which had arisen from the epithelium of the seminiferous duct. There were also aggregations of cells morphologically identical with those of chorio-
epithelioma, i.e., syncytial and Langhans cells. One had the cells arranged similar to those found in the female genitalia, while the other had more of a ring formation. The association between these syncytial cells and the points of bleeding was unmistakable; connection with the endothelium of blood vessels could not be demonstrated. On the other hand, the transition from the duct wall to the carcinoma was indisputable. In one case the chorio-epithelioma cells contained glycogen granules like the other types of cells but in the other case these were not present. The author is convinced that the chorio-epithelioma cells did not arise from displaced germinal tissue but arose, like the carcinoma, from the walls of the tubules.


The water supply for a large part of the people of Japan, in fact of the entire Orient, is obtained chiefly from shallow wells. As yet very few favored cities have water-works systems which enable municipal disinfection to be undertaken. The authors felt the need of some means that would enable any person to disinfect a well quickly and effectively and then keep it clean. They made use of the well known disinfection with calcium hypochlorite in solution, the minimum dilution being 1:1,000,000. This was found to effectively rid the water of bacteria of intestinal origin which were intentionally placed in the wells and found to be present in demonstrable quantities for several hours before the disinfectant was used. To compensate for the continual contamination from underground sources it is suggested that the disinfectant be added perhaps three times daily. The amount and frequency would have to be determined for each well after considering the use and the amount of subsoil circulation of water. In a few cases the permanganate of potash figure was determined, but the addition of an excess made this unnecessary. Acidifying the water slightly before adding the hypochlorite was found to facilitate the liberation of the free chlorine.


The action of the heavy mineral oils in mosquito extermination is not a mechanical process of obstructing the breathing pores of the immature stages but is rather an acute intoxication. Other oils which are relatively inert, as rape-seed oil, etc., do not cause death nearly so readily. The author finds that the breathing siphon does not stain with ordinary water soluble dyes but is intensely colored by Sudan III suspended in petroleum, from which he concludes that some fat-like substance is present in that part which combines with the petroleum to the injury of the body as a whole.

According to this hypothesis, there is needed, perhaps, 26 mils of oil per square meter of water surface, instead of 1/4 of a litre as usually recommended. An emulsion makes the spreading much more efficient. The unfortunate part of the scheme is the fact that the larvae and pupae of late autumn were found to be more resistant to the oil than were those developed earlier in the summer.

Kyoto Igaku Zasshi

(Kyoto Journal of Medical Science)


During pregnancy and the puerperium, glycogen is found in the outer half of the Fallopian tubes and also, but to a practically negligible degree, in the uterine half. That it does not occur here normally, and that it occupies the
portion of the tube that is ciliated, suggests a reciprocal relation between the formation of glycogen and mucus, the latter being produced from the glands in the inner portion.

Glycogen occurs in granules, small or large, depending upon the stage and intensity of the process; there is rarely more than a single granule to a cell, at least there is never a diffuse process. The granules are sharply contoured, homogeneous or finely granular in the larger fused aggregations. They stain readily with ordinary and special methods. The reaction is the same after treatment with saliva, which indicates that the substance colored is that which bears the glycogen rather than the glycogen itself. Long exposure to one to ten formalin does not impair this staining property.

Glycogen is a metabolic product of special cell activity and is not a catabolic but a synthetic substance. Its formation is stimulated by the presence of a carbohydrate or saline in the lumen, and is not the result of the activity of any specific agent. Tissue hyperemia is an important causal factor, but not when associated with a degenerative process. The intact condition of the cells involved suggests special biological activity on their part such as is found in periodic function. The suggestion is made that the glycogen may constitute a store of nutrition for the benefit of the egg or, more likely, of the embryo.


This study covers a wide variety of Japanese fish and gives details of the gross form. The scientific names in most cases are mentioned.


Platycodon grandiflorum is an herbaceous plant belonging to the Campanulaceae. It is known locally as "Kikyo" (Japanese), and "Kihkang" or "Kihung" (Chinese), and is used in these countries as an astringent, carminative, sedative, and vermifuge.

The author finds in it a saponin with the calculated formula C_{n}H_{m}O_{n}. In the pure state it is a white powder, difficultly soluble in water, more readily in alkali, and not at all in acids, ether, chloroform, etc. As a hemolytic agent it is about half as strong as dioscin. The infusion or decoction of the root is about twice the strength of Senega root, and its toxicity for the mouse is about the same as that of the latter. Its dose, when the powdered root is given, is about half that of senega root.


Various preparations were tested and the best results were obtained by the use of that portion of the uterus of a dog which lay close to the horns.


The study is based upon injections of animals with lethal doses of ten different mercury compounds and upon the tests of the combining power of comminuted liver for water-soluble compounds that are not coagulable by protein.

The local reaction is greatest with bivalent inorganic compounds and least with organic.

Toxicity is greatest with bivalent inorganic and least with univalent compounds, with the organic substances between these extremes.

As to the distribution in the body after death, the organs are affected in the following decreasing order,—kidney, liver, small intestine, heart, colon, and brain. The greatest difference between the amount of organic and inorganic substances in an organ is found in the brain, in which "Hydarg. diphenyl" and "Imamicol",
occur in five to ten times the amount of inorganic compounds. In spite of the much more rapid death caused by the mercuric compounds, they occur in the brain in much larger amounts than do the mercurous.

Direct combining power with liver tissue was found to be greatest with hydrarg. diphenyl.


It is well recognized that aspirin is more active as an antipyretic than salicylic acid, and the author was concerned as to whether this was due to a difference in the combining power of the substance with animal tissue, or whether it was attributable to peculiarities of the aspirin molecule.

No appreciable difference was found in the amount of the two substances found united with brain tissue. By the use of the warm plate it was determined in animals that aspirin was more efficient than salicylic acid, and that novaspirin and mesotan were still weaker. The peculiarities of the aspirin molecule are believed to be responsible for the activity of that substance, yet novaspirin has almost the same identical molecular form but is much weaker. It is suggested that novaspirin and mesotan are more difficultly absorbed and split into salicylic acid before becoming active.


The author has reached the very simple conclusion that there is great individual difference in the insertion of the facial muscles, and that upon this fact is to be explained much of the individuality of facial expression. Serial sections were cut including the skin, and subcutaneous tissue in line with the muscle and the periostium to which it was attached.


Various poisons were used such as bismuth, arsenic, chromium, mercury, ricin, cantharidin, snake venom, and bacterial toxins (sterile emulsions of dysentery, cholera, typhoid, paratyphoid, etc.).

In adult animals the lesions were usually restricted to a certain part of the intestinal tract and were distinctly local in character. It is presumed that this is due to greater concentration of the toxic substance at the exact point of excretion. The lesion produced is in many cases quite distinctive.

In very young animals the ensuing enteritis is diffuse, affecting all parts of the intestine about equally, and is ordinarily of a simple catarrhal nature. This is attributed to an incomplete development and differentiation of function at this stage in life.

Bismuth excretion in the young is peculiar in that small granules are found in all the surface epithelium and cells of the glands of the mucosa, whereas in adults it is limited to the epithelium of the lower end of the colon.

Recreuting Statistics of Japan.—The only other available statistics for foreign countries are those of Japan, limited to the period 1903-1909. As far as it is possible to judge, the ratio of rejections was 10.8% of those examined during the period 1905-1909. No statistics are published regarding the causes of rejection, but some interesting data are available regarding the distribution of troops by stature, which seem to indicate a gradual decline in the proportion of those below 148.5 cm. Comparing the returns for Japan and those for certain other countries, it appears that the proportion of those of a stature of 160 cm. and over (63 inches) was 87.0% for Prussia, 69.9% for France, 57.0% for Austro-Hungary, but only 3.1% for Japan.—Hoffman, Army Anthropometry and Medical Rejection Statistics, 1918.
THE EPIDEMIC IN SHANSI: PNEUMONIC PLAGUE OR INFLUENZA?

The following is the Report by Dr. Percy T. Watson, of Feuchow, on the epidemic disease prevalent in Linhsien, Shansi, covering the period from December 12, 1918, to January 25, 1919.

The first case occurred in Wangchiap'ing, a day's journey over the mountains west and north of Linhsien City. The district is isolated and although a little north of west of Taiyuanfu the best way of approach was through Fenchowfu 80 miles southwest of Taiyuanfu. It is about four days' journey from the nearest place where pneumonic plague occurred in Northern Shansi a year ago. There are no trade routes through this district and very little intercourse with the outside world, not even in the buying of coal and other supplies.

The epidemic resembled both in its infectiousness and fatality the pneumonic plague of Northern Shansi of a year ago. There were no cases which contracted the disease and recovered, and about 80 per cent of those persons exposed to the living patient contracted the disease. We were very particular in securing information on these points from every source possible, and the reports of its severe fatality seem reliable.

THE FIRST CASES.

The first family to contract the disease was named Wang. There were nine brothers and cousins in this family. Among the nine branch families which they formed there were over 30 deaths; the only two members who survived were a girl two years old and a boy of nine years. For example, Wang Li-wan died on January 1. His wife and mother both died on January 5. His daughter of three years died on January 6 and his two sons aged six and twelve died January 9. Wang Li-pao died on December 26 and his wife and all three of his sons, aged six years, four years, and one year, died on January 1.

SPREAD OF INFECTION.

There were three ways in which this disease was carried to nine other villages; relatives coming to visit the sick, people hired to bury the dead, and by a Chinese doctor who was called to attend a patient in another village. Linhsien county is a large county with 1,199 villages scattered over it, but the villages are all small, averaging, according to yamen records, only three or four families to the village. The two villages which carried the infection furthest were Wang-
chiap'ing to Ch'ung't'iao lin, about five or six hours by mule pack animals. Here a man named Miao Er-t'so had helped bury a man at Wangchiap'ing and also one at Shuichiaokou. He came home and died on December 25. Two of his adult brothers and his nephew aged six died on December 29. His wife and his son's wife died the next day. His son died on January 3, and during the 15 days following 16 more of his more distant relatives died. There were two in this village who were exposed to the infection who had not contracted the disease after eight days from their last exposure. A man and his wife adopted the two remaining small children left in the Miao family thinking they had escaped the disease. When the children got sick it was at first decided to put them out in a temple and let them die there, but the man and his wife finally said they could not bear to do it, so the children were wrapped up in some bedding and left at one end of the k'ang bed until they died the next day. All these people had been instructed to wear masks as in pneumonic plague.

CHINESE DOCTOR'S DEATH.

The Chinese doctor who contracted the disease was taken sick on his way home and died within 24 hours. He infected no other people. This resembled the rapidly fatal cases of plague when death came before the expectoration of sputum, which cases likewise often failed to infect the attendants.

PLAGUE COMMISSION.

Although the first death occurred on December 12, 1918, the disease was not reported until January 5, 1919. Governor Yen telegraphed me on January 7 to investigate and on January 9 after getting together the equipment to fight pneumonic plague, Mr. H. Wang and Mr. S. C. Wang of the Fenchow Hospital, who had been through the entire duration of the anti-plague campaign last year, left for the disease district, five days' journey distant. The Linhsien Police Commissioner was already on the ground doing what he could to follow the plan used in Shansi last year in pneumonic plague work. Within 15 days the epidemic was over, two-thirds of the deaths occurring before anything was done to combat it.

PLAGUE BACILLI NOT FOUND IN FATAL CASES.

