CAUSES OF THE PREVALENCE OF PULMONARY TUBERCULOSIS IN SOUTHEAST CHINA.


Before considering some of the more potent predisposing causes of pulmonary tuberculosis, one must devote a few paragraphs to the support of the opinion assumed in the title of this article—one must give grounds for answering in the affirmative the question "Is tuberculosis common in Southeast China?" Unfortunately it is not possible to adduce statistical evidence in support of an affirmative answer; and this absence of exact figures depends on causes which not only hamper our work but also seriously conceal the vastness and urgency of the problem, namely the absence of (a) death registration, and (b) post-mortem examinations in cases where the cause of death is not obvious.

If one tries to get light on this question by considering the records of the only place in South China where vital statistics are collected, one again meets with difficulties: for deaths from chronic illnesses are relatively rarer there than elsewhere, on account of the desire of the Chinese, when death is impending, to return to his ancestral home—usually in some distant village in China proper—so that no mention of his death is found in the records of the British Colony of Hongkong. But in spite of this emigration of people dying of phthisis, one-ninth of the adult Chinese deaths are due to this cause. How much larger a proportion of the living must be affected!

In the absence (in China itself) of statistics, one has to fall back upon one's own experience and that of one's fellow-medicals; but here also the figures available understate the case, because, as in Hongkong, one is not dealing with an unselected sample of the general population, and that for the following reason. Native rumour and opinion—an intangible but most potent influence—say that while
western medicine offers the best treatment for surgical cases, it is not so valuable for 'internal illnesses,' so that (unless one is dealing with a well-educated or largely Christian population) medical cases—including phthisis—form but a small proportion of those whom one is called upon to treat. In spite, however, of this 'holding back' as it were of cases of internal tuberculosis, most medical men appear to be struck by the frequency with which they meet with such conditions amongst the Chinese. I think one is justified in saying that the large majority of the deaths amongst the preachers and teachers of missions in China are to be attributed to this 'white plague.'

My argument may be summarized as follows:—(a) if, in spite of the fact that most cases of pulmonary tuberculosis leave the Island of Hongkong when they lose hope of recovery, eleven per cent of the deaths there are due to tubercle, and (b) if, in spite of a 'holding back' of medical cases from the practice of medical men on the mainland of China, they are still impressed with the widespreadness of this disease, then how inconceivably great must be the total havoc wrought throughout China by this maleficent bacillus.

Having seen then that tuberculosis is prevalent in Southeast China, let us now proceed to examine possible reasons for this frequency. They will be dealt with under two main headings, namely:—

1. Causes associated primarily with the bacillus.
2. Causes that act mainly by rendering the individual more liable to sustain infection.

I. CAUSES ASSOCIATED PRIMARILY WITH THE BACILLUS ITSELF.

These need not detain us long, but the following points may be noted.

1. The habit of spitting is very prevalent. There are few habits of the Chinese more striking than the frequency and freedom with which they spit, unrestrained either by a sense of the filthiness of the habit or by a knowledge of the dangers which it may cause to others.

2. The spitting is careless and promiscuous. In the north of China phthisis is said to be less common because every chair or cart contains a spittoon. This is very far from being the case in the south. Even in railway-trains and the waiting-rooms at stations no conveniences are provided, and, still more deplorable, no one seems to notice their absence.

A careful man may endeavour to spit into the drain at the side of the road, but he frequently fails; and careful men are few and far between. In many homes no spittoon is provided, and even a bedridden patient suffering from phthisis may not think it worth while
to provide such a receptacle for his expectoration—the ground suffices for his requirements.

3. The sputum of tuberculous patients contains large numbers of LIVING bacilli. While generally acknowledging the truth of this statement, we do not realize how great is the number expelled daily.

Some years ago the total daily expectoration of a hospital patient was carefully measured, diluted, thoroughly mixed and a measured quantity of this emulsion of sputum was placed upon a slide, dried and stained. The tubercle bacilli in the whole film were then counted.*

The result showed that this patient was expelling about 400,000,000 tubercle bacilli in a day. Granting the accuracy of Kitasato's demonstration that "most of the bacilli in the sputum are already dead," it is obvious that if even a small percentage are alive, the number of living bacilli expelled daily will be enormous.

4. Many of the living bacilli thus expectorated meet with conditions favourable to their longevity. Even in the cold season the sun can doubtless destroy in a few hours any bacilli exposed to its rays, and this bactericidal power must be exerted much more rapidly in the height of summer, but we have to bear in mind the habits of the people and their strong aversion to the rays of the summer sun. One thinks of the damp dark houses into which one goes from the blinding light of the sun—houses in which every opening which could let in a single sunbeam has been carefully closed up—one thinks of the narrow streets into which only the perpendicular rays of the meridian sun could penetrate, and one thinks of the way in which these same streets are actually roofed in so that even at noonday no ray can enter.

In South China (and particularly in the northeast part of the Canton Province, which is divided up in a most extraordinary way with water-channels) the weather is very often warm and moist, hot without being bright—ideal conditions for the growth of all vegetable life—so one cannot wonder that the tubercle bacilli find ideal places in which to thrive.

As a connecting link between the conditions which are helpful to the bacillus and those which act by rendering man more liable to sustain infection, one must consider two very common methods whereby the bacillus is spread.

(a) By insects from sputum to food. *Bacillus coli communis* has often been recovered from both the feet and the intestine of the common

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*An oil-immersion lens, a mechanical stage and an Ehrlich's eye-piece (i.e., a rectangular field) were made use of in this enumeration, which lasted three days.*
fly, and living tubercle bacilli have also been isolated from the footmarks of flies that have settled on sputum.

In South China we have not merely this common fly, but also mosquitoes and other insects in abundance, insects which, in addition to their special power of conveying such diseases as malaria and filariasis, are quite capable of acting as purely mechanical agents in the spread of tuberculosis.

(b) By social habits, from mouth to mouth. In addition to these natural means of conveying infection, abundant facilities for the spread of the bacillus are also offered by the social habits of the people. A host not only asks his guest to 'drink tea' out of a cup which has not been properly washed for several days (and during that time has been used by scores of people), but he also invites him to smoke a pipe which is the common property of the whole household. Similarly, if a feast is given, a kindly host will use the chop-sticks that have been in his own mouth to place a choice morsel in that of his guest.

As tubercle bacilli have been demonstrated in the saliva of over 50 per cent. of cases of open tuberculosis, it is obvious that these social customs are attended with considerable risk.

II. CAUSES THAT ACT MAINLY BY RENDERING THE INDIVIDUAL MORE LIABLE TO SUSTAIN INFECTION.

The causes that act primarily upon the individual, increasing his susceptibility, may be grouped in various ways. In this article one will consider successively the effects produced upon the health of the individual by (a) the social conditions and customs of the people, (b) by the quality of the air they breathe, and (c) the food they eat, (d) by their clothing, and, finally, (e) by other diseases from which the individual may suffer—the effects produced by opium-smoking will be dealt with immediately after the question of diet has been considered.

1. The general social conditions of the people. This may affect their liability to tuberculosis in at least four distinct ways.

(a) Probably nowhere does one meet with a larger proportion of people living just (only just) above the 'starvation-line' than one does in China. The majority of the population consists of families than can manage to 'get through the day' but can lay by no savings to meet emergencies. Apart from the effect which this poverty has

* It would be out of place to discuss here the relative importance of inhalation and ingestion as causes of tuberculosis, but, so long as there is a possibility of the disease being acquired through the alimentary tract, the above facts should be borne in mind.
upon their diet (which will be dealt with presently) this hand-to-mouth existence is a most potent cause of that care and anxiety which are a man's worst enemies when he is fighting tuberculosis, and which one can readily believe make him more liable to succumb to the attacks of the bacillus.

(b) The fact that 'love' is not a determining factor in arranging the betrothals in China should make it easier to secure a dispassionate consideration of such an important point as the health of the family and of the individual with whom an alliance is to be contracted. To a certain extent this is considered by both the principals engaged in match-making, but the betrothals are arranged and earnest-money paid at a very early age and, by the time the parties are old enough to be married, phthisis may have developed and even reached quite an advanced stage in one or other of them. An engagement would not have been contemplated with one so obviously diseased, but as troths have already been plighted and good money paid over, the marriage is consummated.

(c) The degree to which considerations of etiquette cause young women to confine themselves within their own homes is another potent factor in the causation of tuberculosis. This injurious influence is most in operation at the ages at which most deaths are caused by this disease. If the older women were confined within doors, the results would be less serious; if the young children were thus confined, although their health would doubtless suffer, the mortality from pulmonary phthisis would not be increased; but the confinement of growing women and young mothers cannot but be regarded as a powerful predisposing cause of tuberculosis.

(d) Finally, the effect of the long-continued theatrical performances—though relatively unimportant—should be borne in mind. As these performances rarely close before three or four o'clock in the morning it is obvious that they must seriously undermine the health of those who habitually frequent them.

2. The quality of the air breathed. This factor falls to be considered under two headings, namely, the air breathed by day and that breathed by night, the circumstances under these two conditions differing widely.

The quality of the air a man breathes by day will depend entirely upon his occupation. Is he a bread-winner? If so, does his work keep him in the open air, fishing, rowing, farming, gardening or carrying loads? Or is he a merchant, occupied in an open shop? Or a clerk, shut up in an office keeping accounts? Or, worst of all, freed
from the necessity of earning money, does he spend his days poring over the classics?

If a man is employed inside a building then the screens that are used to keep out the sun's strong beams (as well as the gaze of inquisitive passers-by) will tend to check the free exchange of air.

Unless a man's business keeps him in the open air he will not find much time, nor have much inclination to take our-door exercise. During the hot weather one cannot feel justified in ordering a man to take exercise during the heat of the day, and the absence of any twilight—as well as the fact that the sun-set is the time at which the native here takes his evening meal—makes it a little difficult for him to enjoy a walk in the (relative) cool of the day.

However greatly the quality of the air breathed by different individuals may vary day by day, the conditions at night are more uniform: they almost all sleep in low one-storied houses—often one-room houses—and during most of the year within a thick mosquito net. As thieves are numerous, windows and doors are usually closed at night. Over thirty analyses were recently made to ascertain the effect of this defective ventilation upon the amount of carbonic acid gas in the bedroom, with the following results:

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Parts of CO₂ per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>In open air</td>
<td>... 40 parts</td>
</tr>
<tr>
<td>In bed-room, door and window open</td>
<td>... 50 parts</td>
</tr>
<tr>
<td>In bed-room, door shut, window open</td>
<td>... 130 parts</td>
</tr>
<tr>
<td>In bed-room, door shut and window shut</td>
<td>... 220 parts</td>
</tr>
</tbody>
</table>

The results do not, however, adequately represent the prevailing conditions, for there was only one occupant in the room the air of which was analysed, in contrast to the large family and collection of live-stock usually found in a native bed-room—for not only is the whole family shut into the house but the ubiquitous pigs, the cocks and hens, with the addition frequently of a cat and at least one dog—are also housed in the room, to use up the scanty supply of oxygen and to load the air with the organic matter which they expire at every breath.

The disadvantages of this style of living are so obvious that no more need be said about them. If bed-ridden patients in England—in order to fight against tubercle to the best advantage—are advised to forsake for the open air the comforts of a well-ventilated bed-room (in which only one inmate consumes the oxygen and contaminates the atmosphere) by how much must the unhygienic surroundings of the people in South China handicap them in resisting this bacillus!
But the influence of the mosquito net is a more insidious factor in vitiating the air one breathes, and the writer recently made a series of tests in order to find out what effect the net had upon the quality of the air within it.

Comparative analyses of the air on either side of the mosquito net showed that no obstacle was offered by it to the dissemination throughout the room of the expired carbon dioxide.

Further investigations were therefore undertaken to discover whether the air inside the net was vitiated in other ways. It is well known that expired air contains in addition to an increased percentage of carbon dioxide certain effete products of metabolism; and a series of analyses was undertaken to determine the proportionate amount of these bodies in the air inside and outside the net respectively.

It was assumed that by shaking up a definite amount (100 cc.) of distilled water with a sample (5,700 cc.) of the air to be examined, a certain proportion of the organic matter contained therein would be absorbed by the water. About fifty measurements were made (on successive days) of the amount of oxygen required for the complete oxidation of the organic matter contained in samples of water thus prepared (a) from the air inside the net, (b) from that outside, with the following results:

<table>
<thead>
<tr>
<th>State of Ventilation</th>
<th>Temperature of Incubation</th>
<th>Amount of oxygen required by water sample from air:</th>
<th>Outside the net</th>
<th>Inside the net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorly ventilated</td>
<td>... 15 C.</td>
<td>.00 mgrs.</td>
<td>.16 mgrs.</td>
<td></td>
</tr>
<tr>
<td>Well ventilated</td>
<td>... 30 C.</td>
<td>.13 mgrs.</td>
<td>.59 mgrs.</td>
<td></td>
</tr>
<tr>
<td>Ventilation fair</td>
<td>... 30 C.</td>
<td>.39 mgrs.</td>
<td>.65 mgrs.</td>
<td></td>
</tr>
<tr>
<td>Poorly ventilated</td>
<td>... 30 C.</td>
<td>.47 mgrs.</td>
<td>.80 mgrs.</td>
<td></td>
</tr>
</tbody>
</table>

The table may be summarized by saying that, on the average, the air inside the net was twice as impure—as regards organic matter—as that outside the net.

When one considers, then, the effect of the closed windows and door and of the mosquito net upon the quality of the air breathed by the bulk of the inhabitants of South China, one sees how totally opposed their environment is to the principles underlying the present open-air methods of treating and of preventing consumption.

3. The quality of the food consumed. This question is extremely important, almost fundamental. Of the different predisposing factors considered in this article diet is probably the one that is most amenable

* The analyses were made by Tidt's (Forchhammer's) method, the results of which depend to a large extent upon the temperature. Twelve analyses were made under each of the conditions indicated in the table.
to modification by an individual, and the fault which he should remedy is the small amount of proteid in the food consumed.

While fully in agreement with Chittenden and his school that many of the "ills that flesh is heir to" are aggravated by an excess of the products of proteid metabolism in the blood, one cannot but feel that the average adolescent Chinese contents himself with too little proteid.

One may investigate the question of diet by estimating the content of the food-stuffs in grammes of proteid, of fat and of carbo-hydrate; and such a method of study is often necessary, but unless one also makes analyses of the faeces and finds out thus the amount of the food-stuffs which have been ingested but not assimilated, one is apt to be led into error. In many parts of China most of the proteid ingested is derived from vegetables and a smaller percentage of this proteid is absorbed than of that which is contained in meat. Thus a study of diet sheets, without faecal analyses, is simply misleading.

As regards the nitrogenous foods the question may, however, be investigated in another way. Of the proteid assimilated a certain amount goes to build up the tissues, taking the place of an equal amount of proteid which has broken down and will subsequently be excreted in the urine: the remainder of the absorbed proteid, not being required for tissue formation, is metabolized into such bodies as urea, uric acid, etc., and likewise makes its appearance in the urine. Thus equivalents of all but a fraction of the proteid assimilated will be found in the urine, and an analysis of this will give us all the information required on the point we are now considering.

Examinations have recently been made of the total daily urine of over one hundred people, students, hospital employees, and patients on full diet, and the results of these analyses agree in showing the very small amount of proteid metabolism that takes place in the bodies of Southern Chinese.

Details of the analyses will be given elsewhere, but attention may be directed here to the excretion of urea and of uric acid in all these cases.

Urea generally contains about 90 per cent. of the total nitrogen excreted, and according to European and American text-books from 20 to 40 grammes of this may be excreted daily, 28.11 grammes or 33.13 grammes being the mean. Eighty per cent. of the urines under consideration contained less than 20 grammes per diem and the mean was only 12 grammes.

In considering these figures it must, however, be borne in mind that the native of South China is shorter and less heavily built than
the average European, so that one should compare the amount of urea excreted per kilogramme of body weight, rather than the absolute amounts excreted per diem. In contrast to the European standard⁰ of .4 to .7 grammes per kilo., four-fifths of the cases under consideration gave less than .4 grammes per kilo., the usual figure being between .2 and .29 grammes per kilo.

A further point is that, owing to the increased amount of urine generally passed by natives in this part of China, the urea is excreted in an even more dilute solution than one would expect from the small amount of this body excreted daily. Thus in place of the urine containing from 2% to 3% of urea (the percentage generally met with amongst Europeans),¹⁴ the figures most generally found in the series of cases examined were from .8% to 1%, and in over half the cases the urine contained less than 1% of urea, that is, less than one-half to one-third of the concentration met with in European urines.

May not this be taken to indicate that the blood of a Chinese holds only from one-half to one-third of the amount of urea contained in the blood of a European? When one considers the extraordinary beneficial effects that have followed the use of urea¹⁶ in some tuberculous cases, the small amount of urea in the circulating blood cannot fail to impress one as an important factor in weakening the resistance to tuberculosis.

Similarly, uric acid (which has given excellent therapeutic results in cases of phthisis and may be expected to have at least as powerful an influence as a preventive) is found in the urine of the natives here (and doubtless therefore in their blood) in much less amount than in Europeans. This is shown in the following table.

<table>
<thead>
<tr>
<th>Excretion of Uric Acid</th>
<th>Standard given in home text-books</th>
<th>Results of analyses of 100 Chinese urines.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent, in urine</td>
<td>.024-.060%</td>
<td>.016-.030</td>
</tr>
<tr>
<td>Total daily amount</td>
<td>.4-.7 grammes</td>
<td>.2-.4 grammes</td>
</tr>
</tbody>
</table>

By administering either urea or uric acid in appropriate doses one can increase the amount of these drugs in the circulating blood, and thus increase a patient's power of antagonizing the tubercle bacillus, but the simplest and most natural way of thus increasing his capacity for resistance is by increasing the amount of easily assimilable proteid in his food—a method widely used in the treatment of tuberculosis.¹⁷,¹⁸,¹⁹

The value of a diet rich in nitrogenous matter in preventing tuberculosis is shown by the rare occurrence of phthisis in gouty families; it is practically never met with in one who himself suffers
from gout. This disease I have not met with, nor heard of, in the
course of six years' practice in South China; and its absence indicates
the lack of a prophylactic much to be desired.

Having thus demonstrated the defects in the diet of the Southern
Chinese let us proceed to consider the effect of opium.

The habit of smoking opium may weaken a man's power of resist­
ance to tuberculosis in any one—or in all three—of the following
ways:

(a) A poor man can only purchase such an expensive drug as
opium by foregoing the purchase of a certain amount of nourishing
food. He is, as a rule, unable to confine himself to an amount of
opium so small that the cost will not interfere with his ability to buy
the amount of rice, etc., to which he is accustomed. Hence, on the
one hand, the emaciated appearance of so many opium-smokers (see
also next paragraph) and, on the other hand, the idea held by many
Chinese that while it is not wise for a poor man to smoke opium there
is no harm in a rich man's doing so.

(b) The opium habit has a deleterious effect upon the gastric
juice, diminishing both the amount of hydrochloric acid and the
pepsin; it thereby decreases the power of digesting proteid. Since,
even in one who does not smoke opium, the amount of proteid
assimilated is small (as has been shown by an examination of the
urine) any further diminution in this cannot but be regarded as
serious.

(c) Opium weakens the resistance to tuberculosis by diminishing
the power of the white blood cells to destroy living bacilli. This
diminished phagocytosis has been experimentally demonstrated in
cases of acute abdominal infections in which morphia has been
administered: there is no reason to doubt that the same deleterious
influence is exerted upon the blood by daily indulgence in the
opium habit.

There is still another way in which indulgence in opium smoking
renders a man more liable to become infected by the tubercle bacillus.
The smoker generally spends several hours daily in an 'opium den'
which is not merely dirty and ill-ventilated, but usually abounds with
tubercle bacilli. The explanation of this latter fact is that the Chinese
are quite familiar with the efficiency of opium in relieving many of
the symptoms of pulmonary tuberculosis. Many a man who wishes to
be cured of the craving for opium tells how the habit was first indulged
in to check haemoptysis, to secure relief from an intractable cough,
to diminish 'night sweats', or for some other well-known symptom of
tuberculous disease.* It is the presence of advanced cases of tuberculosis in the opium den that makes these such important centres for the spread of tuberculosis.

4. The clothing worn. Another predisposing cause of pulmonary tuberculosis is to be found in the unsatisfactory nature of the wearing apparel of the natives.

Till recent years the clothes of the ordinary native have consisted simply of cotton, a material that is to be regarded as most unsatisfactory on account of its inability to absorb perspiration and to protect from cold winds. In the coldest weather the same material is used, with this difference, that the coat and waistcoat are made in two layers, the intervening space being padded with cotton wool.†

Recently there has been a considerable increase in the import of 'health shirts'—garments corresponding to what would be under-vests in Europe. These are being much worn by the student and merchant classes and, it is to be hoped, will make for relative freedom from chills, and therefore from bronchitis and other conditions that predispose to tuberculous disease of the lungs.

5. Other diseases. In the first place we may put aside the idea of there being any specific antagonism between malaria and tuberculosis.‡

One feels justified in assuming, on general principles, that the weakness due to chronic malaria and to other causes of tropical splenomegaly and anaemia must render the victim of these affections more likely to yield foothold to the tubercle bacillus. Ankylostomiasis is another condition which by impoverishing the blood weakens the power of resistance to the tubercle bacillus; a fact which is well brought out in Heisser's tables of mortality for Manila where it is

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* It may be gathered from the above that, in the opinion of the writer, it would be a profound mistake to assume that every emaciated tuberculous opium habitué owes his diseased condition to indulgence in this drug. It is quite as likely that, but for the relief afforded by opium and its powers as a 'proteid-sparer,' the patient would have succumbed to tuberculosis many years previously. During the 'anti-opium crusade' that has been such a striking feature of recent years in China there have been few more pathetic incidents than the death of men still in their prime, in whom the sudden and ill-advised cutting off of the daily supply of opium has led to acute exacerbations of pulmonary tuberculosis.

† For the benefit of any readers not familiar with the habits of Southern Chinese it may be stated that the average native does not wear a shirt, but a series of coats, occasionally surmounted by a waistcoat. The number of coats is increased or diminished according to the temperature.

‡ This idea was probably due to its being noticed that sometimes Europeans who had been tuberculous in their own country improved when they went to live in India or other tropical region where malaria was common. The improved health is to be attributed to the greater purity of the air breathed in lofty bed-rooms with widely opened windows, to the more 'open-air' conditions of life in the Tropics,
shown that the death-rate from phthisis is twice as great amongst cases of ankylostomiasis as amongst the rest of the population. The seriousness of this condition as regards occurrence of tuberculosis in South China will be obvious when one reports that about 60 per cent. of one's hospital patients harbour this parasite.

