HOW TO INITIATE PUBLIC HEALTH WORK IN CHINESE CITIES. SOME PRACTICAL DETAILS.

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In China the beginning of most things appears to be made the occasion for flags, feasts, and photographs. This may be advisable for working up enthusiasm and for advertising a new movement, but I will pass this stage over and come to essentials.

GENERAL CONTROL.

The first essential is some form of authority controlling finance, staff appointments, and general policy, such as a municipal council.

HEALTH OFFICER.

The second essential is a health officer, upon whom practically all organisation and responsibility should devolve. If you get the right man the rest will follow. As the initiation of public health work in China is a matter for the future it appears desirable to indicate what makes an efficient health officer. A private practitioner is generally held to make a poor health officer. He has a bias towards cure which tends to obscure the main objective of the health officer. He sees the individual rather than the mass. About two years of the practitioner's training is wasted on the health officer and would be better devoted to parasitology, epidemiology, and systematic organisation. It has been said that the efficiency of a health officer is measured by the enemies he makes, but this is only half the truth—tact, resourcefulness, and honesty of purpose will often overcome opposition. He should be independent of local patronage and not subservient to vested interests. Rather than have a part time health officer it is better to combine two
or more districts so as to obtain the whole service of a properly trained man. The trained health officer should thoroughly understand vital statistics, transmission of communicable disease, but not necessarily its treatment; laboratory methods of diagnosis of infections; how food should be guarded against infectious; how nuisances, especially rats, mosquitoes, and flies, may cause disease; and a working knowledge of sanitary engineering and law. His attitude towards disease should be strictly scientific, that is to say, he should not spend time and money on measures which do not show definite results; but at the same time he should be sufficiently imaginative to be able to gauge that sentimental thing—public opinion.

SANITARY LAW.

Having obtained an efficient public health administration, the next essential is the necessary power to enforce the requirements of sanitation. However desirable it may be to let all effort for the amelioration of public health be voluntary on the part of the public, such would be utopian under present conditions in the home lands and would be still more impracticable in China. Sanitary law is therefore a necessity. In the absence of, or in addition to, the enactments of a central authority a city can make regulations to suit its own requirements. The best way to do this would be for the health officer to collect all good sanitary laws and regulations from many sources and adapt them for local use.

FINANCE.

Having formulated the necessary regulations regarding registration of deaths, notification of infective disease, conditions dangerous to health, markets, food-shops, lodging-houses, tea-shops, dogs, laundries, tailors' shops, house refuse, ordure, etc., it is necessary to have money in order to functionate the health office. There are three ways of getting money for public health work, namely (1) by appropriation from the city funds, (2) by revenue from the sale of ordure, house-refuse, market, slaughter-house, and licence fees, and (3) by voluntary subscription. China is peculiarly well situated as regards revenue from the sale of ordure and house refuse for agricultural purposes and these with market and other fees should, if carefully organised, go half way at least towards paying the cost of health administration. Voluntary subscription is the least satisfactory way of meeting the expenses of a health office—the public is moved mainly by sentiment, which tends towards waste of money on matters of minor importance. Speaking generally, the annual appropriation for public health work in
a Chinese city should not exceed half a tael a head of the population, and half of this should be got from the sale of ordure and refuse, and market and other fees.

HOUSING AND FURNISHING.

Having the necessary general control, health officer, legal authority, and money, the next essential is office accommodation and apparatus of sanitation.

In a city with a population of over 100,000 there should be a central health office, and branch health offices in districts each controlling approximately 25,000 inhabitants.

The central health office should have the appearance of an official building or be a house of the better class, preferably a part of or adjacent to the general hospital of the city. The branch health offices may be ordinary houses, preferably shops facing well-frequented thoroughfares—rent not exceeding $20 monthly.

The central health office should be equipped with office furniture; a small library of standard reference books; records of vital statistics and communicable disease; general records of insanitary conditions, licences, etc.; plans of the city including a large scale plan, on which the distribution of communicable disease can be clearly shown by coloured pins, and indicating the locality of licensed premises, markets, public latrines, refuse stations, and all other places bearing on sanitation. The central health office should not be burdened with more detail than is necessary for organisation and control. Records of other details should as a rule be kept at the branch health offices available when called for. There should be separate offices for the health officer, assistant health officer, health inspectors, and clerical staff.

A necessary part of the central health office is a laboratory for the investigation of diseases met with in the locality, the diagnosis of infective disease and the analysis of products bearing on the public health. The laboratory need not be an elaborate one—the essential apparatus being a fair supply of bacteriological and chemical glassware, sterilisers, incubators, a good microscope, a centrifuge, and a chemical balance. Tls. 2,500 should cover cost of the absolutely necessary apparatus and fittings.

The branch health offices should keep a set of books and papers necessary for recording completely sanitary work,—diary, death register, sanitary record, vaccination book, disinfection book, list of licensed premises, list of prosecutions, market returns, refuse disposal book, district record, employment book, etc. The branch health offices should be open to the public at stated hours for enquiry.
and for reporting deaths and cases of communicable disease, an intelligent man being then on duty. An adequate supply of notices relating to the prevention of diseases should be posted outside the office and kept for distribution. These branch health offices should be the vaccination stations of the district, and here lectures and demonstrations on health matters may be frequently given. Plans of the district should be kept on the walls showing the distribution of communicable disease (spot map), distribution of staff, etc. Where mosquito reduction is done the daily work is shown on a separate chart. There should be a weekly time table and a pocket book for entering memoranda, occurrences, etc., and for observations made during the course of inspection.

An isolation hospital, disinfection station with steam disinfecter, etc., and public mortuary form a necessary part of the organisation of a health office. Where there is a city hospital it is best to have these under the same control for purposes of economy and efficiency. The idea of placing an isolation hospital in an isolated position should be discarded now that knowledge of the parasitic origin of communicable disease has been reduced to definite terms. A big hospital dealing with all diseases would be better than small hospitals in different places.

**STAFF.**

The health office staff, where possible, should in the near future be wholly Chinese. The work of foreigners at the present time is to train health officers and inspectors in the first instance, and this would appear to be better done outside China until proper schools for health officers and inspectors are provided in the country.

The health officer will require:

1. An assistant health officer for each 100,000 of the population to take charge of the laboratory and isolation hospital, and to act for him during absence from duty. Residential quarters should be provided at the laboratory and at the isolation hospital.

2. A health inspector for each 100,000 of the population who receives his instructions from, and reports to, the health officer to whom he should be immediately responsible for the efficiency of his work, the object of which should be to make sanitary inspections and, by the practical application of sanitary measures, to remove influences injuriously affecting the public health. The health inspector to act as the intermediary between the health officer and the assistant inspectors.

3. Assistant health inspectors, immediately responsible to the inspector, in charge of branch health offices controlling 25,000 inhabitants.

If the population be less than 100,000 there need be no inspector, each assistant inspector becoming a district inspector reporting direct
How to Initiate Public Health Work.

Division of the city into districts and sub-districts, that is to say, districts of 100,000 population in charge of an inspector and sub-districts of 25,000 population in charge of an assistant inspector; and of sub-districts into blocks according to the nature of the work.

Prevention of disease the main object. Necessity for popularising the work of the health office among all classes.

Duty of inspectors:
Responsibility to the health officer. Residence in districts where they work. Public complaints to be investigated with tact and courtesy, and remedied without delay, a personal interview with complainant being sought. Locomotion so as to secure least loss of time.

