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INDICES

TO

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CONSTITUTION AND BY-LAWS of the China Medical Missionary Association.*

CONSTITUTION.

ARTICLE I. Name and Objects of Association.

Section 1. The name of the Association shall be "The China Medical Missionary Association."

Section 2. The objects of the Association shall be:

(a) To federate and strengthen the whole work of Christian medical missions in the Far East.

(b) To advance medical science, and a knowledge of hygiene and preventive medicine among the Chinese.

(c) To issue a journal known as the CHINA MEDICAL JOURNAL, for the promotion of the aims and interests of the Association.

ARTICLE II. Membership.

Section 1. The members of this Association are divided into two classes as under:

(a) Active members.—Medical missionaries, of any nationality, in connection with Christian missionary societies, and Christian physicians working in sympathy with them, who are graduates of foreign medical colleges legally recognized in their respective countries, or of such colleges in China and other parts of the East as are approved by the Association, are eligible for active membership.

(b) Honorary members.—Physicians and others who are not medical missionaries are eligible for election as honorary members, either in the same manner in which active members are elected, or by direct vote at a general meeting of the Association. Honorary members are not entitled to vote at general meetings of the Association.

Section 2. Each candidate for election as an active member, must be proposed and seconded by two active members of the Association, who shall vouch for the candidate's professional qualifications, and his name, together with those of his proposer and seconder, must be sent to the Recording Secretary for insertion in each issue of the CHINA MEDICAL JOURNAL during the following six months, after which period, should no objection be raised by a member of the Association, it shall be announced in the JOURNAL that the candidate has been duly elected. Objections to the election of a member shall be forwarded in writing to the Recording Secretary, and by him laid before the Executive Committee which shall have discretionary power to act on behalf of the Association.

Section 3. Active members who cease to be engaged in regular missionary work, on application to the Executive Committee may be transferred to honorary membership.

ARTICLE III. Officers.

Section 1. The officers of the Association shall consist of a President, Vice-President, Executive Secretary, Recording Secretary, Treasurer, and an Editor of the CHINA MEDICAL JOURNAL.

Section 2. The President shall be elected at a general meeting of the Association for the term of two years. On retiring he becomes an honorary Vice-president.

* As revised at the Biennial Conference of the C. M. M. A., held in Canton, January, 1917.
Section 3. The Vice-President, Recording Secretary, and Treasurer shall be elected at the same time and in the same manner as the President, and for the same period of two years.

Section 4. The Executive Secretary and the Editor of the JOURNAL shall each be elected to his respective office at a general meeting of the Association and shall hold office for a term of four years and be subject to re-election.

Section 5. All active members are eligible to hold office in the Association, and any one officer may perform the duties attached to two offices.

ARTICLE IV.

The Executive Committee of the Association shall be composed of thirteen members, made up as follows:—

The President; Recording Secretary; Treasurer; Executive Secretary; the Editor of the JOURNAL; one representative each of the Council on Medical Education, the Council on Public Health Education, and of the Publication Committee; the others shall be elected from the general body of members at the Biennial Conference, and chosen in such a way as to represent the widely distributed interests of the Association as fully as possible.

The Executive Committee shall have full authority to represent the Association during the interval between the biennial meetings, and shall hold not less than two official meetings during that period, but shall elect from their number a subcommittee, to whom shall be entrusted the routine business of the Association, and who shall assemble at the call of the Executive Secretary.

ARTICLE V. Councils and Standing Committees.

There shall be appointed by the Association at each biennial meeting the following Councils:—

Council on Medical Education;
Council on Public Health Education.

There shall also be appointed at the same time the following Standing Committees:—

Publication and Terminology Committee;
Medical Research Committee.

ARTICLE VI. Local Branches.

Section 1. A local branch of this Association may be formed by any three active members, provided the constitution of such branch is in full harmony with the Constitution and By-Laws of this Association, and that it is formally recognized by the Association, or by the Executive Committee acting for the Association.

Section 2. Members of local branches may become members of this Association as provided for in Article II, Section 2.

ARTICLE VII. Amendment of Constitution.

This Constitution may be altered only by a three-fourths majority vote at a general meeting of the Association.

BY-LAWS.

1. The President shall preside at all meetings of the Association, preserve order and decorum in debate, give a casting vote when necessary, appoint all committees not otherwise provided for, order reports, enforce the observance of the by-laws, and perform such other duties as custom and parliamentary usage may require.

2. The Vice-President shall assist the President in the discharge of his duties, in the absence or disability of the President shall succeed for the time to his powers and duties, and, on the resignation or death of the President during his term of office, shall succeed to the Presidency for the unexpired term. If at any meeting of the Association both President and Vice-President are absent, the meeting shall elect its own Chairman.
3. The Executive Secretary shall perform the customary duties of this office, and shall acquire, by personal visitation or otherwise, a thorough knowledge of the medical and educational work being done by members of the Association; he shall recommend to the Association whatever may be advisable to assist and maintain missionary medical institutions of a high standard, and shall in other ways use his influence to bring the whole work, religious, medical, and educational, into harmony with the ideals and aims of the Association. He shall be *ex-officio* a member of all councils and standing committees. The Executive Secretary shall also perform such other duties as may be from time to time committed to him at a general meeting of the Association or by the Executive Committee.

4. The Recording Secretary shall have charge of the minutes of both general and special meetings, shall furnish the chairman of each committee and council with a list of its members; shall keep a roll of both classes of members of the Association; shall publish a revised list of the same biennially in the *China Medical Journal*, shall send to each newly-elected member of the Association a certificate of membership together with a copy of the Constitution and By-Laws and the list of members, and shall conduct such correspondence of the Association as may from time to time be necessary.

5. The Treasurer shall receive and have charge of all the funds of the Association, and shall pay all bills authorized by the Executive Committee. He shall report annually on the financial condition of the Association through the medium of the *China Medical Journal*.

6. The *China Medical Journal* shall be the official organ of the Association and shall be under the control of the editor or editors in consultation with the other members of the Executive Committee.

7. The Executive Committee shall meet for the transaction of business at the call of the President or Executive Secretary, and at all such meetings eight shall be a quorum.

8. The duties of the Council on Medical Education shall be:—(a) To outline acceptable standards for medical schools; (b) to act as a central body of reference in matters concerning adequate occupation of the field; (c) to publish at intervals a careful survey of the entire field of medical education in China, and to make such recommendations as may be deemed necessary; (d) to co-operate as far as possible with other organizations interested in medical education. All recommendations of the Council which it is desired to lay before missions or missionary societies should first receive the confirmation of the Executive Committee of the Association.

9. The Council on Public Health Education shall endeavor to create and stimulate popular interest in scientific medicine by the use of exhibits, lectures, the press, and all available forms of public education in order to bring constantly before the Chinese people the advantages of disease prevention, and of hygiene and sanitation.

10. The Committee on Publication and Terminology shall undertake the translation into the Chinese language of Western medical text-books needed by Chinese physicians and medical students, shall arrange for their publication and shall attend to the revision of these translations whenever necessary; it shall also co-operate wherever possible with Chinese educational and medical associations in forming a standard system of medical nomenclature in the Chinese language.

11. The Committee on Medical Research shall endeavour:—(a) To stimulate the members of the C. M. M. A. to make careful investigation of those diseases of an obscure character which are met with in China; (b) to promote the collection of all the data (whether anatomical, physiological, or pathological) which may help to elucidate the various problems that confront physicians dealing with the Chinese; (c) to co-ordinate and publish the results of these investigations so that all the members of the Association may benefit by the work of the Committee and of those members of the Association who co-operate with it.

12. Each of the Standing Committees and Councils shall report annually to the Executive Committee, at which time if it needs an appropriation for its work,
it shall submit a statement in detail of the amount needed together with a statement of income. The Executive Committee may grant the whole or part of the appropriation desired from Association funds in hand, provided that sufficient funds are reserved to meet all current expenses and financial obligations.

13. Stated meetings of this Association shall be held biennially at the call of the Executive Committee and at these meetings fifty shall constitute a quorum. Special meetings may be called by the Executive Committee on the request of not less than fifty active members, after at least two months' notice of the proposed meeting has been given.

14. The order of business at each biennial meeting shall be determined by the Executive Committee. All principal motions which members intend to propose at the meeting should be forwarded in writing to the Executive Committee signed by the mover and seconder, in time sufficient to allow the order of business with these motions to be published in advance of the meeting in the CHINA MEDICAL JOURNAL.

15. Each general meeting of the Association shall be conducted according to Robert's Rules of Order.

16. The yearly dues of members to the Association shall be $5.00 Mexican, payable on the first day of January in each year. Every member who has paid his subscription for the current year shall be entitled to a postpaid copy of the CHINA MEDICAL JOURNAL for the year. Honorary members do not pay dues.

17. A member whose subscription for any year is unpaid on the 30th of June of the following year shall be considered to have resigned his membership, and the CHINA MEDICAL JOURNAL will no longer be forwarded to him; but this rule may be suspended in any particular case by a majority vote of the Executive Committee.

18. The price of the CHINA MEDICAL JOURNAL to those who are not active members of the Association shall be $5.00 Mex., per annum, postpaid.

19. These By-Laws may be altered, or added to, by a majority vote at a regular meeting of the Association.
An Improved Germicidal Catgut to Supersede Iodized Sutures.

The first (light colored) specimen is a cross section of a strand of plain Kalmerid catgut, highly magnified.

The second (dark colored) specimen is a cross section of the same strand, reacted upon by ammonium sulphid to precipitate the mercuric element.

The uniform color throughout the section shows the thorough permeation by the Kalmerid (potassium mercuric iodid). Such an equable distribution of the Kalmerid therefore assures a supply of this germicidal substance in the tissues until the suture is entirely absorbed.

Literature in English, Spanish, French, German, or Italian.

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Back row, left to right:—Dr. S. T. Liang, Dr. E. Lossouarn, Dr. O. Neill, Dr. D. C. Tong, and Dr. U. F. Lu.

Front row, left to right:—Dr. T. H. Chung, Mr. A. Duval, Dr. H. Y. King, Dr. P. Pin, and Dr. F. T. Chang.
SCARLET FEVER IN THE FAR EAST.

By Arthur Stanley, M.D., B.S. (Lond.), D.P.H., Health Officer of Shanghai.

As scarlet fever is assuming prominence in China as a spreading epidemic of considerable virulence, some observations as to its Chinese characteristics may not be without value at the present moment.

Scarlet fever has been recognized in Europe for over 500 years; although it was long confounded with measles and only in the nineteenth century was it definitely distinguished from diphtheria. The ordinary native practitioner in China still frequently fails to differentiate scarlet fever from measles and diphtheria. Scarlet fever is most widely diffused in Northern and Western Europe, and in North America. It failed to establish itself firmly in Africa or any part of Asia, except Asia Minor, until quite recently. There is now probably more or less scarlet fever in any thickly-populated area in the temperate zone, and no race can be regarded as naturally immune. Facilities for travel have afforded facilities for the wider spread of this disease, which, while not among the most contagious of infective fevers, may be said to have a high long-distance carrying power on account of the duration of its infectivity and of the frequency of mild and unrecognized cases which are carriers of infection. Actual infection from one case to another requires close proximity as a rule.

The first recorded death from scarlet fever in the foreign settlement of Shanghai was in 1873. It seems probable that the infection was imported. At about this time cases are believed to have been reported at Chefoo. The occurrence of scarlet fever in Japan appears to have been officially notified in 1897, but it is probable that a few cases occurred prior to this. Indeed, scarlet fever appears to have reached Japan and China at about the same time and to have been previously quite unknown.
**Incidence of Scarlet Fever.**

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**Notes on this table.**

1. Incomplete notification reduces the value of the first column.
2. Decimal points omitted from case-fatality percentages.
3. Total foreign death figures in Shanghai may be regarded as the most accurate of the data available.
4. Japanese figures are obtained from the Annual Reports of the Central Sanitary Bureau of Japan.
5. The higher case-fatality among Chinese cases in Isolation Hospital does not necessarily indicate a higher virulence of type or lessened resistance among the Chinese as compared with foreigners, for many Chinese cases are brought in moribund after outside treatment has failed.
6. The discrepancy between the foreign deaths in Isolation Hospital and the total deaths is accounted for by cases from outside the Settlement being also admitted.

*Foreign cases prior to 1905 isolated in General Hospital.
† Prior to 1902 death figures not regarded as sufficiently accurate to quote; but it may be assumed that scarlet fever was either entirely absent or sporadic in its incidence.
‡ It is reasonable to conclude that a few cases of scarlet fever occurred prior to 1897.
Scarlet Fever in the Far East.

By the year 1902 there had been introduced into Shanghai a quantity of infection sufficient to gather epidemic momentum, and the Chinese death record from scarlet fever in that year, 1,500, does not appear to have been exaggerated.

In Shanghai the disease soon assumed a virulent type. As would be expected with a recently introduced disease, against which evolution has afforded no natural immunity, scarlet fever has been of virulent type among the Chinese. It is probable that the passage of the disease through the susceptible Chinese has led to an intensification of the virus, so that it is more fatal to foreigners also. The average case-fatality among 68 foreign cases admitted to the Isolation Hospital from 1905 to 1916 was 15.4%. The general case-fatality of scarlet fever in England was in corresponding years below five. The tendency in the home countries is for the type to become less virulent, with a case-fatality approximating to 3%. But scarlet fever is characterised by an exceptional variation in virulence and in epidemics the case-fatality may vary from 30% to nothing. In Shanghai there is no indication yet of any general diminution in virulence of type either among foreign or Chinese cases. On the other hand, in Japan the fatality appears to be reverting to the English and American type of low severity.

There have been in Shanghai (and also in Dr. Hogg's experience in Chefoo) curious groups of cases of "mild sore throat," without the characteristic signs of scarlet fever which are found accompanying typical cases. Some of these "mild sore throats" appear to have carried the genuine infection and produced typical cases of scarlet fever and must be regarded as atypical cases of scarlet fever. Others were cases of tonsillitis, septic, follicular, and catarrhal. These are often accompanied by an evanescent eruption which does not desquamate, and are so common as to be likely to be a usual accompaniment of outbreaks of scarlet fever. It is difficult, sometimes impossible, to distinguish them from cases of atypical scarlet fever. This points to the necessity of isolating all "sore throats" during an outbreak of scarlet fever of virulent type; but cases not definitely diagnosed as scarlet fever should be kept separate from typical cases. As pathogenic organisms may be considered as true to type there seems to be no good reason for thinking that ordinary tonsillitis may develop into scarlet fever, nor that throats susceptible to tonsillitis are ipso facto susceptible to scarlet fever.

In Shanghai there is a tendency towards quinquennial periodicity. The big initial epidemic of 1902 was immediately followed by four years of remarkable absence or reduction of cases; and then a moderate
outbreak in 1907, gathering momentum again to maxima in 1912 and 1917. Statistics for Shanghai for the present year are not fully available but the cases may be regarded as somewhat less numerous than the initial outbreak in 1902. Especially after the initial outbreak in 1902 it would appear as if all the most susceptible material had been exhausted and that a new generation of young children was required before any further great devastation was possible. Above the age of five years susceptibility to infection is generally held to become progressively less. As regards seasonal prevalence the incidence in Shanghai corresponds to the American type, where it is at its maximum in the spring and at its minimum in the fall; whereas in England the seasonal variation is just the reverse. The same seasonal variation occurs in Japan as in China. This may be accounted for by the hotter summer in these countries; anything approaching tropical heat appearing to be antagonistic to the propagation of scarlet fever, which is rare anywhere in the tropics and, when introduced, does not seem to be able to retain a hold. In Shanghai, although the maximum incidence is in March, cases may occur throughout the summer; even in July and August with a mean temperature of over 80° F.

Scarlet fever now appears to be pretty generally prevalent in Japan, though the figures are comparatively small. The fatality of the infectious diseases in Japan roughly have the following order in general mortality figures during recent years,—typhoid fever, dysentery, cholera, smallpox, plague, and then scarlet fever.

In China scarlet fever seems to be generally prevalent in the Yangtse valley at least as far up as Hankow, also in the North in Chefoo, Tientsin, Peking, and Manchuria. The disease also occurs in Korea. Particulars of prevalence and date of first appearance in places in China outside Shanghai will be gratefully received by the writer and should prove of value in controlling the onward march of the disease.

In Hongkong four cases of scarlet fever were reported to have been brought in two British warships from England in 1898. Previous to that time, the disease was believed to have been "practically unknown" in the Colony. From 1908 to 1916 fifteen cases were notified. In Singapore, Penang, and the Philippines scarlet fever does not appear to come into the picture so far as health statistics show.

As regards prevention in China the outlook is not hopeful. The increased facilities for travel are all in favour of further spread of the disease in North and Mid-China. Although the contagiosity of scarlet fever is low, its persistence in the throat and mucous membranes in
connection with the throat is prolonged, so that isolation is an uncertain preventive in the absence of a bacterial test of infectivity as in diphtheria. As infection is by direct contact, that is to say, mainly by droplet infection, public health measures are comparatively ineffective. Apart from the size of the droplets from the throat, mouth, and nose and the propulsive force, the opportunity for spread of infection is inversely as the square of the distance. Overcrowding is therefore an important factor in spreading the disease; and overcrowding is a Chinese characteristic. The prevention of scarlet fever is fundamentally a matter of personal hygiene; and this will come through one route mainly, which is education by teaching and by experience. Were the organism of scarlet fever isolated a vaccine might possibly become available and a better check kept on infectivity. Early and prolonged isolation is the chief measure of control; but this measure has done little to reduce the incidence of scarlet fever in Europe and America after extended trial and the provision of splendid hospitals, free to all, as in London, together with compulsory isolation powers.

The desquamated skin is not now regarded as of much importance in spreading infection; but is valuable as an outward, visible, and persistent sign of the disease. Eucalytus and olive oil inunction is not therefore of much value. Apart from the all important throat infection, nose and ear discharges persisting after apparent convalescence have frequently caused infection.

The disinfection of rooms, clothing, etc., is of far less importance than the sterilising of the patient's throat. Clothing, bedding, etc., is best disinfected by boiling or current steam. Rooms and furniture by spraying with syllin or izal, 1 in 50 of water. In using the coal tar disinfectants it is necessary to know their carbolic co-efficient, as there are so many inferior disinfectants on the market in China, which may not have a twentieth of the disinfecting power of those named. Books, photographs, millinery, upholstered furniture, etc., may be disinfected by formalin spray; but formalin is inferior as a disinfectant on account of the almost universal greasy surface which is only penetrated by an alkaline disinfectant of the coal tar type.

With respect to treatment, an experience of two years' resident work at the North Western Fever Hospital in London, where I had charge of some 3,000 cases of scarlet fever, led to the conclusion that the value of medical treatment was, in uncomplicated cases, small. The disease cannot be cut short. Syringing with chlorine water seems to clear up septic throats better than anything else and tends towards prevention of glandular abscess. As an instance of the
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comparatively low infectivity of scarlet fever, I have, on three occasions where diphtheria cases developed superadded scarlet fever, and it was undesirable to move the patient on account of tracheotomy or heart condition, retained them in a diphtheria ward without spread to any of the remaining 20 or 30 children in the ward by making them "barrier" cases and using simple antiseptic treatment for the throat. If the disease had been measles or varicella under such conditions, spread to the other cases would have been inevitable.

DISCOVERY OF A NEW BLOOD PARASITE.

E. C. Peake, M.D. (Edin.), Tientsin.

The problems which one meets with in the domain of tropical medicine are many and ever thrusting themselves forward for solution. Among the obscure cases demanding the most careful investigation I have always felt a special interest in those of the type wherein the abdominal organs and the blood are chiefly affected. These cases are characterised by greatly enlarged liver or spleen, ascites, great debility, and anaemia.

It may be that in a given case of this kind there is no special diagnostic difficulty. The enlarged spleen may be simply due to malaria. Or a case of tropical splenomegaly presents itself in which the spleen extends well beyond the umbilicus, perhaps even to the right iliac fossa. There is obviously a high grade of anaemia and great weakness. The patient gives a history of epistaxis and irregular fever. We suspect kala-azar, and this diagnosis is confirmed when by splenic puncture or excision of a lymph-node we are able to demonstrate the Leishman-Donovan body. Or it may be a recognizable case of splenic anaemia, or Banti's disease, or spleno-medullary leucocythaemia. Or again, the liver may be considerably enlarged, there is ascites, and dysenteric symptoms are marked. On examination of the faeces we find ova of Schistosomum japonicum. There are other conditions which we can think of, and perhaps diagnose correctly, yet when these and the diseases mentioned are all disposed of there still remain cases of obscure origin which perplex us. It is in a particular group of these cases that the blood shows a protozoal organism which, so far as we know, has not hitherto been described.

CASE 1. Quite recently (June 15, 1917) a little girl, aged eight years, was brought to the hospital by her father. They are residents of Tientsin city. At a glance it was obvious that the child was very seriously ill. It did not seem possible that she could live very much longer.
Discovery of a New Blood Parasite.

History:—The history given by the father was that four months previously the illness had started with fever and a rash. After about two weeks the fever subsided, but dropical swelling of the whole body followed, and this also lasted for about a fortnight. The swelling largely disappeared except in the abdomen. Two months from the beginning of the trouble the father noticed a hard swelling in the upper part of the abdomen. For the last three months the child had been unable to lie down, owing to shortness of breath. This somewhat vague history was all that could be elicited.

Examination:—On exposing the child's body it was at once seen that she was covered with a red papular eruption. The skin, besides showing this discrete spotty rash, was harsh and unhealthy and sweated profusely. The temperature on admission was 100 °F, but later it fell, and remained sub-normal both night and morning. The face, legs, and feet showed oedematous swelling.

Respiratory System. There was some cough, and respiration was evidently difficult, owing to pressure on the lungs from below. The little patient could not lie down as this aggravated the upward pressure and caused severe dyspnoea. Respiration, 48 per minute.

Alimentary System. Appetite fairly good, but there was discomfort and often vomiting after food, from pressure on stomach. Bowels fairly regular.

The abdomen was greatly distended owing to enlarged viscera, and the presence of fluid in the abdominal cavity. The fluid on being withdrawn was found to be chylous. After tapping the peritoneum the child was able to lie down with more comfort and the breathing became easier. The liver, which could now be better palpated, was found to be smooth, tense, and enlarged to an almost incredible extent, the lower border being palpated in the right iliac fossa. (See photo, Case I.) It would appear, on the evidence of the chylous fluid withdrawn from the abdomen, that both portal vein and thoracic duct were heavily pressed upon by the enlarged organ. Microscopic examination of the ascitic fluid revealed the presence of an actively motile protozoal parasite. The hepatic dulness merged into that of the spleen, which was not enlarged. There was downward displacement of umbilicus.

Circulatory System. Pulse rate, 138—140.

Blood. Examination of the blood was somewhat startling. Both in the blood from the finger and in that withdrawn by puncture from the liver, the microscope revealed, in the fresh films, countless parasites of a kind not seen before, extracorpuscular, and moving actively in the liquor sanguinis. A description of this strange organism will be attempted later. The child was obviously anaemic. On puncture the blood was quite evidently thin and watery. Leucopenia was also present. The leucocytes were so few and far between that it required about one hour to count one hundred of them. The result of this differential count of blood from the finger was as follows:—

| Polymorphonuclears | ... | ... | ... | ... | ... | 64% |
| Large mononuclears | ... | ... | ... | ... | ... | 19% |
| Lymphocytes | ... | ... | ... | ... | ... | 16% |
| Eosinophiles | ... | ... | ... | ... | ... | 1% |

Excretory System. Urine very scanty indeed. Albuminuria marked. Microscopic examination of the urine showed the same active organisms as were found in the blood and ascitic fluid. It was evident that the minute parasite was excreted by the kidneys. Did this account for the nephritis which was evidenced by the dropsy of legs and face, scanty urine, and albuminuria?

Nervous System. Marked debility and extreme irritability.

Treatment:—Encouraged by the fact that antimony had proved so beneficial in kala-azar, I determined to try it in this case. The child was given a mixture containing tartar emetic in gr. ½ doses, as recommended by Castellani for kala-
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Great improvement set in almost at once. Within a few days the liver had contracted out of the iliac fossa and become softer. Fluid had not re-accumulated in the peritoneal cavity. The whole abdomen was smaller. The swelling of the face, hands, and feet had disappeared. Urine had increased in amount. The child was able to lie down a good deal. She took a little more interest in life, began to play with her toys, and was in every way much better. We were beginning to hope great things. Unfortunately, ten days later, when the child was next brought to the hospital, it was easy to see that the improvement had not been maintained, and the symptoms had to a large extent returned. Her urine had again become very scanty, there was a high degree of albuminuria, and the microscope showed the parasites still present and very active in her blood. She died, not many days later, in her own home.

Case 2. Ricksha coolie. Aged 47. Resident of Tientsin.

History.—The patient states that before contracting this disease he had always been very strong and healthy, except for an attack of dysentery three years ago, and malaria when a child. He has been ill for two months with the present disease. It began with a feeling of discomfort in the abdomen, and a sense of bodily weakness, but no pain. He states that on the third day he could not pull his ricksha. Then he felt a lump in the epigastrium which grew bigger day by day. After about six weeks the abdomen began to swell and the feet also. He had suffered from diarrhoea from the first. No history of rigors or fever. The patient states that his appetite is good, but he suffers such pain and discomfort after eating that he can only take a very little at a time. With regard to the urine he says that very little is passed, "only about one rice-bowl full in the day, at the most." He is always sweating profusely. There is some cough and expectoration. Latterly, he has had a considerable amount of pain in the epigastric and both hypochondriac regions, owing to an insufferable sense of tension and fullness in these parts. His bodily weakness is extreme, and he moves about slowly and with difficulty.

Examination.—On uncovering the body one was impressed at once by certain points of similarity between this case and that of the little girl. There was the same discrete, bright red, papular rash of the skin, especially marked about the neck, shoulders, and front of the chest. The abdomen was greatly distended, more particularly in its upper half, which protruded prominently; but the body was in reality emaciated, notwithstanding the enlarged belly and the oedematous swelling of the feet and legs. The complexion was "earthy," and the expression distressed and weary.

Abdomen. Examination of the abdomen showed that the great protuberance above was due to enlargement of the left lobe of the liver. Indeed the whole organ was very hard and tense, and swollen to an extraordinary degree, reaching away below, and well to the left of, the umbilicus. The superficial veins of the abdominal wall were distended, and some fluid was present in the lower part of the peritoneal cavity, giving evidence again of portal obstruction. The ascitic fluid was tapped and found to be fairly clear. It contained the same protozoal organism as found in the first case. The splenic dulness could not be distinguished from the hepatic, as latter reached right across. [See photo, Case 2.] It should be noted that the ascitic fluid was small in amount. The main cause of the abdominal protuberance above was the enormous hypertrophy of the liver.

Respiratory System. Breathing was a little hurried and laboured and there was a slight cough.

Circulatory System. The heart's action was feeble with a blowing hæmial murmur. Pulse-rate, 80.

Excretory System. Kidneys, no albuminuria. Small motile forms of the same parasite present in the urine.
Discovery of a New Blood Parasite.

Blood. Microscopic examination of fresh films showed the blood, both peripheral and hepatic, to be teeming with the same very active parasite that had been found in the blood of the little girl.

A differential blood-count showed:

- Polymorphonuclears 81% ; large mononuclears 19%. A total count showed:
  - red cells 4,740,000 per c. mm.; white cells 5,400 per c.mm.

Treatment.—Quinine seemed to have little or no effect, so recourse was had to intravenous injections of tartar emetic, 10 mils of a 1% solution in normal saline being injected every day for one week, and then on alternate days for a fortnight. Here again the first effect of this drug was to cause marked improvement. Even by the second day there was considerable shrinkage of the liver and the patient seemed better in every way. But, as in the child's case, the improvement was not maintained, and gradually the patient slipped back to his old condition.

I then determined to try the effect of one of the organic arsenical compounds, and chose arsaminol which is stated to be practically identical with the old salvarsan. Of this drug gram. 0.4 was injected intravenously. Two days later a fresh blood film from the finger showed that the parasite had practically disappeared from the peripheral circulation. In one specimen no organisms were encountered. In another, one or two of the minute forms were found with some difficulty. In blood from the liver the parasites were found at once, but were present in greatly diminished numbers. Several might be found in each field of the microscope, instead of large numbers, as formerly. They were mostly the very small forms and they showed much less activity than before. The liver itself had shrunk somewhat. Encouraged by these results a further dose of grm. 0.6 was injected, but the result was disappointing. There was, apparently, no arresting the patient's downward course. He was confined to his bed, declined to take his food, got steadily weaker, and died on August 4, 1917.

Post-mortem Examination.—We had no difficulty in obtaining an autopsy in this case but, unfortunately, I was away from home when the patient died and had to be sent for by special courier. Even so, it was nearly 30 hours before Dr. Smyly (who very kindly accompanied me) and I could reach the hospital. On arrival we found that Drs. MacFarlane and Lei had already commenced the section as the weather was warm and decomposition changes were rapidly advancing.

The liver had been removed from the body when we entered the room. It weighed 16 lbs. Dr. MacFarlane reported that it was firmly adherent to everything round about it. Its colour was purplish-brown streaked with yellow. It was also marked by numerous irregular yellow patches, varying in size from 2 mm. to 10 cm. The organ was soft on section, and showed internally large and small degenerated yellow areas, corresponding to those seen on the surface. Indeed, there was very little original liver-tissue left.

The gall-bladder was empty.

The spleen was not enlarged. Colour, purplish-red. Substance soft and very friable. Structure indistinguishable. Partially decomposed.

The kidneys together weighed 10 ozs. The capsule stripped off with difficulty. Yellowish-brown discoloration on section, The Malpighian pyramids were hardly distinguishable from rest of the organ.

The pancreas was much congested.

Mesenteric glands considerably enlarged.

Stomach. No dilatation. Internal surface stained yellowish-brown and mucous membrane congested. Near the pylorus was an ulcer, about one inch diameter, with thickened margins and depressed centre.

The heart weighed 12½ ozs. Flabby and pale, but not particularly dilated. Both myocardium and endocardium were stained the same yellowish-brown. This discoloration was a marked feature in the various organs and tissues of the body.
Lungs. Right lung, adherent. It was pigmented and partly decomposed. The pleura was of a dark brownish colour. No evidence of tuberculosis. Left lung appeared fairly normal except for anthracosis. The liver and portions of some of the other organs were sent to Dr. Young of the Union Medical College, Peking, for histological examination. In his opinion the liver showed carcinomatous changes, but as decomposition was far advanced it was impossible for him to make a very definite report.


History:—The patient stated that he had been ill for 1 1/2 years. The trouble began with fever, which has continued irregularly ever since. The fever was followed by splenic enlargement. He has no strength or energy. Diarrhoea has troubled him from the first. He is continually sweating freely. Appetite very poor.

Examination:—The spleen was found on palpation to be considerably enlarged, extending well beyond the umbilicus. This, taken in conjunction with the above history, and his very anaemic appearance, strongly suggested kala-azar. No hepatic hypertrophy, and no ascites.

The Blood. In order to clear up the diagnosis, recourse was had to splenic puncture, and the stained films made from the blood so obtained revealed typical Leishman-Donovan bodies. Strange to say, fresh films from the spleen and from the finger showed the blood to contain the new parasite also. One of the enlarged lymphatic glands from the groin was then excised, cut in half, and some of the juice squeezed on to a clean slide and covered with a cover-slip. Here again the microscope at once revealed the same highly motile organism previously discovered in the little girl and in Case 2. The red cells showed marked poikilocytosis. As regards the white cells, there was leucopenia to an extreme degree. I attempted to make a differential blood-count but gave it up as hopeless. Only two lymphocytes were encountered after a prolonged search.