Apart from these general diseases there is one pulmonary condition which, though rarely met with in China proper, is very common in the northern part of the neighbouring Island of Formosa, namely, infection with distoma pulmonale. I have only met with one case of this in China and this patient showed simultaneous infection with the tubercle bacillus. This is only what one would expect, for where could an inhaled bacillus find a better nidus in which to settle and multiply than in the broken-down and bleeding patch of lung prepared by this distoma?

In conclusion let us take a brief glance at the reasons which have been assigned for the prevalence of tuberculosis in Southeast China. On the one hand, on account of the habits of the people and the climatic conditions under which they live, we have seen that living tubercle bacilli may be met with in large numbers—may by the social customs of the people be transferred directly from mouth to mouth—and on the other hand we have noted that not only do the unhygienic surroundings amidst which the people live and the mosquito net within which they sleep seriously impair the quality of the air they breathe, but also that their dietary habits and the illnesses from which so many of them suffer markedly weaken their power of resistance to the inroads of this omnipresent bacillus.

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The Modern Treatment of Syphilis.

E. H. Hume, M.D., CHANGSHA.

The frequently met opposition to the use of Salvarsan has made medical men with a historical sense get out the records of the days when mercury was first introduced in the treatment of syphilis, and we are told that from 1580 to 1655 every teacher at Heidelberg had to take an oath that he would never use mercury. In other words the same opposition arose against mercury in the early days as has now arisen against salvarsan.

There are deaths following the use of salvarsan, but they are no more frequent than deaths following any other intensive method of treatment. The most masterful recent study on this point has come to us from Wechselmann (reviewed by Schalek, Urologic and Cutaneous Review, July 1913). He believes that most of the deaths are due to the combination of salvarsan and mercury. While the kidneys can excrete a large amount of arsenic, repeated injections may interfere with thorough elimination; and it seems possible that as mercury is more toxic to the kidneys than arsenic, it may so damage the organ as to make it impossible to eliminate all the salvarsan that is heaped up by repeated injections. According to Wechselmann, "death from salvarsan does not occur through uremia, but through an insufficient function of the kidneys which causes salvarsan to be retained in the system." He sums up as follows:—"We are justified in saying that salvarsan per se employed in normal persons in the..."
customary dosage is non-toxic. Evil consequences observed are always due to organic insufficiency, especially of the kidneys. For this insufficiency the responsible factors are frequently mercury, exceptionally salvarsan: also other weakening factors, such as the influence of syphilis on the blood vessels or other infections and intoxications. If the most effective results are to be secured from salvarsan it is of the greatest importance to carefully heed the foregoing points during the drug's administration. He believes that just as those early physicians who recognized the value of mercury in the early days, and through the greatest care reduced its evil effects to the lowest point, at last prevailed, so we in these modern days may, by careful technique, accurate dosage, examinations of the urine, and regard to the temperature and general feelings of the patient, place the use of salvarsan on a thoroughly sound footing.

The most important contributions made by Wechselmann are:

- That the toxic action of arsenic may be exerted without clear indices which may be derived from urinary examination.
- That mercury is a more powerful toxic agent and causes characteristic urinary findings.
- That the combined drugs, acting on both blood vessels and epithelium, may be more toxic than either given alone in full doses.
- That the efficient use of either implies adequate function on the part of the kidneys.
- That functional tests should always be conducted before either drug is given in full dosage.

After all, modern serologic studies have given us a vital test which has proven to be the most reliable guide in the treatment of syphilis. Some one has well said that "to treat a case of syphilis without the aid of the Wassermann complement-fixation test is virtually attempting to sail a vessel without the directing aid of compass and rudder—mere guesswork." Wassermann himself states that he and his assistants have performed over 10,000 examinations and never yet made a false diagnosis. While those in other clinics do not feel free to report as yet the same number of correct conclusions, yet, in the words of Major (at the Johns Hopkins Hospital clinic) "the experience of the past year confirms our faith in the reliability and specificity of this reaction. The only other diseases in which positive reactions have been reported (trypanosomiasis, yaws, scarlatina, leprosy, and possibly malaria) are so easily diagnosed or uncommon, as to cause no confusion."

It is evident that only after long experience in the interpretation of the Wassermann reaction can one's results be relied upon. So stringent are the requirements in some hospitals as to ability to
interpret correctly, that no novice's readings are accepted. In the Bellevue Hospital in New York, for example, a man must have done five hundred Wassermann tests before his work is accepted by the clinicians there. For men who are at a distance from laboratories and who have not the time or facility for doing the test themselves it seems as if to discuss the test were valueless. At the same time every man who sees a large number of medical cases is constantly impressed with the fact that he is puzzled by groups of cases and cannot determine by the usual methods, either therapeutic or otherwise, the presence or absence of a luetic infection. To give the patients the fairest chance it is imperative that so far as possible advantage be taken of this test. Noguchi in his recent work on Serum Diagnosis has given us the simplest method available: Merck and other manufacturers are making available a simplified form of the test which, with a certain amount of experience, will bring the test to us, when we, because of our situation, cannot send the patient to the desired laboratory. And to continue to work without the thoroughly reliable results of the Wassermann reaction signifies a willingness to do without the best, both for the patient and the physician who has charge of him.

A very careful study of clinical and laboratory relapses in connection with use of salvarsan has been reported by Heidingsfeld (Journal of the A. M. A., 1913, LXI, page 1598), in which he gives the results of his attempts "to seek some satisfactory method for the conversion of the 23 per cent Wassermann positives to negatives, in cases which have successfully resisted three or more salvarsan administrations." The search is important, as every physician who sees much syphilis is confronted with cases that seem to resist salvarsan. As I write I have under my care two patients, both men of the official class, and men of intelligence above the ordinary, who have had repeated doses of salvarsan without getting rid of their infection. One of them, a young man of nearly thirty, has had six injections of salvarsan: four intravenously, and two intramuscularly. These were given in different places, but in each instance, by competent men. He is still, a month after the sixth injection, showing evidence of infection.

For these resistant cases Heidingsfeld has used with success a 10 per cent. solution of sodium cacodylate and atoxyl. The former proved to be the more reliable. Twenty-two cases of a total of fifty which could be intelligently followed proceeded from Wassermann positive to Wassermann negative with deep muscular injections of sodium cacodylate. Injections were given twice weekly for from thirty to
sixty days, never longer: and were not repeated under intervals of two or three months. Salvarsan was repeated every three or four months in all persistently positive cases. General tonic treatment was not omitted and the dietary and other features of a strict regimen were faithfully supervised. Heidingsfeld came to believe "that all cases, with intelligent, persistent attention, give fair promise of eventually becoming Wassermann negative." He noted that the cases in which alcohol was not absolutely interdicted until the Wassermann reaction remained negative for a period of ninety days, and other cases in which the patients were previously addicted to the inordinate use of alcohol, fared worse as a class.

Salvarsan is not a panacea. The observations of Buchanan (Australasian Med. Gaz., March 1st, 1913) indicate that the selective action of salvarsan is sufficient to exclude from its action even such low forms of metazoa as filarial embryos. In one case the embryos seemed more numerous after the injection than before. Further study along this line will be of the greatest possible importance to workers in China because of its bearing on the treatment of amoebiasis and schistosomiasis. Buchanan's position as to the specificity of salvarsan seems confirmed by an observation as to its action on spermatozoa. Recent literature had showed that some feared a toxic effect, but, in Buchanan's case, the patient after a large and effective dose of salvarsan, impregnated his wife and a normal pregnancy followed.

"CATARACT" BY A BEGINNER.

Some reflections on the writer's first twenty operations for cataract.*

E. W. KIRK, M.D., Canton.

We must all have felt that the tendency of textbooks is to omit many of the minor and more commonplace details in treatment and operative technique. These textbooks are written by experts for whom it is hard to appreciate the difficulties which present themselves to one who is just entering on his career. It is the purpose of this paper to mention some points of importance in the treatment of cataract as these have presented themselves to the writer during the last twelve months. I would ask the members of the Branch to bear with me if I lead them over old ground, my hope being that this short paper may be productive of enlightening discussion and also that

*Read before South China Branch, July, 1913.
its contents may prove of use to some who may be in the position of myself at the outset of their career.

GENERAL REMARKS.

The treatment of cataract is unique in the respect that it may be a matter of superlative ease or of the most extreme difficulty. I venture to affirm that no operation so bristles with dangers and possible complications. Nor is there any operation where such precision and minute carefulness are necessary. If one would operate successfully on cases of cataract one must be prepared for the exercise of the most patient attention to detail, from start to finish. This includes our selection of patients, and time of operation, our preparation of the patient and the cataractous eye, as well as our scrupulous attention to the sharpness and sterilization of instruments, not to mention careful technique in the operation itself and attentive after-treatment.

SELECTIO N OF P A TIEN TS.

We must bear in mind not only the eye and the condition of the cataract, the mobility of the iris and the state of the conjunctiva, paying attention to the presence or absence of dacryocystitis and so forth, but we must give full consideration to the patient's general condition. The writer was taught a lesson by one of his first cases of cataract who, only after operation, was found to be suffering from severe chronic bronchitis and who in consequence developed a prolapse of the iris. Deafness and mental acuity are two things which weigh considerably when prognosis comes to be considered. I find that in cases of bronchitis. Heroin is of the greatest value, causing cases well nigh inoperable to become operable with comparatively little risk.

PREPARATION OF THE P A TIEN T.

The general preparation of the patient is of the greatest importance since upon it depend the comfort and safety of the after-treatment. It is scarcely necessary to mention the advisability of a purge, light diet, enema; and of cleansing the face and washing the hair. A more difficult matter which presents itself to the beginner is, 'When should I consider an eye clean enough for operation?' 'Must there be absolutely no discharge or may I risk operating with just a little?' There are two degrees of after-sepsis which threaten the patient. The one is fulminating, purulent ophthalmia necessitating enucleation, and the other is a slow smouldering sepsis which leads to loss of vision and an unsightly eye. At home, one is accustomed to wait till the eye is perfectly clean before operating. In China, this is not always possible.
I have had patients wait a month in hospital and at the end of that time their eye still discharging slightly it was a question of risking something or losing their confidence and letting them go. A test dressing is invaluable! And the nature of the discharge, on removing this should be carefully noted. Is it watery, mucous, muco-purulent or purulent? If watery or mucous there is, I should say, little fear. If muco-purulent there is danger, and if purulent there is certain disaster to the unfortunate patient and doctor alike. I find that protargol (10 grs. to the ounce) is not sufficient to clean up many eyes and have been following Herbert's plan of washing with 1/3,000 perchloride with much better results. This must not be allowed to remain in contact with the eye for more than 10 secs. The lids should be everted and the conjunctivas thoroughly wiped with perchloride-moistened cotton-wool and then washed with boracic. If the eye is doubtful I find it a good plan to wash it ten hours after the operation and then twice daily till out of danger.

PREPARATION OF INSTRUMENTS, ETC.

The knife must be absolutely sharp. It should pierce the test drum with its own weight. I know of no place in Canton where cataract knives can be satisfactorily sharpened so always send home. Hitherto I have trusted to boiling of the coarser instruments and emersion in alcohol of the knives, scissors, etc., for sterilization. Herbert of Bombay depended for many years on sterilizing the points of the cystotome and of conjunctival and iris forceps, etc., by passage through the spirit flame. To minimize the slow destruction of the points of these instruments by constant passing through the flame the points are allowed to remain in the flame for a period just short of that necessary to make them red hot. He sterilized the knives and scissors by washing with sterilized lint, soap and 1/60 carbolic lotion, a plan which he recommends for those in pioneer work where modern conveniences are not to hand.

REMARKS ON OPERATIVE TECHNIQUE.

I have followed the ordinary combined operation, i.e., iridectomy and enucleation of the cataract from the lens capsule. This is unquestionably the operation of choice for beginners; the Smith operation, being attended by so much greater risk, should not be attempted unless the operator has previously had opportunity to receive instruction from an expert in this particular method and unless he has at hand a trained and competent assistant.
May I make a few remarks under headings representing each of the steps of the operation.

1. **Fixation of the eyeball.**—The grip of the forceps should be close to the limbus and at the point corresponding to six o'clock on the watch. The closeness to the limbus minimizes the risk of tearing and of insecure grip through looseness of the conjunctiva. The gripping in the middle line avoids unconscious pulling of the eye out of its natural axis and complicating the incision. On two occasions I encountered the awkward accident of tearing the conjunctiva. The only plan in a case of this sort seems to be to grip firmly at the insertion of one of the orbital muscles. Once torn it is a difficult matter again to gain secure hold by means of the conjunctiva. Don't press with the fixation forceps on the eye. Don't use fixation forceps after completing the incision. Thus is minimized the risk of gaping of the wound and the loss of vitreous.

2. **Making of the incision.**—We are all familiar with the points of entrance and counter-puncture and every textbook warns against the making of the latter too far back. The incision had better be too large than too small. If too small it may be enlarged with scissors. If too far back there is great risk of injury to the ciliary body and escape of vitreous. If too far forward the wound is for purely mechanical reasons smaller and leads to difficulty at the stage of expression of the cataract and danger of after-gaping of the wound. I now try to make the wound just the faintest suspicion forward from the corneo-scleral junction. The knife must be perfectly sharp and the incision gently executed. It is easy to subluxate the lens by roughness in making the incision. Whatever obstruction may impede the progress of the knife one must go on. It may be iris conjunctiva or even skin, but the knife must go steadily and carefully on. May I mention an exception which proves this rule. If the obstruction is at the first puncture of the cornea and great pressure is evidently going to be required to effect the incision—Stop! have courage to stop! even if it be till another day when a sharp knife may be obtained.

3. **Iridectomy.** I generally perform an iridectomy. It would seem to make the expression of the cataract easier and the disfigurement from the coloboma is not a serious matter in a dark Chinese eye. The snip of the scissors should be in the perpendicular direction rather than in the transverse as this leads to a much narrower coloboma.

4. **Laceration of capsule.** It is of little importance how this is done so as it be done thoroughly and gently.
5. **Expression of the cataract.** This proceeding needs the minutest knowledge of modus operandi and technique. The way being now prepared pressure is gently applied with the scoop backwards at the lower edge of the cornea. This tilts the lens on its central axis causing the upper margin to present at the wound. This force is naturally transmitted to the hyaloid membrane whose rupture is a matter of the greatest ease. The tilting having taken place the direction of pressure is changed. It is then not to be backwards but upwards. This movement is superficial in the application of its force, and should cause little tension to fall upon the hyaloid membrane. The final delivery of the lens is facilitated by a lateral force applied to the edge of the cataract directly, thus rolling it out of the wound.

Difficulties met with in expression:—The lens may not come out! One must quickly and methodically consider the reason why. Is it the fault of the direction or method of pressure? Is it the fault of the incision, too far forward and therefore too small to admit the cataract? Is it the fault of the cataract itself? “Black” necessitating a larger incision? Morgagnian which having given up its “mush” has sunk down into the bottom of the capsule sac requiring removal by means of a spoon? “Unripe” necessitating careful and patient manipulation to deliver? Or is it a case of subluxation of the lens? This I have unfortunately met with on more than one occasion. If subluxation occurs upward under the upper lip of the wound the treatment is obvious and effective. Push the lens gently down with the iris repositor and then inserting the same instrument in behind its upper margin apply *vis a tergo* and deliver. If subluxation be backwards into the vitreous the only plan seems to be the removal with a spoon or some such instrument inserted behind the lens and using the posterior surface of the cornea to obtain counter-support, carefully lifting it out.

6. **Prolapse of the iris and escape of vitreous.** The former condition has marred the result of many an otherwise successful cataract. I find that a resolution of eserine sulphate is of great use in both prevention and cure. In the current number of the 中華醫報 there we recorded a case of what was the largest prolapse of the iris we have seen. Repeated instillation of eserine was the means of reducing this completely. In small prolapses the cautery is of use. But once established for more than twenty-four hours the reduction of these prolapses is a matter of great difficulty. With regard to the loss of vitreous:—One is at first surprised at the amount that may be lost without serious consequence. On one occasion, where expression of the cataract was difficult, a large amount of vitreous was lost and an air bubble gained
entrance to the anterior chamber. This was absorbed in three days and the eye made a good recovery.

Pre-delivery loss of vitreous is a much more serious thing than post-delivery loss. I encountered the former on two occasions, and not having a Bowman’s spoon at hand I closed the lids and sent patients back to the wards. Ten days later, at the time of operation on the other eyes, I reopened the incision of the formerly unsuccessful eye and found expression was now an easy matter. I should not think that this is an altogether wise procedure and the method of removing the obdurate lens by means of a spoon at the time of the first operation would probably have been better. The results in these two cases were, however, from the patients’ point of view at least successful.

In closing may I ask members for suggestions as to a satisfactory method of classifying results of cataract operations in patients who cannot read? In our hospital reports it would be well if we had some such method. I hope that this short paper may be productive of discussion which will help the writer—as well as others into whose hands it may fall—to a greater proficiency in the treatment of this so common a condition in the East.

SCHISTOSOMUM JAPONICUM.*

ALLEN C. HUTCHESON, M.D., KASHING.

When the secretary of our branch association requested me to present a paper on this subject, I felt relieved that he had chosen this particular one, for not only do we treat at Kashing, yearly, great numbers of patients infected with this blood fluke, but I have always felt a peculiar interest in this subject. I have not only been especially appealed to by the individual sufferer but have been greatly impressed by the economic importance to China of this scourge and I have longed for more light on the life history of this parasite, hoping that further light would make possible better and more practical methods of prophylaxis, looking toward the total eradication of this unnecessary evil in China.

I am inclined also to think that there are medical men in China—whose attention not having been called to the possibility of the presence of this parasite in their district—constantly treating cases of schistosomiasis on the supposition that they are malaria, ordinary dysentery, hook worm, or some other more obscure condition.

* Paper read before Mokanshan Branch of C. M. M. A., August, 1913.
Katsurada first discovered the blood fluke *Schistosomum japonicum* and established its pathogenicity in man and in cats.1

In China, among the medical mission body, and probably before any other observer in China, Dr. O. T. Logan of Changteh, Hunan, reported it as found in a case of dysentery (C. M. J., November, 1905). He has made several reports on it since in different articles in the C. M. J., and Peake, Houghton, Wills, and Lambert are among others who have written on it in China. To Lambert3 belongs the honor of calling attention to the so-called urticarial or Yangtse fevers occurring in foreigners, especially sportsmen in the Yangtse valley. Dr. Houghton first suggested to Dr. Logan the connection between these fevers and *Schistosomum* infection, which connection Lambert later confirmed by reports on a case under his observation.

**The Geographical Distribution.**—It has been found in Japan, China, and the Philippines.

**Zoological Distribution.**—It is found in man, dogs and cats. Generically identical but specifically distinct parasite occurs in horses, cattle, and sheep.

**The Parasite.**—Males measure from 7 to 12 mm. long and from 0.53 to 0.8 mm. broad (about the length of an Uncinaria Americana). Female is 8 to 12 mm. long.

**Eggs**—Measure 60 to 90 μ long by 30 to 50 μ broad. Some observers claim that the eggs have a spine, others deny this, having never seen it in examination of thousands of ova. I myself have never been able to demonstrate the spine to my own satisfaction. The miracidium escapes from the shell very soon after coming into water and moves gracefully, at first slowly but later very rapidly about the field. Pressure on the cover glass will often rupture the cell, setting free the embryo. The parasite will live 30 to 40 hours in water, but it must soon find its host or it will die.

The miracidia were found to be easily killed by placing them in a HCl solution of the strength of normal gastric juice. They were found also to be very susceptible to acid salts (Katsurada).

**Source of the Infection.**—Infection evidently takes place through the skin, since individuals whose occupation forces them to wade in water are the ones affected, such people as boatmen, farmers, raftsmen, and among foreigners, sportsmen. We have besides this the experimental evidence, the most valuable being that which Katsurada and Hashegawa have given us. They described their experiments with cats and dogs, performed by immersing the animals
for half hour periods on three successive days to paddy water in an infected district. The accidental entrance of water by mouth was carefully prevented. The animals began to pass bloody stools filled with ova in from six weeks to two months. Experiments of feeding the animals with water and mud from the infected paddies, were negative. Matsuura accidentally infected himself by letting his skin come into contact with infected water.4

Although clinical and experimental evidence would seem to demonstrate that the source of infection is through the skin, yet the progress and development of the parasites in the body before they have reached the adult stage in the blood-vessels has not yet been demonstrated. Dr. Houghton assuming infection through the skin and desiring to throw light on this development conducted some experiments on kittens suspended in artificially infected water here at Kashing in May, but the results of these experiments have not yet been reported.

Frequency.—Males are far more frequently infected than females, though women are infected quite often. Children of eight years old with history pointing to infection have been seen and I have found the eggs at ten and eleven years. The frequency of the infection varies widely in different districts. In some sections of the Yangtse valley as high as 50% of the population will be found infected. On the average, however, it is much lower than this. I had one day nine boys come into the dispensary all from one little village and all infected with *Schistosomum japonicum*.

Duration of Infection.—No definite figures are available, but we know that patients infected with the African blood fluke, *Schistosomum haemolobium*, have passed eggs of that parasite nine and even fifteen years after leaving the area of possible infection. As, for instance, foreigners returning from Africa to England and remaining in that country for years yet still passing eggs of the *Schistosomum haematobium*.5 Those foreigners infected with *Schistosomum japonicum* whose history has been followed have improved very rapidly after being removed from the possibility of reinfection; it will, however, probably persist for a number of years at least.

Pathology.—There is chronic peritonitis,6 enormous thickening of the coats of the large intestine and great enlargement of the mesenteric glands. The submucosa is especially thickened and eggs are found in large numbers here. The mesenteric glands are much enlarged and eggs are also found here in large numbers. There
are ulcers in the mucosa but we do not see the large projections into tufts and almost tumors that is seen as the result of the proliferation in infection with *Schistosomum haematobium*.

Phalen and Nichols speaking of the liver say: “The cirrhosis is marked and it is difficult to account for the destruction of whole lobules when only a few ova are present. Embolic plugging is out of the question owing to the very free anastomosis of the vessels.”

The worms are found only in the portal and mesenteric veins and not in the arteries. The liver is usually enlarged but often found decreased in size. Ascites is present in most of the latter cases.

Oedema of the extremities is present only as secondary to ascites or failure of heart or kidneys, and this absence of puffiness is in strong contrast to the picture in hook worm infection. Spleen is enlarged in most all cases.