Duty of assistant inspectors:

Subordinate staff:
Efficient organisation and control, how secured. Complaints of "squeezing" to be investigated carefully. Health of staff to be maintained and unfit weeded out. Employment book giving particulars of each member of staff so as to secure better control. No employee to be engaged or discharged without approval of inspector. Staff to be kept as low as consistent with efficiency. Vacant posts to be filled where possible by promotion. Payment of wages. Duty of foremen, disinfectors, market cleaners, latrine and refuse men, etc. Need for special care that foremen do not exceed their duties.

GENERAL CONSIDERATIONS.

An important consideration in organising a public health office in a Chinese city is to concentrate on measures which show definite result, as there is a strong tendency to dissipate effort and money on outward show and fussy trivialities. Vaccination should be the initial work of the health office so that efficiency of organisation may be measured by the actual reduction in smallpox. Should the city be malarious that form of preventive work should come next and be measured by the reduction in malaria.

Successful organisation resulting in reduction of these diseases would merit further appropriation of funds by the controlling body.
for other and less defined work such as notification, isolation, and disinfection of prevalent communicable disease. Disinfection should not be measured by the quantity of disinfectant used but by the amount of disease prevented as shown by actual figures. Attention would then be given to prevention of the very important section of diseases which come from infected food.

Notices in simple language dealing with important preventable diseases would be drawn out as soon after the inauguration of the health office as possible and the sanitary education of the people undertaken by distributing and explaining them; and also by means of frequent popular lectures and demonstrations at the branch health offices. Once the confidence of the people is obtained progress would be rapid. But, after all, the great and only real source of progress in public health is education founded on the bed rock of science.

Careful control of finance is of paramount importance in public health work. It is amazing how much money may be wasted on public effort to prevent disease unless infinitely careful financial control is exercised. Vouchers should be required for every expenditure and no expenditure permitted without proper authority. Special attention should be given to the pay of the subordinate staff so as to prevent undue control by foremen interested in employing more men than is necessary, or in employing the unfit, or taking a rake off from the pay.

The practical prevention of disease is now reduced to simple terms and scientific precision. The main thing in China would appear to be to prevent waste of effort and to direct energy into the right channels on those measures which mean most.

AWAKING THE SANITARY CONSCIENCE OF CHINA.

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Most of us remember the first days of our practice among the Chinese people. We were struck with what we considered the entire absence of hygienic habits both among the higher and lower classes. We found persons spitting everywhere—in the street, on the pavement, in first class railway carriages, in our dispensaries, in sitting rooms, in dining rooms, and sometimes even in our luxuriously furnished drawing rooms. We found vaccination rarely practised, and when a case of small-pox occurred in a house it was not isolated and relatives of the patients were allowed to come in and out of the sick room.
We found exanthemata like scarlatina, measles, etc., treated as natural evils with no attempt at isolation. We witnessed as common sights (in Peking) the general use of water drawn from shallow wells, by whose side were situated sinks for the disposal of refuse. We were shocked to see at Shanghai and Canton maid servants emptying pails containing excreta into the river, whilst only a few feet away someone was washing vegetables and a carrier was conveying his two buckets of water for the use of a neighbouring fashionable restaurant. We wondered whether small-pox was rife among the people, whether bowel complaints were not universal, and whether tuberculosis was not rampant among all classes. As we gradually got accustomed to these sights and made a sympathetic study of the habits of the people, we began to place things at their true worth. To come to the present tense, one finds that the Chinese have for centuries practised a system of simple hygiene peculiarly adapted to their needs. They wear suitable clothes for summer and winter, drink tea, avoid alcohol as a rule, eat cooked food and are moderate in many things. The result is that certain diseases which are frequently met with in the west are not so common in this country. These are:—enteric fever, appendicitis, insanity (in its worst forms), pneumonia, severe forms of bronchitis, some heart, kidney, and liver affections, and most illnesses arising from alcohol.

Having said the above, I wish now to deal with a large class of diseases which are unfortunately too prevalent in this land. The majority of these belong to what may be called the 'operable' and 'preventable.' In no country in the world, with the possible exception of India, are seen such large tumours and so many 'ulcers' as in China. Most of these, if taken in hand early, can be completely cured, and my colleagues will, I am sure, agree with me when I say that no branch of medical missionary work appeals more to Chinese than the fine surgical skill shown by missionary surgeons throughout the hospitals of China. With the establishment of more modern hospitals and the arrival of keen surgeons, this reputation will be enhanced and will lead to a quicker appreciation of western medicine by the people.

There is another group of diseases which has caused and continues to cause great havoc among the population of China. These belong to the 'preventable,' and it is to them that all available force should be directed if sanitary work is to succeed. Ancient Chinese medical books (those who are interested may find a collection of these among the exhibits of the Manchurian Plague Prevention Service) give very scanty information on preventable diseases, and in actual practice you will
find native physicians not as eloquent on these as on the pulse. The marvellous progress of sanitary science and the enforcement of Public Health Laws in Europe and America, have led to the practical disappearance of such foul and destructive diseases as plague, typhus, relapsing fever, leprosy, small-pox, rabies. Others, like tuberculosis, typhoid, hookworm, thanks to the dissemination of knowledge among young and old, are rapidly disappearing, and before another generation arises, it is possible that tuberculosis will claim less than half the deaths which it is doing now. Even venereal diseases like gonorrhoea and syphilis have been robbed of many of their dangers, and means for their prevention may in time be as willingly adopted by the masses as in tuberculosis now.

In China, I regret to say that we are only just beginning to follow the doctrines enunciated by Sir Edwin Chadwick (1801-90) who was mainly responsible for the passing of the Public Health Acts of England in 1843. In this country preventable diseases are still rife and both educated and uneducated have as yet a very vague notion of "prevention of disease." This is strange, especially as the phrase *wei shing* (衛生) is at least 4,000 years old. That a "sanitary conscience" has existed among the people for a long time is proved by writings handed down from the Chou Dynasty, and by the unconscious practice of hygiene by the majority in their daily lives, which I have outlined above. Those of us who wish to see a more sanitary China must do all in their power to arouse this latent 'sanitary conscience,' and I am exceedingly glad to see that for the first time the China Medical Missionary Association has initiated a Public Health Section. The time has come, in my humble opinion, when more than routine hospital work must be undertaken by us. Medical men must be ready to preach 'disease prevention' as well as treat ailments. Colleges where medicine is taught must place 'Public Health' in the forefront of their programme, so that the graduates may be more than mere 'practitioners.' Our students should be encouraged to 'talk shop' on prevention of disease wherever and whenever they can, for it is they who will have the lion's share of making a sanitary China. Popular books should be published and popular articles printed in daily and weekly journals dealing with knowledge on hygiene and sanitation. The teacher, magistrate, police officer, merchant, mother of the home (if she can read), and every school boy and girl should possess some such knowledge as the following:—

1. Most epidemic diseases are due to germs, which, though small, can almost always be seen under the microscope, made to grow in test-tubes, and reproduced in animals and man.
In the selection of material and the building up of this Exhibit, the idea of sending it later around the country was kept uppermost in mind. The first two pictures in this series, for instance, are of material hung on wooden racks 10 x 12 feet which fold together or unhinge for shipment. The chain is made of wood painted an iron black, and for shipment, is securely packed in the box representing the heavy iron weight. The 22 x 28 inch cardboards are uniformly mounted with metal eyelets into which are inserted the upper and lower S hooks. Thus the whole Exhibit is transportable.

Of special interest in this picture, are the packages “For the Baby,” which one of our members puts up and sells to those who live so far away that they cannot come to his hospital. Each package includes a cloth to receive the baby, sterile silk to tie the cord, gauze for the stump, abdominal bandage with safety pins attached, silver nitrate solution for the eyes, and full printed instructions.

