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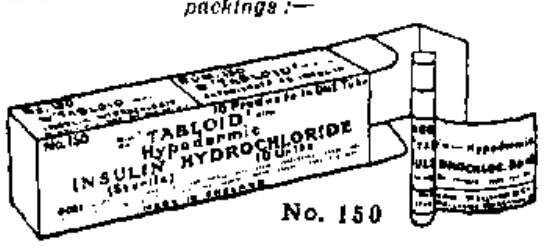

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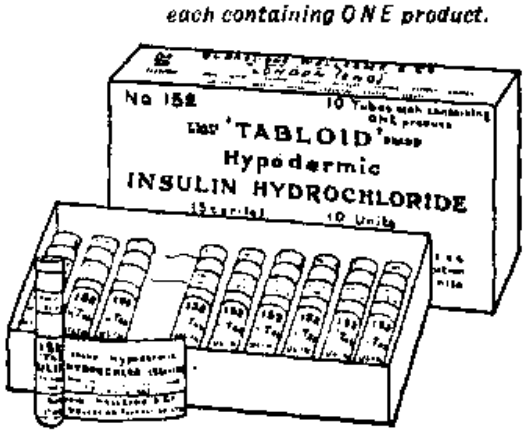

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Hongkong University Medical Society.

CONSTITUTION.

Article I.—Name and Object of the Society.

(a.)—This Society shall be called the Hongkong University Medical Society.

(b.)—The object of the Society shall be to hold meetings at which papers shall be read, or discussions held, on medical and general subjects; and to foster a spirit of comradeship and professional unity among its members.

(c.)—The Society shall produce a journal at least once a year, to be called the "Caduceus," as a record of the proceedings of the Society, and for the publication of original articles in medical science.

Article II.—Membership.

(a.)—All undergraduates, graduates, members of the teaching staff of the Medical Faculty of the Hongkong University, and local medical practitioners shall be eligible for membership of the Society.

(b.)—Other persons may be elected as honorary members at a general meeting.

Article III.—Officers.

There shall be a President, Vice-Presidents, a Chairman of Committee, an Honorary Secretary, and an Honorary Treasurer.

Article IV.—The Executive Committee.

The management of the Society shall be vested in an Executive Committee consisting of the Chairman, the Honorary Secretary, the Honorary Treasurer, six undergraduate representatives, and a graduate representative, all of whom shall be elected annually by members of the Society. Five members shall form a quorum.

Article V.—The Journal.

The "Caduceus" shall be controlled by the said Committee and shall be edited by the Honorary Secretary. The Honorary Treasurer shall be the Business Manager.

Article VI.—Amendment of Constitution.

No alteration of this Constitution, nor any addition thereto, shall be made except at a general meeting of which not less than seven days' notice shall be given.

Bye-Laws.

1.—Election of Officers and Members of the Executive Committee.

(a.) The officers and members of the Executive Committee shall be elected by ballot at the first general meeting of the academic year. Vacancies occurring between such meetings may be filled by the Committee.

(b.) The six undergraduate representatives, one for each year, are to be elected by the members of the year represented.

2.—Representation on the University Union Council.

The Chairman of Committee and the Honorary Secretary shall be the Society's representatives on the University Union Council.

3.—Conduct of Meetings.

The President, a Vice-President, or the Chairman of the Executive Committee shall preside at general meetings; or in their absence, a Chairman may be elected from among the members present.

4.—Subscriptions.

Each undergraduate member shall pay an annual subscription of $4, payable at the commencement of the academic year. Members other than undergraduates shall pay $5.

5.—Amendment of Bye-laws.

No alteration of these Bye-laws, nor any addition thereto, shall be made except at a general meeting of which not less than seven days' notice shall be given.

THE CADUCEUS.

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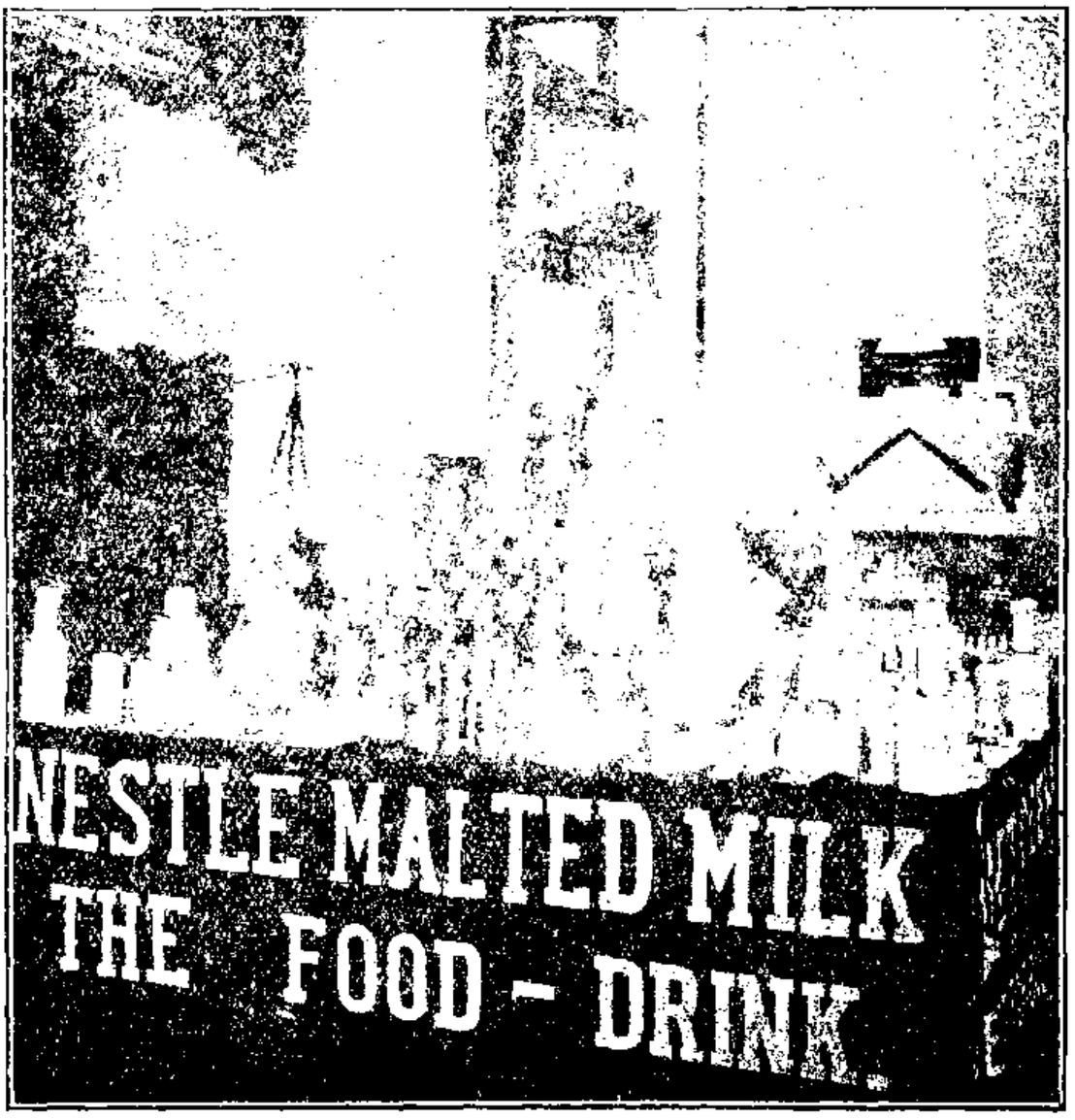

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THE CADUCEUS

JOURNAL OF THE HONGKONG UNIVERSITY

MEDICAL SOCIETY

Vol. 4 May, 1925 No. 1

All medical papers and other scientific contributions intended for the Journal, and all books for review and magazines in exchange, should be addressed to the Editor, "Caduceus," Hongkong University, Hongkong.

Changes of address of members of the Society and all business communications should be sent to the Business Manager, "Caduceus," Hongkong University Hongkong.

The Late Sir Patrick Manson and The Proposed Manson Institute in Amoy.

BY LIM BOON KENG, O.B.E., M.B., C.M., LL.D.

It is a special honour and distinction to have the privilege of addressing this distinguished gathering of the citizens of Hongkong. The speaker cannot help feeling how unequal he is to the task of rendering adequate justice to the memory of the late Sir Patrick Manson—a man of many parts, whom kings delighted to honour, and whose brilliant genius has conferred countless benefits upon his fellowmen. Sir Patrick, like the Patron Saint of Erin, was destined to be a great benefactor of mankind, and a pioneer of medical science whose labours against the fiends of tropical fevers was analogous to the slaying of the serpents in Irish bogs!

Manson was a genius, one of those rare spirits that had the gift of prophecy and the power of inspiring lesser men with the divine fervour and enthusiasm in the search for truth. In these days of democracy, we need to be strongly reminded of the plan by which God has been pleased to develop Man's wonderful destiny. Great men, seers, sages, prophets, saviours—call them what you will—coming to us with varying lights, like the stars differing in their glory, are necessary to lead us step by step towards our destined goal. These aristocrats, if I may so call them, have been essential for the building up of civilisation, and for organizing the means of overcoming the destructive forces that threaten to overwhelm mankind. Patrick Manson was one of these great men—like Pasteur and Lister—whose visions have illuminated whole realms of thought. His industry and genius have shed an imperishable lustre upon the famous British School of Medicine, already renowned from the epoch-

making labours of Harvey, Sydenham, Cullen, Jenner, Christison, Lister and a whole host of British physicians and surgeons, whose names have been immortalised on the Roll of Honour of Medical Science. Manson's discoveries have completely revolutionised the science and the practice of modern hygiene, and have conferred untold blessings upon mankind all over the globe. Therefore should my appeal fail to arouse your interest, in the subject, to create an everlasting gratitude to our benefactor, and to instil you with a determination to fulfil your duty to co-operate in the building of a permanent memorial by which his great work may be continued for the glory of the British name, and the good of mankind. I beseech you to attribute my failure entirely to my poor ability for the cause is worthy of the best efforts of all Britishers, especially those in the Far East and in China. The life and work of Manson is always a theme of absorbing interest, almost like a chapter of the Arabian Nights in its fascinating illustrations of the wonders that surround our lives all unobserved, and certainly worthy of an epic, for his achievements entitle him to rank as one of the greatest benefactors of mankind.

1. The Man.

Sir Patrick Manson was an Aberdonian Scot, born in 1844. He came out first to Formosa and then to Amoy in 1871, where he acted as Medical Officer to the Chinese Customs, and physician to the European community. From the beginning of his long career, he had the great quality of endearing his fellow workers to himself. He was ever keen to safeguard their welfare. He used to teach his Chinese assistants to read English, and he was among the first in China to accustom the Chinese to the use of the microscope. The natives of Amoy still relate stories, handed down by friends, of the mosquito-hunting doctor, who had a great reputation for removing a certain kind of swelling which was common in Amoy. He was a sympathetic and kind man, and his assistants and helpers simply adored him. He was a popular and influential man in the community. He did more work than any other inhabitant of that sleepy port, for he was making important observations at night, and was noting the nocturnal habits of the Filaria in the blood of man.

His assistants carried on medical practice in Amoy, and helped materially to break down native prejudices against the use of Western medical science.

When Manson left China, he had already established a reputation as a scientific physician and was recognised as a sympathetic friend of the Chinese people. The same great qualities that endeared him to people in China, won for him friends and fellow workers in Hongkong and in London. He

had the wonderful power of inspiring young men with great enthusiasm in the projects which he had in view. This was mainly due to the logical consistency of his thoughts, and to the great precision with which he presented his views. Without being dogmatic and despotic, he was able to carry out his schemes though faced with obstacles and difficulties and in spite of an under-current of septicism which his views at first encountered in nigh scientific quarters.

It was typical of the man that he hardly even thought of himself or his own interests. His entire mind was concerned with the objects of his enquiry, and his whole attitude was to protect and assist the younger workers who were inspired by him, to carry out researches far afield. Sir Patrick was patient and fastidious in making notes of small details. His advice and directions to his co-workers were of infinite help to them. We have the eloquent testimony of many, that without Manson's clear vision, the mosquito-carrier theory could not have been so readily solved. Both Dr. Sambon and Sir Ronald Ross have spoken of the sterling qualities of Sir Patrick as a leader and a colleague.

He was a man of simple ways. His domestic life was entirely happy and to the end of his days he was surrounded by admiring friends, who regarded him with deep esteem and warm affection. In the zenith of his fame, many honours from Courts and Academies were showered upon him, but he remained to the last the unostentatious student of Nature, the kind physician.

He was philosopher enough to be able to find solace in the ancient art of angling. Above all, he was human enough to enjoy a glass of port, and to like his pipe. No wonder that when the end came peacefully on the 9th April, 1922, at the ripe age of 77, his loss was mourned by a host of friends and admirers in the British Empire and by the entire medical profession the world over.

2. Physician.

From the very first, Manson proved himself to be an ideal physician. He had the instincts of a naturalist and was keen to search all things to explain what was obscure. Half a century ago, almost nothing definite was known about the deadly tropical diseases, which had seemed to be a perpetual bar to the entrance of Europeans to the tropics. Climate was then a great bugbear. The air was believed to be responsible for the transmission of infection. The word Malaria is a relic of that sort of pneumatic pathology. Beyond using a few empirical recipes for the treatment of fevers and diseases of the intestinal canal, the medical practitioner could do very little more than the Asiatic practitioners of ancient systems of medicine.

Besides his keenness to probe to the bottom the causes of disease, he was kind and sympathetic and was at once able to inspire the confidence of his patients. It was therefore only natural that his practice was very successful. His interest in his patients made him anxious to do his best for them in every way. Thus while in Hongkong, he became the most active agent in establishing a dairy farm, and was thus instrumental in providing the community with pure milk and fresh dairy products. With our modern knowledge of the role of vitamins in the growth of children in towns, we can better appreciate the services Sir Patrick incidentally rendered to this city.

It is needless to say that he was a careful clinician. His observations were exact. His methods of treatment were simple and rational, recalling in fact the manner of the Father of Medicine, Hippocrates of Cos. Although greatly handicapped by the absence of literature and of an adequate laboratory he managed, with the crude means at his disposal, to bring the light of scientific observations to bear upon the work at the bed side. His success ought to be a perpetual stimulus to those of us who have to work as he did in out-of-the-way places. There was nothing he touched that he did not help us to understand better. His clinical experience was embodied in his famous treatise on Tropical Medicine, which has helped materially to make the work of medical practitioners more rational and more scientific.

3. Scientist.

Manson realised the need for an institution in London to co-ordinate the findings of isolated workers in different parts of the Empire, and also to give the opportunity to physicians on furlough to revise their knowledge as well as to learn the latest discoveries in medical research. Fortunately Joseph Chamberlain was at the Colonial Office and with his help, Manson was able to establish the London School of Tropical Medicine, which with its sister institution in Liverpool, quite revolutionised our knowledge of tropical diseases. Though many capable and energetic workers were brought together, it was the scientific knowledge and the energy and the spirit of Manson that inspired the organisation and gave it the prestige which it so richly deserves.

He taught with great acceptance and was the means of inspiring many great workers. When he settled in London in 1889, he had already established the part played by the mosquito in the spread of the diseases caused by the minute blood-worm known as the *filaria bancrofti*. By closely following the same train of reasoning, he came to the conclusion that the mosquito must be the insect intermediary host in the spread of malarial infection. The premises he had collected justified the in-

duction, which his prescience enables him to preach without any dubiety. The medical world, however, was not so easy to convince. He had to fight incredulity in medical quarters, but facts soon were found to substantiate his views. Those who took the trouble to verify the facts were soon convinced that a great light had been shed upon the pathology of infectious diseases.

When he returned to London, Manson began to study the problems of malaria infection, and he was led by a train of close and careful reasoning to the conclusion that as in the case of filaria, the mosquito must be the insect host of the malaria parasite. The wonderful scientific prescience of Sir Patrick Manson was shown by his correct interpretation of the significance of the formation of flagella by the parasite when removed from the human body. Laveran who first discovered the parasite in Algiers had noticed this, which many thought was the sign of commencing death of the organism. But Manson believed that flagella were the appendages of the parasite in its new life outside the human body. The researches of Sir Ronald Ross have completely confirmed Sir Patrick Manson's intuitive interpretation. Now in 1894 Sir Patrick Manson propounded his hypothesis of the mosquito acting as the vector of the malaria parasite. Sir Ronald Ross has referred in explicit terms to Manson's hypothesis as "a remarkable induction—a chain of reasoning from which it was impossible to escape." Soon after, Major Ross went back to India to test his hypothesis by working along the lines indicated by Manson. After much difficulty, due partly to red-tape stupidity, the genius and industry of Major Ross triumphed, and the whole life-history of the sexual phases of the malaria parasite in man and birds was observed, and furthermore, the role of the mosquito known as the Anopheles was thoroughly established. Ross discovered that the stomach of the humming mosquito—the culex type—digested the parasite and therefore did not convey the disease. The conjugation of sexes in the stomach of the Anopheles results in the formation of a minute vesicle in which are developed spicules or needles which are the spores of the parasite. These needles pass from the stomach to the salivary glands of the mosquito, and thence are injected into the person bitten. In this way, the infection is spread by the Anopheles.

Sir Patrick also devised expeditions to prove the mosquito theory to the public. But in reality, the theory had been firmly established by the discoveries of Sir Ronald Ross. Still the success of the experiments conducted on the Roman Campagna and in London, compelled the attention of the public.

It is needless to tire you to-day with a description of all the

worms and parasites which the industry of Sir Patrick has added to our knowledge.

But we must acknowledge that the insect theory of infection advanced by Manson very soon had far-reaching consequences. In the Panama Region, the faithful band of American experimenters in 1900 grappled with the fiend of yellow fever, and proved by the heroic sacrifices of many noble lives that the brindled mosquito was the carrier of the infection and not clothing or any other materials in contact with the sick.

In India, researches into the connection between the rat and plague, naturally drew attention to the flea. Sir Patrick Manson gave an illuminating analogy by comparing the rat to the wood and paper under the coal in a fire-place used in kindling a fire. The bacillus being the match, if applied directly to the coal, the light will fail to flare up, but it will burn the wood and paper, whose burning will soon involve the coal.

Thus we can see how far-reaching were the consequences of this epoch-making discovery of Sir Patrick Manson.

4. The Administrator.

It is here only necessary to say that when called upon to act as medical adviser to the Colonial Office, he had attained a great scientific eminence, and that he brought to bear upon his official duties the vast practical experience of men and affairs, gained by successful work in the East and in London. The London School of Tropical Medicine was the outcome. Of course he was helped by many able men, and this has always been the secret of success of all men of genius. To this great Temple of the New Aesculapius flocked men eager for knowledge from all parts of the world, to sit at the feet of the great master, and to get initiated into the mysteries of preventive methods which are to make the tropics safe for civilisation.

These are the reasons which fully justify us in calling Manson the Father of Tropical Medicine.

In admiration of the man and his work, and in gratitude for the beneficent results of his scientific teaching, a few people in Amoy prompted by the speaker have come to the conclusion there should be a memorial in Amoy of Patrick Manson, who had done so much work for science in that isolated port. Manson's famous treatise on the Filaria, and his memorable reports thereon had long ago made Amoy infamous in a sanitary sense. The place has remained a veritable sink of noisome filth, if not a sink of iniquity. The port has a magnificent harbour excelled in China only by the wonderful waterway of your great city. It has a great future as a business

centre, when the trunk railroad reaches the provinces in the hinterland, and when China begins to work her minerals in a business-like fashion.

Meanwhile it is the witch's cauldron in which are brewed, if not the typhoon, certainly a number of pestilences, which have the habit of spreading everywhere. It is exactly the sort of place for a medical garrison to carry on the work started by Manson.

Now why should this appeal be made to the British medical and business men. Manson's work in China should certainly be commemorated. The public may not know but it is a sad fact that the Chinese hospital, looked upon as a British hospital, in which Manson worked and gained his clinical experience was allowed to deteriorate, until it was closed down a few years ago, and the land was sold. The bag of cash is still in the keeping of a British committee. The Japanese have raised a large hospital with a big staff in Kulangsu, and the American Mission has a large hospital increasing in extent year by year. But alas, the hospital which British pioneers started and which did an immense amount of good, was permitted through a short-sighted policy to decay and break up through the want of a little support, although there was always a "free doctor" available either from the Missions or from the Chinese Maritime Customs.

Here then is a splendid opportunity to do something to restore the lost prestige. The closing of the hospital was talked about among the Chinese for a long time. It was incomprehensible. It is now time to start a Manson Memorial in Amoy. To-day the people are awakening. Through the munificence of Mr. Tan Kah Kee, a merchant of Singapore, the University of Amoy, was founded three years and a half ago. It has already the faculties of Arts and Science. If a Medical Research Institute be made a part of the Manson Memorial, the University can house the Institute if the funds we collect do not suffice for erecting a special building, and in any case, the University departments of Botany, Bacteriology, Zoology and Chemistry will co-operate to make the work of the institute a success.

The old hospital should be rebuilt. I believe the Chinese will heartily co-operate. In any case, I hope you will assist us to collect funds for the Manson Memorial, to carry on the work which Manson loved. It is a great philanthropic work. The only practical way in which a thing like this can succeed is for some rich man interested in the project to lead by a handsome donation. Will not some of the merchant magnates who love Manson's memory show the way?

It is yet too early to speak of the form which the Memorial

may take, for all will depend upon the funds that can be collected. In these days, there are so many calls which are very pressing so that one hesitates to start another appeal for funds. At least there should be a Memorial Hospital, to replace the old British Hospital, which has unfortunately been allowed to lapse. A General Hospital in Amoy will be a great boon to the port, and in connection with it, can be run an isolation ward for passengers brought in by ships. The British Consul and the Port Health Officer are keenly interested in the Hospital scheme. The British Consul is calling together a Committee to see what can be done. In due time, a proper appeal will be made to the Medical Association, the different colonial governments and to the general public.

The Port of Amoy has many attractions to the medical scientist and especially to the zoologist. It is the home of the Lancelet the missing link in the vertebrate evolution from the worm. A research institute there will be sure to afford plenty of scope for furthering the cause of medicine. Should another Manson turn up, he would not need to suffer all the handicaps that hampered the work of the pioneer.