Urine. No albuminuria. The same parasite, in its tiny motile form, present in the urine as in the other two cases.

The Skin. Some days after admission to hospital the boy’s temperature went up, and the following morning he presented a rash on the shoulders, chest, and legs similar to that already described. Two days later the rash had nearly gone again, but on the inner aspects of the legs purple patches were found, evidently representing sub-cuticular haemorrhages.

My opinion is that the boy’s main trouble during the last 1 1/2 years has undoubtedly been kala-azar, and that he has only recently become infected by the new parasite. His symptoms are, in the main, those of kala-azar; except for the same rash, and the same organism circulating in his blood, he presents but few points of similarity to the other two cases.

Treatment:—In this case also tartar emetic has been given a good trial. It appeared to be specially indicated as kala-azar has been hitherto the boy’s chief complaint. Intravenous injections (5 mls of 1% sol.) were given daily for one week, and for the last three weeks he has been having the injections every alternate day. There has been considerable improvement in his condition as a consequence and the spleen has markedly contracted. An examination of the splenic blood showed that the new parasite was still present, but no Leishman-Donovan bodies were found. The boy left us much improved.

Case 4. Adult male. Aged 48. Resident of Tientsin. This case was seen from the beginning of his illness, which began with diarrhoea, rigors, and fever. The rigors came irregularly, every two or three days; he never knew when the next
Discovery of a New Blood Parasite.

attack would come. He had no appetite; felt very depressed, heavy, and dazed; and slept badly. The patient stated that he had no strength or energy, and felt he must lie down all the time.

On account of the history of rigors and fever a microscopic examination was made, and this at once revealed the presence of the new parasite in his peripheral blood.

Seen a month later the patient stated that he felt better. The diarrhoea was not so troublesome and the fever had gone; but he complained of great discomfort in hepatic and gastric regions. Examination showed that the liver, especially the left lobe, was distinctly enlarged. The spleen showed no enlargement. No rash had appeared.

The blood-count in this case was as follows:—

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymphocytes</td>
<td></td>
</tr>
<tr>
<td>Eosinophiles</td>
<td>2%</td>
</tr>
</tbody>
</table>

The patient's progress will be watched with interest.

**Case 5.** A "pointsman" on the railway. Home in Tientsin. He complained that he had been ill for two months with fever, diarrhoea, loss of appetite, great discomfort in upper part of abdomen, and extreme weakness, so that he had to give up any attempt at work.

He showed the same earthy, anaemic look as the others. The liver was distinctly enlarged. Blood examination showed the new parasite.

The case did not come into hospital.

**Case 6.** Small shopkeeper of Tientsin. Aged 23 years. Patient states that his illness began about nine months ago. It commenced with rigors, fever, and loss of appetite. Later, the upper part of the abdomen began to swell, and he had great discomfort in epigastric region. He complained of breathlessness, especially on lying down, and of a persistent, troublesome cough, with expectoration of disagreeable sputum. For the last four months he has had no strength at all.

**Examination:**—Skin. The patient has the usual sallow complexion but does not look particularly anaemic. The rash is not marked, but the small bright-red spots can be made out here and there over the chest wall. He states that the rash was formerly much more pronounced.

Abdomen. The shape of the abdomen is characteristic, being much larger above than below. This is due to the uniform hypertrophy of the liver (its area of dulness being greatly extended both in its lateral and vertical diameters) causing the abdomen to bulge out above, especially in the epigastric region. The superficial veins are enlarged, and the peritoneal cavity contains some free fluid. No enlargement of spleen.

Chest. The heart-sounds are very feeble. The lungs being compressed upwards, their resonance is distinctly impaired, and the patient suffers from dyspnoea. The breath-sounds at the right base are suggestive of cavity formation. The patient coughs frequently and expectorates a peculiar yellow muco-purulent fluid which has an offensive odour.

Lower Extremities. There is marked oedema of the feet and legs. The patellar reflex is lost.

Urine. No albumen. Small forms of the parasite present.

Blood. Parasites found readily in fresh films of finger-blood.
Differential Count.

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymorphonuclears</td>
<td>76%</td>
</tr>
<tr>
<td>Large mononuclears</td>
<td>6%</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>15%</td>
</tr>
<tr>
<td>Eosinophiles</td>
<td>3%</td>
</tr>
</tbody>
</table>

This blood-count differs from that found in the others, but is probably influenced by the septic lung condition.

Sputum. Parasites present in the yellow sputum. Their movement appeared restricted by the viscid fluid.

Liver puncture. Instead of blood the needle withdrew from the liver a clear, yellowish fluid. Fresh films put under the microscope showed very few red cells, only the clear fluid, and in this were found numerous parasites.

On finding parasites in this fluid it seemed obvious that the needle must have penetrated one of the degenerated yellow areas (as found in the liver in the autopsy case) and withdrawn juice therefrom. This seemed the more likely as only a few drops of fluid could be aspirated, and that with some difficulty.

Temperature. The patient is running a swinging septic temperature, rising to 102° F. or more in the evening and down to normal or nearly so every morning. This is apparently due to the septic cavity in the base of the right lung. It is evident the liver has formed adhesions with the right base, and that one of the large yellow degenerated areas of the liver has broken through and connects directly with the lung cavity, indeed is the cause of the existence of the cavity or necrotic area. Thus the yellow fluid passes up from liver to lung and accounts for the yellow expectoration in which the parasites may be demonstrated.

Case 7. Male, Aged 32 years. This patient, who had just arrived from his home in Paotingfu, stated that he had been ill for about one year, and complained especially of swelling and great tension in hepatic and epigastric regions. The liver on examination was found to be enormously enlarged, both right and left lobes. This is shown in the photograph, which also shows how, on the right side, the right lung was squeezed up to about the level of the third rib, and, on the left side, the apex-beat of the heart (marked * in photograph) had been dislocated in an upward and outward direction.

An aspirating needle introduced into the left lobe withdrew blood, and in this the parasite was at once detected. The right lobe bulged forward very considerably and percussion over this region elicited a very distinct thrill, highly suggestive of a hydatid cyst. Puncture in this region resulted in the withdrawal of a clear, transparent fluid, which was alkaline in reaction and non-albuminous; S.G. = 1005.

Though, in a cursory microscopic examination, no booklets were found, it seemed certain that we were dealing with a case of hydatid cyst, complicated by an infection with the new parasite. Had the liver enlargement been due, in the main, to the protozoal infection, there is no doubt that the patient would have been much more seriously ill. But his comparative cheerfulness and good health made it very probable that, in this case, the extensive area of hepatic dullness was in reality due to a cyst of unusually large dimensions.

Accordingly I advised the patient to undergo operation, and to this he agreed. A 3-inch incision was made to the right of the middle line, extending downwards from the costal cartilages. After opening the peritoneum the cyst was evacuated by means of a canula connected with a vacuum bottle. In all 180 ounces of fluid were withdrawn. The cyst wall was then seized, incised, and its edges moored to the skin. The rest of the incision was closed, and lastly a rubber drainage tube was inserted deeply into the empty sac.
Amœbae and Dysentery.

On re-examining the fluid after the operation a single hydatid hooklet was discovered, thus establishing the nature of the cyst beyond the possibility of doubt. In addition to the hooklet the fluid was found to be teeming with the new parasite in an extraordinarily active condition, but this activity may have been partly due to blood-contamination of the fluid. Nevertheless, the double nature of the hepatic infection had been clearly demonstrated.

The above are notes of my first seven cases of this parasitic infection, but, since writing them, I have seen a number of other cases. (For instance, see photo. Case 8). Indeed, we have found the parasite in the blood of some patients who showed no other evidence of the disease. This was detected by making systematic blood examinations of all the cases in our wards, irrespective of the condition (in most cases purely surgical) for which they were admitted. In the main, the severity of the symptoms of the disease here described is in proportion to the length of time the patients have been ill.

(To be concluded.)

AMŒBAE AND DYSENTERY.

WALThER FISCHER, M.D., Shanghai.

During the last few years our knowledge of pathogenic amœbae has materially increased, but with every advance in knowledge new questions arise. It may be therefore worth while to review the subject as it stands at present. The following essay, however, is not meant to be a résumé of all that has been written concerning these organisms, as much of the literature is not available owing to the existing war. It is rather intended to report the results of the examinations which the author has had the opportunity of making in a large number of dysenteric cases during the last four and a half years.

According to our present knowledge the pathogenic amœbae capable of causing well-known diseases are found especially in the intestines of human beings. Among them is the organism called Entamoeba histolytica, which appears to be identical with the amœba known as Entamoeba tetragona and Entamoeba minuta. For simplicity's sake, it should be designated Entamoeba dysenteriae. Other pathogenic amœbae are found in the mouth, in the sputum, and in the urine. It is impossible to state if there are still other species than those already named, as the descriptions of them are not sufficient to enable anyone to differentiate them from E. histolytica. Thus in a case of severe cystitis I happened to find in the bladder a great number
of amoebae which were absolutely identical with *E. histolytica* (*Munchn. Med. Wochenschrift*, 1914; 9).

Recently, the reports of some American authors have caused a little sensation as they maintain that a species of a mouth amoeba, *Entamoeba buccalis*, sive, *E. gingivalis* is the cause of the wide-spread disease, pyorrhea alveolaris. My own opinion of this species of amoeba will be given presently.

Another amoeba, said to be pathogenic, was described by Craig. The first descriptions of this species, *Craigia*, are too inadequate to enable it to be differentiated from *E. histolytica*. Unfortunately, I am unable to consult the author's later publications concerning his discovery.

Whoever has made microscopical examinations of intestinal ulcers in cases of amoebic dysentery, or of cases of abscess of the liver, or who has made systematic examinations of the faeces of patients suffering from dysentery, can scarcely doubt that the amoebae found are of a pathogenic nature. But we are not in a position to furnish the same proofs of their separate pathogenicity as is possible with pathogenic bacteria, because as yet we have not been able to cultivate the former. Nevertheless, there cannot be the slightest doubt of the pathogenic rôle of certain amoebae.

It would be much easier to settle the question if it were not for other amoebae in the intestines which must be regarded as non-pathogenic, e.g., *Entamoeba coli*. This is a very common intestinal parasite. It was found in the intestines of country people in East Prussia in districts where amoebic dysentery has never been observed. In fact, nearly one half of the people examined were found to harbour the organism. In Berlin, it was found in about 20% of the inhabitants and along the Austrian coast in about 64%. The percentage is about the same in the United States. In Manila, 50% among white people and 75% among the Filipinos were found to harbour *E. coli*. Careful experiments to cause dysentery with the cysts of this amoeba have always failed. We have every reason, therefore, to consider the harmless *E. coli* as being different from the pathogenic amoeba, *E. histolytica*.

There is no question that this differentiation is difficult from a morphological point of view, sometimes even impossible. But we should not make the mistake to declare both kinds of amoebae to be identical. The hypothesis that all amoebae found in the intestines are of the same species and are pathogenic is no doubt incorrect, at least it cannot be proved. And the difficulty is all the greater in a country
where dysentery is endemic. It is necessary that further investigations should be made in European countries where amoebic dysentery is unknown. Even then I think it is impossible to come to a final decision unless we succeed in cultivating amœbæ artificially. Until this is done we have every reason, as stated above, to differentiate two kinds of intestinal amœbæ, viz., the pathogenic and the non-pathogenic.

The most important marks of distinction between the two kinds of amœbæ are to be found in all text-books. As the size of the amœbæ varies greatly it is nearly impossible to give average measurements for the two species. *E. coli* is very seldom present in great numbers, as is often the case with *E. histolytica*. It may be also mentioned that if an amœba contains red blood cells in the cytoplasm, it is undoubtedly *E. histolytica*, as *E. coli* seldom or never contains red blood cells in the cytoplasm. On the other hand, bacteria are very often found in *E. coli*, and amœbæ showing a vacuolated plasma are frequently met with in *E. histolytica*.

Very useful marks of distinction are afforded by the cysts of the amœbæ. Cysts of pathogenic amœba have four nuclei when ripe. Larger cysts, with more than four nuclei, nearly always belong to the non-pathogenic *E. coli*. If a few specimens only of amœbæ or cysts are available for examination even the expert is very often not able to decide to which species they belong.

In stained preparations the finer structure of the nucleus often furnishes an additional aid in distinguishing between the two forms. Unfortunately, this distinction can only be made by an expert, as a very exact technique is necessary (fixation of smears in sublimate-alcohol and staining with iron-hematoxylin). Smears stained with anilin dyes in the ordinary way, as for bacteriological purposes, give very unsatisfactory results. Another drawback must be mentioned. It may happen that one is not in a position to get the material in a condition suitable for examination. Moreover, the amœbæ very often rapidly change their forms to a considerable degree, even in fresh stools. Little attention was formerly paid to this fact, so that even degenerated forms were described as being new species of amœbæ, which of course has caused much confusion.

The best procedure is to examine the material as fresh as possible without staining. Generally, it is much easier to distinguish the amœbæ, especially vegetative forms, in fresh preparations, or after very careful heating to 37° C. than in stained smears.

In many cases of intestinal disorder, especially when chronic, where the clinical symptoms are more those of a chronic diarrhoea than
of typical dysentery, comparatively numerous small forms of amœbæ are found in the faeces. Should these amœbæ happen to be non-motile for some reason, a non-expert may easily mistake them for leucocytes, because degenerated amœbæ often show a very granulated protoplasma.

It is also desired to draw special attention to the fact that cases of masked dysentery are of frequent occurrence. The clinical symptoms are often those of a very chronic and obstinate diarrhœa, the typical symptoms of dysentery being absolutely lacking. Only repeated microscopic examinations can lead to a correct diagnosis. In Shanghai I have met with a great number of such cases, both European and Chinese. It has been my practice in the case of every patient suffering from any kind of intestinal trouble to make faecal examinations, particular search being made for amœbæ. In many instances examinations were made repeatedly, often almost daily, over a period of several weeks. I found that nearly 30% of these miscellaneous cases were infected with amœbæ. In not less than 18% I found typical “tetragena” cysts, i.e., cysts of the pathogenic amœba. If the examinations are continued over a longer period, sooner or later vegetative amœbæ will be seen, the clinical condition of the patient at the same time becoming worse.

On the other hand, if faecal examinations are made in the case of patients who have apparently recovered from dysentery, a considerable number will be found who harbour cysts more or less regularly for a long time, or even permanently, although from the clinical point of view their disease seems to have been cured. These persons may be called “contact-carriers” to distinguish them from “convalescent-carriers.”

Laboratory examinations were also made of the discharges of a number of healthy, strong people, between 20 and 40 years of age, who have lived for two or three years in the Far East, in Shanghai, Tientsin, Tsingtao, or elsewhere, and who were absolutely free of any intestinal trouble at the time of the examination. Yet I found cysts (“tetragena” cysts) of the pathogenic amœbæ in about 10% of the 150 cases examined. This percentage harmonises well with the number of such carriers given by other authors who have written on tropical diseases.

In Flanders, whither French and English troops have been brought from Africa and Asia, not less than 5% of the French soldiers were found carrying cysts. It is quite out of the question that cysts of non-pathogenic form should have been mistaken for the pathogenic. Examinations of soldiers in Greece gave a similar result.

From experiments made both with human beings and animals, to which no technical objection can be made, we know that infection can
Amœbae and Dysentery.

only take place by ingestion of cysts. In former years it was generally believed that water infected with amœbæ or cysts, as a rule, was the cause of amœbic dysentery. This was a mistake. If it were the case, epidemics of amœbic dysentery would be much more frequent.

If a sufficient number of extended examinations are made, we find that in Shanghai cases of acute dysentery are to be met with during the whole year. They occurred even during the cold winter of 1916-1917. However, the greater number of acute cases are observed during the hot weather, especially in the autumn months. Further investigations are necessary to find out how often original attacks of amœbic dysentery are observed in the various seasons. As far as I can judge the acute attacks of amœbic dysentery in the cooler months are due, to a great extent, to the recrudescence of a former infection.

In conformity with Walker and Sellard (Philipp. Journal of Science, 1913) we may take it for granted that infection with amœbic dysentery is traceable to carriers, both "convalescent" and "contact." It must be borne in mind, however, that in Shanghai 10% of all persons in good health harbour cysts of pathogenic amœbæ. This is not surprising if one considers the very doubtful cleanliness of the Chinese servants. If all cases of chronic intestinal trouble were more exactly examined, not only once but repeatedly, the number of positively existing amœbic infections would be surprising. A single examination giving a negative result does not prove anything at all.

Compared with the danger of infection from carriers and convalescents other sources of infection are probably of minor importance. It is possible that certain kinds of flies may transmit the cysts, and that from some of the lower animals suffering from amœbic dysentery there may be direct infection. Cats are very susceptible to experimental infection, but I am not aware whether spontaneous amœbic dysentery has been observed in them or not. Dogs must also be taken into account. Once I found amœbæ in a dog which had dysenteric symptoms. These amœbæ could not be differentiated morphologically from E. histolytica, and the post-mortem showed superficial ulcers in the colon. It may be mentioned in this connection that Dold and I have observed a case of naturally acquired bacillary dysentery in a dog, and Dold has reported four other cases of the same nature.

If we take it for granted that carriers are the main source of infection in amœbic dysentery it must be admitted that infection is at any time possible. The danger is likely to be greater in the hot season as many other intestinal troubles then occur which may facilitate the establishment of an amœbic infection. In the cold season, especially
when there are great and sudden changes of temperature, a cold may often cause a recurrence of dysenteric symptoms.

As I have frequently noticed, convalescents can evidently excrete cysts for a long time, at least for a time longer than one year. These carriers may be the cause of an outbreak of amœbic dysentery in countries where this disease is not endemic. It has been mentioned already that a great number of cases of amœbic dysentery have been seen in Flanders lately. The source of this infection is only too evident, and the manner of transmission in time of war is easily understood. Endemic cases of amœbic dysentery will certainly be observed in England during the war, and possibly also in Germany, especially in the prisoners' camps. Even in times of peace in these countries isolated cases of amœbic dysentery have been reported. In these cases infection by contact through carriers is evident, as the disease is nearly always traceable to persons who have returned from the tropics.

Some of the morbid conditions which may complicate amœbic dysentery may now be mentioned.

Intestinal stenoses are not seldom the consequence of amœbic dysentery; indeed, they occur much more frequently than is commonly supposed. They may develop in any part of the intestines, but are usually found in the colon. Birt and I have described a number of such cases both clinically and anatomically. In most of them the stenoses were evidently caused by chronic amœbic dysentery, probably by secondary bacterial infection of old amœbic ulcers. In some cases cysts were actually found in the faeces.

Amœbic dysentery appears to bear some relation to sprue. The researches of Bahr in Ceylon, Ashford in Porto Rico, and Dold in China, have shed new light on the question of the etiology of this disease. It appears that certain acid- and gas-producing organisms of the oidium and blastomyces type cause the characteristic sprue diarrhoea, for Dold succeeded in producing experimentally the characteristic stools of sprue in mice and monkeys by feeding them with pure cultures of these organisms. Nevertheless, it may be worth mentioning that I found cysts of pathogenic amœbæ in nearly 50% of the sprue stools which I examined. It is well known that sprue, as a rule, develops only in persons who have lived for a long while in the Far East, therefore the high percentage of cyst-carriers is not surprising. It is conceivable that frequent attacks of amœbic dysentery may pave the way for sprue.

As to other complications Dold and myself have recently reported on seven cases of simultaneous infection with amœbic dysentery and
bacillary dysentery. It need hardly be said that, from a clinical point of view, such a combination means a more serious condition than infection with either organism singly. In cases where our usual therapeutical measures prove ineffectual the possibility of such a combined infection should be borne in mind.

The combination of dysentery with typhoid fever is not uncommon and is hardly to be wondered at as both diseases are of frequent occurrence in Shanghai. In a single year I verified the double infection in four cases by post-mortem examination. From a clinical point of view the symptoms in these cases take a peculiar course as the patient's condition is neither typically dysenteric nor typically typhoid. After a fatal issue, it is not always easy to demonstrate with certainty at the time of the post-mortem examination the exact nature of the intestinal lesions.

Quite recently I saw an extraordinary case, in which there was a secondary infection of amoebic ulcers of the colon with *tubercle bacilli* derived from a tuberculous larynx. There were tubercles in the wall of the amoebic ulcers and on the serosa.

Infection with *Lamblia intestinalis* may be confounded with dysentery, but only a non-expert can mistake the Lamblia cysts for amoebic cysts. Probably Lamblia cysts are not influenced by our usual anti-dysenteric remedies. I know several persons who excrete Lamblia cysts continuously, although they have been under proper anti-dysenteric treatment for years.

A condition resembling dysentery may be caused by *Balantidium coli*, but this is evidently very uncommon in Shanghai, for so far I have seen only one case.

The awkward complication of amoebic dysentery with abscess of the liver has unquestionably become more rare in the last few years. No doubt this is due to our better knowledge of dysentery and its more effective treatment. The opinion often expressed that abscess of the liver is not found in Chinese people is incorrect. I have seen several cases among Chinese. I do not know exactly if abscess of the liver is more or less frequent in Chinese than in Europeans, but I believe it is more frequent. It should also be mentioned that amoebic infections in Chinese are probably even more frequent than in Europeans, although the contrary is often asserted.

Finally, I wish to record my opinion, based on experience, concerning the amoebae of the mouth. In the oral cavity, especially in the scrapings of the teeth, a species of amoeba is found which is called *Entamoeba buccalis, sive, E. gingivalis*. According to my own investiga-
tions, this amoeba is not regularly present, but it is found very often. In Chinese (mostly students) it was found in 39 out of 60 cases. In Europeans I seldom found it, probably owing to the better care which they give to the teeth, but there seems to be no connection between caries of the teeth and the presence of the amoeba. In the warmer months it is found more often than in the cold season. Many American authors have expressed the opinion that this amoeba, formerly regarded as quite harmless, is the cause of pyorrhœa alveolaris. Certainly the organism is often found in this condition. In 66 European cases I found it in the contents of the pyorrhœa “pockets” 57 times (=86%).

Morphologically, the greater number of the amoebæ found were of the type of *E. buccalis*. Only a few had a greater resemblance to *E. histolytica*. From the same point of view, however, *E. buccalis* resembles *E. histolytica* to such a degree that often they cannot be easily differentiated. *E. buccalis* is usually larger, its cytoplasm is of another tint and the mobility differs. The latest critical investigations of American authors show that *E. buccalis* is not identical with *E. histolytica*, as experiments made with *E. buccalis* so far have given absolutely negative results, thus proving that it has no pathogenic power at all. If *E. buccalis* were pathogenic and identical with *E. histolytica*, it would be expected that people infected with mouth amoebæ would suffer more frequently from amoebic intestinal affections than other persons. My own investigations in this direction prove that this is not the case, and very extensive investigations in the Mayo Clinic also show there is no connection between dysentery and the presence of these amoebæ in the mouth. Consequently, it may be held as proven that *E. buccalis* has no pathogenic power. Of course it is to be expected that cysts of the true *E. histolytica* may be occasionally found in the oral cavity. I have myself observed this in several cases.

It cannot be said with certainty whether the amoebæ described by Kartulis and Flexner, which are found in abscesses of the jaws, are identical with, or different from, *E. buccalis*. Either they are pathogenic and therefore identical with, or related to, *E. histolytica*, or else they are specimens of *E. buccalis* which had invaded abscesses primarily due to infection by some other micro-organism.

DOUBLE IODIDE OF EMETINE AND BISMUTH IN DYSENTERY.—In The Lancet, 1916, ii, 183, Dale recommends the use of this new preparation of emetine in the treatment of carriers of the encysted stage of *Entamoeba histolytica*. Of ten cases invalided to England from Egypt which had all shown recurrence of cysts after the use of emetine hydrochloride hypodermically, nearly all were discharged cured within a few weeks. The new drug given by the mouth produces much more disagreeable symptoms than the hydrochloride by the needle, but if its use is persisted in tolerance is usually established rapidly. The Medical Annual, 1917.
ISO-AGGLUTINATION TESTS OF CHINESE BLOODS FOR TRANSFUSION COMPATIBILITY.

A. R. Kilgore, M.D., and J. Hua Liiu, M.D., Red Cross Hospital, Shanghai.

Blood transfusion, while occasionally done, is a comparatively little used procedure as yet in China. Personal letters from surgeons in a few of the larger mission hospitals have assigned as a reason the lack of time, with a limited staff, for the performance of preliminary tests for compatibility between the bloods of donors and recipients. With the simplification of the technique of the operation itself during the past few years, and the broadening of its indications, transfusion must come into more frequent use.

The fact that hemolysis occurs between incompatible Chinese bloods just as it does between incompatible European bloods was forcibly demonstrated to the staff of this hospital by a fatal case following an emergency transfusion a few months ago.

A test for compatibility so simple and rapid that the necessary time will not be a bar to its use is therefore highly desirable. The work reported here has been done to ascertain whether the Moss microscopic agglutination test 1,2 which answers the requirements of rapidity and simplicity may be applied to Chinese bloods as well as to Caucasian.

Basis for Use of the Test.

Two reactions, agglutination and hemolysis, are known to be possible when the bloods of two individuals are mixed, either in the body or in the test-tube. Hemolysis is the reaction more dangerous to life. The tests for hemolysis, however, all require accurate and time-consuming technique. It has been shown, especially by Moss, that, while agglutination often takes place without hemolysis, hemolysis never takes place without agglutination. Therefore if any two bloods do not agglutinate each other's corpuscles, they will not hemolyze. The test for agglutination is far simpler than for hemolysis.

Technique of the Test.

One drop of donor's serum and one drop of (approximately) 1% suspension of recipient's corpuscles are mixed on a slide, covered with a cover-slip and examined microscopically for agglutination. The test

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is repeated for recipient's serum and donor's corpuscles. No more accurate measurement is required than that of carrying the drops with a platinum loop.

The corpuscles for this test should be collected in 1.5% sodium citrate in .9% salt solution. This prevents them from clotting and the citrate in no way interferes with agglutination in solution of this strength.

Both serum and corpuscles are collected from an ordinary ear-puncture (without special aseptic precautions), either in small test-tubes or better in Widal tubes (test-tubes about 7 cm. long by 5 mm. in diameter), collecting about a quarter of a mil for serum and about two large drops in a tube two-thirds filled with citrate solution for corpuscle suspension. If it is desired to make the test at once, serum may be obtained by centrifugating, especially if the sides of the Widal tube have been moistened with salt solution or citrate solution before collecting the blood.

The tests can be set up with ease within ten minutes from the collecting of the bloods. Agglutination, if it occurs, is ordinarily evident in from one to five minutes, but in case of the least doubt, it is not safe to take a final reading in less than fifteen to thirty minutes, the cover-slip being meanwhile lifted once or twice to insure thorough mixing. If there is no agglutination under either cover-slip, the bloods are compatible for transfusion. If either blood is agglutinated by the other, the bloods are incompatible.

Rouleaux formation must be distinguished from true clumping, since the appearance under the low power lens is often suggestive. With a little experience, rouleaux formation need cause no confusion if one is watching for it.

Grouping of Individuals According to Agglutination Reactions.

It has been shown by Moss and others that all adult Caucasians can be divided into four groups according to their agglutination reactions. No blood will agglutinate or be agglutinated by another blood of the same group, but will either agglutinate or be agglutinated by bloods of all other groups. The following table shows this grouping:

<table>
<thead>
<tr>
<th>Group</th>
<th>Serum agglutinates corpuscles of groups</th>
<th>Corpuscles agglutinated by sera of groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>...</td>
<td>II, III, IV</td>
</tr>
<tr>
<td>Group II</td>
<td>I, III</td>
<td>III, IV</td>
</tr>
<tr>
<td>Group III</td>
<td>I, II</td>
<td>II, IV</td>
</tr>
<tr>
<td>Group IV</td>
<td>I, II, III</td>
<td>...</td>
</tr>
</tbody>
</table>

The clinical advantage of this fact lies obviously in the ability to determine in advance the grouping of a number of individuals who might be available for emergency transfusions. Then, any patient's group being quickly determined, an individual belonging to this group can be called at once without the necessity of testing a number of individuals against the patient's blood.

A little study of the above table will demonstrate that, having serum belonging to Groups II and III, it is possible with one test to determine any individual's group, since the reaction of these two sera is different with the corpuscles of each of the four groups, thus:

Table 2.

<table>
<thead>
<tr>
<th>Group I corpuscles</th>
<th>Group II serum</th>
<th>Group III serum</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

( + indicates agglutination, — indicates no agglutination.)

Since the agglutinating power of sera remains undiminished for months, and but one or two drops are required for each test, it is a simple matter, once these two sera are obtained, to determine within a very few minutes to what group any individual belongs. A drop of blood for corpuscle suspension is all that is necessary from the patient.

Of course, Table 2 can be reversed to work from the corpuscles of Groups II and III against the sera of all the other groups.

Again, if to begin with, the grouping of but one individual is known, provided that individual belong to either Group II or Group III, the other groups can be identified by using his corpuscles and serum, thus:

Table 3.

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II Corp.</th>
<th>Group II Serum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ser. —</td>
<td>Corp. +</td>
<td>Corp. —</td>
</tr>
<tr>
<td>Ser. —</td>
<td>Corp. —</td>
<td>Corp. +</td>
</tr>
<tr>
<td>Ser. +</td>
<td>Corp. +</td>
<td>Corp. —</td>
</tr>
<tr>
<td>Ser. +</td>
<td>Corp. —</td>
<td>Corp. +</td>
</tr>
</tbody>
</table>

A similar table can be made out for Group III corpuscles and serum.

Other combinations are possible. Thus, if serum only of Group II is available and individuals of Groups I and IV are known, other individuals of all the groups may be identified:

Table 4.

<table>
<thead>
<tr>
<th>Corpuscles I.</th>
<th>Serum II.</th>
<th>Serum IV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>—</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
Tests on Chinese Bloods.

The object of the work reported in this paper has been to determine whether Chinese bloods react thus in the same way as do Caucasian bloods. Foreign corpuscles and serum were very kindly furnished on two occasions by Dr. William G. Lennox, of Peking, whose blood had been determined in America to belong to Group II.

Starting with these corpuscles and serum, about fifteen foreign bloods were grouped (using the formula of Table 3), including individuals belonging to each of the four groups, and the determinations were checked by cross-tests.

A number of Chinese were then grouped, using foreign Group II and III sera (according to Table 2), and these bloods were cross-checked with each other and also with foreign bloods of all four groups, using sera and corpuscles in all possible combinations, thus: 4

<table>
<thead>
<tr>
<th>A Serum</th>
<th>B Serum</th>
<th>C Serum</th>
<th>D Serum</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Corpuscles</td>
<td>—</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>B Corpuscles</td>
<td>—</td>
<td>—</td>
<td>+</td>
</tr>
<tr>
<td>C Corpuscles</td>
<td>—</td>
<td>+</td>
<td>—</td>
</tr>
<tr>
<td>D Corpuscles</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Reference to Table 1 will show that this cross-testing demonstrates A, B, C, and D to belong to Groups I, II, III, and IV respectively.