On the “HEALTH PAYS DIVIDENDS” sign, can be seen the shadows of four other cards. By means of the take-down racks it was possible to make a room with entrance and exit, having pictures on both inside and outside walls.
A picture of the small room made by two racks. The "Flies" chart, made by Dr Wu Lien-teh, illustrates the ordinary events in the life of a fly. During the pneumonic plague epidemic in Manchuria, unscrupulous persons made a solution of weak carbolic acid and bacteria, which they themselves could not recognize, and sold the product as "Plague Serum" to the frightened people.
2. These disease germs are spread from person to person, either directly (as in consumption, diphtheria, small-pox) or through the agency of insects, e.g., the rat-flea in plague, the mosquito in malaria, the fly in typhoid and infantile diarrhoea, the louse in relapsing fever, the bed-bug in typhus.

3. These diseases may therefore be stopped by destroying the germs and insects, or preventing their reproduction by cleanliness, extermination of rats, etc.

4. Spitting upon the floor is a dirty and dangerous habit, for it is liable to spread lung diseases, especially the dreaded consumption. Therefore, learn to avoid spitting, for very often it is only a habit practised from childhood.

5. Small-pox is a killing and disfiguring disease, but can be easily prevented by vaccinating the child when young with calf lymph. When a case occurs in the house, it should always be strictly isolated.

6. Dirty water is not good for bathing or drinking, for worms can enter the skin and produce serious diseases such as hookworm disease, anaemia, dysentery, parasitic diseases of the bowels.

7. A dark, damp and dusty room attracts and breeds germs, whereas a sunny, dry and clean place kills them. Therefore, keep your quarters clean and take plenty of fresh air.

8. All public health measures require the co-operation of the authorities and local community, as infectious diseases may spread from the lowest to the highest, and vice versa. That is why rich and poor must obey sanitary laws for the benefit of the whole community.

9. The continued existence of some terrible and easily eradicated diseases in China has given her the name of 'the most insanitary nation on earth.' For our own sakes and the reputation of our country we must try to remove this stigma. These diseases are:—leprosy, plague, typhus, the extraordinary number of unoperated large tumours and ulcers, and hideous skin affections. Most of these can be done away with in one generation if simple sanitary and early surgical precautions are adopted.

SOME RECOMMENDATIONS.

The first factor in the spread of public health ideas among Chinese is a realisation of the superiority of modern western over ancient eastern medicine. Before any success may be hoped for, all must be prepared to recognise that modern methods of treatment and prevention of disease are, like modern artillery in warfare, superior to the old methods. Bearing this point in mind I have spared no effort in urging our Central and Provincial authorities to completely reorganise medical education throughout this great land. Most of you have, no doubt, read the memorandum on Medical Education which I have submitted to President Yuan and the Minister of Education, published in the CHINA MEDICAL JOURNAL of March 1914. Among the recommendations is one for the establishment of a Central Medical Council in Peking, which shall consist of an official of the Board of Education, and also one representative appointed by each of the medical schools of China approved by that Board. The above Council should have control of
all medical education in China, have power to decide upon the language for the teaching of medicine, to fix a medical curriculum, to supervise examinations, to recognise hospitals for teaching purposes, to draw up laws and regulations affecting the medical profession, to publish an official register of qualified practitioners, and so on.

But much can in the meantime be done by the Government, local authorities, and inhabitants of every city, to improve the health of the people before the Central Medical Council comes into being. In this work I would ask for the hearty co-operation of medical men of all nationalities living in this country. Nowadays, when so much friendliness exists between Chinese officials and foreign residents, especially medical men, every opportunity should be seized for forwarding the cause of medical and sanitary science among the educated and influential classes. May I then suggest the following scheme, which should be made as elastic as possible in order to suit individual circumstances:

A. EDUCATION IN ELEMENTARY SCHOOLS.

All teachers should possess an elementary knowledge of hygiene. They should teach boys and girls:

1. Habits of cleanliness, e.g.:
   - regular bathing of the body,
   - brushing the teeth morning and evening,
   - changing inner clothes,
   - advantages of a clean home.

2. Simple facts about nature study, e.g.:
   - uses and abuses of food,
   - interdependence of animals and plants,
   - advantages of recreation.

3. Simple precautions against disease germs. Under this heading should be included the commoner infectious diseases, e.g., measles, scarlet fever, diphtheria, variola, consumption, typhoid, dysentery. The rôle which insects and parasites, such as flies, fleas, lice, bed-bugs, worms, play in the spread of disease should also be taught.

4. Practical moral instruction, including that on the physiological stages which an ordinary child goes through, and the dangers to be avoided as adolescence is reached.

B. ESTABLISHMENT OF SANITARY BOARDS.

The Government and local authorities should initiate these and invite the co-operation of the gentry, merchants, educators, and other leading personages. Above all the assistance of qualified medical men should be obtained, for they alone understand sanitary laws and the best methods to be adopted for the prevention of disease. The necessary funds could be obtained from local taxes, as it has been abundantly
proved in all countries that protection against disease insures longer life and better business. A Sanitary Board should have the following functions:

1. Street cleaning and the proper collection and disposal of refuse and excreta.
2. The inspection of houses, including workshops, factories.
3. Notification of births and deaths. This would enable the authorities to keep a close watch on the number of children born and also of persons who die. Anything abnormal can be at once detected and remedied accordingly. If this were done throughout China we could have a much more accurate idea of the population and its economic possibilities. All civilised countries have collected and published vital statistics for the information of the world.
4. Reporting of cases of infectious disease and enforcement of laws for their prevention. Under this heading should be included compulsory vaccination and establishment of proper hospitals for the sick.
5. Supervision of markets, stores, and shops selling food, so that the sale of unwholesome provisions may be avoided.
6. Control of drug shops and apothecaries, so that the sale of dangerous drugs like opium, morphine, and other poisons may be checked.
7. Supervision of inns, brothels, and other public houses where diseases may be contracted. During the plague epidemic of 1911, the coolie inns were the most conspicuous agents for the spread of that terrible disease which killed 60,000 Chinese.
8. Providing a pure water supply for the inhabitants.
9. Control of burial grounds within town areas liable to endanger the health of the community.

C. ESTABLISHMENT OF SOCIAL LEAGUES.

Some such leagues under various names have existed in all large cities in China for centuries, but their activities have been confined hitherto to giving alms to the poor and providing coffins for the destitute. A fine opportunity awaits them for extending their work in the line of public health propaganda. In this respect, the city of Changsha has lately set a worthy example for other towns in China to follow. It is well known that the educated classes are often harder to convince regarding the advantages of sanitary reform than the poorer and ignorant masses, and therefore suffer quite as frequently from preventable diseases. Education on hygiene is necessary for rich and poor alike. Fortunately there are in every city a considerable number of public spirited men and women who are willing to be guided if matters are explained to them. Once formed, these social leagues would serve the double purpose of (1) offering practical relief to the poor by teaching them methods of self-protection against disease, and (2) enabling the leisurely class of men and women (who for nothing better to do at present indulge in gambling) to do unselfish work for others and thus cultivate patriotism. Their work may be thus summarised:
1. Educational campaign (as mentioned above), imparting knowledge particularly on tuberculosis and infantile mortality by means of personal visits, lectures, pamphlets, charts, lantern slides, moving pictures, travelling exhibits, etc. The newspapers and public press should be freely used for forwarding the campaign.