*The Blood.* There is a marked eosinophilia. All cases showing over 10% eosinophilia Houghton found, often only after long search, invariably yielded the schistosomum eggs in the stools. There is no absolute increase in the white cells; average leucocytosis is 6,300 (Houghton).

Anemia is not a feature of the infection. Average haemoglobin is over 80%, here again presenting a strong contrast to hook worm.

*Skin.* There is often, especially in early cases, an urticarial condition and often almost a condition of erythromelalgia.

**SYMPTOMS.**

Before taking up the symptoms as we meet them in our hospital and dispensary patients in China, I want to speak of incipient schistosomiasis as we see it in a certain class of foreigners in China. There have been not a few of these cases reported in the Yangtse ports during the last few years.

Incipient schistosomiasis, in this class of patients, usually makes its appearance ten to fifteen days after a history of bathing or wading in shallow water in an infected area. Beginning with remittent fever, temperature ranging from 100 to 102°F. and often accompanied by an urticarial rash, which association caused Lambert to give the name urticarial fever to these cases. Dysenteric symptoms may or may not be present in this first attack. There is a marked and an increasing eosinophilia. Diagnosis made by finding eggs in stool and since the eggs do not always appear during the early weeks of this disease, diagnosis may be made only tentatively in this early period. Any
case with the above history and symptoms in an endemic area should be regarded with suspicion.

The symptoms as we usually see them in the Chinese patients vary from cases where the eggs are found, the patient presenting few symptoms, and the cases where the symptoms are many and grave, but present no eggs.

Houghton's classification is a good one, I think.

There are the typical cases with large liver and spleen and ascites with the history of dysentery or a little blood and mucus in the stool. And here let me caution the physician not to believe the Chinese patient always when he tells you he has had no blood in his stools, (hsuih), for in many cases after denial of the passage of blood, on very close questioning and using the word (dng) for red they will confess to having had such passages either now or at some previous time. On one occasion after the denial of dysentery by two patients I had them pass stools for my inspection and both stools had enough blood to frighten the average foreigner greatly had he discovered suddenly such an amount in his own stool. Both these patients on microscopic examination showed tremendous numbers of the schistosomum eggs.

The dysentery is usually of a different character from amebic or bacillary dysentery. As a rule the number of stools in a day are fewer, even during acute exacerbations of the dysentery of schistosomiasis than in the other two dysenteries. The average number is from two to six in chronic, up to ten and twelve in acute cases or in exacerbations. We must remember that a certain number of these patients are suffering from an infection with ameba as well. There is a certain look about the stools, which helps to differentiate them from the other types. There is a pinkish color to the movement, not the darker red or greenish look seen in the cases of amebic infection, but no diagnosis is sure until the egg has been found, and it usually can be in this class of cases. The majority of cases do not present all these tell-tale symptoms, presenting one or more of them only. There are the cases with large spleen, with or without dysentery, which have to be differentiated from kalaazar and other obscure splenomegalies. Cases negative except for a marked eosinophilia. Latent cases showing only ova in the stools and apparently no bodily reaction, the eggs being found accidentally or in routine examination of the stools.

Now it must not be understood that the eggs can always be found in the stools. This unfortunately is far from the case. I have over and over again daily searched the stools of a case which I felt sure was one
of schistosomiasis, but in the end failed to find the eggs. If one finds a little fleck of bloody mucus in the specimen he will generally be rewarded in a suspicious case; but if there is no mucus, one will more often fail in the first examination.

Of other symptoms not yet mentioned, fever is perhaps the most important and most constant. Fever at some time in the course of the disease is almost invariably present, though here again care must be taken in believing too readily the patient when he denies history of fever, for we all know how many Chinese will totally disregard so high a temperature as 101 \(\frac{1}{2}\). Low intermittent fever highest in the evening (as the Chinese say "s chiao chiao") is the usual type. Sometimes this is the one symptom for which the Chinese present themselves for treatment.

*Other symptoms are:*—Various kinds of dyspepsia; painful and tender spleen. Loss of strength. Exaggeration of reflexes, especially patellar, which is quite marked. General malnutrition and loss of flesh. Diarrhoea with or without blood. The stools are full of undigested material and usually foul-smelling. These stools are really quite characteristic.

**DIAGNOSIS.**

This can be positive only on finding the egg in stool, and so long as we have the great questions of kalaazar and the splenomegalies of known and unknown causation to solve, the diagnosis of *schistosomiasis* without finding the egg will always be unsafe. A diagnosis can be made with almost perfect confidence, however, when we have the history of exposure by occupation or otherwise to the water in an endemic area with history of dysentery and enlarged spleen with ascites. A very probable diagnosis can be made when the above history of exposure is found in a patient presenting any one or a combination of the following symptoms; recurring attacks of low fever, large spleen, marked eosinophilia, and ascites, the probability increasing markedly in proportion to the number of these symptoms associated together in the same patient.

In eliciting a history as to the possibility of exposure by occupation or otherwise you will often find that some patients who claim not to be from the country will often give the history of having spent their childhood in the country, a fact which they had overlooked in their first denial of exposure to infected waters. Where we do find such a history the presence of dyspeptic symptoms, exaggerated knee jerks, lassitude and weakness not associated with cough, chronic diarrhoea
and a stool filled with large masses of undigested matter is very suggestive of *schistosomiasis*.

Finally one symptom which, though it has been observed in foreign patients by other men in China, I have never seen but once in a Chinese patient. I refer to the skin reaction to the parasite or its toxins. A young girl was brought by her mother to us suffering from what looked like an erythromelalgia of both hands and forearms with history of recurrence during the fourth month of each year for three years. I suspected *schistosomiasis* and although the girl denied history of dysentery I did finally get the mother to confess that she did have a little herself at times, and examination of stools of mother and daughter revealed a fairly heavy infection with the *Schistosomum* eggs in both, but more marked in the mother and I feel sure that this painful skin reaction was one of the manifestations of *schistosomiasis*.

I think some men in China have been ascribing symptoms to the hook worm which are really due to this parasite. I know of one article in the *China Medical Journal*, about two years ago, in which this mistake was unquestionably made. The *Ankylostome* eggs were found in all the cases, but the symptoms on which stress was laid and the real grave symptoms were almost all due to *Schistosomum* and in several of the cases reported the *Schistosomum* egg was also found, yet this writer attributed the symptoms to the *Ankylostomum* infection. So evident was this wrong that it called forth a letter from another man in China familiar with *Schistosomum* in protest against this first article, and I feel sure that the protest was justified. The picture of the two conditions is quite different, but as the hook worm egg is better known and its pathogenicity has been longer established, many men on finding a few eggs are content to attribute whatever symptoms the man presents himself for, to these worms, while I feel that certainly in my section the ravages and ill-effects of hook worm are almost insignificant as compared with *Schistosomum japonicum*, and to my mind the finding of one egg of this parasite in a field is of far more serious import than the finding of six or more hook worm eggs. I think we are all inclined to attribute too much to the discovery of a few hook worm eggs in the stool of a patient.

**PROGNOSIS.**

Where a patient suffering from this infection can be removed from the possibility of reinfection before the stage of ascites or very severe dysenteric complications, I believe there is reason to hope for the disease to remain more or less stationary and in many cases to improve
markedly. In early cases thus removed from the chance of reinfection, there is every reason to hope for the eventual death of the parasite and the ultimate recovery of the patient, and in the case of foreigners with incipient *schistosomiasis* treated by Aird and Thompson of Hankow, the patients seem to have recovered with practically no inconvenience from their infection.

In Chinese, however, compelled to continue their occupations in the rice fields or elsewhere in infected places the outlook is not at all promising. Still, could they be persuaded to change their occupation and remove to a city, the outlook would probably be very good.

**TREATMENT.**

Before speaking of this, I want to speak of the tremendous economic importance to China of the ravages of this parasite. Think how it invalids thousands every year, not simply removing them by death from the country and leaving room for others, but it makes helpless, hopeless invalids for years of great numbers of people! The cases of ascites unable to provide for themselves and depending on their wives or families for support, are very numerous in some parts of China. I myself have seen two sisters, hardworking, intelligent women married to two men both of whom, suffering with ascites from this infection, were simply like babies in their hands, depending even on these poor women to bring them to our dispensary to be tapped for dropsy. Think how it drains the people of these districts to support these invalids! Malaria, with all its complications, I do not think is equal in economic importance to the ravages of *Schistosomum* in the Yangtse Valley from Hankow to Shanghai. What could be done in a prophylactic way in dealing with this disease on a great scale? Of course several ways are naturally suggested, all of which are almost impractical at this stage in China. One is to have all fecal matter acted on by some chemical that will kill the parasite before it is put into the fields or manure beds, and when we consider how short-lived is this parasite and how easily killed is the ovum by acids, it would seem possible at some time to do this, but very difficult with the present understanding of hygiene by the Chinese. Again the farmers, boatmen, and others could wear heavy protecting boots when they go into the rice fields and ponds. This is expensive and the Chinese could not see yet, that it would pay to purchase such boots. We must remember also that the hook worm has actually been found to penetrate into the substance of leather quite deeply in experimental cases. Another step would be isolation of the infected people. This is still more impractical in the
present state of China. I think, however, we should all do our best to enlighten each patient as to the origin of his trouble, and where possible do it on a larger scale and the leaven will work in their midst. When the exact manner of infection and the cycle is better known, we will probably be better able to advise definite means of prevention. Meanwhile we can do our best to cause young children, especially schoolboys, Chinese and foreign, to avoid the waters of infected areas.

**MEDICAL TREATMENT.**

There is no treatment known for the disease as such nor for the destruction of the parasite or its ovum in the body. It has been suggested that some of the new arsenic preparations might be effectual in destroying the parasite, but I know of no report on their use so far. Having such remarkable success with emetine injections in amoebic dysentery, I concluded that I would try it on some of the dysenteries caused by the *Schistosomum japonicum* and I tried it in five cases which I have already reported in the C. M. J., July, 1913. My results were not conclusive nor unusually satisfactory, but I did get marked improvement in a few and apparently the disappearance of the dysenteric symptoms was in some way related to the treatment by emetine, though we do know that the dysentery of *Schistosomum* is irregular and occurs at intervals. I treated two cases with double infection of *amoeba* and *Schistosomum japonicum* of these one recovered and said he had not been so well for four years, the other made no improvement at all. Three cases of the infection with *Schistosomum japonicum* alone, of these three, two recovered from their dysenteric symptoms and eggs became much fewer, and almost disappeared from the stool of one of them. The third case seemed to get no relief and went home on the sixth day. Of course this was rather early to form a judgement in a case that is essentially different from one of infection with amoebae which clear up in four to five days. I have since treated two other cases in the same manner; one had no dysentery but simply fever, which fever did not seem to be influenced by either the emetine or by quinine. Another chronic case of *Schistosomum japonicum* dysentery had so little blood even at the beginning of treatment that it was difficult to say whether he had received any benefit, although his stools improved markedly in general character during his stay in the hospital under the above treatment. I can then simply say that in my experience the emetine treatment is suggestive not conclusive, but I shall try it on several other cases before I shall pronounce for or against it. I can not but think, however, that even if it does not kill the parasite or its
ovum; the ipecac in some way helps in the treatment of the symptoms of the dysentery found in these cases. For the fever, quinine is recommended, but how much good it does I do not know.

The great indication is public education and public and individual prophylaxis in the treatment and overcoming of this terrible scourge of vast areas of China.

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THE EXAMINATION OF THE LABYRINTH AND ITS USE.


Until recent years it was impossible to give a definite diagnosis of involvement of the labyrinth in otitis media. In former days a patient came into the dispensary with a chronic discharge from the ear. On examination the tympanic membrane was found to be totally or partially destroyed.

The patient then, if in Vienna, was treated for three months, or, if in Berlin, for six weeks. If the discharge had not, at the end of these periods, ceased a radical mastoid was performed. In many cases the patients recovered from the operation, whilst a few died from meningitis or cerebral abscess.

Why one patient should get intracranial trouble and another escape was a mystery. We now know the cause of the intracranial complications in these cases was the presence of a fistula in the labyrinth or more commonly a labyrinthitis.

Similarly it was realized that the removal of a polypus from a perforation in the drum ended at times fatally. We now know the polypus in these fatal cases originated in the horizontal semicircular canal. Its removal resulted in a labyrinthitis followed by meningitis or a cerebral abscess.

The tests for the labyrinth depend on putting in motion the fluid in the semicircular canals, i.e., the endolymph. When this endolymph
moves it irritates the cilia of hair cells, which in turn stimulate the vestibular nerve. The vestibular nerve is connected by centres (Deiter's area) in the medulla oblongata with the oculo-motor centre and with the motor cells in the anterior horns of the spinal cord.

The fibres which pass to the oculo-motor centre effect the nystagmus, which results from vestibular irritation. Those passing into the spinal cord cause the disturbances of equilibration which result from powerful vestibular stimulation.

To sum up we may say that movements of the endolymph result in irritation of the vestibular nerve, which effects nystagmus. If nystagmus does not occur when we perform movements which should move the endolymph, then we know the labyrinth is diseased.

The tests we adopt for investigating the labyrinth are as follows:

1. The Rotation Reaction.
2. The Caloric Reaction.
3. The Compression and Rarification Reaction.
4. The Galvanic Reaction.

Having performed these tests we can pick out those cases of otitis media in which the labyrinth should be destroyed by operation. We can thus avoid meningitis or cerebral abscess. These tests also aid us in differentiating some of the many causes of tinnitus.

**Rotation Reaction.**

This consists in revolving the chair on which the patient is seated ten times, thus setting in motion the endolymph, then arresting the movement and observing the duration of the nystagmus. The chair is worked to the right in testing the left ear and to the left in testing the right ear.

To test, for example, the left labyrinth we need a chair on a swivel and a rod at the back as a handle for turning it. The patient being seated we examine for spontaneous nystagmus. If this is present we employ Barany's fixation apparatus. This apparatus consists of a small rod 15 cm. long at the end of which is a point of fixation. The rod is attached to a head band in such a manner as to permit of its motion in a horizontal plane. With it we find a lateral position of the eyes in which no nystagmus is visible. Having thus discovered in what direction the patient must look we apply opaque spectacles to prevent the patient's eyes fixing on surrounding objects. We now revolve the chair ten times to the right side. Having arrested the movement we at once lift the eyelid with a thumb and, if previously there was spontaneous nystagmus, we direct the patient's eyes into the
previously selected position and with a stop watch time the after-
nystagmus. The nystagmus will be to the left. If the left labyrinth
is normal the nystagmus will last forty-five seconds. Of this forty-
five seconds the left labyrinth is responsible for thirty and the right
for fifteen. So if the left labyrinth is destroyed the nystagmus lasts
for fifteen seconds. In the case of the destruction of the left labyrinth
on revolving the chair to the left the nystagmus would last thirty
seconds, as the fifteen from the left labyrinth would be absent.
Though forty-five seconds is the average duration of after-nystagmus,
yet it is frequently above or below the average and may vary in the
same person on successive days. In neurasthenics the duration is
prolonged. At one test we may find both right and left nystagmus
of equal duration, at another the right exceeding the left, while a
third trial may show the reverse condition without justifying the con­
cclusion of any pathological condition.

However, if the time of duration of nystagmus is longer than
thirty seconds then that labyrinth is normal.

THE CALORIC REACTION.

This test is easier to apply and is more reliable than the rotation
test. Many aurists have noticed that irrigating with too hot or too
cold water produced vertigo and nystagmus. Barang, following up
this observation, discovered that if water at a temperature lower than
that of the body be injected into the right ear of an individual whose
vestibular apparatus is intact there results a horizontal and rotatory
nystagmus to the left. If the injected water be of a temperature higher
than that of the body there results a nystagmus to the right. Barang
explains this by considering the labyrinth as a vessel filled with liquid
at a temperature of 37° C. If a stream of cold water be directed against
the outer wall of such a vessel, the contained fluid lying in contact
with the wall becomes cool and sinks to the lowest level of the vessel.
It is in this way there results a circulation of the endolymph and a
consequent nystagmus. Obviously, if a stream of hot water be employed,
the resulting currents will be in the opposite direction. So, if the
vestibular apparatus be destroyed or the vestibular nerve paralyzed,
no nystagmus can be produced on the affected side by the use of either
cold or hot water.

Before conducting the test the patient should be examined for
spontaneous nystagmus. This having been excluded, water of a tem­
perature of 30° C is injected into the ear by means of a Politzer bag
equipped with a catheter, the patient being seated in a chair or in a
semi-upright position in the bed. If no nystagmus is established the
temperature of the water may be reduced to 20° C or even lower.
Should the patient exhibit spontaneous nystagmus Barany's fixation
apparatus is employed. It is in just such cases affected with sponta­
aneous nystagmus that the test must be conducted with the greatest
precision, for the life of the patient not infrequently depends upon the
correct examination of the caloric nystagmus. If acute inflammation
is present we drop adrenaline into the ear before syringing. If choles­
teatomata are present or the meatus is obstructed we must rely on the
rotation reaction. If a polyp is present we remove the polyp in
hospital, then, if no caloric reaction is present, we immediately do a
radical labyrinth operation, else labyrinthitis and meningitis will ensue.

**COMPRESSION AND RARIFICATION REACTION.**

This test is carried out by means of a Politzer bag equipped
with an olive tip fitting air tight into the canal. As a result of the
compression and rarification of the air, the endolymph is put in motion,
provided there is a fistula in the lateral labyrinthine wall, i.e., the
presence of nystagmus precludes the presence of a fistula.

In tests II and III, if spontaneous nystagmus is present and if we
can change the direction of the nystagmus we have a positive reaction.
For example, if nystagmus to the right is present and we wish to
examine the right ear: in such a case we use cold water and the
nystagmus to the right ceases and nystagmus to the left is established
if the labyrinth is normal.

**GALVANIC NYSTAGMUS.**

As yet no importance is attached to this. The accompanying
phenomena of nystagmus vary in their intensity. They are as follows: —

I Rotation of objects in the room.
II Sensation of falling.
III Actual falling.
IV Darkening of the field of vision.
V Nausea and vomiting.
VI In neurasthenics loss of consciousness.

There are three degrees of labyrinthitis.

I Acute diffuse labyrinthitis.
II Latent labyrinthitis.
III Circumscribed labyrinthitis.

**I. ACUTE DIFFUSE LABYRINTHITIS.**

This means acute destruction of the labyrinth. It is found after
the radical labyrinth operation, in acute purulent labyrinthitis secondary
to mastoiditis, in labyrinthine haemorrhages as a result of arteriosclerosis,
leucæmia, syphilis, and fractures at the base of the skull. The symptoms are violent nystagmus accompanied by all the phenomena of nystagmus. If such a patient be examined by the caloric and compression reaction the spontaneous nystagmus will be found to be unaffected by these tests, thus establishing the diagnosis of labyrinth destruction.

The violent phenomena usually continue for two or three days. After the lapse of two or three weeks all the symptoms will have disappeared with the exception of a faint nystagmus, which cannot be altered by the caloric test. In this we have the picture of latent labyrinthitis. We can confirm the diagnosis by the rotatory reaction.

III. CIRCUMSCRIBED LABYRINTHITIS.

Circumscribed affections are characterized by a normal reaction to the caloric and rotatory tests and by spontaneous attacks of vertigo, accompanied in some cases by pronounced deafness or tinnitus or both. The vertigo may last several hours and occur spontaneously or may last from a few seconds to a few minutes and be induced by stooping. This circumscribed labyrinthitis is an accompaniment of labyrinthine fistula. Vertigo lasting a few seconds is also found as a result of alcohol, nicotine, or intestinal intoxication or circulatory disturbances or neurasthenia, but is seldom accompanied by deafness or tinnitus, and gives a negative reaction to the compression and rarification test for fistulae.

Indications for operation in Acute Diffuse, Latent Diffuse, and Circumscribed Labyrinthine Suppurations.—When we have diagnosed acute diffuse labyrinthitis we must operate at once, as indeed we have a condition analogous to acute appendicitis. The pus may become sequestered, but in a large percentage of cases cerebral abscess and meningitis are the result of the purulent affection.

In the case of latent labyrinthitis, the mastoid operation must include the labyrinth, for failure to do so results in post-operative meningitis.

In the case of circumscribed labyrinthitis the fistula may become closed and the vertigo temporarily disappear to return after the lapse of years if only a radical mastoid is performed, or the condition may extend after the operation and become diffuse. Consequently, a radical labyrinth—which, of course, always destroys the cochlea—must be considered.

If the unaffected ear be normal and the diseased ear quite deaf we are justified in undertaking the operation. Should the affected ear
still retain good hearing and the other ear be quite deaf we are not justified in doing this radical labyrinth operation and in performing the radical mastoid we must avoid interfering with the existing fistula.

The radical labyrinth operation includes the total extirpation of the vestibule and cochlea. Failure to open the vestibule and cochlea is as dangerous as the omission of operation itself. In performing the operation the chisel is applied vertically to rear half of the horizontal canal and we then remove everything which lies posterior to this line. Then the lateral wall of the inner is also removed and the cochlea is opened at the promonotory. By this method the facial nerve need not be injured.

In this article I have often given facts without reason or explanation, owing to want of space in a magazine article, yet I hope it will enable one to introduce these tests—especially the caloric test—into practice. To Barany of Vienna, whose lectures I attended, is due the honour of elaborating these tests.

MEMORANDUM ON MEDICAL EDUCATION IN CHINA.

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I have the honour to submit a Memorandum on the present status of Medical Education in China and on the urgent need of thorough reform in this matter, which I trust Your Excellency will be good enough to consider.

2. As you are aware, I have lately returned from attending, on behalf of our Government, the large International Congress of Medicine in London, at which 7,400 physicians and surgeons from all parts of the world were present and also from the International Congress of School Hygiene held at Buffalo where pressing problems regarding child welfare and the adequate supervision of children by school medical officers were discussed.

At these Congresses the leading scientists and educationists of over thirty countries expressed their views and gave practical demonstrations on the most recent methods employed for the benefit of the human race from the nursery to old age. At the London Congress upwards of 500 medical men and women came from America and a like number from Germany; Japan, though so far from Europe, sent sixty of her eminent doctors; whilst China was repre-
sent by only myself and Professor Ch’uan of the Peiyang Medical College. The subjects discussed were divided into 26 different sections, and over 1,000 papers were read. These covered a wide field ranging from the most difficult operations on the brain, heart, and lungs to the most delicate investigations on micro-organisms, so small as to pass through very fine filters and to be invisible even under the highest powers of the microscope.