There was a great deal of doubt as to whether the disease could be pneumonic plague, but the later reports made it look suspicious, so that another doctor and I, with three more of the hospital staff at Fenchow, went to the infected district. Microscopic examination of sputum
and aspiration punctures from the lungs did not show plague bacilli. We did not attempt to get any other pathological specimen because of the great trouble caused in Northern Shansi last year when Dr. Wu Lien-teh got such a specimen. However, from Peking the Neiwufu sent Dr. Chin, who arrived after the last death had occurred. He unearthed the last child who had died and got a pathological specimen. The microscopical slides he examined also failed to show plague bacilli. Microscopical examination did show a very similar picture to that reported as occurring in the pneumonia and pulmonary oedemas occurring in the present so-called epidemic of Spanish influenza. Of course this means very little without confirmation by bacteriological cultural methods.

PREVIOUS EPIDEMIC OF INFLUENZA.

The so-called Spanish influenza went through this district during October and November, 1918, and was moderately severe. The first man who died (December 12) had been carrying wood from a village about six or eight li away, Sank'umao, for the few days preceding his sickness and death, and we could trace no other contact with the outside world.

A woman over 70 had died in this village on November 28, but was left in the coffin unburied until December 8, 1918. She had died after a short sickness, one of the symptoms being hemorrhage from the nose, a symptom which was very common in other cases in this district during the epidemic of Spanish influenza. It was in this courtyard that the first patient who died at Wangchiap'ing had been getting the lumber he was hauling before his sickness. No other deaths had occurred in this village, Sank'umao, for several months except a woman who died in child-birth.

NATURE OF PRESENT EPIDEMIC UNCERTAIN.

What then was the epidemic in Linhsien county? Frankly we do not know. If it was a severe type of Spanish influenza there are two things to note. First, the recent report of the American Public Health Association states: "The micro-organism or virus primarily responsible for this disease has not yet been identified. There is, however, no reason whatsoever for doubting that such an agency is responsible for it. While the prevailing disease is generally known as influenza, and while it is so referred to in this statement, it has not yet been satisfactorily established that it is the identical disease heretofore known by that name, nor has it been definitely established that all preceding outbreaks of disease styled at the time 'influenza' have been outbreaks..."
of one and the same malady." Secondly, so far as we know there has been reported in the medical literature to date no epidemic of influenza with the extreme fatality of the Linhsien epidemic. Reports available from Germany, France, Great Britain, and the United States were searched in vain for any such details. While among such statements are opinions in agreement with the statement of the American Public Health Association there are others which dissent. The writer has seen no report of the details of the epidemic in South Africa which was reported as very severe.

NO TRACK OF BU BONIC PLAGUE IN AFFECTED DISTRICT.

Fourteen days in actual travel were spent in trying to find traces of bubonic plague in the Linhsien district but in vain. No trace could be found of any disease among rats.

MORTALITY OF EPIDEMIC.

The epidemic was very fatal, none of the cases except one living more than three days after being taken sick, many dying in two days or less. In the United States, in Camp Sherman, Ohio, the report of the epidemic in the Journal of American Medical Association has the following remarks on a very severe type of the disease (Type IV):

"This formed a distinct picture not emphasized in any published reports. The course was rapid to death in 24 or 48 hours. The picture resembled an acutely progressive pulmonary oedema. These cases occurred frequently during the first few days and persisted to a less degree throughout. They diminished as bronchopneumonia increased." The post mortem findings in these cases have much in common with some post mortem findings in the Manchurian epidemic of pneumonic plague. The expectoration of yellow and bloody serum also closely corresponds to some cases in the Linhsien epidemic. The similarity between the pathological findings in some cases of Spanish influenza and pneumonic plague has already been mentioned in medical literature.

FACTORS WHICH TENDED TO INCREASE THE MORTALITY.

In influenza, the greatest mortality came with the greatest crowding together. Major-Gen. William C. Gorgas says that the greatest sanitary lesson of the war is the effect of crowding in large units. The tent camps had a much smaller mortality than the barrack camps where large numbers of persons live, sleep, and mess together in one room. In Linhsien the only fuel consists of kaoliang stalks. Consequently to save fuel many crowd into one room.
In respect to sanitation in China, we must not lose sight of the weakness from the sanitary point of the mere crowding into one room of so many people. Ordinarily the mortality from scarlet fever is considered to be eight to fifteen per cent. In China it is not uncommon to see it reach 60 per cent. The first case in a family often recovers, having a light exposure, perhaps. Everyone else in this family sleeps on the same brick bed with this case of scarlet fever and three to five deaths follow. Sometimes this is called the survival of the fittest. On the other hand it is often the weakest member of the family who contracts the disease and recovers, having a light exposure, while the strongest in the family, having a prolonged concentrated infection, die. Such mistakes as this are not confined to the uneducated.

The question has been raised whether a vegetable diet gives the resistance to disease which a meat diet does. In Liushien the people live on kaoliang (Sorghum vulgare) almost entirely. Most of them have never eaten meat during the course of their lives for superstitious reasons, not connected with Buddhism. One of the disease-smitten villages had 35 families of which 18 were female and 17 were male, less than four to the family. There were two over 70 years old, both women.

TRANSMISSON OF DISEASE.

It is common to see well children still in contact with other children in the same family who have a contagious disease. The Chinese say they have already been exposed and if they are going to take the disease they will take it in spite of all that can be done. But of what type the disease will be is often determined by the degree of exposure. In creating immunity to disease by vaccines we do not fill a man up with all the vaccine he will hold, hoping the fittest will survive. We give him a dose small enough so that his resistance will be great enough to overcome. Berry, in his report of the British Red Cross Unit in Servia, emphasized this fact in controlling typhus fever. The cases which were treated by preventing further, or reinfection, were much lighter than those not thus cared for. Although there is much still unknown about the present world epidemic, if we apply what we already know, much can be prevented in the future.

THE ECONOMIC WASTE OF INFLUENZA.—As reported from Washington, December 10, 1918, out of 338,257 cases of influenza among the troops there were 17,000 deaths during the epidemic. In an address before the Association of Life Insurance Presidents in New York early in December, Henry Moir, President of the Actuarial Society of America, suggested that the total of about 400,000 deaths from the disease in America meant an economic waste of ten million years.
IS CHINA READY FOR WOMEN NURSES IN MEN'S HOSPITALS?*

Miss Edith J. Haward, Wuchang.

Has the time come for us to start using women nurses in men's hospitals? And are Chinese women ready to become nurses in men's hospitals? It seems to me that this last question is quite, if not more important than the first.

Now I think we should all agree that to have refined, well-educated women nurses in all our hospitals, with sufficient physical strength to carry on the work of a general hospital, is an ideal to which we are all looking forward, and which no doubt will come in time in China as it has done in other lands. As far as I have been able to find out there is very little doubt in the minds of those of us who are training Chinese nurses, that men, however good, intelligent, and willing they may be, do not make ideal nurses. Not having had any experience in training Chinese women I am not able to make any comparison, but my experience with men nurses has been that, while some of them are very good in their work, and are willing and eager to do their best for their patients, and to faithfully carry out every order the doctor may give, they yet lack something—and that something is very hard to define—it is just the nursing instinct, which shows itself in every touch, tone, and movement, that indefinable something which goes to make up the trained nurse as we know her. To illustrate what I mean let me tell you something that happened in our Men's Hospital a few months ago. We had two foreign patients there, one a medical and the other a surgical case. Our Chinese men nurses had been attending them and they were both quite satisfied with the nursing they were getting and were full of praise for the way the nurses went about their work. After a week or so, for our own convenience, we decided to get a foreign nurse to look after the two foreign patients, in order partly to relieve a Chinese nurse to help elsewhere. When the foreign patients were informed of the fact they did not at all welcome the idea of the change; they were both quite satisfied with the nursing and attention they were getting and would have preferred to have gone on as they were. But the morning after the change, what a difference! While both patients agreed that the Chinese nurses had done their best, as one of them put it they "did not know the first thing about nursing'"; the

* A paper read at the Biennial Conference of the Nurses' Association of China, Foochow, 1918.
foreign nurse had not been in attendance half an hour before they discovered the difference.

Now I am not prepared to say that it is just because our nurses are men that they lack this nursing instinct, and that all women nurses just because they are women have it. I think this is very doubtful; it seems to me, whether we are training Chinese men or women, this is one of the most important and certainly the most difficult thing that we have to teach and try to develop in them—this nursing instinct and intuition which, although it is so hard to define, is the all important qualification of a good nurse. From what I have seen of Chinese women nurses and heard from those who are training them, of their lack of physical strength, endurance, self-control, and dignity, one would gather that in some ways Chinese men are, at the present stage, more suited to undertake the strenuous training involved than women.

On the other hand, the nursing instinct of which we have been speaking, being very much akin to and closely resembling the mother instinct, should be more easily cultivated and developed in women than in men, however much we may seek to impart it to them. I would not have it thought that I am depreciating the value and worth of our men nurses; there is great credit due to them, in consideration of public opinion in China, in the way these educated youths come down to doing the menial work of a junior probationer and submit to long hours of hard work and to the routine and restriction of hospital life for a pupil nurse. Some of them really do very good work and do it in the right spirit and to the best of their ability and knowledge. Of course there are exceptions, but so there are at home. I believe that for many years yet, men nurses will still be needed in China, for even when we use women nurses exclusively in some of the big general hospitals in the cities, in the smaller towns and country districts this will not be possible for many years to come. Therefore I do not feel it to be a waste of time to give our men nurses the very best training that we can, nor hesitate to recommend nursing as a life work to educated young men, for, given a thoroughly good all round training, I believe that they will have no difficulty in securing a livelihood and may be of great use to the medical profession and to their fellow men. Some of you may remember, when this subject was discussed at the N. A. C. Conference held in Peking in 1915, that the opinion was expressed that it would be much better for us, as an Association, to wait until the Chinese themselves started using women nurses in their men's hospitals, than for us to be in too great a hurry and start before the public or the patients were ready for the change.
Since that time very little progress has been made in that way in Peking. At the Metropolitan Hospital, which is entirely under Chinese control, they have both men and women in training, and I understand from the Chinese matron that the women nurses are allowed to do certain things for the men patients, such as taking temperature, etc., but the principal part of the nursing of the men patients is done by the men nurses.

At the Union Medical College Hospital for Men in Peking, we have this year made a little advance in this direction with the addition of Miss Hsin Lan Pai to our nursing staff. Miss Pai, who was trained in Philadelphia and did some postgraduate work in New York, is now in charge of the operating room, with two pupil men nurses under her; she is also assisting in the theoretical instruction of the nurses, and being a native of Peking has no language difficulty to overcome, so that she is proving a valuable addition to our nursing staff.

During the time that the Red Cross Hospital in Shanghai was under the control of the Harvard Medical School, they had only women nurses in their training school, some of whom were Chinese, and some Eurasian, and the teaching was all done in English. To quote from a recent report of the Hospital on the subject, "It is a matter of interest and congratulation that no difficulty whatever has arisen from the introduction of training for educated Chinese girls as nurses, in a hospital caring for both men and women and with only men on the house staff."