I hope that I have proved that Amoy is inseparably connected with the fame of Manson, that it is still a hot-bed of infections and other diseases, and that the British should help to build there a Manson Institute, if for no other reason than for the sake of British trade and British prestige which in some way are the only things that appeal to the British. This, of course, is a slander spread by enemy propaganda. The British public is slow to move and slower to decide upon anything, but once convinced that there is the call of duty and righteousness it has never yet failed to act.

With this conviction, a few Britishers in that plague-infested spot who have for so long reflected the lustre shed by Manson's genius, have made this appeal to continue the great work so well started by Manson, so that the early British work in this port may be restarted under British auspices.

Thus by one stroke of policy, two ends may be gained, the furthering of British friendship, and the perpetuation of the memory of a great British Scientist for the common benefit of the world.

Some Points of Importance in Dealing With the Leprosy Problem.

BY ERNEST MUIR, M.D., Ch.B., F.R.C.S., LL.D.

Leprosy, though seldom fatal, is far more dreaded than other diseases with a far higher mortality. Indeed fatality is not always the best criterion of the gravity of a disease. We may even say that leprosy is feared on account of its long duration and many of its victims would look upon death as a welcome relief from their sufferings.

One of the greatest difficulties in dealing with the leprosy problem in the past has been the lack of a clear understanding of the nature and course of the disase and the various factors which are responsible for the great varieties and types which are found. The object of the present paper is to elucidate some of these factors and suggest a method of classification of various types, founded upon a scientific basis.

There are four basal principles upon which this classification is founded:—

1. That leprosy is a self-healing disease.
2. That while the disease is found principally in (*a*) the connective tissues of the skin and mucous membranes and (*b*) the connective tissues of the peripheral nerves, the fewer the bacilli and the less virulent the disease the greater is the proportional affection of the peripheral nerves; while the more virulent the disease and the larger the number of bacilli, the greater is the proportional affection of the skin and mucous membrane and the less are the peripheral nerves affected.
3. That the course of the disease and its virulence are chiefly dependent on the general resistance of the body and on the presence of certain predisposing causes.
4. That the intercurrence of certain reaction and fever producing factors after a certain stage in the disease frequently leads towards more or less rapid recovery.

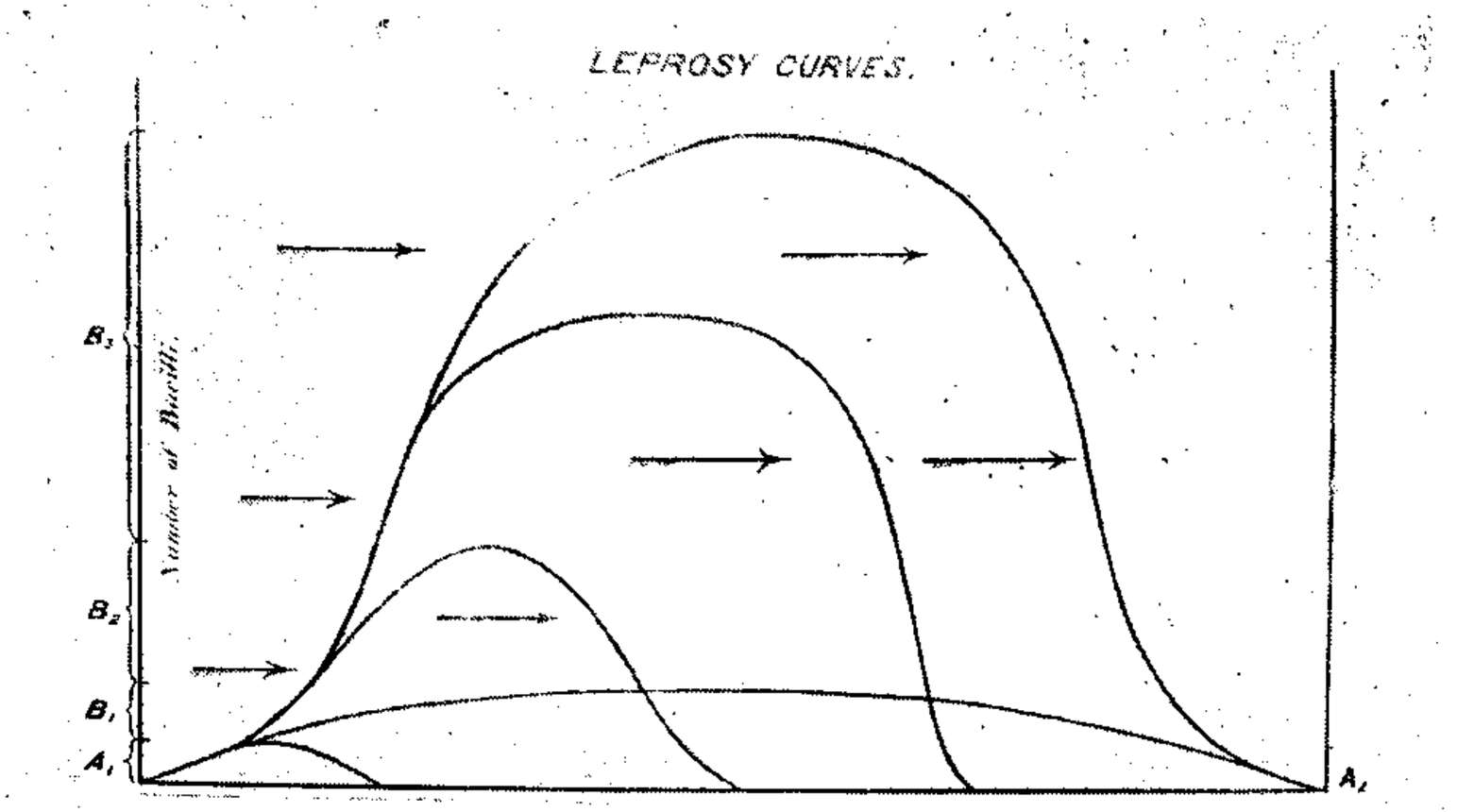
I shall deal with these four principles seriatim.

The course of a typical case of leprosy may be illustrated by a parabolic curve, the vertical indicating the number of bacilli in the body and the horizontal the duration of the disease.

The less virulent the disease the flatter the curve, and the more rapid the increase of bacilli the more abrupt the rise of the curve. After reaching a certain height the curve again descends and comes to the base line, the bacilli having all died out of the body. The completion of the curve may of course be interrupted by the intercurrence of some fatal complication. In this way leprosy may be compared to more acute self-healing diseases, only that, whereas in such a disease as enteric fever the duration may be 21 days, the duration in leprosy may be 21 years. It is not infrequent, however, that the whole course of the active signs of leprosy disappear within a few years or even within a few months.

Dealing with the second principle enunciated,—as the bacilli are few in number in cases represented by a flat curve, such cases are chiefly of the nerve type, the disease being confined to the peripheral nerves and not found to any great extent in the skin. Indeed so few are the bacilli in the skin that they cannot be found on bacteriological examination and such cases are diagnosed from nerve signs such as anæsthesia and nerve thickening. Moreover, even in more virulent cases in which there is a more abrupt curve, there are generally nerve signs at the beginning before the bacilli have had time to multiply to such an extent that they can be found on bacteriological examination of the skin or mucous membrane. So too towards the end of the descent of such cases the bacilli are again reduced in number and the nerve signs tend to become more evident once more, only that, whereas at the beginning of the curve the nerve lesions were chiefly in the form of circinoid, spreading patches, at the end of the curve they are more of the "glove" or acroteric variety due to pressure of granulomatous tissue on nerve fibrils or to contraction of new-formed fibrous tissue within the nerve trunks or their branches. We may therefore call the lower part, through which the curves have to pass, the nerve area, or indicate it by the letter "A," and call cases which fall within this area "A" cases, those that are early being called "A1" or primary nerve cases and the more advanced "A2" or secondary nerve cases. All "A" cases are diagnosed from nerve signs, superficial anæsthesia (as indicated by asking the patient, when blindfolded, to point to different areas of the body touched) being one of the most useful, and nerve thickening being another.

Above the nerve area is the skin area, indicated by the letter "B." In such cases lepra bacilli can be found on careful bacteriological examination. If the bacilli are few in number the case falls into the subdivision "B1," cases with very large numbers of bacilli fall under "B3," and between these two it is convenient to have a third subdivision, "B2."



A=*Nerve (anaesthetic) leprosy.*
A$_1$=*Primary nerve leprosy.*
A$_2$=*Secondary nerve leprosy.*
→ =*Reaction-producing causes.*

B=*Skin (nodular) leprosy.*
B$_1$=*First stage of ditto — few bacilli found in the skin.*
B$_2$=*Second stage of ditto — more bacilli found in the skin.*
B$_3$=*Third stage of ditto — very marked, generalised lepromatous infiltration abundant bacilli.*

A typical case of considerable virulence may thus pass up through "A1," "B1," "B2," "B3," and again descend through "B2," "B1," and "A2." On the other hand where the virulence is very great the line may ascend perpendicularly through one or other of these areas; for instance "A1" may be passed through without any nerve signs having had time to appear. It is also not uncommon, when the descent of the curve is very rapid, to find lesions indicative of "B3" in the face and those indicating "A2" in the lower limbs. Such cases may be called "B3"-"A2." I have seldom been able to find lepra bacilli in the mucous membrane of the nose without at the same time being able to find them in the skin of the face.

I have no satisfactory explanation to offer as to why the peripheral nerves should be more affected the fewer the number of bacilli in the body. The general principle has always held good in my experience though there are apparent exceptions, as when a case has lingered for a considerable time in the nerve area and acquired considerable permanent nerve lesions due to destruction of nerve axis-cylinders and has then passed into a steeper curve, the baccilli increasing rapidly in numbers due to the disease having taken on greater virulence. Such cases and those described above as "B3"-"A2" constitute the types commonly known under the generally accepted classification as "mixed" cases.

The next question to be considered is that of virulence. It is generally accepted that the lepra bacillus is one of low virulence, and yet there is obviously a vast difference between cases that remain all along in the "A" area and those that soar up into the "B3" area. It is not impossible that this difference may be due to a certain extent to such factors as the strain of bacillus, the manner of its entrance into the body, the number of bacilli introduced at any one time, or the frequency or number of reinfections. All of these would indicate differences connected with the invading organism itself. But I think there is good reason to believe that, while such factors as the above may not be unimportant, the main differences in the virulence in various cases are due not so much to direct variations in the invading organism as to the degree of natural resistance of the host and the presence or absence of certain predisposing causes which affect that resistance. In other words, while the nature of the seed and the manner in which it is sown are of importance, the nature of the soil and its preparation for receiving the seed are of far greater importance.

Such predisposing causes may be classified as (*a*) certain diseases, (*b*) diet and the general state of the gastro-intestinal tract and the portal system, (*c*) exercise and the mental and physical tone, climate and sanitary and social conditions.

There is not room in the present paper to do more than glance at these different factors. The chief diseases that predispose to leprosy are syphilis, acute febrile diseases, helminthic infections and the dysenteries; but any accompanying disease, which lowers the resistance of the body, may be classified among these causes. It may be objected that leprosy is in no way different from other diseases in which the degree of resistance determines the infection and regulates its virulence. The difference is more one of degree than of kind. Leprosy differs from most other diseases in the lowness of its virulence, and in the fact that it is not, as far as we know, directly inoculable in the lower animals. There is reason to think that even in healthy human beings leprosy would not gain a footing, and that when the disease does develop, it is the result of considerable or prolonged reduction in the resistance.

It has long been held that diet is a most important matter in the infection and the virulence of leprosy. The late Johnathan Hutchinson even held that it was the only cause, and that the lepra bacillus was present everywhere and would produce leprosy if only the dietetic conditions were suitable. This theory is no longer believed as set forth by its author, but there is no doubt that stale, badly preserved fish or other food, overcooked food, a disproportion of carbohydrate, protein or fat, the absence of vitamines, chronic starvation or on the other hand habitual overeating, all these or any combination of them can frequently be traced as predisposing causes both in the infection and in the virulence of the type of the disease.

In the same way constipation, derangement of the functions of the liver and other conditions which favour the absorption of toxins from the portal tract, are all important factors.

Not less important are the general habits of the patient. We notice a very distinct difference in the improvement made by those who take vigorous exercise and keep their minds and bodies active and those who do not. Climate has been shown by Sir L. Rogers to have a most important bearing on the endemicity of the disease, leprosy being far more prevalent in climates (whether hot or cold) which have a high humidity. Social and sanitary conditions have also to be considered. There is no doubt that the social ostracism which so often results when a patient is known to be suffering even from the early signs of leprosy, and the line of events which naturally result from that ostracism, play an important part in lessening the chance of recovery and increasing the gravity of the infection. Leprosy is a disease of a certain stage in social development. It is not endemic among the most primitive people or among the most highly civilised. In India the overcrowding caused by the joint family system, the overworking of some and the excessive leisure of others are often traceable as causes.

It is seldom that one comes across a case of leprosy in which one or more of these predisposing causes does not appear on careful examination and their importance in the prognosis and treatment can scarcely be exaggerated. It is useless, for instance, to treat a case of leprosy in which syphilis also is present, without first eliminating the more active and more curable disease. The mere elimination of syphilis will often cause rapid improvement in the leprous signs. We have no specific as yet for the treatment of leprosy which will enable us to ignore these other factors and I hold that attention to them should come in the first place and special treatment only in the second place.

These predisposing causes may be represented diagramatically as forces, indicated by horizontal arrows, which, when they meet a curve on the ascent, cause more rapid ascent. A more or less flat curve may thereby be transformed suddenly into an abruptly rising curve. Frequent examples of this have been noticed in which the only sign of leprosy had been a small, anæsthetic patch, which has been more or less stationary for some years: the supervention of such diseases as syphilis, kala azar, typhoid, malaria or influenza, has resulted in a rapid spread of lesions all over the body.

The fourth principle which has been enunciated is shown in cases which have reached the top of the curve. After that point, the effect of the intercurrence of any febrile disease has in our experience generally been beneficial: new, erythematous, slightly raised macules, up to 1/3 inch in diameter, appear; but they disappear again in a few days and do not cause spreading lesions as they do before the top of the curve has been reached. The improvement made in even a short time in such cases is very marked.

Similar effects can be observed when any septic process, such as a trophic abscess of the foot or hand, intervenes, as it often does during the descent. Indeed we have frequently produced such results artificially by injecting turpentine or other irritating fluids and thereby producing either an abscess or a severe, reactionary swelling, accompanied by fever. Probably a considerable amount of the benefit derived from the injection of certain drugs in the treatment of leprosy is dependent on this same reactionary effect due to local irritation, with general, febrile accompaniments.

For this reason special care must be taken during the ascent of the curve, as, if the general resistance of the patient is low, injections may be accompanied by an increase of the disease and the initiation of fresh lesions. At this stage therefore great stress should be laid on the elimination of predisposing causes and toning up the strength, only small injections

being given until this is accomplished. We have found that abundant, vigorous exercise is most useful for this purpose; and since insisting on this we have seldom seen excessive reactions or unfavourable results, and patients are able to stand much larger doses of injections and complain much less of pain resulting from the injections.

The reactions mentioned above are probably due to the liquefaction and removal of the gelatinous-like material which surrounds the masses of bacilli in the skin; the bacilli, being set free, cause local inflammatory reaction, probably due to the chemotactic influence of the bacilli, which now come in contact with the surrounding tissues, while some of the bacilli are carried in the blood stream to other parts of the body. What will result when certain of the bacilli, thus set free, are carried to fresh areas of the skin and embolism takes place, will depend either on the general resistance and local resistance, or on the immunity that has been produced. This last factor is as a rule to be relied upon in the descent of the curve, but during the ascent it cannot be reckoned on. If these factors are sufficiently strong, the embolic bacilli will be destroyed; if not, fresh lesions will be formed and the disease will in this way be extended.

In the earliest stage, on the other hand, the danger of extension is not so great, as the bacilli are few in number, and large injections may be given without fear, though the same precautions for raising the resistance are necessary. Probably in this stage the gelatinous material has not yet formed to any great extent, and it may be that this is the cause of the nerve signs in such cases, the bacilli being able possibly to secrete a toxin that has a selective power for cutaneous nerve endings.

Having then considered these four basal principles, there are a few points with regard to treatment which it will be well to mention. It seems to be generally agreed that the oils derived from various Taraktogenos and Hydnocarpus trees (which are commonly known as chaulmoogra oil, and which have two properties in common—that they are largely composed of unsaturated fatty acids and that they rotate polarised light some 45 to 55 degrees to the right) are the most effective special remedies in leprosy. As these oils were found too painful to inject in the form of oil, various preparations were made so as to secure a form in which the drug would be less irritating and more readily absorbed. Chief among these were the esters and the sodium salts. Great emphasis has been laid on obtaining as pure a form of the esters as possible by distilation, but we have found lately that undistilled esters are less painful and more readily absorbed than the distilled. Further investigation has shown, however, that, when the oil is cold-drawn from fresh

seeds of Hydnocarpus wightiana, which are still clear and transparent and have not had time to become oxidised, it is less painful even than the esters on injection and can be given in larger doses; and injection into rabbits has shown that it is much more quickly absorbed. We have not yet had time to test it off sufficiently against esters as regards its therapeutic efficiency, but so far as we have seen it seems not to be inferior and it may be considerably superior.

We find that subcutaneous infiltration is the best method of injection. The extensor surfaces of the four limbs of the body are divided into eight areas, which are taken in succession, there being eight injections given every month. With three punctures of the needle it is possible to give 12 injections, not more than one cubic centimeter being given at any one point. In this way a month passes before there is any danger of a second injection being given at any one spot. By this method also there is practically no danger of the needle puncturing nerves or blood vessels. Absorption is quicker as the drug is distributed over a wider area.

We also find that a useful subsidiary form of treatment is to paint the various lesions, whether they be macular or more deeply granulomatous, with solutions of trichloracetic acid. For most lesions a 1 in 4 solution in distilled water is most convenient. Each lesion should be painted and allowed to dry. If on drying there is a slightly white appearance, as if the part had been lightly sprinkled with a white powder, then sufficient application has been made. If this slight whiteness should not appear on drying a second application should be made and if necessary a third. Applications may be made by painting with a match covered with cotton wool. It may be found more convenient to paint thick nodules with a 1 in 1 solution.

In India an extensive campaign for the relief of leprosy has been begun, and it may be of interest and use if the methods are mentioned which it is proposed to use.

As it is calculated that there are from one half to one million lepers in India, it is obvious that all or even a large proportion of these cannot be segregated in institutions. As we find, however, that most cases are capable of being diagnosed in the "A1" stage from clinical signs before the bacteriological examination is positive and therefore before the patient has become a danger to the community, we are laying most stress upon early diagnosis and early treatment in out-patient skin clinics. This will enable the patient to remain in his own home, and, as we find that almost all cases in this stage will, if treated efficiently for a sufficiently long time, lose all active signs of the disease, we have a means of cutting off the disease at its root and removing a future supply of possible infectors.

The proposed programme may be classified under six heads:—

1. The appointment in each of the nine provinces of an expert, who shall be a man of energy and personality, and who shall be responsible for the initiation and organisation of leprosy work in the province.
2. The training of doctors and students by the expert.
3. The establishment of out-patient skin clinics in which suitable cases may be treated.
4. The establishment of one or more leper colonies in each province.
5. Propaganda work:—by preparation and distribution of suitable literature, through the co-operation of educational authorities, and above all through the trained doctors, the out-patient clinics and the leper colonies.
6. Research work, which, though it is placed last on the list, is to be considered the most important of all.

As regards treatment, leper patients may be divided into four groups:—

1. Those who are bacteriologically negative and who can obtain expert medical assistance either from private practitioners or at out-patient clinics within reach of their homes.
2. Those who are bacteriologically positive, but are able to isolate themselves in their own homes and obtain local expert medical assistance.
3. Those bacteriologically, positive or negative, who cannot get efficient treatment locally; and those, bacteriologically positive, who cannot effectively isolate themselves in their own homes.
4. Those who are unable to support themselves, or whose relatives have refused to support them because of deformities, dread of the disease or other reasons.

Classes 1 and 2 should, preferably, be treated in out-patient clinics, and classes 3 and 4 in colonies or other segregation institutions.

Colonies will be situated within the province which they supply; each colony will be limited to 1,000 inmates and have a superintendent and a well-trained, high-grade medical man with at least two qualified medical assistants. Colonies will be on sites of at least 100 acres, with good land for agriculture

and the raising of cattle, etc., and a sufficient water supply. Inmates will be encouraged to take part in agricultural, horticultural or industrial pursuits, and provision will be made for education and practical training. Abundant suitable work and exercise will be provided and fresh vegetables and dairy produce, very necessary articles in the diet of those suffering from leprosy, will be secured by the labours of the patients themselves.

Compulsion will not be used in sending patients to these institutions, except in the case of pauper lepers and of those who persist in endangering the public by carrying on certain trades; but, when necessary, compulsion will be used in carrying out discipline within the colonies and in the early removal of new-born and symptom-free children from bacteriologically-positive parents. Cases which are bacteriologically positive or nearly so, will, as far as possible, be separated from those with the grosser skin types of the disease.

This programme has as yet only begun to be carried out in some of the provinces and it is too soon to say to what extent it will prove successful. Doubtless experience will lead to considerable modifications.

In China the conditions are in some ways similar and in other ways very different. One present difference is the absence of a stable government and a well organised medical service in China. But possibly some of the above hints may prove useful to those who are interested in the leprosy problem in China.

Relationships in Medicine Between China and the Western World. *

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As I stood on the hill above Hongkong University yesterday, I saw a small steamer set its course up the river for Canton, and thought of the long line of ships from foreign lands that had sailed up that river since the first of them came in 1516. 409 years! Portuguese, Spaniards, Hollanders, British, French, Americans and many others, all bringing the wares of a western world, bartering them for the goods of China and sailing away home. But they brought more than tangible commodities. They were the messengers through whom, for better or for worse, the people of this extreme Orient have come to know those of the Occident. The discipline and science of the West have met, along this very river, the cultural traditions and the practical philosophy of life of an Eastern nation.