2. Securing open air spaces for children and others.

3. Distribution of wholesome food, like milk for children.

4. District visiting. Properly trained nurses should be appointed to visit the poor, assist them at child-birth, and teach them the elements of hygiene and clean living.

In this great humane work, members of the Young Men's and Young Women's Christian Associations, guilds, and others could render invaluable service to their countrymen.

D. CENTRAL PUBLIC HEALTH INSTITUTE IN PEKING.

There should be proper supervision of the work of the sanitary bodies in China by a centrally established Public Health Institute at the capital. At this Institute all information and help relating to hygiene and sanitation could be obtained if required, and the records for the whole country kept. It should also have well-equipped laboratories where bacteriological tests and analyses and actions of drugs (Chinese and foreign) could be made, and important vaccines and serums for such diseases as small-pox, plague, diptheria, typhoid, rabies, snake-bites, etc., could be manufactured for the use of all the provinces. Such an Institute, although costing a considerable sum at the beginning, would, if properly managed, yield enough after a term of years to pay all expenses.

Gentlemen, I am afraid I have taken a great deal of time in expounding to you what I believe to be the principles for the foundation of a Public Health Service in China. Since the time when President Yuan was Viceroy of Chihli Province, sanitary boards have been established in the larger cities. Tientsin led the way in this respect, and many able doctors were employed to look after sanitary affairs. But like many other undertakings progress was not maintained with the times, new blood was not welcomed, and the control of that organization has now passed to the hands of a layman whose views on public health are not in accord with the most modern teachings. In Hankow city, great things are expected under the enlightened régime of a returned English student, Mr. Ting Shih-yuan (丁士原), who has, as his principal medical officer, Dr. Shu Hou-jen (舒厚仁), a graduate from England. At Canton, Peking, and elsewhere one has also seen substantial progress made, and if only our higher officials and principal laymen will understand that efficient sanitary work can only be done, nay led, by well-qualified medical men who have made a special study of the
subject, the interval between now and the founding a modern sanitary China will be rendered much shorter. With regard to the work which I have been privileged to carry out in North Manchuria, I may say that it is 'making good.' Plague prevention means a great deal to the man in the street, especially after the experiences of four years ago, but we have not been satisfied with our past glories. Our medical officers have been doing much educational propaganda on the lines I mapped out above. Pamphlets have been distributed, lectures given with charts, maps, lantern slides and travelling exhibits, and numerous essays and short articles written for publication in the principal papers and journals throughout the Republic. It is yet too early to state what definite progress has been made by us, but the future will tell. As a result of my representations to the Central Government, the Board of Communications has given orders for the enforcement of certain hygienic regulations on all government railways, and the Minister of Education has approved my plan for the introduction of hygiene primers into schools.

Since the inauguration of the Republic, many critics have had much to say in disapproval of the hot-headedness (or is it "swelled head") of a body of Chinese whom they term "Young China." It is true that a considerable number have been found wanting in experience and thoroughness, but I am sure that outside these there exist a majority who have studied in Europe, America, Japan, and home colleges, who are imbued with the highest motives of patriotism, and desire to play a leading part in the regeneration of their old country. Particularly is this the case in the medical profession where several whom I know have spent ten of the best years of their lives learning medicine in England and America, and have received the highest qualifications.

Let me, therefore, appeal to you, my foreign colleagues, to extend to these all possible assistance and co-operation in this great and promising field of medical science—the awakening of a sanitary conscience in China.
A PLEA FOR A CAMPAIGN OF PUBLIC HEALTH EDUCATION IN CHINA.

E. S. Tyau, M.D., D.P.H.

As the production of wealth was the dominating ideal of the 19th century so the promotion of health promises to be the leading ideal of the 20th century. In the West we find abounding evidences to sustain this conclusion. Women are actively engaged in hand-to-hand and heart-to-heart social service. Men are blazing the way towards race betterment with the knowledge obtained from the application of the laws of eugenics and eutenics to animal and plant breeding. The most pestilential spots on earth, as Havana and Panama, have been converted into healthful habitations for man. The noblest tasks have been contributing to the advancement of man towards physical, intellectual, and moral perfection. Millions of dollars are being expended in all civilized lands for the eradication of painful diseases. Thousands of men have been martyrs to science that mankind might not merely have life but have it more abundantly. The victories of preventive medicine are too familiar to members of the medical profession to need reiteration—suffice it to say that 'health or disease,' 'mosquito or man' are burning questions of the day.

While the call to health is the characteristic feature of the Western world, with the most hopeful signs of progress as evidenced in the reduction of total death rate, yet in the East, comparatively nothing is being done for the Chinese Republic, the oldest nation of the world.

Surely the millenium has not been found in China where modern sanitation is almost unknown. Yearly, epidemics of plague consign thousands to the grave, outbreaks of preventable diseases bring tens of thousands to awful poverty. Plasmodium malariae was incriminated by the illuminating researches of Jones and Ross as one of the potent factors that had brought the downfall of the Greek and Roman civilization. Hookworm has been recognized as the greatest devitalizing agency in the southern states of America entailing much economic loss and reducing countless people to lazy sluggards. Here in China we have the malaria parasite in all its forms, hookworm of both new and old world, plus small-pox, tuberculosis, and all the deadly communicable diseases running rampant throughout the length and breadth of the country. In spite of these, even the most educated Chinese still remain in apathy, not realizing the gravity of the situation and the importance of organized effort against the further ravages of these diseases.
Laboratories of hygiene, bacteriology, pathology, and the like, so essential in preventive medicine, are absolutely wanting. On the contrary, we find quacks and humbugs practising medicine indiscriminately, and turning out patent medicines and cure-alls without restraint by public health laws.

Thanks to the good work of Missions, in founding schools, hospitals, and dispensaries, a great deal has been done for the relief of suffering, but these agencies are utterly insufficient to cope with the situation. Many an ambitious Chinese young man struggled hard in the pursuit of modern education but few returned from abroad with the knowledge of medicine. The curative processes of the Chinese art of healing are of little avail in the suppression of epidemics as principles of prophylaxis have never received due attention. Our Chinese people are most particular during illness as seen in the number of physicians called in for one single case. Yet they are the least concerned about the preventive measures against the spread of diseases.

Here as elsewhere, the main cause of the prevalence of disease lies in the ignorance on the part of the public of the fundamentals of hygiene.

It follows then that the strategic point of attack must be made upon this ignorance and the pioneer in the great task is preventive medicine—in other words public health education. What has been done in the West so successfully can be likewise accomplished in the East. But before making any attempt, our effort must be directed against nothing but the ignorance that breeds indifference to sanitation and hygiene. Unless the general mass of the people have been educated in the elementary laws of hygiene and have realized the value of sanitary information, all other means toward the eradication of diseases will result in hopeless failure.

The object of this paper is to arouse enthusiasm among the medical missionaries of this land and to stimulate their interest in the dissemination of the fundamentals of hygiene and sanitary information throughout the country.