These facts are only beginnings, and although in themselves they may appear small, they point to the gradual changing of public opinion, and lead us to hope that our ideal will yet become real in China. Then there is the question as to whether Chinese women, if they have not been abroad, are ready to become nurses in men's hospitals. In many cases the idea of nursing men is not pleasing to them; they naturally shrink from it, and, if it were made compulsory at the present stage, would probably deter some from entering the training school. Then as to their physical ability and personal suitability for the work, there is the question as to whether they would be strong enough for lifting and moving helpless patients, or dignified enough to have authority and control in the wards. It is thought by some that if only married women or widows were used in the men's wards it might be more practicable, but this would not be an ideal arrangement. It is not always possible to find suitable young widows with sufficient education and all the other qualifications necessary for entering a registered training school, who could study side by side with women who have recently graduated.
from middle schools, nor would it be altogether desirable to have the two classes of pupils in the same training school.

There are three characteristics that are most important for women nurses working in men's wards,—refinement, dignity, and self-control,—and it is these that must be cultivated and developed in Chinese women in order to fit them for such a position. They must be taught to realize the dignity and importance of their work, and to look at it from a strictly professional point of view, before they will be ready to undertake the nursing of men patients.

Now as to whether the time has come to start women nurses in our men's hospitals? In speaking of China as a whole, or expressing an opinion referring to town and country alike, I should say "No," but with regard to some of the larger cities, where the people are used to foreigners and understand something of Western civilization, it might be possible at the present time, on one condition—that there were in the hospital a large enough staff of foreign trained nurses (not necessarily all foreigners) to be able to give constant personal supervision, day and night, in each ward and department, otherwise it would too greatly increase the responsibilities of the foreign nursing staff, and it would not be fair to the average Chinese girl to put her in the position of nursing men patients.

**NOTE.**—A very interesting and general discussion followed the reading of the paper, which ended by the Conference unanimously deciding that China is not yet ready for the employment of Chinese women as nurses in hospitals for men.

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**UNUSUAL CASE OF GASTRIC TETANY.**

R. CHALMERS, M.D. (Aberd.), Swabue.

The following case, which I met with while practising recently in Canada, while on furlough, is of such an unusual nature that it may be of general interest.

The patient, a married woman, aged sixty, wife of one of the pioneer settlers, lived twelve miles from the nearest town in a lonely valley in the north of British Columbia, where the climate is extremely damp all the year round, and very damp and cold in the winter months.

The personal history was as follows: she had undergone four or five operations for uterine fixation: oophorectomy, colporrhaphy, etc. About twelve years previously she had begun to suffer from nervous spasms, which on two or three occasions had ended in general convulsions. The diagnosis of apoplexy was made by the doctor who attended her. I could not get any further details of these attacks, nor of her condition after them.
When I was called to see her, she complained of severe pains of a spasmodic nature arising in the region of the stomach, passing up over the cardiac area, and radiating down the arms, particularly the left. The spasms were so painful as to make her cry out. Any bad news was sufficient to start them. The memory had been poor for some time. Gas on the stomach was also a troublesome feature. She had been taken care of by a neighbour late on the previous day, who had applied hot bottles and given massage. This treatment had relieved the painful spasms, and given her a good night's rest.

The diagnostic considerations passing through my mind at the time were:

(a) uræmia, because of the blurred mental condition, and gastric trouble (gas and vomiting) occasionally; (b) high tension with spasm of the cerebral arteries, which would explain the diagnosis of apoplexy made by the doctor who had seen her previously; (c) angina pectoris, which would account for the agonizing cramps over the chest wall and the associated gastric trouble.

Examination of the chest, however, revealed no signs of hypertrophy nor of high arterial tension; in fact, the aortic second was accentuated and the other sounds were weaker than normal. The pulse, too, was of low tension. While I was feeling the pulse there was a spasmodic attack, the spasms starting somewhere about the subternal notch, radiating over left side of chest, round into the back, and ending in a state of opisthotonos. The spasms were so painful as to make her scream.

During the attack, which lasted about three or four minutes, her pulse almost disappeared at the wrist. Examination of her knee joints revealed extreme spasticity brought on by tapping the ligamentum patella, and the spasm spread up over her body, bringing on again the condition of opisthotonos. The gait was not abnormal, and the limbs were flaccid between the attacks. She stated she could walk well enough, although her legs sometimes gave way under her. Lateral sclerosis, disseminated sclerosis, or some other sclerotic condition of the brain or spinal cord was naturally the diagnosis which was next suggested.

There was marked tremor of the hands, and the patient had difficulty in finding the point of her nose with her finger tip when her eyes were closed. There was a suggestion of lateral nystagmus, but no affection of speech nor tremor of tongue. Picking up a pin from a plate caused such a spasm of her fingers that she could not let it go.

I passed the night in that settler's house, and could not come to a satisfactory diagnosis. I had given the patient hyoscyine hydrobromide, gr. 1/100. I told her husband that I thought it was a chronic lesion.
Hospita1 and other Reports.

(twelve years' standing) and could not hope to do much for her. He
happened to remark it was very strange that these spasmodic attacks
should come on about the same time every year, October or November,
and that she should be free from them for the rest of the year and able
to do her work. This shed new light on the case, but puzzled me still
further. Could the condition be anything associated with cold and
damp?

Next morning on going to see her before leaving, she said she had
passed a bad night; she had taken a glass of milk earlier in the
morning but had vomited it. I tried again the patellar reflexes, and
with a slight tap sent her into a very severe spasm, spreading all over
the body, with marked opisthotonos, and causing her extreme pain.
The nervous system seemed to be in a more excitable condition in the
morning. All at once the connection with the gastric irritability came
to my mind, and on enquiry I found that the illness had started in
with vomiting and that when the spasms came on she felt as if a
ball was gathering in her abdomen. The explanation of the nervous
symptoms was clear. This was Chvostek's sign. I was able to take a
more hopeful view of the case once I was clear as to my diagnosis. I
gave her a mixture of bismuth, potassium bromide, and cannabis
indica, to relieve the pain.

On consulting my medical books I discovered that attacks of this
kind very frequently come on in the winter months, and that they are
particularly common in Scandinavia. Strange to say the whole of this
valley is populated by a Norwegian colony of settlers, and the con­
figuration and climate of northern British Columbia is very similar to
that of Norway.

Hospital and other Reports.

Report of the School of Medicine and Hospital of the Shantung
Christian University for the year ending June 30th, 1918.

FACULTY AND INSTRUCTORS:—James Boyd Neal, M.A., M.D.;
Harold Balme, F.R.C.S., D. P. H. (Lond.); *William M. Schultz,
M.D.; William Fleming, M.B., Ch.B., F.R.C.S. (Edin.), D. T. M.
(Liverpool); Charles F. Johnson, M.D.; *Edwin R. Wheeler, M.R.
McCulre, M.D.; Randolph T. Shields, M.D.; Thomas Gillison, M.B.,
C.M.; Philip S. Evans, M.D.; Thornton Stearns, M.D.; Louis H.

* Absent.
Braafladt, M.D.; *Rev. William P. Pailing, M.P.S., B.D.; Dr. Wang Hui Wen, Dr. Wu Chao Hsiang, Rev. B. M. McOwan and Mr. Frank E. P. Kwoh, Instructors in English; Mr. Frank H. B. Harmon, Business Manager.

In addition to the above, the Faculty of the School of Arts and Science give all instruction in Chemistry, Physics, Biology, and Psychology during the Pre-Medical Course.

Nursing Staff:—Miss M. F. Logan, Matron of Hospital; Miss B. L. Dinkelacker; Miss E. I. Dinkelacker; Miss E. Pollard.

Report of Medical School:—The School of Medicine, Tsinanfu, is an integral part of the Shantung Christian University, which was formed in 1904 by the union of the educational work belonging to the American Presbyterian and English Baptist Missions, at Weihsien and Tsingchowfu respectively. Since that time, the Church of England Mission in Shantung, the Canadian Presbyterian, the Southern Presbyterian Mission, the London Missionary Society, and the Norwegian United Lutheran Mission have also taken a share in the Union Scheme, and other Missions are contemplating the same step. The whole University has now been concentrated at Tsinanfu, to which the Theological and Arts Schools were removed a year ago.

The one great purpose of the institution is to turn out men who will not only be efficient physicians and surgeons, but also zealous workers for the cause of Christ, a real source of strength to any Mission Hospitals with which they may become connected, or sources of Christian influence in any work in which they may engage outside the Church.

As was mentioned in the last report, in addition to the sixty-five men who joined the school from the Union Medical College, Peking, and elsewhere in October, 1916, fourteen came in February, 1917, from the Medical School of Nanking University. In September, 1917, at the beginning of the past academic year, twelve men came in from the Hankow Union Medical College, and finally three special medical students came from the same school in February of this year.

Thus, during the autumn term there were 118 students on the roll, representing the following provinces of China:—

Shantung, 43; Chihli, 17; Manchuria, 17; Shansi, 8; Honan, 4; Anhwei, 7; Shensi, 1; Hunan, 1; Hupeh, 5; Kiangsu, 4; Chekiang, 4; Kwangtung, 3; Kwangsi, 1; Fukien, 3. Total 118.

At the end of the year there were still this number on the roll, three students who left during the year being replaced by the three
special students from Hankow. One student has, however, retired owing to inability.

The plans for the future, aside from the strengthening of the regular faculty, which it is hoped in time will have at least fifteen men on it giving full time to the work of the institution, include the following:

First.—Broadening and deepening the foundations of the Pre-Medical course, which is an integral part of the work of the School of Arts and Science in the University, in which plans Dr. Adolph, who is Director of Pre-Medical studies, is taking a most lively interest and is working hand in hand with the faculty of the Medical School;

Second.—The establishment of a Translation Bureau in Tsinan, in intimate association with the School of Medicine, which shall produce the necessary literature in Chinese for the use of teachers, students, and graduates of medical schools all over China; and

Finally, work in connection with the local authorities in the development of a hygienic conscience leading to the establishment in the future of a local Board of Health. A beginning was made in this line some weeks ago in a joint exhibition of models, charts, etc., which was held in the Public Library at which lectures were given to interested crowds on various matters connected with hygiene. In this connection it may be mentioned that at the time of the visitation of plague last spring several members of the faculty worked most harmoniously with the local authorities, and a large proportion of the Fourth Year Class volunteered for plague work, which they did so efficiently that to their efforts has been attributed the speedy stamping out of the disease.

Report of the Hospital.—The past year's work in the University Hospital has been marked by steady progress in every direction, and although it was found necessary to close the wards for a whole month on account of the outbreak of plague, a larger number of in-patients have received treatment than ever before in the history of the institution. The usual hospital statistics are given. The report is very well compiled, printed, and illustrated.

The Tsinanfu School of Medicine has now become a strong and most promising institution. It is hoped that missionaries all over China will take a keen interest in, and support by every means in their power, this work of giving students a thoroughly sound medical education, and at the same time leading them to become earnest Christians.
Medical Reports of Chinese Customs Service.

Public Health of Ichang, 1917-1918.

By Andrew Graham, F. R. C. S., Customs Medical Officer, Ichang.

I. Meteorological Report.—The following table was compiled by Mr. C. S. C. Davies, Harbour Master.

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II. Medical Report.—During the year ending September 30th, 1918, the health of the foreign community has been good, there having been no case of serious illness. The diseases we have been called upon to treat have been chiefly malaria and dysentery. Among other diseases of the digestive tract there was one case of sprue. This patient had resided in Ichang for about four years, so he presumably developed the disease while here. This, however, is the first case of sprue seen during the 17 years we have lived in Ichang.

