MEDICAL EDUCATION IN CHINA.*

By Thomas Cochran, M.B., C.M., Peking.

The Government scheme of education, as far as it is possible to get reliable information, seems to be to provide colleges for special subjects at all of the larger centres throughout the country, but especially in the provincial capitals. These special subjects include Law, Agriculture, Mining, Medicine and others. The students entering these colleges, which rank as Kao Teng Hsueh T'ang (college grade), are chosen from the best candidates available. Evidently it is the intention of the Government to have a medical department in connection with each university, and the graduates from this department would rank higher than those who hold the diploma of the colleges mentioned above. Medical colleges are not so numerous as those for law and other subjects, and most of them are little more than a name, an adumbration of what the Government hopes to realize. There are, however, some which are fairly efficient and therefore deserve more particular notice. Two of these are to be found in Tientsin. In neither college is the staff very large; the equipment is, however, fairly good, but the practical and clinical sides of the work are poor; probably the maximum number of teachers in either school has never exceeded seven or eight. The schools are supported by the Government and the students pay nothing. In one of them several French doctors lecture in English. In the other Chinese is the medium of teaching, although the preliminary subjects are taken in the Japanese language, and German or Japanese or English classes are arranged for the study of these languages as far as time permits; there is also a pharmacy department, and special training is given in army work.

There are two medical schools in Canton. One of these is called the Canton Public Medical College and Hospital. It is under the

*Paper read at the Triennial Conference, January, 1913.
control of a Chinese committee; any profit made from the running of the institution is used for extension and improvement. There are about 22 teachers, of whom 3 are foreigners, 4 are Chinese women doctors, and the remainder are Chinese doctors—2 trained in America, 1 in England, some in Hongkong, Japan, and Canton. There are 111 men students who live outside the school; there are also 30 women students who receive separate teaching, except in some clinics. The course has been a four years' one, but it is soon to be changed to a five years' course. An M.D. degree is given and it is recognized by the Government. Teaching is in Cantonese, except that the students must know enough English to make up English prescriptions. The entrance examination is an essay in Chinese. Physics, Chemistry and Botany are given during the medical course, and the China Medical Missionary Association books are used. Fees amount to nearly $100 per annum. The teachers get between $2 and $3 an hour for teaching. The hospital has 60 beds for men and 25 for women. There are three lecture rooms and a laboratory, but the Government has just made a grant of twenty acres of ground in a good place for the erection of suitable buildings. Dissections and post-mortems are in sight. Dr. Todd believes it would be possible for the Mission doctors to have all the facilities required for good work in connection with this institution, and that they would be able to exercise Christian influence. He himself does direct Christian work, and the Chinese pastor of the Presbyterian Church also works in the hospital.

The other school is called the Chinese School of Medicine. There are 107 students, 25 of whom are women. The entrance examination is about Middle School pass, although the women are allowed to enter if they can write well. The teaching is in Chinese and there are 15 teachers (including a lady doctor) who give an average of an hour a day; these have been trained in Hongkong, Canton, Japan, and America. The head of the school is a Hongkong graduate and a Christian. The men and women are taught together except for Obstetrics, some sections of Anatomy, etc. The men students board outside, but there is a special dormitory for the women in charge of a matron.

The fees are $80 per annum apart from board, etc. This school is permitted by the Canton Government to give the degree of M.D. They have 50 beds in the hospital and are now making additions; but they are trying to get ground to build a new place somewhere else.

We ought to find out whether we cannot co-ordinate translation work with what they are doing; they say that they had half of Rose
and Carless' Surgery translated before they heard that we had begun it, and they are now finishing the book. They are also translating something on Materia Medica, and have just published a book on Bacteriology.

In addition to these Chinese Government colleges there are three foreign non-mission colleges. One of these is at Mukden and has been built under the auspices of the Japanese Government with funds from the South Manchurian Railway. The present building is a very fine one and has cost £20,000. This is, however, only the beginning of the scheme. It contains a large lecture hall easily capable of accommodating 100 students; at both ends of this hall there are beautifully fitted rooms, one of which contains specimens and other research material left over from the plague work. There are nicely furnished professors' rooms, etc. In the hospital part of the building there are beds for 50 patients. The number ultimately to be accommodated is 200, and buildings with an additional 50 beds, electrical plant, etc., to cost another £20,000, will soon be added. Lecture rooms, laboratories, dormitories, etc., will then be built and will cost a further £20,000, making a total of £60,000. The hospital with its operating room, pharmacy, dental department, obstetric room, etc., is most elaborately equipped. There are to be seven teachers for preparatory subjects and fourteen professors for the theoretical and clinical teaching; the number of these will be increased if necessary. The business department has about half a dozen clerks. There are, at present, 17 women nurses in the hospital, and ultimately there will be 30.

Another of these foreign non-mission colleges is to be found at Tsingtau under the care of the German Government; it is one of the departments of the German-Chinese High School. The aim of the college is to provide a course in the lower school covering six years, and this course is entered upon by students who have passed the final examination of the Chinese Intermediate School. In the upper course there are several sections; one for Jurisprudence and Political Economy extending over three years; one for Natural and Technical Sciences extending over four years; one for Husbandry and Forestry extending over three years; and one for Medicine extending over four years. There is to be a translation institute for the translation of German books into Chinese. An examiner is sent from Peking, and his certificate confers the right to enter the Chinese Government service or to attend the Imperial University at Peking. There are at present four German teachers in the medical department, and the medium of instruction is German.
The third college which must be mentioned is that at Hongkong. The entrance examination is the Senior Oxford Local. If a student does not hold such a certificate then he must pass a matriculation examination in English; Latin or classical Chinese or other classical oriental language; mathematics including (a) arithmetic, (b) algebra up to and including the Binomial Theorem; (c) geometry including the subject matter of the first three books of Euclid; an optional subject which may be Greek, French, German or other modern language. The course is a five years' one, at the end of which the degrees of M.B. and B.S. are conferred. Licentiates or graduates of other colleges are admitted under certain conditions. The degree of M.D. cannot be conferred until at least five years after admission to the degree of M.B., B.S., and is conferred upon examination both theoretical and clinical in some special subject. There are at present 15 professors and lecturers. I do not know the number of students now studying medicine here, but a year ago they amounted to a total of 30.

Let us now deal with medical education in the Mission Schools in China, and let us recall the recommendations of the China Medical Missionary Association in this connection. This Association voted, by means of a circular letter, with remarkable unanimity in favour of a few first-class schools well staffed and equipped, rather than a larger number with a smaller staff and poorer equipment. The general opinion was in favour of, say, five schools—one each in North, South, East, West and Central China. The subjects were to be taught as far as possible in Mandarin. In view of this recommendation of the C. M. M. A. it may be well for us to deal with the work which is being carried on in these areas.

NORTH CHINA.

In North China, the school at Peking, which was established before the adoption of the resolution just mentioned, was considered as one of the five. This college forms part of an educational scheme which is looked upon as the nucleus of a Christian University. The North China Educational Union is a union of the American Board, the American Presbyterian, and the London Missions. The basis of this union is that each Mission undertakes to be responsible for building and equipping one of the colleges. The Arts College belongs to the American Presbyterian Board Mission, the Theological College to the American Presbyterian Mission, and the Medical College to the London Mission. Each Mission, besides staffing its own college as
strongly as possible, sends at least one teacher to each of the other two colleges. The working expenses in the Arts College and the Theological College are shared by the Missions in the union; these expenses, excluding the salaries of the Chinese teachers, are divided by the number of students in the institution, and each Mission pays in proportion to the number of students it has sent. There is a different arrangement as regards working expenses in the Medical College where the expenditure is very heavy, and in that college the final responsibility rests with the London Mission. This Mission collects its fees from the students direct, and makes up the deficiency from its funds and from Government grants and other local income.

The Medical College and the Theological College are situated in Peking, and the Arts College is located at Tungchow, about half an hour's railway ride from the city.

The Peking University, which is located with the Methodist Episcopal Mission in the city of Peking, unites its medical department with the North China Educational Union in the Union Medical College. The Church of England Mission, which has no higher education of its own, is also united with the Union Medical College, and contributes a teacher to the staff. This Mission has, however, just given notice of withdrawal; this withdrawal is taking place because it feels that it cannot do justice to its own hospital work in the city and the country and at the same time provide a teacher for the Union Medical College. The Medical Missionary Association of London provides three teachers. There are therefore six organizations united in this college, and each of these is represented on the local Board of Management. It is hoped that this somewhat complicated union may be simplified, enlarged, and made more effective in the near future. A suggestion has been made that Tungchow should be used as a High School, and that university work should be centralized on the campus at present occupied by the Peking University or on some other site. The Theological College at the Presbyterian Mission will probably become a Bible School; but the Union Medical College, occupying as it does a central position, and being largely dependent for its clinical material on its associated hospitals, will remain where it is.

It should be noted that the Peking University is quite distinct from the Government University in that city. There was a medical department in the latter which was notoriously inefficient, and which was dissolved when the Union Medical College commenced. A proposal to revive this department and make it thoroughly efficient has been under consideration for some time. The Union Medical College has
class-rooms sufficient for about three hundred students, but its labora-
tory accommodation and equipment are deficient. The dormitory
building is large enough for nearly double the present number of
students, and with additional hospital buildings, which are almost
completed, there will be accommodation for about one hundred and
fifty patients. Ground, building, and equipment have cost nearly
£30,000; and it is estimated that for additional laud, hospital blocks,
special hospitals, laboratories, and houses for complete efficiency nearly
as much again would require to be spent. Land and buildings are
expensive in Peking.

The working expenses last year amounted to about £4,700. This
included hospital expenses and the salaries of two foreigners, one of
them the secretary and the other the chemist. This expenditure will
increase as the work approaches a higher standard of efficiency.

There are fourteen foreign professors on the staff; some of these
give their whole time to the college and hospital. There are six foreign
lecturers, each of whom is supposed to give a minimum of, say, twenty-
five lectures per annum. When furloughs are taken into account this
staff is a very bare minimum, and for satisfactory working more
teachers are needed.

There is a Women's Medical School at the Methodist Mission,
in which five of the staff of the Union Medical College co-operate
with five women doctors.

We have dealt with the Peking situation at some length because
the work there is at a more advanced stage than at any other union
medical school in China, and more can be learned from actual experience
there than in any of the other centres. Let us now pass to Central
China.

CENTRAL CHINA.

A medical school has been conducted for several years in Hankow.
This is its fifth year of work as a Union College, but medical education
was started there ten years ago. This College has no organic relation
to other educational institutions, and there is no union scheme for
general education at this centre with the exception of some union
normal work. Unlike the scheme in Peking, the Medical Union is
incomplete, inasmuch as it does not include all the Missions working
at the Wu Han centre. This center is the one chosen for the develop-
ment of the university plan associated with the name of Lord William
Cecil, and the idea is that the university when commenced shall make
provision for higher education for students from the Boone, Griffith
Medical Education in China.

John, and Wesleyan Colleges. Attempts have been made from time to time to amalgamate the Boone Medical School, in which there are only two or three teachers, with the Union Medical College in Hankow, but these attempts have failed, because the medium of teaching is English in Wuchang and Chinese in Hankow, and the Boone Medical School has decided to train its men for two or three years and then send them to complete their medical education at St. John's University in Shanghai. The Hankow school is at present accommodated in temporary buildings; there is, however, a sum of £2,600 in hand for building and equipment. The Wesleyan Missionary Society subscribes £25 per annum towards current expenses; the London Mission provides a similar sum, as does also the Baptist Missionary Society. The Reformed Church in the United States, which does not provide a teacher, subscribes £50.

The present staff includes two men from the London Mission, one from the Wesleyan Missionary Society and one part time from the Baptist Mission and a Chinese teacher: the American Presbyterian Mission has now voted to give a man, and it is hoped that the Reformed Church may possibly do so and that Yale may join; in addition to this in future the finances of the school may be sufficient to support a doctor. There are twenty-four students at present. When the Medical Missionary Association expressed its opinion about desirable centres for strong medical schools, Hankow was the one which they hoped would fill the need for Central China.

EAST CHINA.

There are two schools in East China, but one of them is that of St. John's University in Shanghai where the teaching is in English, and the vote of the Association had reference to the establishment of a school to teach in Mandarin. In the Nanking School there is a senior class consisting of ten students. This class is really a sort of nucleus class of the College, that is to say they are men from different places who are being trained by different doctors, and who have been drafted here to complete the training they were getting. They are really the medical assistant type; they are not getting a full course, but better than they could have obtained under the old individual system. There is now a new class of eighteen men, but no other will be taken next year.

The school belonging to the University itself is organized under the laws of the State of New York and the Regents, i.e., an Examination Board in that State permits the Trustees, who are registered under
the New York laws, to grant degrees. That means that if an A.B. degree were given in Nanking the man on going to this State could proceed to take his M.A. There seems some doubt as to what would exactly be the status of a student taking his M.D. here.

The Medical College is at present housed in the University, the teaching being given in the lecture rooms and the students accommodated in the dormitories; but the plan is to acquire property belonging to the Foreign Christian Mission, including Dr. Macklin's hospital, and to build a College there. Each Mission must provide its own teacher with a house. Money for development will be in the hands of the Board of Trustees, and the requirements of the Union are that, besides giving one man and his house, each Mission shall contribute $2,000 gold towards plant and $300 gold per annum for running expenses.

As regards staff, there are eight Missions in the Medical Union at present, and each is to contribute a teacher. The Missions are Northern Presbyterian, Southern Presbyterian (2 Missions), Foreign Christian Mission, Methodist Episcopal Missions (North and South, Soochow amalgamating with the South), Northern Baptists (Hangchow) and Southern Baptists (Shanghai). The Board of Managers can elect teachers outside the Missions, men for example supported by individual churches, so that ultimately it is hoped to get more than the eight which form the basis of union.

Medical students have been systematically taught in the Church Missionary Society Medical School in Hangchow since 1884. It has trained a large number of men; in one year it graduated 22 men. The work was dislocated during the Revolution, but a new class has recently been taken in. The staff consists of four foreign doctors, one chemist, and five qualified Chinese who have graduated from the College. The diploma L. M. and S. (Licentiate in Medicine and Surgery) is given.

Negotiations are now in hand to affiliate the Hangchow School with the Medical Department of Nanking University, Nanking to do the pre-clinical, and Hangchow the clinical work; and this will probably be consummated if the Home authorities sanction such an arrangement. The affiliation would mean an increase in staff, buildings and equipment; one man from the C. M. S. would join the staff of the Medical Department of Nanking University. Hangchow is in a peculiarly favourable position for providing clinical instruction with its large hospital with 275 beds, 100 of which are for women.

Recently a medical association of students who have passed through the school has been formed, with a membership of 76.
There are nine students studying pharmacy, and fourteen women who get maternity training and some instruction in children's diseases in a course covering four years.

**SHANGHAI.**

In the medical department of St. John's University there are ten students in the senior class and three in the junior; men are not necessarily enrolled each year, but new classes are formed as frequently as circumstances permit. The course in Medicine may be begun at the close of the Sophomore year of the College course. During the first two years they may take a combined course of eleven hours in medical studies and nine hours in general subjects. In this way they are enabled to qualify for the degree of B.A. as well as that of M.D. Both of these degrees are given by the University which has a Washington Charter. Men who have passed through St. John's get credited with one or two years when they go to the States. The union with Harvard has been dissolved and the Harvard men have joined up with the Red Cross Hospital in Shanghai; the senior class is, however, attending the hospital occasionally to finish the lectures which Harvard had arranged to deliver. It is felt that if two or three more men are not added to the staff at St. John's it will be difficult to carry on the work. There are at present seven foreign and three Chinese teachers. The clinical training is given in St. Luke's Hospital which can accommodate up to about 150 patients, but no arrangements have been made with the Women's Hospital for clinical opportunities for the men.

Among the non-mission schools I did not mention the German School at Shanghai, but at present this is not very far developed.

**WEST CHINA.**

One of the other centres suggested by the Medical Missionary Association was West China. I have not visited this part, but, as regards the medical department of the University there, Dr. Kilborn reports as follows:—"The medical college is proposed to be opened just as soon as we can get a minimum of two men's full time. This is likely to be made up of parts of four or five or six men's time—men and women who are engaged for the most part in hospital work here for their respective Missions. We want at least one man, however, completely relieved of all other responsibilities. We have two general hospitals with fine large new buildings, all completed in this city; and a women's hospital, the new building for which is just about to be begun. We have no prospect at present of any more hospitals here; but these
three will work together almost as one institution, so far as limitations of distance will admit."

SOUTH CHINA.

When the Association recommended a College in South China they were thinking of the city of Canton. At this city unavailing attempts have been made to secure a comprehensive union, and neither the school of the Canton Medical Missionary Society nor that of the Canton Christian College Medical School has any students at present. Negotiations are still proceeding with the object of uniting the medical staff of both these institutions and the doctors of other Missions in a scheme for medical education. In my opinion it should be seriously considered whether union with the school in which Dr. Todd teaches, viz., the Canton Public Medical College, or with the Hongkong University at which two Missions are erecting hostels, would not be better than starting another school.