The Congress at Buffalo, though more limited in scope, nevertheless showed the great attention which modern civilized nations were giving to the mental and physical development of the future generation. At this Congress were discussed such problems as the construction, equipment, and management of school buildings so as to be not only pleasing to the eye but also healthful for children; the prevention and control of infectious diseases; the teaching of simple facts about Hygiene at school; the appointment of school medical officers and their intimate relation with educational authorities; and even the use of discarded men-of-war as sanatoria and open-air schools.

3. It is impossible to be present at these Congresses of learned men and not feel the backwardness of our people in all questions relating to the study of modern scientific methods as applied to industry, medicine, hygiene, and sanitation. Whilst people in western countries, by utilizing the newest discoveries continually made in science, have succeeded, or are succeeding, in stamping out such dire diseases as small-pox, plague, leprosy, typhus, relapsing fever, malaria, tuberculosis, etc., in our country large numbers of children and adults are still being carried away by these maladies. The introduction of hygienic habits among the people and a proper system of public sanitation and medical inspection have been the main causes in bringing about these happy results; and, along with scientific education and the proper distribution of duties among people trained in their special branches of work, have contributed to the progress, efficiency, and high standard of living seen among western nations.

4. It has always been my aim since my return from my studies in England, Germany, and France to devote what little skill I possess in alleviating and preventing as far as possible suffering among our people. One of the fundamental necessities for bringing this about is to improve and further the best interests of medical science and education so that the graduates of our medical colleges may have the same standard of efficiency and ideals as those of the west. To attain
this desirable object, it is clearly essential that the institutions where medical education is given and the hospitals where the sick are cared for and the students learn their clinical work, should be in the hands of men who themselves have worked in and are thoroughly acquainted with the management of the best medical schools and hospitals of the west. Unless this is done, our present and future institutions will not only fail to reach a high standard but actually degenerate in proportion to the progress made by other countries. This will naturally have a permanent and correspondingly injurious effect on our medical practitioners, into whose hands the lives of millions are entrusted.

5. **Personal Observations.** I deem it expedient to mention here some of the observations I have made during the six years that I have had the honour of serving our Government. In spite of some excellent methods of treatment and a long list of useful drugs handed down to us by the ancients, nothing has been done by their successors either to improve that knowledge or to keep abreast of the times. The result is deplorable, and the majority of native-trained physicians of to-day are completely ignorant of the true causes of most diseases, especially epidemic diseases, their methods of diagnosis, their causes, and modes of prevention. On the other hand, certain maladies, such as malarial fever, internal abscesses, blindness due to cataract of the eye, which owing to insufficient knowledge were regarded by the ancients as incurable, are still regarded by modern native physicians as incurable, whereas they are known by all western-trained doctors to yield to simple drugs and operations. Diseases like typhus, relapsing fever, leprosy, which occur with alarming frequency in China, are now unknown in these countries where clean and healthy habits are adopted, such as regular bathing of the body, changing of inner clothes, and the enjoyment of light and well-aired sleeping apartments. Syphilis is terribly rampant in both hemispheres and the same drug (mercury) is used in its treatment, but the west shows better results because the methods employed are more accurate and scientific. Thanks to unceasing research of late years new means of diagnosis and treatment have been introduced, whereby many of the grave after-effects of the disease, still observed in China, can be prevented. Another common ailment is tuberculosis. Up to recent years this disease was as prevalent in the west as in the east, and regarded as transmissible from parent to offspring. After the micro-organism was discovered and studied in 1882, the disease has been proved to be non-hereditary. At the same time the proper measures for its prevention have been enforced, with the result that innumerable
lives are now saved yearly. In China, unfortunately, simple measures such as the prohibition of spitting, the importance of working and sleeping in well-ventilated rooms, taking of regular exercise in the open air, separation of the diseased from the healthy, are not known and practised by even the educated classes, hence consumption of the lungs, of glands, of bones, etc., is extremely common. These cases, even when diagnosed, are not properly treated. As a result, large numbers, including some of our most promising young men, are sacrificed to an early grave.

Although inoculation for the prevention of small-pox was first practised in China, and introduced by way of Turkey into Europe, the practice of vaccination against the same disease has been proved to be of much greater benefit to mankind without the dangers incidental to inoculation. Every civilized Government now enforces vaccination amongst its people, and small-pox therefore has almost completely disappeared in those countries. The same cannot be said of China, where thousands of children are either killed outright or become blind and incapacitated for ever. In Peking, one out of every three native born women shows old pock-marks. To remedy this our authorities have only to insist upon vaccination of children before the first year, at the same time explaining its benefits and the entire absence of bad results. Our forefathers many generations ago handed down a code of rules relating to simple facts in hygiene, which have enabled us to live through many centuries in comparatively good health. It therefore seems a great pity that, whilst other nations have continued to progress and improve their race, we have not taken advantage of the new knowledge available to enable us to do the same.

Pestilences like plague, cholera, dysentery, and typhus still claim numerous victims every year, and the methods adopted to cope with these evils are often of the most primitive nature, making us the laughing-stock of the world.

Our graduates, owing to insufficient training at home, are not recognized by the universities of other lands, and many instances have occurred where men possessing medical qualifications of Government institutions in China and desirous of obtaining another degree from a western university, are obliged to undergo the ordinary student’s course of five years before such a degree is conferred upon them. In other words the training a man receives as a medical student in China counts for nothing in a western country. Even in our own country our graduates enjoy a lower social standing, and also fewer
privileges than medical men of other countries in the matter of
Government appointments—such as health officers, customs and
railway surgeons, etc. To remedy these we must place our medical
education on the same footing as that of progressive nations. The
introduction of steamships, railways, telegraphs and other modern
means of rapid communication has brought about a new era of
progress. New factors have now to be contended with, as, with
increased rapidity of transit by rail and steamer, greater facilities
for the spread of infectious diseases have also come about. To cope
with these new dangers, measures, which have been proved beneficial
in other countries, must be introduced into our land, and wherever
possible improved upon.

6. It is evident from the above that new ideas in regard to health,
as understood and practised by almost every one in the west, should be
instilled into the minds of both our educated and uneducated classes.
To this end the existing systems of medical education, the management
of hospitals, and the control of public health should be reorganized, so
that our country might come into line with the most progressive
nations.

7. Facilities for Medical Education at the Present Time. I venture
therefore to draw attention to the facilities for medical education
available in China at the present time and thereafter to indicate in what
directions improvement should best be effected.

(1) Government Colleges. The medical colleges which have been
established by the Government are:—

The Peiyang Medical College, Tientsin.
The Army Medical College, Tientsin.
The Army Medical College, Canton. (Now abolished.)

The Peiyang Medical College was founded 20 years ago by the late
Viceroy Li Hung Chang after personal experience of the superiority of
western methods of treatment. In its early years the management of
the institution was in the hands of a British staff, but this work
was handicapped from the beginning by inadequate equipment and
by an insufficient number of teachers. Instruction was given in
the English language, the students coming mostly from Hongkong
and Canton. Since 1901 the management has been in the hands of
French professors who continue teaching in English. The number
of students graduating from this college since its foundation in 1893
has totalled 106.
The Army Medical College, Tientsin, was founded nearly ten years ago by Viceroy (now President) Yuan Shih Kai to train medical officers for the newly organized modern army of Chihli Province. Since 1909 the Board of War, Peking, has taken over the control of the College. The work was at first entrusted to a Japanese staff, the language used being Japanese. Since 1911 all the teachers have been Chinese, mostly graduates of the College, and Chinese has been the language used. From this College about 50 students have graduated annually and have been drafted mostly into the Army.

The Canton Army Medical College was established some years ago to prepare medical officers for the southern army, and the work was entrusted to a staff of Chinese and Japanese teachers. Owing to insufficient staff and equipment, however, the work was never satisfactory, and the College was abolished recently.

Besides the above, it has been proposed for some time to found a Medical Faculty of the Government University of Peking, and for nearly two years from 1910 a Dean of this Faculty was appointed; but the appointment lapsed about the middle of 1911. No substantial progress was made.

(2) Missionary Colleges. One of the objects of missionary bodies in China has been to establish hospitals where the sick may be cared for. Many of the larger centres have founded medical colleges for the purpose of training competent assistants to help them in their work. Diplomas are as a rule given after four to five years' training, and a considerable number of these men may now be found practising western medicine in different parts of China. The language used to teach the students has in most cases been Chinese.

The tendency in late years has been to centralize their medical teaching in eight large cities, where sufficient staff, equipment, and clinical material are available.

It was decided at the triennial Missionary Medical Conference held in January, 1913, that these cities should be Mukden, Peking, Tsinanfu, Chengtu, Hankow, Nanking (or Hangchow), Foochow, and Canton.

The following resolutions were also passed:—

1. That the sole object of establishing medical colleges in China is to bring blessings to Chinese people and to give a thorough training in medicine and surgery to young men and women so that they may be of better service to their country.

2. That they have no desire to make these institutions permanently foreign, but to hand them over ultimately to the Chinese themselves.

3. That they desire to bring their teaching work into line with the regulations of the Minister of Education and to always co-operate with the Government of the Republic in medical education.
(3) Other Colleges. Besides the above-mentioned colleges there exist the following institutions controlled by foreign Governments or corporate bodies where Chinese students can obtain their medical training:

1. The German Medical School, Shanghai (started in 1908).
2. The German Medical School, Tsingtau (opened in June, 1911).
3. The Harvard-Medical School, Shanghai (opened in 1912).
4. The Japanese Medical School, Mukden (established in 1912).
5. The Hongkong University (opened in March, 1911).

Of these five institutions, the German Medical Schools at Shanghai and Tsingtau are supported by the German Government; the Japanese Medical School at Mukden is controlled and supported by the South Manchurian Railway Company; while the Harvard Medical School is an offshoot of Harvard University in America. The Hongkong University, of which the Medical Faculty is the oldest and the most important, is a public institution encouraged and partly supported by the British Government. These centres are essentially for the purpose of giving a sound medical training to Chinese youths, the language employed at the German Schools being German, that at Mukden Japanese, while at the Harvard Medical School and at Hongkong University the medium is English. As they are independent institutions it is not within my province to make any suggestions regarding them. The colleges established by the missions, however, are willing to co-operate with our Government, and their attitude towards this question should, in my opinion, receive careful consideration.

It is well known that the cost of establishing an up-to-date medical college, with its teaching staff and equipments, is enormous. In the present state of our finances, such an expenditure is out of the question, but, as the need of medical education is a pressing problem, the most practical and economical plan should be adopted. Under the circumstances, the resolutions passed in January 1913 by the medical missionary bodies, who have worked disinterestedly for the good of this country, have come at an opportune moment. As Peking is the centre of our Government, and as one of the best equipped of the missionary medical colleges, namely, the Union Medical College, is also situated there, I would suggest that our authorities consider seriously whether the time is not ripe for arriving at an understanding, to the mutual advantage of both parties, regarding co-operation in the matter. In this College, the organization for giving a sound medical education is almost complete. For many years past our Government has supported this institution with monetary grants, and the Board of Education of the Ching Dynasty officially recognized its graduates. If such an
experiment proved successful, it would be advisable for the Government to co-operate in the same manner with those medical institutions in the larger centres, which have proved themselves efficient.

8. **Standard of Medical Education which should be adopted.** In all progressive countries medical men are regarded as belonging to one of the learned professions and their advice as experts on all matters relating to the health of the community is accepted both by the state and by the public. This has been rendered possible by the good foundation received by medical men during their college days, and by their desire to improve the health and happiness of the people around them. In drawing up any standard of medical education, such facts and ideals as mentioned above should be borne in mind.

The minimum period for a medical student to finish his curriculum, that is, the time to be spent on medical education before he is allowed by the State to practise, varies from four years in Japan, five years in great Britain and America, to six years in Germany. And it is significant of the progress of medicine, especially in its scientific aspects, that in Great Britain and America there is at present a strong movement in favour of extending the medical curriculum to a minimum of six years. Further, it must be remembered that before a man is allowed to begin his medical curriculum, he must have passed a preliminary examination in general education of a high order.

In China there is as yet no common standard fixed by the State either of a general education for medical students or of a medical curriculum. The time to be spent on medical studies and the range of subjects taught are left entirely in the hands of individual schools and there is no independent state supervision of examinations. The result is that those graduating from different medical schools vary enormously in the extent of their medical knowledge and clinical experience, and a great many are totally incompetent to carry on the work of their profession with benefit to themselves or their patients.

To remedy these evils the first essential is a central governing body (which may be called the Central Medical Council) into whose hands the Board of Education could delegate its power in regard to medical education. This Council should consist of an official of the Board of Education and also one representative appointed by each of the medical schools in China approved by the Board. Power might be given to the Council to add to its number by the inclusion of one or more medical men who have taken a leading part in promoting medical science in this country. While the post of member of the Council
should be as far as possible honorary, it would be advisable for the Board to sanction an annual appropriation to enable the Council to carry out its multifarious duties.

This Central Medical Council should include among its duties:—

1. The decision of the language or languages to be recognized in the teaching of medical students throughout China.
2. The fixation of a minimum standard of general education required of students before entering upon medical studies.
3. The fixation of a minimum medical curriculum.
4. The supervision of examinations, including, if required, the functions of a Central Examining Board for the whole country.
5. The recognition of medical schools other than those which will have been recognized by the Board of Education.
6. The recognition of hospitals where medical students may obtain their clinical teaching.
7. The drawing up of laws and regulations affecting the medical profession in China, and their enforcement.
8. The issuing of a medical register containing the names of all those qualified to practise medicine in China.

It may be of interest at this point to outline briefly a scheme of medical education which, in my opinion, is suited to the needs of this country.

A. PRELIMINARY EXAMINATION ON GENERAL EDUCATION.

This must be passed before the student enters upon his five years' medical course. It should include:—

1. A knowledge of classical Chinese.
2. A knowledge of one of the following foreign languages—English, German, or French. This should comprise:
   (a) Reading, dictation, composition, grammar, analysis, paraphrasing.
   (b) Questions on the general outlines of the history and geography of Europe and Asia, and especially with reference to China.
3. Mathematics, comprising Arithmetic, Geometry (Euclid, Books I-IV) and Algebra including easy quadratic equations.

This preliminary examination is a necessary step in order to enable the medical profession of this country to reach the same status as in other civilized countries. For centuries past it has been a standing reproach to China that adventurers and men without any general education have been allowed to practise medicine and hold peoples' lives in their hands. Such men, not having studied the real causes of diseases, their diagnosis, and their rational treatment, have brought about untold harm to the nation, and for personal gain have kept the masses in ignorance.

It will also be readily understood that any one having a knowledge of one of the three leading European languages enjoys a higher social
standing than one without such knowledge. The future medical men of China should aim at that standing. A general education which would enable candidates to fulfil the requirements of the Preliminary Examination can be obtained, at present, at the higher government and missionary colleges found in most of the larger cities throughout China. By a scheme of co-operation with these colleges, the advantages of a medical career might be explained and as much encouragement as possible be given to students to take up the profession. Scholarships and prizes should be offered to the most promising young men as an incentive to others.

B. SCHEME OF MEDICAL EDUCATION.

First Year of Study.

Summer Session of 3 months ... Botany (Lectures).
    (Practical).
Zoology (Lectures).
    (Practical).
Examination in Botany and Zoology.

Winter Session of 6 months ... Chemistry (Lectures).
    (Practical) Analysis.
Physics
Lectures in Elementary Anatomy.
Examination in Chemistry and Physics.

Second Year of Study.

Summer Session of 3 months ... Practical Anatomy.
    Anatomical Demonstrations.
Histology.
Lectures on Elementary Physiology.

Winter Session of 6 months ... Practical Anatomy.
    Anatomical Demonstrations.
Lectures on Physiology.
Practical Physiology.
Practical Chemical Physiology.
Examination in Anatomy and Physiology.
(Provision should be made for each student to dissect the whole body once before presenting himself for examination in Anatomy.)

Third Year of Study.

Summer Session of 3 months ... Morbid Histology and Post-mortems.
Bacteriology.
Practical Materia Medica.
Surgical Dressings (out-patients).

Winter Session of 6 months ... Lectures in Pathology and Post-mortems.
Lectures in Materia Medica and Therapeutics.
Clinical Surgery.
Examination in Pathology, Bacteriology, and Materia Medica.
Memorandum on Medical Education in China.

Fourth Year of Study.

Summer Session of 3 months... ... Clinical Surgery.
Clinical Medicine (ward work).
Lectures in Medical Jurisprudence.
Lectures in Midwifery and Gynecology.
(During summer holidays to attend midwifery cases.)

Winter Session of 6 months... ... Lectures in Public Health (first three months).
Lectures in Tropical Medicine (second three months).
Clinical Gynecology.
Examination in Midwifery, Gynecology, Forensic Medicine and Public Health.

Fifth Year of Study.

Summer Session of 3 months... ... Infectious Diseases (once a week).
Diseases of the Eye.
" " " Skin.
" " " Ear, Nose, and Throat.
Dispensary Practice.

Winter Session of 6 months... ... Lectures on Medicine.
Lectures on Surgery.
Clinical Medicine.
Clinical Surgery.
Vaccination (once a week).
Dispensary Practice.
Examination in Surgery and Medicine.
Final qualification to practise Medicine and Surgery.

All subjects in a medical curriculum should be designed to enable a student to obtain a proper conception of clinical medicine and surgery. Therefore it is best that a student should devote all his time during the second year to Anatomy and Physiology, and so acquire the requisite knowledge of these subjects before beginning clinical work. In this connection I cannot emphasize too strongly the urgent need of allowing dissections to be carried on at medical schools. For too many years already the medical schools in China, both government and missionary, have tried to avoid this most important part of medical education, and the result has been very unsatisfactory. It is impossible to obtain a proper idea of the structure and functions of the human body without dissection, and the paper and wax models hitherto used in institutions have failed to serve the purpose. The great objection to dissection in China has been the belief in ancestor worship. But the same objection was lodged against the first railways built in China owing to the removal of graveyards—a reason not heard of nowadays when the people realize the need of rapid communication. Again, the Japanese, who possess similar religious beliefs to ours, have allowed dissections and post-mortems since they adopted western medicine and the result is that their medical graduates are nowadays equal to any in
the world. The Orders published by the Board of Education and Board of Justice some months ago sanctioning dissection in medical institutions is therefore a very welcome one.

To give less than one whole year to Anatomy and Physiology—the two foundation subjects of medicine—or to devote part of the time to clinical work does not give the student an opportunity of deriving the full benefit of clinical instruction.

Pathology comes as early as possible, since, without an accurate knowledge of the processes of disease, a student cannot properly understand the conditions met with in his clinical work. Here again, the value of post-mortems and the establishment of proper departments in hospitals for performing them cannot be too strongly insisted upon. Even with such a course, the ideal thing would be to encourage a promising graduate to spend one year as House Surgeon or House Physician in an approved hospital after qualification.

Since medicine is a progressive science, it must be remembered that one of the important duties of a medical school is to make arrangements for post-graduate teaching so that a doctor may return from time to time to become acquainted with the latest additions to the methods of diagnosis and of treatment.

Moreover, the great advantage of a graduate studying for some time in a foreign country must not be lost sight of. Facilities should be given for the most promising men to carry on advanced work in the hospitals and laboratories of western countries so that they may be fully equipped with all new knowledge to return to China and undertake either teaching or independent investigations on the diseases and drugs met with in this huge country.

9. Language. The question of language to be adopted for medical education in China must for many years be a difficult problem. Until our medical schools can produce men of sufficient experience, the teaching staff of the college must necessarily be composed of graduates of western universities. Whether Chinese or foreign, such graduates cannot acquire a good working knowledge of the Chinese language for teaching and scientific purposes without many years of preparation. It may be mentioned at this point that since the number of Chinese who have graduated abroad is still limited, the employment of foreign teachers to assist them will be necessary for some years to come. But while the language difficulty may occasionally be overcome, as in the case of a few missionary institutions where the teaching is carried on in Chinese, a much stronger plea for a knowledge of a
western language lies in the fact that, at the present time, practically no medical literature exists in Chinese. Unless a graduate is able to follow in the medical and scientific journals the progress which modern medicine is making day by day, his knowledge will remain stationary, if it does not actually deteriorate, from the time he leaves the influence of his teachers. This being so, the question arises which foreign language is the best adapted for a medical student. Hitherto, owing to greater facilities in Germany for the investigation of all matters relating to medical science, a knowledge of the German language has been essential to progressive medical men, but at the present time western scientific workers are practically unanimous that during the coming years the greatest advances in medicine will be made in America. This is due to the splendidly equipped hospitals and laboratories founded by charitable people, and ample funds at the disposal of the medical profession in that country. On this account and also because of the fact that English is more commonly used than any other foreign language in China, it seems best to adopt it in addition to Chinese for our medical schools, and English might also profitably be the medium used for a considerable part of the teaching. If this suggestion be adopted, it will necessitate English being made a compulsory subject in the Preliminary Examination (q. v.). As in Europe so in China, the medical man who desires to be up-to-date and respected in his profession must possess a working knowledge of at least one of the recognized scientific languages besides his own.

10. The Place of the Hospital in Medical Education. Although the best hospitals at the present day, as seen in America, have cost millions of dollars, simpler and less expensive buildings can serve the same useful purpose in our country. But for this to be possible, they should from the very first be built and managed according to the standard requirements of progressive medicine.

Besides serving as institutions where the sick and needy may derive the fullest benefit of scientific medicine, those hospitals associated with teaching schools form so integral a part of medical education that they must be considered as actual departments of such schools. The medical schools generally regarded as the best for teaching purposes are those where the different hospitals for general and special diseases are built to suit the needs of the various branches of medical science. The senior physicians and surgeons of these hospitals are ipso facto heads of their respective departments in the university; in other words they have the control of all the teaching in the subject dealt with in their departments.
At the outset it must be clearly realized that although the hospital is intended primarily for the treatment of patients, in its relation to the medical student it is to serve merely as an institution for his instruction. The proper working of the hospital in regard to the patients is carried on entirely without his help. If the care of patients at the hospital depends upon the student for its efficiency then his education inevitably suffers. He must fulfill the duties of a nurse or dresser to such an extent that time is not available for him to study, as thoroughly as desirable, many of the subjects in his curriculum. It is, of course, essential that the student should do dressing, etc., in the wards, and assist at operations, but this is to be for his own benefit; the hospital does not rely on him to carry out this part of the routine work. A staff of medical officers assisted by trained nurses, dressers, and orderlies is maintained for the adequate performance of all matters pertaining to the hospital and its patients.