There were five births in the European community, and no deaths.

With regard to the native community the usual diseases seen in former years have been prevalent with the following exceptions: Relapsing fever has been absent, which was a fortunate thing in a year when we had so many military camps in Ichang. The history of this disease here has been peculiar. It was first seen in 1910 when there was an outbreak in the railway coolie quarters. That year and next it was commonly met with, but since then has gradually died out. Cholera has again been absent. This year Ichang shared in the epidemic of influenza that was so common elsewhere. It was of a very mild character, and the mortality, if any, must have been very low. There were a few cases of cerebro-spinal meningitis seen at the same time as the disease was so prevalent in the larger ports down river, but it
reached us too near the hot weather to survive, and fortunately did not spread to the military camps. There have been more cases of enteric fever seen than formerly, mostly among the soldiers. Malaria has been much more prevalent than during the last few years, but has usually been the benign form.

**Tuberculous Diseases.** Phthisis is very commonly seen, and arthritic and glandular manifestations of the disease are very frequently met with. During the past year several cases of tuberculous fistula in ano were treated, but the results were not good.

**Gastric and Intestinal Diseases.** These take up a large proportion of the cases seen at the hospital and dispensaries. Many of them are ordinary dyspepsia, but gastric and duodenal ulcers, and other of the more serious diseases of those regions are seen also. Intestinal parasites, especially *Ascaris lumbricoides* and *Ankylostoma* are common enough. The anaemia due to the latter is very profound, and is the cause of much of the unfitness for work seen among the country people.

**Eye Diseases.** These are seen in great numbers. Trachoma seems to be the great cause of diminished vision, and it is for many reasons difficult to treat among the Chinese.

**Genito-urinary Diseases:** Venereal diseases have been even more in evidence than formerly owing to the large number of troops in the district. Three cases of vesical calculus were seen, two of which were relieved of their stone supra-pubically, but the other patient refused operation. Much of the surgery done in the hospital has been military, as large numbers of patients were brought in from the fighting areas around Ichang. The army, however, was so badly provided with Western-trained doctors that conservative surgery was often impossible, and many limbs had to be sacrificed that otherwise might have been saved.

**Public Health of Chinkiang, 1917-1918.**

By Gerald Bradshaw, M.D., Port Officer.

During this year the standard of health of the foreign community has on the whole been higher than the year previously. There were two deaths amongst foreigners, one a case of typhoid fever with a relapse; the other a case of senile bronchitis with heart failure.

There was one birth, the mother being a non-resident.

The following description applies, unless otherwise stated, to foreigners.
Infective Diseases. There was one case of diphtheria amongst foreigners, and several amongst the Chinese. Three cases of typhoid fever were treated amongst foreigners, two recovering and one terminating fatally.

One case of amoebic dysentery occurred amongst foreigners; many amongst the Chinese. Several cases of the non-malignant type of malaria were treated.

Influenza was common, many of the patients with the local type of "la grippe" righting themselves with a little care.

Diseases of the Gastro-Intestinal Tract. Several "coli" infections and diarrhoeas were treated.

Diseases of the Respiratory Tract. One case of senile bronchitis, aggravated by injudicious treatment on the part of the patient, resulted in death. One patient with pneumonia and one with pleurisy were treated.

Diseases of the Kidneys and Urinary Tract. One or two cases of nephritis amongst foreigners, which were cured, and many were treated amongst the Chinese.

The usual venereal diseases amongst the Chinese were seen repeatedly. Neosalvarsan was given on several occasions with temporary improvement. One "Wheelhouse" operation was performed on a Chinese patient for stricture with good results.

Diseases of the Ear, Nose, and Throat. Cases of chronic otitis media were treated by inflation with the Eustachian catheter, air massage, etc., sometimes with very beneficial results. The usual laryngitis cases presented themselves. Turbinectomy (partial) was performed on two occasions.

Diseases of the Eye. Twenty cataracts were removed this year. There were several cases of choroiditis, retinitis, albuminuric retinitis from pregnancy, etc. I find that these patients, who are Chinese, will not allow of sufficient time to enable the physician to cure these fundus conditions for them. Other usual eye conditions were seen and treated (optical iridectomies, etc., for leucomas).

General Surgery. Six major operations (laparotomies) were performed on Chinese during this last 12 months, and one "Wheelhouse."

The usual fistulæ, diseased glands, haemorrhoids, etc., were operated on.

The Chinese patient, regarded from a non-missionary doctor's point of view, is, in my opinion, principally of surgical interest.
The Pneumonias.—While our knowledge of acute inflammation of the lungs, known as pneumonia, is still meager and wholly lacking in many particulars, we are justified in at least tentatively and timidly making some suggestions. During the Spanish-American war we recognized typhoid fever and included all of a certain group of diseases under this designation. We now distinguish between typhoid and the paratyphoids, and of the latter we know that there are at least two. We distinguish between the bacilli causing the typhoidal diseases and we know that a vaccine which protects against typhoid does not protect against paratyphoid, and vice versa.

The facts seem to justify us now in using the word pneumonia in the plural, and in speaking of the pneumonias. Of the pneumococcus there are at least four types, and possibly many more. Then there seems no doubt that the streptococcus does cause both lobar and broncho-pneumonia. How many types of this organism are capable of causing pneumonia we do not know. There are cases of pneumonia in which Friedlander’s bacillus is found in pure culture, and some pathologists are quite sure that this organism induces characteristic lesions which distinguish pneumonia due to this bacillus from the pneumonias due to other bacteria. During the prevailing influenza pneumonia skilled observers have obtained pure cultures of Pfeiffer’s bacillus from the lungs by puncture during life. In the present state of our knowledge we may say that pneumonia may result from the growth in the lungs of the following bacteria:

1. The pneumococcus, of which there are at least four known types.
2. The streptococcus, of which there are many types, the hemolyticus apparently being the most virulent.
3. The Friedlander organism.
4. The Pfeiffer bacillus.

There is some evidence that a staphylococcus may cause pneumonia. Then we must add the more specific pneumonia caused by the plague bacillus, which is believed to cause 100 per cent mortality. We are beginning to realize that any bacterium which is capable of growth and multiplication in living lung tissue may be the cause of pneumonia. When such an organism multiplies in pulmonary tissue and sensitizes the body cells, the body cells begin to destroy the involving bacterial cells and the result of this change is the liberation of the protein poison with local inflammation and systemic poisoning. The poison set free is the same whatever the name or character of the invading bacterium may be.

If this conclusion be true, to what extent and from what cause may we reasonably expect the lesions to vary with variations in the kind of bacterial growth in the lung? This is an important question, and the following tentative explanation is offered. Each bacterium has its predilective tissue upon which it feeds. No living thing can grow and multiply without access to food, and nothing is
food to a given organism unless it furnishes elements which can be prepared, absorbed, and assimilated by the cells of that organism. As a result of this fundamental and basic biological fact we may expect that the widely different complex tissues of the lung will vary in their suitability as food supply to the widely different invading cells. When we recall that Pasteur showed that certain bacteria act upon one form of tartaric acid and are wholly without action upon another, the two differing only in the relative arrangement of their atoms, we gain some adequate comprehension of the essential relationship between food and consumer, between nutritive medium (whether it be natural and a constituent of the living body, or artificial and in the test tube)—and the organism which it supports. Whether the pneumococcus, the streptococcus, the Pfeiffer bacillus and other organisms, each selects some histologic element in the lung tissue upon which it feeds, in which it multiplies, and in which it is broken up by the sensitized body cells, we do not know. The solution of this question should be one of the problems constantly held in mind by those who are now studying the pathology of pneumonia. Since in most cases the infection is a mixed one, this problem will not be easy of solution. At present it is certainly difficult to name the infecting agent from a study of the lung tissue after death. Still, there are some suggestive findings. It is well known that the Pfeiffer bacillus will not grow on artificial culture media unless hemoglobin be present, and the fact that hemorrhages into the lung tissue and in other parts of the body are more common in influenza pneumonia than in other pneumonias may have some meaning. The fact that typical lobar pneumonia is most commonly associated with some type of the pneumococcus and that the streptococcus is often present in broncho-pneumonia may have a significance not hitherto attached to them.

The purpose of this writing is to make the claim that so far as the bacteriologic factor is concerned there are many species of bacteria which may cause pneumonia, or in this sense there are many pneumonias. Victor C. Vaughan, Journ. Lab and Clin. Med., December, 1918.

The Non-Specific Factor in the Treatment of Disease.—Some light has recently been thrown upon the unexpected success that has often followed the injection of some preparation, such as polyglandular extracts, or other products, such as vaccines or serums of multiple origin and therapeutic action.

This point has been admirably discussed in a leading article in the British Medical Journal, June 1, 1918. The main point of departure is indicated by the researches of Jobling and Peterson on the non-specific factor in the treatment of disease. They start, apparently, from the observation that typhoid fever, when treated by intravenous injections of typhoid vaccine, of chicken serum, of protease, and by intermuscular injections of boiled milk, has been followed in every instance by a crisis and great improvement in the condition of the patient. That sequence is described by the authors in question as protein shock therapy. Other similar observations are so interesting that the passage describing some of them may be quoted in full. "Acute arthritis," says the writer of the editorial above-mentioned, "has likewise been cured by intra-venous injections of typhoid vaccine (Miller and
Lusk) and also by similar injections of albumose. In Culver's hands gonococcic arthritis reacted equally well to meningococcic vaccine and to gonococcic vaccine. Even more recently Cecil has given a careful account of 40 cases of acute arthritis treated by intravenous injections of typhoid or gonococcic vaccine. Thirteen cases of rheumatic arthritis rapidly recovered after typhoid vaccine (in eight cases one injection, in four, two injections, and in one, three); 20 cases (17 rheumatic fever) required salicylates as well, and all but three showed improvement while receiving the vaccine. Seven cases of acute gonococcic arthritis showed gradual improvement under vaccine treatment (three gonococcic vaccine, two typhoid vaccine, two both), but it is cautiously added that it was impossible to say how far the vaccine was responsible. He concludes that this method is undoubtedly efficient in many cases of acute arthritis, but as the reaction is severe, unpleasant, and may be dangerous if the cases are not carefully selected, it should be advised only after salicylates and other well established means have failed."

Results of this kind present an encouraging field of experiment of which the private medical practitioner may legitimately avail himself. It is only in the crucible of actual practice that the ultimate practical value of novel therapeutic methods and medicaments can be assessed, and it is in this region that many theoretical vogues and fashions have found a final resting place.

Surgery.