There is in Canton a Women's Medical College with forty-five students. These get preliminary training at the Presbyterian School, which is about Higher Primary or the beginning of Middle School grade. The course is a five years' one, and up till now fifty have graduated, of whom 25 are in Mission service; and receive up to $100 per month. There are four foreign doctors who give about an hour's teaching a day on an average. There are also seven Chinese teachers; the teaching is in Cantonese and classes are taken in yearly. Chemistry and physics are taught in the course, and the fees amount to about $100 a year. There are eight nurses who receive their training from the same staff as the medical students, and there are fifty beds in the hospital.

Having now dealt with the medical colleges which are located at the centres suggested by this association as of first importance, it is necessary to deal with those other colleges which have recently been established at Mukden, Tsinanfu and Foochow.

The Mukden College has just been opened; there are forty-eight students and the course is to extend over five years. Dormitory accommodation is required if students are to be taken in yearly. There are to be eight foreign teachers in the College and clinical opportunities will be provided in the adjacent hospital which has 110 beds.

In Tsinanfu there are twenty-five students in their first and third years, and there is accommodation at present for forty-eight. The hospital has forty beds. There are four professors who will give
practically full time and one giving part time, besides two Chinese teachers; it is hoped ultimately to have about six foreign teachers on the staff. The teaching at Mukden and Tsinanfu, like all the other mission schools, except Shanghai and Foochow, is in Chinese.

The College at Foochow has three teachers giving full time and two who give fifty lectures each per annum.

Medical teaching is proposed for other centres, e.g., it is included in the plans of the Canadian Episcopal Mission at Kaifengfu, with an elaborate scheme for branch hospitals, into which time and space forbid that I should enter.

To sum up then, the situation is that there is no thoroughly efficient medical college in China at the present time, not even at any one of the five important centres recommended by the China Medical Missionary Association, and that further diffusion of effort is likely to take place.

Let us now consider the minimum requirements for an efficient medical college, provided that Chemistry, Physics and kindred subjects are taken in a preliminary science course outside the medical course.

1. **Buildings.** These are more expensive in North China owing to the coldness of the climate, which necessitates a large heating apparatus, and this again increases the cost of working. About half a dozen commodious lecture rooms are required and four or five laboratories, a dissecting room, library, museum, dormitory, students' common room, etc., men and women's hospital large enough to give a sufficient number of beds to each student, and with clinical class rooms. Dispensary departments and hospitals and specialities, as, e.g., tuberculosis, infectious diseases, nervous and mental diseases, diseases of the skin, eye, ear, nose and throat, public health, etc., and houses for staff.

2. **Equipment.** The equipment for the above in a serious undertaking. We have only got to remember what it costs to equip a scientific laboratory at home to appreciate this.

3. **Working Expenses.** Then the working expenses have to be taken into account. No medical college can be supported from students' fees alone, and this is specially true in China. Many of the mission students are supported by the missions or by the missionaries. Hospital expenses are heavy, and will become much heavier in the future. Large up-to-date hospitals under Chinese management will be erected soon, and probably patients will not only receive free treatment, but will also have hospital clothing and bedding supplied in every case,
and be fed by the institution. At present there is a rule that patients must at least pay for or supply their own food in mission hospitals.

4. **Staff.** The staff required for efficient work, when furloughs, language, etc., are taken into account, must be fairly large. A glance at the course which has been adopted at one of the medical schools will confirm this:

**COURSE OF STUDY.**

*First Year.*
- Physiology.
- Anatomy.
- Histology.
- Biology and Zoology.
- Chemistry.

*Second Year.*
- Anatomy.
- Physiology.
- Physiological Chemistry.
- Histology.
- Materia Medica and Pharmacy.
- Therapeutics.
- Physical Diagnosis.

*Third Year.*
- Surgery.
- Practice of Medicine.
- Therapeutics.
- Embryology.
- Bacteriology and Pathology.
- Minor Surgery and Bandaging.
- Clinical Medicine, Surgery and Dispensing.

*Fourth Year.*
- Surgery.
- Practice of Medicine.
- Pathology and Serum-therapy.
- Obstetrics.
- Diseases of the Eye.
- Diseases of Children.
- Anaesthetics.
- Clinical Medicine and Surgery.

*Fifth Year.*
- Refraction.
- Diseases of the Ear, Nose, and Throat.
- Diseases of the Skin.
- Diseases of the Blood.
- Tropical Diseases.
- Hygiene and Public Health.
- Nervous and Mental Diseases.
- Surgical Anatomy.
- Gynaecology.
- Medical Jurisprudence and Toxicology.
- Clinical Medicine and Surgery.
- Dental Surgery.

The larger subjects, such as physiology, anatomy, materia medica and pharmacy, therapeutics, surgery, medicine, bacteriology, pathology and obstetrics should have two men each; that would mean about twenty men. Then these men should all have a knowledge of some specialty; and by-and-bye, as the work extends, thoroughly qualified Chinese should be added to the staff, and these should have spent some time abroad, if possible, and should have a knowledge of some specialty. Suppose the salaries of these Chinese and all the running expenses could be found on the spot, and this is not easy, there would still be the salaries of the medical missionaries to be provided from home, say fifteen to twenty men. These salaries at, say £300 each, would amount to from £4,500 to £6,000 a year.
China will almost certainly follow in the footsteps of Japan, and it may be interesting to observe what is being done there. In the University of Tokyo some of the faculties are very large; for example, that of engineering has as many as seventy-nine professors and assistant professors, and the department of medicine has forty-six. We must also remember the object for which we are carrying on this educational campaign in China. The campaign is surely scarcely justified if no spiritual results are forthcoming, and a very considerable portion of time must be devoted by the staff to Christian work in order to gather the fruits of our heavy expenditure in men and time and money. There are very few hospitals in China which yield the results which they ought to yield spiritually simply because men are overwhelmed with medical and other work. A study of this brief review of the educational situation in China makes it very evident that a definite policy is urgently needed if we would not find ourselves weak and ineffective when we should be strong and efficient. The present situation in Japan, where Christian higher education is almost a negligible quantity, when by union, co-ordination and concentration on the lines of a wise policy we might have continued in a position which it seems almost hopeless to recover, should serve as a warning and a lesson, and we should at the very earliest moment arrange to have a complete review of the situation in China with the purpose of having a definite educational policy recommended by, say, the Continuation Committee. We should thus conserve our resources and occupy that strategic position which is open to those who can mould the men who shall influence the coming China.

As regards medical education, experts should decide whether we should concentrate, and, if so, where. If any concentration is suggested, then a scheme should be formulated for linking up other schools with the stronger institutions at the chosen centres; and as communication improves this could easily be effected. No one would suggest that there are too many schools for China's ultimate needs. At the same time all the colleges could accommodate more students than they have, and the Peking school, although it has students from a large number of the provinces in the country, could take three times the present number. The classes in all of the schools are much too small. A policy would outline an orderly development which would ensure efficiency and put us in the best position for securing Government recognition. Only the Peking school has this recognition at present. Now is the time to frame a complete educational policy for the country which would make it possible for us to approach the Government.
Smaller schools and some of the larger hospitals could give a portion of the training locally, but such arrangements would need to be carefully adjusted. The difficulty about utilizing hospitals for clinical instruction is that so few hospitals are efficient for teaching purposes, and there is not a fully departmentalized hospital in China. Some attention should be given to this subject, as two or three inefficient hospitals in a city might secure efficiency by co-operation and co-ordination if actual union and amalgamation did not seem to be desirable. Many of our hospitals could do useful work by concentrating on the training of hospital assistants. A large number of the students at present in medical colleges have not had a satisfactory general education, and it is extremely difficult to form a large enough class from the applicants who come, e.g., eighty students may apply to be admitted; on the day of examination probably only forty of these have the courage to face the examination, and of that forty probably only a quarter are to be found at the last of the examinations. The number of properly educated students desiring to study medicine is very limited.

A policy is needed. We cannot frame this policy too soon; delay jeopardizes our chances of falling into line with the Chinese Government at this plastic stage in China's history, and may mean a multiplication of inefficient institutions, the combined cost of which would be amply sufficient for a number of institutions which by their excellence would dominate the situation in China.

Our task in China is a complex one, and our evangelistic work, for example, is as important as our educational work. Our resources are limited, but we may find them enough for the needs of the moment if they are wisely spent; and if they are not enough a definite policy will constitute an appeal to which the necessary response will be forthcoming.

It may be well to focus upon the following points:

1. What is our aim to be? How much is Christian medical education to attempt? Is it possible for Christian missions to take a considerable part in the training of China's doctors from the point of view of (a) money, (b) staff, (c) clinical opportunities? Should we train medical missionaries only, or should we in addition train men for posts in the medical services and for general practice? Are we to attempt to cover the whole field with medical colleges, or should we concentrate on a few type institutions? Our aim should be related to what we consider to be a sound and practicable policy.

2. If concentration and consolidation are considered wise, how should these be effected, and to what extent? If further extension is called for, in what order should this take place? Can we frame a policy on a minimum and maximum basis arranged in order of urgency, and show clearly what societies are included in the scheme, and what it would involve for these societies?
3. We should consider the effect of medical education on general medical mission work, and our whole point of view as a missionary agency should be steadily borne in mind.

4. In any scheme which may be suggested, the possibility of co-operation of hospitals where medical work is carried on other than those which give a full course should be kept in view. For instance, it would be well to consider whether the general scientific part of the medical course could take place at one centre, and the later stages at specially selected clinical schools.

5. The minimum requirements of an efficient medical school should be clearly stated. This statement should include accommodation, equipment, staff, clinical work, the number of beds to each student, and the maximum number of students to each teacher.

6. A policy should show the relation of medical education to schemes of general education.

7. In addition, it would be well to decide what is necessary for the training of medical assistants.

With a large number of intensely interesting questions I have no time to deal; for example, such subjects as branch hospitals, the salaries of men trained, especially in relation to other mission workers, clinical training in diseases of women and children, the value of our graduates from the mission point of view, etc. The missionary world looks to us to recommend standards and a policy. Can we do so? Surely as scientific men and women we can; and if we can we shall do far, far more for the cause of Christ and of humanity in China than can ever be possible if haphazard, unrelated, uncoordinated methods be used which dissipate our strength and fall short of the goal.

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**CO-OPERATION WITH THE CHINESE IN MEDICAL EDUCATIONAL WORK.**

By P. J. Todd, M.D., Canton.

I saw by a circular which was sent out that we should begin our papers by a statement of what we intend to suggest or prove. I intend to prove that co-operation with the Chinese is the best scheme for medical educational work in China.

First, we will all agree that to accomplish our purpose best we should do our work along the lines of least resistance, and, if possible, in a way that will bring help from the opposing forces.

We have come to China to make Christ known to the Chinese.

Can we most easily do this by building up large institutions which belong to the home Boards and in which we have a sort of foreign autocratic control and can say, in spite of what the Chinese think, we

*Paper read at the Triennial Conference, January, 1913.*
know exactly how this work should be done and we are going to do it this way; or could we not lessen the resistance and obtain help from what have been opposing forces if we would encourage the Chinese to organize committees or boards of trustees to own the property and help build up these institutions, to feel that these institutions were theirs and that we were co-operating with them in building them up?

Let us make a proposition something like this--That they provide the land and buildings and own them, and we provide the professional work and direct it.

There is a strong feeling that the missionaries as well as other foreigners come to this country to make money and get hold of valuable property, etc. Not long ago, I heard a very influential Chinese gentleman say that the Missions get hold of the best locations. He did not say it in a spirit that showed there was co-operation. We all know how very hard it has been for missionaries and even medical missionaries to buy land.

"Necessity is the mother of invention." Through the whole year of 1908 we tried to purchase a site for a hospital in Canton. We had many influential friends among the Chinese and there were many pieces of land for sale, but in every case there was a reason why they could not sell to us. A number of times the price had been agreed upon and every thing seemed all right but suddenly word would come that some one had offered more and the land had been sold or that relatives had objected and therefore they could not sell.

In the beginning of 1908, the medical school connected with the Canton Hospital was closed and a proposition by members of the Presbyterian Mission to found a medical school for men was vetoed by the home Board.

At that time some forty medical students petitioned us to open a medical school. We already had a hospital of eighteen beds, in a rented building. So, as I said before, after trying a whole year, in vain, to purchase property for a hospital, this seemed to suggest an opportunity for co-operation with the Chinese. While the Chinese were not willing to sell land to us they seemed to be perfectly willing and even desirous to co-operate in the work if they were allowed to own the property.

Near the end of that year (1908) a number of our Chinese friends were invited to meet with us. About twenty were present. Our plan was made known and at that meeting it was agreed to found a medical college; the name was decided upon and the principal and dean chosen. It was also decided to find fifty men who would each give $100.00
toward the running expenses and who would act as a committee for the school. Most of the men present agreed to be of that number. The fifty men were found within a few days.

With this $5,000.00, and the fees we expected to get from the students, we were ready to rent a building—an easy matter for the Chinese—and engage the best men available as teachers.

Early in the year 1909 the school was started with forty-two students and thirteen teachers. That same year a very desirable location, fronting the Bund, was purchased for a hospital, at a cost of $21,000.00, which amount had been raised by subscriptions, several of which were $1,000.00 and one $3,000.00.

In 1910 a building next the hospital site was rented for class rooms, etc., and the college moved to it. In August 1911, the hospital building was completed, which together with its furnishings cost $29,000.00, most of which has been paid. The hospital has sixty beds, and since it was opened we have had 1,150 in-patients. Rates of charges are 40 cts., 60 cts., $1.50, $2.00, and $3.00 per day, besides a fee for operations, when they are able to pay. On dispensary days we charge from ten cents to one dollar for medicine. While these are our regular charges, if patients are too poor to pay we do not turn them away.

At the beginning of 1912 our committee took over a medical school for women, which had been in existence for three years. This school of twenty-five students is taught by members of the faculty of the men’s school with the addition of four woman physicians. There are 110 students in the men’s school taught by a faculty of twenty-two.

Early this year we found that our location in the center of the city would be inadequate for a growing school, so a petition was sent to the Governor asking for three hills just outside the east gate, which at present are covered with graves. This petition has been granted and we are to have the hills—about twenty acres—free of rent or tax. We do have to pay for removing the graves. However, this is a small item when we consider we have the choice of all possible locations around Canton.

Only three of the original fifty on the committee were Christians, but there was a clear understanding that we were to have perfect liberty to do Christian work. The assistants and nurses in training are all Christians. Daily chapel services are held in the hospital and personal work done in the wards. The present dean, Dr. Louis Hough, a graduate of the University of Oregon, is a Christian. The principal is an elder in the Presbyterian Church. With the exception
of Dr. E. C. Machle, Dr. J. Allen Hofmann and myself, all the teachers are Chinese.

One great advantage in co-operating with the Chinese is that you get closer to them and they get closer to you. They know everything that goes on in the institution from the squeezes the ward servants make to what is being said in chapel service.

Our committee appointed a man who, together with myself, takes accounts each week from the head assistant and druggist. If there are more receipts than are needed to carry on the running expenses the money must be used for enlarging the work, so it is entirely philanthropic on the part of the Chinese.

There are several members of the committee, besides the one who takes accounts, who are invaluable with their help and advice. We could not hope to get the same help were the institution owned by a foreign board or ourselves.

In speaking with a brother physician the question was asked: What if a number of missionary physicians joined an institution of this kind, got well started, and then the committee decided they would not allow Christianity taught? To that I would reply: If the Chinese feel so strongly against Christianity that they would not keep men who were building up their institution, and at the same time costing them nothing, they certainly would not send their young men to a Christian school, controlled by foreigners; so in either case the missionary teacher would be out of a job.

We should not go into any co-operation scheme unless we are free to teach Christianity, but after being in for awhile if we can not prove we are worth having, we ought to be willing to get out.

In co-operating with the Chinese I do not believe we should require the students to attend religious services. We should, however, make the services so attractive and helpful that they would attend them. We should insist that no other religions be forced upon or required of the students.

I believe, in twenty-five years from now, we foreigners will not be needed in China to do the ordinary medical educational work. There may be room for a few at that time to do post-graduate work or teach special branches to give name to their institutions but for the ordinary work the Chinese will be able to do it better than the foreigner with his limited knowledge of the language.

The standard of medical educational work:—Some one may say we cannot have a high standard if we co-operate with the Chinese. Personally, I do not believe we should expect to begin in China where
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our medical colleges at home are now. It has taken them decades to work up to their present standard. If we decide to begin there we will have no material to begin with. But I do believe we should begin where we can get enough students to justify the time spent, and, just as fast as the number of applicants increase, we should raise our standard of entrance.