Where could we meet more fittingly than on the grounds of this University to consider together some of the relationships between China and the Western world? Think of the varied quests that are luring university graduates to the Far East to-day! Commissions, educational and religious, social and economic, with joint Chinese and foreign membership, attacking the vital issues that confront the life of a nation! New books, new journals, new quest societies, constantly coming into being in an endeavour to analyze and to explain the profound questions of race contacts! A small army of Chinese graduate students, eager to gain knowledge and to use it for their native land, now in training abroad for service in government and industry, in social service and in medicine! The responsibility will rest upon us to make it easier for those who return in the field of medicine to enter effectively upon their life work. Let us seek for light on the development of the exchanges in that field between China and the world without.

SOURCES OF OUR KNOWLEDGE.

Our knowledge of the external contacts of China comes from a thousand different sources. In Chinese historic records "the world to the west" meant exactly what the words imply; Europe is not necessarily implied; but only countries to the far West. We have, in the first place, that never-failing storehouse, the dynastic histories. In each of the records of the several dynasties, 24 or 25 in number, there is a section, more or less extensive, on the foreign nations that came into touch with China during a given period. These foreigners were usually spoken of as belonging to one or another of the "four barbarian peoples"

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(四夷). Reliable references to these external contacts begin, for all practical purposes, with the Han dynasty (210 B.C. to 220 A.D.). From that time on, each period, the T'ang, the Sung, the Yuan or Mongol, followed by the Ming and the Ts'ing dynasties, gives increasing attention to foreign relations.

An even more fertile field for inquiry lies in the narratives of travellers. There were few journeys for pleasure two thousand years ago. Every expedition was undertaken either with a military object; to discharge some imperial commission; or with a definite religious purpose, as when pilgrims, Buddhists in particular, overcame countless obstacles to visit the holy places of the faith in India. Thus, in the Yuan dynasty, outside of the missions recorded in the dynastic records, we have narratives of five separate expeditions undertaken to the West; of armies on the march from Mongolia to Persia in 1219; of imperial envoys and military officers; and of the journey of Ch'ang Ch'un, the Taoist monk, who travelled from Shantung to Samarkhand in 1220.

One of the most fruitful expeditions westward was that of General Chang K'ien, sent out in 128 B.C. by the Emperor Wu (140-87, B.C.) to search for the Yueh Chi or Indo-Scythians in order to close an alliance with them against the Turkish Hsiung-nu. We are told that "the desire to possess the fine Iranian thoroughbreds, more massively built than the small Mongolian horse, and distinguished by their noble proportions and slenderness of feet, as well as by the development of chest, neck and croup," was one of the strongest motives impelling this Emperor Wu to maintain regular missions to Iranian countries, which led to a regular caravan trade with Fergana and Parthia. Even more than ten such missions were dispatched in the course of a year, the minimum being five or six. These horses were called "blood-sweating (汗血)" and were believed to be the offspring of a heavenly horse (天馬). In the course of his mission Chang K'ien visited Fergana, Sogdiana and Bactria, all strongholds of an Iranian population. The "West" for the first time revealed by him to his astounded countrymen was Iranian civilization, and the products which he brought back were thoroughly and typically Iranian. (Berthold Laufer. 1919. "Sino-Iranica.") It was largely through the adventurous spirit of General Chang that China commenced those commercial relations with Persia, Arabia and other western lands that lasted down into the T'ang dynasty. Trade had already commenced with the nations that later became Mohammedan, long before the rise of Islam.

We possess, however, no records that furnish ampler material for historical study than those of the Chinese Buddhist pilgrims who visited India during the early centuries of the Christian era. Beal well says of them that "never did more

devoted pilgrims leave their native country to encounter the perils of travel in foreign and distant lands; never did men endure greater sufferings by desert, mountain and sea than these simple-minded earnest Buddhist priests." About 170 A.D. twenty men found their way through the province of Szechuen to the *Mahabodhi* tree in India; for them and their fellow-countrymen the Maharaja Srigupta built a temple, known as the "Tchina Temple." Greatest of all the Buddhist travellers was Hsuan Tsang, the fearless historian of the T'ang dynasty, a native of Honan. He became a Buddhist priest at the age of twenty and at the age of 26, in 629 A.D., set out for India, returning thence 16 years later with many priceless memorabilia of his remarkable journey. On the record of his observations, set down with such accuracy in the *Hsi Yu Ki*, General Cunningham, founder of scientific Buddhist archaeology in India, based his whole plan of systematic excavations. He described Hsuan Tsang as the Pausanias of India. Not only did the pilgrim describe in detail the site where the youth of Buddha was spent, the site where he acquired supreme wisdom and the place of his first sermon; but he set down what he saw with such accuracy that 1,300 years later modern students found pagodas and monuments exactly where he had described them. And finally, on his return journey he investigated lands to the north of India, explored Hsin Chiang and Khotan and paved the way for the modern explorations of Pelliot and Stein and others who hold to-day the foremost place in central Asiatic investigation.

Berthold Laufer has recently made us all his debtors by bringing to light some of the Persian sources relating to China. In his "Sino-Iranica", published in 1919, he has brought together the beginnings of a connected narrative of the links between China and ancient Iran. "We now know," he says, "that Iranian peoples once covered an immense territory, extending all over Chinese Turkistan, migrating into China, coming in contact with Chinese, and exerting a profound influence on nations of other stock, notably Turks and Chinese." Note his further comment: "The Iranians were the great mediators between the West and the East, conveying the heritage of Hellenistic ideas to central and eastern Asia and transmitting valuable plants and goods of China to the Mediterranean area. Their activity is of world-historical significance; but without the records of the Chinese, we should be unable to grasp the situation thoroughly. The Chinese were positive utilitarians and always interested in matters of reality; they have bequeathed to us a great amount of useful information on Iranian plants, products, animals, minerals, customs and institutions, which is bound to be of great service to science." And again,—"The Chinese scholars had developed a rational method and a fixed system in reproducing words of foreign languages, in the the study of which, as is well known, they took a profound interest; and from day to day, as

our experience widens, we have occasion to admire the soundness, solidity and consistency of this system."

Laufer, then, shall be one of our guides as we consider some of the medical exchanges. If we had time, we could listen to his narrative of polo and other games adopted from Persia by the Chinese, as well as of the musical instruments brought from the West. He would show us clearly that the Chinese owe scarcely any portion of their general material culture to China, but rather that the Chinese do furnish us with intensely useful material in regard to cultivated plants. They "merit our admiration," he points out, "for their far-sighted economic policy in making so many useful foreign plants tributary to themselves. In plant-economy they are the foremost masters of the world, and China presents a unique spectacle in that all useful plants of the universe are cultivated there." In a recent issue of the "China Journal of Science and Arts," F. L. Chang has pointed out the great extent of the flora of China.

It is entirely possible that our studies of the civilization of Iran may enable us to draw with greater accuracy a picture of the early relations between Greece and the Roman colonies to the West and China to the East. Alexander the Great conquered Bactria and Sogdiana in 328 B.C., two centuries before the Chinese pioneers reached there. At the time of his conquest, the Chou dynasty in China was rapidly losing ground; intercourse with foreign nations was at a low ebb. Who knows what results to philosophy and literature and commerce might have followed, if the envoys of Greece and China had met in those lands so far to the West! They might have learned to respect each other as having developed, at much the same period of history, a school of political philosophy and morals and a literature of history and poetry. Through Bactria, where Alexander lived for 18 months, lay the road by which, later on, European thought and Greek art were to come, via Chinese Turkestan, to China. In 101 B.C. an army of the Han Emperor Wu conquered Bactria and there met many Greeks. How the story arose we scarcely know, but it is a fact that there are many Oriental versions of the visit of Alexander the Great to China. One Persian account, that of Nizami, (1141-1203), tells how Iskandar (Persian for Alexander) betook himself from India by way of Tibet to China, where a contest between Greek and Chinese painters took place, the former ultimately carrying the day. By the end of the first century of the Christian era, Parthia sent an embassy to China with a gift of lions and other animals. Within the same decade, Pan Chu'au, governor general of Chinese Turkestan sent Kan Ying on an embassy to Rome. The story relates that when he came to the great sea in Syria, the sailors at the west of Parthia told the envoy that to cross the sea would take three months, even with a fair wind, and that adverse winds might prolong the journey to 24 months, making

it necessary for a crew always to take along grain sufficient for three years, while many were sure to die on the trip. This alarmed the ambassador and he turned back. As time went on, the embassies became more frequent and we read of gifts of the "An-hsi bird" (An-hsi being Parthia and the bird designated being the ostrich;) as well as of tortoise-shell, ivory and rhinoceros horn. After 106 A.D., embassies by the land route became almost impossible and the envoys came from the West by sea via India. And through those first three centuries of the Christian era, even though imperial messengers came from Rome (we are told of one (Ch'in Lun, who came to pay homage at the court of Sun Ch'uen during the days of the "Three Kingdoms") most of the news regarding Rome reached China through Buddhist priests who came to Loyang in Honan province, most frequently through Afghanistan and the Panjab. After the period of the "Three Kingdoms," Hindoos and Buddhists are found living at Loyang under Ts'ao Ts'ao. It was largely a matter of religious devotion that impelled these pilgrims and enabled them to discover a route for the exchange of thought as well as of material commodities, between the Far West and the Far East, through the extreme north of India.

With what grateful memory should we recall to-day the researches of those scholars, Chinese and Western, who have helped the nations to know each other better, Hirth and Gautiot, Edkins and Chavannes, Parker and Giles, and many other illustrious ones. It is for those who have the needed resources of finance and intrepidity, of scholarship and the power to move freely among men of an alien race, to press on with further studies. There are unknown languages to be cleared up, undiscovered routes of trade to be re-located, migrations of race to be investigated, and a far deeper and more extensive knowledge secured of the mutual contributions of the nations to the West and the East of Asia. Perhaps, as Laufer has intimated, Iranian is to prove, in true Oriental fashion, one of the most valued of middlemen. Iran had gifts for China; but its greater contribution may yet prove to lie in its having been a link between two civilizations that barely became contiguous before the setting in of the decadence of the one to the West. Aside from Iran it was Indo-China, the Malayan countries and India that contributed plants to the cultivations of China. Studies in the correlation of these widely scattered areas are urgently needed. To each one of us, whatever his profession or his place of abode, there will come opportunities which must not be evaded, to turn aside to inquire about origins.

Exchanges of Medicaments and Medical Terminology.

I. Foreign Plants Introduced Into China.

Laufer has reminded us of the gradual process by which the Chinese adopted and absorbed the foreign plants that came

to them. Each successive series of works on materia medica "shows us well how their knowledge of species increased from the T'ang to the present time," there being an explicit record, of additional species as compared with those that had been published before. "The introduction of foreign plants begins from the latter part of the second century B.C., and it was two plants of Iranian origin, the alfalfa and the grape-vine, which were the first exotic guests in the land of Han. These were followed by a long line of other Iranian and other central Asiatic plants, and this great movement continued down to the 14th century in the Yuan period. The introduction of American species in the 16th and 17th centuries denotes the last phase in this economic development."

Two prefixes are frequently found in association with the name of an imported plant, medicinal or otherwise, which indicate in a general way, its origin in the centre or west of Asia. The first of these is the prefix *Hu* (胡). It is vsry apt to be a vague term used to describe certain groups of foreign tribes, although "under the Han it appears mainly to refer to the Turkish tribes; from the fourth century onward it relates to central Asia and more particularly to peoples of Iranian extraction; while in other cases it indicates Indian or Tibetan origin. Thus *Hu tsiao* (胡椒) is "foreign pepper," and refers to India, as does *Hu Kan Kiang* (胡乾薑) "foreign dried ginger." *Hu Yen* (胡鹽) is "salt of the Hu," referring to barbarous, chiefly Tibetan tribes, to the West. The Chinese author, Li Hsiao-po, writing in the "Annals of the Wei Dynasty," says that "the salt of the Hu cures pain of the eye, the salt of the Zun heals ulcers." The second of these prefixes is "*Po-se*," (波斯) usually designating a Persian origin. Thus "*Po-se Tsao*" (波斯棗) signifies the Persian jujube.

I have alluded to the desire of the Emperor Wu of the Han dynasty to possess some of the fine Iranian horses. His sending of General Chang K'ien to central Asia was the beginning of a real contribution by China to the history of alfalfa (*Medicago sativa*). Laufer says of these records that "the history of no cultivated plant is so well authenticated and so solidly founded." Chang K'ien found the horses he desired in Fergana and discovered at the same time that the favourite food of this breed was alfalfa. Being a man of practical common sense, he concluded that if these horses were to thrive in China, their special fodder must be grown there, too. He secured a supply of seeds and in 126 B.C. presented them to the Emperor who ordered them sown on broad tracts of agricultural land near his palaces. The name brought back by Chang K'ien for the new plant was *mu-su* (苜宿) a name taken directly from *muk-suk* or *buk-suk*, the Ferganian name for Alfalfa. By 500 A.D. it became widely known. One writer describes it as without flavour, and adds

that one species is used for the healing of eye disease. Skattschkoff, a Russian consul, was instrumental in securing the seeds of alfalfa from China in 1840 and sending them to Russia where he himself was active in propagating the plant, aiding it to spread also in Livonia, Esthonia and Finland.

Let me set down a few more of the medicaments that have thus come to China from the far West, showing also how the terminology for their designation was definitely borrowed from the land of their origin.

1. Balm of Gilead.—Early Chinese writers state that "the plant *a-p'o-ts'an* (阿勃參) has its habitat in the country Fu-lin (Syria). By chopping the branches, one obtains a juice like oil, that is used as an ointment, serving as a remedy for ringworm, and as useful for any disease. The oil is held in very high esteem and its price equals its weight in gold." *A-p'o-ts'an* is a Chinese transliteration for a-bwut-sam, the Semitic name, corresponding to the Greek *balsamon*.

While the old Semitic word has largely disappeared, the word "balsam" "was brought back to China by the early Jesuits." In a famous work published in 1623, Peru balsam is described as *pa'r-sa-mo* (爾抜撒摩). The word is now found in the Chinese pharmacopoeia.

2. Myrrh and Benzoin.—Two aromatics may be noted here: (a) myrrh, of which an old botanical work says, "the habitat of the myrrh tree (沒) is in *Po-se*." The Chinese name is pronounced *mu* and is derived either from the Arabic *murr*, or, if its history in China can be carried back to the T'ang dynasty, from the Persian *mor*. (b) Benzoin, commonly called *An-hsi hsiang* (安息香) or "Parthian aromatic," although recent researches by Pelliot and others make it seem likely that the *Po-se* to which reference is made, may be the *Po-se* of the Malay archipelago. The Chinese pharmacopoeias have always regarded the plant as from Persia, the ancient name of a Parthian dynasty being *Ar-sak* or *Ar-sik*, corresponding most closely to the Chinese term. Still another kindred substance is aloes, grown so largely in Arabia. The Arabs called it *Alua*, transcribing the Greek word *aloé*. It was traded to India, thence to the Malayan archipelago, and carried from there to Canton, where the Chinese dropped the initial *a* of the form *aluwa* or *aluwe* and retained *luwei*, which we see used as the common name in China to-day (蘆會)

3. Opium.—This drug also was evidently taken to China via Malaysia, for the common word used here for opium is *Ya-p'ien* (鴉片) taken from the Malay name *apiun* which, in turn, is derived from the Arabic *Afyun*. The Malay cannot sound the letter "*f*."

4. Jasmine.—Frequent references to jasmine occur in Chinese botanical works, from as far back as 290 A.D. Thus, "the *ye-si-ming* (耶悉茗) and the *mo-li* (末利) flowers were brought over from western countries by Hu people (foreigners = (胡人) and have been planted in Kwangtung." And again, "The Hu (胡 (Irianians or foreigners) bring it to Kiaochou and Canton and every one is fond of its fragrance, Oil of jasmine is imported on ships; for the Hu gather the flowers to press from them oil, which is beneficial for leprosy. When this fatty substance is rubbed on the palm of the hand, the odour penetrates through the back of the hand."

5. Trigonella foenum-graecum.—In a pharmacopoeia of the Sung dynasty appear references to a leguminous plant *hu-lu-pa*, (胡蘆巴) commonly known as fenugreek. This plant is undoubtedly the same as the Arabic *hulba*. Its properties are described by the famous Persian, Abu Mansur, who says that "an infusion of the seeds is a favourite remedy of native doctors for chronic urethral blennorrhagia."

6. Strychnos nux-vomica. While the commonly used name for *nux vomica* in China is *fan-mu-pieh* (番木鼈), another name is *hwo-shi-la pa-tu* (火失剌巴豆), the characters *how-shi-la* being evidently a transcription of the Persian *kucula*. A pharmacopoeia of date, 1366 A.D. says of it that it grows in the soil of Mohammedan countries. "It can cure a hundred and twenty cases; for each case there are special ingredients and guide." It was probably introduced into China during the Mongol dynasty.

II. Chinese Products Carried Abroad.

Certain products of China had reached Bactria long before the Chinese people had set their foot on Persian soil. When the famous Chang K'ien arrived there in 128 B.C. he was surprised to see the natives using walking sticks of the square bamboo of China in common use, as well as *Shu* (蜀) cloth, a textile from Szechuan. On inquiry the people told him they had bought these things in India. This suggestion convinced the envoy that India could not be very far from Szechuan. "This new geographical notion subsequently led the Chinese to the discovery of Yunnan," there being an ancient trade route to India through that province.

Among the earliest gifts of China to the West are the peach and the apricot. Laufer says, "it is not impossible that these two gifts were transmitted by the silk-dealers, first to Iran (in the 2nd or 1st century, B.C.), and thence to Armenia, Greece and Rome (in the 1st century, A.D.). In connection with the transplantation of the Chinese peach into India, the memoirs of the Chinese Buddhist traveller, Hsuan Tsang, give us a glimpse of the growing stream of Chinese influences being carried abroad.

"At the time of the great Indo-Scythian king, Kaniska, whose fame spread all over the neighbouring countries, the tribes west of the Yellow River dreaded his power and sent hostages to him. Kaniska treated them with marked attention and assigned to them special mansions and guards of honour. The country where the hostages resided in the winter received the name *Cinabhukti* ("China allotment"), located in eastern Panjab. In this kingdom and throughout India there existed neither pear nor peach. These were planted by the hostages and the peach therefore was called *cinani* ("Chinese fruit"); and the pear, *cinakaja-putra* ("crown-prince of China"). These names are still prevalent in India, together with a few others, such as *cinakarpura* ("Chinese camphor"), *cinavanga* ("Chinese lead"), etc.

A certain number of Chinese medicaments were carried as far west as to Persia and Arabia. Thus, these nations procured cinnamon from China, the Persians calling it *dar-cini* ("Chinese wood" or "bark"), and the Arabs, *dar sini*.

Ginger is another product of which Arab writers say that the best came from China. So also with rhubarb. Marco Polo relates how this plant is found in great abundance in Kansu and that merchants go there to buy it and carry it thence all over the world, while Abu Mansur, a distinguished writer speaks of Chinese rhubarb as being the variety most employed. In Bengal, the name is *Bangla-revan cini* ("Chinese rhubarb of Bengal"), indicating that the Chinese product was preëminently in the minds of the people and that the Himalayan rhubarbs were only secondary substitutes.

Interesting sidelights on the supposed routes by which infectious disease travelled, together with older therapeutic beliefs, are to be had by an inquiry into the Persian *cubi-cini* ("China root"), known in the bazaars of India as *kub-cini*. This is the root of *Smilax pseudo-china*, so-called Chinese sarsaparilla (*t'u-fu lin* (土茯苓) a famous remedy for the treatment of "Morbus americanus, first introduced into Europe by the returning sailors of Columbus, and into India by the sailors of Vasco da Gama," thus giving rise to the name in Sanskirt, *phiranga-roga*, "disease of the Franks." In Indian writings of the 16th century this disease, together with the Chinese remedy, is first described. An observer in India between 1601 and 1610 remarks, "venereal disease is not so common, albeit it is found, and is cured with China-wood, without sweating or anything else. This disease they call *faranguibaescour*, from its coming to them from Europe." The root is carried overland from China by way of Turkestan to Persia. The Chinese have known it for centuries, using it freely during the early part of the 16th century. One writer states that "the *Yang mei* (syphilitic) ulcers are not mentioned in the ancient recipes, neither were there any people afflicted with this disease. Only recently did it arise in Kwangtung, whence it spread to all parts of China."

In Turkestan, Chinese influence was strong so early that its remains are found in such words as *qawa* ("gourd") from *kwa* (瓜); *la-za* ("red pepper") from *la-tze* (辣子); *cin-say* ("celery") from *ch'in tsai* (芹菜); together with many words for other commodities than herbals such as *yang-xo* for *yang-ho* (洋火) a match; *joza* for cho-tze, a table (棹子); *lobo* for *lo-pu* (蘿蔔) a long turnip; *manto* for *man t'ou* (饅頭) a meat-dumpling; and others in daily use.

It is noteworthy, too, that the Buddhist pilgrims of China not only went out on travels of inquiry, bringing back invaluable observations of the most dependable sort, but also proved effective teachers of Buddhism. Thus we must believe that the first Buddhist teachers in Turkestan were Chinese, not Indian, Buddhists. The terminology of that country shows remarkably the unmistakable effects of teaching done by Chinese. Thus, the Turkish *kuan-shi-im-pusar*, for the "goddess of mercy" is very plainly the *kuan-shih-yin-p'u-sa* of China. So, too, *tsui*, in one branch of Turki, is plainly *tsui*, meaning sin, as in Chinese.

We must not fail to note certain medicaments and practices originating in China that have been carried abroad apart from any transcription in terminology. Thus, Chinese have made, as D. J. Macgowan pointed out more than fifty years ago, some unique observations regarding fish products. Just as the coast dwellers of the Baltic regions found cod-liver oil useful in strumous complaints, and as the mountaineers of the countries about the Mediterranean found burnt sponge efficacious in simple goitre; so we are able to find records of analogous uses of fish products in China. Shad, or oil from the shad, is noted as good for consumption. Several other oleaginous fish are described as useful also. The eel and the gurnard are said to be effective in phthisis. Macgowan makes the note that the shad of China is the *Clupea* of the United States, being known in Canton as *sam-lai*. The Chinese pharmacopoeia says the fish must not be boiled, stewed or fried, but steamed with savoury vegetables. In the treatment of goitre, seaweed is recommended.