As it is in the hospital that the student first comes in touch with the many phases of disease and practises the essential principles of surgical cleanliness, of carefulness and accuracy in observation, of discipline in the management of the sick, and of sympathetic association with patients—habits which ought to be displayed throughout his whole professional life—it stands to reason that those in charge of the hospital carry a heavy responsibility on their shoulders, and should both by teaching and precept instil these principles into the minds of their students.

Lastly, the medical profession besides being practical is essentially a human one; and those responsible for the training of our medical students must continually infuse into them the spirit of benevolence and helpfulness to others. The importance of a student doing even the simplest things with his own hands cannot be over-estimated; it is only by practice and minute attention to details that his skill as a physician or surgeon will be fully developed.

II. Concluding Remarks. For several years past our country has been trying to keep abreast of the times. We have encouraged the building of railways, the spread of telegraphs, of telephones, and electric light, the advancement of education, the improvement of the army and navy, the cultivation of friendly relations with foreign peoples, and many other things. We have also built hospitals and established medical schools for the training of modern doctors, but we have not given up our old ideas of medical practice. For example, in many places where the Government has established
a modern hospital officered by men trained in western methods, another hospital, where native medicine is practised, is also maintained. Again, in the army, medical work is divided between two classes of army surgeons—the western-trained and the native-trained. Those supposed to be suffering from internal complaints are treated by the latter, while wounds and abscesses are relegated to the former. By this means not only is double expense incurred, but on the face of it the method is absurd. Either modern medical methods are superior to the old methods, or the old methods are superior to the modern. If old methods are better they should be retained, and the modern methods abolished. If, on the other hand, modern methods are better—and this has been proved in all up-to-date countries, including Japan, whose people used to have the same ideas as ours—they should be wholly adopted and steps should be taken for a gradual merging of the old into the new one.

As is well known, many of the drugs used by native practitioners show excellent results in certain diseases, and some of the methods of treatment used by them are satisfactory. But in the majority of cases, the treatment is purely empirical, and for these drugs and methods to give the greatest benefit they must be thoroughly investigated and their mode of action accurately ascertained.

Again, the western trained doctor in China is neither treated fairly nor encouraged to be up-to-date. When a foreign practitioner is asked to attend a case payment is duly accorded him, but a Chinese western-trained man seldom receives any fee for even the most skilful treatment. The results of his hospital work are compared not with methods superior to his own, with a view to healthy rivalry, but with inferior methods. Thus he becomes misled in time into a belief of having reached the ideal and entertains no incentive to improve in his profession. Very few of the graduates of the present medical institutions in China are as yet able to perform other than minor operations. Abdominal operations are seldom attempted even when urgently needed to save life, and brain surgery is unknown.

Properly managed medical schools with their attendant hospitals where a sound education in modern medical science can be obtained are hence indispensable for the welfare of our nation. Graduates of these schools should be of such a standing as to be recognized by the world in the same way as those of Japan and the recently established Hongkong University. Such graduates must not be inferior in knowledge to those of other nations, and must keep up with the discoveries made almost every day in medical science. Above all, they must ever
bear in mind the value of Preventive Medicine, and not only practise it themselves, but spread its doctrines among the people with whom they come in contact.

It is only by a thorough reorganization of medical education on the above lines that we can hope to appoint—with credit to themselves and their country—our graduates to the more important posts at present held by men taught in other lands. With an efficient medical service consisting of our own men, the present conservative attitude of our people towards western medicine will change for the better, and China will henceforth rid herself of the unenviable name of being the most backward nation in medicine and sanitation.

12. Summary. I venture to close this memorandum with a brief summary of what I have stated in the foregoing pages.

1. Although Chinese ideas of disease and medical practice were useful in the olden days and are still useful in certain diseases, a complete reform is necessary to enable our people to successfully cope with present-day conditions.

2. To attain this our medical colleges and hospitals must be reorganized so as to produce the maximum of good results with the minimum of expense.

3. Our medical students must be given not a medical education but the standard medical education so that they can come into line with graduates of all civilized countries.

4. As a proper knowledge of Anatomy and Pathology is absolutely essential for medical students, medical schools and hospitals recognized by the Government should be allowed to perform dissections and post-mortem examinations.

5. A Central Medical Council for medical education should be established in Peking by the Board of Education consisting of an official of the Board and also one representative appointed by each of the recognized medical schools in China, as well as one or more medical men who have rendered signal service to medical science in China. This Council should have, among other duties, the power of fixing the medical curriculum, granting licences to practise medicine and supervision of examinations throughout China.

6. As it will be some time before the Government is able to equip an up-to-date medical college, it may be advisable in the meantime to take over either partially or completely any non-Government medical institutions which show a desire to co-operate with the Government.

7. The standard of a nation's progress is often judged by its management of affairs relating to the public health; that being so, it is of the first importance that China should not fall behind other countries in the matter of medical practice.
The China Medical Journal.

Vol. XXVIII. MARCH, 1914. No. 2.

The yearly subscription to the China Medical Missionary Association is $4 Mex., payable in January of each year. This includes the Journal and postage on the same, whether local or foreign.

All changes of address, departures on and arrivals from furlough should be notified to the Secretary and to the Presbyterian Press. Members are requested to invite new comers to join the Association.

The Editors will be obliged if all those who are building hospitals will send copy of plans and detailed description (in duplicate if possible). These will be loaned, on application, to members who are proposing to build.

Editorial.

THE PUBLICATION COMMITTEE'S REPORT.

There is a small group of men, far too small unfortunately for the great task, who are doing yeoman service in a most important and valuable part of the work of our Association in China. They work, as it were, while many of us sleep. We refer to the men of the Publication Committee who have just been in session at Tungchow, wrestling with the task of supplying text books for the medical students and graduates throughout China.

Extracts from the minutes of this recent meeting in Tungchow will be found in this number of the Journal and no medical man in China, whether engaged in direct teaching or not, can afford to be ignorant of the work and progress of this Committee, and it is to be hoped that all reports from this Committee, which appear from time to time in the Journal, are read by all loyal members of the Association.

Let us look at some of the things accomplished and to be accomplished, as found in the report above referred to. New editions of two books have just been issued. Two new books have just appeared while there are five new books actually being prepared. Further, the revision of many older books is now under way. Besides this, we see that the all important Lexicon is to be reprinted and to be put into three columns, in English, Chinese, and Japanese respectively, and to be finished by the end of this year.

Now all this takes time, and whose time is it? It is the time of busy men who already have all the duties of the ordinary medical
missionary, of teaching students and treating patients. Therefore, while great advances have been made, yet the work, vastly important as it is, has not gone forward as rapidly as it should for the advance of medical science in China. Further, if the resignation of our most devoted and faithful Editorial Secretary, Dr. Cousland, the one man who has been at liberty to devote his whole time to this form of work, can not be obviated how much more will our Committee feel the strain of the great task before them. Surely there are more men than are now doing this work to take part in it and share the burden. Where are the volunteers? A medical missionary can leave behind him no greater monument than a well translated work for the medical students of China. A word to the wise should be sufficient, but in the matter of assistance to the Publication Committee it never seems to be the case, nay, even entreaty and exhortation fail. The Committee and the interest of the medical body, yea, the interest of the great uplift of China calls for help in this work. The Committee desires to lay it on the heart of every member of the Association to decline no work which they may request of you, and should your willingness and ability to aid in revision or translation not be known to the Committee it is certain that they would appreciate a letter from you offering assistance.

In the same report is a letter by Dr. McAll in behalf of the Committee addressed to Chinese graduates in medicine. He has stated the case and made the plea most clearly. He says in effect: "Don't stand on the side lines and criticize the adopted terminology because it may appear to you poor from the standpoint of a Chinese scholar, but remember that there is the yet more important standpoint of correct foreign medical nomenclature, and the critic must have a just appreciation of both before he is qualified to pass judgement on so difficult a question as to what is and what is not correct medical terminology." He ends with an appeal for assistance in this difficult problem from the growing body of Chinese graduates in China.

We note that Dr. Cousland has offered his resignation as Editorial Secretary. We most sincerely hope that such a resignation may in some way be obviated, for the Association would lose
Editorial.

a most valuable man and one who has served it faithfully many years. Whether it will be permanent or not, however, at least the condition of his health at present necessitates his withdrawal from his editorial duties for some time. We deeply sympathize with him in his having to give up his chosen work and with the Publication Committee who will lose so valuable a man in the prosecution of their work.

ANTI-TYPHOID VACCINATION FOR MISSIONARIES.

England and America have recognized the immense value of anti-typhoid vaccination in their armies, and America has gone so far as to make vaccination compulsory in her army and navy.

Major Frederick F. Russell of the U. S. Medical Corps summarizes the results secured through vaccination.

In 1902, with an enlisted strength of 80,778 men and officers, there were in our regular army 565 cases of typhoid. In 1909, out of 84,077 men there were 282 cases. In March, 1909, vaccination was begun, but the number vaccinated that year, 830, was too small to affect the ratio. In 1910 over sixteen thousand were vaccinated, and at once the number of typhoid cases began to diminish. In 1911 there were only 70 cases. In the same year vaccination for typhoid was made compulsory on all persons in military service and on all recruits. In 1912, the first year in which the entire army was immunized, there were only 27 cases, the last one occurring December 19th, 1912. Since that date, there has not been a single case of typhoid in the army.

He further goes on to say that during the past four years 200,000 men have been vaccinated against typhoid without a single fatality. 97 per cent. showed mild or absent reaction. One per cent. were put to bed with rest, only a small per cent. were excused from duty; while only one to three in a thousand had a severe reaction.

In the U. S. army, re-vaccination is performed every four years, though immunity would probably last longer if put to the test. Statistics of the English army in India seem to show that after 2½ years immunity begins to fall, but they use only two injections instead of three as used by the Americans. And, further, not only is typhoid more common in India among the mass of the population than in America, thus increasing chances of re-infection, but the Americans use agar cultures which Russell thinks may be more effective than the cultures used in India. Probably then, four years' duration of immunity could be generally relied upon.

In view of these facts, is it not well to inquire whether it would not be well for the medical men of the various mission boards to
advise compulsory vaccination for all new missionaries to China? If it has been found so effective in the army camps, where at least some measures of general sanitation can be enforced, how much more important to the missionary who can control only the sanitation of his own premises and kitchen, and that not always satisfactorily?

Some one may answer that typhoid is relatively rare among Chinese and therefore the risk of infection is not great. On this point Dr. Houghton's summary in the C. M. J., January, 1914, of the paper read at the Saigon Congress by Dr. Clark of Hongkong is most interesting. In this paper entitled "Twenty Years of Enteric Fever in Hongkong" and in which is a careful analysis of the incidence of typhoid among Asiatics on the one hand and Europeans and Americans on the other, based on mortality statistics, Dr. Clark shows that while the death rate among Chinese in Hongkong is only 0.076 per one thousand as compared with 0.11 per one thousand in England and Wales yet the mortality among Europeans and Americans in Hongkong is 0.78 per one thousand, which is seven times as high as that of England and Wales and ten times as high as that among the Chinese race in the same city.

It would seem reasonable to infer from these statistics that if in a city in China controlled by Europeans, typhoid mortality among Europeans is higher than among the same class of people in the homelands that therefore in a city under Chinese control or lack of control, without attempt at general sanitation, the chances of Europeans in that city contracting fatal typhoid are far greater than if they were using the same personal prophylactic measures in the West and greater than would appear from the well known relative immunity of the Chinese around us. In other words the individual missionary or group of missionaries can not argue that because hospital practice among the Chinese reveals a low mortality, therefore the missionary body is in comparatively slight danger of typhoid, but on the contrary it must be realized that the Chinese relative immunity is natural or racial (Clark) and the foreigner has no such immunity to rely upon.

Since vaccination is comparatively free from danger and will be effective for four years or longer, it would seem very feasible and just to demand of each new missionary vaccination, before going to
his field of labor. I know of no statistics on the incidence of typhoid among missionaries in China but I know of few large societies that have not suffered from typhoid fever among its missionaries at some time in their history, and some quite severely. The missionary is a soldier and let him take the soldier's precaution against disease, the great enemy of missionary work.

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**DR. WENHAM ON MEDICAL EDUCATION.**

The President desires to call the attention of the members to the communication from Dr. Wenham appearing in this issue of the JOURNAL. The subject which Dr. Wenham brings up is an extremely important one, in the present state of medical education, and it is hoped that discussion will be brought out in connection with such a burning question.

D. Duncan Main.

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**CO-OPERATION WITH THE CHINESE GOVERNMENT.**

We would like to call special attention to the article on Medical Education in this issue by Dr. Wu Lien-teh.

In the preparation of this article Dr. Wu has consulted other members of the profession here in China, including Dr. Christie of Mukden and Drs. Cormack, Wenham, and Morrison of Peking, and has embodied most of their suggestions in it.

For many years our Association has been hoping to secure the co-operation of the Chinese Government in our medical educational work, and now the proposal comes to us from a medical officer of the Government.

It is worthy of special note that Dr. Wu in his article pleads for a uniform medical terminology in Chinese, and urges the Government to legalize dissection of the human body.

Our Association should give this article its most careful consideration, and while there may be details in it with which all cannot agree, the article as a whole will, no doubt, be heartily approved.

We trust that our Executive Committee will take up the matter at an early date.

W. H. Venable.
THE NEXT CONFERENCE.

Already more than one year has elapsed since the memorable conference of the C. M. M. A. in Peking, January, 1913, and less than one year from the date of this issue of the C. M. J. shall we gather together in Shanghai for the conference of 1915. Perhaps many members of the C. M. M. A. have never had their attention called to the fact that the old triennial conference has been changed to a biennial one. It seems well, therefore, to begin to advertise the fact that we do meet again in ten months' time, so that everyone may begin to make plans for attendance and participation in the next conference.

The Peking Conference was generally acknowledged a success, both in the discussions of problems of our work and in the quality of the papers prepared for the meeting. These papers—all of which, with two exceptions, have appeared in the Journal during the past year—were many of them unusually interesting and helpful and reflected great credit on the work done by certain members of the Association.

It is to be hoped that preparation for the next conference will bring forth equally stimulating and helpful papers.

The Executive Committee has selected February 1st, 1915, for the first day of conference and a Committee on Program has been appointed. The Journal also will be glad to receive from individuals interested in the conference of 1915 suggestions for making it the most successful conference of our history.

BUSINESS MANAGER OF THE JOURNAL.

The Association is to be congratulated on the appointment of Dr. John A. Snell, of Soochow, as business manager of the Journal. Dr. Snell, with the help of a stenographer and typewriter, will take charge of all the business management of the Journal, including the advertisement and subscription department. This is in furtherance of the plan so long advocated by the Association, but which has never been carried into effect for lack of a man willing and able to devote so much of his time to the service of the Association, as this work will entail. From this new arrangement
no doubt great benefit will accrue to the whole business of our Association and the thanks of all members are due to Dr. Snell for his acceptance of so arduous a task.

PUBLICATION COMMITTEE.

[Extracts from the minutes of the meeting of the Publication Committee, held in North Tungchow, January 5th to 10th, 1914.]

Re resignation of Dr. Cousland:—Voted that, Having received from Dr. Cousland a letter offering his resignation as Editorial Secretary:—We, the members of the Publication Committee, would express our esteem and affection for Dr. Cousland, and would record our deep sympathy with him in his ill-health and our regret that he feels unable to continue to carry the heavy responsibilities of the Editorial Secretaryship. Seeing that he feels unable to carry on as before:

Resolved, That while it is the sense of the Publication Committee that it is not within its power to accept Dr. Cousland's resignation, it nevertheless feels it should do all it can to relieve Dr. Cousland of the burden of details of the Committee's business: by first assigning to individual members of the Committee the duty of overseeing the preparation and the printing of certain books; second, by urging the Executive of the Association to speedily find a Business Manager who shall not only take charge of the general affairs of the Association, but shall also keep the accounts of the Publication Committee and keep track of the stock of books, making reports from time to time to the Chairman of the Publication Committee.

It was voted to take up in order all the publications of the Committee seriatim.

Shields' Essentials of Anatomy: Voted that the revision of this be committed to Dr. McAll to make any arrangements he deems best, the edition to be 2,000 of the same general style as the original edition.

Whitney's Anatomy: It was noted that this book was being re-issued by Dr. Todd of Canton.

Heath's Practical Anatomy: Voted that the revision of this book be committed to Dr. Cormack, and that he request the Presbyterian Mission Press to bind up the remaining copies which are in parts into one volume.

Bacteriology: It was noted that a new edition of this book has just been issued.
Fuchs' Ophthalmology: The number of copies of this book in stock is sufficient for present demands.

Penrose's Gynecology: Dr. Neal was placed in charge of correspondence with Dr. Fulton with reference to a revision.

Insanity in Everyday Practice: It was noted that this book has just appeared, translated by Mr. M. J. Chu and Dr. Cousland.

Medical Jurisprudence: It was noted that this book had also appeared within the past few months. Translated by Drs. Stuckey and Liu.

Lexicon: It was voted that, in reprinting the Lexicon, it be done in three columns; English, Chinese, and Japanese terms. It was also voted that in making a contract for the printing of the Lexicon, a time limit should be set, so that it should be on sale by the end of 1914.

Kerr's Practice: Voted that we approve of Dr. Niles revising this book, and that Dr. Neal be made responsible for the necessary negotiations connected therewith.

Osler's Practice: Voted that Dr. Cousland be asked to revise this book, but that the revision of the Lexicon take precedence.

Military Hygiene: Voted that we do not issue a new edition of this book when the present stock is exhausted, pending the appearance of a new book on Hygiene and Public Health.

Nursing in Abdominal Surgery: Voted that this book be re-issued, the present stock being exhausted.

Manual of Nursing: Voted that this book be revised and re-issued by Dr. Ruth Massey. Dr. McAll being responsible for the same.

Robb's Nursing: Voted that Dr. Cousland be requested to inform the Committee as to what is being done in regard to this book.

Pathology, Stengel: It was noted that a new edition of this book had recently appeared.

Roys' Pharmacology: Voted that the revision of this book be committed to Mr. Read and Dr. Cormack.

Halliburton's Physiology: Dr. Cousland has the revision of this book in charge.

The Roller Bandage: Voted that Dr. Fulton be asked to revise this book and that Dr. Neal be responsible for the same.

Skin Diseases: This book is in charge of Dr. Neal.
Surgery, Rose and Carless: It was noted that the number of copies on hand was sufficient for present demands.

Caird and Cathcart's Surgical Hand-Book: Voted that this book be revised by Mr. Churchill, Dr. Cormack to be responsible.

Hare's Therapeutics: A stop-gap edition is now in press.

It was noted that the following books were being prepared:—

Waring’s Operative Surgery, by Dr. Hsieh, of Peking.
Clinical Methods, by Dr. Cormack.
Thorington’s Refraction, by Dr. Ingram.
Landois and Stirling’s Physiology, by Dr. Hopkins.

Books wanted:—
Physiological Chemistry.
Histology.

J. H. INGRAM, Secretary.

Open Letter to Chinese Graduates in Medicine who have Qualified in Foreign Universities.

DEAR SIRS:

The Publication Committee of the China Medical Missionary Association has for many years been working at an English-Chinese Medical Lexicon and the preparation of a set of Medical Text-books in Chinese. Our aim has been to produce a thoroughly useful set of terms and books whereby the acquisition of medical and surgical knowledge may be made easier for your fellow-countrymen. Doubts are sometimes expressed by others as to whether the Chinese language is clear enough for the conveyance of scientific ideas, but from our experience we unhesitatingly say—and I am sure you will agree—that the Chinese language is perfectly capable of expressing any such ideas if the terms used are carefully defined beforehand. Of course, it is not to be expected that the Chinese term should be understood at sight by laymen any more than that such terms as “ileus,” “volvulus,” or “intussusception” are intelligible to non-medicals elsewhere, hence the opinion of an ordinary Chinese scholar about any particular term must be taken with reserve. It is otherwise, however, with gentlemen who, like yourself, possess a good knowledge not only of the Chinese language but also of foreign medical nomenclature. In our work we have all along made use of Japanese terms, whenever possible, correcting them with the help of the best Chinese scholars available, and testing the terms by practically employing them in the teaching of students. But we realize that the best judges in the matter will eventually be found in Chinese gentlemen who were originally well
versed in their own language and subsequently have taken a full course at some first rate foreign school of medicine, thus becoming thoroughly familiar with the technicalities of the subject.

You are of the few with whom we are in touch who have this double qualification for the work, and we shall be very glad if you can co-operate with us in revising the existing lexicon so that it may contain all the terms necessary for giving an up-to-date medical education, and later undertake the translation of some of the much needed medical text-books. A new edition of the lexicon is now in course of preparation and your assistance at this time will be specially valuable.

Hoping you can render this help to the cause of medical education in China and that we shall have the pleasure of hearing from you on the subject,

We remain, on behalf of the Publication Committee,

Yours very truly,

J. H. Ingram, Secretary,
Tungchow, near Peking.

P. L. McAll, Chairman,
Hankow.

January 30th, 1914.

P. S.—The Secretary of the Committee will be happy to send a copy of the Lexicon to any one who will, in answer to this appeal, undertake to help us with criticisms.
ITEMS OF INTEREST.

The University at Chentu, Szechwan, which up to the present has been carried on by the union of four missions, has the prospect of a still larger union in the addition of a fifth mission, for the Church Missionary Society is considering whether it may not be able to provide the necessary funds to join the union.

MISSION WORK PROGRESSING.

The English Baptist Mission has been presented with a fine plot of land in the east part of the city of Sianfu for the building of a hospital and schools, in recognition of the work done by the doctors during the Revolution. Plans are being prepared to build upon it a hospital for men and women, containing over 100 beds. The Red Cross Society also carries on hospital work in Sianfu, and the military authorities, too, have their own hospital premises and doctors. There are now there four qualified men from the Union Medical College in Peking, who seem capable and give good evidence of sound training.—N.-C. Daily News.

INTERNATIONAL MANIFESTATION IN HONOUR OF SIR PATRICK MANSON, F.R.S., G.C.M.G.

An international subscription has been started, with the intention of presenting Sir Patrick Manson with a gold medal bearing his effigy. The medal will have the form of a plaque, measuring about 7×5 cm. It will be the work of Dr. Paul Richer, Member of the Institute and Academy of Medicine, Professor of Anatomy at the Ecole des Beaux-Arts.

A bronze medal, faithfully reproducing the original design has been cast, and was presented to Sir Patrick Manson on August 11th, 1913, by Professor Blanchard at the Tropical Medical Section of the Congress. The attendance was very large and the ceremony most striking.