In our school (The Kwong Tung Kung Yee Medical College) we require the students to pass an entrance examination showing they have been in school at least ten years. We are giving a four years' course and expect next year to lengthen it to five; also to raise the standard of entrance.

The men and women are taught separately, with the exception of part of the surgical clinics.

SUMMARY.

1908 Private hospital of eighteen beds in rented building.
1909 Building rented for medical school.
    Forty-two students and thirteen teachers.
    Site bought for hospital. $21,000.00.
1910 Larger building, next hospital site, rented for medical college.
1911 New hospital opened with sixty beds, at a cost of $29,000.00.
1912 Men's school, 110 students and twenty-two teachers.
    Women's school, twenty-five students and nineteen teachers.
    Government grant of twenty English acres for college and hospital.

What does co-operation mean to the missionary physician? In my experience it means:

1st. The Chinese are made partners—an opposing force is turned into a promoting one.
2nd. Closer touch with the Chinese.
3rd. More effective work with less expense to the home Board.
4th. It means, in our institution, the Chinese are so pleased with the scheme, they expressed a wish that the different Missions would appoint men to the work, with the understanding that they have a free hand in Christian teaching.

What does co-operation mean to the Chinese?

1st. Greater confidence in the foreigner.
2nd. Personal interest in helping build up the institution.
3rd. The right spirit of dependence and independence.
CO-OPERATION WITH THE CHINESE IN MEDICAL EDUCATION.*

Dr. Dugald Christie, C. M. G., Mukden.

We medical missionaries are here for the purpose of bringing the Gospel of Healing to the people of China, and we want our work to be permanent and lasting. It is well for us to realize that our own presence here is not a permanency. Individually, our time comes quickly to an end, and each of us is keen to leave something lasting behind, but I mean more than this. Let us remember that the propagation of Christianity (including the training of medical men) by means of foreign missionaries can but a temporary expedient, that China must be Christianized and educated ultimately by her own sons, and that the way to perpetuate our work is to train those who in their turn will carry on what we are beginning. In all our discussions as to medical education let us never lose sight of this fact, that we are laying the foundations of what will one day be purely Chinese work.

It is with this in view that I wish to urge the necessity for immediate closer co-operation with the Chinese. Much has been said regarding union among various missions and this is highly desirable; but surely equally so is union between the Chinese and ourselves. This is true in all lines of educational work, but I speak now of this one only. Medical education for a people of 400 millions is a big thing, and should be worthily begun. Let us do our best to co-operate with all existing forces; to avoid waste of effort and material; to utilize all possible methods; to sink our own nationalities; if by any means we may establish a lasting work.

How do things stand at present?

The Chinese Government and the Board of Education are awake to the necessity of medical education, especially for the public services. Government medical colleges already exist. There is a strong movement to establish training on a much higher standard, and the conditions under which Government medical diplomas shall be granted have already been discussed.

On the other hand medical missionaries all over China are calling for trained assistants, and there is practically unlimited scope in private practice for well-trained men. Christian medical colleges are being developed in various parts of the country, and the conviction is growing that in these lies the important part of our medical mission work for the next few decades.

* Paper read at the Triennial Conference, January, 1913.
Co-operation with the Chinese in Medical Education.

These two movements are at present entirely independent of each other, but is there any reason why this should continue? why there should not be co-operation between Government medical colleges and Christian medical colleges? It seems to me that both have everything to gain and nothing to lose by such co-operation, and the closer it is the better. We see plainly a growing jealousy of foreign institutions and foreign aggression in educational matters, which will continue to increase the more we develop and organize our work independently, and which we cannot afford to ignore. We are not here to force our methods on the Chinese, but to help them to adapt to their own needs the best we can give them. The problem before us now is how to achieve the best results, while carrying with us Chinese public opinion.

I. The time, then, has come, when we ought seriously to consider this question:—

What policy should we adopt in establishing medical colleges, having regard to the necessity of securing the sympathy, goodwill, co-operation, and support of the Chinese?

1. And first as to the colleges themselves, what kind of institutions should we have?

If we establish very large and exclusively foreign colleges, with large staffs of foreign professors, and then seek for Chinese co-operation, we shall find it difficult to gain. The more men and buildings there are, supplied and supported by purely foreign funds—in other words the more prominent the foreign element is—the less Chinese is the institution. Let us be self-denying in this matter, for the sake of the wider good. We are very apt to get so absorbed in the detail of our work, that we go on developing it bit by bit on our own lines, and forget to look out at the great Chinese world outside,—and then we are surprised that that world does not appreciate our efforts.

What we want, then, is colleges with as few foreigners as is compatible with efficiency, and we should make this known. I believe that were we to let our Chinese friends clearly understand that we consider our presence here as but temporary, and that, as the Chinese become able efficiently to do the work of teaching, the foreigner will gradually give place to them,—this would go a long way in removing suspicion and in gaining sympathy and support. We do not want medical schools, each with a score of foreign professors. This would defeat its own end, for it would alienate Chinese confidence. The exact number to be aimed at is a matter of opinion, and may differ according to circumstances, but we should employ Chinese in every
possible case as college tutors and hospital assistants, and make use of our best graduates as demonstrators, assistants, and, ultimately, professors with seats on the Senatus and equal rights with ourselves.

Our colleges should be as Chinese as is practicable in life and spirit. They must be Christian, but Chinese Christian. We do not want to denationalize our men, nor in any way to unfit them for influencing their fellow-countrymen. There is, I think, a distinct danger here. The atmosphere of our colleges may be made so distinctly un-Chinese, that five years of life there, especially if preceded by years in an equally foreign boarding-school, will send out men to some extent out of touch with the life of their country.

It is most important that our colleges should be open to non-Christian students, and we should, to this end, make our entrance examinations such as will suit students from Government schools equally well with those from mission schools. Let our standard of entrance be as high as possible, but let us not make it easier for Christians to enter than for non-Christians, if equally well-educated, though perhaps on different lines.

2. Secondly:—What conditions should decide the location of our medical colleges, still having regard to the importance of securing the sympathy, good-will, co-operation, and support of the Chinese?

In deciding where our colleges should be planted, it seems to me a mistake to lay too much stress on geographical situation. In the history of education in other countries, we do not find that institutions are arbitrarily set down in chosen geographical centres, but that they grow naturally according to far other conditions.

And it must be remembered that a college can adequately serve only a limited area. It is not always the most desirable students who can afford a long expensive journey, our Christians especially being for the most part poor. Many who could afford it would not agree to their sons going long distances from home to another province, as the local tie in China is a strong one. I would deprecate any attempt to limit the number of colleges to four or five, or even a larger number, so long as the conditions are fulfilled for their satisfactory establishment, efficiency, and development.

There are some considerations which should have much greater weight than geographical situation.

(a) We should consider the Christian community from which our students may be drawn, its size, the proportion being educated up to the entrance standard, and the proportion likely to be able to afford a medical education. If we want a Christian college, there is no use
Co-operation with the Chinese in Medical Education.

planting it where we cannot reasonably expect many Christian students. We should make sure of the support and sympathy of the Christian Church of China. In this connection the most suitable centres are those which have been tested and proved by previous educational work among Christians, and especially those where medical training has already been successfully carried on, and is in demand.

(b) We should also consider the non-Christian constituency from which students are likely to come, not so much the population, as the general efficiency of the schools throughout the province, the friendliness of government and people, and their attitude to mission work. If a college has difficulty in finding an adequate supply of students, Christian or non-Christian, its staff and equipment are to that extent wasted. In order to be able to pick the best of those who apply, there must be many more applications than admissions.

(c) Another important point, depending largely on the attitude of the people, is the amount of existing medical work which will supply clinical material for teaching, and the possibility of extending that work. I think every college should have a prospect of 200 beds constantly occupied, though it may begin with fewer, and also a large out-patient clinique.

(d) One condition to which little attention has been directed in the past is the likelihood of local Chinese co-operation and support. This is a most important point, not only financially, though that matters much, but because an institution, to do the best and most permanent work, must not be aloof from the people it is meant to serve, but must be regarded by them as something of their own. This co-operation should be with officials, merchants, schools, colleges, and people, Christian and non-Christian. The less foreign money we can do with the better, and every college should aim at being locally self-supporting.

II. I have no doubt we all agree as to the desirability of this condition of mutual sympathy and helpfulness, and I would like to throw out a few practical suggestions as to how it may be achieved and promoted.

1. And first we should cultivate personal friendship with those in authority, and with the educational and mercantile leaders. How else can they be expected to know our motives in coming here, and to co-operate with us in our work? To this end we must acquaint ourselves with their common rules of conduct and propriety, making it a special point to adhere to these as far as possible, and
we should set ourselves to learn to understand their point of view. We must be willing to spend time for this purpose, even if it means giving up something else. If our knowledge of the Chinese nation is limited to those whom we meet in our consulting-rooms and wards, our students, our servants, and perhaps a few Chinese Christians, we cannot expect that our opinion and influence will count for much outside our own compound, or that the Chinese will go out of their way to co-operate with us.

2. We should also put ourselves about to make generally known the object of our presence in China, and to convince people that we do not want to establish a permanent foreign element in the country, but that our desire is to help them to help themselves.

3. It is important that we should identify ourselves openly with everything which makes for the general weal, whether public movements for the good of the people, or Red Cross Work, or combating famines or epidemics, or whatever it may be. We should let China feel that we are one with them for their good, and that the advance of Christianity and Christian education can therefore only mean benefit to the country.

4. Then in such work, and on all occasions when we seek to co-operate with the Chinese, we should remember that we are but as guests in China. We should take care not to dictate as to how things should be done, nor to try to force our methods on others, nor to "hustle the East." If we defer to the opinions and ways of our hosts, we find them heartily willing to accept advice when given in a friendly spirit.

III. Finally I wish to propose that we take immediate action towards co-operation with the Government medical authorities.

We want to see the medical profession in China put on a satisfactory basis, but it stands to reason that this cannot be done by us. The Chinese are making their own regulations, and rightly so. But if there continue to be as at present, Government Medical Colleges and Mission Medical Colleges, standing apart, with no co-operation, no unity of standards, with different terminology, different courses, different diplomas,—it will be most detrimental to the medical profession of China, now in its infancy, and it will detract largely from the usefulness of our own work. The time is past when we can act independently in giving degrees. It is of the first importance that we go no farther without coming into line with Government regulations, for the more we do independently, the more difficult will it be to secure cordial co-operation.
There are three special points on which such co-operation is urgent—terminology, a standard course, and degrees.

We all gratefully acknowledge the splendid work done by our Terminology Committee, but we must also recognize that our Dictionary of Medical Terms is far from perfect or complete. Our Chinese friends openly state this, and in its present form will not accept it, but are taking steps to produce one of their own, chiefly on Japanese lines. What is really wanted is a small Government committee with one or two of our best men acting with it, which would unitedly produce a satisfactory and permanent dictionary of medical and scientific terms.

Regulations for medical education for the whole country should also be drawn up, where the standard of entrance would be defined, the minimum length of course, the compulsory subjects of study, the professional examinations, and the standard for graduation. It would be a most important step in advance if a Central Examining Board were formed, appointed by Government, which would be the final portal through which all must pass before receiving degrees with the Government imprimatur. Then there is the language question. Everything points in the direction of the higher medical degrees being given only to those who graduate in another language than Chinese.

But let me reiterate: there is no use our discussing these matters with a view to any independent and final decision upon them. What we should do is to seek for co-operation with the Chinese educational authorities.

I therefore make two suggestions:—

First, That we pass a resolution, defining our position and aim.

Second, That we appoint a small committee of not more than three, to see what can be done in approaching the authorities on the lines indicated.

The Resolution I would propose is as follows:—

Resolved: That the Medical Missionary Association of China, met in conference, let it be known:—

1. That, in establishing medical colleges and hospitals, their sole object is to bring the blessings of healing to the bodies and minds of the people of China, and to give a thorough training in medicine and surgery to young men of education and intelligence, enabling them, as fully qualified doctors, to be of the highest service to their country.

2. That they have no desire to create permanently foreign institutions, and that their aim and hope is that these medical colleges will, gradually and ultimately, be staffed, financed, and controlled by the Chinese themselves.

3. That the Association is desirous of bringing its teaching work into line with the regulations of the Ministry of Education, and in all ways to co-operate with and assist the Government of the Republic in Medical Education, so that a strong and thoroughly equipped medical profession may be established in this great land.
MEDICAL EDUCATION:—A REVOLUTION NECESSARY IN MEDICAL MISSION POLICY.*

THOMAS GILLISON, M.B., C.M., Hankow.

Medical missions in China are to-day doing a two-fold work, viz.: that done in mission hospitals, and that done in medical colleges. Roughly speaking, nine-tenths of our number are engaged in hospitals, and only one-tenth in colleges.

It is the purpose of this paper to show that the relative importance of these two branches is in the inverse ratio to the proportions named.

As the audience before me is probably divided somewhat according to the direct ratio above named, there may be some dissent from my conclusions; nevertheless, I believe them to be true, and it will be agreed that if adopted and acted on by the home Boards, such a course will amount to a revolution in medical mission policy, hence the title of this paper.

I purpose dividing my remarks as under:—

I. Present Conditions.

II. Future Policy.

I. PRESENT CONDITIONS: 1. On the field. 2. At home.

1. The general condition in China to-day (very briefly). China has just passed or rather is now passing through the throes of a revolution. Whatever criticisms may be made—and it is so much easier to criticize a thing than to do it—I believe that the progressive, enlightened, and even Christian elements of this nation are coming to the front, and more, that these elements are seen to be essential to China's national safety and future development.

In medical science, China is far behind and she knows it. The need to-day is acute for properly trained men in all the public services, and in civil practice as well. Further, our mission work is regarded with favour by those in authority, and in no department more than in that of medical missions. During the revolution, foreigners and natives worked with a will in caring for the sick and wounded, whether soldier or civilian, and many from our colleges and hospitals went into the army as doctors, and did their best with the half-training that most of them had received. Many of them still remain in the army, and China views with favour our medical mission work, and recognizes in us, true friends and fellow-workers.

* Paper read at the Triennial Conference, January, 1913.
Let us now pass on to consider: The present condition of our medical mission work. (1). In hospitals. (2). In medical colleges.

(1). Our mission hospitals. Most of our medical missionaries are working in better or worse equipped hospitals scattered over this land. The Chinese themselves, too, have hospitals, but fewer and more scattered still, and in all, the hospitals are miserably inadequate to the needs of the 400,000,000, people of this Empire.

Plant all the hospitals and all the doctors in civil and military practice in Great Britain and Ireland, in the one province of Szechwan, and provide for the rest of China in the same proportion, and you have some idea of the goal to be reached.

Look too, at our mission hospitals, crowded to excess, the medical missionary overworked, having little time for careful study of the cases, for taking an interest in the individual, socially or spiritually (and this work is of the highest importance), for training dispensers and assistants, and so on. Then look at the crying need for institutions for the thousands of blind and maimed, for the lepers and the insane. Truly there remains much land to be possessed, and who is sufficient for these things? Even were our hospitals multiplied ten-fold, they would still be woefully inadequate.

(2). Medical colleges. What now of our medical mission colleges? I think there are some ten or twelve of these colleges so-called. But what are they, these institutions to which we give this exalted name? They are tiny struggling schools, threatening to die any year, if one of the teachers breaks down. Most of them have only two, three, or four teachers, and the Union Medical College, Peking,—one of the best staffed—is, as Dr. Cochrane will tell you, in urgent need of reinforcement, in order that it may reach efficiency.

The strain is tremendous, the need clamant, and to meet it, individual men are going beyond their strength, and threatened breakdown is the constant state of the staff. Students are eager to enter in large numbers. Fees are easily obtainable, but the staff is unequal to the burden.

To pass on now to the homelands. What is the condition there?

2. Present condition of Mission Boards at home. Nearly all missionary societies are to-day suffering both from a lack of suitable candidates, and of funds to support them. Many of them are in debt. There are exceptions, but most of the societies have a hard struggle to maintain existing work. Appeals for increased help are met by a sympathetic letter, but the usual postscript is "non possumus."
I have great sympathy with the Boards and their much tried secretaries. They cannot give what they have not got. We look for the tide to turn, and for the money to flow in, and for the men to be willing in greater numbers to volunteer for this grand work, so far from its final accomplishment.

But what we have actually to deal with, is present conditions, and these are as I have described. This being so, let us ask ourselves the question, What is to be done? What should our policy be, in view of this stringency at home, and pressure abroad?

We are brought now to our second main heading, viz:—

II. Our Future Policy.

One mission Board, in the straits mentioned above, lately sent out a deputation, whose instructions were somewhat as follows:—

"You are to go round the Field, and examine carefully all branches of the work, and to frame a policy which will secure greater efficiency without increased expenditure of money or additions to the present staff."