Hanbury, in 1860, and Henderson, in 1864, made extensive notes on Chinese medicaments, mineral as well as vegetable and animal. Alchemy was studied in China long before it was known in Europe. From the 2nd to the 4th century A.D., there was constant searching for an elixir of life. In connection with the frequent interchanges between China and Persia, both before and after the Mohammedan conquest of Persia, embassies came to the Chinese Emperor in Shensi from Persia and Arabia, as well as from Constantinople and Greece. Many Arab traders settled in China. This extensive study of pseudo-science was borrowed by the Mohammedans from China, where cinnabar was regarded as the great agent in alchemy. Fourth century Chinese writers said, "Other substances when burned, are destroyed. Cinnabar

(red sulphide of mercury) is turned into mercury and later still returns to its original form. It differs, therefore, widely from vegetable substances and has the power to make men live forever; it makes them genii."

In Hanbury's "Notes," page 7, there is a picture of a shallow cup made of realgar, or red sulphide of arsenic. It was alleged that patients could be cured of ague by making them drink warm water that had stood in the cup, thus dissolving out a minute dose of arsenic. This substance, found in Yunnan, is exported in small quantity from Canton to London.

Dr. Wang Chi-ming of Hangchow has recently added to our knowledge about Chang Chung-king (張仲景) prefect of Changsha about 196 A.D. His thoroughness and clearness made his observations on "Typhoid Fever" stand out as a model. It was in his treatise on typhoid that we learn of Chang's insistence on the use of cold water instead of drugs in the antipyretic treatment of fever. He was perhaps one of the earliest to use enemas, writing, "do not give drastic purgatives for the constipation of typhoid, for the internal secretion has dried up. An enema of pig's bile or the juice of *Thladiantha dubia*, should be administered." Enemas were given through a bamboo tube. It will be recalled that the advent of Chang helped to reform the entire attitude of men towards disease. He began to emphasize clinical studies, dwelling on the signs, symptoms and course of an illness, rather than on the theories of disease. In his monograph on typhoid he describes the prevalence of the disease in his native village, where, of two hundred inhabitants, two-thirds died in ten years. It was the severity of this one epidemic that led him to devote "his time and energy to this particular malady." You will recall that other wise observer also, who is described in "the Dream of the Red Chamber," the great Chinese novel of the 17th century: "Her ladyship stretched out her hand to rest upon the pillow. The doctor felt the pulse for a long time, by-and-by doing the same with the other hand. He then bowed and retired. 'Her ladyship,' said the doctor to other members of the family, 'has nothing the matter with her beyond a slight chill. It is not really necessary for her to take any medicine. Give her light food and keep her warm and she will soon be all right again. I will, however, write a prescription, and if her ladyship fancies a dose, have it made up and give it to her; but if she would rather not, well—it will be all the same in the end.'"

The Influence of Continued Exchanges on International Understanding.

Limitless though her resources are, mineral and vegetable, China has hitherto contributed but little to medicine since the

beginning of the scientific era. But look forward in imagination fifty or a hundred years! On the foundations of modern medical education being laid in such institutions as this of Hongkong University where we are now assembled, whose generous hospitality will always continue as a living memory in the minds of all of us who have been privileged to be here, a new structure of scientific medicine is bound to rise. Already there are signs of the coming activity. It is not so much the papers and the reports that the members of this conference have contributed that give me hope, as it is the knowledge that from one school and another, from not a few provinces of China, there have already been chosen youths of promise, who are preparing themselves to take up the quest. They are in training, these future leaders of the scientific medicine of China; in bacteriology, and parasitology, in medicine and in chemistry, they are doing the necessary ground-work; they are planning the needed methods of psychic approach to their communities; they are thinking over the problems of personal and community hygiene. Let China, through them, begin to take her part in advancing science and once more her pilgrims shall wend their way westwards. We shall not all have identical curricula in our schools among the different nations. We shall not build our hospitals, or write our prescriptions, all in the same way. But it is absolutely certain that in no sphere of life more than in medicine will there be found the unifying forces that the world needs. Let us give ourselves more devotedly to discovering these and to advancing medicine, not merely as an end in itself, but as a means of strengthening goodwill among men everywhere.

THE CADUCEUS

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Editorial.

Owing to the fact that the Conference was primarily the work of the China Medical Missionary Association and only in a very secondary capacity that of the British Medical Association, its detailed report is the privilege of the China Medical Journal.

In this conference number of the Caduceus, true to our purpose which is to record the proceedings of the Hongkong University Medical Society, we have confined ourselves to the publication of papers read at the conference by members of the Society and of addresses delivered by distinguished visitors, who having been admitted as honorary graduates of the University, are eligible for membership in its Medical Society.

Short accounts will also be found of the proceedings of certain sections together with the general programme of the conference and the trade exhibit.

General Impressions:

There seemed to be a general idea running through the comments and editorials of the local press, (to which, by the way, the members of the conference are extremely grateful), that the object of such conferences is to elaborate specific cures for the ills of the local community. No, the main object of these conferences is to correlate the work being done in the name of western medicine in different parts of China and to offer encouragement by mutual intercourse to workers who suffer from the dangers of isolation.

Further, in such a conference there are many matters besides that of cures that require discussion. It is probably not far from the truth to say of Chinese medicine that it looks for the cure before it looks at the disease, whereas western medicine first studies health, then disease, and finally building on this firm basis seeks to direct the *vis medicatrix naturae* which is really the cure for all ills. Western medicine does not seek for a cure from without but strives to help the cure which always comes from within. Further, western medicine has given substance to the proverb that prevention is better than cure.

But the real value to Hongkong or to any community among which such a conference meets, is the interest it arouses in the work which is going on and the opportunity it affords to the community of taking its share in promoting the health education of the people.

In this connection it is perhaps as well to remember that the Rockefeller Foundation of New York is the chief contributor to the solution of Hongkong's health problems, through its support of medical education and research at the University Medical School, and more particularly that part of it which is centred at the Government Civil Hospital.

But in spite of these criticisms, we do not forget what Hongkong did for the conference. The general opinion of the delegates on leaving was that it had been one of the most successful conferences they had ever attended and that this was largely due to the generous hospitality extended to them on all sides.

There was, however, another contribution made by Hongkong to the conference which was more subtle.

In the space of a few words it is impossible to describe how history will relate that it was at Hongkong that the members of the conference finally agreed unanimously at a general session to a complete revision of the constitution of the China Medical Missionary Association, involving no less a change than the elimination of the word "Missionary" from the title. From the first of July next, the Association will consider as eligible for membership all medical men of whatever creed or race pledged to the spread of western medicine in China. The missionary objects of the Association will be preserved and probably furthered by the creation of a special Medical Missionary Division. This means that all medical practitioners, teachers and scientists in Hongkong can join this association, thereby forming a Hongkong branch which will link up Hongkong permanently with the work going on in all parts of China.

Hongkong provided the soil for the germination of this seed, but more must be done if like the proverbial mustard seed it is going to grow up into a tree and bring forth branches, where birds may lodge.

But the local community alone cannot be required to finance a really big medical centre. Such a centre of necessity must minister to many communities in South China and elsewhere so that the development of Hongkong as a medical centre is a matter for international co-operation. Such a co-operation already exists, but it must be extended if the medical school of the University is to act truly as the representative of western medicine in this part of the Far East.

This brief impression, however, would not be complete without a reference to some of those who helped to make the conference the success it undoubtedly was.

The presence of His Excellency at the inaugural ceremony and congregation and the official dinner at Government House to a number of representative delegates were both very much appreciated.

The active interest of the Vice-Chancellor, who entertained some of the leading guests and who, as far the University was concerned, presided at the conference, made us realise how much we all owe to Mr. Hornell's generous personality.

To the President of the China Medical Missionary Association, Dr. John Kirk, who was ably assisted by the Executive Secretary and other officers of the Association, fell the responsibility on many public occassions of doing the right thing and he always did it. His conduct of the general sessions was a model that all chairmen of such meetings might well imitate.

The genial co-operation of the Hongkong Chinese Medical Association, like the weather, produced a pleasant atmosphere and those who attended the excursion to Repulse Bay will not readily forget it.

The undergraduates rose to the occasion and their services were invaluable. An enquiry office is always an important centre at any conference and we could not have had one without the help of the students.

The concert arranged under the auspices of the Union and the tea party given by the University Christian Association were both very enjoyable. The tea party, at which not less than a hundred delegates were present, was of special interest, as it showed the appreciation by the Christian undergraduates of the work of medical missionaries in China. We hope that many of our undergraduates will one day join them in making provisions for the betterment of the Chinese race. It is clearly understood that what these few medical missionaries can do for us is to point the way; the future brunt of the fight must fall on ourselves.

We are also more grateful than we can say to all those who, led by the President of the British Medical Association and his colleagues, provided accommodation for the delegates.

We were sorry not to have Dr. Harston with us, but Dr. Aubrey assisted by Surgeon Captain Burniston, C.M.G., R.N., relieved what might have been a very difficult situation.

It is impossible to refer to all the functions and public lectures that were given.

The Sunday services at the Cathedral and Union Church were very impressive and gave the right note to the conference. We are grateful to Mr. Moyle and to Mr. Maconachie for their inspiring addresses.

The tea given by Sir Robert Ho Tung at the roof garden of the Hongkong Hotel was a very pleasant function, and those delegates who were privileged to attend a dinner given by Mr. Ho Kam Tong at Ho Kam Tong Hall will long remember the occasion.

As is well known Mr. Ho Kam Tong takes a keen interest in Chinese medicine, giving his own services freely in this respect. Although University Clinics in medicine have been conducted for several years at the Tung Wah Hospital, little attempt has been made by the University to interpret the successes which Chinese medicine undoubtedly provides. Perhaps this is due to the absence of a School of Pharmacology but now that we have Dr. San Ying Wong with us, it should be possible to remedy this defect. The address of Dr. Hume, which can be found in this number, affords a fitting introduction for those who desire to forward this aspect of University work.

If western medicine desires to establish itself in China, it must first make some attempt to understand Chinese medicine.

Pathology of Filariasis.

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Next to Sir Patrick Manson's original paper on "The Filaria Sanguinis Hominis," the classical treatise on Filariasis in China is a brilliant article published in the Philippine Journal of Science for September, 1921, by Dr. J. Preston Maxwell. The paper represents the results of 20 years' experience of the disease chiefly in the province of Fukien; and for many years to come it will be the starting-point for all further research on Filariasis in the Orient.

Commencing with a brief account of the peculiar geographical distribution of the disease, Dr. Preston Maxwell shows that the infection in China is confined to the Yangtse Valley and a narrow coast belt stretching from the mouth of the Yangtse River to the borders of Tonquin. His descriptive pictures of the various clinical manifestations of the disease met with in that area are clear and exhaustive, and his suggestions as to further investigation of the subject lie chiefly in the field of Pathology. "Post-mortem examinations of its victims," he states, "are still few in number and there is much yet to be worked out concerning its morbid pathology." During the year 1921, I had the privilege of travelling in the Caribbean area as a member of the commission organised by Sir Patrick Manson at the request of the Colonial Secretary for the investigation of filarial disease in the West Indies. After a preliminary survey amongst the various islands we found the highest incidence of filariasis prevailing in British Guiana. The Commission therefore settled in Georgetown, the capital of the Colony, and carried out an extensive programme of investigation embracing Clinical aspects, Pathology, Parasitology, and Therapeutics. Thus from hospitals, prisons, asylums, and domiciliary visitations, we collected details and examined blood-films from 4,215 inhabitants of British Guiana.

We found that 20% of the population harbour Filaria bancrofti and that the infection is largely urban in its distribution. In the City of Georgetown where over 2,000 individuals were examined at random, the Blacks showed a case incidence of 30%; the Portuguese 22%; the East Indians, 11%; the Europeans 9%; and the Chinese 7%. The intermediary host was invariably the Culex quinquefasciatus or fatigans.

During the survey, it was frequently discovered that people apparently quite healthy, had for years been harbouring filarial parasites without the slightest indication of their presence.

The commonest phases of the disease met with were lymphangitis, lymphadenitis, and elephantiasis; less frequently chyluria and orchitis, and still less frequently lymph varix and lymphscrotum were also observed.

Dr. Preston Maxwell, in the article referred to, gives a concise account of the condition known as elephantoid fever and mentions two types. "It must be clearly understood," he says, "that elephantoid fever may take place without any external signs of lymphangitis; on the other hand, very often there are definite signs of inflammation in a lymphatic region."

Now, in a fairly wide experience of this disease, in other parts of the world, I have never observed a case of elephantoid fever without signs of lymphangitis and I should be glad to elicit the opinions of those workers who are specially acquainted with the disease in China. The whole pathological picture, in my opinion, centres round the affection of the lymphatics. In the majority of cases the first indication of filarial infection is a typical attack of lymphangitis. Many of the victims are of the labouring-class and go about their work with feet and legs unprotected. Such often attribute the onset of the illness to a cut or a scratch, to standing on damp ground or on cold concrete. The attack commences as a rule with acute pain in some part of the crural lymphatic tract, and is accompanied by headache and rigor. For the first few hours there is little or nothing to be seen, but soon the lymphatic vessel is marked out as a red streak and gradually a dusky red blush makes its appearance. The glands draining the lymphatics involved become swollen and tender. The temperature swings from about 102°F. in the evening to about 99°F. in the morning. The attack lasts for a few days only, and then subsides until there is nothing to be seen except a definite prominence of the glands. An examination of the blood at night in those early cases generally reveals a considerable number of microfilariae.

While the typical attack of lymphangitis is generally short and sharp, there are gradations of severity which lead up to acute danger, or to long and serious illness. The inflamed lymphatic tract may develop septic foci which lead perhaps to the formation of a characteristic "filarial abscess," or the purulent trail may be carried into the abdominal lymphatics and set up an acute septicæmic condition which is designated in the West Indies, "abdominal filariasis." The great network of lymphatics associated with the thoracic duct becomes enormously thickened and engorged with thick purulent material, and organisms in large numbers invade the blood stream. Smears of the pus, and blood-cultures, generally reveal a profusion of streptococci. This complication is extremely fatal.

I have searched the literature for references to this striking manifestation, and have not found any specific record of its occurrence in China. Possibly the Chinese prejudice against autopsy is responsible for the lack of evidence. Dr. G. C. Low observed the condition clinically in Barbados as far back as 1902 and published a closely reasoned hypothesis suggesting its association with filarial infection. But the subject was first raised to a scientific plane in 1907 when Dr. K. S. Wise, the Government Bacteriologist of British Guiana, made a post-mortem study of eight cases diagnosed as "abdominal filariasis" and published his findings in a "blue book" for that year. His report concludes with a pregnant suggestion which has not yet received the credit it deserves.

"Filarial disease is a subject in which of recent years, theory has played much part, and actual observation of facts has been much neglected. I record these cases here with a detailed account of their autopsies because they fill a great vacancy in medical literature and throw considerable light on the cause and pathogenesis of a most interesting disease. They furthermore furnish a basis for experimental and therapeutic observations. I do not need to emphasise the hope which the observation of a streptococcus raises in the minds of tropical practitioners. A streptococcal disease is one which can be combated in several specific ways; a filarial disease is one that reads despair."

During our investigations in Demerara, we had the opportunity of performing 28 post-mortem examinations on cases which showed evidence of elephantiasis or filariasis. A careful dissection was made in each case for traces of adult filariae and pieces of tissue were fixed for section and further examination. The cause of death in 14 out of the 28 cases was acute septicæmia; the remaining 14 died of pneumonia, tuberculosis or other intercurrent disease. The pathological condition found can best be illustrated by quoting one or two of our post-mortem records in detail.

Case 1.—C. G., Male, aet. 34 yrs., Black, born in Demerara. Died in Georgetown Public Hospital, June 6th. at 4.45 p.m. P.M. 7th June at 9 a.m.

External.

The body was well nourished. A faint purpuric eruption spread over trunk and limbs. There was a double hydrocele, and the femoral glands on both sides were enlarged. Popliteal and epitrochlear glands were not palpable.

Internal.

Heart.—Weight 9 ozs.; walls flabby and showing myocardial degeneration. Right auricle and ventricle were dilated, and the coronary arteries thickened.

Lungs. Normal.

Liver. Weight 59 ozs.; congested.
Spleen. Weight 8 ozs.; hypertrophied and fibrous, suggestive of earlier malaria.

Kidneys. Weight of each 4¾ ozs. Cortex thickened and congested. Capsule stripped easily leaving a smooth red surface.

Abdominal Cavity. The large and small intestines showed remains of old dysenteric ulceration resulting in irregular constrictions. Above one of the constrictions a number of stercoraceous concretions were found. These were of kidney shape with flattened surfaces, yellowish brown in the centre and dark brown towards the periphery. The groin glands were greatly hypertrophied. The lymphatics of the pelvis and the retro-peritoneal chain were much dilated and engorged with thick gelatinous semi-purulent lymph. The rope-like mass of lymphatics was traced upwards into the lower part of the thorax. The lymphatic mass was dissected out in normal saline solution, and several adult filariae wriggled from the lymph channels of pelvis and femoral canal.

Cause of Death.

Acute septicæmia associated with filariasis and chronic intestinal obstruction.

Microscopic Sections.

Femoral Gland. Great hyperplasia of gland tissues especially of the reticulum. Pieces of microfilariæ lying in the stroma. Streptococci abundant amongst the lymphatic cells. Peri-glandular lymph spaces filled with phagocytes, many of which were undergoing degeneration.

Pelvic Gland. Hyperplasia of lymphoid tissue. Capillaries congested. Microfilariæ present in gland. *Lymphatic Vessel.* Coils of female filaria cross-sectioned in lumen.

Case 2.—F.S., Male, Aet. 30 yrs., Black, died in Georgetown Public Hospital. P.M. August 4th., 1921.

External.

Of good physique; well nourished. Femoral and axillary glands much enlarged. Scrotum swollen.

Internal.

Heart. Weight 14 ozs. Mitral flaps sclerosed. Atheroma of the aorta especially round the openings of the great vessels in the transverse portion of the arch. *Lungs.* Acute congestion at both bases, no actual consolidation.

Kidneys. Weight of each 10 ozs. Capsule stripped easily. Cortex thickened and congested.

Spleen. Weight 9½ ozs. Pulp soft and diffluent.

Abdomen. Acute general peritonitis. About 5 ozs. of purulent exudate found in the cavity. The intestinal surface had a dull opalescent appearance, but there were no adhesions. The retro-peritoneal lymphatic tract was much dilated and engorged with semi-purulent lymph.

Testicles were both swollen, the epididymis bulging with thick reddish purulent material. Both spermatic cords were distended and inflamed, oozing pus on section. In the right spermatic cord, a number of adult worms (F. bancrofti) were found coiled up in the pus; eight heads were counted.

In the right axilla, a deep abscess was found containing about 2 ozs. of thick curdy pus. Smears of the pus showed abundant Streptococci and Staphylococci.

Cause of Death.

Acute Septicæmia associated with filariasis.

Microscopic Sections.

Femoral Gland. Hyperplasia of gland tissue with large numbers of myelocytes. Capillary congestion with haemorrhages into the stroma. Lymphatic spaces packed with pyogenic organisms—Staphylococci and Streptococci.

Lymphatic Tract (Inguinal). Coils of adult female worms lying in the lymphatic vessels, no organisms found inside the worms, but the small vessels were filled with streptococci and staphylococci.

Testes. Great capillary congestion. Lymph spaces and lymphatic vessels full of phagocytes or obstructed

by masses of pyogenic organisms. Round-celled infiltration in neighbourhood of seminiferous tubules, with degeneration of the tubular epithelium. Numerous adult filariæ seen in cross section.

Spleen. Malpighian bodies prominent. Extensive degeneration of the spleen cells with deposit of detritus and pigment. In the lymph spaces, numerous foci of organisms—staphylococci and streptococci.

The two records given in detail will serve to illustrate the grave condition known as "abdominal filariasis." The same pathological features recur with slight variations throughout the whole series of fourteen cases. In all these cases, the primary cause of death was acute septicæmia and the initial mischief was some inflammatory focus in the lymphatic system which rapidly progressed to extensive purulent engorgement of the retroperitoneal lymph channels. Apart from the pyogenic infection, the only common factor in these cases was the presence of adult worms (Filaria bancrofti), and it remains a difficult problem to assess correctly the pathological potentialities of that factor.

It has been suggested that the chain of symptoms described may arise from blockage of some part of the lymphatic system—possibly the thoracic duct—by one or more adult filariæ in a dead or dying condition. In none of the cases examined by the Commission was there any evidence of complete occlusion of a lymph channel by coils of worms.

It has also been suggested that the active parasite exercises a purely mechanical function in transporting pyogenic organisms from the peripheral to the deeper lymphatics. If such were the case, there are other agencies such as the lymph stream which might fulfil the same function, and acute septicæmia, unassociated with filarial infection would be more common.

The experience of the Commission suggests rather that the adult filariæ, living and moving about in the lymphatic vessels, prepare the ground for bacterial invasion. They may set up an irritation and damage the intima of the lymphatics or the delicate internal structure of the glands, and a moderate bacterial invasion is then sufficient to blaze the trail.

The second series of autopsies consisted of 14 cases of elephantiasis, the cause of death being pneumonia, tuberculosis or other intercurrent disease. In most of these cases, a careful examination of lymphatic glands, kidneys, and pelvic organs, revealed no trace of filarial parasites. The theory that elephantiasis is due to a dead or aborting female worm causing obstruction in a lymphatic vessel was not borne out by our experience in

the West Indies. In no dissection of elephantoid tissue was there ever any evidence of occlusion of lymphatic channels by filariæ, living or dead. This observation does not suggest that there is no association between elephantiasis and filarial invasion. On the contrary, the statistics show a certain degree of correspondence between filarial rates and the incidence of elephantiasis in all infected districts, and careful inquiry into the medical history of each patient makes it almost certain that practically every case of elephantiasis in the tropics has at one time harboured filarial parasites.