The writer appeals to the missionary medical profession because it constitutes one of the most potent agencies for education which, if directed along sanitary lines, would be productive of immense good to the general welfare. Its influence is being increasingly felt throughout China. And practical steps may be taken at once without incurring much initial outlay for building and equipment. Briefly let me suggest four powerful factors that may be called into operation very efficiently in a campaign of health education.
1. School Instruction as the Leading Factor. Perhaps one of the best opportunities at present for placing the sanitary information where it will do most good is in the school. In the West the most promising move towards the prevention of disease is the provision for instruction of elementary principles of hygiene to the youngsters in the public schools. This is the time to inculcate facts and habits in regard to the principle of right living. Illustrative talks on questions relative to school ventilation, fresh air, cleanliness, dirt, infections, oral hygiene, wholesome food, personal methods in eating, sleeping, and exercising and such essentials of hygiene, will be most useful as well as interesting. Where it is possible not only school but other public buildings as well should be utilized as centres for instructing the public. In Shanghai, for example, the 'Municipal Dépôt,' so serviceable in giving free vaccination to the public, should extend its sphere of usefulness by offering series of popular health talks. A short speech on 'Why, how, and when vaccination should be done,' will increase the efficiency of the work manifold. At times, tracts containing properly prepared health hints may be distributed but the mouth-to-ear method, especially when well illustrated with charts or lantern slides, will be more appreciated and illuminating.

2. Next, the Churches afford an Excellent Medium for the dissemination of health principles, as they are found all over the country. In some parts of America, progressive clergymen have introduced the so-called 'Tuberculosis Sunday' at which a talk on tuberculosis is given in addition to the usual sermon. Tuberculosis is a ubiquitous scourge of the human race particularly prevalent in China and worse for the Chinese as there are no sanitoria nor preventoria. Surely the teachings concerning health of the body and that of the spirit are not incompatible in the pulpit. Such questions as right living, cleanliness, the depraving effect of certain diseases on both body and soul, may be easily incorporated into the sermon without inducing the hearers to doze but rather enlisting their attention.

The church-going people must be made to understand that disease is not a necessary evil sent by a chastising God, but is caused either by living germs which we get by direct or indirect contact with the sick, or by improper living; that health is the right of every man and that the preservation of one's own health and that of his neighbors is a moral duty.

3. Another factor no less powerful in its influence for sanitary betterment of the West is the organization of the Women of the Com-
“Shelter the Babies.” The candles were made of wood with a metal tube for acetylene gas controlled by valves. The inscription reads, “Infancy and old age, like a candle just lit or nearly burnt, are the two periods when life is most easily snuffed out.”
A special committee undertook to gather for the Conference an exhibit of pathological specimens, both gross and microscopic. A number of members of the Association responded heartily, and the exhibit proved both interesting and profitable to those who attended. In addition to an unusually complete series of specimens of the helminths affecting man in China, together with their ova, a collection of rare tumors, etc., there were shown sets of beautiful micro-photographs, photographs of interesting cases, and a small exhibit of hospital record systems.

The rear of Martyrs' Memorial Hall during the Conference. Shows wire screen fly traps; models of two brothers, one sickly and one healthy and why; patent medicine advertisements from the Shanghai newspapers, English and Chinese; the wicker basket containing a box of 50 plague lantern slides sent up from Foochow for the Exhibit, which fell overboard into the Whangpoo and was rescued before it sank or the slides became wet; the "Suggestion Box" with pad, cartoons and pictures.
munity, especially for medical social service. Medical social service has been defined as the art of helping others to help themselves. It is indeed the hand of philanthropic and preventive medicine ever ready to help and guide the homes of poverty. It has become an essential part of hospital and dispensary service of the best type in America. It supplements the efficiency of such service in treatment as well as in the way of spreading broadcast the influence and teaching of the hospitals for prevention. In the treatment of tuberculosis, social service has come to be recognized as an absolute necessity as many experts on tuberculosis are laying increasing stress upon the sociological factors like ventilation, housing, proper rest, and food in the prevention of disease and less upon the agency of the tubercle bacillus per se.

Mrs. Richard, the founder of euthenics, strongly urges the education of all women in the principles of sanitary science as the key to race progress in the 20th century.

Although the education of women in China is still in its infancy yet, from what I have observed among the women organizations, both civic and Church, in this cosmopolitan city, I entertain high hopes of the immense possibilities for such work in the future. For the solution of the problems of child and home hygiene much must depend upon the efficient service of such social organizations.

4. Finally, there is the Potent Agency of the Press as an educator along sanitary lines. In the southern States of America the medical association has lately adopted the resolution that the newspaper press of both city and country is earnestly requested to co-operate with the association in its efforts to educate the people in matters of hygiene and sanitation to the end that thousands of valuable lives may every year be protected from disease and saved from untimely death. Each medical society is to appoint certain of its members to write a communication to the county paper once a week, the members taking turns at the work and keeping the subject before the people for some time. Where there are daily papers, the Sunday edition is to be chosen.

China is in an age of social as well as political awakening. Her people are athirst for new learning that is conducive to prosperity and happiness. Free contributions from educated men, on conservation of health, mitigation of suffering, prevention of disease, increase of happiness.

*In The Chinese Recorder, June, 1915, is a very interesting article describing the social service work which is now being carried on systematically in no less than eight centres, viz., Peking, Tientsin, Changsha, Nanking, Chuchow, Hinghwa, Shanghai and Chengtu.—Ed.
ness and longevity, decrease of pain and death rate, the necessity of proper water supply and disposal of sewage, the dangers of animal and vegetable parasites, the importance of vital statistics, the imposture of quacks and patent medicines, the care of babies, personal hygiene and kindred subjects, will be warmly welcomed by any current paper of the day. All the knowledge that we possess at present concerning the cause and transmission of disease should be disseminated among the masses. The medical profession and public health work should be encouraged. Sanitation can only be brought about by such education, teaching first the elementary principles of hygiene and preventive medicine. Chinese returned students often breathed a sigh of dissatisfaction upon their home return exclaiming 'Oh! how I shall miss the sanitary toilet.' So long as the people are kept in ignorance of modern sanitation, so long there will be no modern comforts of this nature. The degree of community health and comfort depends upon the conscious desire of the citizens to have health, their intelligence, and co-operation. It we have any idea or desire of attaining healthful conditions for China as seen in some Western countries, with proper systems of health laws and governing bodies, we must lose no time in initiating a campaign of public health education.

There are many other factors that may be of use in this campaign, such as the baby saving show and similar exhibits, but if we could start with the aforesaid four factors, viz., school for the education of the young, church for the elder people, social service for the indigent and illiterate, and the press for the rich and scholars, I am positively sure that in a decade of years our total death rate in China will be greatly reduced. The educational possibilities along this line are great and the benefits that are likely to follow propaganda of this kind will, before long, be seen and understood.

I would therefore urge upon the Association the importance of this work, and the need of appointing a special committee on public health education.

The day will surely come when the missionary efforts in China will be gratefully acknowledged by all enlightened Chinese. In fact the sun of that day has already arisen, and under its searching light many of the ills that threaten civilization with decadence will die out, as the fog and miasma of the morning disappear at the approach of the king of the day.
PUBLIC HEALTH EDUCATION IN CHINA.

W. W. PETER, M.D.

In attempting to report what has been done in public health education, I shall confine myself to what our own medical organization has done, and leave out of this account the work of officials, government and mission schools, non-medical organizations, and municipal boards of health in the port cities, with most of which I am not familiar. In speaking of our own work I am limited by the facts that I have never attended a Conference of the China Medical Missionary Association, and have visited personally only nineteen hospitals in China.

The first action taken by our organization regarding public health education occurred five years ago at the Hankow Triennial Conference. The predisposing factor was the Central China Branch, which had prepared some tracts on disease prevention. Doctors Booth, Logan, and Meadows were appointed a "Committee on Medical Tracts and Posters, for the purpose of distribution by tracts and illustrated posters, etc., of popular medical information in schools and other public places."