* * *

In February at the usual annual meeting of the alumni of the Hangchow Medical School (C. M. S.) there were present forty-five old students. They decided to have a Branch Alumni Association in Shanghai where there are about 20 old students and the importance of having a monthly medical magazine in Chinese was discussed and it was decided to take steps to issue one as soon as possible.
Under the Lecture Department of the Young Men's Christian Association a Section on Health is to be established which Dr. W. W. Peter has been asked to head. It will be the purpose of this Section to urge upon the membership and constituency of the Young Men's Christian Association the importance of an observation of the laws of health and to educate them in the principles of keeping well; also their responsibility in bringing these principles to bear upon human living conditions. For the next year or two Dr. Peter will be devoting considerable time to language study and other preparation.

* * *

PLAGUE IN MANCHURIA.

The summary of the report of Dr. Wu Lien-teh, chief medical officer, upon the first year's work of the North Manchuria Plague Prevention Service, gives a good idea of the steps that have been taken to cope with any outbreak of pneumonic plague in North China. It is true that no outbreak of this disease has manifested itself throughout Manchuria during the past year, although there have been rumours to the contrary. The service, therefore, cannot be said to have been thoroughly tested, but the fact that it has established hospitals and isolation camps, has made extensive researches and is generally on the qui vive, is an earnest of conscientious endeavour if it does not render impossible a recurrence of the epidemic of 1910-11. According to the "Peking Gazette" the Government intends to continue the work of prevention. With this object in view it has approached the Legations concerned with a request for the diversion again this year of Rs. 78,000 of the Manchurian Customs Revenue from loan and indemnity service to meet the current expenses of the organization.—N.-C. Herald.

INVESTIGATION OF DISEASE IN THE EAST.

Professor Leiper, helminthologist, of the London School of Medicine, left London for the East accompanied by the surgeon, Dr. Atkinson, who will be seconded by Messrs. Cherry and Garrard of the Admiralty, both of whom were in the Antarctic.

The object of the expedition is to ascertain the mode of the spread of trematoda diseases, of mankind, especially bilharziasis.

Investigations will also be made into ankylostomiasis among coolies on tea and rubber estates. The expedition will be subsidized by the Colonial Office. The United States Rubber Company has offered facilities for the study of diseases on its estates in Sumatra.—Reuter.
NEW BUILDINGS OF THE LONDON SCHOOL OF TROPICAL MEDICINE.

As the result of the appeal of Mr. Austin Chamberlain, formerly Secretary for the Colonies, considerable additions have been made to the London School of Tropical Medicine. The funds have been partly subscribed by the public and partly granted by the Government. Additional buildings have been erected, consisting of a laboratory providing accommodation for sixty students, and of a hostel with provision for twenty-five residents. The new laboratory has been built so as to be continuous with the old laboratory of the school. It is a square, single-story building, lighted by a weaver roof. The accommodation set free by it has rendered possible the formation of several special laboratories, of preparation rooms, of the director's room and of incubation rooms. The resident accommodation is intended for the use of students qualifying for appointments in connection with the Colonial Office, but it is expected to be sufficient to enable any of those attending the school, who desire, to reside on the spot. Each of the rooms is furnished as a bed-sitting room, and as a result of the extensions there is now considerably more space available for the common rooms connected with the school. In connection with the work of the school an important new departure has been made by the inauguration of a course in Tropical Sanitation and Hygiene, this step having been taken in consequence of a demand expressed from India and from most of the dominions. It is to consist of an eight weeks' course of laboratory studies and part health work, special attention being given to bacteriology and hygiene.—J. A. M. A.

A REMEDY FOR DEPOPULATION.

Among the remedies that have been suggested for the depopulation of France, which is becoming more and more acute, have been several affecting the disposal of property. One proposal is that every estate should be divided at least into four parts, those not going to children being confiscated by the State; another is complete exemption of large families from taxation. Another suggestion of a different kind, which, though much less drastic, would probably be much more effectual, has recently been made. This is to incorporate in the scheme of electoral reform now under discussion the principle that every living French citizen should be represented, including women and children. While waiting for female suffrage every head of a family should have as many votes as he represents persons—one if he is a bachelor; two if married without children; three, four, five, etc., if he has one, two, three
children, who do not themselves vote. This seems logical, and would give men who do not shirk their duty as citizens a plural vote, which would have to be reckoned with. Fathers of families would no longer be crushed as they now are under military burdens proportionate to the number of their children, and under taxes on food and houses, which increase with the number of little mouths there are to fill. At every turn of legislation—fiscal, successional, military—the influence of big families would come into play, because they would be effectually represented and defended, and because they would count at the poll, and therefore could not be neglected by politicians out to catch votes. The force of the big family may thus become a lever which by continual movements would adjust the balance of political power, and the result might be a gradual modification of the mentality of a people which has no longer the wish to reproduce itself, and in this way is manifestly tending to national extinction.—*The British Medical Journal.*

THE SCHOOL DOCTOR IN JAPAN.

Since 1891 there has been attached to the Ministry of Instruction of Japan a medical councillor whose function it is to deal with questions relating to the hygiene of schools. In 1896 a commission composed of a number of eminent persons was appointed to draw up a scheme of legislation on school hygiene uniform for the whole country. In consequence of the recommendations of this commission a law was passed in 1898 which brought the school doctor into existence. In 1908 there were in Japan 11,868 schools with 6,459 doctors. To-day the proportion remains about the same. It is estimated that a school doctor has under observation not less than 500 pupils. Every communal school in Japan has no fewer than twelve classes. The medical officer has to visit every year in April all the pupils, examining them minutely, and must report on official forms the results of his examination to the Government. Moreover, he has to keep a watchful eye to prevent the spread of infectious diseases, and to see that the buildings, desks, and so forth are kept in a good sanitary condition.—*The British Medical Journal.*
Book Reviews.


As we reviewed the 2nd edition of this book two years ago, there is not a great deal that can be added, except to point out the usefulness of the book as shown by the necessity for a new edition. Recent advances in the various branches of Surgery since that time, also call for a new edition, if the book is to be a really useful guide. These additions have been made, and it is hardly necessary to go into a detailed recital, in this review, of the various parts which have been revised. The general character of the work remains the same, and I am sure it will be found to be a very useful little book.

H. H. M.


This latest edition of this popular text-book shows many changes from the preceding edition, especially as regards the content of the book, necessarily so, to include the recent advances which have been made in the diagnosis and treatment of disease. As a text-book it is excellent, the important facts being well arranged and concise. As usual with Blakiston's books, it is nicely gotten up, with clear, readable type, well-arranged index, and durable binding. It will be found a very useful book, as the experience and sound judgement of its authors are well known.

H. H. M.

Book Notices.

Messrs. W. B. Saunders Company have in the press and will publish in the early summer, a new 3rd edition of "Abdominal Operations" by Sir Berkeley Moynihan, M. S., F. R. C. S., Professor of Clinical Surgery, University of Leeds. The book has been revised from cover to cover and a number of important new sections and new illustrations added. The same publishers have also just ready a new 88 page illustrated catalogue which gives detailed particulars of their many new publications and new editions, illustrated by specimen cuts representative of the pictorial features of the books from which they are taken. A copy of this will be sent, post free, to any physician on request.

We acknowledge with thanks the receipt of the following book for review:

Messrs. P. Blakiston's Son & Co., announce the publication of the following books:


**Hygiene and Home Care of the Sick.** By Jane A. Delano, R.N., and Isabel McIsaac, R.N. With a preface by Miss Mabel T. Boardman, Chairman National Relief Board, American Red Cross. 17 Illustrations. 12mo. xv+239 pages. Cloth $1.00.


**Lectures on Medicine to Nurses.** By Herbert Edmund Cuff, M.D. Sixth edition, revised. 29 illustrations. vii+281 pages. Cloth $1.25.

**Diseases of the Nervous System.** 2nd edition. By Alfred Gordon, M.D. 169 illustrations, a number of which are in colors. Octavo xii+518 pages. Cloth $4.00.


Railroad Edition. With 19 Plates containing 95 Figures. viii+150 Pages. Paper Covers, $0.30.

Police and Firemen's Edition. With 19 Plates containing 95 Figures. x+150 Pages. Paper Covers, $0.30.


**Pathogenic Micro-organisms.** By Ward J. MacNeal, M.D. Based upon Williams Bacteriology. With 213 illustrations. 12mo. xxi+162 pages. Flexible cloth, round corners, $2.25.

Other Books recently issued:—


“So rapidly has this subject grown and so frequent are the additions and changes, that a sixth edition of this valuable guide has been thought necessary. New sections have been added to the discussions on the disturbances of the internal secretions, and a new chapter has been added dealing with the various functional tests of organic efficiency. Other sections have been reviewed and much material abbreviated and condensed.”—J. A. M. A.


“This book aims to give the needed advice to the practitioner who wishes to apply this method of treatment. The essential unity of the various forms of tuberculin is insisted on. Two divisions of tuberculin treatment are made, first, tuberculin immunization with tolerance, which they recommend for pulmonary tuberculosis; and, secondly, tuberculous immunization without tolerance—the method employed by Wright in the treatment of local tuberculosis. In this method small doses are employed at considerable intervals without provoking distinct reactions. This form is regarded as especially suitable to children. It would seem that the recognition of the suitability of the two methods to distinct forms of disease is a great gain in clearness as to the indications for the use of this powerful agent. The directions for technic are full and clear. Dosage is reckoned in cubic millimeters instead of fractions of the cubic centimeter.”—J. A. M. A.
The China Medical Journal.


**The Missionary Occupation of China.**


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**Nurses' Association.**

Members of the N. A. C. will perhaps remember that at last year's Annual Meeting, held at Kuling, it was decided to hold the meetings for 1914 in Shanghai. The Executive are arranging meetings to be held as arranged (Shanghai) from June 30th to July 2nd, inclusive. A full programme will be inserted in the next number of the C. M. J.

Will all members who expect to be present please let the secretary know at their earliest convenience, stating whether they will be staying with friends, or not.

A. CLark, Gen. Sec. N. A. C.,

Women's Hosp., Shantung Rd., S'hai.

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**The Florence Nightingale Nurses' Training School, Foochow, China.**

By Cora E. Simpson, R. N., Sup't.

The Florence Nightingale Nurses' Training School of the Magaw Memorial Hospital was organized in 1909. The first class was graduated this year. Bishop Bashford delivered the graduating address and Mrs. Bashford gave the charge to the class and, as a motto for the Training School, "I am come that ye might have life and that ye might have it more abundantly."

The nurses' course extends over a period of three years and only those who hold the nurses' diploma are accepted for the Obstetrical Course of one year. All of the present graduating class have stayed for the Obstetrical Course. Women between twenty and thirty-five are accepted as students. We have some widows, but the larger per cent. are single women. We require that all students be able to read and write the classical character as all the books used are in Wenli. I think that every nurse should have at least eight years' education and this standard should be raised to the twelve year requirement just as soon as possible. We require a diploma or its equivalent. We have one young woman, member of an official family, who has had all her training but one year in her own home, but of those holding no diploma we require an entrance examination.

Our girls are all Christians and must come recommended by the head of the school where she was trained. On acceptance the father of
Nurses' Association.

The guardian signs a contract that the student will be allowed to remain to finish the course and if for any reason, save ill health, she leaves or has to be dismissed from the school before the course is complete the family pay to the Hospital $50.00. If desired, after graduation, each nurse is expected to remain in the Hospital one year at a small wage. Each nurse is allowed thirty days for vacation and fifteen days for illness every year. All time lost must be made up before diploma is given. Nurses do not marry during the course.

The Course of Study is the one outlined by the N. A. C. English is taught during the course and records are kept in English but all the teaching, papers, and examinations are in Chinese. The text books used are "The Manual of Nursing" for probationers; Hampton Robbins' "Principles and Practice of Nursing," Porter's "Physiology;" "The Roller Bandage"—Hopkins; "Till the Doctor Comes,"—Hope; "Nursing in Abdominal Surgery and Diseases of Women,"—Fullerton; "Military Hygiene," "A Treatise on Bacteria"—Dr. Ng Sing Noug; and Dr. Kerr's book on "Health, Air, Water, Food, Clothing."

Lectures have been given on the following subjects:—Skin Diseases; Contagious Diseases; Children's Diseases; Diseases of the Orient; Care of the Eye; Care of Children; Urinalysis; Diets, Chinese and Foreign; Bacteriology; Insanity; Nursing Ethics and History; Electricity; Massage, and many other subjects.

The Reference Library in Chinese contains many medical reference books as well as about one hundred other works of different character.

The nurses do all the nursing in the Hospital, are present at the daily clinic either in consulting, drug, or dressing room, and accompany the doctors to outside cases during the senior year. They are taken in turn on our trips to the leper colony, boat people, country dispensing trip, etc. They do some visiting nursing under supervision but are not allowed to do any home nursing outside the Hospital until after graduation. We have had many calls for our nurses to take positions in institutions as schools, orphanages, and hospitals and also for private work among the Chinese.

Our nurses' uniforms are blue trimmed in white for winter, and white for summer. They receive their uniforms, books, and board while in training, but no money. The nurses' hours for recreation and study are arranged in the afternoon and evening. Class work is carried on about eight months in the year. They attend church once on Sunday, when not on night duty or special, and help with the Hospital evangelistic work. We plan for them many little social hours during the year and take a daily paper and a number of good periodicals which keep them in touch with the outside world.

I have ever found the Chinese girls are kind, quick to learn, easily controlled, faithful and possessing to a wonderful degree that quietness of manner and ability to make their patients comfortable and happy, which after all is the seal of a successful nurse.

When the C. M. M. A. recommended that a foreign trained nurse be in charge of every Hospital Nurses' Training School they only voiced the universally accepted opinion that only a nurse can properly train nurses. The doctors give the lectures and instruction but it remains for the nurse to give those little daily, hourly touches of train-
ing that keep the friends happy, make the patient comfortable, carries out orders, observes the symptoms, keeps the records and in a thousand ways teach and lead these Chinese nurses on and up to that ideal set for nurses by the Queen of all Nurses, Florence Nightingale. I have been told by some of the best doctors in China that medical science reach the place it holds in other lands when there are scientifically trained nurses to work with the physician. I am glad there is just as there ought to be the most congenial, sympathetic, co-operative, helpful relationship between the N. A. C. and the C. M. M. A. for only in this way can we attain the high ideals we desire. Our old hospital was built about forty years ago and this year we are building the new Magaw Memorial on the old site. It will be one of, if not the largest, hospitals for women in China. It is a three story brick building and later a fourth story with a roof-garden will be added for a nurses' home. Besides this building we have just secured another building which will later be used as an Isolation Hospital where fifty patients can be accommodated.

There are two foreign physicians, Drs. Lyon and Hatfield, appointed to this work. We have fifteen nurses in training and expect to raise the number to twenty-five or thirty in the near future. We have two Chinese assistants and one more girl who will soon finish the course in the Union Medical College in Peking.

The evangelistic work is under my supervision, in the hands of two well trained evangelists and no patient enters the doors without being introduced to the Great Physician.

There is one way in which we as nurses can greatly help the Chinese women and that is by giving lectures on Sanitation, Home Nursing, Care of Children and Babies, etc. In this way the gospel of cleanliness can more quickly be spread throughout China. This year I have given over fifty talks on different subjects in schools, before clubs, women's meetings, conventions, etc., and have enjoyed the work so much and the Chinese women are constantly asking for more teaching.

But after all has been said and done we must remember that we are the guests in China, the brothers and sisters here to consult and help if we can, ever looking forward to the time when these people shall control their own institutions. As some one has said "we are here to open the door of service and then get out of the way so the Chinese brother or sister can pass through into the place of helpfulness and blessing to his or her people: Then later, when China has taken her place among the Christian nations of the world it will be enough for us to know that we have had a little part in the work of bringing this great nation out into the sunshine of God's love and in giving to her the gospel of peace and health.
Surgical Progress.

Surgical Progress.

A. S. Taylor, Editor Department of Surgery.


Splenic anemia presents to-day many unsolved problems. By splenic anemia is meant a disease of long duration, characterized by an anemia of the chlorotic type, considerable enlargement of the spleen, an absence of leucocytosis, and a tendency to gastro-intestinal hemorrhage. In the advanced stage, cirrhosis of the liver, ascites, and jaundice are also present. This symptom complex is usually known as Banti's disease.

The first stage lasts two to ten years, with splenomegaly, anemia, gastro-intestinal hemorrhages and pigmentation of the skin as the prominent symptoms. The second stage lasting only a few months adds to these symptoms, kidney insufficiency with scanty, high-colored urine. The third and terminal stage presents the stage of liver enlargement in which appears a cirrhosis of the Läennec type with ascites.

Etiology. — Endless discussion has taken place as to whether the splenomegaly is primary or secondary. The mere fact that we have first this splenomegaly is important, but not absolutely convincing, that it alone is responsible for the anemia, the cirrhosis and endophlebitis of the splenic and portal veins. Rather would it seem that the splenomegaly was a link in a chain which resulted from the chronic irritation of some as yet unknown toxin, probably of gastro-intestinal origin. Having once acquired splenomegaly, the spleen seems responsible for the anemia by reason of an exaggeration of its normal haemolytic functions. This is proved by the fact that splenectomy in the early stages is followed by the return of the blood picture to normal. As in partial thyroidectomy for hyperthyroidism, excessive physiological action is stopped with an improvement of the pathological symptoms due to this action. Banti states that the anemia is due to increased haemolysis chiefly, and secondly to an actual increase in the blood destroying units of the spleen. Harris and Hertzog believe that by reason of an erythrolytic enzyme secreted by the endothelial cells of the spleen there is a destruction of the red cells. Barr thinks the increased blood supply causes an increased haemolysis. Several other opinions are given as to the cause of the anemia, but the verdict is that the enlarged spleen is secondarily responsible. In other words, it reacts primarily to some unknown toxin, and its own haemolytic power is thus increased, with a subsequent anemia. One class of observers holds to the view that the primary toxæmia is to be sought in the intestinal tract, while Banti holds it to be infectious in nature. It seems certain that the primary cause is a toxin of some kind.

Pathology. — The essential pathology is first an anemia of the chlorotic type, with poikilocytosis, polychromatophilia and often basophilic degeneration of the red cells, with occasional normoblasts and myelocytes. Secondly, the spleen is enlarged, averaging 61 ounces. It retains its normal shape, is dense and firm and under the microscope shows a general
fibrosis, especially of the malpighian bodies. The blood spaces show marked hyperplasia. In the third stage the liver shows an atrophic interlobular cirrhosis, closely corresponding to that seen in chronic alcoholism. In addition there is reported in a large number of cases, an obliterating thrombophlebitis of the splenic and portal veins.

Treatment.—While iron and arsenic are of help in the anemia, no cure has been reported from medicinal treatment. The medical treatment will surely become more valuable in the early stages. If the primary intoxicant can be discovered, it will be attacked with much hope of warding off the condition.

Splenectomy gives better results during the first and second stages than any other form of treatment. The production of toxins which affect the blood, the liver and other organs is stopped, and nature is given a chance to repair the damage that has been done to the other parts of the system. The anemia rapidly decreases. The effects of the removal of the spleen in this condition closely resemble those following thyroidectomy for exophthalmic goitre. In both, the secondary and presumably the major, but not the primary source of intoxication is removed, and the resultant marked improvement in the patient's health, while not so rapid, is as sure and as permanent from splenectomy as from thyroidectomy.

The mortality in recent years for simple splenectomy is about ten per cent. when the operation is performed before the appearance of the late symptoms.

The operation is done by an incision beginning at the tip of the ensiform cartilage, one cm. to the left of the midline, and is continued downward to the level of the umbilicus. It is then carried outward across the rectus and outward and upward toward the tip of the seventh rib. The rectus is cut transversely at the linea transversa. The external oblique and the transversalis muscles are separated in the direction of their fibres; the internal oblique fibres are cut across. The flap can then be turned up and out giving free access to the splenic area.

Having obtained the proper exposure, the greatest remaining difficulty lies in efficient ligation of the vascular pedicle. Mayo and Sutherland both strongly urge the use of a temporary rubber covered clamp on this pedicle before ligation and the thorough testing of the ligatures before the complete removal of the clamp.—From the *Annals of Surgery*, November, 1913.

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**Surgery of the Spleen.** By Wm. J. Mayo, M.D.

The spleen is not essential to life. It removes from the blood broken down corpuscles and other material of probable nutritive value, which is sent to the liver for further elaboration. It is also concerned in the metabolism of iron.

The spleen is an organ of internal secretion controlled by chemical stimulation through the blood stream, in many respects resembling the liver. Evidently the internal secretion of the spleen is not important, since splenectomy does not produce serious results, the associated organs taking up the function.

Processes in the liver which interfere with function are often accompanied by changes in the size and parenchyma of the spleen which so often accompanies cirrhosis of the liver, as is seen in the late stages of splenic anaemia (Banti's disease).

In the foetus the spleen appears to have the power of producing
both red and white corpuscles. After birth the function of producing red corpuscles is probably lost, although the ability to produce white corpuscles is maintained. Not only is the function of producing red corpuscles lost at this time, but the spleen assumes the function of a destroyer of the obsolete red blood corpuscles. The spleen strains out the broken down cellular elements as well as bacteria and other microorganisms. The spleen does not appear to have the power to destroy the organisms it captures, therefore the organisms are delivered to the liver for destruction through the portal circulation.

In the perversion of this dual function most of the diseases common to the spleen have their origin. A great overproduction of white blood corpuscles, associated with an enlarged spleen, constitutes leukaemia of the splenic type. An excess of function in the destruction of the red blood corpuscles produces not only hyperplasia of the spleen but an attending anaemia from which splenic anaemia takes its name.

With the present methods of diagnosis, a diseased spleen is not often mapped out until its free border is made manifest beyond the ribs. The deep situation of the spleen makes accurate outlining before this time open to question; and the fact remains that in the large majority of cases we have no correct knowledge of the actual condition of the spleen until it can be felt at the border of the left hypochondrium.

**Splenic Enlargements.**

*Myelogenous leukaemia.* Enlargement of the spleen with an excess of white blood corpuscles is a characteristic of myelogenous leukaemia, which appears to be a reversion to the embryonic type of blood, in which all of the original blood making organs have to do with the over production of white cells.

The leukaemic spleen has been removed a number of times, and in practically all of the cases in which the diagnosis was established the patient died promptly as the result of the operation. Even if this were not the case, since the leukaemic spleen is but a part of the general condition, splenectomy would be unavailing.