The parent worm living in the lymphatic system may damage the delicate lining of the vessels and their valves, and so prepare the ground for any pyogenic organisms which are travelling in the lymph stream. A slight inflammation of the fine vessel soon produces partial stasis in the distal section of the lymphatic. This backward pressure then causes some dilatation of the weak lymphatic walls, and a slight degree of varicosity is set up. Repeated attacks increase the dilatation and a vicious circle is established. The lymphatic trunks become distended and hypertrophied, the finer vessels in the neighbourhood are brought into play and the heavy load of lymph serves to increase the backward pressure.

The condition of constant lymph stasis induces general hypertrophy of the part affected. The subcutaneous tissues are overcharged with lymph, and the component structures respond to the stimulus. In course of time the skin reacts and becomes hypertrophied. Recurrent irritation of the skin sets up an exuberant response, and the typical coarse elephantoid texture makes its appearance. Finally the great increase of weight produces hypertrophy of the muscles and deep structures, and the picture of elephantiasis is complete.

The same pathological process producing lymph stasis in different regions of the lymphatic system would obviously explain the different clinical manifestations of filariasis. Lymph scrotum, lymph varix, lymphadenitis and chyluria are all the result of obstruction to the lymph stream.

The pathological sequence described implies a filarial infection in the early stages, but once the vicious circle is established, the process will continue whether the parasite survives or dies out. Any treatment therefore which aims at the destruction of the parent worm, would have no effect on an existing elephantoid condition, and in those advanced cases of elephantiasis which give rise to permanent crippling, the only feasible remedy lies in the hands of the surgeon.

Litholapaxy.

BY KENELM H. DIGBY, M.B., B.S., F.R.C.S.
AND
LI TSOO YIU, M.B., B.S.

This communication does not pretend to be an original paper but merely hopes to provoke a discussion. One has gained the impression that litholapaxy is not so universally popular in this part of the world as its merits demand, and the view will be put forward that it is the safest and best method in the vast majority of cases, and, if not the easiest, is at any rate not as difficult as it would appear.

Of other operations perineal lithotomy is now seldom practised. Though quick and simple and with the advantage of "downhill drainage," it has the demerit of necessarily inflicting permanent damage to the prostate and at least one ejaculatory duct. One has heard it objected that though this operation was in vogue in parts of China at one time, yet no patient afterwards came back to complain of sterility which is a matter of such grave concern to men in China. But of course only one side is damaged so that complete sterility would rarely result, nor would a Chinese patient "cut" for stone as a boy suspect this operation to be connected with any later sterility.

Suprapubic cystostomy with extraction of the calculus is the operation which is very frequently practised. It is quick and easy and certain in performance. There is some divergence of opinion amongst surgeons with whom we have talked as to the degree of or even the necessity of drainage after the operation. One surgeon will close the incision in the bladder and allow the patient to relieve distension by normal micturition only employing a pre-vesical drain. Another surgeon after suturing the incision in the bladder will employ catheter drainage. A third will tie a very large drainage tube into the bladder for 48 hours.

In the series of 36 consecutive cases of suprapubic operation for stone performed by one of us (K.H.D.) no attempt was ever made to suture the bladder wound, but a large tube was left in the bladder for two or three days. Only one case died: 318/1917, a boy aged 17 was admitted in a state of extreme emaciation with a suprapubic fistula. A stone had been removed through a suprapubic incision ten years before, outside Hongkong. The lower part of the abdomen was rigid. The fistula was enlarged and a big calculus removed. The lad died 33 days after operation apparently of renal insufficiency. The autopsy showed bilateral hydronephrosis.

We strongly advocate free suprapubic drainage of the bladder, that is, suprapubic cystostomy as opposed to suprapubic cystotomy for we know of eight deaths which occurred within 14 days of suprapubic cystotomy with suture of the bladder. These deaths occurred in the practice of three highly skilled surgeons. Of course, this free drainage delays convalescence. The average stay in hospital of our own cases was 30 days, the maximum 59, the minimum 16 days. In these cases of suprapubic cystostomy with free drainage we have found great benefit by using dry sterilised bags of pine sawdust to soak up the urine. These only require changing three time in 24 hours.

How does litholapaxy compare with suprapubic cystostomy? The operative mortality is very small in either operation. * But it should be smaller with litholapaxy where there is no wound and often not a drop of blood spilt. Contrast this with suprapubic cystostomy where a large wound in loose cellular tissue is infected by sometimes very foul urine where drainage is against gravity and in a patient with diseased kidneys.

In the 61 cases here recorded all performed by the one surgeon

36 were suprapubic cystostomy and one died.

26 were litholapaxies with no deaths. (This includes three cases since this paper was read.)

1 was either a suprapubic cystostomy or a litholapaxy } no
1 was a perineal lithotomy ..... } deaths.

This gives sixty-four cases with only one death.

The objection usually made to litholapaxy is the alleged increased risk of recurrence. It has been shown in India that there is little if any increase in experiencd hands. There is no need to be *any*, if the cystoscope is used as a routine measure after every operation for litholapaxy. The finest fragment can be detected more clearly even than when suprapubic cystostomy has been performed. But even if recurrences from overlooked fragments occur in inexpert hands, you would have to show that they would have to occur and be treated a number of times before the duration of time in bed would equal that of a single suprapubic operation.

The detailed technique of the operation of litholapaxy has been brilliantly described by Sir Peter Freyer and others and I would only refer to a few details which have been of great help to me:—

* Though in the latest edition of Choyce's System of Surgery, Thomson Walker still gives the operative mortality of suprapubic cystostomy as over 12%, but then he advocates suture of the bladder in the majority of cases.

(1) It is useful to have the patient's knees flexed over the end of the table and the thighs of course separated. The flexion of the knees enables the surgeon to step easily from side to side so as to *pass* the instruments from the left side and *crush* the stone from the right side, these being the easiest and most desirable for a right handed surgeon.

(2) The Chinese urethra is, we fancy, of slightly less calibre than the European. At least this appears to be true of the people of Canton and Hongkong. The preliminary distension of the urethra by graduated steel sounds up to 15-18, English Scale, is all the more necessary here. This enables the passage of a large and irregular instrument such as a full sized lithotrite or a big evacuating cannula.

(3) To ensure that no fragment is left behind, the evacuating cannula should be successively turned in all directions and the rubber bulb squeezed and released. If a fragment is left behind it will either be washed out or if too large will produce a click which can be felt by the hand holding the cannula. A telephonist's head piece connected with a disc strapped to the patient's body above the pubis would be helpful but is not essential.

(4) A cystoscopic examination should follow litholapaxy as a matter of routine. The smallest fragments can be clearly and quickly seen. Therefore from the very beginning of the proceedings, glycerine should be used as a lubricant instead of vaseline.

We have come to feel it rather a reproach to our Clinic if we have in any case to resort to suprapubic cystostomy, and in the years to come we hope to point with pride to a cement pathway formed of fine fragments of calculi rather than to a large rockery of stones.

To sum up we would advocate that wherever possible litholapaxy should be performed. If, however, the suprapubic operation is to be undertaken we advocate that the bladder should be freely drained by a large rubber tube for at least 48 hours. This lengthens the stay in hospital but cuts down the mortality.

Cases of Stone in Bladder

Case No.	*Age.*	*Operation.*	*Stay in Hospital after Operation.*	*Condition on discharge.*
153/1915	M 9	Suprapubic Cystostomy with extraction of calculus and free discharge of bladder.	34 days	wound practically healed
233/1915	M 4	Suprapubic Cystostomy etc.	22 days	healed
298/1915	M 5	Suprapubic Cystostomy etc.	35 days	healed
18/1916	M34	Suprapubic Cystostomy etc.	26 days	almost healed
128/1916	M34	Suprapubic Cystostomy etc.	31 days	not quite healed and a few drops of urine sometimes escape.
337/1916	M29	Suprapubic Cystostomy etc.	26 days	practically healed
6/1917	M43	Suprapubic Cystostomy	23 days	recovered
47/1917	M43	Suprapubic Cystostomy 2 stones, the smaller dumb-bell-shaped and situated partly in a loculus the neck of which was incised downwards.	32 days	wound almost healed
179/1917	M48	Suprapubic Cystostomy etc.	17 days	wound nearly healed
181/1917	M61	Suprapubic Cystostomy etc.	18 days	recovered
318/1917	M17	Suprapubic Cystostomy etc. through a sinus (there had been a suprapubic cystostomy 10 years earlier—symptoms had recurred 3 years before admission. Extreme emaciation on admission.	Death 33 days after operation Death of renal insufficiency, pelvic cellulitis (which was present on admission and bilateral hydronephrosis.	death
319/1917	M55	Suprapubic Cystostomy etc.	22 days	wound not completely healed
331/1917	M 3	Suprapubic Cystostomy etc.	23 days	almost healed
355/1917	M12	Suprapubic Cystostomy etc.	29 days	completely healed
373/1917	M48	Suprapubic Cystostomy etc.	21 days	recovered
396/1917	M31	Suprapubic Cystostomy etc.	26 days	completely healed
23/1918	M57	Suprapubic Cystostomy etc.	52 days	Still a little leakage of urine from sinus
271/1918	M18	Suprapubic Cystostomy etc.	30 days	healed

Cases of Stone in Bladder

Case No.	*Age.*	*Operation.*	*Stay in Hospital after Operation.*	*Condition on discharge.*
230/1918	M28	Suprapubic Cystostomy etc.	41 days	healed
329/1918	M44	Suprapubic Cystostomy etc.	38 days	healed
407/1918	M29	Suprapubic Cystostomy etc.	50 days	recovered
309/1919	M43	Suprapubic Cystostomy etc.	43 days	wound closed
161/1920	M58	Suprapubic Cystostomy etc.	31 days	wound healed
251/1920	M17	Suprapubic Cystostomy etc.	29 days	healed
319/1920	M55	Suprapubic Cystostomy etc.	33 days	wound nearly healed
479/1920	M14	Suprapubic Cystostomy etc.	32 days	wound healed
31/1921	M72	Suprapubic Cystostomy etc.	19 days	nearly healed
87/1921	M11	Suprapubic Cystostomy etc.	59 days	recovered
131/1921	M35	Suprapubic Cystostomy etc.	20 days	recovered
376/1921	M12	Suprapubic Cystostomy etc.	34 days	wound healed
480/1921	M16	Suprapubic Cystostomy etc.	27 days	wound not quite healed
527/1921	M24	Suprapubic Cystostomy etc.	17 days	wound not quite healed
535/1921	M38	Suprapubic Cystostomy etc.	16 days	recovered
265/1922	M13	Suprapubic Cystostomy (after failure of litholapaxy)	40 days	wound not healed
128/1924	M16	Suprapubic Cystostomy (after preliminary attempt at litholapaxy)	42 days	wound nearly healed
162/1924	M60	Suprapubic Cystostomy (after preliminary attempt at litholapaxy)	30 days	wound healed
91/1920	M10	Litholapaxy ..... on 2 occasions, the second 3 weeks after the first	8 days after 2nd. operation	recovered
525/1920	M19	Litholapaxy	9 days	recovered
324/1921	M38	Litholapaxy	5 days	recovered
379/1921	M33	Litholapaxy	13 days	recovered
399/1921	M43	Litholapaxy	9 days	recovered
579/1921	M11	Litholapaxy ..... on 2 occasions, the second 3 days after the first	5 days after 2nd. operation (i.e. 8 days in all)	recovered
619/1921	M51	Litholapaxy	17 days	recovered

Cases of Stone in Bladder

Case No.	*Age.*	*Operation.*	*Stay in Hospital after Operation.*	*Condition on discharge.*
630/1921	M 6	Litholapaxy ..... 2nd. operation 14 days after first one	7 days	recovered
727/1921	F58	Litholapaxy	1 day	recovered
728/1921	M 5	Litholapaxy	7 days	recovered
315/1922	M 6	Litholapaxy	18 days (a second evacuation performed one day before leaving hospital)	recovered
323/1922	M35	Litholapaxy	10 days	recovered
397/1922	M41	Litholapaxy	2 days	recovered
444/1922	M 6	Litholapaxy	9 days	recovered
513/1922	M53	Litholapaxy	4 days	recovered
127/1924	M37	Litholapaxy	3 days	recovered
312/1924	M14	Litholapaxy	7 days	recovered
470/1924	M 9	Litholapaxy	76 days	recovered
503/1924	M31	Litholapaxy ..... (recurrence after supra-pubic cystostomy three years ago elsewhere)	5 days	recovered
519/1924	M15	Litholapaxy	17 days	recovered
556/1924	M22	Litholapaxy	17 days	recovered
615/1924	F 2	Litholapaxy	11 days	recovered
616/1924	M20	Litholapaxy	13 days (kept in for later re-cystoscopy)	recovered
83/1925	M40	Litholapaxy	4 days	recovered
107/1925	M29	Litholapaxy	7 days	recovered
127/1925	M33	Litholapaxy	8 days	recovered
120/1922	M21	Perineal Cystostomy with removal of stone (multiple fistulae in perineum)	74 days	improved still sligh leakage from fistu

Physiological Anthropometry.

By H. G. Earle, M.A., M.B.
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Introduction.

I think the title is a new one—it is of course borrowed from the anthropologists who write of physical anthropometry. But what is the difference? As Prof. Haldane [1] points out there is a vis sculptrix determining the anatomy of an individual as important as the vis directrix of physiology and the vis medicatrix of pathology. There are certain aspects of the life of organisms which appear to be more static than others and it is these that the anatomist is mainly concerned with, though modern anatomy is showing that it is not satisfied with limiting its study in this respect. Contrarily physiology which may be said to deal with the more dynamic aspects of life, should realise that it too must also invade the recognized domain of the anatomist and make measurements. Gaskell [2] always used to introduce his lectures on the sympathetic nervous system (which in latter days invariably led on to the origin of vertebrates and their relations with invertebrates), with the statement that physiology must be investigated from the morphological as well as from the physico-chemical point of view. This of course was the original method and books on physiology such as Huxley's Lessons [3] invariably approach the subject from the anatomical side; it is the most obvious and convenient method for first observers. It is therefore natural that, in bringing Western medicine to China where the study of anatomy has been consistently neglected, anatomists and physiologists should go hand in hand and measure together. The student and practitioner of medicine want to know what is normal and if there is to be accurate diagnosis and rational treatment in medicine, 'normals' must be established before 'abnormals' are considered. Physiological anthropometry is therefore the branch of physiology which sets out to determine the physiological standards of the race and in this part of the world, its object is Chinese racial standards.

The Oxygen Requirement.

The most fundamental need of the living organism is oxygen. This is most obvious where the potential energy of the food is being converted into the kinetic energy of movement in animals, or of growth, as in seed germination, in plants. But oxygen is also necessary for the maintenance of what appears to be a passive function, namely the conduction of the nervous impulse,

(4) where the energy change is so small as to be scarcely measurable except in terms of an electric response; yet strange as it may seem from the physico-chemical point of view, nervous tissue is more sensitive to oxygen lack than any other tissue in the body—the greatest thoughts cannot be elaborated without the use of oxygen. If however it be realised that the organism is the unit, and not its constituent tissues and cells, this sensitivity of nervous tissue to the fundamental requirement of the individual is biologically explained.

Now, a review of the different systems of man will show that their mechanisms, both individually and collectively, anatomical, physical and chemical, are all subordinated to this demand of life for oxygen.

In other words physiological anthropometry is to be investigated and interpreted largely in terms of oxygen requirement.

Basal Metabolism.

My attention was first called to this generalisation in my investigations on basal metabolism and the conditions on which it depends in different individuals.

In a previous issue of the Caduceus (5) I referred to these conditions but it will be as well to review once more what is meant by the basal metabolic rate.

It may be defined as the minimal rate at which oxygen is consumed by the individual in the waking state.

Observations are made of the respiratory exchange, with the patient lying at rest in the post-absorptive state. This is most conveniently done before breakfast after the night's sleep. Under these conditions glandular and muscular metabolism are reduced to their lowest level.

Since however oxygen is used for the oxidation of the foodstuffs, and different substances require different quantities of oxygen, it is necessary to know the respiratory quotient and from this calculate the equivalent calorie production. The B.M.R. is therefore expressed in calories. Observation shows that normal variations in different individuals depend chiefly on size, but also on age and sex.

In many pathological conditions, the rate may be unaffected while in others it is raised or lowered. In both these cases, the variation appears to depend mainly on the condition of the thyroid gland, a high B.M.R. being indicative of hyperthyroidism and a low B.M.R. of hypothyroidism.

Body Size.

There has been a good deal of discussion on the question of the influence of size. Many years ago it was shown that if metabolism be calculated per unit of weight, it is higher, the smaller the animal. Since so much of the kinetic energy in an animal is set free in the form of heat which is rapidly lost and since Newton showed that heat loss is a function of surface area, it was suggested that metabolism might be a function of surface area; the difficulty was to measure the surface area.

Various formulæ which have been checked by exact measurements have been suggested, the simplest being that of Meeh in which the surface area is expressed as the two-thirds power of the weight. In the Du Bois [6] formula, height is taken into consideration as well as weight. There is no doubt that whatever the formula used, metabolism expressed as calories per unit of surface area appears to be constant for different individuals and the size variation largely disappears. Some have suggested that this is because the difference is simply reduced by taking the two-thirds power, to within the limits of experimental error.

Benedict has pointed out, that metabolism must ultimately depend on the size of the active protoplasmic mass within the individual and cannot be a simple function of heat loss. In other words heat loss is determined by heat production and not heat production by heat loss. Benedict [7] as a result of a statistical study has calculated standards of metabolism separately from height and weight; each independently he considers affects the result.

In the Du Bois formula, as already stated, height and weight factors are also both considered but in their combined relation to surface area. The Du Bois formula is capable of being charted and is therefore easier to use than the tables of Benedict. Further, the discrepancy between the two standards is so slight as to suggest that practically, there is very little difference in the two methods.

Boothby's [8] conclusion that the surface area as calculated from the height and weight is the best expression we can get of the active protoplasmic mass as distinguished from passive weight (bone, storage fat, etc.), appears to be the most useful hypothesis in the present state of our nowledge. It is difficult to reduce the different shapes of animals to a mathematical formula.

The time unit is unimportant, basal conditions in the waking state cannot be maintained for long (not longer than 45 minutes according to Boothby), and the actual observation usually lasts from 10-15 minutes.

The result according to Benedict and Dreyer [9] is expressed as total calories in 24 hours, but Du Bois gives the basal metabolic rate as calories per square metre per hour.

Age and sex must also be considered. Observations from birth to puberty are difficult to standardise but beginning with the young adult (14) and ending with the aged (80), there seems to be a progressive decrease in the rate with advancing age from 46 to 35 calories per sq. m. per hour. From ages 20-40, there is no variation, if the Du Bois formula be used. The female rate appears to be about 10% less for all ages mentioned; this does not, of course, apply to pregnancy and lactation.

Surface Area and Mass.

Benedict's statement that metabolism depends on mass is undoubtedly true but it is equally clear that the supply of oxygen and food must depend on surface. This is quite obvious in the case of plants where there is no mouth and absorption of those substances from the environment which are necessary for the maintenance of life, depends on leaf and root surface, *i.e.* on stomata and root hairs. It is also true for each individual cell in the bodies of both animals and plants. The nutrition of the tissues is a function of the surface area of their constituent cells. In fact the division of the bodies of animals and plants which exceed microscopic size into microscopic units, may receive its explanation in terms of the relation of surface area to mass. The stimulus to cell division is most likely a respiratory stimulus.

Vital Capacity.

When we turn to the respiratory system of man and measure the lung capacity we find the same variations in relation to surface area as have already been shown to exist for metabolism. Different individuals have different lung capacities. Hutchinson who first investigated this problem, thought that standing height was the main factor in determining these differences. The revival of interest in the determination of lung capacity as a test of the physical fitness of aviators and as a measure of the lung condition in pulmonary tuberculosis has led to further discussion on this question of the relation of lung capacity to size.

American investigators use the Du Bois height-weight surface area chart and express their results in litres per square metre, whereas Dreyer [10] has given constants for lung capacity in relation to surface area measured in terms of weight, calculated from sitting height and chest girth combined.

I do not think anyone now regards lung capacity as a simple function of standing height, though figures are sometimes given in these terms.

Cardio-Vascular Measurements.

More recently there has been an attempt to consider the normals of the blood and circulation in relation to body size and more particularly in relation to surface area.

Pulse Rate.

The most primitive and easily observed normal of the circulation is undoubtedly the pulse rate. It is usual to express this as beats per minute, but the conditions under which it is counted as well as the actual time interval are variously standardised for different purposes.

Until quite recently the question of size had not been considered very seriously in this connection, though it is well known that in small mammals such as the mouse, the heart beats very rapidly, 300 a minute as shown by electrical records, whereas in larger animals the rate approximates to that characteristic of man.

The age changes in man from, say, 135 at birth to 75 in the adult are also probably dependent on size.

Some obstetricians claim to predict the sex of a child in utero, lower rates than 124 indicating boys and higher than 140 indicating girls. Since male foetuses are usually larger than female, this again is probably dependent on size.

The variation of pulse rate with the intensity of metabolism is another relation which has been recognised from earliest times, though metabolism has been usually considered in terms of body temperature. 'Simple' fever always raises the pulse rate proportionately, though this relation may be upset in special fevers such as typhoid.

Pirquet [11] suggests that what really matters is the pulse interval or length of cardiac cycle, a reciprocal of the pulse rate. This he points out is a function of the third power of the heart weight which in turn is a function of the third power of the body weight. It is also a function of the sitting height, which as Dreyer has shown is also a function of the third power of the weight.

The practical application of this relationship consists in counting the pulse rate for as many seconds as there are centimetres in the sitting height. In this way the size variation in pulse rate is eliminated, and the variations due to other conditions are more readily analysed.

Pulse Pressure.