This committee never had the opportunity to carry out the work it was appointed to do. We do find in the JOURNAL for March, 1911, an article on "Suggestions for Tracts on Tuberculosis," by Dr. Meadows. But a notice of the author’s death appeared only a few months after his article. Then came the Revolution. After it was over, Dr. Booth, the chairman of the committee, went home and there suddenly died. This broke up the committee entirely. At the Peking Conference, no action was taken to replace the members who had died, or to continue the work begun at the Hankow Conference.

I began this paper for the benefit of our younger members who have no access to the volumes of the JOURNAL and yet, like myself, are anxious to know more of the history of the great organization to which we belong. I expected to find numerous records of public health educational work as planned and carried on by the national organization. But the interest in this subject has not expressed itself in these national conferences. The appointment of this "Committee on Tracts and Posters" at Hankow, covers, apparently, the first and only attempt of our national organization, as such, to engage in public health educational work during a period as long as its own history (1886-1914).

But this is not all. There has undoubtedly been a great deal accomplished in various places which has never been made public.
For this reason it is difficult to describe the work of the several branches and the many individuals, who have done work along this line. In the Chinese Recorder and our Journal are vague fingers pointing at certain men who apparently have done striking pieces of work. In the Journal for November, 1909, is an editorial, "An Ounce of Prevention," making special mention of the work of one "Dr. Wilson," whose example the readers are urged to follow. Dr. Wilson's work must have been remarkable indeed; for the total absence of further information implies that the immediate and all succeeding generations of readers would intuitively know all about him and his work. There are other similar examples of good work and bad reporting. Such silence may be entirely compatible with a proper sense of modesty and self-depreciation of one's own work, and therefore be duly noted by the recording angels above, but it does not make for a uniform advance in efficiency in our work here below. Some of us beginners would like to know more about what this doctor did and how he did it. To come across such meaty references and then to search eagerly backwards and forwards from this point, three years each way, for the rest of the sandwich, is disappointing to say the least.

While going through the back numbers of the Journal, I prepared a bibliography on public health. The original articles are valuable for the large amount of suggestion as to what needs to be done. This seems to be plain to a large number. Occasionally we find a rich oasis reporting what actually was attempted. But even in such articles there is little mention of the disappointing. For instance, a lantern slide set on tuberculosis was used in and around Changsha before perhaps 10,000 people,—and yet the setting of all the slides was foreign. I do not know of a single picture which came from China. Since the work of popularizing medical knowledge is so new, every effort, whether successful or not, ought to be reported. In order to make as resultful as possible the attempts of those of us who are beginners, we should make fuller use of the Journal as a clearing-house and medium of exchange. In our regular hospital work we can be and naturally are more or less separated from each other, from the very nature of the work, and because the sources of our drugs, plans, medical journals, financial support are so different. But in public health education work we need unification because the work is so difficult to do.

A moment's thought will make this apparent to us all. Before the development of modern bacteriology and pathology, disease, no matter of what nature, was an individual matter between the patient and his doctor. But fifty years has made a difference. While there
are still some diseases which come under this individualistic classification, an increasingly large number do not. They are social in scope. Knowledge of the etiology and methods of transmission of so many communicable diseases has revolutionized our entire conception of disease. Most of these preventable diseases are now known to be due to social conditions beyond the control of the individual. This means that the remedy is not alone the treatment of the patient by the individual doctor, but rather the broad treatment of the entire social organism by all the constructive forces available, the medical profession included among the foremost. The term 'public health' is a comparatively new one in China, and it is quite likely that with a better understanding of the meaning, the people find that education is the key stone. Without it social conditions cannot be improved and many of the preventable diseases ultimately stamped out.

The history of the public health movement in other countries makes plain that the rate at which diseases can be wiped out is determined by the amount of regulation which the people will observe. There has to be a specific amount of legislation. But restrictions of personal liberty, in order to be enforced and of any value, must be understood and supported by the public. And the people will submit to a restriction of their personal liberty only as they are convinced that it is necessary for their own good. It therefore becomes imperative for legal as well as for social reasons to educate and inform the public on the modern discoveries regarding disease and to show the people the importance and value of those discoveries properly applied in preventing sickness and saving life. It is unbelievable that if the public knew of the possibility of the control of disease through our present scientific knowledge, they would not support efforts to apply this knowledge by practical measures. The people themselves are the beneficiaries both in the saving of lives and of money through the stamping out of preventable diseases.

You grant all this. You are all more familiar with the argument than I am. The rub comes in attempting to realize a part, if not all, of this ideal. A bettering of living conditions, a lowering of the death rate by decreasing the amount of preventable disease is undoubtedly more difficult of accomplishment in China than in the various lands we represent. We face here as elsewhere, disease, poverty, and ignorance, but undoubtedly in more aggravated forms. The death rate from all causes, is undoubtedly more than 25 per 1,000—the rate in registered areas in the world (Hoffman). The per capita wealth in England is £340. In China it is estimated to be no higher than in India, or £20.
In Japan 85% of all the boys and girls of school age are said to be in schools, while a recent report has it that only 4% of the boys and girls of school age in China are actually in school.

These conditions hinder the progress of public health. The amount of poverty and ignorance, as well as of disease, affects our work. These three things merge into each other like the indistinguishable parts of a jelly-fish. And, like handling a jelly-fish, we cannot pick up a part here and a part there, and hope to succeed. Real progress will be made slowly by lifting the whole mass together.

With poverty, ignorance, and disease all entering into the problem of public health, what are we going to do when it comes to popularizing medical knowledge? For instance, here is a man with tuberculosis. Shall we give him an illustrated tract on tuberculosis which tells him that he can cure himself in the early stage by plenty of good food, rest, sunshine, fresh air, and a bit of exercise? But what if he is ignorant and unable to read our tract, or poor and unable to buy these comforts, or unable to cease even for a day from his task of feeding six mouths with a wage of 30 cents for 12 hours work?

Or what shall we say to people who have hookworm,—the same things which are said to people in America, shoes, thymol, sanitary privies, with no using of human excreta on the soil?

To decrease malaria, are we ready to advocate the wholesale filling up of mosquito breeding places? Or shall we urge their being covered with oil? Rager as are the two great oil companies for new business, they would stand aghast at such an order. The only remaining plan is to give quinine in prophylactic doses? Is there enough quinine about?

What shall we do and say? Shall we allow each man to stumble along with these problems as best he can, get out tracts and lantern slides and lectures which fit in with his meager conception? I have tried this scheme and have often felt myself in a most absurd position. I have blithely told the Chinese in private and a few times in public that they must do this, that, and the other thing, all true and necessary in time, perhaps, but impossible now. I have the impression that these difficulties which I merely mention in passing, are most important reasons why all doctors in China should work together as units of an intelligent, co-ordinated army.

"We must distinguish between two things," said Dr. Gamewell, of the China Educational Association, "it is one thing to have clearly in mind what must be done. It is quite another thing to be able to say how to do it. At the present time, the latter may often be
impossible. But we ought to make clear to everybody concerned what needs to be done, even if we and they see no immediate means in sight of actually doing it."

Only by emphasizing the first is there any hope of stimulating the people towards a realization of the second proposition. Preventable diseases are social problems. Our job is to show how they are preventable, how they are caused and transmitted. The people must act on this information and gradually readjust their social organism to correspond with their improved knowledge. The responsibility for these conditions as well as the power and authority for improving them lies with the people and their rulers. The medical profession can and should furnish the technical information as to how these diseases can be abolished or at least reduced. The responsibility for authorizing as well as financing such preventable measures as are necessary rests with the people.