J. C. McCracken, M.D., F.A.C.S., Shanghai.

Treatment of Wound Shock.—An important contribution to the subject of intravenous injection in wound shock has been made by Professor W. M. Bayliss in the Oliver-Sharpey Lectures (Brit. Med. Journ., May 18, 1918). He did not deal with the primary stage of shock which serves the useful purpose of diminishing the tendency to haemorrhage, but devoted his attention chiefly to secondary shock. It is interesting to note that he is able to exclude several of the conditions to which the accompanying low pressure of the secondary stage has been ascribed, as, for instance, Yandell Henderson's acapnia; Crile's adrenalin exhaustion; exhaustion of nerve centres; cardiac failure, and paralysis of arterioles or veins. The explanation that seems most satisfactory in our present state of knowledge is the one known as Cannon's exæmia—namely, an accumulation and stasis of blood in the capillaries, whereby it is removed from the circulation for practical purposes as effectively as would have happened in the case of ordinary external bleeding. As a result of this deficiency in the circulating blood the pressure falls, the tissues suffer from oxygen starvation, the vasomotor and respiratory centres begin to fail, and the excretion of acid and toxic products is at once impeded. The practical deduction of Dr. Bayliss as to the treatment of shock is that it lies in an increased supply of blood and oxygen to the tissues. Vaso-constrictor drugs are contra-indicated, inasmuch as they cut off the access of blood to the tissues. The aim should be to increase the volume of the circulating blood and in that way raise the blood pressure without lessening the peripheral
flow. Contrary to what one would expect the transfusion of blood has been shown experimentally to be inferior to a solution of colloid with an osmotic pressure. The best preparation for the purpose has been found to be a 6 per cent solution of gum arabic with 0.9 per cent solution of common salt. This fluid is found not to leave the blood vessels and not to produce such ill-effects as haemolysis, agglutination, thrombosis, or anaphylaxis; it has, moreover, the great advantages of being cheap and easily prepared, of being readily sterilized by boiling, and of maintaining the blood-pressure indefinitely.

The application of this brilliant effort of applied physiology has been speedily made by Capts. Hamilton Drummond and E. S. Taylor in a series of 250 cases. Clearly the method has a world-wide field in civil as well as in military practice. Though acidosis may be present in secondary wound shock it is not a factor of serious importance, and alkaline injections are not necessary.

**Ten Rules for Amputations of the Lower Limbs.**—In *Abstracts of War Surgery, 1918*, p. 327, the following rules for amputations of the lower limbs are taken from a paper by Ritschl, *Med. Klin.*, 1915, xi, p. 1270:

1. It is of great importance that the stump should be capable of bearing the weight of the body; this keeps it strong as well as avoiding artificial supporting surfaces, which are of less value.

2. A circular incision seldom gives a weight-bearing stump, because it makes the scar pass across the end of the bone.

3. Whenever possible flap methods should be used, care being taken to make as small a scar as possible on the lateral surface of the stump.

4. By removing the periosteum and bone marrow for 1-2 cm. the stump can be made painless.

5. As soon as the wound is healed the stump should be hardened with baths, alcohol rubs, massage, and using it on crutches.

6. The muscles of the rest of the limb should be strengthened by active gymnastics, and the joints should be kept active by passive movements.

7. As soon as possible the patient should be provided with an artificial limb.

8. If the amputation was above the knee the artificial leg should be provided with a knee-joint.

9. The uninjured limb must be kept from atrophy by gymnastic exercise while the patient is in bed, as greater demand than usual will be made on it later.

10. For the same reason any decreased functional capacity of the uninjured limb should be given especial attention and treatment, such as active gymnastics and orthopedic treatment for actual or threatened flat-foot.

**Malaria and Appendicitis.**—Of recent years much has been made of the possible interrelation of malaria and appendicitis. Dr. W. J. Hunt, of Glens Falls, New York, in 1904, reported an interesting series of cases of malaria which simulated appendicitis, emphasizing the conclusion that certainty in diagnosis was not always justified where a malarial infection was known to exist. Graham E. Henson, in his work on malaria, refers to the differentiation of appendicitis from this disease, with special reference to a case originally reported as one of benign tertian malaria with very marked symptoms of appendicitis, as follows:

An initial chill, followed by a temperature of 99.2 degrees Fah-
renheit, with intense pain over the region of the appendix, vomiting, and a marked rigidity of the right rectus, caused a tentative diagnosis of appendicular colic. The following day the condition had very much improved, and the patient was comparatively comfortable, but forty-eight hours from the initial symptoms, a chill, with all the previous accompanying symptoms intensified, and temperature of 106° F., which fell in a few hours to nearly normal, caused him to suspect malaria, at least as a complication. An examination of the blood revealed the tertian plasmodia in large numbers; antimalarial treatment was followed by a complete cessation of all abdominal symptoms, and the patient went on to a rapid recovery.

Drs. Falconer and Anderson, in a communication to The Lancet, of April 21, 1917, on “Clinical Types of Subtertian Malaria as Seen in Salonika in September, October, and November, 1916,” including over 3,600 cases, refer to an appendicular type in which the cases strongly resembled appendicitis. There were twelve cases in this group, and the chief complaint was vomiting, and severe pain referred to the right iliac fossa, associated with moderate pyrexia and marked tenderness and rigidity in the same fossa. In most of the cases the rigidity was not constant. Leucocytosis was absent, but the typical relative lymphocytosis of malaria was present. All rapidly cleared up under quinine.

REPLACEMENT OF SCALP ON A DENUDED DRY SKULL.—T. C. Davison (Journ. Amer. Med. Assoc., May 11, 1918) reports a case in which there was a large area of the skull left dry and denuded as a result of a burn. There was no blood supply to the whole area and the outer table of the bone began to necrose. Noticing that small granulations sprang up from the parietal foramina and a suture line, the author drilled about fifty small holes through the dry calvarium at the corners of each square centimetre. These holes soon filled with healthy granulations and pinch-grafts were successfully applied to cover the entire area.

Tropical Diseases.

CLINICAL AND PATHOLOGICAL COÖPERATION.—In the Journ. Roy. Army Med. Corps, May, 1918, (Digest Trop. Dis. Bull., December 15, 1918) is the report of an address by P. H. Bahr given before the Cairo and Delta District Medical Society in December, 1916, which should be read entire by all who are coming fresh to the problems of tropical medicine. The author deals first with the aid to be obtained from a simple blood examination in cases of pyrexia in Egypt, with reference to malaria and relapsing fever. These parasites failing, he advises the correlation of the temperature chart with a total and differential leucocyte count. The films for the latter should be stained with haematoxylin and eosin, for “any other stain gives, owing to specific reactions for glycogenic granules, etc., a totally erroneous idea of the due proportions of the different varieties of white cells present.” After discussing the various diseases to which a guide may thus be obtained he goes on:—

“An eosinophilia of over five per cent without a leucocytosis in this country is
almost diagnostic of some helminthic infection such as the ascars or the ankylostome or the urinary bilharzia. But a high eosinophilia of twenty to thirty per cent or over, together with a total leucocytosis of 10,000 to 15,000 white cells, in a patient with anaemia, emaciation, enlarged liver, tenderness over the gall-bladder and often urticaria as well, should lead the pathologist to search long and on several occasions with a low-powered lens for the ova of the rectal bilharzia. There is no doubt that these cases—a chart of one of which has been exhibited this afternoon—suggest at first sight enterica. Rectal bilharzia (B. mansoni) then, which is occurring among the troops in Egypt, produces a systemic disease identical in its clinical features with "Katayama disease," due to the allied Schistosomum japonicum in Japan. This is an entirely new clinical fact, and the credit of the discovery belongs to the staff of the Third Australian General Hospital. On the other hand the urinary bilharzia appears to produce no such marked systemic disturbance and only a slight eosinophilia.

He refers next to the serum diagnosis of enterica and undulant fever and to Garrow's agglutinometer, from which "results of very great military importance have been obtained." He has recently seen a series of cases of para-undulant fever in which the charts resembled closely those of miliary tuberculosis. He reminds us of a fact which, judging from published papers, is by no means generally recognised, that the entamoeba and bacilli of dysentery are delicate organisms and die shortly (four hours) after the stool has been passed and that a microscopic examination is useless. He associates himself with Wenyon's dictum that any active amœba with ingested red cells in a dysentery stool should be regarded as E. histolytica.

In the diagnosis of the dysenteries and for prognosis he lays great stress on the cell exudate:

"Briefly then the presence of a number of macrophage cells—that is a large hyaline cell twenty to thirty microns in diameter, containing chromatic bodies and often red cells as well, but with no very definite structure—together with a large portion of pus cells, relatively few red cells, and few visible bacilli, indicates a bacillary infection and suggests a suitable stool for culture. These macrophage cells I have just mentioned are very important, as they have often been mistaken by the uninitiated in the past for amœbae, and being derived, as I have good reason to believe, from the submucosa, their continued presence in the stool is of favourable import as indicating that the repair of the tissues is taking place. On the other hand, bile-stained disintegrating pus cells and the intestinal epithelium, together with numerous bacilli in the microscopic field, denote that an extensive necrosis of the mucosa has taken place. Such a stool is quite unsuitable for culture and in many such cases I have been able to obtain a culture of the dysentery bacillus from the mucous membrane post mortem when I was quite unable to do so from the stool during life.

He admits the existence of lamblia dysentery but thinks it is of relatively small importance and not a reason for permanent invaliding.

On the Differential Diagnosis of the Dysenteries—In an article on this subject in the Lancet, August 17, 1918, Willmore and Shearman draw the following conclusions. The pathology of histolytica amœbiasis is a primary degeneration due to the chemical digestion of the cells in the immediate neighbourhood only of the amœbic enzyme. It is not a primary inflammation with consequent degeneration; any inflammation which occurs is due to secondary microscopic infection, is generally not severe, and takes place late in the disease.

The cell exudate in the stools and in the uncontaminated liver "pus" indicates the basal fact of its pathology.

The characteristics of a "simple" amœbic stool are:

1. Scantiness of cellular exudate, especially the polymorphonuclear element.
2. Preponderance of mononuclears over polymorphonuclears.
3. Evidence of proteolytic digestion of the cells, beginning at the periphery and affecting the nucleus last.

4. Absence of all phenomena characteristic of inflammatory reaction, toxic necrosis and consequent autolysis.

The characteristics of a bacillary stool are:

1. Abundance of cellular exudate, mostly polymorphonuclear.

2. Preponderance of polymorphonuclears over mononuclears.

3. Evidence of toxic necrosis of cells, the degenerative changes occurring early in all parts of the cell, including the nucleus. This degeneration may go so far as to leave only the circular periplast of the cytoplasm, thus constituting the "ghost-cell," the presence of which in any quantity is very typical of bacillary infection.

4. Evidence of phenomena characteristic of intense inflammatory reaction to microbic infection.

**Cholesterol Metabolism in the Tropics.**—De Langen in *Mededelingen van den Burg. Geneesk. Dienst*, Batavia, 1918, No. 1, discusses the pathology of races, particularly in regard to cholesterol metabolism. He investigated the latter in natives of Java, having been impressed by the rarity of gallstone cases at the polyclinic and surgical clinic in his charge. He found only one case on the records among the 15,000 patients at the hospital and this was not a native of the East Indies, while not a single instance was encountered among the 40,000 out-patients. The hospital at Sourabaja reports only seven cases among 67,500 inmates and out-patients. The figures from Semarang are eight cases in 47,000. In 1914, throughout the whole of Java, three cases of gallstones were recorded among the 58,021 hospital and out-patients. The cholesterol content of the blood of the natives is exceptionally low. This fact suggests a causal connection and disproves the theory that infection or stagnation is the prime factor in cholelithiasis. This assumption is the more plausible as the natives of the East Indies are subject to infections of the liver and biliary passages, and pregnancies there do not differ from pregnancies in other countries where gallstones are common. The few gallstones found in Java are usually of the rare pigmented type, such as is found with hemolytic jaundice.