More recently Dr. Marion Read [12] of San Francisco and Dr. Whitridge Davies [13] in collaboration with Dr. Eason at Edinburgh have shown the close relation that exists between pulse rate, pulse pressure, and basal metabolism. Pulse pressure, the difference between systolic and diastolic pressure, is a measure of the cardiac output and the product of this with pulse rate is a measure of the volume circulation rate. This undoubtedly depends on the metabolic rate. Dr. Read has gone so far as to advance a formula whereby the B.M.R. can be calculated from the pulse pressure and pulse rate, and suggests that where owing to lack of facilities, the basal metabolic rate cannot be directly determined, a useful approximation may be obtained by the use of this formula. It is obvious that both pulse rate and pulse pressure must be determined under the same basal conditions, and the figures should be checked whenever possible against a direct determination of the B.M.R.

B.M.R. $= 0.75$ (P.R. $+ 0.74$ P.P.) $- 72 = \pm x$ % of normal.

Further examples might be given of the attempts being made to correlate the various body measurements but enough has been written to show that all these measurements should be considered in the light of their physiological meaning, and that the most important functions in this respect are those concerned with the absorption, distribution and utilisation of oxygen.

Isolated measurements are of very little value. It is the relation of one measurement to another that really matters, and the solution of the problem in China in which all can share depends on the collection of a large body of observations whereby the constants characteristic of the race may be established.

The chief purpose of the Research Committee of the C.M.A. is to collect such observations and interpret them and we sincerely hope that all members of the Association will carefully study the various subjects suggested in Dr. Cadbury's letter for the work of the next biennium and send their observations to the member of the Committee who has undertaken to collect the data concerned.

No doubt some observers will prefer to write up their own observations; in that case let the Committee have the reference to the paper and a reprint for the files of the Association.

The following routine measurements should be made whenever possible:—

(1) Weight ... ... without clothes in kilograms.
(2) Standing Height without shoes ... in centimetres.
(3) Sitting Height ... ... in centimetres.
(4) Chest Girth at level of nipple (during speech) ... ... in centimetres.

(5) Lung Capacity, with Spirometer in litres or c. cms.
(6) Pluse Rate per minute.
(7) Systolic Blood Pressure. } State method, Auscultation preferable. } m.m. Hg.
(8) Diastolic Blood Pressure. }
(9) Basal Metabolic Rate.

Observations 6—8 inclusive to be made under the same basal conditions as for determination of B.M.R.

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The Inferior Parietal Lobule of the Brain.

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Certain Sulci in the brain of man preserve the form and relationships, which they present in the higher apes, with remarkable constancy. The Sylvian, the central and, in part, the parallel have merely become magnified in size and proportion. On the other hand fissures constant and easily recognisable in the apes have become obscured in the human brain. The inconstancy in form of the sulcus lunatus in the human brain led many anatomists to deny even its presence until Elliot Smith (1) pointed out its almost, if not universal, presence in the brain of the Egyptian; and at the same time made the homologues of the related sulci clear.

The fact that the sulci in the region posterior to the fissure of Sylvius were named prior to the establishment of these definite homologies has led to difficulties, when the old names are still applied without regard to phylogenetic interpretation. When however we find, as in the Chinese brain depicted in figure 3, the primitive form retained the interpretation is simplified if compared with the brain of the anthropoid.

Wang and Kappers (2) have given us a fine descriptive aocount of the pattern of the sulci in the parietal region of fifty Dutch brains. The brain of the Chinese throws light on the homologies of those Sulci which they have labelled "Ascg I, II, and III." and the present communication is a part of a general research on the occipital region with which I have been engaged since coming to Hongkong.

In Figure I, the lateral view of the left hemisphere of the brain of an orang-outang, we see the typical anthropoid form. This figure should be compared with the figures of anthropoid brains in Quain's Anatomy. (3)

The Sylvian fissure terminates in a T-shaped extremity. This mode of termination is found in eight out of the nine orang-outang brains in my collection. (4) Comparing the three brains depicted in this paper with one another we can fix a constant point anteriorly in this T-shaped extremity, whilst posteriorly the homologies can be fixed by the lunate and the prelunate sulci.

The parallel sulcus in figure I is a sulcus lying parallel with the Sylvian and terminates by arching forward over the Sylvian

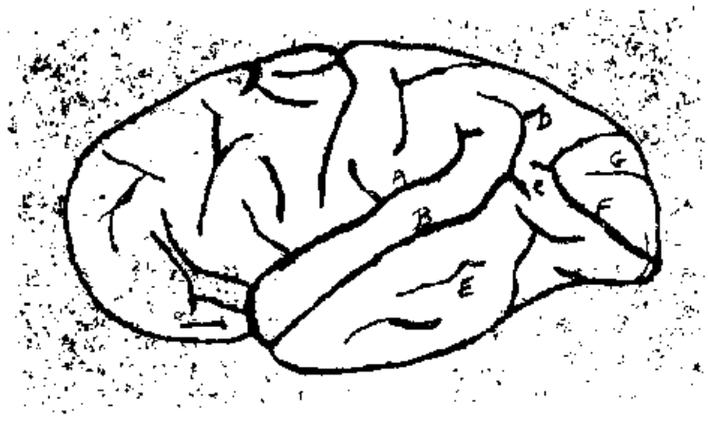


FIG 1. ORANG

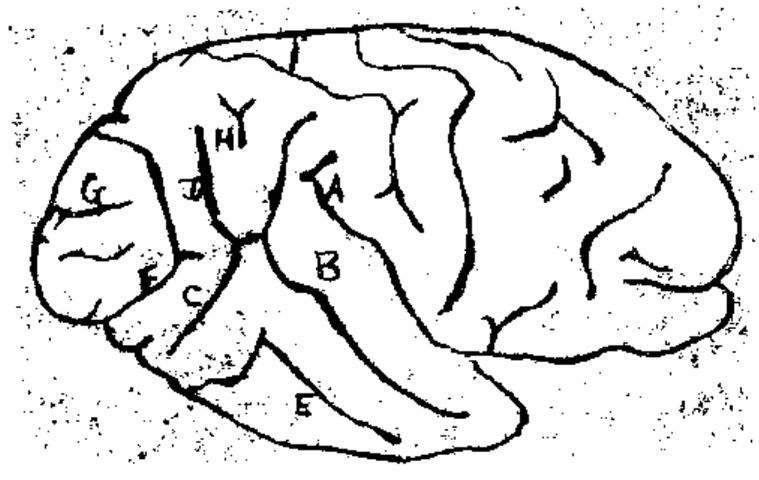


FIG 2. ORANG

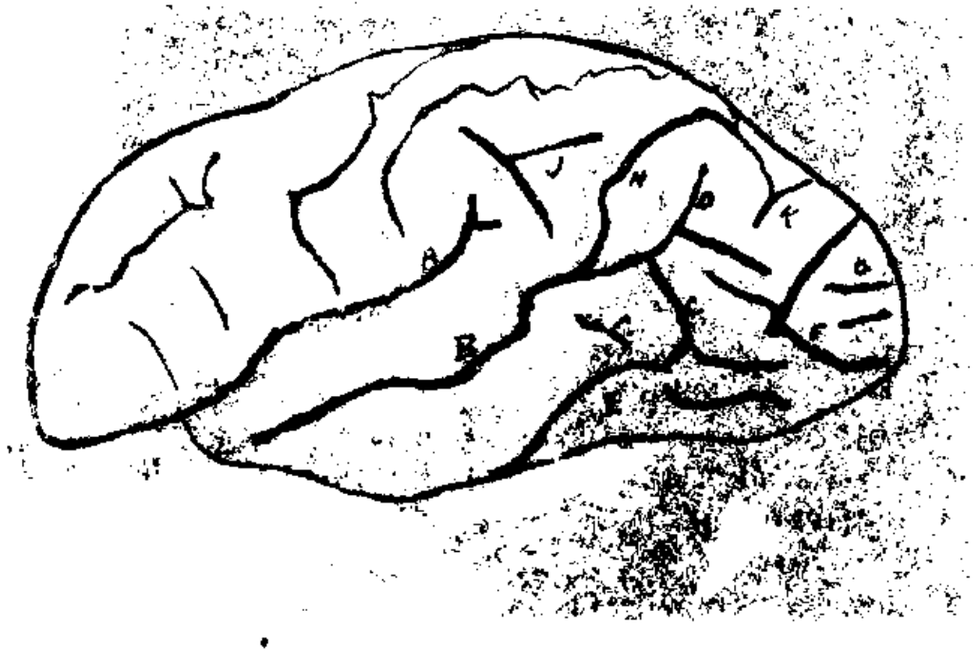
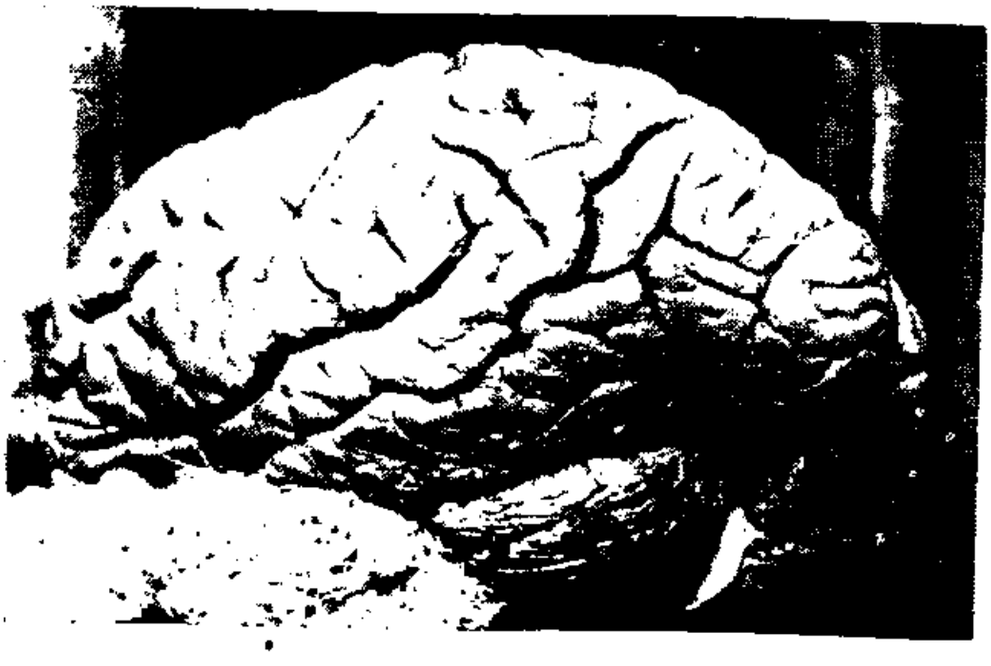


FIG 3. CHINESE

A. Sylvian Sulcus. B. Parallel Sulcus. C. Sule. Occ. Ant. D. Sule Occ. Ant.
E, Sule. Temp. Med. F. Sule. Lunatus. G. Sule. Occ. Sup. H. Sule. Angularis
J. Upturned End of Parallel. K. Sule. occip. Trans.



fissure. If one opens up the parallel sulci in the Gibbon or the Baboon, one observes that it appears to consist of two elements. The one element extending to a point posterior and inferior to the end of the fissure of Sylvius, and the other element extending from this point to its termination. The progressive development of these two elements is different when traced through an ascending series of brains.

The first element is a constant sulcus similar to the Sylvian or central sulci. Its identity is the same in all forms and limits the area circumambiens of Elliot Smith.

The second element is variable and subjected to changes depending on the expansion of that part of the cortex lying between the Sylvian fissure and the sulcus lunatus. On opening it up a sulcus is seen to be buried on its posterior wall in the Gibbon and in the Baboon. This buried sulcus is gradually extruded as the parietal cortex expands. In figure I.c. this buried sulcus is seen coming to the surface and extending downwards and backwards from the point of junction of the two elements of the parallel sulcus. Another small branch D passes into the angle formed by the intraparietal and the lunate sulci. The forces which have brought about the expansion of the parietal region have progressed to a much greater extent in the case of the brain of the orang-outang depicted in figure 2. The branches C & D have become completely extruded to form a sulcus lying parallel with the lunate. This sulcus is the sulcus occipitalis anterior and the part marked D is homologous with the limb Ascg III. of Wang and Kappers (loc. cit. fig. I). It is a very constant sulci in the Chinese brain, and is arched over by the gyrus post parietalis. Elliot Smith [5] has named the element D the sulcus occipitalis anterior, and the element C the sulcus occipitalis inferior. From the examination of over 400 Chinese brains in which the presence of the sulcus occipitalis inferior is frequent, there can be no doubt that morphologically the sulcus C—D—, in other words, the sulcus occipitalis anterior is a definite morphological entity and bounds the area praeoccipitalis anteriorly.

The small sulcus marked H in figure 2 is the sulcus angularis, a compensatory sulcus and distinct from the parallel system, although it is frequently joined to the parallel in the human brain. This is the Ascg II. of Wang and Kappers.

The short connecting piece between the parallel and the anterior occipital sulcus is a constant feature in the Chinese brain. The interpretation of the brain shown in figure 3 is now apparent. The parallel suclus has broken at the point where the two elements above described meet. The upturned end has separated off and passes over the sylvian fissure into the gyrus supramarginalis.

The parallel suclus is joined at the point at which the break occurred by the angular sulcus. The sulcus occipitalis anterior is so similar to the same sulcus in the orang-outang figured in figure 2 that no further description of it is necessary.

From this brain, therefore, we get the interpretation of the three ascending branches of the so-called sulcus temporalis superior. The first is the upturned end of the parallel, the second the sulcus angularis, and the third the sulcus occipitalis anterior.

It is clear that the retention of the name sulcus temporalis superior, particularly if regarded as the homologue of the parallel, can only lead to confusion when it can be described as terminating over the sylvian, in the sulcus angularis or in the sulcus occipitalis anterior.

The description of the sulcus lunatus in the brain of the Chinese is the subject of another communication, but it is important to note here that the sulcus prelunatus frequently joins the sulcus occipitalis anterior, and may be doubled as in figure 3; but it is not quite accurate to define it as joining the sulcus temporalis superior.

References.

1. Smith, G. Elliot. 1903. The so-called "Affenspalte" in the Human (Egyptian) Brain. Anat. Anz. Bd. XXIV.
2. Wang and Kappers. 1924. Morphological significance of certain lobes of Human Brain. China Med. Journ. Vol. XXXVIII No. 9.
3. 1909 Quain's Elements of Anatomy Vol. III Neurology. Pgs. 280-290.
4. 1902 Catalogue of the Royal College of Surgeons of England, Phys. Series, Second Edition, p. 438.
5. Cunningham's Text Book of Anatomy, Fourth Edition, 1913, Fig. 594.

Joint Conference of the C.M.M.A. and the Hongkong and China Branch of the B.M.A.—1925.

The opening meeting of the Conference took place in the City Hall in the form of a University Congregation at which H.E. the Governor as Chanceller of the University presided, being accompanied by the members of the University Court, Council, Senate and Staff.

The purpose of the Congregation was the conferring of honorary degrees on—

Dr. Philip B. Cousland.	M.B., C.M.
Dr. Henry S. Houghton.	Ph.D., M.D.
Dr. Edward H. Hume.	M.A., M.D.
Dr. Ernest Muir.	M.D., Ch.B., F.R.C.S.

who were attending the Conference as delegates.

After H.E. the Chancellor had welcomed the delegates, the Vice-Chancellor presented the honorary graduates for the degree of LL.D. (honoris causa).

The degrees having been conferred, the President of the B.M.A. welcomed the delegates on behalf of the Association and read certain telegrams and messages of congratulation, including congratulatory scrolls from the Provisional Chief Executive of the Republic of China, Tuan Chi-jui, and the Vice-Minister of Foreign Affairs, Peking—a translation of which is appended.

Dr. John Kirk, President of the C.M.M.A., replied.

From the Provisional Chief Executive of the Republic of China:—

"Of all the sciences, medicine had the earliest beginning.

Already in the reign of Huang-Ti, Chin Peh had written medical treatises, and Lei-Kung mastered the working of the pulse.

The establishment of foreign intercourse has brought the new science of medicine.

From Rome and the extreme West, books like the Nei-Ching and the Wei-Tai, the wonders of the balance and the instruments of bleeding.

In the caves of the Taoist priests they have penetrated to the springs of human life.

Others have nine times fractured their arms to perfect their knowledge of the healing art.

Others employed melons and various internal drugs.

Some have extracted bullets from the breast and cured the all but dead,

Yet are they afraid of being theoretical which is not in accordance with the precepts of science.

So they gather many people to study the minutest details.

Like the Chien bird of the Western Sea and the Tieh fish of the Eastern Continent,

They will come together in one same path.

How great is your strength and courage!

May this be the beginning of a millennium of peace!"

From the Vice-Minister of Foreign Affairs, Peking:—

"The science of medicine has inherited a noble tradition from the past.

Volumes have been made on Jade Tablets.

There are the Six Arts and the Four Schools and those physicians who broke their arms nine times for experiment.

Their art is divine and has a good foundation.

In dealing with disease, their aim is to cure the root of evil;

In prescribing they avoid being one sided.

In order to reach the truth, they probe down to the profoundest secrets.

At Hongkong learned doctors will come together.

Without good physicians how can we sustain lives?

The modern science is superior to the old as it is more exact.

I wait to see your wonderful results which will outshine the past and guide the future."

The Vice-Chancellor's Speech.

For more than a hundred years those Westerners whose lot it has been to come to China have been trying to do something for China's sick. In 1805 Mr. Alexander Pearson, a medical officer of the East India Company introduced vaccination into Canton. In 1820 the Rev. Dr. Morrison joined a Mr. Livingston, a surgeon of the East India Company, in opening an institution for the relief of afflicted Chinese. In 1828 Mr. Colledge, also a surgeon of the East India Company opened a hospital at Macao. A few years later the Rev. Peter Parker was sent out to China by the American Board of Commissioners for Foreign Missions and in 1835 he opened an ophthalmic hospital in Canton. I merely mention this in passing and that I may have the opportunity of

referring the present merchant princes of Hongkong to a passage which they will find in a book published in 1861—namely, "The Medical Missionary in China" by William Lockhart of the London Missionary Society. The author asks to be allowed to make a brief reference to the earliest friends of the Medical Missionary Society "who by their liberality and personal exertion did so much for its establishment and support." "From the names of many English and American residents," he wrote, "whose lasting honour it is to have materially helped the work, it will not be deemed invidious to select the names of J. R. Morrison, Wm. Jardine, Lancelot Dent and Alexander Anderson." Mr. Lockhart also relates how Mr. Jardine came to China as surgeon to one of the East India Company's ships, but landed in Canton and founded there the celebrated firm which still bears his name. He was, Mr. Lockhart adds, always ready to aid Dr. Parker with his professional knowledge in consultation, as well as in operations, and took a warm interest in all that was done in the hospital.

Dr. Ernest Muir took his degree at Edinburgh University in 1903. He had decided to become a medical missionary and the Edinburgh Medical Missionary Society, which he had joined, sent him to start his career by working under its auspices in Palestine. A scheme for giving to medical missionaries a training in Palestine has apparently been evolved by the Edinburgh Medical Missionary Society at the suggestion of the Rev. Peter Parker, to whom I have just referred. Later Dr. Muir went to Bengal as a member of the Indian Medical Mission Association and worked mainly at a medical mission centre at Kalna in the Burdwan district of the Bengal Presidency. There Dr. Muir did such good work, especially in connection with researches into Kala Azar and leprosy, that, on the advice probably of Sir Leonard Rogers, he was given by the Government of Bengal an appointment on the staff of the recently established Calcutta School of Tropical Medicine. There, I understand, he has been working mainly on leprosy and he is coming to Hongkong to tell the Medical Conference what he has found.

Dr. Muir has published books on "The Diagnosis and Treatment of Leprosy," also on "Kala-Azar, its Diagnosis and Treatment." The first, and, I believe, the last time I saw Dr. Muir was at Kalna. A hundred years ago Kalna was a flourishing and healthy port on the banks of a broad and navigable river. Now it is the disease stricken headquarters of a decaying sub-division; the river is silting up and the only centre of the town's activity is now the local law-courts. The Bengalee will litigate with his dying breath, and then bequeath the family law suit to his impoverished heirs. Kalna was once the favourite residence of the great Burdwan Raj. There is still a palace there and as each Maharaja dies, his ashes are deposited in a

new mausoleum built in a beautiful cemetery. I had come to Kalna with the Majarajaddhiraj Bahadur of Burdwan, then a member of the Executive Council of Bengal and incidentally my chief, and I was privileged to visit with him the mausolea, though debarred, of course, as a non-Hindu, from entering any shrine. The experience was an impressive one but somehow I have always since thought of Dr. Muir as the one really living thing in a city of the dead.

Dr. Houghton is a Doctor of Philosophy and of Medicine of John Hopkins University. He came to China in 1906 and quickly became associated with the scientific work of the China Medical Missionary Association. His first station was at Wuhu, where he carried out important researches in the parasitology of the Yangtze valley. From 1908 onwards he was an active member of the research committee, and departmental editor on parasitology of the China Medical Journal. At the Saigon Congress of 1913 he was Vice-President of the Far Eastern Association of Tropical Medicine. In 1912 the Harvard Medical School of Boston decided to open a school in Shanghai, in connection with the Red Cross Hospital, and Dr. Houghton was appointed to the staff of this school as Dean and Professor of Tropical Medicine. In 1914-5, when the Rockefeller Foundation decided to establish a medical school in Shanghai. Dr. Houghton was chosen to be its first director. When it was decided to make a start with a school in Peking, Dr. Houghton became acting director of the project and was engaged in supervising the construction of the buildings. Later, when the Shanghai scheme was abandoned Dr. Houghton became the director of the Peking Union Medical College, a post which he still adorns. Dr. Houghton is a member of the Executive Committee of the China Medical Missionary Association, a member of the Council on Public Health and a Member of the Council on Medical Education. He contributed to the System of Tropical Medicine by Byam and Archibald (an Oxford University publication) an article on a disease of which I have never heard and which I hesitate to pronounce.

Dr. Houghton's name will always and in particular be associated with the organisation of Public Health work in China.

Dr. Cousland is one of the oldest medical missionaries in China. He took his M.B. degree at Edinburgh in 1883 and he is a member of the Most Eminent Order of the Excellent Crop. He came out in 1886 to the English Presbyterian Mission at Swatow. Early in his career he became associated with the work of translating western medical books into Chinese and his name is now definitely established as a pioneer in this work of utility and scholarship.