Now what has been the result of such deputations in more than one mission, and in more than one department of mission work?

It has been to strengthen those departments which would make the work self-propagating and self-supporting, i.e., to train Chinese pastors and teachers for churches, schools and colleges; to develop training homes for Bible-women and other departments of Christian work. In fact, so to labour that the burden that is too great for the foreigner, should be shared by the Chinese themselves.

What are we doing on these lines in medical missions? What of our future policy? It seems to me we have been strangely shortsighted, satisfied in the good work we were doing, and leaving the future to take care of itself. The day has come for us to wake up. China is awake. Woe betide us if we remain asleep.

The true policy for medical missions to-day undoubtedly is to make provision for the future, as is being done in other branches of mission work. To make the work self-propagating, to make it indigenous, is the true goal. The missions that are most advanced, most efficient, and strongest to-day, and those that can face the future with equanimity, are those that have acted most consistently on those lines; while those that have not done so, are like the five foolish virgins, no oil in their lamps when the crisis comes.

What then is the policy that we, as an Association representing the medical missionaries of China, should recommend? I have no hesitation in saying that we should recommend our Boards to prepare for the future by putting a greatly increased force into the training
of men that are to be the Chinese medical missionaries of the future. In brief, our colleges should be strengthened, so that in the next ten years, every mission hospital shall be supplied with at least one fully qualified Chinese doctor; and in twenty years there should be two such, in each of the larger hospitals. It may be replied: "And where shall we be then?" "What of our work?" This is your work; so to plan that in process of development, you may be done without. Our work is to make Christianity indigenous on Chinese soil, in Chinese hearts. I once heard in my own hospital, when I had done a simple act of kindness to one of the patients, another patient exclaim: "China has no such love as that." I deny the truth of this statement, though it was meant in love. China has this love, and it comes from the same source as ours, "from above," and it is for us to see that this divine love working through the "heart celestial" is allowed full expression. We want to remove from the Church in China the stigma of the term, "foreign religion," and we look for the day when we shall see the Church of Christ in China, not only with its own churches and schools, but with its own doctors, dispensaries, and hospitals. And it is for us as true foster-parents, to be preparing against that day. That will be a day of triumph, such as makes the heart leap with joy to contemplate.

Now in the face of all this stringency at home, and an overworked band of missionaries on the field, how is this to be brought about? Where are we to get the strength to do this work? The answer is simply "union." Co-operation,—every mission will benefit, every mission therefore should help. Larger missions should allocate one-fourth of their medical staff to the training of students in one of the ten already established schools, and each of these should have a staff of at least six foreign and four Chinese teachers. Sporadic teaching should be discouraged, except as preparatory for entrance to these colleges. Missions that cannot spare a man, should make an annual grant. Promising students should be supported with the understanding that they will help for five years in a mission hospital. Reasonable salaries should be given to graduates and no more efficient band of Christian workers will be found than our Chinese medical missionaries. Those of us who have tried them, can amply testify to the truth of this statement, and if I may be pardoned for mentioning our Union Medical College in Hankow.

Though a young school, and with a very inadequate staff, we have trained eleven men, and of these eleven, ten are at work in mission hospitals. One has full charge of a hospital that was originally built...
for a foreign medical missionary, and the testimony of the clerical missionary of the station is, that Dr. Chou is a real colleague. There are four foreign representatives at this conference, who could not have been present but for the work being carried on by our graduates. In our school too, we illustrate the principle of union, for we have grants from four missionary societies, teachers from two, and students from eight or nine different missions. There is no difficulty about union in our medical schools. Let the missions unite in providing an adequate staff and the cause is one that will so commend itself to men of wealth and missionary sympathy, that money for buildings and equipment will be forthcoming.

Let us then, one and all, unite our efforts and urge our societies to do the same, in order to reach the desired goal. It will mean self-repression that will be good for us. It will mean self-sacrifice and sinking of minor differences, all to gain the one goal—but it is worth gaining. I may not be here to see it, but I envy you who will. I have been a medical missionary for thirty years, but nothing has ever inspired me with such enthusiasm as the thought of this land of China supplied with Chinese Christian hospitals, manned by Chinese Christian doctors, supported by a Chinese Christian community, under the aegis of a Chinese Christian Church. May God speed the day.

And now I conclude with the request that, should you approve the main propositions of my paper, you appoint a sub-committee to draw up a resolution to the home Boards, that shall go forth with the imprimatur of this conference, recommending them to support our medical mission colleges on a more adequate basis than formerly, as being the true line of advance for to-day, in medical mission policy.

A STUDY OF PLAGUE.

By P. J. Todd, M.D., Canton.

(Concluded from January number.)

EXPERIMENTAL.

Cutaneous inoculation of mice, rats, and guinea-pigs cause the disease with certainty. The great value of cutaneous inoculation lies principally in this, that very small amounts can be used for infection with positive results. According to M. A. Barber of Manila one bacillus inoculated into guinea-pigs and monkeys will cause fatal results. Leaving out malignant anthrax, and one or two others, b.
pestis is one of the few microbes which cause acute disease in rodents when applied in minute doses to a scratch or surface incision of the cutis, or is merely rubbed into the cutis. This shows that the b. pestis readily and rapidly multiplies in the skin; at the same time, as far as mice, rats, and guinea-pigs are concerned, when inoculated into the skin the b. pestis does not lose anything of its virulence. After inoculation, according to the virulence of the culture, fatal issue, both in mice and in rats, follows in as short a time as thirty, forty, or forty-eight hours; or, working with less virulent culture, death may be delayed up to four or five days. Cutaneous inoculations of guinea-pigs with virulent and moderately virulent material is followed by death after four days up to seven, nine, or even more days. Cutaneous inoculation of guinea-pigs with the exceptionally virulent material may cause death occasionally, but not invariably, in two or three days with symptoms of acute plague. The rabbit is not so well suited for plague experiment, because its susceptibility is not sufficiently high and not sufficiently constant, and therefore a fatal result with a given material cannot be depended on.

Amongst rats the tamer white rat is the most susceptible, the common brown sewer rat is considerably less so, and therefore the former is for experimental purposes far preferable. Another reason which enables us to dispense with the sewer rat for laboratory purposes is the fact that between twenty-five and thirty per cent. die while kept in captivity, and, further, the fact that they are unpleasant and unsafe to handle.

PATHOLOGY.

After going into a detailed description of each of the organs, Simpson says: "Bubonic plague, judged by the pathological changes observed in the dead body, is a disease both of the lymphatic and vascular system, on which the plague bacilla and its toxines when brought in contact with them in large numbers and quantity exercise an inflammatory, coagulative and necrotic effect. The microbic agent and its toxines thus acting lead to enlargement of the external and internal lymph glands, necrosis of their substance and often hæmorrhage or infiltration into the surrounding tissues, to dilation of the veins and capillaries, to destruction of their walls, to hæmorrhagic extravasations into nearly every part of the body, to enlargement and engorgement of various organs, and to metastatic parenchymatous degeneration in the liver, spleen, and kidneys. Pneumonic plague differs from bubonic in having these changes more concentrated on the
lung tissues and its lymphatic system than on the other lymph glands of the body."

**MODES OF INFECTION OF ANIMALS WITH PLAGUE.**

After reporting twenty-two experiments Klein makes the following statement: "The transmission of plague from animal to animal is experimentally established both as regards cutaneous inoculation and feeding with semi-dry infectious material; there is a distinct failure of evidence that transmission of the disease is effected by fleas or lice from an infected animal to a healthy one. It is not, therefore, in my view, justifiable to regard the mode of transmission, if, indeed, it happens at all under natural conditions, as anything but exceptional, at any rate so far as the sewer rat and the tame white rat are concerned. Theoretically such a transmission is possible."

Hankin does not favour direct transmission of plague by fleas. He regards the flea as a true host, a living body in which the b. pestis multiplies and in which it acquires virulence, believing, it would seem, that not until these further phases have been accomplished is the flea capable of transmitting plague to a new individual (rat or man). Definite support or proof for this view of Hankin's has yet to be furnished.

It seems to me that the most probable mode of infection has been overlooked by Klein and Simpson, and that is the bed-bug. Klein has proved first that it is possible to cause plague in rats by feeding them with infected food. Second, that the easiest way and the way which never fails is by inoculation into the skin or subcutaneously. Third, that while it is possible, still after his many experiments he is satisfied that it is not caused by the flea-bite. We know that not only the human bed but also the nest of the hen and the nests of smaller animals are the natural habitat of the bed-bug. It has been my experience that as a rule those who have contracted the disease have first slept or stopped in a plague infected house. This last year, on inquiry, I found that the houses in which plague cases developed were infested with bed-bugs. As a rule the bed-bug stops in the hidden places of the bed or nest, but it is at times carried by its host. This might explain why plague spreads but does not spread more rapidly, and also why those sleeping in an infected house are more likely to contract the disease than one just visiting the house.

The fact that foreign houses do not have the nesting places for rats and as a rule do not have bed-bugs, and that foreigners very seldom contract plague—the opposite being true of the Chinese houses and the
Chinese—would lead me to believe the possibility of the bed-bug being
the syringe which inoculates.

It seems to me reasonable to believe that if the bite was directly
into the vein or arteriole that the septicæmic form of plague would be
produced, if into the skin or lymphatic system the bubonic form. The
bubonic form always becomes a septicæmic form in its later stages,
unless it might be in very mild cases when death does not occur. I
would like to see the bed-bug theory carefully worked out, for even
though it is possible to infect rats through their digestive system, it is
not likely the Chinese contract the disease in that way, for as a rule they
carefully cook their food. If by only spreading the b. pestis on the
skin surface the disease were contracted, then the attending physicians,
nurses, and others would develop plague much more readily.

PROTECTIVE INOCULATION AGAINST PLAGUE.

From time to time, since 1898, reports have been published from
the Bombay laboratory and from different localities in India giving an
account and statistical tables of the results of the prophylactic injection
of Haffkin’s plague prophylactic fluid by Haffkin, his assistants, and
different medical officers. From these reports it appears that as to the
real prophylactic value of these injections there can be no manner of
doubt. The Indian Plague Commission in the conclusion to their
report state that inoculation does not appear to confer any great degree
of protection within the first days after the inoculation has been
performed. Klein says rats tested six days after the injection of the
prophylactic were fully protected against an otherwise fatal dose of b.
pestis inoculated cutaneously.

The preparation of Haffkin’s Plague Prophylactic.—The fluid which
Haffkin prepares for distribution and transmission is a broth culture of
b. pestis incubated from four to six weeks, and then sterilized at 65 to
70 degrees Cent. for one hour. It is next decanted into and preserved
in special bottles, each containing about five-tenths per cent. carbolic
acid.

The preparation of Klein’s Plague Prophylactic.—The bubo, the
enlarged spleen, and the affected lung containing abundance of necrotic
masses, as also the liver when it contains abundance of necrotic nodules—
of guinea-pigs dead of subacute plague (i.e., dead after five to nine days)
are cut out and finely minced aseptically, spread out in thin layers in
sterile glass plate dishes and dried over sulphuric acid at 46 to 47
degrees Cent. for three days. After three days drying the dry scales
of material are rubbed down to a fine powder in a sterile mortar; this
powder is then transferred to a sterile wide-mouthed bottle, plugged with sterile cotton-wool, which is placed for two or three days at 37 degrees Cent. in order to thoroughly complete the process of drying. At the end of these three additional days the cotton-wool plug is replaced by a glass stopper, and the prophylactic is ready for use. It can be thus preserved indefinitely in a dry state by a layer of paraffin over the stopper. Such material tested by cultivation is found sterile.

In preparing the prophylactic for use the desired amount of powder is weighed out, well rubbed down in a desired amount of sterile warm distilled water, and the turbid emulsion thus obtained is injected subcutaneously. Ten to fifteen milligrammes of the dry powder above referred to confers immunity on the adult rat.

According to Klein, half that amount (five to seven milligrammes) is sufficient for an adult human being. If the fluid extract (filtrate) only is used about one-third more of the powder is needed to make the filtrate of sufficient strength.

Klein claims (1) that this dried prophylactic does not require more than about ten to twelve days for its preparation—Haffkin's requires four to six weeks; (2) that a large amount can be prepared of a uniform strength; (3) that its efficacy is easily standardized by injection into the rat; (4) that, being dry and sterile, it can be preserved without any antiseptic and unaltered for any length of time; and (5) that the protection afforded by its injection into the rat is of considerable duration, certainly many weeks; and last, but not least, that the cost of preparation is incomparably smaller, the superiority of this organ-prophylactic to Haffkin's prophylactic must be obvious.

Within three or four hours after the inoculation of the prophylactic a slight feverishness may set in, and in the course of twelve hours reach 102° or 103°. At the same time there is a feeling of tenderness of inoculation, which becomes red, swollen and painful, and there may be tenderness and swelling of the nearest glands. Headache, malaise, and general discomfort accompany the local and feverish disturbance, which varies much in different persons, some being only slightly affected and able to go on with their usual occupation, while others are indisposed for a day or two.

**TREATMENT.**

Simpson says: "Curative medicine is powerless to combat the powerful and rapidly disintegrating forces at work in the system in a virulent case of plague. The post-mortem appearances render it too plain that no mode of treatment as yet known to the physician can
prevent or neutralize the effects of the plague poison. In the mildest forms at the other end of the scale, treatment is seldom required and the patients recover with or without medicine.

It is between these two extremes that medical treatment may be beneficial, but how much of the cure in successful cases is due to the treatment and how much to Nature it is often impossible to estimate.

Many modes of treatment have found favor in plague, and often the most opposite in kind. Their multiplicity throws a certain doubt on their value, especially as the mortality of plague varies much in accordance with the virulence of the virus, the period of the epidemic, and the race and age of the person attacked.

In my own experience, all the cases of plague which I saw during my first seven or eight years in China must have been very virulent for I do not remember one recovery among them. Not until I began the serum treatment did I have a case of plague recover.

*Treatment of plague in the past.*—Bleeding, the evacuant treatment, the stimulant and tonic treatment, oil friction treatment, cold water treatment, the incising, cauterising and blistering of the bubo have all had their advocates, but all have more or less signally failed.

*Basis of the present day treatment of plague.*—To-day, plague, as a disease, is viewed as the manifestation of a struggle between the natural powers of the person attacked and the virulence of the plague microbe. On this basis medicines are administered to maintain the strength of the patient, who is also carefully nursed with the same object in view. Then serotherapy is employed, having for its object the neutralization of the toxines and the destruction of the plague bacillus; or drugs with disinfecting properties are given to destroy the microbes and prevent their multiplication.

Serum was prepared by Yersin, Roux, Calmette, and Borrel by the same methods as were employed by Behring in his preparation of antiphtheritic serum, horses being intravenously injected in order to obtain the antidotal serum.

Serum thus prepared was first employed in China by Yersin, in whose hands it gave some marvellous results. The mortality in 26 cases treated, 3 in Canton and 23 at Amoy, being only 7 per cent. Of the 23 Amoy cases 12 were treated in the first and second day of their illness and all rapidly recovered without their bubos suppurating; 7 were treated on the third and fourth day and they recovered slowly with suppurating bubos; 4 were treated on the fifth day of illness and two recovered.
Yersin was invited to Bombay. Fifty cases were treated by him, but the results were not nearly the same as those obtained at Amoy. The mortality of the cases treated was now 34 per cent.

In Oporto, Drs. Calmette and Salimbeni treated with serum in 1899 from September 3rd to November 18th, one hundred and forty-two cases of plague, 140 in hospital and 2 in the town. Of these 21 died, which is equal to a mortality of 14.78 per cent. During the same time there occurred in the town 72 cases of plague which were not removed to hospital and not treated with serum. Of these 46 died, which is equal to a mortality of 63.7 per cent.

In Hongkong, no favourable results have been obtained at any time from the use of Yersin's treatment. In 1902 ninety-four cases were treated in the Kennedy Town Hospital with Calmette's serum, with a mortality of 85.8 per cent. In the same hospital the mortality of cases treated in the ordinary way was:

<table>
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<tr>
<th>Year</th>
<th>1894</th>
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<th>1899</th>
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<td>Per cent</td>
<td>76</td>
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On the other hand, in Brisbane its efficacy was considered undoubted when given intravenously and in large doses. There where no fulminating or septicæmic cases in Brisbane. In 1900, of 55 persons suffering 25 died, yielding a mortality of 44.6 per cent.; no serum was then available. In 1901, of 25 cases treated with serum 20 recovered, 5 died—mortality 17.2 per cent. In 1902, of 65 cases treated with serum 54 recovered and 9 died, making a mortality of 13.8 per cent.

It would appear that the benefits derived from the use of Yersin serum are somewhat uncertain. Sometimes excellent results appear to follow its administration, sometimes only moderately good results are observed, and at other times absolutely no effect seems to be produced.

Dr. Choksy, who has had an exceptionally large experience in the treatment of plague in Bombay, is strongly impressed with the value of serotherapy.