*Splenic anaemia.* This condition is probably a definite entity, and is described as a progressive disease characterized by an enlarged spleen, by a reduction in the number and value of the red cells, and low haemoglobin, and often by a reduction in the number of the white blood corpuscles. Banti's disease is simply a late phase of splenic anaemia. It is marked by splenic hypertrophy, with cirrhosis of the liver, occasionally jaundice, and often ascites. As a rule the red blood corpuscles drop under 4,000,000, often to 3,000,000, and the haemoglobin to the vicinity of 40 per cent. The white corpuscles vary from 3,500 to normal. The differential count is usually unchanged. After the removal of the spleen the blood picture becomes more nearly normal, and if the disease be uncomplicated, splenectomy may be expected to cure the patient.

Mayo reports eighteen cases of splenic anaemia in which the spleen had been removed with gratifying results. Perisplenitis and hepatic cirrhosis may exist and render the operation impossible without tremendous risk to life.

There is a type of enlarged spleen without anaemia, an essential hyperplasia.

*Conservative Splenic Enlargements.* Both vegetable and animal parasites may cause enlargements
of the spleen. The spleen has been removed for primary tuberculosis, and for hyperplasia due to chronic malaria. Operation is advised for moveable and wandering spleens with long and easily twisted pedicles.

**Cysts of Spleen.** These are the most common form of non-parasitic tumors of the spleen, and are due largely to hemorrhage within the capsule.

**Sarcoma of the Spleen.** Pathologists are divided in their opinion as regards these tumors: some hold that they are sarcomas, and others that they are a type of hyperplasia. Histologically many of these tumors appear to be neoplasms, but are peculiar in that when they exist primarily in the spleen they are comparatively benign, and if removed early may be cured.

**Splenectomy.** It is unfortunate that the main recourse in surgical diseases of the spleen is destructive. As a rule the disease is advanced before diagnosis is made, and usually the entire organ is involved, making splenectomy the only rational procedure. The blood supply of the spleen can be reduced by ligation of the arteries of the hilum. In the somewhat analogous condition of hyperthyroidism, ligation of the thyroid vessels has given remarkable results.

For the removal of a large spleen an incision is made in the outer border of the left rectus muscle extending from the costal arch downward until there is a sufficient space for manipulation. On opening the abdomen, adhesions are broken down with the hand, and the spleen brought entirely out of the abdominal incision. The fundus of the stomach and the colon come out with the spleen, and these attachments together with the lienophrenic ligament, etc., can be tied and divided under inspection. A large gauze pack is carried up into the cavity from which the spleen has been removed, temporarily, to check the oozing from the separated adhesions. The spleen is then steadied and all the attachments tied and divided until it remains attached by its vascular pedicle. A rubber covered elastic clamp of the Lower variety is placed on the pedicle, if possible about three inches from the spleen. If portions of the stomach or colon are caught with the pedicle by the elastic holding clamps no injury will be done. This hold prevents slipping and sudden hemorrhage from the great vascular pedicle, and the vessels can be carefully ligated close to the spleen, before the holding clamps are removed.

In one case Mayo was unable to control the oozing from the under surface of the diaphragm, and left in a large pack, which he removed several days later. He has wounded the tail of the pancreas in ligating the pedicle, but with no serious result.

The mortality in his hands has been two deaths in 27 cases of splenectomy. In eighteen cases of splenic anaemia, twelve were well after periods varying from one to seven years.—Taken from *Surgery, Gynecology, and Obstetrics*, March, 1913.
THE ETIOLOGY OF BERI-BERI.

In view of the increased attention to beri-beri and the resuscitation of the "rice theory" of its origin, founded on what appear to be wrongly interpreted experiments on the feeding of fowls, and especially in view of new legislation recommended on the supposed cause of the disease by consuming decorticated rice, it may be well to record an obvious fact which appears to have been lost sight of by recent workers.

After a period of close observation extending over fifteen years in Shanghai and other parts of China, beri-beri is found to be common in institutions, such as gaols, charitable institutions, and schools, where large numbers of persons live together, but comparatively uncommon among the general population; practically no difference obtaining as regards the food supply, at any rate as regards the kind of rice consumed, which is invariably decorticated by the same process in China. If beri-beri were due to the loss of something in the outer covering of the rice grain, why should the disease show such a marked proclivity towards persons closely aggregated in large numbers? Such are the conditions which make for the spread of infection.

Isolation of the sick and ordinary disinfection of clothing, etc., have little or no effect on an outbreak of beri-beri, but after disinestation of body vermin and sulphur fumigation of quarters to kill bugs, etc., there are strong reasons for thinking that prevention of the spread of beri-beri is immediate and effective. This points towards infection by external animal parasites.

It is interesting to note that practically all new workers on this elusive subject are first attracted by the "rice theory," especially in view of other forms of peripheral neuritis, such as ergotism, lathyrisis, and perhaps pellagra, being attributed to the results of parasitic growths on seeds. This, in fact, appears to represent the first stage of research, which is almost invariably given up when the idea is found untenable as a result of fuller knowledge. But to accept the "rice theory" as final and to advise governments to legislate against rice with a view to prevention of beri-beri is to discourage further research until, of course, such legislation is found to be futile. Meanwhile, trade may be damaged and the habits of the people unnecessarily interfered with.—Arthur Stanley, M.D., Lond., M.O.H., in The British Medical Journal.

THE RATIONAL TREATMENT OF CHRONIC BACILLARY DYSENTERY, and the Advantages of Enemata of Silver Gelatose. By Leonard Rogers, M.D., F.R.C.P., I.M.S., Professor of Pathology, Calcutta.

Acute bacillary dysentery is essentially an inflammation of the mucous membrane of the large bowel, and the causative organisms are limited to the intestinal tract, except in a very few acute instances in which they invade the blood stream. In early cases the serum and saline treatments are usually effective in dealing with the toxaemia and congestion of the mucous membrane, and commonly
subdue the disease before much lasting damage has been done.

Cases of chronic bacillary dysentery in which extensive ulceration has already been produced before the patient comes under skilled treatment are much more difficult to deal with. I have frequently found the saline treatment do more harm than good, while in one large Calcutta hospital, where several hundred cases are treated yearly, the mortality from this distressing disease is about 40 per cent. In fact, I know of no common tropical disease in India at the present time which is more difficult to deal with successfully, with the single exception of the terrible kala-azar. Contrary to the experience of some other writers, I have not had good results with stock Shiga dysentery bacillus vaccines, as recommended by Forster, and, owing to the great toxicity of Shiga's bacillus, they require to be used with caution. Sensitized dead dysentery bacillus vaccines, I think, promise better, but I have not yet been able to try them. Occasionally I have obtained good results with an autogenous dysentery vaccine, but in other cases even this failed, while the method is obviously not of general applicability, as, apart from the time and expense required to carry it out, there are few laboratories in the tropics.

In short, it may be said that the treatment of chronic bacillary dysentery is in a very unsatisfactory state at the present time, especially as compared with the formerly intractable amoebic variety of the disease.

The Character and Distribution of the Bowel Lesions and Their Bearing on Treatment.

An analysis of considerably over one hundred post-mortem examinations made by me in Calcutta during the last twelve years has brought out a fact which appears to be of great practical importance in connexion with the problem under consideration. I refer to the very marked contrast in the distribution, as well as in the character, of the bowel lesions in acute and chronic fatal bacillary dysentery respectively. These features of the disease are fully described and illustrated in my recently issued small work on dysenteries, and I only need here refer to the points of importance in practice.

Briefly it may be said that in fatal acute bacillary dysentery the whole length of the large intestine and the lowest part of the ileum are uniformly involved in a fibrinous inflammation of the mucous membrane, with only superficial ulceration, if any. Death results early from the absorption of a lethal dose of toxin, aided by the shock induced by the acute affection of such a large extent of the mucous membrane of the bowel.

On the other hand, in examinations after death from chronic bacillary dysentery—including in that category all those in which the disease has lasted from one month up to a year or more—the lesions are, in my experience, nearly always limited to the lower portions of the large intestine, and in the exceptional cases in which they extend above the descending colon they are comparatively slight in the upper part, although they involve the whole of the mucous membrane of the lower half of the large gut. Moreover, the character of the lesions is quite different from that of cases in which death has taken place in the early acute stages of the disease. In the chronic cases extensive depressed, and often serpiginous, ulcers are found on a generally thickened bowel wall, with small islets of remaining mucous membrane between them, which as a rule no longer show
the acute fibrinous deposits of the early stages. In this class of case the strength is steadily sapped by the frequent discharges of blood and mucus and the loss of absorptive powers, and although the early toxic and febrile stage has been survived—probably largely on account of the lesser extent of the bowel involved—the tendency of the disease is to run on for months, unchecked by the numerous drugs poured into the stomachs of the unfortunate patients.

The very frequent limitation of the lesions of chronic bacillary dysentery to the lower half of the large gut, as opposed to the general involvement in acute fatal cases, was new to me; but the important bearing of this fact on the treatment of the chronic disease is evident. Any drugs given by the mouth have to traverse the whole length of the gastro-intestinal canal down to the lower part of the large gut before they reach the seat of the disease. When they do arrive in the descending colon and sigmoid the irritability of the ulcerated mucous membrane is not likely to allow them to remain long in contact with the diseased parts before being expelled in one of the numerous stools. In short, but little can be expected from medicines given by the mouth, except perhaps from large doses of bismuth, some of which might help to coat and protect the ulcers.

Indications for the Use of Medicated Enemata in Chronic Bacillary Dysentery.

The very distribution of the lesions which is so inimical to the action of remedies administered orally is, on the contrary, of the greatest assistance to the action of enemata containing active drugs; for the lower half of the large intestine is much more readily and effectually reached in this way than the upper portion. The question of treatment, therefore, resolves itself mainly into one of ascertaining which are the best remedies for rectal administration.

One of the most frequently used and effective of these is silver nitrate, which was advocated in chronic bacillary dysentery by Stephen Mackenzie in 1882, and since used by many others, especially in the United States, although not so much in the tropics, probably on account of its failure in the numerous chronic amoebic dysenteries of warm climates. Silver nitrate, however, has two serious disadvantages in practice. The more important of these is that it is precipitated by both chlorides and albuminous substances, so that its action is very uncertain. Secondly, when used in sufficient strength to be likely to exert marked antiseptic and astringent properties, in the presence of salts and albumin, it is apt to be very painful.

Experimental Investigation of the Action of Various Silver Compounds and Other Antiseptics on the Dysentery Bacillus in the Presence of Salts and Albumin.

The foregoing considerations led me to undertake an investigation with a view to ascertaining the substances most likely to be useful in the treatment of chronic bacillary dysentery by means of medicated enemata, especial attention being directed to the numerous organic combinations of silver which have been so largely used in the treatment of inflammatory conditions of the urethral and conjunctival mucous membranes. The details of these experiments will appear in the second number of the Journal of Indian Medical Research, so only the results need be mentioned here in so far as they bear on the practical treatment of the...
disease. Each substance was tested against Shiga's bacillus in two sets of dilutions—one dissolved in water, and a second in which half the diluting fluid was sterile broth containing both chlorides and albumins. The importance of the second set will be evident from the fact that whereas silver nitrate killed the dysentery bacillus within five minutes (the time adopted in all the tests) up to a dilution of 1 in 10,000, yet in the presence of a little broth it failed to kill in a dilution of 1 in 100 in one experiment, and 1 in 500 in another, being at once precipitated by the broth.

On the other hand, I found that those organic silver compounds which were not precipitated by broth had a much more marked action against the dysentery bacillus in the broth series of tubes than had silver nitrate, although less active than the latter in water. Of the organic silver substances silver gelatose (albargin) gave the best results in broth, killing the Shiga bacillus in five minutes up to dilutions of 1 in 500 and 1 in 1,000 respectively in two trials. Nargol came next, acting up to 1 in 500. Protargol and mercuriol (mercury nucleate) were nearly as active, but it would not appear to be advisable to inject large quantities of a mercury compound into the bowel in emaciated dysenteric subjects. On the other hand, argentamin had little action, while collargol, ichthargan, and argyrol were practically inert in the presence of broth, as were copper sulphate and cuprol (copper nucleate).

A second series of experiments was carried out in a similar manner with certain antiseptics, with the following results: Cyllin was active in broth up to 1 in 2,500. Iodine, dissolved with the aid of iodide of potassium, and izal both proved effective up to 1 in 1,000, but lysol was less active in the one test made. Permanganates, with or without the addition of a little dilute sulphuric acid, quinine bisulphate, and boracic acid, all proved to be nearly inert in the presence of broth.

It would thus appear that under the conditions noted albargin was the best of the silver compounds tested, being closely followed by nargol and protargol, while cyllin, iodine, and izal were the most active of the other antiseptics tested.

The Practical Application of the Above Investigation.

In making use of the foregoing data in the treatment of chronic bacillary dysentery we are first confronted with the differential diagnosis of this class from more especially the amoebic form. The clinical differences are dealt with in my book, but they are not sufficiently characteristic and constant to enable them to be completely relied on for diagnostic purposes. Of greater value is the absence of pathogenic amoebae from the stools after repeated examination, as they may not be found at a single attempt in chronic amoebic disease. The isolation of the dysentery bacillus is a much more difficult procedure, even when a well equipped laboratory is available, and often fails in experienced hands in chronic bacillary cases, as subsequently verified post mortem. Fortunately we have a simple clinical test for excluding the amoebic variety in the use of emetine, for if 1 grain doses of this drug given hypodermically on three or four successive days has no effect on the disease, amoebic infection may safely be excluded and the case treated as one of chronic bacillary dysentery in the absence of signs or microscopic evidence of other rarer forms of lower bowel disease.
During the last few months I have treated a number of non-amoebic cases in the light of the above experiments, with sufficiently promising results to deserve record so as to allow of others giving them a trial in intractable chronic bacillary dysentery.

**Dysentery Cases treated with Enemata of Albargin or Silver Gelatose.**

My experiments having shown albargin to be the most effective of the organic silver compounds against the dysentery bacillus in the presence of salts and organic matter, I proceeded to try it in dysentery cases other than the amoebic variety. The results have been distinctly promising, while the solution has the great advantage of being painless, and usually easily retained for a sufficient length of time to have a good chance of exerting its disinfectant and astringent properties. The following brief notes will serve to illustrate the effects of albargin in different types of cases.

**Case I.**—Acute Bacillary Dysentery Resisting Purgative Treatment, but Cured by Three Albargin Bowel Washes.

An Indian Christian male, aged 38, admitted for suspected cholera, but proved to be a case of acute bacillary dysentery. From eleven to seventeen stools daily, containing much blood and mucus. No improvement after eight days' treatment with castor oil and opium, followed by salines. One pint of albargin of the strength of 1 grain in 1 oz. (approximately 1 in 500 solution); given as an enema, and increased to 1½ pints on each of the following two days. The evening temperature, which had been rising to 99° and a little over, fell to 97°; the blood disappeared at once, and the mucus finally after six days, by which time the stools had become reduced to one or two healthy motions daily, and he was on solid food. He was discharged four days later, and came to see me several times during the next three months, and has remained well. The rapid improvement after the failure of other treatment in a severe case, which was threatening to become chronic, was striking.

**Case II.**—Chronic Bacillary Dysentery of Eight Months' Duration Rapidly Cured by Albargin.

European female, aged 17, admitted for chronic dysentery for eight months without intermission. No amoebae found on repeated examination of the stools, which contained blood and mucus and numbered three to four daily, being passed with griping pains. History of fever at first, but none now. Treated with castor oil emulsion and bismuth salicylate for five days without improvement. Then one and a half pints of one grain to the ounce albargin solution given as an enema on three successive days, and retained for from fifteen to thirty minutes without pain. The blood and mucus disappeared after the second injection, and one healthy stool was passed daily during the following week, although solid diet was given two days after the last bowel wash. No relapse occurred, and she has been seen repeatedly during the two months following her discharge from hospital and has remained in good health. Such a rapid recovery after eight months' suffering is very encouraging.

**Case III.**—Severe Bacillary Dysentery in a Young Child Cured by Albargin.

A European child, aged 2½, had been treated for severe dysentery, with up to twenty stools a day, for twelve days with castor oil, emetine, and saline enemata. No material improvement had resulted and the condition of the child was becoming serious. Captain Green-Armitage, I.M.S., now asked me to see the case, and I advised that 8 oz. enemata of albargin of the strength of 1 grain to 1 oz. should be given. Improvement began after the first injection, and shortly after a second, four days later, no further blood or mucus was passed, but a third was given as a precautionary measure. The child rapidly picked up and was discharged cured two weeks after the commencement of the albargin treatment. The absence of pain after the injections in so young a child is of interest, as well as the immediate improvement after the failure of other treatment.

The foregoing cases will suffice to illustrate the value of the new treatment in certain cases of bacillary dysentery, while the following is a brief summary of the results obtained in a consecutive series of
all the cases so far treated in my ward. They number twelve, including those already recorded above. Four acute cases of less than two weeks' duration on admission were all rapidly cured by from three to five albugiu enemata, although two of them had suffered from other attacks within the previous few months. Of the 8 chronic cases 5 were of from one to four months' duration, 1 of eight months and 2 of sixteen months. Of these 8 cases, one patient left hospital two days after the treatment was begun, so should be excluded. One of sixteen months' duration improved considerably, but the drug failed to cure him, and he is still in hospital. The remaining 6 were cured, from three to five injections being given in 5 of them, while a larger number were required in the sixteen-months' case, who had previously been treated unsuccessfully with nargol enemata. As all these cases had resisted the usual treatment with castor oil and salines for an average of seven days (mild cases clearing up under purgative treatment not being given bowel washes), these results are distinctly encouraging, and are certainly better than I have previously obtained in similar cases by older methods.

Lastly, it should be mentioned that albugiu bowel washes failed to do good in two patients, who were subsequently found to have pathogenic amoebae in their stools, although on their admission amoebae had not been found, so that the silver gelatose appears to be useless in amoebic cases, although of great value in bacillary dysentery.

I have not yet been able to test the value of the other antiseptics which my experimental investigation show to be worthy of trial in non-amoebic dysentery. The main object of this communication is to draw attention to the principle that medicated enemata are clearly indicated in the treatment of chronic bacillary dysentery, owing to the lesions being usually limited to the lower half of the large intestine, and consequently easily reached by bowel washes. — British Medical Journal.


Until we know more about splenomegaly, I believe that resection of the spleen is the only chance we have to save a patient's life. Hitherto this disease has always been fatal, and no medical treatment has been of any value.

Osler has grouped under this head cases characterized by idiopathic enlargement of the spleen, with anaemia. Whether this is secondary to the splenic condition or otherwise, or both, or secondary to some other cause, is not known.

Attention was first called to it in England in 1871; before this, splenic anaemia was regarded as the splenic form of Hodgkin's disease.

To a group of cases of enlarged spleen and cirrhosis of the liver accompanied by ascites the name of 'Banti's disease' is given; it is, I believe, the last phase of splenic anaemia. The main symptoms are enlargement of the spleen and anaemia of a secondary type but without leucocytosis, with, in most cases, various haemorrhages and a downward course. The spleen is greatly enlarged; in some cases this enlargement seems to have preceded the anaemia; the lymphatic glands are not usually enlarged, the average of red blood corpuscles is below normal, the haemoglobin is relatively low, the leucocytes are diminished in number, but the differential count shows
Tropical Diseases.

no special feature. There is often marked pigmentation of the skin, and as the disease advances so does asthenia.

Rolleston has summarized the above symptoms as follows: Anemia of the type usually spoken of as chlorotic, namely, a diminution of red corpuscles with a diminished corpuscular value of haemoglobin; absence of leucocytosis, usually leucopenia, considerable splenic enlargement which cannot be correlated with any other known causes such as leukaemia, tuberculosis, malaria, syphilis, and hepatic cirrhosis, the long duration of the disease, and the tendency to gastro-intestinal haemorrhages.

The diagnosis lies between splenic leukaemia, Hodgkin's disease with enlarged spleen, hepatic cirrhosis (alcoholic, syphilitic, or hypertrophic), and old cases of malaria with hypertrophy.

As to the cause of the disease, nothing is certain, and we must remain in doubt until more is found relative to the functions of that organ.

The spleen is classified in our works on physiology as a blood-forming organ, and the most important one. It is known that this function exists only during the prenatal period; at birth it apparently ceases, and other organs—namely, bone marrow and lymph cells—take up that work, or continue to manufacture blood, a function which they may have shared with the spleen during the fetal period. Since when the spleen is removed, in case of rupture or dislocation, no changes occur in the blood, we must admit that the spleen is not essential to life, and that its removal does not interfere with the health of the individual. A prevalent theory is that after birth its function alters, and that it takes a prominent part in consuming the broken-down blood cells.

When the spleen is removed in cases of splenomegaly the blood almost immediately improves in quality, and this fact makes it appear that the origin of the disease is in the spleen, probably some toxin which destroys or injures the blood cells.

[The author here cites a case of splenomegaly in a young girl of 22 years of age with description of operation performed on the same patient for removal of the diseased spleen which hung low down in the pelvis.]

After History.

The patient recovered rapidly from shock. Three days after it was noticed that her appearance had much improved: the face had lost its waxy appearance, the cheeks were less pale, the lips had some colour, and the pulse had improved. On the tenth day the temperature, which had been normal, rose to 100°, and we found that one stitch had suppurated. On the fifteenth day there appeared some pigmentation on the brows, forehead, and round the mouth; 6 min. of adrenaline solution three times a day was given with apparent good results, for the stain lessened in depth.

An examination of the blood analysis twelve days after the operation, by Dr. de Korte, gave the following results: Red corpuscles, 4,400,000 per c.mm.; white, 11,200 c.mm.; haemoglobin, 83 per cent. Percentage composition of white cells: Polynuclear leucocytes, 83 per cent.; lymphocytes (chiefly transitional), 15.5 per cent.; eosinophile leucocytes, 1.5 per cent.

Before operation, examination showed: Red corp. 1,500,000 per c.mm.; white, 4,568 per c.mm.; haemoglobin 83 per cent. Percentage composition of white cells: Polynuclear leucocytes 61.5; lym-
The China Medical Journal.

phocytes (chiefly small) 27; eosino- 

Dr. de Korte’s observations on 
these results were as follows: 
The relative increase of polynuclear 
leucocytes is most probably due to 
the presence of some stitch abscess. 
It is as well to remember that the 
increase of red cells may also be 
more apparent than real, for a 
diminution in the serous plethora 
would account for the increase. 
Careful examination showed no 
sign of micro-organism infection.— 

Preventive Medicine.

W. W. Peters, M.D., Editor Department Preventive Medicine.

A COMPARISON IN PUBLIC HEALTH MATTERS.