He is editorial secretary to the Chinese Medical Translation Committee, author of the Anglo-Chinese Medical Lexicon and Translator into Chinese of Osler's "Practice of Medicine," Halliburton's "Physiology" and Younger's "Insanity in Everyday Practice."

Dr. Cousland has also been actively connected with the general work of the China Medical Missionary Association. He was its Secretary and Treasurer in 1907 and its President in 1910-13. He has contributed many scientific papers of general medical interest to the Association's journal.

In 1906 the graduates of the University of Yale, acting in co-operation with the gentry of the Province, established a collegiate preparatory school at Changsha and associated with it a dispensary. This school has now grown into an institution which comprises a Preparatory School with 224 pupils, a college department with 142 students, a Medical School with 41 students, a school for nurses and a hospital. The University of Yale in China has been incorporated by an Act of the Connecticut Legislature which empowers it to confer the B.A. the B.Sc. and the M.D. degrees.

Dr. Hume came out to Changsha the year the school was opened, and of the University, at least on its medical side, he may be said to be the founder. He has won his spurs both as a Professor of Medicine and as an administrator. He was the first Dean of the Medical School and is now President of the University. Dr. Hume has been a constant contributor to the China Medical Journal on medicine and public health. He was once Assistant Editor of the Journal in Medicine and he is accepted by all as an authority on medical education in China. Dr. Hume has taken a leading part in the attempt to establish Western medicine in China in close co-operation with the Chinese.

The University of Hongkong welcome this accession to the ranks of its honorary graduates. We are glad of this opportunity of complimenting, through our new honorary graduates, that great body of devoted men and women, who, by their work in China and elsewhere are doing what in them lies to reduce the sum of human misery. We are glad to associate ourselves with those who in China and elsewhere are working in the same field as we are, and we hope that this congregation will inaugurate an era of increased sympathy and enhanced mutual understanding. The Hongkong University is still almost in its infancy. What are some dozen years in the life of a University! What the Hongkong University may become depends mainly on our own efforts and the public support which those efforts can secure, but not a little on the approval and goodwill of those

who, not only in the Far East, but in the world generally constitute the cosmopolitan society of University men and women. We, the members of this University of Hongkong, want to assure you, and through you, that great cosmopolitan society to which I have just referred, that, though conscious of our shortcomings, we are in deadly earnest. We also remind our fellow workers in China that Hongkong is the gate-way through which pass all who come and go either from Europe or America. We ask that not one of you will ever pass through Hongkong without stopping long enough at least for the wishing of a mutual God-speed. Every one is always in such a hurry now-a-days; but in spite of engineering and medical faculties, Universities, I still maintain, exist principally to teach us how to enjoy leisure. Perhaps the greatest lesson we western workers in Universities and schools of the East, sorely puzzled and disheartened as we often are, can learn of each other is patience. Education is a factor in nation-building but Rome was not built in a day.

"Ages of heroes fought and fell
That Homer in the end might tell;
O'er grovelling generations past
Upstood the Doric fane at last;
And countless hearts on countless years
Had wasted thoughts and hopes and fears
Rude laughter and unmeaning tears;
Ere England Shakespeare saw, or Rome
The proud perfection of her dome.
Others I doubt not, if not we,
The issue of our toils shall see;
Young children gather as their own
The harvest that the dead have sown
The dead, forgotten and unknown."

Sectional Programme.

SECTION OF MEDICINE.

Chairman:—W. W. Cadbury, (C.M.M.A.); J. Anderson, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.
(With Parasitology and Public Health.)

TITLE.	*AUTHOR.*
Symposium on Hookworm	
The work of the China Hookworm Commission.....	J. B. Grant.
Epidemiology of Hookworm infection in the Soochow area	Cort, Stoll, Svensson.
Epidemiology of Hookworm in South China	Cort, Oldt, Cadbury.
Length of life experiments on Hookworm larvae....	R. Svensson.

The practical aspects of Hookworm control in China.	N. Bercovitz.
Hookworm therapy based on the treatment of 5,000 cases in Hainan	N. Bercovitz.
The results of treatment of Hookworm, ascaris and trichiurus infection as checked by egg counts...	Cadbury.

Second Session.—Wednesday, January 21st, 2 to 4.30 p.m.

Clinical observations on Tuberculosis among the Chinese	B. K. Lim.
The incidence of tubercular infection in China	J. H. Korns.
Knowledge of Syphilis especially Visceral Syphilis in general medicine	G. W. Leavell.
Cerebro-spinal Syphilis, its prevalence in China and treatment by cysterne and spinal route	M. O. Pfister.
Brief summary of methods of treatment of Venereal Disease in the Army with a demonstration of the apparatus now used	Major Lewis.
Unusual manifestations of Malaria	W. H. Dobson.

Third Session.—Thursday, January 22nd, 2 to 4.30 p.m. (and Pathology).

Melioidosis—a disease of rodents, communicable to man	A. T. Stanton.
Transmission of diphtheria immunity from mother to new born	C. E. Lim.
Subcutaneous diphtheria test. (demonstration)	C. E. Lim.
Experimental Leishmaniasis in animals	Smyly, Goung.
The occurrence of Peri-beri in parturient women...	J. Lawney.
Quantities of fluid present in the pleura pericardium and peritoneum in cases of Beri-beri	E. P. Minett.
The pathology of filariasis	J. Anderson.
A case of spleno-medullary leukaemia	J. Morrison.
Pathology and Etiology of Typhus (Lantern Slides).	C. B. Wolbach.

Fourth Session.—Friday, January 23rd, 10 to 12.30 p.m. (With Pharmacology and Public Health.)

The China Leper Survey	H. Fowler.
The present status of the treatment of Leprosy	V. G. Heiser.
Some observations on the modern treatment of Leprosy	H. Fowler.
Further experiments with ethyl-esters prepared from hydno-carpus oil	B. E. Read.
The nature of the leucocytosis caused by the administration of chaulmoogra oil and its derivatives...	B. E. Read.

SECTION OF SURGERY.

Chairman:—O. Thomson, (C.M.M.A.); K. H. Digby, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
Intestinal obstruction	Adrian Taylor.
Treatment of gall-stones	K. H. Digby.
Thrombo-angitis obliterans	A. I. Ludlow.

Second Session.—Thursday, January 22nd, 10 to 12.30 p.m.

Gunshot wounds	O. Thomson.
A study of railway and war wounds	W. B. Russell.
Litholopaxy	K. H. Digby.

Third Session.—Thursday, January 22nd, 2 to 4.30 p.m.

Spinal anaesthesia	S. F. Lee.
Some experiences with local anaesthesia	H. W. S. Wright.
Demonstration—Operative Surgery	K. H. Digby.

Fourth Session.—Friday, January 23rd, 10 to 12.30 p.m.

The incidence of Appendicitis among the Chinese...	R. M. Gibson.
Results of the Rockey Incision.....	G. H. Thomas.
Expithelioma of the Penis	Y. K. Wang.
Tumours in the Neck in relation to Branchial clefts.	Rollins, Green.

Fifth Session.—Friday, January 23rd, 2 to 3 p.m.

Fractures, (at the Government Civil Hospital).....	K. H. Digby.

SECTION OF GYNAECOLOGY AND OBSTETRICS.

Chairman:—J. Wright, (C.M.M.A.); Arthur Woo, (B.M.A.)

First Session.—Wednesday, January 21st, 2 to 4.30 p.m.

TITLE.	*AUTHOR.*
Tumours of the Placenta	J. P. Maxwell.
Ovarian Dermoid cysts in Young Girls (Demonstration)	Lois Pendleton.
Measurements of the Chinese Pelvis	L. M. Miles.
Incidence of Menstruation	M. Yang.

Second Session.—Thursday, January 22nd, 10 to 12.30 p.m.

Prolapse in Pregnancy	J. P. Maxwell.
Ectopic Pregnancy—the presentation of a recent series and a study of one case delivered at full term	S. W. Kwan.
Report of a case presenting interesting and unusual indications for Caesarian Section	M. L. James.
Caesarian Section	E. D. Smith.
Compound pregnancy	E. N. Ewers.

Third Session.—Thursday, January 22nd, 2 to 4.30 p.m.

Blood sedimentation test	J. R. B. Branch.
Gynaecological outpatient review	F. J. Heath.
Some remarks on the training of Chinese midwives in our hospitals	M. L. James.
Review of the work of the gynaecological clinic in the Canton Hospital for 3 years	J. M. Wright.
Vaginal Hernia	L. M. Miles.

SECTION OF OPHTHALMOLOGY.

Chairman:—H. Howard, (C.M.M.A.); J. Morrison, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
Symposium on Cataract.	
Choice of operation in extraction of Cataract	G. M. Harston.
Block akinesia of the lid sphincter in intraocular operations	H. Howard.
The use of and the indications for a conjunctival bridge or sclero corneal suture in extraction of cataract	H. Howard.

Second Session.—Thursday, January 22nd, 2 to 4.30 p.m.

Cysticercus cellulosae of the orbit	H. Howard.
Extensive tuberculosis of an eye in a baby	T. M. Li.
The finding of miliary tubercles in the choroid in autopsy specimens	T. P. Lee.

Spontaneous trephining in glaucoma	H. Howard.
The value of milk injections in the treatment of gonorrheal ophthalmia	D. V. Smith.

Third Session.—Friday, January 23rd, 10 to 12.30 p.m

The treatment of symblepharon and recurrent pterygium by Hay's operation	Thacker-Neville.
Fundus changes in kala azar patients	W. P. Ling.
Acute retrobular neuritis and a report of 4 typical cases	T. Y. Lai.
Plasmoma of the conjunctiva (a preliminary report).	P. S. Soudakoff.
An anomalous duct from the lacrimal gland	W. P. Ling.

Fourth Session.—Friday, January 23rd, 2 to 3 p.m.

Trachoma bodies Epithelial cells and parasitic bacteria An instrument of precision for measuring stereopsis.	H. Howard.
A refraction card for the eye department in a teaching institution	Thacker-Neville,W.S.

SECTION OF EAR, NOSE & THROAT.

Chairman:—W. S. Thacker-Neville, (C.M.M.A.)
S. S. Strahan, (B.M.A.)

First Session.—Wednesday, January 21st, 2 to 4.30 p.m.

TITLE.	*AUTHOR.*
The problem of tracheo-bronchoscopy and oesophagoscopy	T. Matsui.
Recent developments in bronchoscopy and oesophagoscopy	J. Hua Liu.
Ethmoidectomy	F. E. Dilley.
Maxillary sinusitis	Thacker-Neville.
Demonstration. Anatomy of Mastoid	A. N. Dunlap.

Second Session.—Thursday, January 22nd, 10 to 12.30 p.m.

Bacteriological studies of ear infections	A. N. Dunlap.
Cytology of mastoiditis with demonstration of slides.	S. P. Ts'-en.
Frontal sinus operations	C. A. Hayes.
Presentation of an otolarygnology card	Thacker-Naville.

SECTION OF RADIOLOGY.

Chairman:—J. L. Harvey, (C.M.M.A.); J. Macgown, (B.M.A.)
Thursday, January 22nd, 2 to 4.30 p.m.

TITLE.	*AUTHOR.*
Report of two years experiences with the C.M.M.A. X-ray Unit	H. H. Bryan.
Bronchial spirochetosis in Canton with X-ray findings	Cadbury. Jeu, Harvey.
Demonstration	Harvey.

SECTION OF PUBLIC HEALTH.

Chairman:—F. Oldt, (C.M.M.A.); J. B. Addison, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.

Symposium on Hookworn. *(See Medicine.)*

Second Session.—Wednesday, January 21st, 2 to 4.30 p.m.

TITLE.	*AUTHOR.*
New methods of measuring heights and weights ...	C. McCloy.
School Hygiene	Arthur Woo.
School Hygiene and baby clinics	Atwater, Yen.
School Hygiene	L. M. Miller.
School hygiene and infant welfare in the West Indies	Mrs. Minnett.

Third Session.—Thursday, January 22nd, 10 to 12.30 p.m.

Health and modern industry in China	C. T. Maitland.
The aims of the teaching and promotion of Hygiene by Missions in China	R. M. Atwater.
An analysis of the health of a Missionary Community in South China	W. W. Cadbury.
Health propaganda as a factor in Evangelism	W. H. Dobson.
Mental Hygiene	R. M. Ross.

Fourth Session.—Thursday, January 22nd, 2 to 4.30 p.m

Outline of the history of plague in Hongkong	A. G. M. Severn.
Disinfection and disinfestation of troops in the field.	Major Hingston.
League of Nations grading of Far Eastern ports...	C. E. Lim.
Destruction of Flies	C. McCloy.
Night soil disposal in China	H. A. Pan.
Demonstration of water chlorination	E. P. Minett.

Fifth Session.—Friday, January 23rd, 10 to 12.30 p.m.

Symposium on Leprosy. *(See Medicine.)*

SECTION OF PARASITOLOGY.

Chairman:—E. C. Faust, (C.M.M.A.); E. P. Minnett, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.

Symposium on Hookworn. *(See Medicine.)*

Second Session.—Thursday, January 22nd, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
Recent aspects of the clonorchis problem with demonstrations	Faust.
Life cycle of two new heterophyid flukes occurring in the Sino-Japanese areas with demonstrations...	Faust. Yokogawa.
A study of antimony therapy in schistosomiasis japonica	Meleny, Faust, Wassell.
On two cases of incipient schistosomiasis japonica treated in the P.U.M.C.	C. U. Lee.
An epidemic of schistosomiasis japonica in the Anking Area	H. B. Taylor.

Third Session.—Thursday, January 22nd, 2 to 4.30 p.m.

Cysticercus cellulosae of the orbit	H. J. Howard.
On a case of triradiate taenia solium from North China	E. C. Faust.
Two new cases of human creeping disease, (gnathostomiasis) in China with a note on the presence of the parasite Gnathostoma Spinigerum in reservoir hosts	Morishita. E. C. Faust.
Sandflies and sand-fly fever in North China	R. A. Bolt.

A preliminary check list of the mosquitoes of the Sino-Japanese areas ..... E. C. Faust.

Fourth Session.—Friday, January 23rd, 10 to 12.30 p.m.

Distinguishing characteristics of the intestinal protozoa of men ..... J. F. Kessell.
A preliminary report on the incidence of human intestinal protozoan infections in Seoul ..... J. F. Kessell.
Clearing amoebic infections in mammals by an exclusive milk diet ..... J. F. Kessell.
Antirabic treatment—demonstration of negri bodies. E. P. Minett.

SECTION OF PHARMACOLOGY.

Chairman:—B. E. Read, (C.M.M.A.); C. W. McKenny, (B.M.A.)

First Session.—Thursday, January 22nd, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
The pharmacology of Ma Huang	K. K. Chen.
Further experiments on the pharmacology and clinical uses of ephedrine	K. K. Chen.
Experiments demonstrating the action of certain drugs on the heart	H. P. Chu.
Centritugal method for the quantitative determination of albumen in urine	S. Y. Wong.
Experiments with the mesenteric lymph gland extracts from spleenless rabbits	R. H. Mole.
Vaccines and Serums and their production in China.	T. F. Huang.

Second Session.—Friday, January 23rd, 10 to 12.30 p.m.

Symposium on Leprosy. *(See Medicine.)*

SECTION OF PHYSIOLOGY.

Chairman:—P. S. Evans, Jr., (C.M.M.A.); H. G. Earle, (B.M.A.)

First Session.—Thursday, January 22nd, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
Recent advances in the physiology of gastric secretion	R. K. S. Lim.
The composition of some Chinese delicacies.....	H. K. Lin.
Notes on the analysis of food of Central China coolies	M. W. Powell.
The growth of Chinese children and their foods....	J. Hammond.
The influence of Chinese diet on Disease	J. W. H. Chun.
Basal Metabolism	H. G. Earle.

SECTION OF ANTHROPOLOGY.

Chairman:—D. Black, (C.M.M.A.); J. L. Shellshear, (B.M.A.)

First Session.—Wednesday, January 21st, 10 to 12.30 p.m.

TITLE.	*AUTHOR.*
Recent work in the field of prehistoric anthropology in China	D. Black.
Hongkong and the sea	Williams.
The origin of the peripheral nervous system.	J. L. Shellshear.
A study of the causes contributing to the develop-	

ment of the left aortic arch in mammals and the right aortic arch in birds ..... E. T. Congdon.

Second Session.—Wednesday, January 21st. 2 to 4.30 p.m.

Symposium on Racial Characters .....
New methods of measuring heights and weights... C. McCloy.
An age-height-weight study of Cantonese school boys ..... Keys. Cadbury.
An age-height-weight study based on 3000 observations from the Hongkong schools ..... A. E. Dome.
Physical measurements of Chinese children in Shanghai and Hawaii ..... V. B. Appleton
Physical examination of students at Cheng-tu..... Kilborn.
Measurements of Chinese pelvis ..... L. M. Miles.
Incidence of menstruation and menopause ..... Marian Yang.

Third Session.—Thursday, January 22nd, 2 to 4.30 p.m.

Report on anthropometric data of Research Committee of the C.M.M.A. ..... P. H. Stevenson.
A preliminary analysis of selected Chinese anthropometric data ..... P. H. Stevenson
Relation of dentition and dental caries to age among the Chinese ..... D. Black.
Method of craniometry ..... J. L. Shellshear
Physiological anthropometry ..... H. G. Earle.

Fourth Session.—Friday, January 23rd, 10 to 12.30 p.m.

Occipital lobe in the brain of the Chinese..... J. L. Shellshear.
Discussion on Racial Standards .....
Discussion on the teaching of Anatomy and Physiology .....

SECTION OF MEDICINE.

The majority of the delegates attending the Conference were most keenly interested in the division of Medicine and the general invitation to submit papers to this section met with a ready response. From the titles sent in, it soon became obvious that a large amount of original work had been performed in the various medical centres of China, and the subjects of research were of such paramount importance that it was decided to spread the discussions over five sessions of the Conference. Altogether about thirty papers were read and discussed, and the bulk of these will be published *in extenso* by the China Medical Journal.

On Wednesday, 21st January, the morning session was opened by Dr. Hume of Changsha who delivered an address on the "Relationships in Medicine between China and the Western World." Dr. Hume displayed a profound knowledge of the Materia Medica of China and a scholarly acquaintance with its language and literature. His long experience of medical practice and teaching in Central China gave his address an authoritative note which left his audience with a desire for a more extensive record of his observations.

Following this promising opening address, the Medical Section settled down to a symposium on Hookworm in which they were supported by the divisions of Parasitology and Public Health. Dr. W. W. Cadbury of Canton Christian College occupied the chair. The first paper was an outline of "The Work of the China Hookworm Commission" by Grant of Peking, read in his absence by Dr. C. E. Lim. Two papers on the Epidemiology of Horkworm Infection in China by various collaborators including Cort, Stoll, Svensson, Oldt, and Cadbury provided an important collection of details which should be of permanent value to workers in the same field. The "Practical Aspects of Hookworm Control in China" by Bercovitz, and "Hookworm Therapy based on the treatment of 5,000 Cases" by the same author were both highly instructive papers and gave rise to a good deal of question and discussion. The final paper on the results of anthelmintic treatment as checked by egg counts, read by Cadbury, contained many valuable suggestions regarding the control of modern therapeutic measures.

The afternoon session commenced at 2 p.m. and the very large attendance gave evidence of the universal interest in Tuberculosis and Syphilis. The chair was taken by Dr. J. Anderson, Hongkong, and Dr. Lim Boon-keng of Amoy opened the discussion with a paper entitled "Clinical Observations on Tuberculosis among the Chinese." His wide clinical experience, extending over 25 years, has gradually increased his confidence in the curability of phthisis. He emphasised the importance of early diagnosis, of segregation, of fresh air, of strict attention to personal hygiene, and of educational work along those lines in the crowded cities of the East. Out of the long procession of drugs which have been tried, creosote and cod-liver oil are the only two which have maintained their reputation, and he advocated the use of tuberculin in carefully graduated doses. The well-known immunity of dogs and cats towards tuberculosis suggested to him that the meat juices of carnivorous animals might be antagonistic to the tubercle bacilli, and he issued a plea for closer co-operation between the clinicians and the laboratory workers in order to test the efficacy of such a line of treatment.

A keen discussion arose with regard to the transport of tuberculous patients from Chinese ports and it was agreed to refer the subject to the Section of Public Health.

The paper on the "Incidence of Tubercular Infection in China" by Korns of Peking was read in his absence by the chairman. Under the title, "A Knowledge of Syphilis Especially Visceral Syphilis in General Medicine," Leavel gave a succinct survey of the clinical manifestations of lues observed amongst the Chinese. A short paper on "Unusual Manifestations of

Malaria" by Dobson proved attractive on account of its originality and gave rise to some debate. Thereafter, the Section repaired to the lantern room to view the slides prepared by Wolbach of Harvard demonstrating the "Pathology and Etiology of Typhus." The slides were demonstrated by Dr. Lois Pendleton and the audience were highly interested in the Rickettsia bodies which were clearly shown in the preparations.

On Thursday, 22nd January, the morning session was opened by Dr. McCandliss who gave an extremely interesting address on "Medical Experiences during 40 years in China." The hardships and obstacles with which the earlier missionaries were faced, and the triumphs which come as the reward of patience and self-sacrifice were related in graphic detail and the large gathering was palpably touched and inspired by the address.

The afternoon session opened with a demonstration on Experimental Leishmaniasis prepared by Smyly and Young and explained by Dr. C. U. Lee of Peking.

A paper on "Melioidosis" by Stanton of Kuala Lumpur was read by title, and reprints were circulated amongst the delegates. The disease is closely analogous to glanders and affects chiefly rats and other rodents, but is also communicable to man. The causal organism is known as Bacterium Whitmori and bears some morphological resemblance to B. Mallei. The symptoms are somewhat indefinite, but in a virulent infection, there is profound constitutional disturbance while in most cases there is involvement of the lungs, diarrhoea, cystitis, and sometimes skin lesions. It is still a rare disease but as the author states, "all the great epidemic diseases must have had small beginnings."