Physicians can point out the way and can lead in the fight as their special training fits them to do. They cannot, however, accomplish anything permanent or satisfactory without public support. And in order, some day, to have this public support, the people must understand what is needed and why it is necessary. Health conditions are best in those countries where this is actually the case. But in order to have some degree of uniformity in this popularizing of medical knowledge, all the work done ought to be related in some way to the national medical organization. It would be a sad fact indeed, if every one interested in this work were to be compelled to go along by himself and make the best of it.

As a matter of fact, there are a number of very strong organizations which are anxious to make a contribution toward the improving of health conditions in China. The wide-awake Commercial Press has asked a member of this Association to prepare a book on hygiene and sanitation, the manuscript of which they would send to the Board of Education at Peking in the hope that the book might be endorsed and used in the public schools. Mr. Tewksbury, of the China Sunday School Union, suggests that health pictures and literature be prepared each week for distribution to the 80,000 boys and girls who receive the Sunday School literature regularly. An artist, and the postage necessary for such work, would be provided without cost. Dr. Gamewell, of the China Educational Association, has asked for material for his bulletin which is sent to over 1,000 teachers. One of the branches of this organization, at its next meeting, is to discuss the health of the children in mission schools and what can be done to improve it. The
Young Men's Christian Association is circulating some 400 health lantern-slides. Mr. Lobenstine, of the China Continuation Committee, has spent a great deal of time studying our medical organization and work. These men and organizations would very much appreciate the co-operation of the China Medical Missionary Association.

The unrealized possibilities of our national organization are many. By the use of this 12 x 14 ft. map, we can visualize our strategic position. The sum total of people we deal with in these widely scattered centers each year runs up into the millions. But in spite of our contact with such a large number of people, it can hardly be said of us that there is in China a "public health sentiment" to-day. The time may not yet have come. We may have been too busy developing these various centers to a point of efficiency. But the time must soon come when we shall attempt to make use of these units in a national educational work among the people.

As we look at this map, we all rejoice that our work is so large: that there are so many dispensaries, hospitals, doctors, and medical schools; that there are so many people helped each year. But I am convinced that the greatest contribution it is possible for us to make, is yet to be made.

Several members have been asked to open a discussion which I hope will make clear to us what to do at this time to further our share in the work of public health education in China.

DISCUSSION OF PRECEDING PAPERS ON PUBLIC HEALTH.

Discussion on Preventive Medicine.

Dr. Beebe recommended the publication of Dr. Stanley's paper in Chinese, remarking that it was just the thing the Chinese were wanting. "The people have to be educated and the China Medical Missionary Association is in a unique position with reference to this work."

Dr. Houghton thought the papers touched upon a phase of education which was seldom heard of. It had a definite relation to the specialized medical education in their schools, and they needed to have an intelligent laity with whom the youths could mix when they began their real life work. The association ought to be able to bring the concentrated and intense work outlined in the papers to perfect fruition, and one way of doing this would be to appoint a permanent Executive Secretary.

Dr. Main said the Executive Committee had had the matter of the appointment of a permanent Executive Secretary under
The strong links in chain representing China are: national longevity, population, favorable location, national resources, filial piety, morality, frugality, and industry. There are three weak links, poverty, ignorance, and disease. These links are of different colors and poorly made. Below hang three strong links, conservation, education, and health, in corresponding colors. The inscription urges the replacing of the weak links by the strong ones.
consideration, and would make a definite recommendation during the conference.

Dr. Maxwell said he thought there was one thing missing in these papers, and that is an appeal for the awakening of the "Sanitary Conscience" of the missionaries themselves. "We are asked to teach sanitation, but we have not the control by which we can make our buildings and schools sanitary."

Dr. Macklin, speaking more particularly of the sanitation at Nanking, said the hygienic movement on the part of the Association was necessary in order to better the living conditions of the people. The only way to prevent overcrowding for instance was to open up the land now lying idle. Several attempts had already been made to do this, but difficulties had always been met. "We know there are parasites which cause disease," he said "but there is another parasite which causes poverty, and that is the landlord."

Dr. Balme said one was almost inclined to despair of doing any effectual work because it was so enormous and costly. We can, however, do something by working from two ends. The first end is the top end, by which is meant the official class. We can work in this direction by education, but probably more by example. The bottom end is the masses, who have to be educated, and until this is done it is difficult to achieve any good results.

Dr. MacWillie said they needed to have the "sanitary conscience" impressed upon themselves first of all.

MEDICAL EVANGELISM. CONFERENCE DISCUSSION.*

The basis of the discussion was a paper by Dr. R. V. Taylor of Yangchow, on "Medical Evangelism," (see the Journal for last March where it appears in full), in which he took exception to the position that the missionary preacher is the healer of the souls of the people, and the missionary doctor the healer of their bodies, urging that the hospital offers as many opportunities for "purely evangelistic" work as any other form of Christian endeavor on the mission field, with the possible exception of the magnificent work among the students done by the Young Men's Christian Association. He suggested various plans by which advantage could be taken of the evangelistic opportuni-

* The report of this discussion should have followed the papers to which it is related in the March issue of the Journal, but unfortunately it had to be omitted for want of space.—Ed.
ties in the hospital, and dealt with the two obstacles which stand in the way of such evangelism,—the difficulty in securing suitable assistants, and the failure to keep in touch with the patients after they have returned to their homes. Dr. Sidney Peill of Tsangchou followed with a paper containing "A suggestion towards effective following-up of hospital enquirers and believers, in a country district."

In opening the discussion Dr. Huntley expressed his agreement with the view that the Hospital and the Church work should be brought into closer conjunction, and he thought it was a matter they ought to emphasise, and impress upon their clerical colleagues. He thought the day had passed away when medical missions were looked upon as a means to an end. It was an end in itself, in bringing the Gospel directly to the Chinese. There was no pulpit so influential as a hospital ward, and no pew so receptive as a hospital bed. He could not help thinking, however, that the main work of the doctor was to create the spiritual atmosphere in the hospital. Some men could not preach but they exercised a wonderful spiritual influence by their life and example. He considered it very important that the physician should spend the first half-hour of the day in getting into spiritual touch with the assistants and nurses. The direct personal work in the wards should be given to a Chinese evangelist. A regular course of addresses on the life of Christ lasting 30 days supplemented every ten days by a lantern lecture illustrating the part of the course covered, was very valuable. In dispensary work there was a difficulty in preaching to patients before time of opening on account of the coming and going of the patients, but he had solved it by an arrangement of seats in the dispensary, so that patients were seen in the order of seating, those nearest the doctor being also nearest to the evangelist.

Dr. G. W. Guinness said that formerly in his work the doctors did much preaching but now most of it was done by students. Their custom was to have services in the wards on three nights of the week for personal work; on two nights the students conducted services; on Thursday nights there was a meeting for Bible study with the students; and on Sunday night a service for gathering the results of the week's work, when often patients confessed their belief in Christ. In addition the hospital staff met daily at 7.30 a.m. for prayer. They often took students on preaching trips into the surrounding country. He considered it a great advantage to have students, and even the coolies, out-and-out Christians. Patients were prohibited from giving presents to students and coolies in order to guard against one patient receiving more attention than another.
Drs. Gossard, Hamilton, and Roys, urged the importance of evangelistic work in the homes of the patients.

Dr. Osgood expressed the opinion that the Church was the centre of the work which they were doing. The church and the hospital were two separate institutions, and the medical man must realize that he could not work without his evangelist co-worker.

Dr. Balme held that on account of the heavy pressure of medical duties, the physician could barely touch the fringe of evangelistic work. The responsibility of appointing foreign evangelists for hospital work should rest on the home Boards. A minister in India working solely through a hospital, had opened stations in 100 villages, and baptised over 3,000 persons.