Pruritus seems also to be exceptionally rare among the natives, which in turn may be explained by the low cholesterol content of the blood. Diabetes and chronic nephritis, with which hypercholesterolemia is often associated, are likewise rare in Java. In conclusion de Langen tentatively recalls that beriberi is a disease locating in the nervous system—which is the most lipoid-rich tissue in the body—and hence study of beriberi may yet reveal that the vague notion of vitamins will merge into the problem of lipid metabolism. Certain data he has accumulated sustain this hypothesis, and it is attractive further from a therapeutic point of view. *Chercher la physiologie c’est éclairer la pathologie.*

The article is in parallel columns of Dutch and English.
Obstetrics and Gynecology.

Gynecology in Burmah.—In the Indian Medical Gazette, January, 1919, is an analysis of twelve hundred consecutive abdominal operations for gynecological disease performed during the last eight years on Burmese female patients under the charge of C. C. S. Barry, C. I. E., Lieut-Colonel, I. M. S., at the Rangoon General Hospital.

The analysis has been undertaken with a view to ascertaining if Burmese women, owing to the influence of a hot climate and different mode of livelihood, vary materially in diseases peculiar to their sex from females living in a temperate zone like England.

The following is a list of the various gynecological operations performed:

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The percentage of mortality attending these operations is no doubt high when compared with similar results obtained in English hospitals, but it must be remembered the large majority of the operations were performed for neglected disease. Surgery, as practised by Western methods, is still, so to speak, on probation in Burma, and though the inhabitants of the larger towns have gained some confidence, and are rapidly gaining more, those of the small towns and villages remain adverse to anything but the slightest surgical measures. Abdominal operations are therefore viewed with great apprehension, and as a rule not submitted to till a long course of medicinal native treatment has proved unavailing, or until pain and ill-health have become so acute as to destroy all joy in living.

As a patient, the Burmese woman behaves excellently; she is of a bright and grateful disposition, and her habits are cleanly and pleasing; oral sepsis is very rare, and alcohol drinking practically unknown.

With regard to gynecological functions, menstruation usually commences about the age of 14-15 years; the period lasts about four to five days and is in no way excessive. Nearly every Burmese woman marries, for the most part at the age of 18-20 years, and being of a fruitful race large families are common. The menopause usually occurs about the age of 47-50 years and is unaccompanied, as a rule, by any nervous disturbance.

As regards diseases peculiar to their sex, it appears that Burmese females suffer from no special liability, nor enjoy any special immunity, and that their ailments behave in a very similar manner to those of women in more temperate climates under more civilized conditions of life.

Abortion and Its Treatment.—In the New York State Journal of Medicine of May 21, 1918, Rongy states that during the past six years, six hundred cases of simple, uncomplicated, incomplete abortion were admitted to the gynecological service of Lebanon Hospital. The plan of treatment usually followed in these cases was very simple. Curettage was only resorted to when the bleeding was excessive. This was almost always accomplished by
a placental forceps or dull curette. A sharp curette is never used. A hot normal salt intrauterine irrigation completed the operation. Packing of the uterus with gauze is but seldom resorted to. General anesthesia was not administered unless absolutely necessary. The average stay of the patients in the hospital was eight and one-quarter days.

The largest number had a rise in temperature during the first three days in the hospital. It usually subsided on the fourth or fifth day. No patient was discharged from the hospital unless the temperature was normal for at least two days.

During the past three years many cases of bleeding were controlled by the use of pituitrin. Rongy believes many a patient was spared the ordeal of a curettage by the judicious use of this drug.

In cases in which the product of conception is separated but still retained in the uterus and is not expelled, Rongy always administers pituitrin preliminary to its removal. The body of the uterus contracts and becomes firm. The contraction of the uterine wall will complete the separation of the retained material, and it will also push it down into the lower portion of the uterine cavity. The muscular contraction will shut the mouths of the blood-vessels, and the danger of hemorrhage is greatly minimized. Pituitrin, by causing contraction of the uterine walls, will in many instances obviate the danger of perforation of the uterus. Cases which show signs of an inflammatory reaction in and about the uterus are rigidly left alone. Every possible manipulation is eliminated. Rongy always felt that in such patients he was likely to convert a local infection into a general systemic infection by disturbing the protective membrane which had already formed within the uterine cavity. Instrumentation in such cases may create a new wound area which may act as a point of entrance for the bacteria into the general circulation. Pituitrin, ½ mil every four hours hypodermically is administered for about two or three days subsequent to any intrauterine manipulation.

This briefly summarizes the management of cases of uncomplicated abortion. Rongy feels that the general routine carried out by the largest percentage of family physicians, as well as some of the specialists, in the treatment of this condition is entirely unscientific. It very often produces complications which invalid the patient temporarily if not permanently. It is a well-known fact that every patient in private practice who suffers from an incomplete abortion is subjected to some form of curette. The teaching of twenty years ago is still clinging to the general profession. The subject is given too little attention by teachers as well as writers on this very important question. It is usually considered a minor procedure and it is therefore treated as such. If the true principles governing the pathology of this condition were properly understood, the many accidents and complications which very often take place in the course of treatment in the ordinary case of retained products of conception would be obviated. It is appalling to see the many pelvic complications which result from the injudicious treatment of the ordinary case of incomplete abortion. Our hospitals are crowded with patients who suffer from all varieties of pelvic infection as a result of unnecessary intrauterine manipulation.

In an interesting preface the leading author dwells on the difficulty that is found in medical schools of closely correlating the laboratory study of physiology with the subsequent clinical study of medicine. It is said that as soon as the clinic is reached, the methods of the scientist are not unfrequently cast aside by students and an understanding of disease is sought for largely by the empirical method; whereas it can only be acquired when every abnormal condition is interpreted as a primary or secondary consequence of some perverted bodily function, and when the training in observation and the inductive method is carried from the laboratory into the clinic. In the author's judgment the chief remedy for this evil lies partly in the continuance of certain of the laboratory courses into the clinical years, and partly in the study of medical literature in which the application of physiology and biochemistry in the practice of medicine is emphasized. Hence the present publication, which may be regarded as an advanced text-book in physiology, is of interest to those about to enter upon their clinical instruction and at the same time a review for those of a maturer clinical experience who may desire to see the physiological interpretation of diseased conditions. To stimulate a more intensive study of the various subjects, a brief bibliography is given at the end of each section.

From the side of the physiologist there can be nothing but praise of the volume, as the subject matter is well arranged, the instruction, much of it highly technical, is presented clearly, and the illustrations are very good. For collateral reading in the study of physiology it should certainly be used by medical students. As to the connection of the knowledge gained by laboratory exercises with clinical medicine, however, we think the volume would possess greater interest if more space was given to the consideration of particular diseases, over and above those mentioned in every good physiology, so as to show the departure in each case from normal physiological processes. Even the papers referred to in the bibliography are nearly all purely physiological. But this is a minor criticism. The work can be cordially commended to all students of physiology, and to the practising physician it should be of value, though it will probably make him wish, unless he has just left college, that he could take his physiological course all over again in the light of the practical experience he has gained.


As stated in the preface the preparation of these abstracts was undertaken as an emergency measure for the immediate help of army surgeons when the United States declared war against Germany. The Division of General Surgery of the Surgeon General's Office prepared, collected, and arranged abstracts of the more important general surgical papers bearing on military surgery; and, after having them mimeographed, distributed one hundred of them to various surgical instructors in the Army Surgical Schools, and to the surgical chiefs of the war hospitals. This limited issue of 100 copies failed to meet the demand, so the abstracts were printed in their present form.

The subjects are arranged under the following headings: General Topics; Wound Infection and Treatment; Tetanus; Gas Gangrene; Abdominal Surgery; Surgery of the Chest; Cardiovascular Surgery; Surgery of the Joints; Fractures; Burns; Anesthesia in Warfare; Trench-foot and Shock; Localization and Removal of Foreign Bodies; Peripheral Nerve Injuries; Surgery of the Jaws and Face.

The great war is now over, but many of the papers abstracted are of great and permanent value as they deal with the treatment of surgical injuries which are not uncommon also in times of peace. Hence the book can be cordially commended to all practising surgeons, civil and military.
Book Reviews.


It is scarcely necessary to describe the plan and scope of this admirable manual which has now reached its eleventh edition. To the medical student it is extremely useful as it places his knowledge of therapeutics on a sound physiological basis; to the practitioner it is also serviceable, as it selects from the innumerable drugs issued every year by chemical manufacturers those only which can be confidently recommended. In this edition some forty new remedies have been introduced. The description of certain non-medicinal measures, such as electrical treatment, massage, and exercises, completes the methods of non-surgical treatment, and there is a section on the important subject of the antiseptics and surgical dressings which have been so extensively developed during the recent war. In consequence of restrictions in the pharmaceutical employment of certain substances, such as glycerine, sugars, and certain fats during war time, a large number of preparations were officially withdrawn from the British Pharmacopoeia, and other preparations temporarily substituted. Each kind of preparation, the old and new, is described. The whole work is an extremely good introduction to the rational treatment of disease and as such can be heartily recommended.

Practical Physiological Chemistry. A Book designed for use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D. Sixth edition, revised and enlarged. With two full-page plates of absorptive spectra in colors, four additional full-page color plates, and 185 figures of which twelve are in colors Price $3.50 net. Publishers: P. Blakiston's Son & Co., Walnut Street, Philadelphia.

In this edition the entire work has been thoroughly revised and brought up to date. In view of the great clinical importance of the chemical phases of the phenomena of acidosis a new chapter on this subject has been introduced. The chapters on metabolism, blood analysis, gastric digestion, and quantitative analysis of urine, have been expanded. The influence of accessory food substances on growth is illustrated by charts showing the results of experimental feeding with and without vitamins. One radical change is the elimination of all methods for the determination of urea, except those based on the use of urease, an enzyme present in the soja or soy bean; this method is said to be probably the most satisfactory of all, as it is more accurate, involves no carefully regulated heating procedures, and is applicable to diabetic urines. Another change is the substitution of Van Slyke's procedure for all former methods for the determination of acetone bodies in urine. Many new illustrations have been introduced. The volume well maintains its leading position as one of the best and clearest text-books on physiological chemistry.


Although belonging to the series of "Quiz Compenda," this volume is more than the usual digest of larger works which the medical student can run over rapidly in preparation for his examinations. It is sufficiently full and well written to stand by itself, for all practical purposes, as a manual on venereal diseases, not only for the medical student, but also for general practitioners who are not specialists in this particular branch of medicine. In this edition the whole work has been revised and brought well into line with all recent advances in diagnosis and treatment. A list of 100 questions at the end should enable the student to test the knowledge he has acquired. This compend is one of the best of the series.


To the general practitioner only occasionally called upon to deal with cases of unsound mind, works on mental diseases seem unnecessarily difficult owing to the various systems of classification and the new terms which are constantly being
introduced. One often wishes for a small volume surveying the whole field, which can be run through quickly in case of emergency, and at leisure can serve as a guide to larger works. The present volume is of this description, and it is the more helpful as it contains very good photographs of cases of the more common forms of mental disease, such as manic depressive insanity, dementia praecox, general paralysis, paranoia, organic dementia, involution psychosis, defective mental development, etc. The classification given is that of the American Medico-Psychological Association, 1917, which has been accepted for use in the War Department, and has been recommended for general adoption throughout the United States. As stated in the introduction, this little book is no superfluity; born of the wants we all have for concise, digested information, it institutes a response to that need.