Chinese sera belonging to Groups II and III and having comparatively high agglutinating power were then selected and fifty Chinese bloods grouped from them, with cross-testing as described, and occasional testing back to foreign bloods. Fifty more individuals were then grouped without cross-tests in order to have at least 100 bloods on which to determine the approximate ratio in which individuals divide themselves among the four groups. Approximately, Caucasian bloods are found to belong to the following divisions:

<table>
<thead>
<tr>
<th>Group I</th>
<th>...</th>
<th>...</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group II</td>
<td>...</td>
<td>...</td>
<td>40</td>
</tr>
<tr>
<td>Group III</td>
<td>...</td>
<td>...</td>
<td>7</td>
</tr>
<tr>
<td>Group IV</td>
<td>...</td>
<td>...</td>
<td>43</td>
</tr>
</tbody>
</table>

100

4 Before making these cross-tests, the corpuscles were all twice washed in citrate solution. If this is not done, enough serum may be carried over with the corpuscle suspension to agglutinate the few corpuscles accidentally carried over with the serum, and thus obscure the result. This need not be done if care is taken to exclude all corpuscles from the loopful of serum used, but we found it on the whole more satisfactory to wash the corpuscles. They can be twice washed in less than five minutes, and the process can be done at once for as many tubes of corpuscles as the centrifuge will hold (we have usually carried through six at once).
The 100 Chinese bloods tested were grouped as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group III</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group IV</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100

During the earlier part of the work several apparent discrepancies were found on cross-testing—so much so that at one time all the sera were discarded and a new lot of Group II corpuscles and sera obtained, with which to start again. With increasing experience in reading the reactions, it was found that the cross-tests consistently agreed with the original grouping readings.

Summary and Discussion.

1. Chinese bloods may be grouped into four groups according to their inter-agglutination reactions, these groups being the same as those for European bloods. Chinese bloods inter-agglutinate with European bloods just as they do with Chinese.

2. Of 100 bloods tested, 11 were in Group I, 36 in Group II, 25 in Group III, and 28 in Group IV. (This is obviously too small a number on which to draw final conclusions as to percentages, but the discrepancy between the number of Chinese in Group III and the number of Europeans in the same group is at least interesting.)

3. The test studied presents a very simple and rapid method of determining compatibility for transfusion. Having identified individuals of Groups II and III and obtained stock serum, the grouping of any individual or group of individuals may be determined in a few minutes with no more apparatus than a stock solution of citrate solution, a platinum loop, microscope, and ordinary glass slides and cover-slips, a drop of blood for corpuscle suspension being all that is required from each individual to be tested.

Blood Transfusion.—Besides making a test for haemolysis, a careful history should be obtained from the donor and, if at all suspicious, a Wassermann reaction should be made. Donors should not be chosen from persons giving a history of recent attacks of typhoid fever, pneumonia, diphtheria, tonsillitis, malaria, or influenza, or from persons suffering from tuberculosis, chronic arthritis, rheumatism, or where there is a history of haemophilia.

The direct transfusion of blood has been followed by remarkable success in cases of haemorrhage and toxæmia in the surgery of the war. Very promising results have also followed in pernicious and secondary anaemias, and it is now a recognized method of dealing with haemorrhagic disease in the newly-born. It not only helps to restore the depleted bulk of circulating fluid, but also provides the patient with that particular body tissue to the loss of which his symptoms are due. It provides coagulation elements, and fresh complement and antibodies. As much as 1,000 mils can be taken from the donor without ill effect. The Medical Annual, 1917
The China Medical Journal.

ANTIMONY IN KALA-AZAR.

JOHN H. KORNS, M.D., Union Medical College, Peking.

Among other authorities, Rogers¹ and Muir² consider antimony treatment as curative in kala-azar. The results obtained in a series of eleven cases with this drug at the Union Medical College Hospital, Peking, during the last twenty months, however, have been discouraging. It would be of interest to know the experience of other physicians in China.

In this series of eleven cases I have included only those treated with tartar emetic or antimony ointment for at least two weeks time. The method was to use the former when veins of sufficient size could be found. The drug was given intravenously in 1 or 2% normal salt solution, prepared from freshly distilled water. The initial dose at first was .01 gm., later the initial dose was increased to .04 gm. As a rule this was increased each dose by .01 gm., the injection being given on alternate days. When the ointment was used 1 gram of the ointment, containing 10% of metallic antimony, was rubbed in on alternate days. The tartar emetic used was tested by our pharmacist, Mr. Britland, and found to be strictly in accord with the requirements of the British Pharmacopœia.

All of the cases were males under 30 years of age; all were clinically kala-azar of several months standing. In every case Leishmania was found. The method of choice was splenic puncture, for the reasons that the wound produced in excising a lymph gland heals poorly in these cases, the organisms are not found so easily in the gland pulp as in the spleen pulp, and no harmful results have been noted after puncture of the spleen. Prior to puncture the coagulation time was always taken and calcium chloride was administered by mouth. The coagulation time, taken by Wright's method, never exceeded 4½ minutes.

Of the series only two became afebrile and remained so, and in both of these Leishmania was found in the spleen pulp when the patient left the hospital.

The results in each case, so far as is known, are, briefly, as follows:—

Case 1.—Improvement dated from the onset of mastoiditis and the consequent leukocytosis (see chart). Leishmania still present in spleen pulp on leaving the hospital, although the patient was afebrile and had distinctly improved in general condition. He has not been seen or heard from since.
Antimony in Kala-azar.

Case 2.—Death, due to toxæmia from cancrum oris. No autopsy.

Case 3.—Had a complicating pleural effusion, not proven to be tuberculous. Tartar emetic was used for 15 days and the ointment for 15 days. Unimproved.

Case 4.—Temperature unchanged. Unimproved.

Case 5.—Showed defervescence but persistence of the Leishmania in the spleen pulp. Has just re-entered the hospital after an absence of seven months, with active symptoms and the Leishmania still present. No permanent benefit.

Case 6.—No improvement. Transferred to surgical department. Immediate result of splenectomy good, with typical blood changes. Left the hospital in good condition. Sudden death about three months after the operation.

Case 7.—Death. Autopsy showed no associated disease.

Case 8.—The temperature, which had been of a high remittent type, became normal upon beginning inunctions with antimony ointment, but after three weeks assumed a low remittent form. No improvement in general condition. Marked epistaxis. Transferred to surgical department. Splenectomy showed same immediate result as in Case 6. Discharged 20 days after operation, in good condition. Has not been seen since.

Case 9.—Temperature, on leaving, slightly lower than on entrance. Improvement slight, if any. Blood picture worse (see chart).

Case 10.— Entered with acute dysentery which cleared up at once. Temperature unaffected during the first stay in hospital. Soon after re-entering he developed external ear suppuration with distinct leukocytosis, which changed the temperature from a high remittent to a high continuous type. After the pus was evacuated, the temperature again assumed the original type. No improvement to date.

Case 11.—Distinctly worse on leaving. Had a complicating ascites which required tapping three times.

The following chart is intended to show the duration of treatment, the amount of the drug used, and the blood picture at various intervals. Due to lack of time the blood examinations were very incomplete. In Case 1 the leukocytosis was coincident with the mastoiditis, and in Case 10 with the external ear inflammation. Case 1 illustrates how extreme the leukopenia may be in kala-azar; the count was so low on September 23 that a confirmatory count was made next day.
<table>
<thead>
<tr>
<th>No.</th>
<th>Admission Date</th>
<th>Discharge Date</th>
<th>Age in Years</th>
<th>Duration</th>
<th>Antimony R.</th>
<th>Total Amt. T. E. in gms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apr. 21, '17</td>
<td>June 1, '17</td>
<td>21</td>
<td>36 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>2</td>
<td>May 21, '17</td>
<td>July 21, '16</td>
<td>16</td>
<td>30 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>3</td>
<td>Apr. 13, '16</td>
<td>July 6, '16</td>
<td>16</td>
<td>30 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>4</td>
<td>Aug. 2, '16</td>
<td>July 21, '16</td>
<td>16</td>
<td>29 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>5</td>
<td>Nov. 6, '16</td>
<td>Sept. 27, '16</td>
<td>16</td>
<td>29 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>6</td>
<td>Dec. 26, '16</td>
<td>Nov. 2, '16</td>
<td>16</td>
<td>34 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>7</td>
<td>June 2, '16</td>
<td>Nov. 2, '16</td>
<td>16</td>
<td>34 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
<tr>
<td>8</td>
<td>July 11, '16</td>
<td>Aug. 30, '16</td>
<td>16</td>
<td>34 days</td>
<td>1.55</td>
<td>2,980,000</td>
</tr>
</tbody>
</table>

**Hospital No.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Hospital No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**No. in Series.**

<table>
<thead>
<tr>
<th>No.</th>
<th>No. in Series.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
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</table>

**Date of Admission.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Date of Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May 21, '17</td>
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</table>

**Date of Discharge.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Date of Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 21, '16</td>
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</tbody>
</table>

**Age in Years.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Age in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</table>

**Duration Antimony R.**

<table>
<thead>
<tr>
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<th>Duration Antimony R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36 days</td>
</tr>
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</table>

**Total Amt. T. E. in gms.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Total Amt. T. E. in gms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2,980,000</td>
</tr>
</tbody>
</table>

**R. B. C.**

<table>
<thead>
<tr>
<th>No.</th>
<th>R. B. C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55</td>
</tr>
</tbody>
</table>

**Hb (Sahli).**

<table>
<thead>
<tr>
<th>No.</th>
<th>Hb (Sahli)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.96</td>
</tr>
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</table>

**W. B. C.**

<table>
<thead>
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<th>W. B. C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.19</td>
</tr>
</tbody>
</table>

**Poly.**

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<tr>
<th>No.</th>
<th>Poly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>51.8</td>
</tr>
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</table>

**L. Mono.**

<table>
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<tr>
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<th>L. Mono.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20.5</td>
</tr>
</tbody>
</table>

**Lymph.**

<table>
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<tr>
<th>No.</th>
<th>Lymph.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.6</td>
</tr>
</tbody>
</table>

**Bos.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Bos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**Bas.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Bas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**Myelo.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Myelo.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15.0</td>
</tr>
</tbody>
</table>

**Smudge.**

<table>
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<th>No.</th>
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</tr>
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<tbody>
<tr>
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<td>13.6</td>
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</table>

**No. of cells.**

<table>
<thead>
<tr>
<th>No.</th>
<th>No. of cells.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>137</td>
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</tbody>
</table>
CASE 1. STRicture of colon, etc. (R. H. Mole.)

A. Ascending colon.
B. Dilated and hypertrophied right end of transverse colon.
C. Much ulcerated mucous membrane of left end of transverse colon.
D. Glass tube passing through perforation.
E. Stomach adherent to transverse colon.
Some Recent Surgical Cases of Pathological Interest.

SUMMARY.

1. This series includes eleven proved cases of kala-azar.

2. Tartar emetic, of B. P. potency, given intravenously in gradually increasing doses, and antimony ointment used as an inunction, in no case produced a cure.

3. Where improvement was noted it was either temporary, as in Cases 5 and 8, or attributable to the rise in W. B. C. due to an intercurrent infection, as in Case 1.

REFERENCES.

2. Indian Medical Gazette, October, 1916.

SOME RECENT SURGICAL CASES OF PATHOLOGICAL INTEREST.

R. Howard Mole, B.A., M.D., Ch. B., Mukden.

CASE 1. STRicture OF Colon WITH Hard Lump Mistaken FOR Cancer.—A farmer, aged 38, had suffered from dysentery seven or eight years previously. Four or five years after recovery, i.e., eight months ago, patient had been troubled with a feeling of fulness in the abdomen, and with eructation of bitter fluid; he had loss of appetite and considerable loss of flesh, with some pain in the region above and to the left of the umbilicus. During the last six months patient had noticed a swelling above and to the left of the umbilicus which he stated moved about and varied in size. On examination, an oval swelling, of the size of a fist, was seen in the left hypochondrium, and could be pushed about; it was tense and tympanitic, and while being examined disappeared with a gurgling noise. There was some tenderness on palpation in the region above and to the left of the umbilicus. Free HCl was present in the stomach.

At operation, an incision was made in the middle line above the umbilicus. In the left part of the transverse colon, a large lump was easily felt which was hard and could not be delivered into the wound. The colon to the right of the lump was so much dilated that, on opening the abdomen, it was at first difficult to decide whether the dilated viscus was stomach or colon.

A diagnosis of cancer of the colon was made, and a lateral anastomosis between the lower end of the small intestine and pelvic
colon was performed. The patient did well for three weeks, was even able to take food well, and had a daily stool for some days. Finally, he developed peritonitis and died.

At the post-mortem examination a perforation was observed at the site of the lump, and the abdominal viscera were in a condition of acute inflammation; the lateral anastomosis suffered with the rest of the bowel from the accumulation of gas, but there was no actual leak observable.

The condition of the bowel is well shown in the accompanying picture. The lump felt was an accumulation of faeces in a stricture colon, the accumulation in part taking place beneath bands of mucous membrane stretching across the bowel, and so apparently embedded in the wall of the gut. The colon was adherent over a large area to the stomach.

**Case 2. Sarcoma of the Cæcum.**—The patient, aged 47, was admitted to hospital with a large lump in the right iliac fossa, extending from near the middle line to near the iliac crest. The lump was stony hard and completely fixed. It had a rounded and slightly irregular external surface. Patient stated that the trouble commenced with slight and inconstant pain in the right iliac fossa fifteen months before admission. At the end of three months from the commencement he had a sudden attack of excruciating pain in the same region. He was obliged to lie up, and no faeces were passed for days. The lump appeared quite suddenly, and was of the same size as at the time of examination. Thereafter he improved and during the past ten months there had been no alteration in appetite or bowels. There had been slight pain in the lump. He stated on admission that he was then slightly fatter than he had been at the time of the acute attack.

A provisional diagnosis of hæmorrhage was made. At operation a large tumour of the cæcum was found projecting through the abdominal wall muscles lying over it. Four inches of the lower ileum, the cæcum and two inches of the ascending colon were removed together with a mass of glands behind the peritoneum stretching up and to the left. The ileum and colon ends were sewn up, and a lateral anastomosis between the ileum and transverse colon performed.

The patient died on the third day, the cause of death being undetermined. The tumour was a diffuse infiltration of the walls of the cæcum by a mixed-celled sarcoma. The cæcal wall was in places quite one inch thick; the mucous membrane was ulcerated in places. The references to sarcoma of the cæcum in the literature at my disposal are few, but the case bears out the statement that symptoms of obstruction rarely occur with sarcoma of the cæcum.
CASE 3. (a) ACUTE INTESTINAL
OBSTRUCTION, ETC. (R. H. MOLE.)

A. Ileum.
B. Ileo-caecal valve.
C. Appendix.
D. Extremely narrow beginning of large intestine.
E. Band between lower ileum and pelvic colon.
F. Pelvic colon.

CASE 3. (b) ACUTE INTESTINAL
OBSTRUCTION, ETC.(R. H. MOLE.)

A. Cardiac stomach mucous membrane.
B. Acute ulcer.
C. Series of small ulcers.
D. Much pitted mucous membrane of pyloric stomach.
E. Pylorus.

CASE 4. BRANCHIAL CYST.
(R. H. MOLE.)

A. Cellular contents of cyst.
B. Large cells amongst cells of stratified epithelial lining.
O. Large cells amongst lymphoid cells.
Case 3. Operation performed for acute intestinal obstruction with symptoms of gastric ulcer.—The third case of pathological interest was that of a young man who came to hospital with symptoms of acute intestinal obstruction with an obscure history pointing to gastric ulcer. Unfortunately, the case was not written up at the time of admission. At operation the stomach was found much distended, filling the upper half of the abdomen; it was necessary to make a puncture and remove some of the fluid contents of the stomach in order to make clear the position of the obstruction in the intestine. The fluid was black in colour. Afterwards one could see clearly the violent peristaltic movements in the lower part of the ileum; the constriction was apparently at the junction of ileum and caecum. A lateral anastomosis between lower ileum and transverse colon was carried out. On the second day after the operation the stomach tube was used and a further quantity of black fluid removed. The patient died on the third day.

The accompanying pictures represent the findings at post-mortem examination. The first picture shows that the caecum was absent; there was no cul-de-sac below the junction of small and large intestine. The large intestine at its commencement was exceedingly narrow and was blocked by pipe-stem faeces. The ileo-caecal valve was in the form of villous mucous membrane projections; the opening between small and large intestine must have been exceedingly small. The appendix, half an inch in length, is seen in the picture, and there was a fibrous band connecting the caecum with the pelvic colon mesentery. The stomach, which was full of black fluid, shows an acute ulcer in the pyloric portion, and a remarkably distinct pitted mucous membrane, the pits near the ulcer being apparently commencing ulcers. The points of pathological interest are: (i) The nature of the lesion in the caecum: was it an old appendical trouble with consequent contraction and fibrosis of caecum, or a developmental anomaly? (ii) The condition of the ileo-caecal valve. (iii) What was the relation, if any, of the condition at the ileo-caecal junction and the acute gastric ulcer? Was the stasis due to the intestinal obstruction, which must have been chronic before it became acute, responsible for the gastric ulceration?

Case 4. Branchial Cyst.—The fourth case was that of a man with a branchial cyst. The microscopical appearances of the wall were interesting pathologically. The cyst was full of thick milky fluid, containing huge epithelial cells, sometimes single, sometimes in groups. Amongst the cells of the stratified epithelium lining the cyst, and even deep to the stratified epithelium there were also to be seen large circular...
nucleated cells. What is the nature of these cells? They are somewhat like an infection of coccidium, but are not intracellular.

**Case 5. Tuberculosis of Uterine Mucosa.**—The fifth case was that of a woman, aged 34, under the care of Doctors Horner and Starmer at the Women's Hospital in Moukden. The woman had not menstruated for a year. With the speculum a warty irregular growth was seen to protrude from the cervix which bled profusely on touching. The growth was removed by excision per vaginam. After operation the temperature rose nightly to 100-101° F. and there was a slight discharge. Temperature gradually came down and patient left at the end of a fortnight, convalescent. The growth microscopically was a typical tuberculosis of the cervical mucous membrane.

**Case 6. Fibroma ("false neuroma") of Vagus Nerve.**—The last case is that of a man under the care of Dr. Greig of Kirin, who kindly allows me to include a report of it. The man, aged 48, came to the dispensary with a tumour on the right side of the neck, of the size of a big duck's egg, situated opposite the thyroid gland. The skin over the tumour was broken and haemorrhages had taken place. The tumour was first noticed when the patient was 15 years old, but the skin did not break till four months before he came to hospital. Before leaving the dispensary for hospital a severe haemorrhage occurred and the patient fainted. Immediate operation was decided upon. At operation the tumour appeared to be hard and fibromatous, but had a soft degenerated centre from which profuse venous bleeding took place. The tumour was movable, but passed down behind the clavicle. The dissection was a tedious one; eventually, the carotid artery which was lying on the inner side of the tumour pressed against the trachea was separated. The internal jugular vein and vagus nerve both ran right into the tumour. On pulling the vagus above the tumour the patient stopped breathing completely, but pressure on the nerve between finger and thumb did not affect breathing. Since it was impossible to separate the nerve from the tumour, and pressure above the tumour on the vein failed to stop bleeding, the vagus and internal jugular vein were cut above the tumour after ligature of the vein, and the tumour was then dissected out to the level of the clavicle. As it was not safe to proceed further, a bit of the tumour with the vein and nerve in it was ligatured at this level.

The patient left hospital six weeks later with the wound healed and feeling very well.

Microscopical examination of the tumour showed it to be a fibroma ("false neuroma") of the vagus nerve. No trace of nerve fibres was found.
EXTRUSION OF GLANS PENIS THROUGH SLOUGHING APERTURE IN PREPUCE.

J. PRESTON MAXWELL, M.D., B.S., F.R.C.S., Yungchun, Fu.

Two cases of this uncommon affection have recently been inpatients in the Yungchun Hospital.

The first, a man of forty-six, an anaemic and debilitated individual, came to hospital with the following history. About a month previous he had begun to be troubled with swelling and irritation of the penis. A week back a black spot appeared on the side of the prepuce which became soft and ulcerated and the glans passed through the hole thus formed. After a few days soaking in a weak solution of biniodide of mercury, the patient was put under chloroform, and the prepuce was slit up and removed. The appearance after operation was like that of a complete circumcision. The wound healed rapidly and the man left the hospital quite well.

The second, a man of forty-eight, came to hospital complaining of a sore on the dorsum of the penis. It looked like a small carbuncle and was beginning to discharge at two points. The infected skin, which was situated over the dorsum of the glans, gave way rapidly and the glans was extruded through the opening thus formed. After a few days soaking in eusol, the same procedure was adopted as in the previous case, and with a like good result. A slight gleet was present in this case.

As to the pathology of this affection, in neither case was the trouble due to recent venereal affection; in neither case could the man be proved to have suffered from syphilis; no spirochætes were found in smears from the sores, but streptococci were present.

STRANGULATED INGUINAL HERNIA IN CHINESE INFANT.

W. CHALMERS DALE, M.B., B.Sc. (Lond.), Wukingfu, Tung.

The child is a healthy boy, born in December, 1916. I was called to see him only a day or so after birth as he had a rupture and was continually screaming. There was phimosis, and also a complete scrotal hernia on the right side. It was advised that circumcision should be done very soon, and that meanwhile the hernia should be treated with a wool truss. Neither of these measures was adopted.
The child continued in good health all through the spring and summer till the 29th of September, when the parents had a good deal of trouble in reducing the hernia at night. This happened again on the following day, and the child seemed to be in some pain. On the night of October 1, 1917, just before midnight, they called me to go and see the child as they had been unable to reduce the hernia, and the child had been screaming all the evening. They had tried hot and cold applications with no success. The bowels had been opened that morning but not since. Urine had been passed naturally all the day, and some flatus. Vomiting of milk after feeding had occurred in the evening, but nothing of the nature of faecal vomiting. The child's pulse was good and not over 100. His general condition was excellent.

I tried to reduce the hernia by taxis, but with no success. A catheter drew off a small quantity of normal urine. An anaesthetic was given and taxis again tried, but again with no result. The bulk of the swelling in the scrotum was noticeably larger than before.

I explained to the father that immediate operation was the only hope of saving the child's life, and he at once gave his consent. Fortunately, the hospital was almost next door, so no time was lost. The operation was not at all difficult. The strangulation was found to be due to constriction at the external ring. On opening the sac small intestine was found inside, considerably swollen and with the vessels a good deal engorged, but the vitality was evidently not lost. After freely dividing the constriction the contents of the sac were pushed back into the abdominal cavity and the proximal part of the sac ligatured and removed. The internal ring was obliterated with sutures in the usual way and the whole incision closed.

The child stood the operation very well. The following day the lower bowel was emptied by enema, as was done on the two days succeeding, after which castor oil was given by the mouth. There was some pain on micturition for a few days, and superficial suppuration in the wound, which was due, I think, to soiling by urine. The child now seems perfectly recovered.

The article on "Strangulated Hernia in Infants", in Keen's Surgery, Vol. 4, page 49, states that 225 cases of strangulated hernia in infants under two years of age have been collected. The condition is a relatively rare one. Estor, after a search of the records of the children's hospitals connected with nine of the largest clinics in Europe, found not a single operation for strangulated hernia. He estimates the relative frequency of strangulation in children and adults
Micro-organisms Found in Sprue.

as 1 to 62. Of his collected cases, one-half occurred within the first six months of life.

This is the first case of strangulated hernia I have yet seen in this country, and the first time I have ever seen the condition in so young a child, but my experience is as yet so small that I shall be glad to know how frequently strangulated hernia has been found in Chinese infants by other surgeons with larger experience.

FURTHER NOTE ON THE MICRO-ORGANISMS FOUND IN SPRUE IN CHINA.

Hermann Dold, M.D., Shanghai.

In previous papers* I have reported that in the numerous specimens of sprue stools examined by me in China during the last 3½ years, either blastomycetes or oidia, or both, were regularly found in greatly increased numbers as compared with the findings in normal faces or diarrhoeal stools of other origin. By blastomycetes (otherwise called yeasts or saccharomycetes) I mean cellular micro-organisms which multiply chiefly by budding and which form on the surface of ordinary media, such as agar, glucose agar, potato, etc., a moist, thick, creamy layer of growth. By oidia, on the other hand, I mean micro-organisms which multiply chiefly by producing mycelia or hyphae, from which spores are developed. These micro-organisms are often also spoken of as monilia. Contrary to the type of growth of the blastomycetes, the oidia form on the surface of ordinary media a rather dry, waxy, or parchment-like layer, which has the tendency to grow into the depth of the medium. Consequently the culture adheres more or less firmly to the medium. Older cultures may be covered with a chalk-like powder; sometimes a very delicate velvet-like air mycelium is formed.

In further studying the morphological and biological characters of these blastomycetes and oidia, isolated from cases of sprue in China, I made certain observations which, in my opinion, deserve some interest. As space does not allow me to give a detailed account, I venture to summarise here the principal facts:

1. In sub-culturing the blastomycetes for a longer period of time on acid glucose agar or acid potato media, it was observed that the original moist, thick, cream-like growth suddenly or gradually changed into a dry, waxy, membranous growth with a tendency to

infiltrate the cultural stratum. The microscopical examination showed that this changed aspect of the culture was due to a corresponding change of the micro-organisms from the blastomycete type to the oïdium type. Among the oval or round budding yeast cells, typical of the blastomycetes, there appeared long mycelial cells, which soon outnumbered the former, so that finally the whole culture consisted chiefly, or entirely, of the filamentous formations typical of the oïdium type. In other words, the blastomycetes had changed into oïdia. It must be emphasised that there was no outward reason, such as unfavourable cultural conditions, for this change to occur.

2. Reversely, in sub-culturing the oïdia for a longer period of time on acid glucose agar or acid potato media it was observed that the original parchment-like, dry and tough culture changed into a moist, soft, cream-like growth, the microscopical examination showing a corresponding transition of the mycelial filaments into the yeast type of cell. In this case also no outward agency (unfavourable cultural conditions, etc.), could be made responsible for the change.

3. From these observations it appears to follow that what appeared as blastomycetes and oïdia respectively, are in fact only fluctuation forms (variations) of micro-organisms belonging botanically to the same family, genus, and possibly species.

4. Furthermore, in sub-culturing both blastomycetes and oïdia a decrease in size is very often to be observed, and to such an extent that it is at first sight difficult, even impossible, to differentiate these cells from ordinary cocci, coco-bacilli, and bacilli. This most remarkable change of the morphological character of the cells finds also its expression in the appearance of the cultures, which lose the characteristic aspect above described and resemble bacterial cultures more and more.

5. Another change to be observed in sub-cultures of both blastomycetes and oïdia is what may be termed a slimy transformation of the culture. The cells generally become reduced in size, and the chromatophil substance shrinks to a small coccus- or coccobacillus-like mass which is surrounded by a comparatively larger area of mucus. Later on, out of the uniform slimy layer whitish nodules sometimes arise which, in contrast to the equally distributed and uniformly shaped cells of the greater part, consist of heaps of a denser growth of unequally sized cells, varying between torula forms and minute cocci-like bodies.

6. In the first cultures of blastomycetes or oïdia obtained from sprue stools, one finds almost invariably in stained preparations the...
Micro-organisms Found in Sprue.

yeast or mycelial cells lined with cocci- and bacilli-like bodies, so that one feels at first inclined to think that the cultures are either not yet pure, although the macroscopical appearance is that of a pure culture, or that we have to deal with symbiosis. This strange appearance may continue to exist in successive sub-cultures for quite a time, and then the cocci- and bacilli-like bodies gradually or suddenly disappear. However, in further sub-cultures they suddenly reappear showing their favourite grouping.

From what I have seen I conclude that these cocci- and bacilli-like elements are neither impurities nor symbiotic bacteria, but forms of development of the sprue organisms.

7. As to the chemical activity, both the blastomycete type and the oïdium types exhibit a great variability. It was observed, however, that the appearance of the above mentioned smaller (younger?) development-forms coincided with a sudden increase of the chemical activity.

From all these observations it will be seen that the micro-organisms found in sprue in China, are subject to a number of great morphological and biological variations. As our knowledge of the pathogenic blastomycetes and hyphomycetes, on the whole, is yet so incomplete that it is at present impossible to establish within these two groups a distinct and reliable classification, it appears to me premature and unwise to give at present a definite denomination to the micro-organisms in question. I hope, however, that the present communication will serve to harmonise some of the controversial statements regarding microbic findings in sprue.


A married woman, 30 years old, had a severe attack of sprue. A milk diet failed to ameliorate the condition. A fat-free diet was then tried with the same result. Oxygen introduced in this case per rectum was next given, the quantity being a litre. The first application caused a painful burning sensation in the abdomen, accompanied by thin motions and vomiting. A considerable all-round improvement, however, had taken place by the next day, which continued for many days. The injections were then repeated at first weekly and later fortnightly, with the result that the patient made complete recovery.
For the fourth time in succession a new year opens with 1917. the greater part of the world in a state of war. The United States, China, and several smaller nations have now been drawn into the strife, and what the end will be no one can foretell precisely. But surely some great good must come out of it all for mankind; it cannot be that "the struggle naught availeth, the labor and the wounds are vain." Perhaps in the near future a great spiritual movement will take place which will usher in a brighter period than the world has yet seen. The weakness of a civilization not permeated by the spirit of Christianity has been clearly revealed. Many things in which men trusted have been shaken so that what cannot be shaken may remain. The war has evoked the worst passions of men but it has also revealed to a wonderful extent their good qualities. In defense of honor and freedom there have been found even

"in rudest men,
Self-sacrifice the finest; the generous love
And continence of mind, and sense of right,
Uppermost in the midst of fiercest strife."

There is a better understanding, certainly among the nations opposed to Germany and her allies, of what the brotherhood of man really means and higher national ideals have been formulated. For universal suffering is teaching us with terrible severity that for weal or woe all the nations, East and West, are bound together. The progress of one promotes the welfare of all, and the backwardness or degradation of one inflicts injury upon all. As the
aim of Christian missions is to form men of every race into a 
spiritual brotherhood, the various branches of mission work should 
not be allowed, now or hereafter, to suffer because of the war, but 
should receive support to a far wider and more generous extent 
than has been given in the past.

Passing to the affairs of the C. M. M. A.,
The C. M. M. A. our forces in the field have been weakened by 
more of our members volunteering for military 
service. Whether the reinforcement to the number of about thirty 
new arrivals is sufficient to fill the vacancies it is hard to say, 
but certainly no medical work can well be started in new districts.

In the field of medical education there are gains and losses. 
The work of the Medical School of Nanking University and of the 
Hankow Medical School has been discontinued and some of the 
professors and students have migrated to the Tsinanfu Medical 
School. The Hangchow Medical School has graduated its class of 
over fifty medical students, but the times are not propitious for 
immediately receiving another class. There is so much political 
disturbance in Szechwan that it is not surprising to hear that the 
staff of the Chengtu Medical School is carrying on the work under 
great difficulties. The magnificent buildings of the Medical School 
and Hospital of the Rockefeller Foundation in Peking, which it is 
said will cost G. $2,000,000, are now in course of erection.

Early next year our Biennial Conference will be held in Peking, 
and members should now begin to consider the ways and means in 
which they can contribute to its success. Judging by past experi­
ence, business and certain other matters should be referred to 
special committees to discuss them thoroughly and then make final 
reports to the Conference as a whole. This will leave more time 
for the reading and discussion of scientific papers of interest. It 
may also be hinted to those in charge of the general arrangements 
that social functions should be a relaxation not a strain.

China has declared war against Germany 
Chinese Red Cross 
Societies. but it is fortunate for her that she has not 
to fight such a powerful foe on her own soil. 
Without any great number of officers and 
soldiers trained to scientific warfare, ill equipped with the munitions
of war, and with a very inadequate army medical service what could she do? In Hunan it is credibly reported that the doctors attached to regiments of soldiers on active service are without drugs and instruments. There is not even a properly organized Red Cross Society able and prompt to meet the emergencies of the inter-provincial conflicts which are now so common. Local Red Cross Societies are formed haphazard in every disturbed district. In Chenchow, where fighting has recently occurred, such societies have been formed to which the entrance fee is fifteen cents and upward, and this includes insurance of life and goods. What is urgently needed is a thoroughly representative Red Cross Society which will command the respect and confidence of both foreigners and Chinese. This central organization should have a responsible branch in every province. As the brunt of whatever Red Cross work actually done falls upon our missionary hospitals and doctors, this is a matter which should receive the earnest attention of the C.M.M.A. It might well be discussed at our next Conference and practical steps taken to place our relations with the Red Cross Society in China and with the head organization in Switzerland on a satisfactory basis. The mere passing of resolutions will have little effect.