**Dosage.**—The amount of serum injected intravenously usually varies from 20 to 40 cc. according to the severity of the case. The intravenous injection is generally supplemented by a subcutaneous injection of 20 to 40 cc. The usual practice is to repeat the dose every 12 to 24 hours, and continue it for three or five days after the general improvement of the patient. A fall in the temperature, less pain in the bubo, clearer intellect, and an improvement in the pulse indicate signs of amelioration. If the effect of the serum is only slight and the symptoms urgent, intravenous injections may be repeated as frequently.
and at as short intervals as in the discretion of the medical attendant is advisable. Larger doses than 40 cc. have been given intravenously at one time, in some cases amounting to 80, 100, and in one case to 400 cc., apparently without harmful results. When subcutaneous injections alone are used it is believed that better results have been noticed in those instances in which the injections have been made in the region which is drained by the affected bubo.

My own experience leads me to believe there is virtue in the serum treatment. As stated before, up till the time I began the serum treatment, I do not remember that I had one case recover where there had been a positive diagnosis of plague. Last year out of thirty cases of bubonic plague twelve recovered with serum treatment and heart tonics. This year my supply of serum was limited and only ten cases were treated with serum, five of whom were known to have recovered. Two were taken to their country home immediately after the first injection and did not report later. One was taken to his village after the second injection and did not report; one was taken to a Chinese hospital after one injection and died there the sixth day.

In adults I would inject 90 to 100 cc. one half intravenously and one half subcutaneously in the region of the bubo; children about half that amount.

This year, besides the serum treatment, I would catch the enlarged gland or glands between two fingers and inject pure carbolic acid into each gland—from ten to twenty drops in all into each patient—and in addition to this gave hexamethylenetetramin to its limit, that is, until the patient would complain of considerable irritation of the bladder. As a rule they could stand ten grains every hour for six doses and after that every two or three hours. The cases which recovered both last year and this came to me not later than twenty hours after the initial symptoms.

Two cases treated this year with hexamethylenetetramin and injections of carbolic acid—no serum—recovered.

None of my cases were treated in hospital, therefore treatment could not be satisfactory. The one case which went to his village after second injection was much improved when he left and under careful nursing should have recovered.

The internal administration of disinfectants has been tried in Hongkong. The first experiment was in 1901, when 80 grains a day of carbolic acid were given to each patient; 204 cases were thus treated with a mortality of 76.5 per cent.
In 1903, larger doses of carbolic were tried: 144 grains being administered daily, divided into two-hourly doses of 12 grains each in a mixture flavored with syrup of orange and chloroform water, in some cases over long periods. One patient consumed over 2,500 grains of pure carbolic acid before his blood was free from plague bacilli. Carbolic acid poisoning appears to have been practically unknown.

Dr. Thomson reports a mortality of 85.7 per cent. before carbolic acid was used and 36.4 per cent. under the use of carbolic acid. Of the former, 20 cases were treated, the later 91 cases. It is admitted that two circumstances need to be taken into consideration when comparing these figures; the first is that the treatment with carbolic acid was late in the epidemic, at a stage when, as Dr. Thomson remarks, there is a greater natural tendency to recovery, the disease being invariably more virulent early in the season; the second is that, owing to the adoption of an improved method of examination of plague blood a much larger number of very mild cases, many of which would not have been diagnosed as plague in former years, were proved to be plague and sent to the Kennedy Town Hospital. Those cases swell the proportion of recoveries.

Notwithstanding the disappointing results of the serum treatment, it has to be confessed that there is no better in the hands of the physician. In falling back on general treatment there is no attempt to deal with the manufacture of poison elaborated in the system. The struggle must be between the attacking force of the microbe and the resisting power of the patient, assisted by the skill of the medical man whose aims are to conserve the strength of the patient, check as much as possible the severity of the symptoms and tide over periods of danger due to exhaustion. Good nursing is a very important factor in preserving the strength of the patient. The nursing is difficult and at times dangerous on account of the delusions of the patient, who may, accordingly, resist being fed and resent being attended, or who may be constantly attempting to get out of bed and escape. Under certain conditions it is absolutely necessary to employ mechanical restraint to keep the patient from inflicting self-injuries or being dangerous. Good nursing combined with early confinement to bed, the maintenance of the recumbent position to prevent syncope, careful feeding and general treatment to maintain the patient's strength and prevent complications if possible, are calculated to give the best results, both with or without serotherapy.

The patient should be placed under the best hygienic conditions, the more abundant the fresh air to which he is exposed the better the
chances of recovery. Treatment is usually commenced by clearing the bowels, calomel followed by saline or other purgative being administered. Heart failure is, perhaps, the most important symptom to be contended against. Early signs of it in the course of the disease usually portend a fatal result, and drugs do not appear to be of much value. For sustaining the action of the heart and counteracting the want of tone of the blood vessels the most successful results have been obtained by the employment of strychnine 40 grains hypodermically every four to five hours or of five to ten minims of the liquor or a combination of strychnine and strophanthus hypodermically. Benefit sometimes follows the administration of digitalis, especially when combined with diffusible stimulants. Digitalis by the mouth and strophanthus by subcutaneous injection have also been found to exercise a particularly good effect. Personally I have found the digitalis and strophanthus much more effective than strychnine.

To control the febril symptoms and check delirium, ice bags to the head, sponging of the body, and the use of hypnotics which are not depressants, are beneficial. Morphine carefully administered, either alone or combined with bromide of potassium or atropine, is generally employed to induce sleep, but many hypnotics may have to be tried before that which suits the patient is found. Antipyrine is not suitable for the reduction of pyrexia.

The pain and tenderness of buboes are much relieved by ice bags, which have also a good effect in circumscribing the infiltrations. Other applications, such as belladonna and poultices, at times prove useful. The bubo should be opened when pus forms. In an article in the "Lancet," November 4th, 1911, the author recommends highly the opening of the bubo early and swabbing it out thoroughly with tincture of iodine. He says he has been able to raise his percentage of cures from 15 to 60.

For carbuncles, Choisy found that a subcutaneous injection of corrosive sublimate, varying in dose from 1/15 to 1/10 or 1/5 of a grain, had an excellent effect and prevented them from increasing in size.

Complications are treated on general principles. Klein has found that formalin (40 per cent.) 1 part to 30 fails to disinfect B. pestis in 15 minutes. Pure phenol 1 to 80 will disinfect in 10 minutes, i Cònal 1 to 2,000 in 10 minutes or 1 to 1,600 in five minutes. Cynlin will disinfect B. pestis 1 to 2,400 in 10 minutes and 2 to 2,200 in 5 minutes.
NOTES ON THE LIFE CYCLE OF CLONORCHIS.*

By Henry S. Houghton, M.D., Shanghai.

This paper presents the preliminary results of an attempt to show the direct source of infection in cases parasitized by Clonorchis. In all the field of medicine there is probably no subject so inadequately known as the life histories and infection-mechanism of the metazoal parasites. The helminthiases form, for a large part of China, a series of conditions which are of profound interest both medically and economically, and the more clear our knowledge of the way in which larval forms pass their necessary interval in the outer world and the way in which they attack their final host, the better prepared shall we be to undertake those preventive measures which in the end must supersede therapeutic agents.

CLASSIFICATION.

For the benefit of those who may not have followed the rapid changes that have been taking place within recent years in the classification of trematode helminths, I venture to begin with a brief history of the sub-family to which Clonorchis is referred.

The whole family of the Opisthorchiinae offers grave difficulties, according to Looss, to the systematist, and the specificity of certain forms must await feeding experiments before absolute determination is possible. The present constitution of the Opisthorchiinae is, following the recent work of Barker:


Diagnosis.—Fasciolidae of medium size, with slender elongated body, noticeably tapering anteriorly. Suckers are generally near each other and not strongly developed. Pharynx present. Oesophagus short and slender, intestinal ceca long and simple. Excretory system is Y shape, arms short, main stem long and S shape winding between the testes. Genital pore is median and anterior to the acetabulum. Cephalic organs absent. Testes close together in the posterior end, the one more or less obliquely behind the other. Laurer's canal present. Receptaculum seminis very strongly developed. Uterine coils anterior to the ovary. Vitellaria strongly developed, lateral of the intestinal ceca. Found in the bile ducts or gall bladder of man, mammals, birds, reptiles and fish.

1. Vitellaria lateral to intestinal ceca
2. Vitellaria anterior to intestinal ceca, lateral to oesophagus; uterine coils fill entire body posterior to acetabulum
3. Vitellaria not extending anteriorly beyond the acetabulum
4. Vitellaria extending beyond the acetabulum

* Paper read at the Triennial Conference, January, 1913.
Notes on the Life Cycle of Clonorchis.

Vitellaria divided into two regions ... ... ... ... ... ... Amphimerus.
4. Testes dendritic ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Amphimerus.
5. Testes not dendritic ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Opisthorchis.
6. Testes dendritic ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... Clonorchis.

It is only recently (Looss, 1907) the Clonorchis has been separated from the genus Opisthorchis, with which it has, however, close relationships. The chief distinction, morphologically, lies in the shape of the testes, which in Opisthorchis are notched or lobate, and in Clonorchis distinctly branched or dendritic.

DEVELOPMENT.

In Opisthorchis felineus (a common parasite of man in Siberia), Askanazy is said to have worked out the post-embryonal development. According to his researches on cats and dogs, the first intermediate host for this species is a chub (Idus melanotus) and a second host the roach (Leuciscus rutilus). Lühe states more recently that the details of development are but meagerly known, and suggests that an encysted larval form found in Northeast Prussia to infect the flesh of Leuciscus idus and L. rutilus, may be the cercarial stage of this species. An earlier stage, he thinks, may be passed in the body of Dreissena polymorpha, a small bivalve mollusk.

There seems to be no question, however, but that the final larval stage—the one infective for the mammalian host—is passed in some species of fish. The abundance of this parasite in human cases in areas where fish are not only a staple article of diet, but are often eaten raw or insufficiently cooked, and its frequent association with Dibothriocephalus latus, points significantly to the probable source of infection.

It is likely, considering the close relationship of the two genera, that Opisthorchis and Clonorchis have a life history that follows in general the same course. In the summer of 1910, in the course of making some observations on parasites present in the ordinary foodstuffs of the Chinese dietary, I noticed the practically constant presence of a larval trematode in the intestine of a small fish much eaten in central China, and thought of the possibility of its being some form which might parasitize man, or at least some mammalian host. The larvae were found lying singly in the folds of the intestinal mucosa. They were to be best obtained for study by removing the intestine from the fish, cutting off the upper and lower portions, and after having gently removed the intestinal contents, by stripping the mucosa from the gut. The free mucosal elements milked out in this way, were diluted slightly with normal saline, and examined under the low power of a
microscope. The larvae themselves were small distome cercariae, .4 mm. in length, tail-less, without cuticular spines, and showing the anlage of digestive and generative organs similar to those found in adult fascioliids. This was the only trematode organism found in these fish, either in the intestinal canal or encysted in the flesh.

Three series of experiments were carried out, and then the investigation had to be dropped for the time being. There has not been an opportunity since to complete the experimental work, and these notes are offered merely as a preliminary report.

**Protocols.**

1. In the first series, two suckling kittens were used, which after forcibly weaning were put into separate cages. The experimental kitten was fed for a period of about two months on a diet of boiled rice, raw fish of the variety under investigation, and tinned milk. The control was kept on the same diet minus the fish. At the end of the two months' period the kittens were killed. On section, the experimental kitten was found to be infected with Clonorchis endemicus. The control animal was free from this parasite. Not satisfied with the technique, the experiment was repeated under the following conditions:—

2. A cat with two suckling kittens was put into a specially built cage and fed upon sterile food until the kittens were weaned and able to eat freely of the boiled rice and tinned milk. The floor of the cage was covered with sand sterilized previously by baking, and changed daily. After weaning, the kittens were removed to separate cages and kept under the same conditions of sterile food, etc., but the experimental kitten was fed daily with the intestines of the fish which were carefully removed from freshly killed fish and mixed with rice. Examination of the droppings at the beginning of the experiment showed absence of trematode ova, though the eggs of some unidentified nematode worm were found in both kittens. At the end of two months both kittens were killed and sectioned. The control was free from trematode infection, but on opening the experimental animal, the abdominal cavity was found to be more than half filled by an enormously large liver. The bile ducts were so distended as to be easily visible on the surface of the organ, and the gall-bladder and common duct were much dilated with thickened opaque walls. The common duct was very tortuous. Over a hundred specimens of Clonorchis were allowed to escape from the cut end of the duct before tying it off.
Another finding of interest in this animal, though not pertinent to the present paper, was a cystic diverticulum of the stomach wall connected with the lumen of the stomach by a minute opening, which contained twelve specimens of Gnathostomum.

3. A third series conducted under similar conditions gave a negative result, both kittens dying of some intercurrent disease at the end of a month's time.

CONCLUSIONS.

While the experimental work above outlined is too scanty to form a basis for sound conclusions, I feel justified in saying that it suggests the probability of infection with Clonorchis by a free-swimming cercaria which is to be found in a small cyprinidine fish of the genus Notropis. The fact that fishes of this character are commonly eaten uncooked in Japan where clonorchiasis is very frequent, and occasionally eaten inadequately cooked in China, where in certain areas infection is not uncommon, and the further fact that about ninety per cent. of Chinese cats—notorious fish-eaters—harbor the parasite, all seem to point to the possibility of this source of infection.

HOW BEST TO PRESENT CHRISTIAN TRUTH TO OUR PATIENTS.*


There are many places and many ways of presenting the Gospel to our patients, but the best place I am quite sure is in the wards and the best way is by “personal dealing” at the patient’s bedside—where the opportunity is unique—clinical evangelism or buttonhole theology. This subject is all important and second to none in our great work of representing Christ in healing and preaching. The importance and possibilities of it are great. The chief object of our being in China in establishing hospitals and medical schools surely is that we may, by our words and deeds, bring men and women to a knowledge of the truth as it is in Jesus. The spiritual side of our work should never be subordinate to the medical. We are more than medical men working in the mission field, and it is our duty as well as our joy, to take a share in the evangelistic work of the mission, and our special opportunities for saying a word in season make it a very important share. Medically we lose nothing by it,

* Paper read at the Triennial Conference, January, 1913.
but rather gain, because taking part in the spiritual work undoubtedly braces us up for our great professional duties. We should never allow our medical work, however fascinating and absorbing, to crowd out our spiritual work for our patients. In every thing the best for our patients must come first. We must, however, as medical missionaries, have both zeal and evangelistic enthusiasm, otherwise we will subside into being ordinary Christian medical men. All our healing, teaching, organizing, planning fails when it loses the evangelistic note. Medical work without religious instruction is a giant shorn of his strength. All our medical duties must merge into the all important work of saving souls. No matter how efficient and well equipped our buildings and staff are, if there is failure here nothing will suffice to cover such an important short-coming. The peril of work where souls are not saved is great. We must keep high our spiritual standards and not lower our work to the plane of simple benevolence. How are we best to do this great work? First of all, there must be, as I believe, training for it at home, and then in the field. For home training I know no better place than the Medical Mission in the Cowgate of Edinburgh, where you have every opportunity for soul saving work while you are a student; and from the commencement of work in the field we must keep the love for souls keen and not allow work, worry, weather, or climate to take the edge off our spiritual sensibilities. We must, from the very beginning, identify ourselves in the aggressive evangelistic work, in fact take the lead in it, and in this, as in the medical work, be amongst the people as those who serve. To do this thoroughly we must keep right with God, and to do this we must in any opinion put in the "morning watch," and meet with God before we meet with man. Speaking from personal experience I find that the days are so full and the work so great and exhausting, and one gets so tired by night-time, that unless the "quiet hour" in the morning is given to God for spiritual bracing up, no other time can be found to do it with the same advantage. If we are keen ourselves in the spiritual work we will also keep our assistants and helpers of various kinds keen, both by precept and example.

In the early days of our work when I was young and go-ahead we began by having our morning service with the workers at 6 a.m. and I am convinced that much of our success in later years was due to this early meeting. Of the students we had then, our first batch, not one of them departed from their Christianity and those of them who are now living, are living Christian lives; some doing active
medical mission work, and all of them missionaries of health and trying to save their fellow-men. We have backslidden a bit now as regards the time for our morning service, still I feel strongly that in the early morning is the best time for us to get right, and to get help to keep right, with God; right with Him we will keep right with the workers and the work. Now as to the subject of presenting Christianity to our patients I don't think I can do better than tell you how we try to do it, day by day.