In this work the author sets forth a system of psychotherapy which he distinguishes from the systems of other psychotherapists. He prefers to use the term "induction" instead of "suggestion"; and as in his treatment he employs manipulations which are designed to produce very definite effects, generally and locally, upon the sensations of the patient, he finds the word "neuro-induction"—meaning neurone conduction both central and peripheral—the most apposite and expressive term descriptive of his particular system. It is not the same as hypnosis, for in this condition the patient's initiatory power of thought is inhibited; whereas in neuro-induction, he is invited to think and act for reasons that are agreed upon in respect of realisable advantages, and so is asked to exercise his unhindered reasoning powers to the best of his ability. In both systems, however, there should be absolute relaxation of all voluntary, and a reduction of abnormal involuntary, muscular energy, bringing the body into a state of perfect rest.

The author is able to tell of astonishing results obtained by his methods, including the care not only of functional nervous disorders, but also of such abnormal conditions as haemorrhoids, varicose veins, prolapsus, painful joints, nasal thickenings, contractures, skin diseases, and morbid growths. Indeed, he claims that he is the first psychotherapist who has succeeded in obtaining definite results of a curative nature in cases of organic disease, while being able to explain the technique and rationale employed in a manner which can be readily understood and adopted by other scientists. Incidentally it may be mentioned that he is a firm believer in the transmission of acquired characters, and states that bulldogs are now commonly born with distorted tails because the tails of their progenitors had been broken, a clear proof to his mind that it is the "neurone process" which determines the transmission. Perhaps it would be as well to omit this in a later edition. Some golden rules for the practice of psychotherapy are given. The volume is well worth the careful study of all interested in psychotherapy as it seems to be simpler and more within the range of the ordinary practitioner than some other systems, and to have fewer side paths leading away from the beaten track.


This excellent guide to the study of chemical science for the use of students of medicine is so well known in this country, having been translated into Chinese by Dr. T. Gillison and Mr. Chao Chi Sun, that little need be said except to call attention to the issue of this new edition, the sixth, in which many alterations and additions have been made. The sections relating to the sugars, cyanogen and its derivatives, urea, uric acid, and amino-acids have been much expanded. The practical section has also been greatly extended, and now includes general methods for the preparation of acids, bases, and salts. The concluding chapters give chemical problems and practical exercises. The work has a broader scope than the instruction of medical students; the physician who wishes to freshen his knowledge of chemistry acquired long ago and to keep pace with recent advances can hardly find a better book for this purpose.

According to Socrates, "Physicians would become most expert if beginning from their infancy, they would in learning the art be conversant with the greatest number of bodies, and these the most sickly, and labored themselves under all manner of diseases and by natural constitution were not quite healthful." The author of the work now being reviewed, has professional qualifications of this kind in addition to those ordinarily demanded, for he was at one time a struggler against tuberculosis himself. As a patient with no light infection, he was under treatment for more than two years at Saranac Lake, but has been enjoying good health while working steadily for the past three years as a specialist in tuberculosis. Having suffered and conquered, he has a keen interest in everything bearing upon tuberculosis and an earnest desire to help, be it in a great way or a small one, all who wish to use their fighting chances. Hence the writing of this book, which answers the questions which are constantly being asked by patients when first told they are tuberculous and also subsequently during the course of treatment. The author's task is well and briefly done. It might well form the basis of a similar work written for the instruction of the Chinese among whom tuberculosis is very common.


Massage and remedial movements are unquestionably of great value in the treatment of sprains, contusions, adhesions, muscular rheumatism and many other conditions of bodily pain and disability. In this profusely illustrated little work full directions are given for the performance of the various manipulations, and the morbid conditions are indicated which are likely to be benefited by the movements. In the introduction it is stated that the Chinese had a perfect system of gymnastics three thousand years before the Christian era. "They maintained that gymnastics, by preventing stagnation, produced an even and harmonious movement of the fluids in the human body, which is necessary to health. Not only did they use gymnastics to preserve health, but they also had a thorough knowledge of their therapeutic effects. From each of the natural positions they placed the body and limbs in certain derivative positions, which modified the movements of the fluids and were of course important in different diseases." In these days the Japanese seem to be far more skilful in the art than the Chinese. A word of caution is necessary concerning the mechanical treatment of certain diseases of tropical climates, e.g., manipulations over the spleen should be very gentle, if applied at all, in cases of chronic malarial disease. Indeed, in all cases of serious disease this form of treatment should only be given with skill and judgment and under the direction of a physician. This book should be useful therefore to numbers of the medical profession as it describes the different movements and the object of them very clearly.


This publication is becoming indispensable to all who are interested in the progress of Christian missions in China. Nowhere else can we obtain such a clear and comprehensive view of the work that is being done to benefit the Chinese people, not only spiritually by bringing the Christian religion to them, but also in enterprises for the improvement of their social and physical condition. No less than forty-two writers have contributed to the present volume. All the articles are well worth reading; some deserve to be closely studied. In a medical journal, however, we can only refer to those which bear, directly or indirectly, on our own particular work.

The epidemic of pneumonic plague in 1917-1918 is well described by Dr. Samuel Cochran, who took a prominent part in its suppression. Notwithstanding
the supineness of government officials and the ignorance of sanitation which still exists among the people, he holds that much progress has been made since the preceding epidemic. Mr. Roger S. Greene writes on the development of the plans of the China Medical Board, and of the generous assistance given to mission hospitals, physicians, and nurses. Dr. R. T. Shields deals with the troublesome but very important question of medical terminology. Dr. S. M. Woo tells of the work of the Joint Council on Public Health Education. In a chapter entitled "Women's Place in the Protestant Missionary Movement in China," the part taken by women physicians and nurses in winning the good will of the Chinese in the days when they were hostile and prejudiced against foreign medicine, is recognised. The physical training of the youth of each sex is referred to in connection with the work of the Y. M. C. A. and Y. W. C. A. There are also chapters on the opium evil, on the relief of the sufferers from floods and famine in North China, and other subjects which should be of interest to medical men.

The volume leaves a very encouraging impression of the strength and coherence of missionary work in China, notwithstanding denominational diversities and multifarious activities. Happily, our work, and even our vacations as Bishop Roots points out, are bringing all closer together, and it is one of the many merits of the China Year Book, that it helps us to realise more fully our underlying unity of purpose.

Correspondence.

Correspondents are requested to write on one side of the paper only, and always to send their real names and addresses. The Journal does not hold itself responsible for the opinions or assertions of correspondents.

The Treatment of "Hongkong Foot."

To the Editor,

Dear Sir:—Having had the privilege of seeing Dr. Dold's article on epidermophytosis skin disease before it appeared in print, may I say a few words on the treatment of this troublesome condition, based on my own experience. It was during my second summer in China, many years ago, that I had my first attack and, off and on, I have been subject to it ever since. The trouble begins with itching between the toes; in a day or two the skin presents a raw, eczematus appearance, there is considerable exudation, and walking becomes quite uncomfortable. Although I was certain it was due to some invading organism the treatment baffled me for a long while. I tried pretty well everything. Washing the feet with ordinary soap and water always made matters worse, so I tried medicated soaps and mixed various substances with the water. For treatment I used watery solutions of various antiseptics, also antiseptic ointments, powders, etc., after each application placing absorbent cotton between the toes. The parts would often get well and then break down again in a few days. Instead of washing the toes with soap and water, I then started sponging them regularly with strong alcohol, which seemed to be more effective than anything else I had tried. At last, it happened one day that a bottle of corrosive sublimate tablets was near me; by way of a new experiment I dropped a few into the alcohol, so as to make a solution of 1:1000 for my use, as I felt that desperate diseases required desperate remedies. To my surprise and gratification it worked like a charm. After the initial smarting was over, at once I felt great relief. Applying this solution, night and morning, allowing it to dry on the surface, and then inserting absorbent cotton between the toes, the parts were quite well in a few days. Since then I have had recurrences occasionally but this treatment always cures in a very short time. A watery solution of bicarbonate does not act so well. Of course "charms" are often disappointing; I can only speak of my own case. I may also add that when threatened in summer time with troublesome little boils on the face or neck, a few applications of my "charm," if applied early, generally gets rid of them.

Yours truly,

A. B.

A Dream and its Fulfilment.

To the Editor,

Dear Sir: The following remarkable account of a dream by a Chinese old woman which came true, was told to me by an English lady missionary, who received it direct from a daughter-in-law of the deceased who was in attend
Correspondence.

ance on her during the last few days of her life. From the psychological point of view, if no other, it should be of interest to physicians. There is no reason whatever for doubting the substantial accuracy of the story.

The old lady was about 71 years of age, and had recently been baptized a Christian. One night, at the beginning of the month, she dreamed that she saw a Man dressed all in white come to her and say, "I am coming for you on the ninth of the month." Next morning she told her dream to her daughter-in-law and on describing the appearance of the Man, the daughter-in-law exclaimed, "It was the Lord Jesus. Your description of him is exactly like the picture of Him that the foreign ladies have shown to us." The old lady was so certain she was going to die on the ninth that she divided her property between her relatives and put all her affairs in order. When the morning of the ninth came, she did not feel at all ill, only weak. She kept repeating, "He said He would come for me on the ninth, but I do not feel ill." Mid-day came, and still there was no change. However, she continued to repeat, "He said He would come for me on the ninth." Towards evening, a sister from a distant village came to see her, and all of them at once began to plan what they should have for the evening meal. The visitor, noticing this, had no fear that her sister would die that night, so she went out and had her meal leisurely, while the daughter stayed with the mother. Presently the mother said, "Wash my face, and put on my shoes." This was done. Then the daughter knelt down and prayed, the mother joining in. After two or three prayers, the daughter noticed that her mother was silent; she looked at her, and found that she was dead. It seemed to the survivors that the Lord had indeed come for her, and taken her to Himself. Subsequently, the son and daughter both became Christian believers.

Within the last few years a great deal of attention has been given by members of the medical profession to dreams and their possible significance in the elucidation of the causes of certain psychopathic conditions. But dreams should not always be regarded as evidence of an abnormal state of the mind. Usually they are but the confused recollection, as it were, of events which happened in the waking state and their interpretation is a matter of no consequence. Further, there seem to be dreams which are independent of the subject's past experience. In the Bible we have records of dreams that presaged coming events. And of Abraham Lincoln it is said that he had a particular dream—of being alone in a boat on a stormy sea, if I remember rightly—before every great disaster in his life, certainly before the battles of Bull Run and before his assassination. As so good a psychologist as the late William James entertained the idea of supernatural intimations entering by the door of the subconsciousness, we are not compelled to set aside the dream recorded above as mere coincidence; or that the dream brought its own fulfilment because the dreamer, an aged woman, was profoundly impressed by it and was certain it would be fulfilled. May we not believe that it was sent to strengthen her faith and to brighten the closing hours of a long life spent in ignorance and superstition? Perhaps other missionaries can tell of similar incidents.

Yours truly,

Kiangsu.

Medical Missionaries in Shensi.