Another very important matter to which Government Sanitary Service attention is once again directed is the necessity of some improvement being made in the Public Health Service. It is feared that next spring, owing to the unsanitary conditions in the refugee camps opened for the relief of the poor and destitute in the flooded districts of the north of China, there will be very serious outbreaks of epidemic diseases. The special correspondent of the North China Daily News gives the following account of the government sanitary operations near Tientsin:

The refugees have not long been housed, but they have already contrived to accumulate an amazing amount of filth to which the Chinese health officers seem characteristically blind. It is said that $100,000 has been set aside for a public health department by the Government, and the rulers of the city are consequently bound to make a showing, so two departments, one for preventive work and the other for inspection and medical work, have been organized, and may be seen assiduously exerting themselves at almost any time of the day.
The preventive group travels as a procession. First comes a cart of lime, then a few workers, then a spraying device moved by coolies, and then several men who operate the nozzles of the spray. They come to a hut or house which looks suspicious. The major features of the parade pass, but one bold individual with a nozzle is left behind. He opens a door a crack, pokes the nozzle in, gives the word, and the house is shot full of disinfectant calculated to keep the inmates busy until the procession has made its escape around the next corner.

These are only labourers, of course, and all dignity centres in the medical branch of the service. The wise ones go in pairs, a practitioner of foreign medicine and a master of the mysteries of Chinese medicine constituting a team. They seem to have invested a good deal of the $100,000 in flags and when they go out, wearing their swords and uniforms, the services of several coolies are required to carry flags. Wherever they go, like pioneers in a new archipelago, there they plant a flag, as a guarantee that all is well with that spot, or as a warning to trespassing germs that the wardens of the public health are making their rounds. This is the sum total of their duties. . . .

An effort is being made to persuade the Chinese authorities to put the whole work under one competent head, but the two branches of the service, with the $100,000 at their disposal, resent interference with their prerogatives and the authority that alters present conditions will have to be either very high or very diplomatic.

Admitting the truth of this description, it would be very interesting to know particulars of the training which these "practitioners of foreign medicine" have received. Any Chinese in these days who has acquired a little knowledge of Western medicine and surgery can pass among his countrymen as a doctor of the new style. He does not offend against the law, for in China there are no laws regulating the practice of medicine. It is one of the difficulties in our medical school work that a student who fails in his examinations and therefore receives no diploma, can yet hold himself forth as a foreign-trained, fully qualified medical practitioner.

Below will be found the petition for the establishment of a Central Medical Council forwarded by the National Medical Association of China to the Minister of Education. Membership in this Association is confined to properly qualified Chinese doctors and they are trying hard to establish the practice of medicine in China on a sound, scientific, and honorable basis. They deserve
sympathy and support, and the China Medical Missionary Association has already endorsed this petition. In the present disturbed state of the country perhaps nothing can be done immediately, but we may all hope that the Chinese nation will soon have a Government which will introduce this and other much needed reforms.

PETITION FOR THE ESTABLISHMENT OF A CENTRAL MEDICAL COUNCIL FROM THE NATIONAL MEDICAL ASSOCIATION TO THE MINISTER OF EDUCATION AND MINISTER OF INTERIOR.

Sir,

We, the undersigned, representing various medical colleges and hospitals, both government and private, beg to draw your attention to the urgent need of a Central Medical Council in the capital city of China, by which the medical profession and ever-increasing medical activities of this country may be placed upon a proper basis and wherever possible improved upon.

It is generally acknowledged that medical science in China has not made the progress that was expected; this has resulted in unnecessary suffering and an unusually high mortality among all classes of the community.

In nearly every other country, there exists an organization known as the Central Medical Council which is recognized and assisted by the Central Government and to which are delegated certain powers and facilities for the control and improvement of the medical profession.

Dr. Wu Lien Teh, President of the National Medical Association, in an address delivered last February before the Joint Conference of the Medical Missionary Association and National Medical Association in Canton, drew attention to the urgent need of a similar Council in China. A Resolution was unanimously passed by the two Associations requesting the Committee of the National Medical Association to approach the Central Government with a view to the establishment of a Central Medical Council in Peking, which should include among its duties the following:

1. The decision of the language or languages to be recognized in the teaching of medical students throughout China.
2. The fixing of a minimum standard of general education required of students before entering upon medical studies.
3. The fixing of a minimum medical curriculum.
4. The supervision of examinations.
5. The registration of medical students.
6. The registration of medical practitioners.
7. The recognition of medical colleges other than those already recognized by the Ministry of Education.
8. The recognition of hospitals where medical students may obtain their clinical teaching.
9. The drawing up of laws and regulations affecting the medical profession in China and their enforcement.
10. The adoption of a general medical nomenclature in Chinese.

Finally, we beg that you will be good enough to delegate some official of the Ministry to meet and discuss with our representatives the best means of instituting such a Medical Council in order that medical education and medical work in this country may make rapid progress for the benefit of the nation.

Signed respectfully:

T‘ang Erh Ho, graduate of Japan, Director of the Board of Education, Medical College, Peking.
C. Voonping Yui, graduate of America, Vice-President of National Medical Association.
Tyau Hsin Te, graduate of America, Professor of St. John’s University.
Hou Hsin Min, graduate of Japan, Physician to Peking Hospital.
C. H. King, graduate of Peiyang Medical College, Director of Naval Medical College, Tientsin.
Fang Chin, graduate of Japan, Chief of the Medical Department, Board of War.
Chuan Shao Ching, graduate of America, Director of Army Medical College.
Yen Chi Chung, graduate of Japan, Director of Government Infectious Diseases Hospital, Peking.
Kiang Feng Chih, graduate of Germany, Private practice.
Ch‘u Jung Ch‘iu, graduate of Peiyang Medical College, Physician to Presidency.
Wu Lien Teh, graduate of England, President of the National Medical Association.
GOVERNMENT REGISTRATION OF MEDICAL TERMINOLOGY ASSOCIATION.

Rescript No. 798 of the Ministry of Education.

Petitioner, the Medical Terminology Association, which submits a copy of its Constitution and petitions for official registration.

Your petition and copy of your constitution have received our attention. The standardization of scientific terms is a matter of great urgency and importance. Because of this, your Association has united different educational and scientific societies to make careful studies of medical and chemical terms. We are very pleased with your work of the past year, and are therefore glad to comply with your request for official registration, which is granted herewith.

August 27th, of the 6th year of the Republic of China.

(Signed) Fan Yuan-lien,
Minister of Education.

AMERICAN MISSIONARY PHYSICIANS AND U.S. LAW REGULATING PRACTICE OF PHARMACY.

November 20th, 1917.

Hon. Paul S. Reinsch,
United States Minister, Peking.

My dear Mr. Reinsch:—

Will you kindly inform me, for the benefit of American medical missionaries practising in China, if the Act of Congress of March 3rd, 1915, to regulate the practice of pharmacy and the sale of poison in the consular districts of the United States in China, requires that medical missionaries prescribing for their patients in their dispensaries and hospitals must be licensed as pharmacists. I have before me a quotation from a communication from the Department of State sent to me by a medical missionary which states:—

"It is not believed that the Act of March 3rd, 1915, will admit of the construction that physicians are allowed by law to act as pharmacists and do not require licenses. It would seem, on the contrary, that the privileges of practitioners of medicine, who are not licensed as pharmacists, are restricted by the law defining their privileges in this respect to the compounding of their own prescriptions and to the supplying of medicines to their own patients, and that physicians desiring to engage in the general practice of pharmacy should apply for licenses and should qualify under Section 2 of the Act of March 3, 1915."

It occurs to me that this ruling of the Department of State should apply only to "physicians desiring to engage in the general practice of pharmacy." This is not the case with medical missionaries; they
Missionary Physicians and Pharmacy Laws.

prescribe for their own patients, the medicine is supplied from their
own drug room in the dispensary or hospital under the direction of the
physician employing Chinese helpers, and it is done frequently without
charge, and when a charge is made it is only a nominal one. It
seems to me that dispensing medicines in this manner is permitted
by the proviso which defines "their privileges in this respect to the
compounding of their own prescriptions and to the supplying of
medicines to their own patients."

If this is not a correct understanding of the law, and if it is
necessary for American medical missionaries to qualify and register for
licenses as pharmacists in order to conduct mission hospitals and
dispensaries in the interior, will you kindly let me know, as it will
present a very serious problem in medical mission work in China.

Very sincerely yours,

ROBERT C. BEEBE,
Executive Secretary, China Medical Missionary Association.

ROBERT C. BEEBE, Esquire,
The China Medical Missionary Association,

Sir:

I beg to acknowledge the receipt of your letter of the 20th ultimo,
inquiring whether the Act of Congress of March 3, 1915, regulating
the practice of pharmacy and the sale of poison in the consular districts
of the United States in China applies to medical missionaries who
prescribe for their own patients, the medicine being supplied from their
own drug room in the dispensary or hospital under the direction of the
physician, employing Chinese helpers.

In reply I beg to inform you that the Department of State, on
December 27, 1915, stated it to be its opinion that "the Act above
mentioned is applicable to the case of dispensaries conducted by
missionary hospitals." On December 7, 1916, the Department stated:

"It would seem that whatever rights physicians enjoy to exemptions from
the inhibitions of the act would be derived from the proviso in Section 1 thereof
that nothing in this section shall be construed to interfere with any recognized
and reputable practitioner of medicine, dentistry, or veterinary surgery in the
compounding of his own prescriptions, or to prevent him from supplying to his
patients such medicines as he may deem proper."

"It is clear from this proviso that the act does not prohibit physicians from
compounding their own prescriptions or from furnishing medicines to patients,
but it seems no less obvious that the law exempts physicians from its prohibitions
only in so far as is necessary to enable them to compound their own prescriptions
and to furnish medicines to their own patients and does not permit them to
compound the prescriptions of others or to furnish medicines to persons not
their patients which licensed pharmacists would be authorized to do."

I am, Sir,

Your obedient servant,

(Signed) PAUL S. REINSCH.
REX vs. CHOU PEN-SHOU et al., TRIAL FOR MANSLAUGHTER—CASE OF RUPTURE OF SPLEEN AND ARSENICAL POISONING.

At Weihaiwei, on December 12, 1917, before P Grant Jones, Esq., Acting Judge, sitting with Assessors, the defendant Chou Pen-shou with his three sons was charged with manslaughter, the deceased being his daughter-in-law.

From the evidence it appears that on September 2, 1917, there had been a family quarrel and the father-in-law directed one of his sons to beat the deceased woman, which he did with a small poker. On the night of September 15, the woman swallowed arsenic and other poisons with suicidal intent and on the 18th she died. On September 22, 1917, a post-mortem examination was held and rupture of the spleen was found. A chemical analysis of the contents of the stomach and intestines showed the presence of \( \frac{1}{2} \) grain of arsenic. For the prosecution it was alleged that the woman died from the rupture of the spleen. For the defense it was contended that she had committed suicide by taking arsenic.

After the trial had been opened by Mr. Mossop, Crown Advocate, the following witnesses were called:—

Chang I-ting stated that he was native medical assistant to the Weihaiwei Government in the Wen Chuan Tang Hospital. On September 16, two men from Pei Hu Kou brought a letter stating that a woman had swallowed lead powder, arsenic, green dye, and matches. He gave the usual emetic for such cases and told the men to return next day to report. On the following day one of the men returned and stated that the woman had vomited a great deal. Witness handed the man some mixture in a bottle. On September 18, a man came and reported that the sick woman complained of inflammation in the stomach and he gave the man a packet of powder. This was about 4 p.m. Shortly afterwards another man arrived and said that the woman was dead. Witness then made out a suicide report and told the man to take it to Port Edward.

Ku Chun-ha, constable in the Weihaiwei police, said that it was the custom when a wife committed suicide for her family to report the matter in conjunction with the husband's family. In the present case the deceased's family had refused to follow that practice as they were not satisfied. The Coroner had instructed witness to view the body with the relatives of the deceased. On the right hip there was an open sore, and on the left side five skin wounds. There were bloodstains on a jacket and mattress.

Hugh Windsor Bell, M.D. (Edin.), Medical Officer to the Government of Weihaiwei, stated that he performed a post-mortem examination on the body of a woman on September 22. Amongst others there were five small wounds on the left side of the body just above the margin of the ribs. The intestines were quite healthy. On the spleen, which was large, there was a wound about two inches long, corresponding with the five small wounds on the left side. Heart and liver both showed fatty changes. The contents of the stomach were removed and forwarded to Shanghai for analysis. The walls of the stomach were healthy and showed no signs of inflammation. He was of opinion that the cause of death was injury to the spleen which could have been inflicted by a blow with a blunt instrument in the region of the five small wounds on the left side of the body.
Questioned by the Court witness said that suicide by arsenical poisoning was common in the territory, especially among women. Arsenic was extensively used by the peasants in their fields and could be easily obtained in the city and elsewhere. A person with a ruptured spleen might live for years afterwards; injury to the spleen did not necessarily cause death. It was possible that exhaustion due to vomiting after taking the poison had been the immediate cause of death in this case. It was very unusual for death to ensue from rupture of the spleen after so long a period as sixteen days; the record given in Taylor’s Medical Jurisprudence was seventeen days for the period of survival after injury in Indian cases.

Mr. E. A. Sly, Coroner and Registrar, proved the death of Chou Hsi, husband of the deceased woman, by suicide subsequent to the preliminary inquiry. The deposition of Chou Hsi taken at that inquiry was then read. It stated that he had been fetched home from Manchuria by his brother Chou Ching on September 12, on account of family troubles. His wife complained of having been beaten. She took poison on the night of September 15. She said she had taken green dye, lead powder, matches, and arsenic. Witness found a bowl in a corner of the k’ang [?] which had some dregs at the bottom. In his anger he had thrown it away in a ditch. His wife admitted unfaithfulness and he had attempted to hang himself but had been cut down by his mother and sister-in-law.

Liu Shao-shih said that deceased was her younger sister. Chou Hsi told her that her sister wanted to see her and so the witness went to her. Her sister said she was dying. She said there had been a quarrel about the child and some cloth, and she had been beaten by her brothers-in-law. Witness reported the matter to her uncles.

Shao Pei-ho and Shao Pei-hsiung, uncles of deceased, gave corroborative evidence. They denied that they had told deceased it would be better for her to die as then they could speak for her.

Accused, Chou Pen-shou, 66 years of age, admitted having ordered his son Chou Hsiung to beat deceased. On the morning in question there had been a quarrel and deceased had insulted him and torn his clothes. He then ordered Chou Hsiung to chastise her, which was done with a small k’ang poker.* Deceased had gone out every day after that, two or three times a day. On the night of September 15 she took poison. They obtained medicine for her from the hospital but she died on the 3rd of the 8th moon (September 18).

Chou Hsiung corroborated the testimony of his father, the previous witness. He admitted beating deceased with the small k’ang poker as she had insulted and assaulted his father. They had a lot of trouble with the woman. His two brothers had not beaten her; they had only tried to separate her from their father.

The other two accused, Chou Teng and Chou Ching, told a similar story.

The Judge, after consultation with the Assessors, discharged the defendants.

* In China, the wife belongs after marriage to the family of her husband, and the power of his father over them both is, or was, almost unlimited. “The father can do with them as he likes; he may not only chastise, but even sell, expose or kill them” (Möllendorff, Family Law of the Chinese). And according to the Sacred Edict, “Sons or grandsons who use abusive language to their parents, or wives or concubines who abuse the husband’s parents or grandparents, are alike strangled; those who strike them are beheaded; those who kill them are put to death by the lingering process.”
TO MEMBERS OF THE CHINA MEDICAL MISSIONARY ASSOCIATION.

One of the most successful organizations of the missionary body is the China Medical Missionary Association. It has had a continuous existence for over thirty years and has issued its Medical Journal during all that time. While the Journal has not yet reached the high standard it has set for itself as an organ of the medical profession in China, it has acquired a position unique in its way and one that makes it of great value to every physician in the East.

The work already accomplished by the Publication and Terminology Committee is a feature of our Association in which all may well take pride.

The Council on Public Health Education, which has been organized but a few years, is of distinct and growing value and well reveals the altruistic character of the work of the Association.

The Research Committee, while not remarkable for new discoveries as yet, is earnestly striving to collect data and has put forth most admirable efforts to solve some problems of the medical profession in China.

Our Council on Medical Education, through its survey and reports, has been of distinct advantage to the cause it represents.

Last, but not least, the biennial conferences of the Association have been a great inspiration and stimulus to better things, have enlarged our aims, strengthened our organization, and nurtured an esprit de corps that makes us stronger and better able to do most efficient work in one of the highest callings that man can choose.

Membership in our Association is an honor that all medical missionaries in the Far East should covet, and they should appreciate the privilege offered in supporting and furthering its truly missionary work. This should be kept in mind when paying membership dues. The Journal is sent free to regular members. If a member does not pay his dues within the prescribed time, he ceases to be a member of the Association, and the Journal is no longer forwarded to him unless he pays the regular charge. Do not allow membership to lapse. It is not simply a question of subscription to the Journal; what is earnestly desired is the active support of the one organization in which all missionary physicians in China and other places in the Far East should be vitally interested.

Yours sincerely,

ROBERT C. BEEBE,
Executive Secretary.
Japanese Medical Literature.

Review of Current Periodicals by the Staff of the Research Department, Severance Union Medical College, Seoul, Korea.

RALPH G. MILLS, M.D., Director.

Saikingaku Zasshi
(Journal of Bacteriology)


The human type was found to produce tubercles in the omentum and mesentery and remain localized in the abdomen, whereas the bovine type was more disseminated and involved the various organs in a miliary process.


The Island of Lasa is a small rocky portion of the Loochoo Islands which was uninhabited until a phosphate mining company imported about 1,500 laborers for the purpose of commercial exploitation. Living conditions were bad owing to poor water supply, and an ever increasing mortality from typhoid fever caused the authorities much concern. The author was called upon to immunize the entire population of the island in an attempt to stamp out the epidemic. One mil of a sensitized vaccine a month old prepared by the Kitasato Research Department was used for each patient. Altogether, 1,290 people were treated. Nine developed the disease within a few days of the injection, of whom one died, and 2 light cases occurred 2-3 months after immunization. The reactions noted were all mild in character, 484 patients reaching a temperature of only 38° C. and 25 having 39° C. In a few cases patients already sick with the fever were treated with two or three doses of the same vaccine with satisfactory results. The epidemic was stopped and no case of typhoid has occurred for more than 6 months.

(275) SCARLET FEVER IN KOREA. Pp. 25-37. C. Hara.

The history of this disease, so far as Korea is concerned, is quite short, being limited to 20-30 years. That it is of foreign introduction is at least suggested by the native name of the disease, "Yang Tawk" (洋毒), which means "foreign poison." In relation to disease, the word "yang" usually refers to either Japan or China. During the past few years the disease has been especially prevalent in the larger centers, particularly Seoul, and has affected the Japanese more than it has the Koreans. More male children and female adults have been infected than others and, as a rule, those of sedentary habits seem to be more liable to the disease than the laboring classes.


During routine examinations of rats for the presence of B. pestis, the author found an organism that had caused the death of a rat and which differed somewhat from any he had seen before. The size was slightly larger than that of B. pestis, blunt on the ends and generally single. It stains with the usual stains, has no spores or capsule, is Gram negative, non-motile, aerobic, and grows readily on artificial media. On agar the colonies are dew-drop like, turning to a whitish color,
and quite sticky and stringy in consistency. Colonies had a concentric appearance and did not spread very broadly over the media. No involution forms appeared on 3% salt agar. The colonies were small and flat on gelatin, and in stab cultures there were few lateral projections and no liquefaction. It grows readily on the various sugar media but does not ferment them. In broth there is a heavy sediment and the organism has a diphtheroid appearance. No indol is produced in peptone solution, and litmus is slightly reddened. Milk is coagulated in about three days.

The autopsy of the original rat was not very instructive as it had been dead for three days, but the spleen seemed to be enlarged and somewhat abnormal. The culture from which the organism was isolated was taken from fluid blood from the heart; when injected into a guinea-pig in maximal doses it caused very little pathological change but death followed. Mice and rats were much more susceptible and in them slight edema and injection surrounded the point of inoculation and minute hemorrhagic spots were scattered throughout the subcutaneous tissue. Applied to the skin of the shaven abdomen small pustules were produced, but not great enlargement of the subjacent glands. Larger doses injected into the abdominal cavity caused hyperaemia at the site of the puncture and death followed, but in case the dosage was smaller a chronic condition was often produced that occasionally was not fatal. The abdomen was distended with a dirty grey fluid, punctate hemorrhages were scattered through the organs and many foci of infection were seen in the viscera, especially the spleen, from which a bipolar staining organism could be uniformly isolated. In the animals killed during the chronic stage the mesenteric glands were greatly swollen, the cervical glands were dark red, large, full or tubercle-like foci, and strings of fibrin connected one organ with another. On section the kidneys were dull and swollen but not fatty, and the spleen was mushy, full of distended macrophages but without evidence of hemorrhagic gangrene. The wild rat was affected in the same manner as the domestic one. Ducks, chickens, and doves were not infected.

Serum reactions with the newly discovered bacillus and the plague organism proved the difference between the two conclusively. Immune serum could prevent death even from a dose of considerable size, whereas an antiplague serum was powerless when injected simultaneously.

A number of other septicaemia organisms from the rat have been reported in medical literature and are here mentioned in rather too general terms, but the listing of them will place them on record.

1. Shibayama's polymorphous septicemiac bacterium is similar in being non-motile but is non-infective for the rat. It is, however, very injurious to the guinea-pig.

2. Bacillus of rat hemorrhagic septicaemia, described by Amako. This is motile but differs in its power to infect certain animals.


4. Kato's bacilli, A and B, are different in their relation to animals.

5. Nishizawa's bacillus differs in animal susceptibility.

6. Hayashi's bacillus, points not stated.

7. Matsumoto's bacillus, points not stated.


The authors urge the importance of the large and small mononuclears in the phagocytosis of pathogenic organisms introduced into the abdominal cavity but assign considerable activity to the polymorphs. Sensitized bacteria undergo phagocytosis much more rapidly than those not so prepared and the bacteria soon assume a spherical form before disappearing altogether. The same phenomenon is noted in the case of animals injected with an organism to which they have been

\[ \text{The China Medical Journal.} \]
immunized as compared with the process of attack on those introduced for the first time.


Saikingaku Zasshi
(Journal of Bacteriology)
No. 257. February 10th, 1917.

The idea that plague is perpetuated by the eating of carcases of rats which died of the disease would presuppose a larger percentage of mesenteric gland infection in rats than has been found in the experience of the author. In Hyogo Province, Japan, the examinations have resulted as follows:

<table>
<thead>
<tr>
<th>Submaxillary</th>
<th>Axillary</th>
<th>Inguinal</th>
<th>Submaxillary</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Gland</td>
<td>Gland</td>
<td>Gland and Inguinal Glands</td>
<td>Septicaemia</td>
</tr>
<tr>
<td>1909-1910</td>
<td>15.4%</td>
<td>16.1%</td>
<td>28.6%</td>
<td>......</td>
</tr>
<tr>
<td>1913-1914</td>
<td>19.4%</td>
<td>12.3%</td>
<td>17.6%</td>
<td>17.3%</td>
</tr>
</tbody>
</table>

In view of this table the conclusion is reached that the infection must have reached the glands from the skin rather than from the intestines, thus strengthening the view that it was conveyed by fleas rather than by anything the rat had eaten.


This short summary is from a review of an article published last December in the Chuo Igakkai Zasshi (Journal of the Central Medical Society) and unfortunately is not illustrated. The author claims that the virus transmitted by the Trombidium is a Piroplasma. Material obtained from a patient was inoculated into monkeys, guinea-pigs, and calves, and the blood, lymph glands, and other organs were stained with Giemsa. Large giant-cell phagocytes were found, in which were seen three kinds of granules which seemed to be transitional from a rod-shaped mass to a globular form and this into an annular mass. These were all encountered in the various animals examined but in the guinea-pig the rod-shaped form was more common in the lymphoid tissue and the other two types in the remaining organs.

Saikingaku Zasshi
(Journal of Bacteriology)
No. 258. March 15th, 1917.

The author has treated 21 cases of dysentery in children in whom the causal organism has been isolated and found to be practically identical in each case. The bacilli could be plated out from the faeces as late as 13-16 days after the onset and were often as numerous on an Endo plate as the colon bacilli. The pathogenicity of the organism was assumed on the basis of the agglutination reactions and the pathogenicity for animals, wherein it closely resembled the dysentery bacillus. The reactions were:

r bacilli homologous serum (patient's serum), 7th-8th day, 1:80 or 1:100, in 2-3 weeks, 1:300 or 1:500, rarely 1:1000.
The China Medical Journal.

- bacilli + heterologous serum (another patient's serum), same.
- bacilli + dysentery serum (1-20, rarely 0).
- serum + dysentery bacilli (1-20, rarely 0).
- serum + B. coli, 1-10, 1-20, or 0.
- bacilli + typhoid serum, 0.
- bacilli + paratyphoid serum, 0.
- bacilli + normal serum, 0.

Unusual phenomenon. It was stated that the bacilli could restrain the agglutination of other forms in the lower dilutions of serum, but was unable to do so when more dilute.

Complement fixation. The antigen for this and other related organisms was prepared by suspending the bacteria in distilled water, heating to 60° C. for 15-20 hours, agitating for 48 hours, centrifuging and preserving the supernatant liquid. This was diluted to 5% for use. The complement was 2% guinea-pig blood and the serum was inactivated for 30 minutes at 58° C. Results: Both strains were found to bind complement interchangeably; no action was noted with the use of a dysentery antigen prepared with the different strains and none with these sera and x antigen.

Morphological characters. The size is slightly larger than that of the dysentery bacilli, the ends are rounded, and the organisms usually occur singly, rarely in strings. They are non-motile and stain readily with the ordinary aniline dyes and Giemsa, often showing a decided bipolar tendency.

Culturally, the growth on potato is denser than that produced by the Shiga bacillus and less than that formed by B. coli. The form of the colonies on the agar plate is thought to be characteristic in its pleomorphism. The usual form is circular or semicircular, but a certain proportion of the colonies are U shaped. This unusual shape is more noticeable in those which have been subcultured several times than it is in those on the first platting from the faeces. The organism grows readily at room or incubator temperature in weak alkaline solutions. In gelatin and 5% dextrose agar stabs, the growth is good but without the formation of gas. In peptone solution there is medium cloudiness and no pellicle. Indol is produced in 5 days in a 1% solution. Milk is coagulated after 1-2 weeks, the process beginning at the bottom of the tube and extending gradually upward. In litmus media there is an initial redness the first day which turns to blue for 2-3 days and then back to red again. Acid, but no gas, is produced from nutrose, dextrose, maltose, saccharose, lactose, and dextrin.

Animal inoculation. Living cultures as well as dead cultures of this new organism are quite toxic to rabbits and guinea-pigs, especially young ones. Successful passage, however, increases the toxicity somewhat, the organisms reaching the intestine after a subcutaneous injection and the bacteria being recoverable from any of the internal organs after death. Clinically the cases were indistinguishable from the ordinary form of dysentery. Autopsy on 5 of the 21 cases that died showed noticeable changes in the intestines, follicular swelling with superficial erosion, great oedema and hyperaemia of the entire colon. In a few places there was a tendency to pseudo-membrane formation. The faeces were full of purulent bloody mucus. Three photographs of colonies and agar plates illustrate the shape of the growth, a drawing of a cross section of the intestine shows the formation of the pseudo-membrane and a fifth plate delineates the arrangement of the fibrin threads in the exudate in the colon.


This plant, whose specific determination is not given, is claimed to have a certain amount of intestinal antiseptic action as determined by the author upon himself, using the simple platting of the faeces before and after taking it as the criterion.
LONGITUDINAL DIVISION OF SPIROCHAETE OF RELAPSING FEVER.
**Japanese Medical Literature.**


The author recommends the immune serum treatment as much superior to that with salvarsan or neo-salvarsan and condemns vaccines as useless.


The average percentage of injection of wild rats in Chiba was 48%. Three cases of the disease were found in the same area. 37% of the rats examined had evidences of pulmonary haemorrhage and the inference is that a connection exists between the bleeding and the attack of the spirochetes. The distribution of the organisms in the wild rats was found to be the same as in those artificially infected in captivity.


The viable encysted larval form was able to develop when introduced into cats or dogs by mouth or directly into the abdominal cavity. The upper and middle portions of the ileum were the seat of hyperaemia and occasionally of haemorrhage. In cats the larvae were found in the abdominal cavity 6 hours after ingestion, in the thoracic cavity in 96 hours, and evidence of pulmonary bleeding appeared in 8 days. The process was slower in dogs, the larvae taking 23 days to reach the lungs, and the eggs appearing in matter coughed from the uings and in the stools in about 3 months.


This author claims to have taken the livers of the river snails, *Melania lirae*, containing the cercarial form of this fluke, fed them to gold-fish and carp, and having given these fish to cats to have recovered the eggs from the stools 12-13 days later.

Saikingaku Zasshi

*(Journal of Bacteriology)*

No. 259. *April 20, 1917.*


For the determination of the method of fission a slide of the organisms from the blood of a rat was made using osmic acid as the fixing solution, thus producing a stouter and more deeply stained body than is possible with alcohol. Fig. 1 shows the longitudinal division in the usual manner, whereas Fig. 2 shows a division in the central portion, while still attached at both ends. One of these has separated in Fig. 3 and in the next picture it has not yet begun. Apparently the process begins in the central portion. In some cases a second segmentation began before the first was finished, as in Figs. 5 and 6. In Fig. 7 the act is practically complete. Preparations were made from cultures in the same manner by mixing equal parts of culture material with osmic acid solution, drying, and then staining with Giemsa. The form of the organism was the same but the size was slightly smaller. The incomplete segmentation as mentioned above was not seen. No evidence of transverse fission was seen.

The animal inoculations of strains Wang and Tam were continued through more than 30 passages and the characteristics were unchanged.

During the autumn of 1916 serum was obtained from 8 patients who had recovered from the infection and their agglutinative power tried on the strains Wang and Tam. Only 2 of the 8 affected the Wang strain, and none influenced the latter. In all, 9 cases were treated in 5 different mines of the Fushun Coal Company; 3 were of the Wang strain, 2 were related to the Tam, and 4 were entirely...
different. One mine had 3 cases, 2 of which were Wang and the other different. Therefore it is evident there was no special strain affecting any particular laborers' camp which was being conveyed from one camp to another carrying its own characteristics.


Adami Machi is a pretty little city on the Inland Sea, noted as a resort for the climatic cure of tuberculosis and as such has a rather large transient population. The streets are frequently badly contaminated with the expectation of invalids and thereby become a source of danger to the natives of the place. The authors made three series of investigations of the amount and infectivity of the sputum as deposited upon the streets with the following results. Time of examination, 7-8 a.m.

March 19-21, 1916; On the large streets, 6-8 sputum deposits per cho (1 cho is about 1/12 mile); On the smaller streets, 4-6 per cho, on an average.

June 15-19, 1916; Larger streets, 4-5; Smaller streets, 2-3.

Jan. 6-9, 1917: Larger streets, 6-8 per cho; Smaller streets, 5-7 per cho.

Stained preparations of 100 of each of these samples gave respectively 1%, 0, and 2% positive for T.B.

290 examinations of spittoons from hotels, barber shops, tea houses, and bath houses were made and 25 positive results were recorded.