When a chemist, visiting in 
Shanghai, learned that in most of 
the cities and provinces of China 
there were no laws regulating mat­ 
ters of public health and sanitation, 
he exclaimed: "I'm glad that I 
don't have to live in any of them 
and that I'm going back to civilization." By this comparison I sup­ pose he meant to say public health conditions in China could be no 
worse, and that where he came 
from they could be no better. 
Perhaps the above idea, or a 
modification of it, is held by con­ siderable numbers both within and 
without China. But the compari­ son is wrong. Not because public health conditions in China are not 
bad. Everybody admits that they 
might be somewhat improved. But 
because 'back in civilization' where 
this chemist came from, public health conditions are not ideal. 
That the chemist spoke from a 
pedestal which does not exist, is 
shown by the following facts. 

Back in the state from which this 
gentleman came, the Secretary of 
the State Board of Health made a 
speech in which he said:

Right here in O—our legislature has 
seen fit to appropriate approximately 
$94,000 for an institute for the study of 
hog cholera and the preparation of anti­ sera, and for several years has only 
appropriated approximately $50,000 for 
the use of the State Board of Health, who 
have control and are held responsible for 
the health of 5 million people. The same 
legislature which appropriated so hand­ some a sum for hog cholera work, defeated 
a bill making it possible to furnish free 
diphtheria antitoxin for the indigents in 
the state. 

I would call your attention to the 
fact that in this nation approximately 
1,500,000 persons die annually, and in 
addition fully 3 million people are in­ 
capacitated by disease. The large propor­ 
tion of our deaths are due to diseases 
which can and should be prevented. 
Fisher has estimated the financial loss 
from death and incapacitation at 3 billion 
dollars annually in the United States, 
and this estimate is conservative. 

It is estimated that in the United 
States one thousand infants die 
every day. The deaths under one 
year of age compose 19.2 per cent., 
or approximately one-fifth of the 
total death rate. And "it should 
be noted that between 75 per cent. 
and 100 per cent. of all these 
diseases are preventable; therefore 
the commonwealth as a whole is 
responsible and vigorous steps 
should be taken to prevent this 
useless loss of life."

And why these 'estimates' men­ 
tioned above? Because there are 
no complete statistics. The regis­ 
tration area of the Census Bureau 
comprises only from 56.1 per cent.
to 58.3 per cent. of all the population of the country.

In one year New York City spent $148 million for municipal government. The fire department got $8 million and there was a fire loss of $9 million dollars. The public health department got $2.5 million and there were 76,742 deaths from all causes with a monetary loss of over $56 million dollars. About 33,200 of these death occurred from preventable diseases.

When an attempt was made to create a United States Department of Health it was attacked from all sides and even on constitutional grounds. President Taft's commentary on this question was this:

"There is nothing in the constitution especially about hogs or cattle or horses; and if out of the public treasury at Washington we can establish a department for that purpose, it does not seem to me to be a long step or a stretch of logic to say that we have the power to spend money in a Bureau of Research to tell how we can develop good men and good women."

Such a national Department of Health was created. But the enemies were not baffled. For although nearly $20 million dollars were charged as public health expenditures in one year, by far the greater part was used for maintaining departments other than strictly health. For instance, over half of the total amount charged against public health work was spent by the Army and Navy Departments; nearly $400,000 was spent by the Bureau of Indian Affairs; and over $3 million by the Bureau of Animal Industry. So of the twenty million dollars appropriated, less than two and a half million dollars were actually spent for public health purposes.

As a matter of fact, actual progress in bettering public health conditions in America began only 25 or 35 years ago. And not until recently has there been anything like an awakened public conscience in such matters.

Thus it can be seen that even in matters of public health all progress is relative. No nation has attained to the ideal. But at different stages of progress all nations are moving toward better things. Some nations started earlier and are now somewhat in advance of other nations. Just as soon as China is relieved of the immediate pressure of some of her financial and political problems, it may confidently be expected that more attention will be devoted to public health matters. The visiting chemist would have made a more accurate observation had he said: "Public health conditions in China are indeed a great drain upon the people physically and financially. But the very contrast between what they are and what they might be, constitutes an opportunity such as confronts no other nation. In America the contrast is not so great. Within the last 35 years we have quickened our pace and now we may be several milestones ahead of China. But what are 35 years and a few milestones in a span of a thousand years!"
Correspondence.

Union Medical College, {PEKING, Jan. 1st, 1914.}

To the President of the C.M.M.A.

Dear Sir: I am writing to urge upon the C. M. M. A. the need of a more definite policy in their medical education work, for it seems to me that in the past this has been sadly lacking.

A few years ago it was recommended that there should be not more than four or five Union Medical Schools in certain definite centres. Last year it was found at the C. M. M. A. conference that the number of Union Schools already started or in embryo was eight or nine and the only form of policy adopted was a resolution that this number should not be increased. Apart from passing a resolution re the staff required for each school, nothing was done to ensure that any one of them should be of really high standing, although of those already at work, it was generally admitted that the Union Medical College at Peking was the most advanced and owing to its position in the capital had the best opportunities.

The policy I desire to advocate is in effect the same as that resolved on for the teaching of theology by the National Shanghai Conference of last spring, viz., that there should be at least one high-grade Union School teaching in English, while the bulk of the remaining work is done in Chinese. If this is advisable in theology, where more books have been translated and the subject is much less technical, surely it is advisable for modern medicine and its many branches, than which no more scientific and complicated subject could be found.

I have long advocated that here in Peking, which as the capital is the strategic point for higher education, we should teach in English, thereby putting ourselves in touch with most of the higher work done by the Government in the various colleges, such for instance as the Government University, the Customs College, and Ching Hua. At present all three of our Union Medical Colleges in North China, viz., Peking, Mukden, and Chunanfu are teaching in Mandarin, and are all within 36 hours of each other by rail.

Surely there is room for one of these to teach in English and do work of a much higher grade than at present. But I would urge still more that the above plan be adopted by the C. M. M. A. as the general policy for the Union Schools, viz., a first-class school of home standards in the capital teaching in English, and a uniform minimum standard for its other schools most of which will probably continue to teach in Chinese.

In Peking by the use of English it would be quite feasible for us to develop a first-class Scientific Hospital and Medical School, which would be of sufficiently high standard to command the respect of all comers, and which would make it very probable that the Chinese Government would in the future look to us for help and co-operation, rather than seek independently to develop high-grade medical education and sanitation work through the help of its returned students and newly engaged foreign
Correspondence.

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teachers, possibly of other nationality than British or American.

At the present time in Peking we have the first block of what may be made into a large and up-to-date hospital, ready to open; and such a hospital is, we all admit, the sine qua non of a good teaching school.

Again we have in Peking a strong movement already developing for promoting intercourse and friendship between China and America and Great Britain respectively, working especially among those men, many of them now in high positions, who have been abroad to study: and through our hospital work we are now in close touch with many of the highest government officials and with those who are working for true reform in China. So that, if they will accept it, we are in the best position to help them either in medical education or in the development of public health work which must shortly take place in the capital.

If our work is scientific and of a high order, it is bound to attract to us many of the best Chinese medicals who are now training in Great Britain or America. In Edinburgh alone there are now 22 Chinese medicals. It is some of these who are going to be leaders in the future in the medical work of their own country. As they return from abroad we should join hands with them and by working together in Peking develop a medical school which is second to none in the Far East.

I maintain that it is impossible at present to give a truly scientific medical education in Chinese, and I fear it will always be impossible for foreigners to do so. A low-grade form of medical education is all that can be given. Moreover, at the present stage in medical education when terminology is very far from fixed, and translated books extremely few, no intelligent government education authority would think of attempting to develop its high-grade medical science by employing foreigners to teach in Chinese. They would rather seek to get the highest teaching from them in the foreign language and rely on their own men in the future to nationalize the science they had learnt.

It is for these reasons that while agreeing that the bulk of our medical education work should be done in Chinese, I do press most strongly that our one Union Medical School in the capital of China, where we now have such unique opportunities for helping forward medical education should be taught in English, and every effort made to press forward to a high standard and to make the work of the highest scientific value. Its Christian influence will be none the less, indeed I believe much greater.

How can this be? I believe that if we can gain this leading position we can then exert a much greater and more lasting influence on the medical education of China: because in that case we are far more likely to be asked to co-operate with the government medical education, and to help in fixing a medical nomenclature which shall be the permanent one for China, and again we shall be in a far better position to help forward and co-ordinate the other Chinese teaching medical schools, which have been established by members of the C. M. M. A.

Once more, if we are doing the high-grade work we can attract to the service men of high qualifications in the medical profession at home, who desire to use their knowledge to the full in the foreign field, and faithfully to represent Christianity to their students, but do not feel justified in giving up their professional work for the study of Chinese.
Our opportunity to do this special work is now, and therefore I would urge most strongly that the question be re-considered before it is too late, for I believe that by continuing on present lines, neither the Peking Medical College nor any other of the C. M. M. A. Union Medical Colleges has any prospect of rising above the grade of mediocrity and that we are failing to make use of the most strategic opening which has ever been offered to us in the history of medical education in China.

Yours, etc.,

Herbert V. Wenham.

Tsing Hua College,
Peking, Dec. 11, 1913.

To the Editor of
"The China Medical Journal."

Dear Sir: I am attempting a comprehensive study of Phlebotominae ("Sandflies") with special attention to their distribution in China and their possible relation to a number of the rather indefinite fevers of short duration which have been noted in various parts of the country. As a preliminary step in this investigation I have formulated a set of questions which I am sending out to a number of physicians in different centers. A copy of these questions is herewith enclosed which I trust you will be good enough to reprint in the Journal with a request that those members of the profession who have been unavoidably overlooked will kindly answer the questions if they have had any experience with the "Sandflies" and the "Three Days' Fevers." At the suggestion of Dr. Henry S. Houghton I am also including a brief resume of the Genus, Phlebotomus, as found in "The Manual of Tropical Medicine" by Aldo Castellani and Albert Chalmers; second edition, 1913. This also contains an excellent short description of "Papataci Fever" (Phlebotomus Fever), Chapter xxxv; pp. 992-995.

CLASSIFICATION OF THE GENUS PHLEBOTOMUS.

Phylum.—Arthropoda.
Class.—Hexapoda.
Order.—Diptera.
Family.—Psychodidae.
Genera.—Phlebotomus.
Species. P papatasii, etc.
Numerous Varieties.

The family Psychodidae are orthorrhapha nematocera, without ocelli, and with body densely covered with coarse hairs. Thorax without transverse suture. Antennae long, sixteen-jointed. Wings very broad and hairy. No discoidal cell. Legs long, tibiae without spurs. The members of this family are small, sometimes very small midges, with body and wings thickly covered with hairs and scales, which give them a most characteristic appearance. They are found all over the world, and have a preference for damp, shady places, while their larvae have been found in damp places—in cracks in rocks, old walls, etc., in rotting vegetation, liquid filth, and water. The blood-sucking genera are: Phlebotomus and Sycorax belonging to the Phlebotominae.

Phlebotominae: Two simple veins between the forks of the second and fourth longitudinal veins. The female has no horny ovipositor, while the male has three claspers.

An excellent description of "The Papataci Flies (Phlebotomus) of the Maltese Islands" with superb illustrations is given by R. Newman in an original communication to the Bulletin of Entomological Research, Volume ii, and reprinted in the Journal of the Royal Army Medical Corps, Volume xviii, June.
Correspondence.

1912, No. 6, and Volume xix, Nos. 1 and 2.

Thanking you in advance for the privilege of having this matter inserted in The China Medical Journal, I am,

Very sincerely,

RICHARD A. BOLT.

QUESTIONS.

1. Are “Sandflies” (Phlebotomine) prevalent in the district where your work is carried on?
2. At what period of the year are they most annoying?
3. Have you been able to definitely identify the species to which the “Sandflies” of your district belong? If so, kindly mention their essential characteristics.
4. If you have made any study of the morphology, habits, and life-history of the “Sandflies” in your vicinity kindly give a digest of the same.
5. Have you noticed in the locality where these “Sandflies” are prevalent the presence of a “Three Days’ Fever,” characterized by sudden onset, severe frontal headache, and indefinite body pains, with a rapid rise of temperature and relatively slow pulse; the symptoms subsiding quite rapidly on the third day, or fourth, leaving the patient very weak, but resulting in no serious sequelae?
6. Have you been able to account definitely for this peculiar fever?
7. Have you been able to determine whether persons suffering from this fever had previously been bitten by “Sandflies”?
8. Do you personally think there is any etiological relation between the “Sandfly” bites and the presence of a “Three Days’ Fever”?
9. Have you done any experimental work to determine such relationship? If so, have your results been published, and where?
If not, upon what clinical evidence do you base your opinion?
10. Do you find that persons bitten by “Sandflies,” and who suffer from the disease, enjoy immunity?
11. Will you kindly mention any references in the literature which have come to your attention recently regarding “Three Days’ Fever”? (Papataci Fever: Phlebotomus Fever: Sandfly Fever: Summer Fever.) Copies of histories and clinical charts from your own cases will be greatly appreciated.

TAINAN, FORMOSA,
February 4th.

To the Editor of “The China Medical Journal.”

DEAR SIR: Perhaps you will be so good as to allow me to occupy a little more of your valuable space with a brief reply to Dr. Cochran on the subject of chloroform anaesthesis.

Dr. Cochran thinks our protest too strong; but is it really more severe than the last sentence of his own summary of his original article?—“If the current of opinion continues to run against chloroform as it has done recently, it is easy to foresee that the day is not far distant when it will be discarded, except for unusual cases.”

The author calls this a “mild” remark about chloroform—what would a strong one be?

I am very sorry that Dr. Cochran seems to think that our protest oversteps the limit of what might be called friendly. Such certainly was not our intention and if in any way it has done so—though reading it again I fail to see in what way this should be—I would, herewith, tender our humble apology. While diametrically opposed to him in this question of anaesthetics, I, for one, feel deeply the debt we owe to Dr. Cochran for the addition to scientific progress that he has given us in China. If Dr. Cochran will accept my remarks as at least intended in a friendly spirit, may I yet venture to add that I fail to see that his latest contribution carries us much further, except as again emphasizing the difference of our points of view.

I believe that the final appeal must always be to clinical facts—hence our challenge—not to experiments on cats and dogs, valuable though these may be. Dr. Cochran
The China Medical Journal.

believes that when the clinical results clash with the experimental, the former must be discounted. Again I maintain that the clinical facts remain and it is the experimental that must be discounted.

To take an example of this: Dr. Cochran in his original paper says that dogs can be killed with great certainty by chloroform administration on two or three occasions at intervals of a day or so, from necrosis of the liver. Here he has a proved scientific fact. Turn to the clinical side. Often we give children chloroform every day or on alternate days for a few days to change a very painful dressing or to cleanse acutely inflamed eyes where there is great muscular spasm. There are hundreds of men who can witness to this and to the children, so far from dying, being little, if any, the worse as to appetite or other bodily condition. Here we have a proved clinical fact. Turn to the experimental. Now if I read Dr. Cochran aright we must review this clinical fact because of the equally true experimental fact. Not so, say I, it is the experiment that needs reviewing to see why it does not accord with the vastly more important clinical fact. To state my point of view concisely—clinical experience must be the final judge of all experimental fact.

Finally: Is Dr. Cochran quite certain about that "current"? Is it not just possible that he is mistaking a backwash for the real current? I have an idea, though I grant it would be difficult to prove it, that if he took the whole world over he would find, on the whole, chloroform given twice to ether once.

I remain, yours sincerely,

JAMES L. MAXWELL.

To the Editor of

"THE CHINA MEDICAL JOURNAL."

Dear Sir: Will you kindly note the fact that the next class in the Woman's Union Medical College, Peking, will enter September 15th, 1914. A new class is only received once in two years and the date may be of interest to those who are preparing students.

Yours truly,

Anna D. Gloss.

WUCHANG, Feb. 12th, 1914.

To the Editor of

"THE CHINA MEDICAL JOURNAL."

Dear Sir: As you will be aware there is a severe epidemic of smallpox raging in Central China at this time. In the city of Hsiaokan alone, between one and two thousand have died from it; while in the country round, coffins cannot be bought.

There is also an epidemic of chicken pox, and I fear there is danger of errors in diagnosis, as so few of us had any clinical experience in our student days. There is no danger in chicken pox being treated as smallpox; and the reverse mistake would generally be of no consequence to the patient, as the attack would presumably be slight, but it might spread the disease seriously. But the danger of diagnosing varicella as varioloid (mild variola) is that it lessens the belief in the protective nature of recent good vaccination, which protection is as absolute as any thing we have in medicine. It is, of course, easy to point out that even if some of the cases in recently vaccinated persons who later developed pox are variola, they have it so slightly that their time of isolation is a grand rest
from which they often come out fatter and in better health than when they took ill.

I have therefore collected from various sources and tabulated the differential diagnosis of the two diseases, varioloid and varicella.

It must be remembered as Whitla puts it, that "varioloid differs in no way, save in its mildness, from the discrete form of variola."

<table>
<thead>
<tr>
<th>Varioloid.</th>
<th>Varicella.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incubation.</strong></td>
<td>Thirteen to sixteen days.</td>
</tr>
<tr>
<td>Nearly always twelve days.</td>
<td></td>
</tr>
<tr>
<td><strong>Primary Fever.</strong></td>
<td>Under twelve hours.</td>
</tr>
<tr>
<td>Two to three days.</td>
<td>Often only noticed when rash comes out.</td>
</tr>
<tr>
<td><em>Drops when rash develops.</em></td>
<td>Usually trifling, may be out of sorts.</td>
</tr>
<tr>
<td>Often severe (104) even in mild cases.</td>
<td>Usually trifling or absent.</td>
</tr>
<tr>
<td>Headache and backache may be severe.</td>
<td></td>
</tr>
<tr>
<td><strong>Eruption.</strong></td>
<td>On 1st day.</td>
</tr>
<tr>
<td>On 3rd or 4th day.</td>
<td>Patient worse; often itchy.</td>
</tr>
<tr>
<td>Patient feels better as it comes out.</td>
<td></td>
</tr>
<tr>
<td><em>Appears first on exposed parts, forehead and wrists.</em></td>
<td>Appears first on covered parts, body or scalp.</td>
</tr>
<tr>
<td>Spreads face, limbs, trunk.</td>
<td>Spreads body, face, limbs.</td>
</tr>
<tr>
<td><em>Rarely exceeds twenty-four hours between first and last papule, at least on any one area.</em></td>
<td><em>Comes out in crops, it may be for several days. Thus all stages may be seen together.</em></td>
</tr>
<tr>
<td>*Papules are hard, shotty, <em>i.e.</em>, may be felt rather than seen.</td>
<td>Pappules are soft. (Vesicles are hard.)</td>
</tr>
<tr>
<td>Become vesicles on 3rd to 5th day.</td>
<td>May be seen rather than felt.</td>
</tr>
<tr>
<td>Vesicles circular, multilocular.</td>
<td><em>Become vesicles within twelve hours.</em></td>
</tr>
<tr>
<td></td>
<td><em>Some are oval, unilocular, <em>i.e.</em>, collapse on being pricked with a pin.</em></td>
</tr>
</tbody>
</table>

*The more important I have marked with an asterisk.*

The above points should make the diagnosis clear but in any doubtful case a consultant should be called in for the reasons given above, not because the patient's illness is so serious, but for the importance of the point from an educational point of view in Preventive Medicine. Particularly should all cases of suspected smallpox in recently (within three years) vaccinated persons be chronicled and diagnosed beyond the shadow of a doubt by more than one doctor.

Yours sincerely,

C. W. Somerville, M.B., D. P. H.

Kaifeng, Honan, 
December 27th, 1913.

To the Editor of "The China Medical Journal."

Sir: In a paper on "Syphilis among the Chinese" in November number of China Medical Journal, Dr. Maxwell refers to the appalling and culpable ignorance of leading Western scientists about diseases in China.

When on furlough a few years ago, and happening to read in Rose and Carless that hernia was uncommon among certain people, I wrote to Mr. Carless telling him that this was not true of China, and
I received a most grateful and appreciative reply in which he said that these statements were handed on from one to another, and thanked me for informing him as to the fact. If a few such papers as Dr. Maxwell's were published in the British Medical Journal, surely these beliefs would soon die.

Yours, etc.,

SIDNEY H. CARR.

Personal Record.

BIRTHS.

At Siyangangfu, Hupeh, November 14th, to Dr. and Mrs. J. Sjoquist, S. A. M. C., a daughter (Iyi'y Catharine).

At Kaifengfu, Honan, December 23rd, to Dr. and Mrs. A. L. Grinnell, A. F. M. M., a son (Delbert Wesley).

At Ichang, January 7th, to Dr. and Mrs. Borthwick, Ch. of Scot. Mission, a son.

At Tzeliutsing, Sze., on February 1st, to Dr. E. C. and Mrs. Willord, a daughter (Muriel Elizabeth).

DEATH.

February,—Mrs. A. McFayden, wife of Dr. A. A. McFayden, A. P. M. (South), at Hsuchowfu, Kiangsu, of pneumonia.

ARRIVALS.

November 2nd, Dr. and Mrs. G. A. Huntley and family.

November 21st, Dr. and Mrs. H. D. Robertson and family.

DEPARTURES.

January 26th, Dr. and Mrs. G. Wilkinson and child, C. M. S., for England.

February,—Dr. and Mrs. Samuel Cochran, A. P. M. for America.

WANT DEPARTMENT.

Dr. G. E. Morrison of Peking is anxious to secure a complete file of The China Medical Journal, and he will be glad to enter into correspondence with anyone who has a complete set for sale.

Dr. Mall of Johns Hopkins University, Baltimore, would be pleased to receive embryological specimens of all kinds and of all ages from medical men in China. Please forward any such specimens according to directions to be found in January issue of C. M. J., to Dr. H. S. Houghton, 7 SiccaweI Road, Shanghai, who will kindly forward them to Dr. Mall in America.

Books by W. H. JEFFERYS, A. M., M.D.

For nine years Editor of the China Medical Journal.

The Diseases of China. (Jefferys and Maxwell) ... ... Price $16.00 P.


Hospital Dialogue in Mandarin ... ... ... ... Price $1.00 P.

Presbyterian Mission Press, Shanghai.

Hospital Dialogue in Shanghai (A few copies left) ... Price $1.00 P.

Presbyterian Mission Press, Shanghai.

James Addison Ingle, First Missionary Bishop of Hankow. Price $1.60 M.

(A Biography.) Church Mission House, New York.

Practical Ideas in Medical Mission Work ... ... ... ... Price 10 cts., gold


The above may all be obtained through The Pres. Mission Press, or Messrs. Kelly & Walsh, Shanghai.