To the Editor, C. M. J.,

Dear Sir: I wish to correct an error in one of your leading articles in the C. M. J. for November 1918. You say there are five medical missionaries in Shensi. I suppose you were reckoning Dr. and Mrs. Young, Mrs. Dr. Fairburn, Dr. Scollay, and myself. Of these, I may say that Mrs. Dr. Fairburn left Sianfu in June of last year to reside at Peking with her husband; Dr. Scollay left Sianfu in January, 1918, and died in Canada on October 22nd last; Mrs. Dr. Young, owing to household duties and an invalid son, is unable to do active medical work. So that leaves Dr. Young in Sianfu, and myself in San Yuan Hsien, as the only medical missionaries in Shensi doing active work. It is only fair to say that Dr. Young has two Western trained Chinese doctors (graduates of Hankow Union Medical College) to help him. His health, however, broke down last year, and he had to go away for rest and change, leaving the hospital in charge of Mrs. Dr. Fairburn, and I had to go away the previous year for a similar reason.

There are prospects that both Dr. Young and I will soon be very busy attending wounded soldiers; in fact, I hear that he is very busy already. Troops from Manchuria have entered the province and have passed through Sianfu to the west. Dr. Young attends to
Northern wounded, and I attend to Southern wounded. Sianfu is the headquarters of the Northerners in Shensi, and Su Yuan Hsien of the Southerners. Who will come to help us?

Yours sincerely,

GEORGE H. CHARTER.

*In the preceding number of the JOURNAL, Dr. Charlotte Young called attention to the same misunderstanding. It arose from the Directory of Protestant Missions in China making no distinction between missionary physicians in active practice and those who, for one reason or another, are not practising.—ED.

NEWS AND COMMENT.

BIRTH.

BERCOVITZ.—At Kachek, Hainan, on December 23, 1918, to Dr. and Mrs. Nathaniel Bercovitz of the American Presbyterian Mission, a son (Nathaniel Jr.).

DUNLAP.—At Peking, on January 21, 1919, to Dr. and Mrs. A. M. Dunlap, Union Medical College, a daughter.

PRICE.—At Taichow, Ku., on January 16, 1919, to Dr. and Mrs. R. H. Price, a daughter (Sarah Armistead II).

DEATH.

GUINNESS.—At Kaifeng, Honan, on January 12, 1919, Mary Geraldine, aged eight years and ten months, daughter of Dr. and Mrs. G. W. Guinness, of China Inland Mission.

ARRIVALS.—After furlough, Dr. Jeanie Dow, of Chaoge, Honan; Dr. Harry B. Taylor, of Anking, Anwei; Miss E. R. Simpleigh, M.D., of Chungking, Sze., and Miss M. M. Manderson, M.D., of Peking.

DEPARTURES.—For America, Dr. and Mrs. F. J. Wampler, Church of Brethren Mission, on February 10, 1919; Dr. G. Glass Davitt and family, Amer. Bd. of For. Miss., of Yachow, Sze., Dr. Charles E. Tompkins, Amer. Bd. of For. Miss., of Suifu, Sze.

MILITARY HONORS FOR SON OF DR. COUSLAND.—The Times of September 25, 1918, contains the following notice of the award of the Military Cross to a Swatow boy, Lt. (A./Capt.) K. H. Cousland, R.F.A. : "He kept his battery in action under a very destructive fire until ordered to stop firing. With utter disregard for his own safety he then helped to get the wounded away. Owing to his splendid example the fighting spirit of the battery remained of the highest order in spite of very heavy casualties sustained."

PRESENTATION TO DR. FAHMY.—A large and enthusiastic meeting was held early in January, 1919, to celebrate the completion of thirty years' devoted service by Dr. Fahmy, in the London Mission Hospital, in Changchowfu, Fukien. Many very beautiful congratulatory scrolls were presented to him by the officials and others, and placed on exhibition in the church, testifying to the deep appreciation which is felt for his work. The military commander, taoyin, district magistrate, together with the Chamber of Commerce, leading schools, and local newspaper, all sent representatives who spoke most eulogistically of Dr. Fahmy and his work. The project of building a new hospital as a permanent memorial was definitely launched at this meeting.

DR. J. B. FEARN ON MILITARY FURLough.—Dr. J. B. Fearn, R.M.C., of American Methodist Episcopal Mission, Shanghai, who joined the British Medical Corps about two years ago, before America entered the war, recently returned to Shanghai on furlough. Various references have been made in the North-China Daily News from time to time of Dr. Fearn's magnificent work in France at the base hospital for the Chinese labour division of the British army, where 2,000 patients were cared for at a time and where he had charge of the largest mental block in the British army. Dr. Fearn has agreed to serve two more years, and will be permitted to
spend two months here before hurrying back to his post.

MEDICAL MISSION POLICY OF AMERICAN BAPTIST MISSION.—A Conference has been held recently of representatives of all the missions in China and Japan working under the Foreign Mission Board of the Southern Baptist Convention, with Dr. J. F. Love, corresponding secretary of the Board.

One of its principal features was the discussion of medical missions which was conducted by Dr. Geo. W. Leavell, of the Stout Memorial Hospital, Wuchow, South China. After a half-hour’s stereopticon lecture, which showed various phases of this humanitarian service of the missionary programme, the matter of establishing hospitals and dispensaries throughout the field was considered. A large programme was adopted which calls for the upkeep of four modern, up-to-date, well-equipped hospitals in China, and an additional staff of eleven doctors and six nurses to be added to the present quota of doctors and nurses in China, working under the American Baptist Mission.

CHINESE PHARMACISTS.—On January 16, 1918, there was a very interesting ceremony in the Lecture Hall of the Hangchow Hospital when seventeen pharmacy students received their diplomas after a three years’ course of instruction.

POPPY CULTIVATION IN KOREA.—The Japanese Government-General decided some time ago on permitting the cultivation of the poppy in Korea under a licensing system, and accordingly framed an opium ordinance to be enforced in the country, incorporating in the Budget a sum of Y. 366,732, to meet the expenses of the new departure, says the “Japan Chronicle.” The Budget, as already reported, has passed the House of Representatives with the result that the ordinance will be put into force on April 1, 1919, and the Government-General looks to obtaining 3,000 kwan of opium during next fiscal year.

MEDICAL SCHOOL FOR SHANSI.—Governor Yen has reached the conclusion that Shansi should have a college for the training of physicians in Western medicine. Doubtless the recent epidemic of influenza will confirm him in his opinion.

MORPHINE VICTIMS IN CHEFOO.—As the result of inquiries made in Chefoo it was found that in the investigation of eight Japanese drug shops all were selling morphine. In one packet of morphine purchased there was a smaller packet containing cocaine. About eight grains of morphia were in the packet, which was marked in capital letters "Worm Lozenges." In about the space of two hours twenty-five morphia users were met and these men were found in the very heart of the city. As a rule, numbers can be seen near the jetty. A sadder sight, it is stated, was never seen by the investigators, even in opium dens and they have had considerable experience of the latter. In one narrow, low room, the chief light of which came through a doorway covered with rough sacking, twenty men were found, all huddled together, some of whom had known better days. Their bodies proclaimed them to be morphia victims.

At a public meeting in Chefoo, presided over by Dr. W. R. Malcolm, resolutions were passed protesting against the traffic and urging that strong measures should be taken to suppress it.

GREAT ANTI-OPIUM MEETING IN PEKING.—A great mass meeting held on February 8, 1919, at the Y. M. C. A. auditorium, was attended by high Chinese and foreign officials, members of the legations, educationalists, and business men. Bishop Norris presided. Stirring addresses were delivered by the Grand Master of Ceremonies, Sir Francis Aglen, Tsai Yuan-pei, the Chancellor of Peking University, Chang I-peng, the Vice-Minister of Justice, Mr. Tenney, and Dr. Wu Lien-teh. Huang Kai-wen, representing President Hsu Shih-chang, read the following message from the President:

"It has always been my aim to suppress the horrible opium vice since my inauguration. Not only have I sent high officials to supervise the destruction of the opium stored in Shanghai, but I have issued circular orders to civil and military officials strictly to prohibit the cultivation of poppy and to punish traders and smugglers without mercy. I have spared no efforts in this matter, but the execution of the task requires the co-operation of everyone to ensure success. I am glad to learn that the members of your Society are so enthusiastic in anti-opium work that you are holding a meeting to-day for that purpose, that you are passing a resolution that China should be entitled freely to
prevent the importation of opium, morphia, etc., and that you intend telegraphing to the Peace Conference on the subject. Your activity is highly appreciated and the uplifting of mankind thereby will greatly increase the happiness of the Chinese people. Your valuable service will certainly win success. I take this opportunity to thank you all."

At the conclusion of the addresses, which were received with enthusiasm, the following resolutions were adopted unanimously:

(1) To organize the Anti-opium Association of China.

(2) After recounting the present conditions of the opium and drug traffic, it was resolved that united action should be taken by Chinese and foreign officials and civilians throughout China firmly to support the Government's policy against opium, for which it is necessary to urge the Governments who have not yet ratified the Hague Opium Convention of 1913 to do so immediately.

(3) It was resolved to telegraph the Peace Conference in Paris expressing the popular desire to suppress the drug traffic and demanding united action by the foreign Powers to control the exportation of such drugs and to leave China free and unhampered to eradicate the evil within the borders of China.

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**New Hospital in Yangchow.**—Ground is being broken for the new hospital laundry and power plant, and it is hoped at an early date to begin construction on the new hospital building, for which the architects are now drawing plans.

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**Opium Smoking Government Officials in Kiangsu.**—Mr. Chi Yao-ling, Provincial Chief of Kiangsu, has issued a circular order, a copy of which has reached the Chinese authorities here, exhorting the officials who are habitual opium smokers to make an effort to get rid of their habit, and warning them of the severe penalty that will be inflicted upon offenders when discovered.

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**Protest Against American Breweries in China.**—At a meeting of the Canton Branch Association of the C. M. A., on January 2, 1919, the following resolution was passed:

In view of the imminent danger, according to press reports, of an American firm or firms coming to China to set up in the business of manufacture and sale of beer, a business outlawed in the home land, and the probability of this being followed by others engaged in traffic in other alcoholic beverages, this Branch Association records its protest against such business being allowed by Americans, and also directs that copies of this protest be sent to the American Minister at Peking and to others who are concerned in seeking the welfare of China.

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**Chinese "Foreign Doctors" in Hunan.**—"I was interested to meet many so called 'foreign' doctors on my journey. One had been a year in a medical school in Central China. He had a dispensary and was doing a good business. Another had been an orderly in a mission hospital and was employed as medical attendant in Maki's camp at a salary of $30 per month. Another was a specialist on certain diseases and got from $2 to $10 per case. He had been attendant in a hospital almost a year. At one place I found a man who had in his possession a translation of 'Hare's Practice of Medicine.' His medical training had been gained from this book, which he could barely read and certainly could not understand. It happened that a box of drugs ordered by him from Hankow arrived while I was there. He appealed to me to tell him what some of them were, but they were mostly beyond his knowledge as they were labelled in Chinese. However, I saw that some were labelled in English and on my table stood a bottle of 'Corrosive Sublimate' tablets which he thought were tablets of salol. The list also included iodine, adrenaline chloride, peroxide of hydrogen, acetiandiol, iodide of potassium, creosote, and a few other things. Surely the time has arrived when some means should be taken to regulate the sale of such an article as corrosive sublimate so that a comparatively ignorant Chinese could not obtain it. One of the men I have mentioned spent an afternoon entertaining a crowd by showing them how strychnine would poison the neighbours' dog and chicken. The corrosive sublimate was in a sealed package, and bore the label of one of the best known drug houses in the world. It was, however, supplied to the man by a Chinese drug house in Hankow."—**North-China Daily News.**