Two papers entitled "Transmission of Diphtheria Immunity from Mother to New-born," and "The Subcutaneous Diphtheria Test" by Lim were marked by a wealth of detailed observation. In the group of deficiency diseases, two papers were presented, viz. "The Occurrence of Beri-beri in Parturient Women" by Lawney, and "The Quantities of Fluid present in the Pleura, Pericardium and Peritoneum in Cases of Beri-beri" by Minett. From her wide obstetrical experience, Dr. Lawney showed that beri-beri is much more prevalent in parturient women than is commonly believed.

Anderson's paper on "The Pathology of Filariasis" was read by title. "A Case of Spleno-medullary Leukaemia" was demonstrated by Morrison, an interesting feature of the case being the marked improvement which has taken place under injections of an organic iron preparation.

"A Summary of Methods of Treatment of Venereal Disease

in the Army with a demonstration of the apparatus now used" by Lewis brought the session to a close. Major Lewis has attained an authoritative position in this subject, and his demonstration of the modern apparatus used in diagnosis and treatment proved highly instructive.

On Friday morning the Session was opened by Dr. E. Muir of Calcutta who delivered an address on "Leprosy." Dr. Muir's reputation as one of the leading authorities on "The Great Disease" attracted a very large gathering of delegates and residents. He pointed out that leprosy was a self-limiting disease, and that, as in other bacterial infections, the development of immunity, though very gradual, caused a recession of the symptoms. He emphasised the importance of early diagnosis and treatment, because it is in the first stage of the disease that the modern methods of treatment are most effective. His main therapeutic agent consists of the ethylesters of chaulmoogra oil, but he urged the necessity of careful attention to any intercurrent disease of a wasting nature such as Syphilis or Ancylostomiasis.

Following this address, the general meeting then dispersed and the Section settled down to a symposium on leprosy and its treatment.

A paper on "The China Leper Survey" by Fowler introduced some very important observations with regard to the distribution and segregation of lepers. Dr. Fowler showed that the disease was widespread and endemic in all the low-lying maritime provinces, and that except in the provinces of Fukien and Kwangtung, the authorities made no provision for the isolation of lepers in China.

In the absence of Dr. Victor Heiser of New York, his paper on "The present status of the treatment of Leprosy" was read by the chairman. Reports from all the leper centres of the world showed that chaulmoogra oil and its derivatives held out the best prospects of success as a remedy. Dr. Fowler of Shanghai strongly supported the previous author by his paper entitled "Some observations on the modern treatment of Leprosy."

The next two papers—"Further experiments with ethylesters prepared from hydnocarpus oil," and "The nature of the leucocytosis caused by the administration of chaulmoogra oil and its derivatives," by Read of Peking—added some valuable scientific facts to our present knowledge of the pharmacology of the drug.

On Friday afternoon, the Section discussed three short papers, "Pellagra in China—some recent views on its etiology"

by Lee, "Pea-nut Bronchitis," and "Hongkong Foot" by Frazier of Peking. Dr. Frazier has made some interesting observations on the causal organism of Hongkong Foot, and he believes that the lesions may extend to the hands and other parts of the body. The paper gave rise to a considerable amount of discussion and elicited some instructive clinical experience from the local dermatologists.

J. A.

Surgical Section.

War Wounds.

In view of the irregular warfare that has been going on in various parts of China in the last few years it was not unnatural that considerable prominence was given to the subject of *war wounds.*

Dr. J. Oscar Thomson in his paper on "Gunshot Wounds" reviewed the recent experience in Canton. Considering the poor medical organisation in various armies and the late arrival of cases at hospital, it was surprising to learn that the total mortality was only seven per cent. It was also very noteworthy that in spite of the heavily manured state of the battle fields (and it may be borne in mind that observers at Peking have shown frequent occurrence of tetanus spores in Chinese faeces) there were only six cases of tetanus and three of gas gangrene out of 1,126 surgical cases.

Dr. W. B. Russel of Chang Chow followed with a paper on "A study of Railway and War Wounds" and these two papers together with some excellent radiograms of war work by Dr. Harvey of Canton, provoked an interesting discussion.

Abdominal Surgery.

This branch of surgery provided the greatest number of papers and demonstrations.

Professor Adrian Taylor's paper from the Peking Union Medical College which opened the session was read by Dr. J. P. Webster. The paper provided a comprehensive view of the present position with regard to Intestinal Obstruction. This paper led to considerable discussion.

A valuable addition to knowledge was made by Dr. R. M. Gibson of Hongkong in his researches on the "Incidence of Appendicitis amongst the Chinese." 815 bodies were examined

in the Victoria Mortuary. Only ten per cent. of these showed evidence of old or recent inflammation (in children under five years of age the evidence was only seven per cent.) This paper was full of other useful observations. In the discussion it was said that this evidence appeared to support the clinical impression as to the relative rarity of appendicitis among the Chinese, but very divergent views were expressed. Dr. Webster quoting P.U.M.C. figures (which were themselves criticised) felt that appendicitis was more common amongst the Chinese than was generally supposed. Dr. John Kirk said that all statistics from Hongkong should be regarded with the utmost suspicion, at least as applying to China at large, for the diet and conditions of life amongst Chinese in Hongkong were so different from those up country.

Dr. G. H. Thomas in a short paper drew the attention of the section to Rockey's Incision for appendicitis and recorded his experience of its use. He subsequently demonstrated this operation.

Another new incision for appendicitis—a combined rectus-sheath and muscle-splitting incision closable by strips of aponeurosis—was later demonstrated by Professor Digby together with fresh methods of fascial sewing and knotting.

In a paper on "The Treatment of Gall Stones" Professor Digby advocated the following principles:—

(1) That operation should be undertaken at once as soon as a reasonably probable diagnosis of gall stones has been reached.

(2) That very free exposure of the biliary tract is desirable, preferably an angled incision such as Perthe's incision.

(3) That the bile duct should be opened just above the duodenum as a routine measure and the main ducts thoroughly explored from within as well as without.

(4) That removal of gall bladder and cystic duct should be generally (though not invariably) be practised, the use of a metal T-tube protecting the main ducts from injury.

Perhaps the chief interest centred on Dr. J. P. Webster's paper on and subsequent demonstration of his new method of aseptic intestinal anastomosis. This certainly impressed the section as a very considerable advance on other recent attempts in this direction.

Anæsthesia.

The subject of anæsthetics provided two very interesting papers. Dr. S. F. Lee of Canton in a clear and logical paper strongly advocated a wider use of spinal analgesia employing novocaine and caffeine, and recorded the good results in his own practice. The subsequent discussion disclosed a sharp divergence of opinion.

Mr. H. W. B. Wright of Tsinan read a paper on "Some Experiences with Local Anæsthesia." Of exceptional interest and value was his account of anæsthesia of the brachial plexus.

Surgical Pathology.

The pathological side of surgery was represented by two contributions, one by Dr. Wong on Epithelioma of the Penis and another by Drs. Green and Roilins on Tumours of the neck in relation to Branchial Clefts.

Urinary Surgery.

In regard to the treatment of stone in the bladder Professor Digby and Dr. T. Y. Li advocated that wherever possible litholapaxy should be performed, but that if the suprapubic operations were undertaken the bladder should be freely drained by a large rubber tube.

Technique.

The surgical firm of dressers, Messrs. Bau, Guzdar and Kwong, provided a demonstratoin of no-hand-touch-technique especially—

(1) Protection from patient's own skin.

(2) Ligaturing.

(3) Suturing.

Treatment of Fractures.

A demonstration of certain modifications in fracture apparatus was given by Professor Digby in the Surgical Unit at the Government Civil Hospital.

These included:—

(1) A knee flexion traction femur splint.

(2) A special bed for use with the same.

(3) An abduction traction humerus splint.

(4) An abduction clavicle splint.

K. H. D.

Section of Obstetrics & Gynæcology.

The Section was well attended and much interest shown. Fifteen papers were presented. Some were illustrated by slides shown by lantern. Microscopic specimens were presented and gross specimens were shown by some of the authors. Also a number presented charts and drawings. As mostly the papers were quite full and took up nearly all of the available time, the general discussions were short and snappy. Many points of interest both general and particular, were brought out. The question of the training of midwives provoked much discussion from various points of view, but all agreed the need was great. There was much evidence to show that in many places the services of the obstetrician and gynæcologist were much sought after and appreciated.

J. M. W.

Section of Parasitology.

The papers presented were grouped under two headings, (*a*) helminthology and (*b*) protozoology. Two sessions were held at which helminthological papers were read, one on "Hookworm," in conjunction with the Sections on Medicine and on Public Health, and one on "Fluke and Cestode Infections in China and the Far East."

On the whole the papers presented showed a very considerable amount of investigation along the lines of parasitology and tropical medicine in China but demonstrated equally forcibly the tremendous number of problems still untouched.

The most conspicuous of these, malaria, has been designated as the subject for investigation for the next biennium of the China Medical Association.

E. C. F.

Section of Anthropology.

The study of anthropology is to-day recognised as being of the greatest importance in any investigations of a social,

political or biological character. It has always been attractive to the mind of man, for his first thoughts concerning his origin were the beginnings of the science of anthropology.

Old as the science is, it has only of recent date been given a place of any importance. Recently, in fact, Elliot Smith has appealed for imperial support for the science which has so captivated the public mind.

That such appeals are almost unnecessary in America was clearly demonstrated by Dr. Davidson Black in his very interesting lecture on Recent Work in the Field of Prehistoric Anthropology in China. The support of America's great institutions has led to the organisation of exploration in such a way that great things are to be expected in the near future from Northern China.

But spectacular as the finding of a fossil may be, it is more important to know the present day living material. The Conference has helped forward this important side of the work.

It was a stimulating experience to be present at a section which included both anatomy and physiology. For the anatomist has rather tended to assume that anthropology is his own domain, whereas the investigation of racial characteristics must include physiological standards.

The discussion on racial standards was shared by the physicians, the physiologists, the anatomists and those interested in the physical development of the Chinese.

It is a healthy sign for the future of medicine in China to find a conference associating itself with generalised problems. The personnel of the research committee including as it does so many people with different points of view should prevent premature specialisation in individual subjects.

These discussions on racial standards were most illuminating and pointed clearly to the direction which must be pursued in order to arrive at a broad view of the subject.

From the physiological side, the Chinese were considered in the light of living beings performing definite functions. The time seems to have passed for describing a race in terms of an average cephalic index. What is required is to know whether there are structural and physiological differences from the standards laid down in Western schools.

The physiologist attacks the problem from the standpoint of metabolism. Dr. Earle would take as the basis for his work the oxygen consumption of the individual. This line of inves-

tigation must be co-ordinated with the anatomical and physiological condition of the endocrine organs of the race.

The research committee is anxious to receive information from all parts of China of the incidence of endocrine diseases.

Whilst it may be premature in the present state of our knowledge to attribute too great a rôle to the endocrine glands in racial differentiation, we must be impressed by the views of Sir Arthur Keith that the Mongolian race has been differentiated by influences associated with the thyroid gland. The proof must come from their physical examination.

Dr. Stephenson has commenced the work of unravelling the statistical data—data dealing with anthropological measurements. It is a striking testimony to the wide viewpoint of the members of the C.M.M.A. that this analysis made by Dr. Stevenson should be from a total of over 10,000 records of different individuals, representing the combined contributions of twenty-two different investigators and clinics, collected over eight years and including in its scope all the eighteen provinces of China proper, and a number of records from Manchuria and Mongolia.

On the third day of the Conference a spirited discussion took place on medical education, in which Drs. Read, Evans, Black, Stump, R. K. S. Lim, Earle, and others took part. Broadly speaking the discussion revolved round two principles, which were given the appearance of being opposed.

(1) Should the junior student, in his course on anatomy and physiology, be taught with the definite object of furnishing him with facts to be of use to him in his medical career? or. (2) Should he be taught these subjects as pure sciences, irrespective of whether he is to be a doctor?

This subject of medical education is continually to the fore and papers appear from time to time expressing the views of advocates of one or other of the above points of view.

The writer takes his stand on the second principle for the reason that the first essential in medical education is to educate the student on broad general lines. Training in observation and discrimination gives the student the capacity of building a specialisation on a generalisation.. The early specialisation of a student may make him the object of admiration and wonder in his capacity for dissecting kidney tubules, but of what value is this if he knows nothing of the fundamental principles underlying filtration, osmosis, and diffusion?

On the other side of the question is the possibility of the

divorce of anatomy and physiology from medicine. Such a divorce or even separation must prove fatal to any educational establishment. The possibility need not be discussed, however, as long as the C.M.M.A. continues to hold the wide and generalised outlook which it at present possesses, (is it that they have retained the qualities of the old-fashioned general practitioner, so sorely needed to-day?)

The further great principle which the Conference established was that those engaged in teaching and research should come into contact with each other. I shall not soon forget the stimulating and happy days of the meetings nor the friendships formed.

Man is a sociable animal seldom uncharitable to those with whom he comes into contact, but subject to unreasoning judgment on those whom he does not know.

The advances in medical knowledge in China must be at the meeting places of lone workers.

J. L. S.

Section of Physiology.

The original intention had been to combine Anatomy and Physiology in one section under the heading Anthropology. It is becoming increasingly recognised that Anthropology has a physiological as well as an anatomical side and it would appear to be the work of physiologists in countries where little research work into racial characteristics has been undertaken to establish physiological standards.

The Research Committee of the C.M.M.A. has always recognised this, as witness the pioneer work of Duncan Whyte, Merrins and others.

Physiology has, however, many aspects and the experimental methods which physiologists have introduced into the study of the biological sciences necessarily require that a great deal of research work be carried out on animals. Partly then owing to this fact and partly owing to the necessities of the programme a session of pure physiology was planned, the papers having special reference to food, digestion and metabolism. Unfortunately many of the papers that were promised did not arrive, but this left more time for the reading and discussion of others, so that a full session was carried through, and the interest well maintained.

Undoubtedly the best paper was that contributed by Dr. R. K. S. Lim. This was only to be expected as it embodied the work which he in association with others has been carrying out in Schafer's laboratory on the structure and functions of the stomach.

Professor Lim first described the different epitheliai cells found in the mucous membrane and considered their origin and development with references to the frequency of their occurrence in gastric cancer. He next described the technique employed in obtaining gastric juice, and pointed out how in the withdrawal of a test meal, the contents were frequently contaminated by regurgitation from the duodenum, so that estimations of acidity were almost valueless. He went on to describe his conclusions with reference to the mechanism of gastric secretion. He stated that his work suggested that secretion was continuous and was very little influenced by the intake of food, in fact it appeared to depend like that of the kidney almost entirely on the rate of blood flow through the stomach. In the discussion that followed, the various speakers showed that they did not like their cherished notions about the value of psychic and nervous factors in gastric secretion, derived from the work of Pavlov being so lightly put aside, nor were they prepared to accept the dictum that all test meal investigations as generally carried out, are useless. However, the paper proved very stimulating and there is nothing like self-confident dogmatism for producing a lively discussion.

Another paper which would have proved more interesting if the local chairman had arranged for the session to be held where lantern slides could be shown was that read by Dr. Guy on behalf of Dr. Hammond. It presented the results of an interesting investigation into the diet of an orphanage in North China and its relation to the growth of the orphans.

The paper was well illustrated by slides showing the analysis of the diet and various growth curves. The general conclusions seemed to be that growth proceeded along normal lines in spite of the poorness of the diet, and that perhaps too much fuss was being made about the lack of vitamins in the peasant diet of North China.

Professor Read vigorously combated this view and deplored any suggestion that the diet of the peasants was in any way adequate. He was of opinion that a very vigorous campaign is necessary to improve the diets and that this would lead to improved physique, greater resistance to disease and accordingly greater efficiency.

The session closed with a discussion on Basal Metabolism. It was stated that as a result of some hundred observations on

the basal metabolic rate (B.M.R.) of Chinese students, figures were obtained on the average 5-10% less than that recognised as the standard for Western peoples. It was pointed out that the "rate" makes due allowance for height, weight, age and surface area and that we are therefore forced to the conclusion in the light of clinical observations that a reduced rate means that the Chinese university student is hypothyroid when compared with his Western brother.

Several of those who took part in the discussion failed to recognize that in calculating the rate, allowance is already made for low stature and weight, which independent observations have shown to be characteristic of the Southern Chinese. Metabolism of course varies with height, weight, etc., but the basal metabolic rate appears to depend mainly, if not entirely, on the thyroid secretion.

H. G. E.

Section of Pharmacology.

This section was very well attended and lively discussions followed each paper. Great interest was manifested in recent work on Chinese drugs. K. K. Chen's paper on the pharmacology of Ma Huang—a diaphoretic herb of the Chinese materia medica—attracted special attention. His experiments on the active principle, ephedrine have established its clinical uses in hypotension of blood pressure and in asthma. B. E. Read and S. Y. Wong's paper on Fuhling and Carl F. Schmidt's paper on Huang Chi have shown on the other hand that the merits ordinarily ascribed to these drugs were not supported by experimental evidence. The other interesting papers read in this section were H. P. Chu's paper on the action of certain drugs on the heart, R. H. Mole's paper on the mesenteric lymph gland extracts from spleenless rabbits, and T. F. Wong's paper on vaccines and serums produced in China.

S. Y. W.

The Trade Exhibit.

A feature of all medical conferences is the trade exhibit and in a conference such as the one which met in Hongkong, where delegates come from districts where they are completely out of touch with modern appliances and drugs, it is more important than usual.

It was for this reason that it was decided to sacrifice the Great Hall of the University as far as general meetings were concerned in favour of the Trade Exhibit. This meant holding the opening meeting and University Congregation in the City-Hall. But there is no doubt that the exhibit justified the confidence that had been placed in it, and that the Great Hall soon became the most popular rendezvous for those not engaged in sessions and committees.

The Victor X-ray Exhibit in the School of Physiology also attracted a constant stream of visitors, and with the demonstrations given by Dr. Harvey proved one of the most important features of the Conference.

One must not forget to mention in this connection the Public Health Exhibit under Dr. Chiang, organised by the Council on Health Education—this has always been an important feature of recent C.M.M.A. Conferences. One missed the forceful personality of Dr. Peter, but Dr. Chiang's cheery optimism in face of great difficulties carried things through.

The cinema films on Hookworm, Malaria, the House-fly, and How Life Begins were very much appreciated by those who witnessed them.

Also housed in the same room was an exhibit brought by Dr. C. E. Lim on behalf of the Central Epidemic Prevention Bureau, Peking. The work of this organisation which deserves every encouragement was referred to in a paper on 'Vaccines and Serums and their production in China' by Dr. Huang presented at the section of Pharmacology.

The following is a list of Exhibitors:—

Messrs. Allen & Hanbury ..... (Represented by Mr. H. Reddick.)

Messrs. Burroughs and Wellcome & Co. ..... (Represented by Mr. A. Hanson.)

Messrs. Elli Lilly & Co., Indianapolis ..... (Represented by Mr. H. A. Smith, Mr. E. W. Miller.)

Messrs. Parke Davis & Co.

Reid Brothers, San Francisco ..... (Represented by Mr. H. J. Eddo.)

Messrs A. S. Watson & Co., including exhibits of Cow and Gate foods, and Lotol. (Represented by Mr. W. Paterson.)

Messrs. Harry Wicking & Co., Hongkong ..... (Represented by Mr. R. H. Remington.)

Kodak Ltd., Shanghai.

Mission Book Company, Shanghai.

Victor X-ray Co., Shanghai ..... (Represented by Mr. C. Foss.)
Brand's invalid food products } ... (Represented by
Horlick's Malted Milk. } Mr. H. M. Hodges.)
Nestles food products ..... (Represented by Mr. Shrubsole.)

In the general organisation of the Exhibit, considerable assistance was received from Mr. Wilson of Messrs. A. S. Watson & Co. and from the workshops of the Engineering Faculty.

List of Entertainments and other Special Functions.

January 20th	Tea and University Congregation Welcome by H.E. The Governor and the President of the B.M.A.	City Hall.
January 21st	Lecture—'Manson, the Pioneer in Tropical Medicine' Dr. Lim Boon Keng.	Cathedral Hall
	Special performances — St. Joan Hongkong A.D.C.	Theatre Royal
January 22nd	Lecture—'China and the Western World' by Dr. E.H. Hume	University
January 23rd	Official Dinner to representative delegates - - - - -	Government House
	Concert } H.K.U.C.	Eliot Hall
	Dance }	University Union
January 24th	Motor Picnic. Dr. Arthur Woo and Dr. S. C. Ho and members of the Hongkong Chinese Medical Association.	Repulse Bay
	Motor Trip Dr. W. B. A. Moore and members of the B.M.A.	Mainland
	Golf Match C.M.M.A. v B.M.A.	Fanling
	Tea Party Sir Paul Chater	1, Conduit Road
	Tennis Party Mrs. Digby and Mrs. Shellshear	University
	Tennis Match C.M.M.A. v H.K.U.C.	Univ. Ath. Ground
January 25th	Special Service. 11 a.m. Rev. H. Copley Moyle	St. John's Cath
	Tea Party. 4 p.m. H.K.U. Christian Association	University Union
	Special Service. 6 p.m. Rev. J. Kirk Maconachie	Union Church
January 26th	Lecture — 'Prehistoric Anthropology in China' Prof. Davidson Black	Helena May Inst.
January 27th	Tea Party. Sir Robert Ho Tung	Hongkong Hotel
	Lecture—'A Century of Medical Missions in China' Dr. J. L. Maxwell	City Hall
January 28th—30th	Trip to Canton South China Branch, C.M.M.A.	

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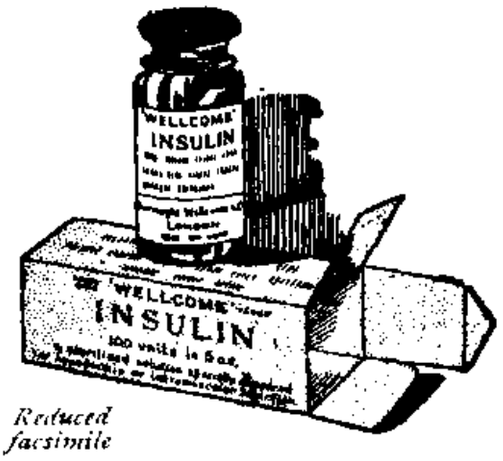

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