The dust from 5 of these public houses was collected and in quantities of 05. gm. was suspended in sterile water and heated at 60°C. for 10 minutes. Injections were then made into guinea-pigs and every animal died within 18 to 52 days with more or less evidence of internal disorders but without the characteristic lesions of T.B.

The death rate among the male inhabitants of the town is 19.49, and 10.41 per 10,000 which is not above the rate for the whole of Japan. The mortality rate from tuberculosis for the same place was 9 each for men and women which compares favorably with other cities in the country.


All the strains tested under these conditions gradually lost their staining qualities except the El Tor.


In October, 1916, in Yokaichi, where plague was quite prevalent in rodents, a cat was found dead and was examined bacteriologically. The observations made on the bacillus found were that it was a medium-sized organism, blunt on the ends, staining with aniline dyes, Gram negative and non-motile. Dew-drop like colonies formed on agar which changed gradually to a whitish color. Involution forms developed readily on 3% salt agar. A haemorrhagic œdema developed at the injection site in guinea-pigs. Agglutination was positive to dilution of 1-320.


Egg-yolk mixed with melted agar that has been cooled to a low temperature, and distributed into slants in such a way as to avoid contamination and the necessity of subsequent sterilization, was found to be of great value in cultivating this organism. The sediment obtained from the different concentration methods was applied directly to the surface of the slant.


The authors find different forms of spirochetes in the intestinal canal of these two animals but with no form characteristic of any one portion. They hint at the possibility of these organisms having some share in the function of digestion.
Saikingaku Zasshi

(Journal of Bacteriology)


(293) T.B. VACCINE SENSITIZED, ACTION AND CLINICAL USE OF. Pp. 351-78. K. Shiga.

This sensitized vaccine is made from a culture of the human type cultivated in broth to which has been added Tripoflavin in order to decrease the virulence and increase the resistance. It is miscible with the ordinary vehicles, can be crushed and used as an emulsion, or be suspended in broth with the addition of erythrodin.

In use it has an antipyretic action, increases the nourishment of the body, stimulates phagocytosis and the development of connective tissue. The opsonins are definitely increased and any patient in whom this action is not obtained is considered unfit for this type of treatment. The dosage is so regulated as to come just short of producing a reaction and the interval is determined in much the same way. Improvement is noted, especially in the primary stage.

(294) TYPHOID BACILLI, ENRICHMENT METHOD FOR DEMONSTRATING THEIR PRESENCE IN CONTAMINATED WATER. Pp. 391-402. S. Toyoda.

Bile powder is made of fresh bile from cattle, sterilized in a boiler, filtered and dried first by heat and then over sulphuric acid. This powder is readily soluble in water.

A solution is made of 1.0 gm. peptone, 2.5 gm. sodium sulphate, 0.5 gm. salt and 7-8 mls of water. Boil and keep on hand.

For the test, 100 mls of the suspected water is mixed with the solution above mentioned and incubated for 8 hours. Then there is added to it a solution composed of 3 gm. of the bile powder in 7-8 mls of distilled water sterilized with steam and mixed with 1 mls of 1-1000 crystal violet. After a thorough shaking this is incubated until the next day and it is then plated out on Endo media.


A medium was prepared with Terauchi peptone, 40. gms.; pure sodium carbonate 10%, 80 mls; salt, 5.0 gm.; gentian violet solution, 10 mls (1-200 dilution of a 1% alc. sol.) and made up to 1 litre with distilled water. This was distributed into tubes of about 10 mls each and for use was inoculated with 2 loops of the suspected feces. This was incubated for 6 hours and subcultures made from the cloudiness that formed about the walls of the tube at the top. These were implanted on a slant of special agar media and after a growth of 12-16 hours tests were made with Pfeiffer's phenomenon, etc. The agar was composed of the above constituents plus 20 gms. of powdered agar per litre. In 39 cases out of 50 the only organism carried over in this technic was the true cholera vibrio. In a series of tests on other members of the families for the presence of active carriers there were occasionally some Gram negative cocci able to withstand the selective action. A test of the efficiency of the method was made by mixing a sample of feces with a loop of culture in a dilution of 1:20,000 and the organism was isolated in every instance.

(296) CAT-BITE DISEASE, CLINICAL EXPERIENCE WITH. Pp. 422-3. J. Kitagawa.

The author had two cases of this malady and considers it a spirochaete infection like the rat-bite disease. Spirochaetes were found in the blood of these two cases, in the lymphatic glands, and in the bodies of guinea-pigs injected from the patients. A guinea-pig bitten by the cat that had caused the original infection also developed the spirochaetes in the blood.
Saikingaku Zasshi
(Journal of Bacteriology)


The large pavement epithelial cells are always from a level above the larynx. The smaller "alveolar epithelium" occurs in catarrh of the bronchi, especially when the pneumococci attack the mucosa, and are often full of dust particles. They rarely occur in tuberculosis and not in cavity formation. In cavity formation following the secondary infection of a T.B. focus, the remains of giant cells are often seen in the sputum, often containing T.B. and some brownish granules. The mucus from bronchial catarrh is usually stringy, fibrinous and with numerous epithelial cells entangled in it, while that from cavities is more net-like.


This was found to be a little weaker than the corresponding action against the typhoid organism. It is stronger against A than B.


A guinea-pig whose heels had been cut in several places was placed in water heavily infected with these spirochaetes. This animal was in 48 hours afflicted with the disease whereas a control animal, not cut in this manner, remained free from the disease.

Nippon Gankwagakkai Zasshi
(Journal of the Japan Ophthalmological Society)


The author noticed that some families had a great number of their members suffering from this disease and that in others there were few or none at all who were afflicted. Some seemed very susceptible and others were apparently quite resistant. This tendency to, or freedom from, the disease was apparently hereditary, being transmitted from parent to offspring, and in case of intermarriage the mother's influence predominated in 80%. It was noted that most of the mothers who brought a tendency to the disease with them into a family otherwise resistant were those who had come from a distance and had not been raised in that community. It seems to be a custom, where practicable, for marriage to take place between parties living in the same vicinity, and this has made it quite easy to trace the relationship for 3 or 4 generations back. For convenience, those are called "trachoma families" which have a decided weakness toward the disease and those are "non-trachoma families" which are resistant to it. In all, 94 families (61 main families and 33 branch families) were traced and of these 53 were found to have been allied by intermarriage during the last 4 generations. 21 were definitely trachoma families and 32 were not, leaving 41 uncertain or mixed. Of the 32 originally non-trachoma families, 8 had never had a trachoma patient, whereas the remainder were gradually tending to become more susceptible through inter-marriage. The prevalence of the disease can be deduced from the fact that in 11 families comprising 63 persons, there were 44 affected with the disease. In another series of 42 persons every one was affected. Women are more commonly affected than men but the infection is less severe in them. In the male line of descent the...
Plate 1. *Leptus akamushi* Brumpt.

Fig 1. Dentorum: development of larval body in vitelline membrane. Fig 2. Newly hatched larva, $X_{230}$. Fig 3. Detached larva, $X_{140}$. Fig 4. Moulting larva (nymphaochrysalis), nymphaal body developing under larval skin, $X_{110}$. 
disease tends to die out, but in the female line it is more often perpetuated unless there is constant intermingling with non-trachoma family blood. The number of persons now affected in the village is relatively greater than it was 50 years ago, but the severity is less, and will continue to remain so as long as no woman with a tendency to trachoma is brought in from the outside.

The Kitasato Archives of Experimental Medicine.


This is the beginning of a most valuable periodical under the joint editorship of Professors Kitasato and Shiga, and marks a new departure in medical progress in Japan. Only articles in foreign languages—English, French, or German—will be accepted, and all three languages are represented in this number. Unfortunately, no more than two numbers per annum will be issued as at present arranged, but these will be of high grade. The subscription price, Y. 1.20, is most reasonable (U. S., 60 cents; England, 2/6; Germany, marks 2.50; France, francs 3.50). The agents are Maruzen & Co, Tokyo.

It is sincerely hoped this new journal will be able to accomplish the kind of work which our abstracts of Japanese Medical Literature were originally intended to do, viz., to furnish a means by which the English-reading world may become better acquainted with the scientific medical work done in Japan. It is therefore a distinct pleasure to find Japan itself endeavoring in this manner to reveal her work to the outside world. Three of the four articles that comprise practically the whole of the first number have appeared elsewhere in Japanese and have been partly covered by our abstracts, but may now be read in full in a language other than Japanese.


A résumé of the work of these authors is found in abstracts Nos. 168 and 187, as reviewed from the Saikingaku Zasshi of October 10 and November 20, 1916. Substantially all the illustrations here produced were copied then with the exception of the one appended for which we acknowledge our indebtedness.

The mite in its larval form has been known a long time and its association with river fever well understood. It is abundant on the common field mouse, Microtus montebelli, and becomes attached also to the bodies of persons entering the endemic regions during the summer months. This mite remains on the host for 3-4 days, swells up considerably and turns much paler in color. When fully fed, it frees itself from the host and drops to the ground where the metamorphosis takes place. The nymph is neither parasitic nor predaceous but lives on plant juices.

The adult form was discovered simultaneously but independently by Drs. Nagoya, Miyagawa, Mitamura, and Imamura (Iji Shimbun, No. 956, August, 1916) and by Drs. Kawamura and Yamaguchi (Tokyo Iji Shinshi, September, 1916). These mites, as noted by the authors, are usually found under fallen leaves or decayed vegetable matter in the grass over the fine sandy mud precipitated by floods. When exposed they quickly run for shelter, evidently to avoid the light and dry air. In one uncultivated spot 50 specimens were found in a single yard of surface. Naturally, they appear to live on the juice of plants, e.g., the reed, Imperata arundinacea and on Artemesia vulgaris.

The following are considered to be points of specific value:

(1) Peculiar pear-shaped body with transverse constriction;
(2) Absence of a true eye;
(3) Absence of stigmata and large tracheal trunks;
(4) Termination of the penultimate joint of the palpus in a simple claw, and the presence of 2-4 spines behind it;
Well developed areola which has a sensory function;
Body covered with stout, colorless, feathered hairs.

The eggs are evidently laid singly among the sand grains as no two of them are in the same stage of development. The earliest observed were in the deutovum stage, the chorion having already split into two, the pale vitelline membrane with its granular processes being thus made visible. Within this thin membrane was the light red larva.

Experimental "Tsutsugamushi Disease." "In order to see if tsutsugamushi disease can be caused by the larvae hatched in our laboratory, we put 28 larvae upon a Japanese female monkey which, it may be mentioned, is most susceptible to the disease. All the larvae attached securely to the skin and remained so for from 3-4 days. Of the 28 mite bites, only 2 (one on the left chin and the other on the tip of the left mamma) showed certain changes. A small area around the bite was congested at first, then turned pale and at last a small ulcer developed. These pathological changes and the typical enlargement of the left axillary lymphatic glands took place in 7 days after the infection. Besides these characteristic symptoms, a sudden elevation of the temperature was observed on the 7th day from the infection which reached its maximal point 40.6° C. on the ninth day and remained so until the 12th day. During this period the animal appeared markedly ill and so weak that she refused to take food, crouching in one corner of her cage. From our experience we know that the symptoms that this experimental animal had manifested belonged to a quite severe type of tsutsugamushi disease although she had no exanthematous eruption, which is one of the essential symptoms in a human case of severe type. In 13 days after infection, the fever subsided and on the following day the temperature reached the normal point, and the general condition also rapidly improved." The animal recovered at last.

This experiment confirms the theory of the transmission of tsutsugamushi disease by a mite, as announced by Kitashima and Miyajima after their painstaking experiments under natural conditions in the year 1908.

There has been a good deal said in previous papers about the correct name for this mite and for that reason a liberal quotation is made from the most authoritative source yet reviewed. Brumpt called this larval form Trombidium akamushi. Later, Hirst named it Microtrombidium akamushi, thus proposing a change of the generic name.

A mite closely related to T. akamushi, called Leptus autumnalis, was first described by Show in 1790 and later was considered to be the larval form of Trombidium holosericeum L. after Mägnin's description, which was published in 1876. But the real adult stage of this larval Trombidium remains still undetermined. As to its developmental stages, the only references we can find are the works of Brandis (1897) and Bruyant (1910). Both authors have succeeded in raising the nymph from the larva. Their descriptions and figures of the nymph appear quite close to our species if not identical. Hirst published recently the results of his observations on two larval forms of the trombidii which attack human beings, of which one is the T. akamushi from Japan, and the other the harvest bug known as Leptus autumnalis from England. He affirmed that these two forms are independent species of the same genus, pointing out the following different points. The size and shape of the scutum of the cephalothorax differ greatly, the posterior margin of the scutum being strongly concave in Leptus autumnalis, while it is nearly straight in akamushi. Hairs on the dorsum are more numerous in the Japanese species than the European. On the other hand, the peculiar long hairs arising near the proximal end of the third tarsus are found in Leptus autumnalis, while they are absent in akamushi. Hairs on the dorsal side of the maxillar palpi are mostly feathered in Leptus autumnalis, while they are plain in akamushi, except the one on the penultimate joint. From our actual observations of the adult form of the akamushi, we cannot escape from the conclusion that T.
akamushi differs from any other known adult of the forms belonging to Trombidium and Microtrombidium in the family Trombidiidae. It is quite natural that the akamushi should have another generic name. (Nagoya and his co-workers proposed the new generic name, \textit{Leptotrombidium} for the akamushi, without being concerned with its allied forms. (\textit{Jji Shinshi}, No. 958. September, 1916.)

Taking into consideration the striking resemblance between the akamushi and \textit{Leptus autumnalis}, Hirst has rightly put forth the view that the former should be a species of the same genus to which \textit{Leptus autumnalis} \textit{Shaw}, belongs. "We believe that the correct scientific name of our species, according to the code of nomenclature, should be \textit{Leptus akamushi Brumpt}.

\textbf{Bibliography of important articles on this subject published in Japan}:


See also abstracts, Nos. 168, 177, 187, 198, 233.


This contribution is in two parts, one begun with Ehrlich on the value of certain aniline dyes in tuberculosis, and the other a clinical testing of copper salvarsan (K3). A list of 48 compounds is given of which none was found to be of any special value. K3 was tried on animals and has a very strong action on bovine strains. This drug "resembles salvarsan but is deeper in color. It is insoluble in water but it dissolves in caustic soda forming a brown liquid. If this is exposed to the air, it oxidizes rapidly and changes into a bluish-green fluid, being covered with a thin membrane. The amount of caustic soda required to dissolve copper salvarsan is about three times as large as that required to dissolve simple salvarsan. 0.1 gr. of copper salvarsan is soluble in 0.6 mil of double concentrated normal solution of caustic soda. The toxicity of K3 is about three times as strong as that of salvarsan. Its lethal doses for mice and rabbits are as follows:

<table>
<thead>
<tr>
<th></th>
<th>K3</th>
<th>Salvarsan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse (per 20 gm. body weight)</td>
<td>1/750</td>
<td>1/350</td>
</tr>
<tr>
<td>Rat (per 1 kg. body weight)</td>
<td>0.935</td>
<td>0.2</td>
</tr>
<tr>
<td>Rabbit (per 1 kg. body weight)</td>
<td>0.025</td>
<td>0.1</td>
</tr>
</tbody>
</table>

"In order to determine the curative efficacy of copper salvarsan against tuberculosis, I have tried it on lepers to see what would be the endurance of the human body against the action of the preparation and what would be its by-effects. Secondly, I have tried it on some cases of lupus to see what are the reactions and changes that might be produced in the foci of the disease. Lastly, I have administered it in some cases of pulmonary tuberculosis.

"Of the 10 cases of leprosy thus treated, six were of comparatively fresh infection. In most of these six cases, the nodules became softened and contracted, and the anaesthetic area more or less recovered sensation. Such favorable results were obtained only with the fresh lesions. In older ones no improvement could be brought about.

"From the results obtained in the three cases of lupus, it may be inferred that copper salvarsan has perhaps some special effect upon the lesion as is seen from the lesional pain ensuing after the injection. However, its efficacy never seems to be satisfactory, for although by the first one or two injections very favorable effects were produced upon the lesions, such as gradual drying and cicatrization, further repeated injections always turned out to be of no effect. Indeed, even the lesions that seem to have been cured often returned to the former state of affection. Nor was there any promise of success in the case of bladder tuberculosis. With the
The China Medical Journal.

case of pulmonary tuberculosis, I do not hesitate to say that better results were attained than have ever been achieved with other modes of treatment. Nevertheless, further study will be required before we can affirm that copper salvarsan will effect a complete cure in pulmonary tuberculosis.

"From the results stated above, we cannot but admit that copper salvarsan possesses some special influence against tubercle and leprosy bacilli. While I was staying in Frankfort, I made a comparative study of the value of salvarsan and copper salvarsan against experimental bovine tuberculosis in rabbits, and was assured of the fact that while the former had no effect, the latter proved to have a curative tendency.

"What attracted my special attention in this investigation was the fact that the tubercle bacilli in the sputum increased for awhile after the injection of copper salvarsan, but afterwards presented themselves mostly in dots of a very faint color, and gradually became reduced in number and finally disappeared. Also, that Pirquet's reaction which had been taken on the day before the injection, would be remarkably congested and swollen on the day following the injection. The former probably indicates the degeneration of tubercle bacilli, while the latter may mean an irritative effect on the tuberculous lesions. I am inclined to believe that what I have observed in the administration of copper salvarsan may be true with cyanocuprol and other preparations that contain copper salts.

"Although copper salvarsan has a certain efficacy against tuberculosis it is not enough to satisfy us with a radical cure of it. I doubt whether the cure of tuberculosis can be established by chemotherapy alone. Moreover, in the determination of the curative value of copper salvarsan we must take into consideration all the difficulties as well as the by-effects that naturally arise with its administration. The intravenous injection of copper salvarsan is attended with more disagreeable irritative symptoms than salvarsan, for the injection of the former is often attended by a rise of temperature, headache, vomiting, diarrhoea, etc., which are disadvantages of its practical application. Copper salvarsan possesses about three times as much poisonous effect upon animals as salvarsan, and therefore can only be administered to man in doses one third as large as the latter."


The causal organism is claimed to have been found first by Inada and Ido and reported in January 1915, and that the reports of the finding of this spirochaete coming from France and Germany were published later. About 3,000 to 4,000 patients a year are afflicted with the disease in certain portions of Japan. In most features the disease is the same as it occurs on the continent of Europe, but there are a few minor differences. The spleen is much less frequently palpable (about 16%) but the tendency to bleeding, the presence of gastric symptoms and circulatory disturbances are much more prominent. Complications such as parotitis and other supplicative processes are more common and these doubtless contribute largely to the increased mortality, 30%, as opposed to 13-14% in the European clinics. A few small epidemics have been noted but no evidence of the transmissibility from animal to man in any direct way.

In the matter of diagnosis the identity of the two diseases is considered to be established and this is strengthened by the finding of the same organism in Europe. In many cases the similarity of bilious typhoid is very great, even more than it is to the European type. Occasionally, in those cases in which the congestion of the conjunctiva and the prostration are pronounced, confusion might arise in differentiating it from catarrhal jaundice. One point of differentiation is the injection of a little of the patient's blood into a guinea-pig which produces a
typical attack in the one case and nothing in the other. Such an inoculation made on the 4th day of the disease, i.e., in the first stage of the disease, is positive in 100%; on the 5th, in 91.5%; on the 6th, 85.7%; and on the 7th day in 50%. Presumably the disappearance of the organisms from the peripheral blood is due to the development of the various antibodies. They are, however, not in sufficient amount at this stage to be demonstrated by the Pfeiffer's phenomenon, etc. The urine is at this stage infectious and will produce the disease in guinea-pigs if properly injected. The second or icteric stage occupies the second week and is characterized by the decrease of the primary symptoms and the advent of the icterus and hemorrhagic diathesis with prostration, heart weakness, and sometimes death. Antibody content is now great and lytic phenomena are in evidence. The organisms are now abundant in the urine and can be demonstrated with dark field illumination.

The third stage is in the third week, and is characterized by full development of antibodies, absence of the organisms from the blood and most of the organs, the continued excretion from the kidneys, and sometimes by the recurrence of the fever. The spirochætus may last to the 62nd day or longer.

The period of incubation is 5-7 days, rarely as long as 13.

For the demonstration of the organisms the silver method of Levaditi or the Giemsa stain is the best. With the latter stain and under the highest magnification there frequently appear 2-4 granules in the body of the organism that are probably aggregations of chromatin. Under dark field illumination these are highly refractive. In addition the spirochæte gemmeæ of Meirowski are quite common. These bodies are round or oval, distributed toward the end or in the middle of the spirochæte and project somewhat from the body of the organism. Often 4 or 5 of these hang with a thin stem to the organism and constitute the umbel of Meirowski. These are more common in the silver preparations from the tissues, and the aggregations of chromatin and these gemmeæ are continuous. The gemmeæ occur on the spirochætes in the blood in small numbers and are most numerous in the liver. The umbels are also common here. In pure cultures these umbels are very common, presumably because the growth has passed its prime and is nearing the end. The exact significance of these forms is not known but it is at least demonstrated that the organism can pass at times through a filter which is, as far as determinable, impassable to coli and other organisms.

Infection through the skin is readily accomplished in guinea-pigs when the hair has been shaved off even though there be no macroscopic lesions produced. Animals killed at various intervals after this exposure, fixed in formalin and sectioned, demonstrated that this infection does occur, although the numbers of invading organisms are much less than are found when the skin has been abraded. The number of organisms that could penetrate the skin in the space of 5 minutes was able to produce the disease in guinea-pigs. The attack began in from 5 to 72 hours after this form of exposure. The mucous membrane is permeable to the invading organisms whether the infection comes by mouth or is introduced into the rectum.

Infection in man is unquestionably through the skin of the legs and feet, coming from the water in damp mines or fields. There is no evidence that insects can convey it, in fact the organisms die in 2-3 days in the body of a mosquito. Experiments with lice, fleas, and leeches have all proven negative.

The relation of rats to the spread of the disease is definitely known. Cooks are quite liable to the infection through contact with articles contaminated with the organisms. The house and field rat, Mus alexandrinus and Mus decumanus contained viable spirochætes in their kidneys in respectively 0.8% and 40.2% of the animals examined. Field mice were occasionally found to contain them. Persons or animals bitten by rats occasionally developed the disease. In 31% of the rats examined the urine was found to contain the organisms. These two facts are probably related, for the spirochætes are not found in the mouth of the rat so it
would be necessary for urinary contamination to take place at the same time or by
the same means. The indictment has already been made out against *E. nortegicus, M. alexandrinus* and *M. montebelli*.

Temperature and humidity undoubtedly play an important part in the extra-
corporeal existence of the organism. The dampness and warmth of certain coal
mines is especially favorable, while other mines more dry are not at all con-
taminated. The optimum temperature lies between 22° and 25° C. hence disease
does not occur in the hottest part of the summer or the coldest portion of the
winter. It is distinctly a spring and fall disease, but is found in the coal mines
the year around.

The reaction of the earth is also found to be of importance. Those sections in
which the soil is acid have few or no cases of the disease, while the neutral or
alkaline soils, at least around Fukuoka, are heavily affected. Likewise some
mines are acid and others alkaline. Those coal mines with alkaline mine water
had many cases of the disease while those whose seepage water is acid were
practically without any, and this in spite of the fact noted in one case that fully
80% of the mine rats were carriers of the infection.

Active immunization is recommended as a useful prophylactic measure.

For treatment salvarsan and neosalvarsan have been found to be very valuable.
However, perhaps the greatest curative agent is immune horse serum. The action
of this remedy is summarized thus:

1. Reduction of mortality. This is now reduced about 6% from the lowest
figures as given by any Japanese observers.
2. Influence upon spirochaetes in the circulating blood; these are very quickly
removed by the serum.
3. Immune bodies in the blood appear much earlier.
4. Spirochaetes in the tissues are much decreased.
5. Influence upon symptoms. This is difficult to prove but it is probable.
It has no definite influence upon the excretion of the spirochaetes in the urine,
except that those which do appear are apparently fresher looking and less
degenerated. On the other hand the frequency of the secondary rise in tempera-
ture is apparently increased.

A dose of 20 mils intravenously could free the peripheral circulation of the
spirochaetes in 3 hours. Under this treatment the total mortality was 23.7% and
this is influenced only by injections in the early stages. The duration of the
icterus is decreased, but this was not noticed when the serum was given sub-
cutaneously. The tendency to bleeding was beneficially affected.

This article contains a vast amount of information to which it is impossible,
in such a review as this, to do justice. It should be read by all interested in this
subject.

(304) **NEW STAIN FOR BLOOD OR PARASITES.** "Une solution pour colorer

This is another Romanowsky modification for which certain advantages are
claimed. The solution No. 1 is made of 1 gm. methylene blue dissolved in 10
mils of absolute alcohol and added to 90 mls of distilled water in which has been
dissolved 1 gm. of sodium carbonate. This is allowed to digest for 2 days at 37°
C. A test of the value of the solution is to take 1 mil, add it to 10 mils of distilled
water and shake vigorously with 1 mil of chloroform. The latter forms in the
bottom as a reddish violet layer.

If satisfactory it is filtered and added gradually to a second solution composed
of yellow water-soluble eosin, 1 gm, in 200 mils of distilled water. This combina-
tion is allowed to settle at incubator temperature, filtered and the sediment dried
and carefully powdered. Of this methylene-azure-eosin 0.5 gm, is dissolved in
150 mls of methyl alcohol and then mixed with 150 mls of neutral glycerine. It
is allowed to stand for a time in a cool dark place. Only the purest chemicals
should be employed in the preparation of this dye.
The specimen for staining is dried in air, fixed with alcohol-ether, equal parts, for 10 minutes and stained with a dilution of this dye, 1 mil to 10 mils of distilled water, washed in water, dried and examined under oil. The staining time for leucocytes or blood cells is 3-5 minutes, for trypanosomes, piroplasms, or malarial parasites, 5-10-30 minutes. Spirochetes take the longest time.

The various objects take the usual colors with any of the modifications of this method.

Gunidan Zasshi
(Journal of the Military Surgeons of Japan)
No. 68. April 20th, 1917.


This organism is Gram positive when vigorous, and negative when weakened in vitality. It grows readily on artificial media, especially those of neutral or slightly acid reaction. It grows in cerebrospinal fluid and also in other fluids of the body, whether they have been inactivated or not. Acid production in Barsiekow and JAngelsheim's media is definite and active during the first week, but remains stationary after the second week. In neutral red media it produces a fluorescence when a carbohydrate has been added. Solutions of the aniline dyes hinder its development somewhat. The immune serum contains agglutinins, bacterioly sins, precipitins and stimulates phagocytosis. The agglutinins act on living or dead cultures equally well, thus differing from an organism described by JAngelsheim. Intra-abdominal injections were fatal to rats. The findings at autopsy on rats and mice that had survived a small dose of the organism revealed a fatty process of the liver. A suspension of the organisms injected subdurally into a rabbit developed a high grade immunity within a week. There is no statement as to the relation this organism bears to the one described in Abstract No. 158.


The patient was a young man of 26, who had been afflicted with pleurisy at the age of 11, beri-beri at 18, and swelling of the scrotum for the past year. Several of his relatives are affected with elephantiasis and chyluria. The swelling of the scrotum and left inguinal region was opened and 15 mils of a dull yellowish-brown fluid removed. It contained 2 small actively moving larvae, each with a sheath, 275 μ long and 7-8 μ in diameter. Others were removed from within the tunica vaginalis and from nodules of newly formed tissue in the adjacent mass. At one side was another mass which yielded a thread-like adult worm, 4.1 cm. in length. The tissues, examined microscopically, contained a great number of eosinophiles and much newly formed connective tissue. The dilatation of the lymph vessels of the part were visible even to the naked eye.

The patient's blood had been found previously to contain filaria which were demonstrable only at night, except once when he was asleep in the day time. There was an eosinophilia readily demonstrable.

The urine was negative except for the presence of chyluria. The worm was diagnosed as Filaria bancrofti.


Some of the objections found in testing for the recognition of each color separately has led the author to propose a newer method for which he claims some advantages. The theory on which it is based is one of contrast. A person will readily notice a light spot on a light or white background unless there is present also a much darker spot in which case the former will be easily overlooked or not perceived. In the same way a yellow spot beside a red one, or a blue spot beside a green one, will be overlooked or not noticed by any one with normal color perception but will stand out quite prominently to one who is blind to the green or red. These spots of the proper colors are worked into a pattern which is confusing in its design to one who distinguishes the blue from the green, but which harmonizes perfectly to one who makes no distinction. There are different combinations designed for the detection of various forms of color perception failure or for its complete absence.
The aim of the China Medical Board is to promote the gradual and orderly development of a comprehensive and efficient system of medicine in China. Its main work will be the founding of two medical schools, one at Peking and another at Shanghai, which shall be of the same grade and character as the better medical schools of the United States and Europe.

It is hoped that when its two medical schools are well established, it may be possible for missionary doctors to be released from their duties for, say, three months every year, to take graduate work in one or other of the schools. It is obvious that such work in association with other missionary doctors and under the general guidance of members of the faculties, will be of great service to the physicians who are working in missionary hospitals. Such an arrangement would not be practicable for hospitals which have but one doctor on their staffs. Appropriations for the increase of staffs of the hospitals, therefore, serve as steps toward the consummation of this larger plan.

Union Medical College, Peking. Particulars concerning the organization of the Peking Union Medical College are given and it is announced that it has been decided to open a Premedical School at Peking. "Students in preparatory schools and colleges in China at the present time are not receiving sufficient instruction in science to enable them to undertake work in a high grade medical school. The Board, therefore, faced the dilemma of either aiding a number of colleges to strengthen their scientific departments, or of creating a school of its own. After careful consideration, the conclusion was reached that for the present it will be necessary to conduct a premedical school in connection with the Peking Union Medical College. This, however, is considered a temporary arrangement, and it is hoped that within a few years the colleges of North China will be able so to advance their courses in science as to prepare students for the medical school."

Shanghai Medical School.—Funds have been designated in sufficient amount to provide the plant and maintain a medical school in Shanghai.

Realizing the importance and value of the work the medical missionaries are doing for the people of China, the China Medical
Board has endeavored to co-operate sympathetically with the several missionary societies in strengthening their medical schools and hospitals. To this end the Board has made grants in aid for equipment and other facilities in a limited number of hospitals and at two medical schools, and has also made grants in aid for the support of foreign trained physicians and nurses on their staffs.

The Board also has in mind the needs of future graduates from its medical schools who should spend at least one year as hospital interns. It is important, therefore, that there shall be a number of well-developed hospitals where they can serve internships. Consequently, in making its appropriations the Board has sought to select hospitals which are accessible from Peking and Shanghai.

It has been decided that hereafter appropriations to hospitals in China shall be made only upon the understanding and agreement that societies making application shall contribute at least one-fourth of the total sum desired for increase of staff, equipment, or plant. It is the belief of the Board that this policy will tend to promote larger contributions from churches and individuals and in general stimulate interest in medical missions.

As a rule its appropriations for the support of medical missionaries and nurses, including grants already made, are for periods of five years.

The total amount appropriated to mission hospitals for expenditure during the year 1916 was $158,502.20, of which $78,704.20 was for capital expenditure and $79,798 for annual maintenance. A further sum of $271,087 has been pledged for current expenses during the next five years, and $20,000 will be payable in 1917 on capital account.

Twenty-seven medical missionaries on furlough from China have received appropriations from the China Medical Board during 1916 for graduate study in the United States. Three of these grants have been renewals for a second year of work.

The Report gives details of other generous donations to institutions and individuals.

Annual Report, Naval Medical College Hospital, Tientsin.

Under the charge of H. Y. King, M.D., Director. 1916.