We begin at 8.40 with a service in the hospital chapel, which is bright, clean, comfortable, well ventilated, heated in winter, and always has flowers, palms, and evergreens, Scripture pictures, etc., to make it pretty; all the assistants, students, nurses, evangelists, Bible-women, colporteurs, servants, men and women, foreigner and native, and the patients who are able, are present. We read a portion of Scripture, have a short address and prayer, and then a little silent prayer. This service is in our own hands and is conducted by members of the staff, in rotation,—foreign and native. It only lasts 20 minutes. In a busy work I favour short meetings. Out-patients are seen daily except on Wednesday which is specially reserved for operating. While they assemble in the outer waiting room, a catechist is preaching and a colporteur is selling books; after they register and pass on to the inner waiting room they are again face to face with a preacher, colporteurs, and Bible-women, who wait with them and talk with them, till they have all been seen by the doctor. Many, of course, are in pain and discomfort, and many are thinking only of the ills their flesh is heir to, and many are present for the first time and have never heard the Gospel, and to my way of thinking an out-patient waiting room is not an ideal place for presenting the truth, still many do become interested in this way, and I have known of some being converted and it affords an unparalleled opportunity for reaching a mixed and continually changing audience, many of whom take the Word of God home in their hands at any rate, if not in their heads and hearts.

Work in the Wards. This is all important. It is here we medically show our love in action, and the preaching is the outward testimony of our love to man. This work is chiefly done, and done systematically, by the evangelists and colporteurs, who regularly and day by day, visit the wards and get in touch with the in-patients. The doctors and their assistants, of course, drop a word in season on their daily rounds in doing the common task, and attract the patients by their walk and conversation, but the actual teaching, as a rule, is done
by the evangelists, who can do it much better than we can. In this work they have advantages we cannot rival; intuitive knowledge of the hearts of the people, natural acceptability to their own countrymen, and perfect command of their mother tongue. Some earnest missionary souls are often much hampered by the difficulties of the language, in preaching the Gospel, and have to trust more to their deeds than their words, and let their assistants do the talking—still for example's sake we must be zealous for souls; the necessity is laid upon us, to preach the Gospel. Our evangelists should be well trained and we should see that they preach repentance and forgiveness of sins and faith in the Lord Jesus. It is the simple story of the Cross that always tells, loyalty to the Cross is everything. When we consider our patients, many of them with their minds dull and untutored and incapable of following out a long train of thought, especially when ill, we must be simple, and the doctrine of the atonement, for example, must be reduced to—"Behold the Lamb of God." We cannot be too simple in telling them of sin and a Saviour.

Evening Services. These are held every night, united for all on Monday, when the magic lantern can be made of great use in representing the Life of Christ. On the other nights of the week the services are held in the different buildings, Women's Hospital, Maternity Hospital, Men's Hospital, Children's Home, and Leper Hospital, which are conducted by different members of the staff—women with women, and men with men. On Tuesday night we have our weekly prayer meeting, at which all the staff and Christians on the compound attend. This meeting I always keep in my own hands but encourage both men and women to give their testimony, and engage in prayer, and we usually have a time of silent prayer. We vary it a good deal and have nothing stereotyped. The burden of this meeting is the power of godly living, and the power of the Holy Ghost, these great truths we press upon all, and keep on doing it. The meeting is short, and as interesting as we can make it. On Saturday the heads of all departments meet to talk over the work of the week, and in this meeting I always take the chair, the catchists give us spiritual details of the patients in the wards, the colporteurs tell us what they have done, and how many books they have sold, and the Bible-women tell of their work among the women in the hospitals and visits to their homes; any matter of importance as regards work and workers, servants, students, etc., is mentioned at this meeting and the various Sunday services are arranged for.
On Sunday we go round all the buildings just to show our interest in cleanliness, and to teach order and punctuality, and that Sunday is different from other days. Before our morning service the evangelists have a meeting with enquirers, and all who are anxious to be enquirers, then we have our forenoon service which I very often take myself, and here we have a wonderful opportunity Sunday after Sunday of presenting the spiritual side of our work. In the afternoon we have our Young Men's Christian Association meeting, and there are special meetings for women and for the children, and a regular service for the helpers. We now also have a special evangelistic address for students from all colleges in our Lecture Hall every Sunday afternoon in connection with our Students' Institute. In the evening we have our regular evangelistic service, at which the patients who can come, from all the buildings, are expected to be present. I have not mentioned itinerating work which opens the door wide for entrance into every town and village and is the real pioneer agency for breaking down the barriers of prejudice, disarming suspicion, and dissipating misapprehension. In the early days when I did this work the crowds were usually so great and the desire to get medicine so enthusiastic that it was almost impossible to preach the Gospel except in a very cursory way. Before beginning an operation, when the patient is on the table, we always have prayer, and many a time I have been told by patients that this was the first thing that made them think and seek to become Christians. We also have prayer daily with our assistants and helpers before we see the out-patients.

Before closing I must mention another part of the work which great stress should be laid upon and that is, the following up of the patients after they leave the Hospital. In the early days we did this work most thoroughly and it brought forth fruit abundantly. Now, I regret to say that the size of the work and the difficulty of getting educated evangelists, have prevented us these last few years from doing it in the way it ought to be done; at present we can only follow up old patients who live in the city or suburbs, but I shall never be happy till we can do again what we did in former years, namely follow up every patient who while in the Hospital manifests a sincere interest in the Gospel; no matter how far his home is from the Hospital. We always, however, give an enquiring patient when he leaves us, a letter of introduction to the nearest pastor or preacher, of any mission in his district, and also send a note to the pastor, giving him the name and address of the patient so that he may look him up, if he fails to put in an appearance at his chapel. It is most important
and no hospital work is complete without men set apart to follow up in the home the spiritual work that is done in the hospital.

Much also can be done by illustrated tracts, large texts in the wards, and waiting rooms, preaching to the friends of patients who visit them, personal dealing, and special missions, all of which we use with success. In this work we must not labour for a quick return although, perhaps, returns are quicker in our work that in any other form of Christian work, but plod on remembering, that the Chinese is a religious being, and the seed faithfully sown in prepared ground, in due season will spring up and bud and being forth fruit. Sowing the seed of the Kingdom in medical missions is not like scattering oats out of an aeroplane, but we must work and pray, and pray and work, and be earnest and personal, and not satisfied with a general indefinite work and formal assent to the truth of the Gospel, a head belief and mouth confession, with the heart not touched; we must keep at it till we get our patients safely and soundly converted—our work is great and often very hard. But even when most trying, we can always say our efficiency is of God. In this work of preaching to our patients let us live in communion with the Saviour and constantly remember that the Holy Ghost has been given, and that it is our privilege to realize His presence and power, then we shall see the new birth of souls and the quickening of ourselves and our workers.

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TRAINING CHINESE NURSES.*

By Mrs. W. ROWLEY, W. M. S., Anlu.

It is with great reluctance that I take up my pen to write on a subject with which I feel there are so many others far more competent to deal, than I. I can but hope that a few grains of experience gained during 16½ years of dealing with Chinese girls in hospital wards may help someone else to reach the ideal of which I know (no one better) I have fallen so far short.

1. In the first instance, then:—A girl accepted for nursing training should be an educated girl. With a good education generally comes some degree of sense of power and responsibility as well as the power to think out for herself beyond the actual cut and dried facts patiently drummed in by the teacher. But perhaps many of you, though setting this as the ideal, have found it impossible to stick to it.

*Paper given at Nurses' Association of China Meeting, Kuling, August, 1912.
as a hard and fast rule. Of my present five nurses only one is beyond fourth grade standard and two are struggling with the elements in the shape of Chinese "character" as they go along. In the case of such handicapped girls I am trying to arrange for an extra hour 'off duty' each day definitely for Chinese study.

2. Having got the girls into the wards, one must be prepared for some severe shocks to one's foreign hospital notions. In our own country, a girl usually becomes a nurse because with that calling she has become accustomed to associate many sweet and beautiful characteristics. Not so the Chinese girl. I think as a rule the attraction for her lies in (1) the idea of 'reh lao' of association with other girls under circumstances of less drudgery than the home life, and less severe discipline and more variety than the ordinary school life. Besides which there is that which appeals far more to the Chinese girl and her parents than to the English girl, viz., it is a highroad to what is to them comparative wealth.

Therefore, the high ideals with which the Western girl begins her course are entirely absent and must be patiently and lovingly inculcated, prayerfully and laboriously cultivated as we go along. Then, too, in the homelands, the nurse from her entry into the hospital becomes part of an orderly and immaculate machinery system, her own wishes, peculiarities and personal feelings being brought into subjection under the stress of her duties and her desire to excel in her profession for which she herself has a great respect and reverence. Not so with your Chinese nurse. It is not many weeks since, owing to a quarrel with another nurse, one of my girls retired to her room in that hard-to-deal-with and wholly Chinese state of 'ngeo-ch'i.' Patients went to the wall and were left to do as best they could. She refused to eat all day and it was only when I was called in and talked and finally threatened forced feeding, that she began to think better of her behaviour and condescended to eat a meal and return to her work. Constant watchfulness is needed or patients will be neglected for petty reasons such as these. One has to realize that an amount of consideration of the individual such as we have never heard of at home, is absolutely necessary if we are to succeed in our enterprise.

In regard to work, in some respects Chinese characteristics give them an advantage over Western girls. There is in the Chinese make-up a power to plod and stick to dreary routine that is foreign to her more versatile Western sister and this has its advantages in hospital work. When it comes, however, to charge work, to oversight of others,
we have difficulties to face again. Only here and there have I been able to find that rare treasure, a well-equipped capable Chinese nurse who has patience to teach as she has been taught, and tact to manage others without irritating them. The gift of eyes-in-every-place that seems to come naturally to our Western ward sister seems to be very rare up to this stage of things in China. Too often there is too little sympathy with the newer girls, too much blame where there has been little teaching, too little watchful oversight, with the result that instead of love and respect on the part of those under her charge, there are frequent complaints of injustice and rebellion against authority, making for chaos and hindering both the medical and especially the evangelistic usefulness of the hospital. Sometimes a charge nurse will be beloved by her younger nurses because she makes that her great aim, the wards being dirty, patients neglected and discipline absent. This is even a worse state of affairs. But I have been privileged to see a few marked exceptions to this sort of thing. Now and again stand out among their fellows, young ladies whose influence and management are all we could possibly desire; who are great enough not to scruple to work with the girls they are training and by example as well as precept daily are helping to form the characters as well as to forward the training of their younger nurses. Some of these are among my valued friends to-day.

3. Safeguards. I should like to emphasize to-day, especially in speaking to nurses fresh from home, the tremendous importance of safeguarding the "ming sheng," the reputation of the girls under their charge. We cannot be too careful in our arrangements in regard to the complete shutting off of men-servants' quarters; we cannot be too particular as to the situation of the nurses' quarters, the place where they pass their nights and their 'off duty' hours. We dare not yield one whit to the craze for independence which makes young girls declare that it is all right nowadays for them to go out without proper escort. We have no right to so abuse our trust as to put Chinese girls in a position of possible strong temptation from a false notion of giving them privilege by giving them Western license. We are dealing with Eastern character as yet unprepared, as a whole, for that kind of liberty for which long ages of education in self-control have prepared our women in the homelands. That may come in time, but it is not for you or me to grant. The responsibility is too great. Let us love our girls with all our hearts, and let us so think and work for their happiness and welfare as to earn their trust and make them realize that our restrictions come not of mistrust of them, but because we
Training Chinese Nurses.

would shelter them from the evils of which, in their inexperience, they can know little.

4. Off Duty Times. Who among us does not remember the joys of these? The refreshing rides on the top of an omnibus or tramcar after the night on duty. The restfulness of such a change in the midst of the day's work, the delights of shop windows or the pleasures of a brisk walk with a friend! And all these things helped to keep us in health as well as to keep our tempers bright and easy. One of the great hindrances to the Chinese nurse both from a health and temper point of view lies in the monotony of her life and its lack of exercise. It isn't ideal from any point of view to spend all your 'time off' either on your bed or doubled up over shoemaking. It should at least be the rule in every hospital that 'times off' must be spent out of the wards, and a suitable and comfortable place should be provided. I hope some day we may have tennis, croquet, etc., provided in each hospital and be able to require that a certain portion of time be spent in exercise out of doors each day—'All work and no play makes Jack a dull boy,' and makes nurse a dull girl too. By providing games and trying to arrange for escorts to go out at times we can do a good deal towards making times off duty pleasant and profitable.

There is one other point I should like to mention. I have often been saddened to find how little the nurses respect and love and glory in their high and noble calling. Not long ago, two nurses holding certificates—old girls of mine—were discussing their future. How much they would like to go back to school; either ordinary school or to a medical school! I came into the conversation and tried to plead for their nursing vocation as a high and holy privilege and power God had put into their hands. 'Nobody ever thinks that about us except you!' they protested! Fancy an English certificated nurse going back to school! Can you imagine such a thing? And how many would not spurn the idea of exchanging the nursing profession for the medical! Surely there must be a way, some way, by which our nurses may become a body with power enough to command the respect of others as well as having a great respect and love for their own calling. I think this end will be greatly helped on by the formation of the Nursing Association. But it can only be a success if you 'foreign' nurses, who have experience of the organization and uses of such an association in other lands put it into your hearts, registering a vow to make it a success somehow. I believe that in doing so, you will be doing as much for the girls and for the 'profession' in China as by your daily work in the wards.
In bringing forward the subject of climatic bubo this evening I do so mainly in the hope of eliciting your opinions in the subsequent discussion and of thus adding to our knowledge of an affection which has, so far, received comparatively little attention. It is rarely mentioned in medical literature and indeed it is not yet conceded on all hands that it is a separate pathological entity.

In defining climatic bubo we might describe it as an inflammation of the superficial oblique inguinal glands, of a more or less painless nature, of marked chronicity and uncertain origin, characterized by a tendency to suppurate which takes the form of discrete areas of necrosis in the gland substance.

Anatomy.—Of the three sets of groin glands, the superficial oblique inguinal, the superficial vertical, and the deep inguinal, the first is the group with which we are concerned in dealing with this affection. The glands of this group are disposed irregularly along Poupart's ligament and receive the lymphatic vessels from the integument of the scrotum, penis, parieties of the abdomen, perineal and gluteal regions and the mucous membrane of the urethra. The vertical inferior group receives the superficial lymphatic vessels from the leg, and the deep inguinal glands which are of small size communicate with the latter group through the saphenous opening.

With regard to the first group and the glandular enlargements it undergoes from diseases implicating the parts from which its lymphatics originate, we have to think of the following causes, viz.:—malignant or venereal affections of the prepuce and penis, or of the labia majora in the female, cancer of the scrotum, abscess in the perineum, or any other disease affecting the integument and superficial structures in these parts or the sub-umbilical part of the abdominal wall or gluteal region. As my colleague, Lieutenant Dive, puts it—all the parts that would be covered by a baby's napkin. The lower groups become implicated in diseases affecting the lower limb.

Etiology.—The diseases I mentioned in the first group gave no indication of actually being or of having been present in any of the cases under observation. In none of my cases was there any evidence of malaria for not only did I not find plasmodium malariae in the blood but quinine injections had no effect. Laveran has said that he has never seen

* Paper read at the Triennial Conference, January, 1913.
a case in which paludism was localized in the lymphatic glands and that while malarial pigment was met with in the spleen or liver and elsewhere, it was never, or very rarely, in the glands. Laveran doubts the existence of a specific truly climatic bubo and there must be many other acute observers of disease in tropical and subtropical climates who have not met with it or we would have been sure to have had more frequent observations recorded about it than has been the case.

As regards climate, I have had a case in October and one in November. In these two cases we cannot say that the production of the bubo was favoured by high atmospheric pressure or by any of the deleterious effects of life in a hot climate that often result in a certain predisposition in the individual which would give him a lessened organic resistance to microbic injection. I think we can also rule out of court septic absorption resulting from scratch or insect bite, for the integumentary area which is drained by the oblique glands is that part of the body which is kept covered. In addition, how many cases of dhobie itch do we see with a thoroughly septic skin in which the inguinal glands show us sign of enlargement.

Now with regard to strain of the glands: the majority of the cases give a history of some strain or sudden jerk followed later on by swelling. Hoche, a German writer, by his experimental work in cranial disease, has shown that injury provides areas of choice for the settling down of micro-organisms, and this can equally apply to lymphatic glands. Some time ago I was asked to be medical arbitrator on the case of a man who was insured against accidents. His history was that he stumbled whilst walking over rocky ground and strained his groin in doing so. An inguinal bubo resulted which suppurated. He was operated on three times and had been in hospital for seven months. The Insurance Company maintained that this suppuration could not have been the result of an accident. They denied that there could be idiopathic purulent bubo. He was under the care of a missionary doctor, a man in whose ability I have the greatest confidence. This surgeon in filling in the insurance claim said he “was unable to trace any definite source of infection” and concluded “the case was therefore one in which infection of haematogenic origin had been conveyed to the glands in the blood stream, and that this infection finding the glands in a strained and inflamed condition, because of the fall, developed into an abscess.” This diagnosis was a hypothetical one, arrived at by excluding other likely channels of infection. His supposition that the suppuration was due to haematogenic infection cannot be accepted literally, as infection of true haematogenic
origin would only be inflammatory. It would not cause suppuration which requires the presence of living micro-organisms which can only arrive in the body from some external source. Some toxic substance of sufficient virulence to cause cell necrosis would be the only other suppurative agent. In this insurance case I was unable to support the view that the prolonged illness and suppuration in the glands was a direct consequence of the accident.