This hospital, formerly known as the Peiyang Hospital, was founded by the late Viceroy Li Hung Chang in 1881 (6th year of Kwong Hsu); it was then the only government institution in China for taking care of the sick and for the teaching of Western medical science to Chinese students.
The China Medical Journal.

At the time of the foundation of this institution, Tientsin was not a large commercial centre and the Chinese people had not much confidence in foreign medicine; consequently, the number of patients seeking such treatment from a public hospital was small and most of them were out-patients. The hospital was therefore built on a very small scale just sufficient to carry on its charitable work among the population. Since its establishment nearly 40 years ago, it has undergone numerous extensions and repairs from time to time but the building is really beyond restoration, it is no longer able to meet the demands made upon it, and a new hospital is absolutely needed.

**Hospital Statistics.**

<table>
<thead>
<tr>
<th></th>
<th>New Cases</th>
<th>Return Visits</th>
<th>Vaccinations</th>
<th>Major Operations on In-patients</th>
<th>Minor Out-patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out-patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Cases</td>
<td>3,338</td>
<td>27,328</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Visits</td>
<td></td>
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As the hospital is attached to the Naval Medical College, when the latter institution was taken over in 1915 by the Ministry of the Navy, the hospital was taken over also, and is now known as the Naval Medical College Hospital. It continues, as before, its charitable work among the Chinese people and also affords clinical instruction to the 64 students in three classes of the Naval Medical College.

**Expenditure of the College and Hospital during the year 1916 exclusive of salaries:**

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<tr>
<th></th>
<th>Hospital</th>
<th>College including uniforms, books, and board and lodging for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>$13,242.80</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>14,670.66</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$27,913.46</td>
<td></td>
</tr>
</tbody>
</table>

**Italian Catholic Hospital, Lao-ho-kow, Hupeh.**

**JAMES RASTELLI, M.D., Medical Director.**

**Annual Statistics: 1916.**

<table>
<thead>
<tr>
<th></th>
<th>In-patients</th>
<th>Out-patients</th>
<th>Operations under general anesthesia</th>
<th>Operations under local anesthesia</th>
<th>Vaccinations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>775</td>
<td>14,862</td>
<td>145</td>
<td>96</td>
<td>49</td>
</tr>
</tbody>
</table>

Among the 96 operations under local anesthesia, for which solution of novocain-adrenalin was used, were operations for hernia, hare-lip,
Epidemic of Typhus Fever. "During the period from the end of January to May, 1916, I had to cope with an epidemic of abdominal typhus. About 80 patients underwent treatment. Of these, the majority were children, four to fourteen years of age, from the local Catholic Orphanage. In these cases, it assumed a very mild form, and a complete cure was effected in twelve to fourteen days. All exhibited a profuse roseola, covering the body, the limbs, and even the face, in the form of a morbillious eruption. In all the children there were present in the intestines numerous lumbricoid ascarids which is not remarkable when one considers that these intestinal parasites are found in 95% of the Chinese people including adults. Eight cases proved fatal, but they were children previously affected by constitutional diseases and greatly weakened.

"In adult patients, on the other hand, a very serious form of the disease was encountered, but here also the roseola was very marked and profuse. In the four cases that proved fatal, the cutaneous eruption was especially pronounced. This has caused me to think that Gourgerot's statement in the *Journal des Praticiens* is not always verified that 'a profuse and general roseola constitutes almost always a favorable prognosis.' In the case of one of my nurses, there was a very copious emesis, which occurred at various times during the twenty-four hours. It ceased only in consequence of the administration of vasoconstrictors and ice."

Gun-shot Wound of Kidney. "In consequence of brigandage, there were not wanting numerous cases of gunshot wounds. I performed many operations to extract projectiles, splinters, bones, etc. One case is worthy of note. A soldier, twenty-five years old, was struck by a ball in the left lumbar region which wounded the kidney. He was carried to the hospital, some twelve hours after the incident and after a copious hematuria, with an escape of blood mixed with urine from the orifice of the wound. The patient was profoundly anemic. Rate of pulse, 120. He was also suffering from shock. In consequence, I believed it prudent not to operate, especially as clinical appearances led me to think there was no intestinal lesion. I gave various infusions of physiological saline solution besides the usual cardiac tonics. On the third day, the patient's general condition was better, but he was still suffering continual hematuria with a frequent discharge of numerous small blood clots in elongated form. I ad-
administered several doses of adrenalin, 1-1000, and noticed at once the beneficial results. The urine, at the first micturition, presented a normal color, devoid of any trace of blood, and then and later it left no sign of sediment. The patient slowly recovered, and in twenty days was able to leave the hospital completely cured. From information received, I am assured that he has had no further renal hæmorrhage."

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**Chinese Customs Service Medical Reports.**

**Public Health of Soochow, 1916.**

W. B. R USSELL, M.D., and W. H. P ARK, M.D.

1. **Meteorological Report.** The following table taken from the records of the Tide Surveyor gives in detail month by month during 1915-1916 the barometer and temperature records, also the rainfall which was exceptionally heavy during June and caused great injury to the crops.

<table>
<thead>
<tr>
<th>Date</th>
<th>Thermometer</th>
<th>Barometer</th>
<th>Rainfall</th>
<th>Prevailing winds</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 1915</td>
<td>54.35 F.</td>
<td>39.430&quot;</td>
<td>10 days</td>
<td>N.N.E., N.W.</td>
</tr>
<tr>
<td>December</td>
<td>43.06</td>
<td>39.284&quot;</td>
<td>1 day</td>
<td>N.W., N., S.E., S.W.</td>
</tr>
<tr>
<td>January</td>
<td>40.18</td>
<td>39.357&quot;</td>
<td>5 days</td>
<td>N.W., N., W.</td>
</tr>
<tr>
<td>February</td>
<td>39.78</td>
<td>39.239&quot;</td>
<td>9</td>
<td>N.W., E.</td>
</tr>
<tr>
<td>March</td>
<td>46.95</td>
<td>30.197&quot;</td>
<td>9</td>
<td>2.86&quot; N., S.E., W., N.E.</td>
</tr>
<tr>
<td>April</td>
<td>57.92</td>
<td>30.141&quot;</td>
<td>10</td>
<td>4.83 N., S.S.E., S.E.</td>
</tr>
<tr>
<td>May</td>
<td>66.10</td>
<td>29.903&quot;</td>
<td>13</td>
<td>3.60 S.E.</td>
</tr>
<tr>
<td>June</td>
<td>75.30</td>
<td>29.682&quot;</td>
<td>15</td>
<td>10.00 S.E., N.E.</td>
</tr>
<tr>
<td>July</td>
<td>79.90</td>
<td>29.713&quot;</td>
<td>14</td>
<td>6.95 S.E., E., S.W.</td>
</tr>
<tr>
<td>August</td>
<td>79.60</td>
<td>29.845&quot;</td>
<td>14</td>
<td>2.27 N., N.N.E., N.E., S.W.</td>
</tr>
<tr>
<td>September</td>
<td>72.75</td>
<td>30.084&quot;</td>
<td>17</td>
<td>3.17 N., N.W.</td>
</tr>
<tr>
<td>October</td>
<td>63.00</td>
<td>30.322&quot;</td>
<td>8</td>
<td>3.71 N.E., N., E.</td>
</tr>
</tbody>
</table>

2. **Medical Report.** The year ending October 31, 1916, has been a busy one for both Customs surgeons, taken up mostly in treatment of patients in the Soochow Hospital and out-clinics including out-calls to Chinese, to members of the Customs' staff and other foreigners (principally missionaries). There have been no severe epidemics during the year but we have had a number of cases of measles and whooping cough in foreign children, and the usual number of out-calls to diphtheritic and scarlet fever cases among the Chinese. There was a severe outbreak of beriberi in the local prison last April and quite a number of cases among the soldiers in the local barracks with a few deaths, but the early cases yielded to change of diet and location, and symptomatic measures. The unusually large number of patients with remittent and malignant malaria, who came especially during
July, August, and September, were with few exceptions relieved by intravenous quinine bisulphate injections. The latter part of summer registered a large number of amoebic dysentery cases and a few cholera cases, the former of which yielded usually to emetine hypodermically with other indicated adjuvants. We have been able to record more intelligent home treatment in pulmonary tubercular cases among the Chinese, for we only take these cases in for laboratory diagnosis and when such diagnosis is confirmed the patient is at once sent home with instructions for home treatment, he is given a C.M.M.A. Antituberculosis Calendar, etc., and directed to report at intervals at the out-clinic. Alcoholic and venereal cases appear to be on the increase in the out-patient department.

Our in-patient work has been more satisfactory in some respects than ever before as we have had more satisfactory nursing, more extensive laboratory work and more willing and intelligent co-operation from the majority of the patients. With only little over 100 beds available for patients and only a part of the hospital in any sense modernly equipped, we have given hospital care to 2,035 patients and often have been forced to turn away both men and women who needed hospital treatment.

During the year there was a great deal of political unrest and in April, 1916, we were summoned to undertake Red Cross work by the National Red Cross Society but we are glad to report that at present all seems well.


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

1. Meteorological Report.—The following Meteorological Report has been compiled by Mr. C. Davies, Customs Harbor Master.

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>H.</th>
<th>L.</th>
<th>H.</th>
<th>L.</th>
<th>Ins.</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1916</td>
<td>October</td>
<td>80</td>
<td>50</td>
<td>30.300</td>
<td>29.850</td>
<td>4.35</td>
<td>114</td>
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<tr>
<td></td>
<td>November</td>
<td>69</td>
<td>33</td>
<td>30.570</td>
<td>29.850</td>
<td>3.40</td>
<td>69.55</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>64</td>
<td>24</td>
<td>30.500</td>
<td>29.688</td>
<td>3.33</td>
<td>51.45</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>65</td>
<td>30</td>
<td>30.350</td>
<td>29.730</td>
<td>0.98</td>
<td>56.10</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>72</td>
<td>32</td>
<td>30.360</td>
<td>29.660</td>
<td>0.46</td>
<td>24.10</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>86</td>
<td>50</td>
<td>30.040</td>
<td>29.590</td>
<td>3.55</td>
<td>52.20</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>96</td>
<td>55</td>
<td>30.180</td>
<td>29.450</td>
<td>1.79</td>
<td>55.40</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>95</td>
<td>66</td>
<td>29.860</td>
<td>29.440</td>
<td>11.76</td>
<td>136.50</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>98</td>
<td>70</td>
<td>29.700</td>
<td>29.300</td>
<td>12.46</td>
<td>116.05</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>99</td>
<td>69</td>
<td>29.780</td>
<td>29.426</td>
<td>11.31</td>
<td>58.00</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>97</td>
<td>60</td>
<td>30.090</td>
<td>29.500</td>
<td>1.78</td>
<td>31.45</td>
</tr>
</tbody>
</table>
MEDICAL REPORT.—Ichang is at present undergoing a change which may or may not afterwards affect the health of the foreign community. Until two years ago the district occupied by the foreign houses was largely free from Chinese dwellings, and from the River to the East Gate was open ground covered by the graves of past generations. Two years ago, however, the Chinese began to remove these graves, lay broad roads in all directions, and sell the ground available for the building of houses in foreign style. The result is that a new town is being raised, and the better class Chinese are moving out of the city into these foreign houses. Unfortunately, for them, moving into new houses does not mean new methods of dealing with sanitation; and it looks as if in the not distant future the foreign community will have sanitatory problems which they did not formerly meet with.

The health of the foreign community has been fairly good. There was one case of typhoid fever, which was of a very toxic form and proved fatal. Such calamities could be avoided by the immunity afforded by vaccination, but until this is made compulsory in the Customs Service it is unlikely that the members of the staff will avail themselves of it.

EPIDEMIC DISEASES.—Scarlet Fever, which during the year was so prevalent in the lower river ports did not reach Ichang. Cholera, happily, was again absent this summer, and it is now seven years since we had an epidemic. Small-pox was less in evidence, and less virulent than formerly. Amoebic Dysentery has been very prevalent, and a great number of patients have been treated by western methods. The bacillary form, fortunately, has been seldom seen. Malaria in the tertian and quartan forms has been very common.

It is of interest to note the diseases with which the Chinese come for treatment to the foreign dispensaries. Tuberculous bone and joint diseases and tuberculosis of the glands are all very common, while phthisis is constantly seen. The B. pneumococcus is not common in this district, and so lobar pneumonia and certain inflammatory eye-diseases are seldom met with from this cause. Patients with venereal diseases are seen in great numbers. Now that opium is less available, suicidal poisoning by its use is not common, and the Chinese are taking to other things, one of which is strong nitric acid. We have seen two cases of this during the year. More cases of mammary cancer are seen than formerly, but cancerous disease in other parts of the body is not common. Skin diseases, and long untreated ulcers are met with in great numbers. Eye-diseases, especially trachoma with its
sequelae, are common. Trachoma is the commonest cause of blindness in this district. Many cases of ascites from various causes are seen. In some of these patients the spleen is extremely large, but the liver is usually unchanged. The common form as seen in England due to cirrhosis of the liver is, we believe, not much in evidence here.

Hospital Standardization: Semi-public Institutions.

"A semi-public hospital is one conducted by a board of trustees elected by those who subscribe to the funds, and supported by private subscriptions and endowments, and out of earnings from patients. . . . These hospitals usually have a considerable proportion of their accommodations devoted to private paying patients and, when well conducted, they set apart a specific number of beds for free patients, whose care is provided for out of funds specially appropriated for the purpose, or out of surpluses after the ordinary running expenses are met."

The following marking of a semi-public hospital of 100 beds or over (Classes II and III large or medium sized), is taken from The Modern Hospital, September, 1917, in which the schedule will be found fully itemised.

Medical Staff, 40% (= Attendants 20%; House Staff, 5%; Training School 15%). Laboratories, 10%. X-ray Department, 5%. Dietetic Department, 5%. Pharmacy, 5%. Dispensary, Out-patient and Social Service, 5%. Medical Records and Accounting, 10%. Architecture, Ventilation, Laundry, Sewage, and Garbage disposal, etc., 5%. Equipment, Medical, Surgical, and Physical, 5%. Management, 5%.*

The American College of Surgeons is to begin a ten-year study of the problem of the standardization of hospitals and it is contemplated that an expenditure of approximately G. $40,000 will be required the first year. The sum of G. $500,000, contributed by the Fellows and the College, is behind the investigation.

* The percentages, totalling 95%, are as given in the original paper.

India and Hospital Standardization.

In a recent issue our interesting contemporary, Medical Missions in India, comments as follows on the movement in China toward the standardization of hospitals.

Standardization of Hospitals.

"Our friends in China are discussing the desirability of standardization in Mission Hospitals. Dr. Houghton of Shanghai read a paper on the subject at the Canton Conference, and the editor of the Journal writes at some length about it."
The editor wisely says that the system adopted in America furnishes for the medical missionary an ideal towards which to move, rather than a goal of possible accomplishment within a short time. Supposing 100 be taken to represent the entire range of subjects in which standardization or uniformity is desired, it is suggested that 25 points should be allotted to each of the following four departments—(1) staff, (2) physical equipment, (3) house management, and (4) evangelistic efficiency. It is suggested that the average mission hospital should contain not more than sixty beds. As regards staff, it is stated that the rule in the United States is one resident medical officer for every 25 patients, apart from the visiting staff. Dr. Preston Maxwell is quoted as saying that every hospital should have on its staff a physician, a surgeon, a specialist, a pathologist, two foreign nurses and a business manager. Regarding statistics, Dr. Houghton says we need a definition even of an ‘out-patient.’ He offers one of his own: ‘Any individual who comes for treatment continuously for the same ailment for however long a period within the limits of time covered by the report.’ We agree (it seems in some missions in China dispensary tickets are issued for a certain period, at the close of which they must be renewed if treatment is to be continued, and the total of out-patients returned is really the total number of tickets issued,) but no notice is taken of a question that has been discussed once or twice in our pages—Are we to count individuals or ailments? If a man comes with two distinct diseases, say toothache and bronchitis, we would put him down as two cases. As a dental case he is cured and dismissed; as a medical case his treatment may go on for months. In a hospital at home he would attend separate clinics and be enrolled in both. Dr. Houghton is not satisfied with the classification of operations (another term which has to be defined) into major and minor, and suggests that a threefold division, into those done under a general anaesthetic, with a local anaesthetic, and without an anaesthetic, while not beyond criticism, would be less open to objection. The whole discussion is very interesting, but it bristles with difficulties, and where are the medical missionaries to be found who have sufficient leisure to take up the matter in a thoroughgoing way? One impression left upon our mind is that conditions of medical missionary work are much more uniform in China than in India. No one in India, for example, would think of coming to a conclusion as to the number of beds the average mission hospital ought to contain. As regards language, too, and social conditions, food, clothing, and material matters generally, there is a degree of similarity between the different parts of China which is in striking contrast to the endless variety in India.

Medical and Surgical Progress.

Surgery.

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

MILITARY SURGERY.—In a small volume entitled, "The Treatment of War Wounds," compiled by W. W. Keen, M.D., LL.D., as a Report to the National Research Council, much information is given concerning the latest developments of surgery on the different battlefields of Europe. As in these days of political and military strife in China, amounting practically to civil war, not a few medical missionaries are required to render professional service to the wounded, we give a fairly full indication of the principal contents of the volume.

From the surgical point of view the European war differs widely from any preceding wars in five principal respects: (1) The huge numbers in the armies and, therefore, of the wounded; (2) The new
means of transportation; (3) The new weapons, especially in the artillery; (4) Rampant infection of wounds; (5) The conquest of infection by more efficient antiseptics and by new methods.

The author refers to, but does not describe, two other respects in which great progress has also been made: (a) in the reconstructive surgery of the face and jaws by the cooperation of the dentist and the surgeon, and (b) in the great development of war orthopedics and the training of disabled soldiers.

_Treatment of Shock._ Quoting from Porter (_Boston Medical & Surgical Journal_, Dec., 1916) it is urged that a great saving of life would result if shock were treated by the same means which have been proved effective in experimental shock in animals. These procedures are summarized as follows:

1. A special position of the wounded—the abdominal vessels should be higher than the heart and the brain; 2. Heat; 3. Intravenous injections of normal saline solution; 4. Intravenous injections of adrenalin; 5. The transfusion of blood in certain cases; 6. The taking of the diastolic pressure every half-hour.

Some of these procedures require but little time. Even the diastolic pressure, which in severe cases should be recorded at the earliest possible moment, can be taken by the auscultatory method in two minutes. The chief drawback is that at first it must be taken every half-hour. But the results prove it to be time well spent, for "men who looked like cadavers and were almost pulseless came back to life and after two hours"—requiring only three or four observations,—"talked pleasantly of their children."

In the _British Medical Journal_, June, 1917, Bowly calls attention to the fact that the wounded will often have suffered from loss of blood, loss of sleep, insufficient food, and exposure to cold, and if to these are added severe pain and the exhaustion due to an unavoidable jolting transportation, they will be on the verge of collapse. The first needs of such a man are rest, warmth, and food, of which the first two are the most important. These restoratives may easily be required before any treatment (save for hemorrhage) should be attempted.

Archibald and Maclean (_Trans. American Surgical Association_, 1917) emphasize the need for warmth by stating that in their cases of profound shock the ordinary clinical thermometer did not register low enough, as in some of their cases the temperature was below 92° F. In injuries of the cord at the sixth to the eighth cervical segments, G. Holmes has observed temperatures of 80° F., yet the patients survived for several days.

_Treatment of Shell Wounds._—New weapons have caused new types of wounds. Shells produce terrible and wide-spread mutilations. Fragments of the shells not only may lodge, but also in most cases carry deep into the tissues, bits of dirty clothing, skin, and other foreign bodies, all heavily infected. Diligent search must be made for such foci of infection at the very first opportunity for a thorough dressing, or deep and wide-spread infection is sure to follow.

At the front there are at least four different methods of treating shell wounds:

1. The common or open treatment, by incision, drainage, and the use of different antiseptics, balsams, etc., as carried out in civil life.
2. The so-called physiologic or hypertonic saline treatment of wounds, as advocated by Wright.
3. The Carrel method.
4. The treatment of wounds by the method of excision.

It should not be forgotten that modern bullets and fragments of high explosive shells produce grave destruction of tissue; not only in the tract of the missile, but also at varying distances all around and beyond the wounds the tissues may be devitalized. This destruction is often not recognizable by the eye or touch until some time has passed. Bowlby, quoted by Moynihan, has shown that a kidney wounded in its lower pole presented to the naked eye a normal appearance at its upper end, but the microscope showed that the tubules in that part were disorganized.

This widespread devitalizing of the tissues has led to the common-sense practice, especially urged by Carrel, of excision, after primary disinfection, of the tissues surrounding the wound instead of allowing them to slough off and serve as an excellent nidus for infection.

Infection of Wounds.—Carrel has observed that when a wound was examined bacteriologically as early as six hours after it had been inflicted there was found a varied flora of both aerobic and anaerobic bacteria, but that they were few in number, and localized chiefly around the missile or a bit of clothing, etc., without as yet spreading far and wide into the tissues. Twenty-four hours later, however, the bacteria were found everywhere, and were too numerous to count. When there has been delay in dressing a wound, the dried blood sealing the wound creates an almost ideal condition for the growth of the deadly anaerobic bacteria of tetanus and gas gangrene. It is no wonder then that experience has shown that excision of this damaged and heavily infected tissue is one of the prime factors in the treatment of the badly wounded.

It may be said truly that the most important alteration in treatment since the early days of the war is that excision of damaged tissues has become the routine method, and that the earlier it is carried out, the more likely it is to be successful.

Early experiences in the war demonstrated the fact that both antisepsis and asepsis, as heretofore practised, had been vanquished by Mars. Each was tried and each failed. It was even proclaimed that Lister's work went for naught. Now, however, antisepsis and asepsis (in its proper place) have come into their own again, and Lister is still the apostle of good tidings. The reasons are plain. First, we did not then possess sufficiently effective antiseptics, such as modern research has now given us; second, we were not masters of an effective and successful technic. We owe these especially to two men—Dakin and Carrel—who have wrought a marvelous revolution.

Lister taught us, above all, how to prevent infection; Dakin and Carrel, following Lister's principles, have taught us how to conquer even rampant infection. For nearly half a century surgeons have been fighting firmly entrenched infection, but always in vain. It required the stern stimulus of war to enable us to win the victory. Prevention and cure both are now ours.

In the entire treatment of these wounds even the gloved hands are never allowed to touch any dressing or the wound. Everything is handled by forceps, which can be so much more certainly disinfected than hands or even gloves. Full descriptions are given, with illustrations, of the best methods of
Medical and Surgical Progress—Surgery.

treating wounds, particular attention being given to the Dakin-Carrell method. Of course all the new antiseptics must be thoroughly tried under varying conditions before their actual value can be fully established. Regarding some of them, there is considerable difference of opinion. Chief Surgeon Blake writes that good results are obtained with the Dakin fluid, using Carrel's method of instillation, but that equally good results follow other antiseptics employed in the same way. "For instance in cases of B. aerogenes capsulatus infections, we are using a solution of quinin, and in pyocyaneus infections we are using a weak solution of acetic acid or a combination of acetic acid and cresol, as we have found that an acid solution is necessary to control the B. pyocyanus. It grows freely in wounds treated with Dakin's solution."

First-aid dressings.—"These have been of very little value," writes Dr. Hugh Cabot, "probably none beyond the exclusion of flies, thereby preventing the development of maggots in the wound where men lay out in shell-holes for two or three days. It is not clear that the development of maggots is an important complication, and certainly no great enthusiasm can be evoked in regard to the value of first-aid dressings."

"In general, I am inclined to believe that there is no antiseptic which fulfils all indications, and that the successful treatment of wounds depends largely upon the skill of the surgeon in preparing them for treatment and in dressing them afterward."

Gas Infection and Gas Gangrene.—Gas infection is very common in the present war. Fortunately, the infection can be controlled with much success if it be seen and treated early. Gas gangrene, on the contrary, is a result of progressively developed infection, and is a most dangerous condition. All foreign bodies (clothing, etc.) in the wound, as they will keep up the anaerobic infection, must be removed; all dead tissue must be removed, the wounds kept open, and frequent antiseptic dressings used.

Tetanus.—In the early part of the war the imperative need of an early protective inoculation against tetanus had not been driven deep into the minds of surgeons, as has been the case later. Now every wounded man receives a protective inoculation at the very first possible moment. As Gibson insists, to wait for the symptoms of trismus is to court disaster. "Expect tetanus in all wounds and prevent its onset" is the rule, and the result has been that lockjaw has practically disappeared in the armies on both sides, unless in some distant post where the supplies fail or when the patient receives the protective inoculation too late.

A peculiar phase of infection is the inordinate length of time micro-organisms may remain in the tissues after healing is complete and then cause acute infection. Even after trivial operations for the removal of foreign bodies, or even for passive movements, tetanus may set in unexpectedly. "Delayed tetanus" and "delayed gas infection" are not very uncommon. In animals anaphylaxis following a second injection of the same serum is well known. But in man this is much less to be feared. Still, provision should be made to prevent its occurrence.

Wounds of the Head.—The treatment of wounds of the head is thus summarized: A primary cleansing of the wound; the transmission of the patient as soon as possible to the hospital where he will convalesce; the taking of x-ray pic-
The excision of the scalp and bone wound; the limited and careful removal of foreign bodies; the covering of the exposed brain; the closure of the wound, with superficial drainage, and a prolonged rest in bed. If the surgeon by seeking to extract a missile retained in the brain will do more harm than the missile, he should not operate.

Wounds of the Chest.—Bowley treats wounds in the chest by rest in bed and small doses of morphin, and no tapping of effusion for several days. Subsequently, if there is a large hemotorax, either—(a) tap; (b) tap and replace with oxygen; or (c) if septic, excise rib and drain. Most cases can travel safely to the base after three or four days in bed, and operative treatment is generally done there.

Wounds of Joints.—The first improvement was the abandonment of intra-articular drains. The next was the excision of the wound, the removal of any foreign body, the flushing of the joint, and in some cases the closure of the capsule and the insertion of a superficial drain.

The next step was perhaps a bold one. As soon as possible after the receipt of the injury—that is, in the casualty clearing station—the wound was excised, the joint opened, cleaned, and irrigated, and then the whole wound in the synovial sac and the superficial tissues was tightly closed.

Abdominal Wounds.—First, determine how many wounds of the intestine there are, their extent and locality, before deciding on the proper treatment. Then identify the cecum and then trace the small intestine from there upward. As each perforation of the gut is exposed it is wrapped up in a small moist swab. The tape attached to the swab is slipped through the mesentery and doubled twice around the gut. This avoids escape of the contents and additional infection, and gives one at a glance the means of judging what should be done. Special care should be taken not to overlook wounds of the posterior wall of the stomach and of the colon.

Since Crile has preached the "gospel of gentleness," no good surgeon will handle bowel or other visceras roughly, or expose more than a foot or two at a time, or dally with his operation. Speed, but never haste, is the rule. This is especially necessary when scores of cases may be urgently needing surgical relief.

According to Bowley, an operative recovery of 50% in war conditions is the best that one can expect—a great contrast to civil surgery. Hemorrhage is the principal cause of this deplorable result. Hence the need for quick transportation and prompt operation, except in such deep shock as to forbid operation until reaction has been attained. If salines are to be used it should be by intravenous infusion, for in deep shock little if any absorption takes place if given subcutaneously. The pulse is of the greatest importance. Of 145 cases with a pulse over 120, only 16 recovered—a mortality of over 89%. After 36 hours, operation is evidently unnecessary, as a rule.

Fractures.—For fractures, especially fractures of the thigh, Blake's splint provides excellent fixation. Even flesh wounds, especially if large and severe, are greatly benefited by such fixation.

Chase gives a useful little hint as to plaster. Just before the cast is dry it may be coated with talcum powder well rubbed in. This makes a smooth surface which can be washed, and on it the date and other memoranda may be written.

The limits of space will not permit of further extracts being given. The whole book is well worth most careful study by every surgeon.
The Ophthalmology.

Thelaziasis in Man ("Circumocular Filariasis"). In the British Journal of Ophthalmology, September, 1917, there is an article entitled "Thelaziasis in Man: A summary of recent Reports on 'Circumocular Filariasis' in Chinese literature, with a note on the zoological position of the Parasite," by Dr. Leiper, Helminthologist to the London School of Tropical Medicine, which is here reprinted in full:

In the China Medical Journal of January, 1917, Dr. E. J. Stuckey1 has recently brought under notice a new and interesting affection of the eye in man. A young yamen servant attended the eye clinic of the Union Medical College Hospital in Peking, complaining that since the preceding summer there seemed to be a "worm" or "worms" in his right eye. He brought a bottle containing a small object, like a piece of white thread, which he said that he had removed from his eye two days before. Dr. Stuckey made a very careful examination, and an almost invisible body was seen moving in the upper fornix. After cocainization, "four white worms like threadworms, 8-13 mm. long, were removed from the fornices." On the following day the patient removed a further specimen himself.

In a succeeding number of the same journal, Dr. C. G. Trimble2 gave a more detailed account of a similar case in a Chinese farmer of Fukien. This patient had "what appeared at first sight to be a marked ectropion of the right eye and a slight ectropion of the left." The clinical history of this case is as follows: "Three months previously he had noticed a pain or ache in his right eye, slight at first, but becoming worse and worse, until at the time of coming to us he was in great discomfort. Shortly after the onset of the pain he noticed that he had an excessive flow of tears, and for the last month he had been unable to close his eye completely." "The most striking thing noticed upon superficial examination was the severe ectropion of the right lower lid, which was more of a sagging away of the lid than the usual type of ectropion. This allowed a constant flow of tears to run down his face. Further examination revealed that this sagging away was due to a more or less complete facial paralysis of the right side. There was only a slight conjunctivitis and we were about to dismiss the man as an incurable case of facial paralysis, when a more careful inspection of the conjunctival sac brought to light, in the superior fornix of the right eye, two small worms. They were decidedly active, pink in colour, and easily distinguished from the slightly congested conjunctiva. They were easily removed and further search for others in both eyes proved fruitless. Upon removal of the parasites the man had immediate relief as far as the pain was concerned. We had him under observation for about three weeks, during which time the epiphora disappeared and the muscle tone in the paralysed area was restored to at least 50 per cent of the normal. The facial paralysis appeared to be due entirely to the parasitic irritation extending over the three months."

Dr. Trimble states that the worms were females of the same species as those found in Dr. Stuckey's case.

The Rev. T. Biggin found similar worms in the eyes of his pet dog at Tungchow and these, together with specimens from his own case, were sent by Dr. Stuckey to Dr. H. S. Houghton in Shanghai for report.
Dr. Houghton’s "Note upon the filarial parasites from the conjunctival sac" (3) contains the following description of these worms:

**Specimen from dog:** Body filiform, cylindrical, white, attenuated at both ends, cuticle striated. Mouth terminal, small, unarmed; oesophagus short (2 mm.) and without a bulb. Anus subterminal. Male, 6 mm. in length and 0.3 to 0.5 mm. in breadth. Tail curved at right angles to axis of body but not coiled. Four pre-anal papillae, and a small post-anal projection. Female, large and thicker than male, measuring 10 to 12 mm. by 0.8 mm. Vulvar opening close to anterior extremity. Uterine tubes crowded with eggs containing embryos.

**Specimen from man.**—The morphology is much the same as in the worms described above. The specimens from the human eye, however, are distinctly larger, the female measuring 14 to 15 mm., the male 9 to 10 mm. in length, and the bodies being correspondingly thicker.

The specimens, described above, are, in Dr. Houghton’s opinion, varieties of *Filaria palpebralis* Wilson, 1884, a nematode worm commonly affecting the eye of the horse.

**Zoological Position.**

The parasites are rightly considered by Dr. Houghton to be related to eye-worms found in equines and bovines. The parasites are now recognized to differ from *Filaria* worms in several important respects both as regards their morphology and development. A considerable number of species have been recorded within recent years from mammals and birds. They are now grouped by Railliet in three genera, viz.: *Thelazia*, *Ceratospira*, and *Oxyspirura*, in the family *Thelaziidae*, which forms with the *Acaridiæ* and *Spiru-ridæ*, the important super-family *Spiruroidea*.

All the forms found parasitic in the eyes of mammals are now confined to the genus *Thelazia*.

The two other genera contain the worms which live in the eyes of birds. In China, "Manson’s eye-worm” is very common in chickens, but this belongs to the genus *Oxyspirura*, differing from the form described above for man in having a long sharp tail and in the position of the vulva, which lies just in front of the anus near the posterior end of the body.

Railliet recognizes altogether six species of *thelazia* as parasites in mammals, viz.:

1. *Thelazia rhodesi* (Desmarest, 1827) in *Bos taurus* and *Buffelus bubalis*.
5. *Thelazia lacrymalis* (Gurli, 1831) in *Equus caballus* (=Filaria palpebralis, Wilson, 1844).

From the illustration accompanying Dr. Houghton’s description it is clear that the parasites of "circumocular filariasis” in man belong to the genus *Thelazia*, and as they are said to correspond so closely to those found in the dog in the same part of the world there seems good ground for an assumption that they may be examples of the species *Thelazia callipaeda*, which is apparently a common eye-worm in the dog in Asia, and was first recorded from the Punjab by Railliet and Henry, in 1910.

In the number of papillae and in a few other details the brief account of the human *Thelazia* does not
tally exactly with \( T. \) lacrymalia or \( T. \) callipeda. An emendation either of the description or of the diagnosis must result from a more detailed examination of the material.

**REFERENCES.**


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**Parasitology.**

*Clonorchis Sinensis (?) in Hens' Eggs.* During a stay in Kuling, Dr. Walther Fischer, of Shanghai, found in a soft-boiled hen's egg a species of trematode, about 5 mm. long and 2 mm. broad. Unfortunately, the parasite was slightly damaged after the egg had been boiled and broken, which thus made it impossible to ascertain the exact species. The eggs of this parasite are pale yellow in color, the length averages about 26 \( \mu \) and the breadth 14 \( \mu \). Morphologically they are absolutely identical with the eggs of *Clonorchis sinensis*. Some time afterwards Dr. Fischer found at Shanghai in three other hens' eggs parasites of the same kind, but they were slightly damaged also. However, in each egg the parasite was evidently of the same species as after a careful microscopical examination of its eggs they proved to be identical with those above described. Most probably the parasite belongs to the species *Clonorchis*, or a similar species. As the development of the parasite from the egg needs at least one, perhaps two, intermediary hosts, it seems impossible that human beings can be infected by trematodes in hens' eggs.


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**Clinical and Histological Remarks on Babesiosis of Dogs.** By Walther Fischer, M.D., and Hans Scheidemann, M.D., Shanghai.

The babesiosis of dogs is much more wide-spread in China than is commonly supposed. The authors had an opportunity to observe a somewhat large epidemic of babesiosis (infection with babesia, or piroplasma) among hunting dogs in Nanking. Post-mortem examinations were made of five dogs, and blood smears examined in some others.

The illness was in many cases acute and ended fatally; in other cases it took a more chronic course and the dogs finally recovered. Clinically, the decrease of appetite, the extreme atrophy, rapid debility, and fever to 41. 5° C. were the characteristic symptoms, and shortly before the end an acute onset of jaundice supervened. There was always a marked hemoglobinuria in the acute cases, whereas in the chronic cases this seldom appeared. In all cases a severe anemia developed. Other characteristic features were the presence of the parasites in the red blood cells, often in enormous numbers, as many as six being in one cell, the basophilic punctuation...
of red blood cells, and the signs of very great cellular activity of the bone-marrow. Nucleated red blood cells and myelocytes were always found. In some cases the blood was flooded by enormous numbers by bone-marrow cells, so that the blood picture was exactly that of a case of myelogenous leukemia. In sections of the liver, spleen, etc., the presence of bone-marrow cells was seen very distinctly. Particularly interesting was the presence of megakaryocytes, often in enormous numbers, in the capillaries of the lungs, liver, and spleen, and probably connected with it the presence of small thrombi. The spleen showed in some cases typical infarcts, of the same kind as encountered in some cases of leukemia. The infection of the dogs takes place through the bite of ticks. As far as the authors could determine, the red tick (Rhipicephalus evertsi) is responsible for the infection.

In the Bulletin of the Johns Hopkins Hospital, October, 1917, there is an elaborate, well-illustrated article by Dr. N. W. Brown, formerly of Nanking, entitled "The Fasciolopsis of China: A study of two species from Chekiang Province." The material on which this report is based consisted of 188 carefully preserved specimens forwarded by Dr. F. W. Goddard and Dr. C. Herman Barlow, of Shaosing, Chekiang.

The specimens were first separated into two general groups according to their gross appearance. In the first group were placed long, flexible flukes of irregular contour and with conspicuous vitellaria. The other group included specimens more nearly elliptical, smoother, thicker, and with more prominent ventral suckers. After this somewhat arbitrary division had been made it was discovered that the flukes of the first group, numbering 83, were without cuticular spines, whereas spines were found in all the specimens of the second group. With minor exceptions, the specimens of the first group correspond to the accepted description of F. buski, although it is noted that reports as to the presence or absence of spines on F. buski are conflicting, depending largely upon the locality from which the specimens have been secured, and the uncertainty is increased by the finding of spines on species alleged to be closely allied to F. buski.

Except for the presence of cuticular spines the smaller parasites in the second group correspond closely to Ward's description of F. rathouisi, a fluke which, according to Ward's own account, is very similar to the fluke first carefully described by him to which the name of F. goddardi has been given. Ward could find no cuticular spines on the latter specimen, nor could Brown on carefully re-examining it. On the other hand, that the spined species may be F. goddardi is suggested by its close morphological resemblance to the spined species and by Leiper's statement that it is spined. "Under these conditions it is difficult to identify Group II with any described species, and inasmuch as the spinous character is so distinctive a feature of this group, it is presented as a separate species appropriately designated Fasciolopsis spinifera, in which may be included the flukes described as F. buski, or one of the allied species, which differ from the standard type in the possession of cuticular spines. Should further examination of the original type specimens satisfactorily establish their identity with Group II, the older designation may be employed and the proposed term be regarded only as a descriptive synonym."
PNEUMONIC PLAGUE PREVENTION ON THE TIBETAN BORDER.

R. C. Parry, M.R.C.S., L.R.C.P., Lanchowfu, Kansu.

In October, 1916, a letter was received one evening from a missionary stationed at Taochow, West Kansu, near the Tibetan border, telling of the outbreak of a serious epidemic which was carrying off victims after a very few days of illness. The news was certainly very disquieting as the symptoms reported were recognized to be similar to those which marked the outbreak of pneumonic plague in Manchuria and North China, 1910-1911, which swept over so large an area and carried off about 50,000 persons.

Without delay a deputation called on the Governor-General, and, despite the late hour, obtained an immediate interview. Happily, this official had held office in North China at the time of the great epidemic and realized at once the gravity of the situation. He was ready to furnish horses to take a relief party to the infected district and funds to meet all expenses. As a precautionary measure it was necessary to ask for a "despatch" authorizing us to deal with the plague in accord with Western methods, which implies an amount of stringency and thoroughness quite foreign to the ordinary Chinese mind and experience, especially in this remote part of China where the inhabitants seldom have had any experience of foreigners and their strange ways.

This despatch, with the usual oriental embellishments, was obtained and it gave us full authority to requisition suitable buildings for the isolation of cases and of suspects, and the right of admission to any home or institution for the purpose of thorough search. It also contained instructions to the local magistrate to assist us in every possible way, to put up proclamations prohibiting all coming and going to and from Taochow, and to publicly state our purpose in going there in order to allay all fear and suspicion.

It was decided that I should proceed to Taochow, taking with me three hospital students who volunteered their services. As we planned to start in about 36 hours hasty preparations had to be made. One dozen gowns were made and a dozen more were ordered. The same number of masks were prepared, so designed as to completely cover the head and tie at the neck. Apertures covered with glass were made for the eyes. The gowns were made to reach nearly to the ground. Protectors were provided for the feet of those who would be in constant
and close contact with infected persons, as in an isolation hospital. As much disinfectant (izal, carbolic acid, and perchloride of mercury) as could be spared from the hospital was taken and some oil of turpentine for moistening the handkerchief to be worn over the mask in front of the nose and mouth.

A telegram was sent to the Health Department of the Shanghai Municipal Council asking for plague vaccine to be despatched immediately.

On October 15th, our little party, consisting of three students, four mounted soldiers and myself, set out from Lanchow for the plague-stricken area. We had not gone far when one of the students had a severe haemorrhage and was sent back to his home.

On reaching Titao, a large and busy city, it was necessary to interview the magistrate to acquaint him with our errand, and of the possible danger of infection being carried there by passengers or refugees. With the help of Mr. Snyder of the local mission this was satisfactorily accomplished. Upon our recommendation the official decided to have all the Taochow roads watched and a quarantine station established some miles from the city. When we continued our journey next morning, he sent four more mounted soldiers and two yamen runners to escort us.

Three days' journey over mountainous roads in cold snowy weather brought us to Taochow (New City), where the magistrate resided. No time was lost in calling at his yamen and presenting the Governor's despatch. The official's obvious reluctance to go to the plague-infected city to personally assist us, as the despatch required, was overcome, and we prevailed on him to escort us there the following day.

What with the official's party and escort and our own company of soldiers, our journey to Taochow (Old City), twenty miles further, was quite processional. Added to these were a number of passengers stopped by us on the road and turned back. Short stops were made at villages and townlets on the way, where the respective headmen were summoned and closely questioned and instructed on matters relating to the plague. At dusk, our cavalcade rode into the Old City, our arrival creating quite a little stir in the semi-deserted place. Hasty arrangements were made for the night in the inns where we were to stay, and later a meeting was convened to discuss the situation and lay our plans.

The magistrate was entrusted (1) to make arrangements for the careful guarding of all roads, to check all coming and going; (2) to issue proclamations concerning the nature of the epidemic and of our plans.
and methods, and (3) to obtain speedily for us a detailed list of all deaths up to date.

Next morning a tour of inspection was made of buildings which were suggested as suitable for hospital and isolation accommodation. About half a mile from the West Gate of the City is a Moslem cemetery, in which stands a small, somewhat dilapidated house. This we decided to use. It was repaired and made as clean as possible, and straw palliasses were placed on the lime-strewn floor. Behind the house a long trench-like grave was dug, with small single graves for individual burial. For isolation accommodation two or three small houses on either side of a temple courtyard, situated on a little knoll at the outskirts of the west suburb, were selected. Place was found for the occupants elsewhere, all furniture was removed, and preparations made for the reception of "suspects" and "contacts." Within the city walls the houses were not numerous owing to the ravages of the lawless chieftain, "White Wolf," two and a half years previously. It was fairly easy to find isolated buildings and one was made ready for occupation; others were selected tentatively, should need arise for more accommodation. It was arranged that the relations of isolated persons should supply all the requisites for their keep, but a large quantity of flour was taken over in case the numbers were excessive.

The arrangements outlined were not accomplished without difficulty. The people were very quick to promise but very slow to perform. In spite of a plain-spoken remonstrance, the magistrate returned to the New City after two days and left us at a most important stage of our operations. He subscribed Taels 100 towards expenses, and appointed three leading gentry and the Chief of Police to act for him in assisting us, but these individuals had very little influence with the people so that the help we received was far from sufficient. The arrangements made for watching the roads were quite inadequate, making the planned quarantine quite farcical. In fact, arrangements were so unsatisfactory that after deliberation we decided on strong measures. A special courier was despatched to Titao with a telegraphic message to the Governor acquainting him with the state of affairs, and asking for a capable official to be sent to assist us instead of the local magistrate, and at least 50 foot soldiers to enforce quarantine. This had the desired effect for the people fear nothing more than soldiers. Their attitude altered at once, help was willingly offered and work promptly executed. The next day, at their own request, a second message was sent to the Governor, asking for five days respite, after
which if conditions were still unsatisfactory they would be willing for
the help of the official and soldiers.

An "Anti-Plague Requisites Bureau" was now formed whose
function was to find all we required for our work. Of the chief mem­
bers of the Bureau, two were Chinese and two Moslem, and these with
Mr. Rubl of the Missionary Alliance rendered splendid service.

Next, the patrolling of the roads was organized systematically.
Leading men were chosen from various parts of the city and each was
made responsible for providing a dozen or more men for work on the
roads. The groups were allotted to different areas on the outskirts of
the city where they were spread out according to the number of roads
or means of approach or exit. Each "patrol" thus composed was
under the supervision of a local police-soldier, whilst each of the
horse-soldiers who came with us was placed in charge of two or three
patrols. In this way, about 150 persons were on duty day and night
and, by dealing very severely with any offenders found neglecting their
duties, a very fair state of quarantine was effected. Mr. Plynivie was
in supreme charge of this important side of the work, and was most
indefatigable in his efforts day and night.

A third plan divided the city into several districts, each of which
was allotted to two responsible men whose duties were to make
thorough enquiries on every hand with reference to the health of the
people in their quarter, and to report under oath twice daily.

These methods were gradually evolved and improved, and enabled
the work to be carried on smoothly, setting the members of our party
free to deal with the actual cases and contacts.

Our first duty was the burial of dead. There had been seventeen
deaths prior to our arrival. The bodies of six who had died at different
times had been left in the houses by the scared relatives who had fled.
Eight more persons died while we were in the city. Of one household
of six, five died in the home, and the last survivor, the mother, died
in hospital after clinging tenaciously to life for four or five days. Of
another family in a neighbouring village, the mother, grandmother,
and one girl died in the home. The father was away at the time on
business, but seven children were left, of ages ranging between nineteen
years and a few months. These were removed to the Isolation Wards,
where subsequently four developed the disease; one was very ill for
a few days but recovered.

All houses where cases had occurred were officially sealed for ten
days, then thoroughly fumigated with sulphur and sealed again for a
few days. Any articles of clothing, bedding, etc., found where patients
had lain and expired were burnt. The home referred to, which had already been rendered absolutely desolate through the death of all six occupants (a cat was also found dead), was burnt to the ground without any compunction, as it was isolated, of small dimensions and mean condition. Some of the corpses we buried had been left lying exposed for days. Many of the dead were buried in deep graves near their homes, a good deal of lime being added before the earth was filled in. Ox-carts were provided as the most convenient and suitable means of conveyance for the sick and dead.

Another matter which deeply concerned not only ourselves but also the leading Chinese who were assisting us was the gradually increasing ill-feeling and dissatisfaction of the Moslem population. The strict methods we adopted particularly affected this class, for all the deaths that occurred were from their number. Their Chinese neighbours riled them by declaring the plague to be a judgment upon them from heaven. We deemed it necessary for the time being to forbid some of their religious practices in connection with the ceremonial washing and burial of their dead, as it had been clearly demonstrated that those who performed such rites were often the next to succumb to the disease. After a while these restrictions became intolerable to the more fanatical amongst them. They chafed under them and vented their spleen on the Chinese whom they blamed for bringing us to Taochow, thus causing so much inconvenience. Most absurd reports were set in circulation about us, such as the removal of the hearts and eyes from bodies, and stuffing lime into the mouths of patients to kill them off. Other rumours which bore distinct evidence of Mohammedan fabrication and propagation, charged us with having the secret intention of destroying as many of this religion as possible.

The Chinese were not a little alarmed at the evident prospect of trouble, for the Mohammedans outnumbered them by three to one. Several leaders, who called at the Mission and asked for advice, seemed considerably agitated over the situation. We acquainted the Governor in Lanchow with the circumstances, hoping he would deal with the affair through the leading Moslem General residing at Hochow. Meanwhile we made it quite clear to the Mohammedans that we were aware of the ill-feeling and injurious rumours by openly discussing with their leaders the absurdity of it all, and asked them to do all in their power to check it. Also we requested the magistrate to issue proclamations to counteract these unfounded statements. The air cleared very quickly. In a few days a deputation of Moslems called, accompanied by a great mob with sweetmeats, music, and fire-crackers, to present me with
a big banner of red satin emblazoned with gold, which set forth in four large characters the virtuous and meritorious service we had rendered in coming to help them. This was presented with the lavish adulations consistent with Oriental decorum, but one was forced to realize the hollowness of it all by the preceding events.

When the plague seemed to be over, Mr. Rubl, who speaks Tibetan fairly fluently, accompanied me on a trip into Tibetan country, a native body-guard having been provided for us by the Chone Prince. Our objective was a village and monastery called Mai-uh, where the epidemic first appeared, the infection having been carried later to Taochow by a merchant. Some messengers we sent up narrowly escaped being stoned, but we felt it important to endeavour to ascertain the sanitary conditions there, and also the origin, if known, of this visitation of plague.

The trip was full of interest, but we failed to reach the place. The young and arrogant petty chieftain of Mai-uh with his soldiers under canvas was about to make war with some neighbouring clans. He gave us a very rude reception and refused admission to his territory. Though merely ruler over five small clans, he seemed to have no hesitation in treating the representative of the Chone Prince, who rules forty-eight clans, quite disdainfully.

However, from various sources we learnt the following facts which we believe to be approximately true. The outbreak followed the skinning and eating of a marmot found dead on the hills. Subsequently the whole household where it was eaten became ill and died of the disease. From them it spread in the village and monastery carrying off seventeen priests, seven lay Tibetans, and fourteen Moslems and Chinese. No fresh cases had occurred for about a month before our trip, so we presumed all danger had passed. It is interesting to know that this disease is endemic among marmots (tarbagans) and occasionally is transmitted to man, especially to hunters who trap them for the foreign fur markets. These animals are very numerous in the parts visited by this epidemic of plague.

On our return to Taochow several days were spent in general medical and surgical work. Then on November 23, a deputy-official arrived from Lanchow who had acquired experience in Tientsin at the time of the Manchurian outbreak. He was sent by the Governor to try to clear away all misunderstanding and ill-feeling on the part of the inhabitants by enlightening them on the dangerous nature of pneumonic plague and the necessity for the rigid measures that were used; he was also directed to make a report.
When our stay in Taochow was almost ended, just before leaving we were summoned before an assembly of all the leading gentry at the Chamber of Commerce. The deputy spoke at some length about infectious diseases in general, and various matters of sanitation and hygiene. The Magistrate then thanked us publicly for coming to their aid and, on behalf of the city, presented me with a handsome black horse with a wolf-skin saddle.

In thanking them, I endeavoured to explain that what they had said about meritorious service and the like was wide of the mark. Our coming was but in accordance with Christ's teaching—"Love thy neighbour as thyself."

In closing, it may be remarked that the symptoms of the disease as seen in Taochow resembled rather closely those which marked the Manchurian outbreak, judging by reports of that time, but the disease in Taochow seems to have been less virulent, less infectious. The intensely cold weather of the high altitudes in this part of the world may have reduced the viability of the infecting bacilli, and the great distances and poor means of communication between one district and another probably did much to check the spread of the epidemic.

Book Reviews.


This is a handsome volume of over 1000 pages, most lavishly illustrated, dealing, as its title indicates, with the diseases of the alimentary canal and with the best method of examining patients suffering from such disorders. That a serious endeavour has been made to bring the book up to date is shown by the sections on vagotonia, sympatheticotonia, etc., as well as by abundant references throughout the volume to reports of work done during the 4½ years since the last revision. Unfortunately, the author has not been able properly to homologate some of these later additions. For example, on p. 535 ("Chemical examination of the Faeces") twelve lines are given to the subject of "Fats" and we are told that the "quantitative determination is complicated." No hint is given that fuller information will be found elsewhere in the book. Yet on p. 980 et seq. 3½ pages are given to this important subject under the heading "Methods of diagnosis in Pancreatic Disease," and an account is given of the simple method whereby Robson and Cammidge determine the quantities of the various forms of fat present in the feces. Other examples might be given of the way in which the book has suffered from the lack of adequate revision of the whole after the additions were made. Throughout the book the sections on treatment are most valuable; whether dealing with the old problem of constipation or with the latest views of the value of milk-free diets of moderate calorie content in typhoid fever, the author is always able to give some useful hints learned during his many years' experience.
A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D.,
Professor of Bacteriology in the University of Chicago and in Rush Medical
College. Fifth edition thoroughly revised. Octavo of 669 pages, fully illus­
$3.25 net.

The author of this work holds quite rightly that the subject of bacteriology,
although chiefly of professional interest to the medical student, should also find
a place in the scientific course of every university, as it bears technical relation
to affairs of household administration, to agriculture, to sanitation, to various
industries and technological pursuits, and it tends to widen the outlook upon a
variety of other human interests. Accordingly the book is written on these lines,
but as it is still mainly concerned with micro-organisms as the cause of disease its
value to medical men is increased, not lessened, by its larger scope. A full
description is given of the morphologic and cultural characters of each organism
or group of organisms, their varieties, virulence, distribution, pathogenicity for
man and for lower animals, their toxin products, agglutination, etc. In this
edition there are new sections on typhus fever, pneumococci, mouth entamebas,
Hopkins' disease, the Schick reaction, the testing of disinfectants, and other
matters concerning which our information has been recently increased. The book
is an excellent introduction to the study of bacteriology in its widest range.

THE THYROID GLAND IN HEALTH AND DISEASE. By Robert McGarrison, M.D.,
D.Sc., F.R.C.P. Size, Royal 8vo. Number of pages, xviii + 286. Illustrations,
82. Price 12/6 net. Publishers: Baillière, Tindall & Cox, Covent Garden,
London, 1917.

As goitre is extremely common in certain parts of China this volume on the
thyroid gland and its diseases, to which the author has devoted fourteen years of
special study, should be very serviceable to medical missionaries and others in
this country. The work is divided into three parts: the first deals with the
thyroid and parathyroid glands in health; the second, with the factors which
cause them to depart from health; the third, with the morbid states—including
not only goitre and cretinism, but also tetany, myxedema and Graves' disease—
which result from this departure. While not excluding other factors the author
maintains that the derangement of the functions of the thyroid gland is commonly
due to gastro-intestinal organisms or their toxins.

In regard to endemic goitre, it is held that chemical constituents of the
water, geological peculiarities of the soil, poor sanitation, etc., may be predisposing
factors, but they are not primarily responsible: the genesis of the disease is ascribed
to certain organisms which live in the soil of infected localities, especially in soil
which contains a high proportion of organic matter of human or animal origin.

In Graves' disease the etiological factors are nutritional, psychic, and toxemic.
In particular, gastro-intestinal toxemia is said to have an extremely powerful
influence in producing the disease.

The whole work, largely based upon the author's independent inquiries and
experiments, is most interesting and suggestive, and constitutes one of the best
monographs we have upon diseases of the thyroid gland.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS.
By George W. Norris, M.D., Assistant Professor of Medicine in the University of
Pennsylvania, and Henry R. M. Landis, M.D., Assistant Professor of Medicine
in the University of Pennsylvania, with a chapter on the Electrocardiograph in
Heart Disease, by Edward B. Krumharr, Ph.D., M.D., Assistant Professor of
Research Medicine in the University of Pennsylvania. Octavo volume of 782
pages with 413 illustrations. Philadelphia and London: W. B. Saunders
Company, 1917. Cloth, $7.00 net. Half Morocco, $8.50 net.

This is a practical book on the physical diagnosis of the heart and lungs in
health and disease. The authors state that details not of practical diagnostic use are
omitted and methods of secondary importance are condensed. It is well this has
been done for even as it is the work is very full. In the first part, on the
examination of the lungs, special stress is laid on diagnostic acoustics as it is
believed that only by a thorough comprehension of the laws relating to the
production and transmission of sound can the results of percussion and ausculta­
tion be intelligently interpreted. The chapters on the normal and abnormal
conditions of the circulatory system are very good. Full descriptions are given of
the electro-cardiograph, syphygmotonograph, spliygomanometer and other instrumen­tal methods introduced within recent years, which have expanded our knowledge so greatly of the diseases and disorders of the heart. Diseases of the lungs are next considered very fully. The subject is brought well up-to-date as the effects of "gassing" as seen in the existing war are mentioned. There is a good description of paragonomiasis. The work concludes with chapters on the diseases of the pericardium, heart, and aorta. The illustrations are numerous, some of them colored, and all are really helpful. Of particular value are the photographs of frozen sections showing the anatomic relations of the tissues as they were during life. Authors and publishers have combined to produce a very handsome and instructive volume.


The author's preceding volume on "Practical Bacteriology, Blood-work, and Animal Parasitology" has been so successful that with each edition he must have felt sorely tempted to expand it into a complete treatise on tropical diseases. He has temporised by issuing this companion volume on "The Diagnostics and Treatment of Tropical Diseases." The earlier volume teaches tropical medicine from the laboratory standpoint; the second from the clinical point of view, the two together practically covering the whole subject.

In the first part of this supplementary volume, which gives the treatment of tropical diseases, the author considers in due order the various diseases due to protozoa, bacteria, filterable viruses, food deficiency diseases, helminthic infections, infectious granulomata of the tropics, tropical skin diseases and, lastly, tropical diseases of disputed nature or of minor importance. One point is open to question. We think the author's statement that the tarbagan or marmot has little or nothing to do with the genesis of outbreaks of pneumonic plague among human beings is much too positive.

The second part deals with the diagnostics of tropical diseases based on both laboratory and clinical examinations. The volume is well illustrated, contains many useful charts and tables and is thoroughly abreast of the latest investigations and discoveries. All who have the first volume will wish to have the second and both volumes can be unreservedly commended to all practitioners in tropical and sub-tropical climates.


As the author of this large and closely packed volume observes, pharmacology comprises some broad conceptions and generalizations and also detailed conclusions of such great and practical importance that every student and practitioner of medicine should be very familiar with them. It comprises also a large mass of minute details which constitutes too great a tax on human memory, but which cannot be neglected. It is his ambition to present both types of information without confusion and so fully that the book may serve both for study and reference. The classification adopted is that of Buchheim, which groups drugs according to their principal pharmacologic characters, account being taken of all their important actions, their chemical properties, and in many cases their therapeutic uses. The articles on the principal drugs, digitalis, strychnine, etc., are so full as to constitute valuable monographs and all are thoroughly scientific and embody the most recent researches. The book will be most valuable to teachers, and to students as a reference text-book.


The object of this well-known work on skin diseases is to present the practical part of the subject in a manner sufficiently complete as to give those engaged in
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general practice a full comprehension of the symptomatology, diagnosis, and treatment of the various affections with which they are most likely to come in contact. As the work has now passed into its eighth edition it is evident that it has won for itself a distinct place as an authority on dermatology. Articles on occupational dermatoses, paraffinonia, purpura annularis telangiectodes, xanthoma elasticum and erythema ophryogenes have been added to this new edition, matter that has become more or less obsolete has been excised, and changes have been made in the chapters relating to some of the more important skin diseases. No less than eighty pages are given to syphilis. The statement as to the heredity or otherwise of this disease is by no means clear and the author does not appear to commit himself unreservedly to the view that Treponema pallidum is the specific infective organism of the disease. Probably the text on this point has not been recently changed. Also the treatment of leprosy has not been brought quite up to date. But ample notes on almost every page supplement the information contained in the text and refer to the latest literature. The illustrations are numerous and very good.


The sphygomanometer now forms a part of the armamentarium of almost every physician. The present work is very useful and timely as it presents in easily accessible form the pith of medical literature bearing on blood-pressure studies in their relation to medicine, not only in cardio-vascular and renal conditions, but also in many diseases in which clinical observation has shown the information obtained by the sphygomanometer to be of value. As the author is himself the inventor of the aneroid form of the instrument, it would not be surprising if, in his enthusiasm for this kind of work, he unduly excelled the value of blood-pressure findings to the detriment of other equally important data. But he holds the balance very evenly and gives an impartial description of all forms of apparatus used. The book is commended to all who wish to make a thorough study of this scientific aid to the diagnosis of disease.


In his experience as teacher and consultant the author has found that students and practitioners of medicine regard the study of nervous diseases as particularly difficult. He ascribes this to a lack of the proper understanding of the anatomy and physiology of the nervous system and of the correct method of examining nervous patients, which in turn is said to be due to the fact that there is not at present available a moderately brief exposition of the subject. Accordingly, he has written to supply this need. Whether the travelling has been made very much easier is perhaps open to question. There are no royal roads nor short cuts to learning, and the author wisely does not attempt to furnish them. Although it does not cover the whole subject of neurology the volume furnishes a sound knowledge of nervous diseases, their diagnosis and treatment.


To those who possess the preceding volumes of Musser and Kelly's work on Practical Treatment, this supplementary volume is a necessity, as in it the earlier contributions of the various authors are brought into line with the latest advances in medicine. It is well worth obtaining, however, even if it stands alone, as many of the articles are so complete as to practically cover the subjects with which they deal. Particular attention is directed to the value of the following chapters: Typhoid Fever, by Cole and Cluckering; The Specific Therapy of Pneumococcus
Infection, by Dochez; Diseases of the Cardio-vascular System, by Sir Clifford Allbutt; Diabetes, by Janeway, Allen's starvation treatment being given very fully; The Treatment of Tracheal and Bronchial Obstruction, by Jackson; Pyorrhcea Alveolaris, by Smith and Barrett; Gastric and Duodenal Ulcers, by Sippy; Surgery of the Stomach and Duodenum, by Mayo; Digestive Disorders of Infants, by Ladd; Surgery of the Liver and Gallbladder, by Deaver; Peritonitis, by Jopson, and a very full monograph on the treatment of Nephritis, by Rowntree.


Written in response to a request from his students at Columbia University for printed assistance to find the salient points and leading symptoms of the principal nervous diseases without the laborious search involved in consulting the larger text-books, this little book met their need very successfully and now a second edition has been issued. Very full directions are given for the examination of patients with nervous diseases, and then the different symptoms, objective and subjective, are analysed and the diseases stated in which they occur. The chapter on characteristic gaits is particularly good. Not a few mnemonic aids are scattered through the work. The illustrations are a valuable aid to the elucidation of the text. This volume will be found very useful by medical students everywhere, and to the general practitioner it will recall in an interesting manner the intricate symptoms of nervous diseases whenever his memory is inclined to fail him.

**The Roentgen Diagnosis of Diseases of the Alimentary Canal.** By Russell D. Carman, M.D., Head of Section on Roentgenology, Division of Medicine, Mayo Clinic, and Albert Miller, M.D., First Assistant in Roentgenology at the Mayo Clinic. Octavo of 558 pages with 504 original illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth $6.00 net; Half Morocco $7.50 net.

The intention of this book, as stated by the authors in the preface, is to select and arrange in a systematic manner those things which seem not only to be true but to be worth while, and especially those which they have verified by experience with a large amount of material from the Mayo Clinic. That intention has been so well carried out that if the result does not prove of service to the authors' co-workers, the latter will either be at fault, or they are extremely efficient radiographers.

The 558 pages with 504 illustrations, all of them good, many from excellent case-plates, well printed on good paper, make an attractive book which would be somewhat handier if it weighed less than 3½ pounds. Each chapter ends with a fairly comprehensive list of bibliographical text references.

It is somewhat surprising amongst so many illustrations, not to find a single stereoscopic one, and amongst 29 references to Case's work that no mention is made of his "Stereoroentgenography of the Alimentary Canal," published in 1915. Carman and Miller's book, however, is probably the most exhaustive work on the subject with which it deals, so far published in English.


For an extended review of this volume, see "Medical and Surgical Progress," ante, p. 72.