It is, to me, somewhat remarkable that I have never met with or heard of climatic bubo as occurring amongst women. All the cases I know of were men in the prime of life, between the ages of 22 and 57 years, mainly the class who are prone to promiscuous intercourse. When we think of the readiness of the oblique inguinal glands to become affected from chancreous sores this is rather a striking point against the climatic causation of this bubo. On the other hand how is it that we do not meet with climatic bubo in England?

It has been sometimes confounded with pestis minor. Cantlie, writing in Alburt's "System of Medicine," says the term pestis minor is synonymous with climatic bubo and regards it as a specific ailment anticipating, running synchronously with and continuing after outbreaks of true plague, but still maintaining its specific character. He quotes Prof. W. J. Simpson as having found an organism resembling b. pestis in cases of bubo amongst soldiers of the Shropshire Regiment that had journeyed to Calcutta from Hongkong where plague prevailed. All this points to pestis minor, but the general circumstances are totally different from those of climatic bubo as my colleagues and I have observed it. In all the cases I am referring to I took the utmost pains to discover any history or signs of venereal disease or pestis minor and I only deal with cases in which there were no such traces nor was there at any time any known plague in the neighbourhood. Moreover, in plague, the bubo is very painful: its course is regular and it suppurates in from eight to fifteen days while in climatic bubo the glands are painless, the process slow, and the duration of the affection prolonged. In pestis minor and plague (the severer attack) the bacillus pestis is found early in the disease while in climatic bubo I have never found anything resembling b. pestis. In plague buboes, suppuration also occurs in the periglandular tissue but this never happens in climatic bubo. As regards venereal diseases there were no signs or scars of chancreous sores on the penis and no subsequent symptoms of syphilis or urethral discharge, though no 'specific' treatment was being given.

Geographical Distribution.—Munson reports it as having occurred in the east coast of Africa, the Straits of Malacca, China, Japan, the
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Mediterranean, West Indies, and probably in Europe. He omits to mention the west coast of Africa where it occurs relatively more frequently than in any other place. It is to be noted that, with the exception of China, these are not areas of plague distribution.

Pathology.—Gross—All the cases were infections of glands of the inguinal group and emphatically not the femoral group, a point to be remembered in discussing infective sites. Specimens taken out bodily consist of a mass of enlarged and matted lymphatic glands, many of which show more or less advanced areas of necrosis. I never saw a gland which had degenerated into a pus sac as in chancrous cases.

Bacteriology.—In the case of a medical man suffering from "non-venereal inguinal bubo" Prof. R. T. Hewlett found (1) a micrococcus liquefying gelatin and white in growth, probably staphyloccocus pyogenes albus; (2) a micrococcus not liquefying gelatin, probably S. cereus albus; (3) a minute stumpy bacillus inclined to bipolar staining, and staining well by Gram's method which, of course, excludes plague. As far as my microscopical examinations of the pus from the necrotic foci have gone I have occasionally noted small chains of streptococci but always staphyloccoci are present in large members.

Clinical Description.—The patient becomes cognizant of a groin swelling which does not trouble him much. This he attributes to some strain and hopes it will subside in a day or two during which period he is able to walk about. In from 3 to 8 days he seeks medical advice and a strict enquiry fails to elicit any cause for the hard almost painless glandular swelling. The progress of the disease is slow and rest in bed with anti-inflammatory local treatment does not, as a rule, effect any amelioration. Blood examination reveals a steadily increasing leucocytosis. Palpation gives a sense of bogginess without any definite sign of fluctuation as is found in purulent venereal buboes. The temperature is remittent rising every evening during the first week to 100° F., and subsequently to 101 and 102° F. He becomes restless and sleepless and gives a general indication of septic infection. No other symptoms present themselves: the disease is purely local.

Prognosis.—Climatic bubo is non-fatal, but it runs a slow course of from one to several months, the period of convalescence depending on the time that elapses before operation is undertaken.

Treatment.—Medicinal treatment is of little or no use. Iodides, quinine, arseno-ferratose, etc., have all been given with no noticeable effect. In one case I gave 606 intravenously and in another I put him through a course of mixed staphylococcic vaccine and was unable to see any benefit. As far as my experience goes the sooner that opera-
tion is performed and the glands extirpated the more chance will the patient have of recovering quickly. Every gland that can be palpated must be removed. If done early enough this is easy as the glandular tissue is only slightly inflamed and the subcutaneous tissue is not adherent. The usual incision is an oblique one but in fat abdomens with redundant integument I find a vertical incision preferable as there is not the same tendency for the edges of the wound to curl inwards. After extirpation, deep sutures reaching to the floor of the cavity and approximating both walls of it should be inserted after the cavity has been made as dry as possible. A gauze wick may be left in for two or three days.

Summary.—Sufficient cases have been found in which there is no evidence of venereal disease, past or present or even subsequently, to warrant the belief that in climatic bubo we have a specific separate disease. The term 'climatic' seems inappropriate, but there is still not enough evidence to show that idopathic or non-venereal inguinal bubo is in any way better.

This disease is different from pestis minor in many important respects. Its course is slow and non-fatal. It occurs in men in the prime of life: is neither contagious or infectious and is characterized by small foci of suppuration throughout the gland substance. Early extirpation of the glands is the best treatment.

I might add that the data from which I have drawn up this paper are from a collection of twenty-seven cases from my own practice and that of my colleagues in Peking. I am afraid I have contributed nothing to throw any light on this disease. I shall, however, be interested to gather your experiences, especially those of the lady members of this meeting with reference to its known presence in women.

Postscript.—In The Lancet of December 7th, 1912, which came to hand the day after this paper was read, there is an article on "Climatic Bubo" quoted from a contribution by Staff-Surgeon Rost of the German Navy to the Archiv für Schiff-und Tropen-Hygiene. After a description which corresponds closely to that given in my paper, the writer says "No visible cause can be assigned for the disease; cases occur for which no micro-organism whatever can be brought to view. As to causation it only occurs in the groin through which pass the lymphatics from the genital organs. It does not appear in children or in married people, or in those people aboard ship who are abstinent, and he concludes it is due to a micro-organism found on the vaginal mucosa of negro women."

Three of the author's cases gave negative Wasserman reactions.
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 persons 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.**

**TRAINING SCHOOLS FOR MALE NURSES.**

The four splendid papers on the medical educational problem published in this issue focus for us the situation in China to-day and the discussion of them at the Conference followed by the resolutions passed showed the attitude of our Association to the problem of medical education. What is the relation of the individual medical missionary with his hospital to man to this scheme for the efficient equipment of a limited number of schools? One answer is loyalty; but there are other questions. In the day of promise of the well organized, well equipped Union Medical Schools at eight different centres in China and the prospect of obtaining graduates from these schools to serve certain terms in our hospitals as interns we can certainly ask ourselves what shall we do in the matter of help in our hospitals during this interval of five or more years before the schools begin to return graduates to us and what shall be the relation of these graduates to our other hospital helpers? It would seem apparent that the distinction between men trained in schools and those trained in the hospital with all clinical experience and little instruction in the fundamentals of the science of medicine must become greater every year. Furthermore, we shall send our brightest men to be educated in the nearest medical school and we should discourage all applicants to us from the idea that we can with our one or two man hospitals give them an efficient training in medicine. We, as medical missionaries, should unequivocally stand for the efficient training of our medical students and for loyalty to our Union schools. To carry on our large hospital and dispensary work, however, help we must have; and what shall constitute that help?
Having done away with the class of men who were a combination of nurse, doctor, and student all in one, and who imagined that they were getting efficient training by a few years in our hospitals, on whom shall we rely for help? There are two alternatives, the employment of paid men of inferior sort or the training of male nurses. This latter is what I wish to call attention to and emphasize. It seems to the writer that there is an excellent opportunity to develop that phase of our work. That it is wholly practical has been clearly demonstrated in the excellent article by Dr. Tatchell of Hankow in the C. M. J., September 1912. Not only will it fill our hospital with trained helpers increasing the efficiency of our work, but it will give many men an opportunity to learn an honorable and useful calling when for various reasons they might not be able to take the longer and more expensive medical course in the college. The article by Dr. Tatchell is so excellent that I recommend that it be read by all who have the problem of medical helpers in hospitals or of what to do with promising young men who can not attend the medical schools and yet who want an opportunity to alleviate the sickness and distress of their country and to enter a calling of honorable distinction. The writer would like to see the development of many such schools for male nurses throughout China. The idea is new among the Chinese and it will take determined effort to educate them up to the realization that it is far nobler to be an efficient nurse than a poorly trained doctor, for each hospital can train male nurses though they can not carry on medical schools.

EAST CHINA WOMEN'S MEDICAL COLLEGE.

The attitude of the Association was clearly expressed in regard to a medical educational system for all China and already we have attempts more or less successful to organize and conduct Union Medical schools at the eight centres designated and with the pursuance of the principles laid down at the Conference relative to the equipping and staffing of these schools there is every prospect of their growing into strong schools; at least the idea of union has begun to take deep root in all the districts denominated. It might not be premature to say a word here on the question of medical education for women. There are two schools for women and only two already existing and apparently doing good work; one at Peking, the other at Canton. Now whether it is practical and feasible at this time to think of one for East China is a question.
That there is need of one for the great territory between Canton and Peking is obvious. That with the ratio of women physicians to men physicians the development of women's colleges will always be slower than men's colleges for the same amount of territory is also obvious, but it would seem that in the East China field a beginning of a union enterprise might be made. With the number of women physicians in Shanghai, Soochow, Nanking and other cities of the Yangtse valley it would seem that by union effort something might be done even at this stage. The need for women doctors in China is great, and all of us who have nurses' training schools in connection with our hospitals know how many applications we have for the study of medicine and how many Chinese girls of good educational attainments are anxious to attend a medical college with teaching in Chinese, yet to whom Peking and Canton seem insurmountably far. There are many who would be glad to see the question of a women's union medical college teaching in Chinese taken up by the women physicians in East China.

It is with deepest sorrow that medical missionaries all over China will learn of the death from typhus fever of three of their co-labourers within the last four weeks: These devoted physicians in the order of their deaths are Dr. Cecil F. Robertson and Dr. H. S. Jenkins, both of Sianfu, Shensi, and Dr. E. H. Hart of Wuhu. The Association has lost three strong and brilliant men from its ranks and seldom indeed has death dealt so many and such rapid blows to our medical body as we have received in this instance. It is particularly sad to reflect that they died of a disease contracted during their care of others and which they would never have contracted in their more favored homelands and thus it can be said to their everlasting credit and honor that they gave their lives for China and the Chinese.

A CORRECTION.

Dr. Neal has called the attention of the editor to a mistake on page 123 of the March Number of the Journal, where credit is given to him for the preparation of the address to President Yuan Shik Kai. Dr. Neal states that much as he would like to, he can not claim any connection whatever with the preparation of this address. The editor desires to correct the mistake therefore and to apologize to those affected by it.
The death of Drs. Jenkins and Robertson has brought sorrow into the small foreign community of Sianfu, Shensi. Both these men were endowed with many gifts, and their success as students is testified by the high degrees they held; for both were members of the London University, and Fellows of the Royal College of Surgeons of England.

Not only were they well equipped for their professions by gifts and scholarship but they possessed other gifts of heart and disposition that made them capable administrators and acceptable workers amongst the Chinese. They were eminently fitted to break down the barriers that separate East and West, and commend the Gospel to the Chinese by their grace of manner and friendly attitude.

Dr. Robertson passed through the perils and anxieties of the revolution. He ministered night and day to the wounded of both sides, and besides attending to the needs of a full hospital in Sianfu, more than once responded to the call of the military to come and attend to the wounded on the scene of battle. He was the last to leave Tungkuanhsien after one engagement; all the soldiers even had fled. And on other occasions he risked his life in this ministry of mercy to both parties during their ferocious and inhuman contests.

His unremitting toil entitled him to a long holiday, but he was unwilling to leave the many patients in the hospital at the close of the revolution. He followed them with unremitting care. Just before he was stricken with typhus fever, a call to attend a child ill with smallpox appealed to him and riding night and day to the little patient and back again undoubtedly weakened his otherwise robust constitution, so that he proved unable to withstand the severity of the fever when it attacked him.

It was most fitting that the Tutuh should acknowledge Dr. Robertson's great services to the Chinese which he did by not only attending the funeral, but by addressing the congregation and eulogising his services and work. The Tutuh also took the opportunity of expressing his thanks and appreciation of the work of Christian missions amongst the Chinese, and to say how potent a factor they were not only in the service of humanity but in cementing the bond of the brotherhood of nations.

Dr. Jenkins was home on furlough during the revolution, and had not long returned from England. When he passed through Shanghai a few months ago he did not look at all well, but in response to the call of duty pressed on to distant Shensi, leaving his wife and two young children in Shanghai. After a short spell of activity he, too, was stricken down, and though the attack was not severe, yet his strength was not enough to pull him through. His wife arrived two days before he passed away. The death of these two noble-hearted
men helps to keep fresh in the mind the great end of the Christian faith—that of service for others, even the surrender of life if necessary. But the experience is a bitter one and leaves the community and the Baptist Missionary Society all the poorer by the loss of these beloved men and efficient workers.

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Egerton H. Hart, M.D.

The cause of medical missions as well as the medical profession in China has suffered a great loss in the death of Dr. Egerton H. Hart who died from typhus fever on April 14th, after an illness of nine days. The disease attacked him when his vital forces were reduced by overwork and previous illness, and rapidly did its fatal work. Being very conscientious and faithful in the discharge of duty and having no other foreign physician associated with him in the work, he had kept at his post during the previous month when he should have had the care he was giving others. "He saved others, himself he could not save."

Dr. Hart came to take charge of the Wuhu General Hospital eighteen years ago and through his skill, his winning personality, and sterling character has made a name and influence that anyone might well covet. He was beloved by both foreigners and Chinese and his warm friends and admirers are not found in missionary circles alone, but also among those of the general community and among the official and more influential classes of the Chinese.

Dr. Hart was the son of Rev. Virgil C. Hart, D.D., who gave so many years of his life to China, and was born at Kiukiang. He leaves a wife and eight children to whom the hearts of all their friends go out in deepest sympathy.

The loss of Dr. Hart to us seems irreparable. His family, his mission, his work, and the community in which he lived, all most sorely need him. When such a man dies the disaster is far reaching for the work in which he was engaged. The years of experience, the skill, the knowledge of conditions, of the language and the people, is a long and costly process to acquire. Few have the wisdom and gracious personality to make them effective that Dr. Hart possessed. But such lives are not lost. The good they do lives after them and the influence and good deeds of Dr. Hart's life will continue as a power for good through the coming years.

As a brave and true soldier he fought a good fight, He kept the faith, and has gone to receive a crown of everlasting life.

"He climbed the steep ascent of heaven
Through peril, toil, and pain:
O God, to us may grace be given
To follow in his train."

ROBERT C. BEEBE

If the successful man in these days is the one who knows where to lay hands on any special point brought up, and does not necessarily have to know everything by memory, then surely Potter’s Therapeutics, Materia Medica, and Pharmacy should be a great aid to success. Here is gathered together in one volume a tremendous amount of knowledge, both of his own and of other authorities, and arranged for instant and easy reference. The only danger from it lies in just this fact, however, as it might have a tendency to make one too dependent on it for reference to anything he wants to know in this line, instead of depending on himself for it.

For the busy practitioner it certainly would be a most useful book. It is quite up to date in every particular, including a revised chapter on serum- and vaccine-therapy. The material is well arranged, and gives one all one wants to know about the various drugs, etc., without wasting a lot of space on superfluous hypotheses and so on. The results of physiological experiments are given without going into details about the performance of those details.

Taken in toto it can be recommended as a very valuable addition to any physician’s library.

H. H. M.

The 4th edition of Montgomery’s Gynecology gives a very detailed and comprehensive presentation of the subject, and the discussions of treatment—both operative and other—have been brought well up to date. The section on microscopic technique and the long section on general principles of operative surgery might have been omitted—belonging rather to books especially devoted to those subjects. The section on diagnostic methods is clear and to the point. The division of each subject treated under headings of symptoms, etiology, diagnosis, prognosis, and treatment adds greatly to the student’s convenience in studying—also the division into sections, e.g., traumasms, inflammations, displacements, etc., help to give him a comprehensive view of the whole subject. The classification of puerperal tumor seems to be the author’s own nomenclature as it is not generally recognized. There are some typographical errors in the book—but not enough to detract from its generally pleasing appearance. The illustrations are good.