This well known work is more than its title modestly claims for itself of being "an outline," as it is an unusually complete treatment of the subject in so small a

In its comprehensiveness, thoroughness, and wealth of illustration the Principles and Practice of Nursing by Dr. Gushue-Taylor, written in the Amoy vernacular romanized, is well designed to meet the requirements of nurses and student-nurses in Formosa and elsewhere who speak this dialect.

After giving the essential facts of anatomy and physiology, there follow chapters in general, medical, and surgical nursing, with an appendix describing methods of artificial respiration and containing much other useful information. The whole concludes with a complete glossary of all the terms employed. It is hoped that the author may be able to fulfil his purpose of bringing out an edition in easy Wenli as it will give this excellent work the wider circulation it deserves.


In the warfare against disease more and more stress is being laid upon preventive measures, in accordance with the maxim that "an ounce of prevention is worth a pound of cure," i.e., that the comparative ratio of value between curative and preventive medicine is as sixteen to one, which, in the opinion of the author, may be regarded as a fairly accurate estimate. In this great task of prevention the intelligent co-operation of the laity is indispensable. Hence the value of this volume which gives to the layman practical detailed instruction for the avoidance of many common diseases and deformities. Various chapters are re-enforced by introductory notes from leading physicians and surgeons in the United States. With a few adaptations the volume might well be translated for the use of educated Chinese.


The "Catechism Series" belongs to the same class of publications as "Quiz Compends," "Aids," etc., which by questions and answers reduce to a more assimilable form for the help of medical students the great mass of information contained in text-books. This series compares favorably with others as the questions are fewer and more comprehensive, resembling those actually given in examinations. And the answers are so stated as to be readily grasped and remembered. The illustrations are good. Each number of the series is small, of about 70 pages with paper covers, so it can be easily slipped into the pocket. For reviewing subjects which have been thoroughly studied, these catechisms should prove very useful.


Under the rather ambitious title, "The Treatment of Emergencies," this is a work intended for the instruction of those who may be called upon to render "first
aid "to the injured. The author states that he has examined hundreds of students of first aid who could do the practical work, answer examinations in a poll-parrot manner, but who had no idea of the underlying principle of the dressing and the reason for a particular method of application. Surely his experience in this respect has been singularly unfortunate. However, "this book has been written primarily for the instructors of first aid to the injured, for police and fire surgeons, for ambulance surgeons, for resident physicians, for nurses, and for those laymen who wish to make a more comprehensive study of the subject." The weakness of the book lies in its attempt to instruct at one and the same time persons with such different capabilities and training. But it contains much valuable information, and instructors will find it useful as a basis for their lectures and demonstrations.

RULES FOR RECOVERY FROM TUBERCULOSIS. By Lawrason Brown, M.D. Publishers: Lea & Febiger, Philadelphia and New York. By a printer's error this very useful book for the laity was advertised in the September number of the C. M. J. as having been written by Dr. Beam. The author's name is Lawrason Brown. Unfortunately, one cannot always be successful in removing beams and motes from the field of vision.

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.

Hospital Workers and Gratuities.

To the Editor, C. M. J.,

DEAR SIR,—With reference to the letter from Medical Missions in India on the subject of "Hospital Workers and Gratuities" I would like to see the subject discussed in our own Journal. It is a very important and a very difficult subject.

We have in our time tried many plans, but the one that seems to answer best and be most satisfactory is a collecting box for the patients to put in their gratuities for the nurses and servants, and at the end of the month, or quarter, for the foreigner in charge to open the box and divide the spoil, one-third going to the Hospital, and two-thirds to the nurses and servants. This is the rule in the Women's Hospital, Hangchow. The rule in our Men's Hospital is that all moneys given by patients to nurses, ward-orderlies, etc., must go to the hospital, but it is impossible to enforce the rule and very few gratuities are passed on except by those who have tender consciences, and they are not many. Most of the gratuities take the form of gifts quietly and think nothing of it, because it is Chinese custom. Our maternity nurses on going to the homes of the better classes sometimes received large gratuities and rather objected to give them up; we got over the difficulty by telling the patients that they should not give money, but give the equivalent in silk, for a smart costume would be all right.

Our medical assistants, because they draw hospital pay, are also supposed to give up all fees received from visiting private patients at their homes, but very few fees are ever given up, because they say it is all more or less "friend pidgin," and that the gratuities are not regular fees but gifts sent privately not to the Hospital but to their homes. Our assistants settle the conscience question by thinking they are much underpaid for the valuable service they render. Assistants, nurses, ward-orderlies, etc., invariably pay more attention to a well-to-do patient than to a beggar, and it is most difficult to prevent it. It is easy to make rules, but it is not so easy to see them carried out to the letter. We have often to be content with a feeble attempt to carry out the spirit of the rule, and if you insist on cast-iron rules being carried out in every detail to the very letter of the law, you will find your assistants, nurses, servants, etc., all gone within a year, your hospitals empty, and yourself in possession of the keys!

It is a good thing to encourage the patients to give as well as receive. There are many who get much, take more, and give nothing, and gratitude practically
expressed is not a prominent symptom. Their gratitude runs a course very much like a fever; it is great when the fever is high and there is a crisis, it is fairly good as the temperature falls, and disappears altogether when convalescence sets in. We always advise the patients who express a willingness to give a little, to give that little in coin, rather than in kind, and much rather than in the form of laudatory tablets.

Yours faithfully,
D. DUNCAN MAIN.

Atriplicism.

To the Editor, C. M. J.,
DEAR SIR:—In the last edition of Stitt’s Diagnosis and Treatment of Tropical Diseases, the author states that “a peculiar disease of North China, known as atriplicism, caused by the eating by the very poor of a weed Atriplex, is common around Peking. There is itching of the fingers, quickly followed by swelling. This tends to extend to the back of the hands and up the outer surface of the forearm. The face becomes so swollen that the eyelids may be closed.” Can any reader kindly refer me to the original papers describing this disease?

Yours truly,
DERMATOLOGIST.

Mission Hospital Reports.

To the Editor, C. M. J.,
DEAR SIR:—In the C. M. J., for July, 1917, p. 364, there is a letter on “Customs and Hospital Reports” and a reply thereto by the editor. I would like to add that I think your correspondent are both in the right. With “G.” I think that some hospital reports have very little to commend them to most physicians in places other than the one covered by the report. On the other hand, some reports are of great interest. It may be that you feel in duty bound to print all reports that are sent to you, or there may be other reasons for printing all, but if the weak reports were eliminated then your reply is to the point and you are making good use of the JOURNAL in printing the remainder.

Yours truly,
MISSION HOSPITAL.

The Symptoms of Amoebiasis.

To the Editor, C. M. J.,
DEAR SIR:—The following type of case is one which I should like to bring to the notice of your readers, in the hope that some will be able and willing to throw light on it.

Case, female, aged 55; suffers from attacks of clinical dysentery, acute gingivitis, gastric hyperesthesia, and severe muscular rheumatism. These symptoms do not occur simultaneously. At one time there is an acute attack of clinical dysentery with tenesmus and passage of mucus. This occurs not only in the ordinary dysenteric season, but also in cold weather. Last winter she had an attack.

Recently, the patient had an acute attack of gingivitis followed in two days by very acute lumbago. There was a cold north wind blowing when the lumbago was felt. But gingivitis and rheumatism both frequently occur. The pain in the abdomen is also frequent.

On thinking over the case I could not explain this combination of diseases, and such cases are exceedingly frequent in our work in South China. Why is it that some patients who come to the hospital or dispensary, who evidently require toning up, when given a mild ferruginous mixture, for instance, with or without an acid, come back with the complaint that they cannot take it as it usually sets up an acute gingivitis, stomach pain, or dysenteric attacks of tenesmus with mucus in stools?

The explanation to me seems to be that these cases are all chronic dysenteric cyst-carriers, and that the irritation caused by the drug lights up a fresh attack.

Some pathologists tell us that Entamoeba buccalis, Entamoeba histolytica, and Entamoeba coli are all different, and that Entamoeba histolytica is the only true amoebic organism. What then is the explanation of the above type of case? Is it that the acid or iron mixture...
excites all amoebae to action, in some cases causing acute gingivitis, in others dysenteric-like attacks?

Yours sincerely,
R. CHALMERS.
Swabue, December, 1917.

Morphine Traffic in the East.

The following letter has just been received by Mr. Lobenstine, of the China Continuation Committee, from Mr. J. H. Oldham, one of the secretaries of the Conference of Missionary Societies in Great Britain and Ireland.

17th October, 1917.
My dear Lobenstine,
With reference to the Resolution of the China Continuation Committee in regard to the importation of morphine into China, which was referred to the Standing Committee, I may call your attention to the following announcement which has just been made in the press:

"The Director of the War Trade Department gives notice that applications for licences to export morphine or cocaine from this country to Japan cannot be considered unless they are accompanied by certificates obtained from the Japanese Home Office or from the Japanese authorities of the Kwantung leased territories that the morphine or cocaine is for actual consumption in Japan or in Dairen and its vicinity, and is for medical purposes only."

The Standing Committee of the Conference of Missionary Societies took up the matter at its meeting last month and appointed a Sub-Committee with powers to take action. We learnt that the British Government had made proposals to the Japanese Government and decided not to take action until the result of these negotiations was known. Now that it has been made public it appears to be entirely satisfactory. If the arrangements are faithfully carried out, they should help to put a check on an evil which we all deplore.

The Standing Committee will continue to watch the matter and if at any time the China Continuation Committee should desire its co-operation with regard to this question, it will be very ready to give it.

I am,
Yours very truly,
(Signed) J. H. OLDHAM.

NEWS AND COMMENT.

BIRTHS.

BEATTY.—On November 30, 1917, at Tai-chow, Chekiang, to Dr. and Mrs. J. C. P. Beatty, a daughter.

BRANGWIN.—On December 26, 1917, at Swatow, the wife of Dr. C. H. Brangwin, of a son.

NEWMAN.—On November 5, 1917, at Ungkung, Kwangtung, to Dr. and Mrs. Henry W. Newman, A. B. F. M. S., a son (Robert Bradford).

TUCKER.—On November 23, 1917, to Dr. and Mrs. A. W. Tucker of Shanghai, a daughter (Maria Washington).

YOCUM.—On November 30, 1917, at Ping-ta, Shantung, to Dr. and Mrs. Alfred W. Yocum, a daughter (Dorothy Elizabeth).

DEATH.

DE VOL.—On December 30, 1917, at Luho, Dr. George Fox De Vol, a beloved missionary of the Friends' Mission. The funeral took place on January 2, 1918.

Many will hear with regret of the death of Dr. George F. De Vol, of the American Friends' Mission. For many years past, Dr. De Vol with his wife, who is also a physician, has carried on an excellent work at Luho city, where they have won the esteem of the Chinese by their self-denying benevolence. Their hospital has for years past been a boon to thousands of sufferers. Dr. G. F. De Vol also gave much time to church and evangelistic work in the city and in the adjacent country, with marked results. He will be greatly missed by a large number of people.

Unsparking in his energies, he apparently over-worked himself and when sickness came, necessitating an operation, he was unable to rally, but gradually sank and passed peacefully away.

Much sympathy is felt with Mrs. De Vol and the three children, in their sad bereavement.
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China Medical Missionaries "somewhere in France."—Dr. James F. Cooper, formerly of Foochow, who went to Europe last spring in charge of a very large number of Chinese coolies, writes in a recent letter, "I am enjoying very much the work here with the Chinese. There are at this hospital 16 former medical missionaries to China, a most congenial lot of men, all of whom are looking forward to the end of this miserable war to go back to their chosen work in China."

Prohibition of Foot-binding.—The Chinese Ministry of Education is taking an interest in the question of footbinding. According to the reports of the Education Inspectors there are still many girls both in Peking and the provinces who continue to bind their feet, and the Ministry prohibits the practice to all attending girls' schools, on the ground that it hinders the growth of the body. Those whose feet are now bound must immediately unbind them, while those contemplating thus deforming themselves shall be warned against it.

Moukden Medical College.—It is stated that Dr. Christie will enlarge and improve his already fine Hospital and Medical College, as he has received a grant from the China Medical Board Rockefeller Foundation for the purpose.

Chinese Doctors in England.—"Some of our students in this country who are in a position to render some service of national importance have been doing so in a very unselfish way and at considerable self-sacrifice. All our qualified medical students have decided to remain in this country to work in the various hospitals so long as the dearth of doctors continues. This is very good of them, especially as some of them have been away from home for more than ten years, and the demand for doctors in China has been so very great. You will find now Chinese doctors in some of the leading hospitals in London, Liverpool, Bristol, Brighton, Plymouth, Portsmouth, Edinburgh, and Ipswich, as house surgeons, house physicians, or resident medical officers. For the first time in the history of the Middlesex Hospital in London, a foreigner has been appointed to the teaching staff, and I am proud to say that this honour has been given to one of my countrymen." Speech of Chinese Minister, Mr. Alfred Sze.

Japanese Morphine Trade.—Mr. Motokochi Takahashi, a Japanese member of Parliament, was in Shanghai a short time ago, investigating the problems connected with the morphine traffic. This is interesting as it shows that the Japanese are beginning to view the matter from a broader standpoint than the merely commercial.

Sanitary Progress in China.—The Chinese Ministry of the Interior is circularizing the provinces on the importance of attention to sanitary precautions, particularly in view of the floods which have complicated the question of the disposal of refuse. The provinces are requested to adopt regulations similar to those of the Peking police with the object of guarding against outbreaks of plague or other epidemics.

Japanese Medical College, Moukden.—The South Manchurian Railway Medical College is building a large new school in which Chinese can be given preliminary training before entering their medical course proper, as it is found almost impossible to obtain thoroughly prepared candidates.

Pneumonic Plague in Mongolia and Shansi.—A telegram has been received here from Mr. Danielson, the Swedish missionary at Saratsi in north-west Shansi, stating that plague is raging in the adjacent villages and is spreading rapidly. Another Swedish missionary reports a similar outbreak at Utsebolong, in nearly the same latitude, but 100 miles west, in Mongolia.

The symptoms appear to correspond with those characteristic of pneumonic plague which devastated Manchuria in 1911, but no direct medical evidence is yet available. It is stated that the attack commences with shivering followed by giddiness and vomiting of blood. Death follows within two days. The disease is highly contagious and there have been no recoveries. Apparently it is established on one of the main caravan routes in Mongolia and there will be some anxiety until its nature has been determined and steps are taken to ensure that the Suiyuan Railway shall not become a vehicle for its transmission to more populous regions.

It will be remembered that the plague of 1911 conspicuously followed the railways of Manchuria and Chihli.—N.-C. Daily News, December 27, 1917.

Back Numbers of C. M. J. wanted.—It is asked that anyone who has a copy to spare of the March issue of the Journal, 1914, will please forward it to the Executive Secretary who will make the payment required.
INTERIM REPORT OF THE INTERNATIONAL PLAGUE CONFERENCE HELD AT MUKDEN, APRIL, 1911.*

To the Imperial Commissioner, the Honorable Sao Ke Alfred Sze.

Sir: We, the undersigned, representatives of the delegations to the International Plague Conference, have the honor to present, herewith, this Interim Report, which embodies the conclusions at which we have arrived from the evidence that has been laid before us and the recommendations which we make to the Imperial Government. We have been guided in our deliberations by the principles laid down in your opening address to the Conference, and we trust that our recommendations may prove of service to your Government, should any outbreak occur similar to that which has occasioned the summoning of this Conference.

MUKDEN, April 28, 1911.

(Signed) RICHARD P. STRONG, America, U. S. of.
EUGEN WOELL, Austria Hungary.
BROQUET, France.
MARTINI, Germany.
G. P. PETRIE, Great Britain.
GINO GALLOTTI, Italy.
S. KITASATO, Japan.
O. GONZALEZ-FABELA, Mexico.
F. H. HEHRWERTH, Netherlands.
D. ZABOLOTNY, Russia.
WU LIEN TEB, China.

Chairman.

W. H. GRAHAM ASPLAND,
Medical Secretary.

C. H. LAURI,
Secretary, International Plague Conference.

PROVISIONAL CONCLUSIONS FROM THE EVIDENCE SUBMITTED TO THE CONFERENCE.

I. From northern Mongolia the epidemic followed a clearly defined course eastward and southward, its diffusion having been principally determined by routes of travel, especially railways, roads, and shipping. The disease spread by direct

*Just as the present number of the JOURNAL was ready to be issued, it was authoritatively announced that an epidemic of pneumatic plague had reached the north of China and was spreading rapidly. In this great emergency it is scarcely necessary to say that the Chinese government may confidently rely on all missionary physicians rendering whatever assistance it may be in their power to give. Our Executive Secretary, Dr. Beebe, has written to Dr. Wu Lien Teh, of the Plague Prevention Service, asking him to state his requirements and a copy of the reply will be sent as soon as received to all concerned. As at the time of writing no one can tell how far the disease may spread, and as some of our readers may not have the Report of the International Plague Conference held at Mukden, April, 1911, this reprint of the findings and recommendations of the Conference may be of service.—ED.
infection from man to man, and whatever may have been its primary origin, there is no evidence that a concurrent epizootic in rodents played any part in its general dissemination.

2. The chief factor in the decline of the epidemic has probably been the preventive measures which were enforced, either in accordance with scientific methods or by the crude efforts of the people to protect themselves. Climatic influences may have contributed indirectly, or even directly, toward bringing the epidemic to an end, but the evidence presented on these points is inconclusive. The decline has not been due to any loss of virulence of the bacillus.

3. Infection was introduced into towns and villages by persons actually suffering from plague or by those in the incubation stage of the disease.

4. There has been no positive epidemiological evidence to show that infection has been spread by clothing, merchandise, or other inanimate objects.

5. Overcrowding has undoubtedly contributed to the spread of the disease within houses by multiplying the chances of infection.

6. The epidemic has been, almost without exception, one of primary pneumonic plague. The incubation period varies as a rule from two to five days. A rise in temperature and an increased pulse rate are usually the earliest symptoms observable, but a diagnosis can not be made, until the specific bacilli have been recognized in the sputum, or until the sputum has become characteristically blood stained. An accurate diagnosis can be made only by a bacteriological examination of the sputum, with the view of excluding pneumonic infections due to other microorganisms. Since the evidence points to the conclusion that in the past epidemic all the cases became septicemic, an examination of the blood, microscopically or culturally, may be a valuable aid in diagnosis.

The physical signs of lung involvement are frequently too indefinite and appear too late in the course of the disease to be of great diagnostic value, and, even in cases in which the condition of the patient is grave, they may be very slight.

7. The fatality of the disease during the past epidemic has been extremely high, scarcely any cases of recovery having been reported.

8. The general experience has been that no method of treatment has been of any avail in saving life, but the serum treatment seems, in a few instances, to have prolonged the duration of the illness, and even one or two cases of cure have been attributed to its use.

9. The strain of bacillus, isolated during the past epidemic, has differed in an essential respect from the strains of Bacillus pestis previously isolated from other sources.

10. So far as can be ascertained, the only infective agent in the epidemic has been the sputum of the plague patient. In the majority of cases the disease has been contracted by the inhalation of plague bacilli in droplets of sputum, causing infection of the lower portion of the trachea and the bronchi.

11. In the case of infection by inhalation, the risk to the person exposed bears a direct relation to his proximity to the patient and the duration of exposure.

RESOLUTIONS.

1. The past epidemic arose in a region which has been associated for years with outbreaks of pneumonic and bubonic plague, but sufficient evidence is not forthcoming with regard to its precise origin.
2. From Russian medical sources it has been reported that an epizootic disease exists among tarbagans and that it is not unlikely that this disease is plague, but that it is plague has never yet been proved bacteriologically.*

3. There is no definite evidence to show that the first cases of this epidemic were caused by infection from sick tarbagans. Nevertheless, there is strong presumption for believing that tarbagan disease is closely associated with pneumonic plague in Manchuria, trans-Baikalia, and northeast Mongolia, and, therefore, with the recent outbreak.

4. Systematic investigations should be made as to whether epizootic disease occurs among tarbagans and other rodents, and, if such exists, an accurate investigation should be made of the nature of the infection.

5. Such investigations should be made under the direction of someone who has had special experience in the examination of rodents for plague infection; and the investigation should include the complete anatomical and bacteriological examination of these animals, with the careful identification of any organisms encountered.

6. Provision should be made for the discovery of disease among these rodents and for their early transmission to the investigators.

7. The two countries principally interested (China and Russia) should separately assume responsibility for carrying out such investigations.

8. Arrangements should be made for bringing the tarbagan-trapping community in Manchouli district under a system of medical supervision, particularly during the trapping season, and a segregation station and hospital should be established at the headquarters of this community.

9. The question of the occurrence of pneumonic plague in mules, donkeys, and dogs should be made the subject of special study with regard to their liability to this infection. Although instances of this disease in these animals have been reported, the subject needs further study.

10. A general improvement in the sanitary condition of cities and villages, especially with regard to overcrowding, is desirable. As soon as it shall become practicable, death certification and notification of infectious disease by medical practitioners, educated according to modern standards, should be instituted.

11. When sporadic cases of pneumonic plague arise, the following measures should be put into operation, namely:

a. Compulsory isolation of plague patients, suspected cases, and contacts; plague patients and suspect cases should wear proper masks.

b. Notification of sick persons and of dead bodies found in houses or streets by house-to-house visitation. Bacteriological and, when practicable, pathological diagnosis should be made. A proper system of death registration should be established. A search for plague cases and corpses in the vicinity of towns and villages is important.

* Subsequent to the presentation of the report, Zabolotny stated that he had found complete evidence of plague in a tarbagan, the plague bacillus having been found at the autopsy both microscopically and culturally. Later experiments by Eberth and Wu Lien Teh prove conclusively that tarbagans are susceptible to the infection of pneumonic plague and can transmit it to other tarbagans.—Rd.
100 The China Medical Journal.

c. Education of the public by lectures and the issue of pamphlets and handbills, explaining preventive measures in simple language.

12. When the disease has assumed epidemic proportions, the following additional measures are desirable, namely:

a. The establishment of sanitary cordons, when desirable, combined with strict medical inspection and quarantine for five days.

b. As the aggregation of potentially infective units should, as far as possible, be limited, schools, churches, theaters, market places, etc., should be closed. Inns, tea houses, and night refuges for beggars should be under very close inspection, as they have been shown to furnish most of the cases. Factories should be closed, unless arrangements can be made for the employees to live under supervision in or near the factory.

c. Tram cars constitute a danger by bringing about an aggregation of potentially infective units, but rickshaw and cart traffic need not be stopped.

d. Where a particular section of a community is alone infected, or is more severely infected than another, it is desirable to restrict the inhabitants to that particular section, and to prevent ingress from other parts of the community, so as to limit infection, and, in very severe epidemics, to divide communities into sections, to segregate the inhabitants in each section, and to enforce quarantine regulations.

13. The need for isolation of pneumonic-plague patients being urgent, permanent isolation hospitals should be available. Such isolation hospitals should admit of individual isolation, be of rat-proof construction and be capable of easy disinfection. In the grounds of such isolation hospitals ample space should be provided for the construction of additional emergency wards, for which purpose the site should be prepared and foundations laid. The provision of ample air space and light is desirable.

14. The hospital accommodation for suspected cases of plague should be adjacent to the hospital for plague cases, and the need for individual isolation being specially important, in order to prevent the infection of noninfected suspects, a separate room should be provided for each patient. No patient should be transferred from the suspect hospital to the plague hospital until a positive diagnosis of plague has been made.

15. Contact quarantine stations should be so constructed and managed as to secure early detection of cases of plague and, as far as possible, individual separation; and the same principles should apply to the construction and management of segregation stations for certain classes of the community and for immigrants.

16. The best system would be the cubicle box system.

17. Clothing and bedding of the patient should be thoroughly disinfected by steam, boiling, or prolonged soaking in a disinfectant solution. If of no value, they should be burnt.

Clothing and bedding of contacts should be disinfected by steam, or by boiling, or by spraying thoroughly with a disinfectant. Articles that would be spoiled by such treatment may be disinfected with formalin vapor or dried by dry heat and exposed to the sun for three days; the whole surface must be exposed in turn.

18. Houses must be disinfected in the following manner:

They should be sealed up for a few hours immediately after removal of the patient or the corpse.
Search should be made with a good light for visible contamination with blood, sputum, etc. Such contaminated matter must be forthwith disinfected or removed and burnt.

The house must then be sprayed and swabbed with a disinfectant solution. Slaked lime may be spread evenly on a mud floor. When a house can be rendered air-tight, fumigation with formalin may be employed.

Cars may be disinfected in the same way as houses, or by steam.

The disinfection of furniture may be included in that of the house, or be carried out by fumigation and exposure to sun. The spittoon must be thoroughly disinfected. The ibration-mat and all rubbish should be burnt.

House burning should not be carried out where it is found reasonably possible to disinfect.

19. Articles of trade, except rags and old clothes, need not be disinfected, unless they are known to have been exposed to infection.

20. For the disinfection of sputum, carbolic acid, if possible with soap or alkaline coal-tar products (cresols), is recommended. Many satisfactory preparations of cresols are sold under special names, but no proprietary disinfectant should be adopted until its potency and properties have been scientifically investigated.

Other useful disinfectants are chloride of lime, slaked lime, formalin, and perchloride of mercury (the last not to be employed for sputum).

21. To make these measures of disinfection effective, it is of the utmost importance that there should be a sufficiently large body of trained men to carry them out; and the best method of securing this object is to set up in every provincial capital a permanent establishment and disinfecting staff.

22. Plague corpses, when found, should be wrapped in coarse sheets soaked in sublimate solution, and removed in special metal-lined, covered carts provided for this purpose.

The burial staff should be provided with blunt, iron hooks to facilitate the removal of corpses.

In view of the length of time during which plague corpses may remain infective, the quickest, safest, and most economical method for their disposal is complete cremation with wood and kerosene oil in special pits prepared for the purpose and situated at a convenient distance from the town or village affected.

23. There should be in each administrative district a permanent nucleus, consisting of a medical and sanitary staff capable of rapid expansion, ready for dealing with any outbreak of plague that may occur.

So far as possible, a uniform system of sanitary administration should be prescribed for all districts.

The quarters for the sanitary staff should be isolated under the best practicable conditions.

24. Until further statistics are available, the sanitary staff should be inoculated, as far as practicable, with plague vaccine before commencing their duties.

At the same time, in view of the special danger of infection by inhalation that has been manifest during the past epidemic, the sanitary staff should be provided with masks of uniform pattern and instructed in their proper use.
The best form of mask is a simple, three-tailed, gauze and cotton-wool pad, which should be destroyed, or disinfected, after each tour of duty.

The sanitary staff should also be provided with gloves and overalls, which should be of impermeable material, and those in immediate contact with the patients should wear goggles in addition to the above.

On coming off duty, each member of the staff should take a bath, and his working clothes should be disinfected at the sanitary station.

The sanitary staff should be medically inspected, and their temperatures taken twice daily.

25. The statistical evidence points to the conclusion that some degree of protection is conferred against bubonic plague by the use of vaccines.

26. Therefore, there are a priori grounds for the use of inoculation with vaccines as a means of protection against pneumonic plague.

27. The statistics which have been collected during this past epidemic do not allow us to come to any definite conclusion about the value of active prophylactic inoculation against plague pneumonia.

28. Many methods proposed for producing immunity against plague have been considered by this Conference; of these some already have been used largely on human beings; others are still under trial.

a. Those already largely used are:
(1) Dead bacilli vaccines (i) Bouillon cultures.
   (ii) Agar cultures.
(2) Nucleoproteid vaccines.
(3) Mixed dead bacilli and serum combined.

b. Those under trial:
(1) Living attenuated cultures.
(2) Living cultures and serum combined.

29. Dead bacillary vaccines can be simply prepared, and, in one form or another, have been extensively used in different parts of the world. There is a considerable amount of evidence to the effect that preparations of this kind can confer some degree of protection against bubonic plague, and the method of agar culture affords some advantage in respect to quickness of preparation, and it is the opinion of the majority of this Conference that killed cultures represent at the present time the simplest, safest, and best method of vaccination against plague, and this opinion is expressed without prejudice to the use of other methods of vaccination or vaccination combined with serum-prophylactic, should such be proved to offer greater advantage.

30. Lustig and Galeotti’s vaccine.—This preparation seems to have given excellent results experimentally on animals and can be as safely used as other vaccines. It has the advantage that, without losing its properties, it can be conveniently stored in a dried form.
31. Strong's method.—This is worthy of careful consideration. The results obtained by experiments on animals and on human beings are so striking as to make it important to collect more evidence as to the safety of the method as a practical prophylactic on a large scale.

32. We offer the following advice:

a. That experiments on animals (guinea-pigs, white rats, and monkeys) should be carried on by the method of inhalation, in order to find out which vaccine can be best used against pneumonic plague.

b. That, should another outbreak of pneumonic plague occur, the above methods of vaccination should be tried in selected communities (as in India) under rigorous scientific conditions.

33. Concerted action between the different railway companies of Manchuria and north China should be promoted, so as to bring about a uniform system of sanitary defense on all railway lines. With this object, a joint railway medical board for quarantine and sanitary purposes only, having a central office, should be formed by the railway companies concerned to frame regulations for the control of traffic in times of epidemic prevalence of plague or other diseases.

34. There is evidence before the Conference of want of uniformity in the action of different port authorities in respect of quarantine measures, and there are grounds for believing that in some instances the stringency or otherwise of quarantine measures in ports is left to the individual initiative of medical officers in different ports. So far as may be practicable, a uniform international system of port sanitary administration and quarantine for north China should be brought about by cooperation between the Imperial Government of China and the other nations concerned. Such administration should follow the lines of the Convention of Paris, 1903, so far as are they are applicable.

35. With a view to systematizing in epidemic periods the control of traffic both by land and sea, the above-named joint railway medical board should, so far as may be practicable, act in concert with the above-named international port sanitary service.

36. To facilitate the control of coolie traffic by land and sea, inducements should be offered to traveling coolies to journey by rail and by recognized steamer lines, and the regulations devised should be such as to combine the maximum of efficacy in respect of controlling the spread of disease with the minimum of restriction of travel.

37. In times of epidemic prevalence of plague, there should be supervision of travelers by road and of cart traffic by the magistrates and officials of towns and villages in the affected districts, together with inspection and supervision of inns, poorhouses, etc. Travelers by road should be furnished with sanitary passes, which must be indorsed at the yamens of the places through which they pass.

38. In view of the fact that coolies and other travelers are known to land from junks and open boats at points along the coast line other than the recognized ports, there should be closer sanitary supervision than heretofore of the coast line of the Gulf of Pechihli in time of plague, and there should also be sanitary supervision of traffic on rivers.

39. The evidence before the Conference is to the effect that it is unnecessary and undesirable in respect of pneumonic plague to restrict the transit of goods (other than personal luggage) and of mails.

* Inoculation under strictly prescribed conditions with a living, thoroughly avirulent culture.

~Ed.
Should there be evidence at any subsequent time of an epizootic in rats, it would become necessary to take measures to secure the destruction of rats on ships and in ports and to guard against the passage of rats from shore to ships or from ships to shore. In this event it might also become necessary to frame special regulations in respect of cargoes containing grain or other cargoes likely to attract rats.

40. In time of plague, the carriage or shipment of corpses should be prohibited.

41. A plague code should be forthwith drawn up, embodying complete regulations and instructions to all officials concerned, applicable on the outbreak of plague.

42. A permanent sanitary nucleus should be formed, capable of rapid expansion in time of plague, and a list should be drawn up of medical officers who could be sent immediately to the affected area on the outbreak of plague.

43. Means should be devised to instruct the public that plague regulations are made in the public interest and for the protection of the whole people.

44. With the view of giving effect to these recommendations, every endeavor should be made to organize a central public health department, more especially with regard to the management and notification of future outbreaks of infectious diseases.

45. In furtherance of the above purposes, every effort should be made to secure effective medical education in China.