H. C. F.
Book Notices.

We acknowledge with thanks the receipt of the following books from P. Blakiston's Son & Co., Philadelphia:—Anatomy and Physiology for Nurses—Bundy; Outlines of Physiology—Jakes and Bunce, 3rd edition; Quiz Compend on Histology—H. E. Radasch; Quiz Compend on Genito-Urinary Diseases and Syphilis—C. S. Hirsch; Prisms, their use and equivalents.—James Thorton.

Notice has been received that at the Clinical Congress of Surgery held in New York City, November 1912, the organization of an International Abstract of Surgery was confirmed.

This INTERNATIONAL ABSTRACT OF SURGERY is to consist of the abstract departments of Surgery, Gynecology and Obstetrics, and the Journal de Chirurgie of France, and Zeitchrift für die gesamte Chirurgie und ihre Grenzgebiete and Zeitchrift für gesamte Gynakologie, Geburtshilfe und ihre Grenzgebiete, of Germany. (Publishers for Great Britain, Baillière, Tindall & Cox, 8 Henrietta St., Covent Garden, London, W. C.; for America, The Surgical Publishing Company of Chicago.)

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


A MEMORIAL TO LORD LISTER.

The Glasgow LISTER WARD AND MUSEUM. As a memorial to the late LORD LISTER, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of Antiseptic Surgery, is to be reserved and utilized in the following way. One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a Museum for the exhibition of anything associated with the life and work of the great master. It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the Museum. Professor John H. Teacher, M.D., Hon. Curator of the Museum, will be pleased to receive any objects addressed to him at the Royal Infirmary, Glasgow, Scotland. The names of all donors or senders of objects are to be affixed to the exhibits.
KULING SUMMER COURSES.

Owing to the fact that the courses offered by the C. M. M. A. Kuling Branch last year, were so much appreciated and so well attended, it has been decided to offer similar courses this year, and it is hoped that by announcing them in advance doctors can plan for them and arrange their stay in Kuling so as to take one or more of the courses.

Refraction, July 22nd-30th, Dr. James Butchart.

Dentistry, Aug. 4th-8th, Dr. A. E. Oliver.

Operations on the Eye, Aug. 12th-20th, if clinical material is available—Probably by Dr. W. R. Heyward.

The courses given by the Harvard Medical School last year were very popular. They were given in the mornings. The above courses have been put in the afternoons, so that should both courses be running at the same time this year, there will be no conflict.

The subjects for the regular weekly meetings will be:

- July 22nd—How Can We Help the Chinese Solve their Problems in Municipal Sanitation?
- July 29th—Cranial Surgery.
- Aug. 5th—Skin Diseases.
- Aug. 19th—Present-day Treatment of Tuberculosis.
- Aug. 26th—Medical Schools in China: Ideals, Problems and Needs.

MEDICAL PROGRESS.

TRANSMISSION OF RELAPSING FEVER BY PEDICULUS AND CIMEX.


It has long been supposed that vermin are responsible for the transmission of relapsing fever in Europe.

The most convincing observations are, however, those published in a short paper this year by Nicolle, Blaizot, and Conseil (1912). They note, in respect to its epidemiology, that relapsing fever affords a striking similarity to typhus fever. The disease extends in a similar manner, it occurs in the same places, when it enters hospitals it does not spread, sparing the nurses and physicians who have to deal with the patients who have been cleansed, whereas it attacks those who have to handle the patients at their entry into the hospital. In both diseases, as observed in Tunisia, lice are invariably found on the patients.

Nicolle and his colleagues obtained negative results when they attempted to transmit the disease through the bites of infected lice placed upon experimental monkeys and five persons (two of whom were the authors), although both men and monkeys were exposed to thousands of bites collectively.

Upon studying the behaviour of the spirochaetes in the lice (P. vestimenti and P. capitis), they found that they disappear and
afterwards reappear. But few can be detected in the gut five to six hours after the infective feed, and none are discoverable microscopically when 24 hours have elapsed. After about 8 to 12 days, however, actively motile spirochaetes reappear in the louse; at first they are short, but later they resemble those seen in the blood. Such spirochaetes are observable in lice up to the 11th day, and possibly longer. Monkeys inoculated with the contents of lice, crushed on the 15th day after the infective feed, developed relapsing fever.

We know that all persons infested with lice are addicted to scratching themselves, whereby they excoriate their skin and frequently crush the lice upon their bodies. In this manner their hands and finger-nails become infected with the body contents of the lice including the spirochaetes, and these gain a ready entrance through the excoriated skin, thereby infecting the individual. One of the authors, having excoriated his skin, smeared the contents of an infected louse upon the lesion, and succeeded thereby in infecting himself, the disease developing after a period of incubation lasting five days. In one experiment, infection followed the placing of the contents of a louse upon the conjunctiva in man. In nature, it might well happen that the soiled hand might travel to the eye and produce infection in a similar manner. The authors proved, moreover, that the spirochaetes are transmitted hereditarily to the offspring of the infected lice, for they found that eggs, laid 12 to 20 days after the infection of the parent lice, contained the spirochaete. The larvae issuing from these eggs likewise contained spirochaetes. By incubating the eggs at 28° C., the larvae hatched out on about the seventh day. When the eggs or larvae were crushed and inoculated into a monkey the latter became infected.

We still lack detailed information regarding the behaviour of the spirochaetes in the lice and their offspring; possibly it is similar to that recorded for S. duttoni in O. monbata. The main point may, however, be now regarded as established that lice (both P. vestimenti and P. capitis) transmit relapsing fever and are presumably the ordinary vectors in most parts of the world. These discoveries are naturally of the greatest practical importance, in view of the prevention of relapsing fever.

[The following extract from the article on boiled milk is interesting in view of the fact that in China we are practically compelled to rely on boiled and tinned milk for fear of infection from raw milk procured from native milkers. En.]

BOILED VERSUS RAW MILK.

An Experimental Study of Milk Coagulation in the Stomach, together with Clinical Observations on the Use of Raw and Boiled Milk. By Joseph Brenne- mann, M.D., Chicago.

Milk, alone of all foods, enters the stomach a liquid and becomes there a more solid food. This hidden and insidious solidness, if I may use the term, is peculiarly characteristic of raw cow's milk, as compared with boiled cow's milk, or human milk. The housewife and the dairyman are practically familiar with the fact that boiled milk forms a different curd from raw milk. We, on the other hand, have quite ignored the fact that raw and boiled milk are not identical foods. If we have thought of it at all it has been rather from a bacteriologic than from a physiologic point of view. And yet boiled cow's milk forms in the stomach, as does human milk, nearly a liquid food; while raw cow's milk, as I shall hope to dem-
The China Medical Journal.

... is not even a soft food, but a solid food, so solid, in fact, that, unless modified in some way and given in careful moderation, it commonly forms hard masses that pass undigested throughout the whole alimentary tract and appear as hard curds in the stools.

It is exactly in these hard curds that one has the most tangible evidence that raw and boiled milk are not interchangeable clinical and experimental factors... After being impressed again and again by the striking differences in the behavior of raw milk and boiled milk, first in the clinic and then in laboratory and stomach experiments, I cannot help feeling that other differences in clinical results will be cleared up as in this case, if we have in mind that raw milk and boiled milk are not identical foods.

In the former paper I offered as an explanation, as did also Ibrahim, for the invariable occurrence of these hard curds when enough raw milk was fed, that, while boiled milk formed fine soft curds in the stomach, raw milk formed large hard curds that under given conditions would be passed through the whole digestive tract before they were completely digested...
An exhaustive analysis of the whole subject has recently appeared by an English student, Lane-Claypon, who sums up the whole matter in the end by saying that "such small differences as have been found in the nutritive value of raw and boiled milk have been in favor of boiled milk." While this method of studying the subject is not of great value, nevertheless one must admit that there is not one particle of real evidence that babies in general do less well on boiled than on raw milk.

2. Hardly a single modern textbook in English, German, or French even mentions boiled milk as a factor in producing rickets, and the whole question would long ago have died a natural death but for the alderman and the philanthropist.

3. Scurvy, that rare, easily recognizable, and promptly curable condition, is probably undeservedly more responsible than anything else for the present strong prejudice against heating milk. The fact that scurvy is commonly associated with the prolonged use of a dead food has led us to blame all dead foods, without careful discrimination as to the nature of the food in other respects. The German and French writers do not consider boiled milk an important factor, but rather conserved and canned foods, or milk boiled for a long time, and even treat scurvy with milk that has been boiled only a short time. . . . I cannot refrain from quoting at this point the impressive words of one of the greatest French masters. Budin in 1905, after years of extensive experience with undiluted sterilized milk, says:

"So called whole milk dyspepsia is absolutely unknown to us . . . . Neither do we encounter rickets . . . . Since all of our milk is sterilized we see practically no manifestations of tuberculosis. As to scurvy, concerning which so much has been said in recent times, we have up to the present seen not a single case."—Journal Am. Med. Ass’n.

**CLOTHING IN THE TROPICS**

In view of all the conditions to be fulfilled, Professor Gibbs has well characterized the most desirable clothing as that which, in the sun, will cast a shade on the body without hindering the air circulation and heat radiation. The efficiency is increased if a color is used which will permit a minimum of heat absorption. The ideal condition, says Gibbs, is fulfilled by a large white umbrella lined with a shade of green that will be agreeable to the eyes.

The dress will appropriately be white. In place of the heavy helmet often seen, large-brimmed ones of material light in color and weight should be substituted. They should be fixed up and away from the head to allow a circulation of air. The notion that a thick material will exclude injurious light rays which cannot be stopped by ordinary opaque material is now known to be without justification. The specifications for the other articles of apparel are fairly evident, thinness of texture and perviousness to air currents being essential.—Journal Am. Med. Ass’n.
AN ECHO OF THE CONFERENCE.

Dr. R. T. Shields, in the course of a letter relative to the Peking Conference, closes with the following summary of the situation.

"To sum it up, the opinion was that by co-operation and concentration, the missionary body in China should seek to conserve the results of medical missionary work by establishing first class medical schools, not to train all the Chinese desiring to study medicine, but to serve as examples and models as well as to train properly qualified physicians for mission hospitals, government employ, and private practice. We are living in a time of tremendous change in China. The East is hustling. No one can tell how long it will be before the Chinese Church can stand independent of foreign support. The day is coming, and the sooner the better, when the necessity for sending foreign missionaries to China for evangelistic work will have ceased. The evangelists are working with this end in view. They are preparing men to whom they can turn over the duties and responsibilities of the leadership of the Chinese Church. The question comes to us: What is to become of medical missionary work? The medical branch of the mission work may be said to have a temporary and a permanent value. As a door-opener, especially in the past, its position was unique. But this function of the medical work is necessarily but temporary, and in a large part of the field to-day, the medical missionary is not really needed in order to open the way for the evangelists. Suppose we should continue the policy of opening hospitals with foreign money, and manned by foreigners, without emphasizing the need of properly trained Christian physicians to whom we can turn over our part of the missionary work? What will be the ultimate result? When the time comes when foreign medical missionaries will be no longer needed, what will become of our Christian hospitals? What will be the permanent value of our work? Men half trained in medicine, earnest Christians though they may be, will not be able to hold their own and to take a leading position in the future medical profession of China; for we can not doubt that increasingly more and more foreign-trained physicians will return to China to practice their profession; and the Chinese government, though at present it has scarcely a school worthy of the name "medical college," will, as soon as it is able, establish properly equipped colleges. The well-trained men will dominate the field, and the poorly trained men will be pushed aside. We can scarcely hope that the spiritual influence of Japanese-and-native-trained physicians will be of a high order. Just at present we have an unparalleled opportunity, such an opportunity that has come to a body of missionaries but once in the history of missions. As far as we can see, we have the chance to impress the stamp of Christianity upon the medical profession of the largest nation on the globe. How are we to meet this opportunity with its heavy responsibility? It is only by co-operating and concentrating that we can establish schools which will be efficient and worthy of the name of the Christian Church. Men
trained in such schools will be able to efficiently carry on mission hospitals and to hold professorships in mission and other colleges, as well as fill positions of responsibility in government employ and private practice. The ideal to be aimed at is the training of Christian men who shall gradually replace the foreign missionary in medical as well as educational and evangelistic missionary work. The question of co-operation with the Chinese in the management and financing of our institution was discussed at the meeting. This is a very important point, and I think the time has arrived when we should seriously consider it and take such steps as may seem wisest under different local conditions.

I hope that the missions and the home Boards, and the great body of the supporters of mission work may realize the importance of medical education before it is too late. The field is practically unoccupied at present. Let us put our men and our money where they will count for the most in the establishing of the Kingdom of God in China.”

Dear Mr. Editor: I wish, through your columns, to protest strongly against the wording of Clause 7 of the C. M. M. A. resolutions, sent from the Peking Conference to Dr. Mott, and the Home Missionary Societies. I well know that the spirit and meaning behind the clause is quite right. It is a pity, however, that the clause, as worded, should have gone out to the world as the same and deliberate judgment of such a body of men and women.

To say that the consecrated and fruitful labours of many devoted medical missionaries, who have worked in isolated posts, and with inadequately equipped hospitals, “is waste of effort and money, as no efficient medical missionary work can be done on these lines” is both unjust and untrue.

That waste of effort and money may be, and probably is, involved in such work possibly no one will deny. And further, the highest grade of professional work cannot be attained under such conditions.

But the highest grade of professional work does not necessarily mean the most efficient medical missionary work—in fact, probably the most efficient medical missionary work in the past has been done under just such conditions—and who will gainsay that God’s rich blessing has not rested upon such work?

I fear the clause will give some heart pangs to many in the vanguard of our work and may tend to mislead those who have been directing from the home base.

I am, etc.,

Cecil J. Davenport.

REVISED LIST OF MEMBERS.

A new list of members of the Association will soon be prepared. Will all members who wish any corrections as to name or address, etc., to be made, please notify as soon as possible the secretary

Dr. H. H. Morris, 4 B Minghong Road, Shanghai.
A Nobel Nursery Carrel.

There was a man in our town,
And he was wondrous wise:
Without the aid of bramble-bush,
He scratched in other eyes.

His skill was such that he could say:
"Your liver needs a rest;
But Peter Smith's I'll give to you,
For his has far more zest."

"And Peter better can afford
To idle now than you;
Your worn-out liver he will make
Perform the work of two."

"Come, have your veins anastomosed
With arteries of youth;
I have a fine assortment now,
In storage cold, forsooth!"

"Too bad your pup was hurt; my stock
In veins of dogs is low;
But never mind—these kitten veins
Are warranted to grow."

"You have pneumonia, my friend,
Both lungs you now must spare;
By luck, upon my shelf, I have
An extra-healthy pair."

"I notice that a leg you lack;
I'll freshen up the sever,
And graft another on at once—
You'll walk as well as ever!"

And now, no wonder, when we search
Our famous, great, or rich,
We look them up no longer in
Who's Who, but in Who's Which!


Personal Record.

BIRTHS.

At Philadelphia, Penn., on December 20th, 1912, to Dr. and Mrs. J. C. McCracken, a son, Josiah Calvin, Jr.

At Suifu, Szechwan, on February 24th, to Dr. and Mrs. W. R. Morse, A. B. F. M., a daughter, Marjorie.

At Shanghai, on April 6th, to Dr. and Mrs. Harold H. Morris, a daughter.

At Canton, April 8th, to Dr. and Mrs. Harvey J. Howard, a son, James Howell.

DEATHS.


At Sianfu, Shensi, 8th April, Stanley Jenkins, M.D., F.R.C.S., English Baptist Mission, son of D. Jenkins, Esq., Bristol, England.

At Wuhu, April 15th, Egerton H. Hart, M.D., of the M. E. Mission.

ARRIVALS.

March 26th, via Siberia, Miss E. Margaret Phillips, M. Sc., M.B., Ch.B., in charge of the Canadian Church Mission New Hospital for Women at Kaifengfu, formerly in charge of S. Agatha's Hospital, Ping Yin.

April 9th, at Shanghai, Dr. and Mrs. Cecil Dalney, American Church Mission, To be stationed at St. Andrew's Hospital, Wusih, Kiangsu.

WANT DEPARTMENT.

[It is hoped this new departure will approve itself to the Association. Subscribers are invited to send short notices of personal, missionary, and professional "wants," free of charge. Such notices will be kept in for a reasonable time or until withdrawn--EDITOR.]

Dr. Stanley, Curator of Shanghai Museum, will be greatly obliged to anyone who will kindly send him specimens of RAPTILUS (snakes, lizards, and tortoises) addressed c/o Municipal Laboratory, Shanghai. The animals are best sent in 75 per cent. alcohol or strong samshu, or if they have remained one month in the preservative fluid they may be sent by post, just wrapped in a cloth moistened with alcohol and placed in a tin box.