Dr. Thacker asked for an expression of opinion as to hospitals employing Christian and non-Christian servants. In India, where he had previously worked, all the servants were Christians.

Dr. Grant maintained that as in medical work, so in evangelism, as much of the work as possible should be handed over to the Chinese, so that should foreigners retire the work may go on as usual.

On being called upon, Dr. Mary Stone said that in her hospital, in addition to the personal religious work of the nurses, there were four Bible-women who gave their entire time to the evangelistic work.

Dr. Eubank said that many doctors were willing to preach but could not do so as they had not been given the time to master the Chinese language. As an Association they ought to insist that every medical man coming to China should have ample time in which to learn the language.

The President, Dr. Main, in closing the discussion said he considered the evangelistic work in the hospital of the utmost importance, and it was very advisable that all the staff should be Christians.
CLINICAL NOTES.

LONG RETENTION OF FOETAL REMAINS.

Woman aged 22, admitted with history of difficult labour in which she had been attended by Chinese midwives; the leg presented, and as the child could not be extracted, it was pulled upon and as the result the woman was brought to the C. M. S. Hospital, Ningpo, thirty-eight days later, with the foetal head still within the uterus, and with a very foul discharge. Patient was evidently suffering from the absorption of septic products, and said that she shrank from passing motions or urine because of the exquisite pain it caused her. On examination the uterus was still well above the level of the pubes, and tender; p.v. the bones of the head were easily felt. Under chloroform the bones of the head were carefully removed one by one, and there was not the slightest difficulty in the recognition of each. The skull was complete with the exception of the base which could not be found, and which had probably been macerated during its long period of retention in the uterus. She recovered without any bad symptoms, and without any temperature higher than F. 99°, and left the hospital seven days later, feeling and looking quite well.

ARTHUR F. COLE, M.R.C.S., L.R.C.P.

C. M. S. Hospital, Ningpo.

PURPURIC CASES FOR DIAGNOSIS.

(1). Patient, a man of about 35 years of age, came into the Out-patients’ Department, Shantung Road Hospital, Shanghai, last February, supported by his friends, and sat down on the chair.

He said he had been ill five days. The illness began with a chill, followed by some fever and vomiting, sore throat, no cough, constipation and anorexia. A red rash appeared on the face about the second day and this rash gradually spread over the whole body.

Skin all over body hot, red, infiltrated and almost brawny. The red flush most marked over chest, back, and abdomen, the redness being of a darker hue than that of scarlet fever. The overlying skin on arms, legs, thighs, etc., blotched with petechiae and ecchymoses. The general red flush could be dispelled by pressure, but not the petechiae or ecchymoses. No papules, or raised rash, or vesicles, or crusts, or ulcers, of any description.

Patient was isolated and given a saline stomachic mixture with Calomel and Pulv. Rhei Co, on the ground that his condition might be due to some digestive toxaemia, or dosage of native medicine. Scarlet fever was ruled out. When seen again after five hours his condition was no better. Bowels not open. Pain and distress about chest worse. Mag. Sulph. and Aspirin were prescribed, and a hot foment put on the epigastrium.

Next morning the condition of the patient had become distinctly worse. He slept a little through the night but was very restless and distressed. Took a little congee. Urine scanty: bowels open, fluid discharge, yellow colour, no blood. Bleeding from the conjunctivae and gums. Discomfort and oppression of chest worse. Pulse feeble, spleen not enlarged. Rash more livid and more petechial.

At this stage Dr. Patrick kindly saw the patient in consultation, and the conclusion was come to that the disease was Purpura (Henoch's). The patient died at 12 o'clock noon, on the 6th day of the disease, after much restlessness and oppression.

After death, knowing that Dr. Marsh had had much experience in Glasgow with small-pox, I asked him to kindly come and view the body. This he did. The whole of the trunk was then of a deep plum or prune colour, and Dr. Marsh gave it as his opinion that the case might have been one of black, or malignant, small pox—Purpura Variolosa.

It is impossible to say whether this was Henoch's Purpura or Purpura Variolosa, as the symptoms tally, more or less, with the description of either disease.

(2). In December 1910, when the plague was raging in Manchuria, a case very similar to the above was treated by us here. The patient, aged 23, came in 8 p.m. on 21st December, "feeling ill and bad inside." He gave a history of having been ill for three days,—fever, no vomiting, slight cough, bringing up a little blood-stained sputum.

The following day his face and head were livid and swollen from the mid-cervical region upwards, while the limbs and body were covered with a red rash and papules (petechiae). Tongue dry and
red. Eyes bunged up. Mentality very poor. The patient gradually got weaker and died at 6 a.m. on the 23rd., i.e. on the 5th day of his illness, the head and face having become deep blue-black, swollen and brawny.

A swab from the throat, and a puncture from the spleen, shewed "no plague bacillus but a pure staphylococcus infection."

This case was seen by Dr. Billinghurst with me and he was as much puzzled over it as myself.

It would be interesting if other members of the Association could record any similar cases. Fortunately they appear to be rare, seeing how treatment appears to be entirely without avail.

Disinfective precautions were taken in both these cases and no one developed smallpox or any other acute infectious disease after contact.

Cecil J. Davenport, F. R. C. S.
Shantung Road Hospital, Shanghai.

I A R A M A T O M A, C A L V E S O F B O T H L E G S.

A woman, aged 33 years, was admitted into the hospital on April 2nd of this year, with the calves of both legs swollen, tense and hard, and the skin very tight and shiny. She had a slight temperature F. 100.° on admission, complained of pain in the legs and was obviously in a very debilitated condition. An abscess of both legs was diagnosed, though the absence of any redness or bogginess of the skin made the case rather atypical. The day after admission incisions were made in the left calf under chloroform. The first incision, slightly to the outer side and about the middle of the leg, allowed a large quantity of red fluid and what appeared to be blood clot to escape. There was found to be a large cavity between the muscular layers of the calf filled with fluid and clot, and some of the clot was evidently of long standing. The clot was cleared out as thoroughly as possible, and an opening on the opposite side of the leg made for drainage. The cavity was now syringed out with normal saline, the limb firmly bandaged, and the patient put back to bed with the leg elevated. Microscopical examination showed the fluid to be blood, and revealed no micro-organisms. The oozing after operation was not very marked. Six days later the right calf was opened and a similar condition found. Both legs did very well, though there was a free discharge of serum. The patient is still in hospital on April 25th, but her general condition is greatly improved. She is not so pale as on admission and the legs are practically healed. She ran a slight temperature for about a week
from some other cause than her legs, which have shown no signs of suppuration.

The only cause for the condition that can be discovered is that the patient, owing to some family trouble, walked a distance of some 120 li, apparently without a rest. After this she had acute pain in the legs and the swelling commenced. She came into hospital three weeks later.

A. C. Price, M.B., Ch.B.

Shantung Road Hospital, Shanghai.

RUPTURE OF UTERUS: CAESARIAN SECTION.

The patient, a multipara, was in her sixth labour. She had been delivered each time by foreign intervention and, with the exception of the last time, it was necessary to resort to craniotomy. At the last labour a living child was delivered, but it only lived 12 hours. At that time we warned her against another pregnancy, but as she was extremely anxious for a child she became pregnant again. As she lived two days away from Chung-king she came down at the end of the second month for consultation. After examination, I told her it was hopeless to expect a live child in the condition we found the pelvis, and advised a Caesarian section as the only hope for a living child, and the most speedy convalescence for herself. She consented, but thought it necessary to get the consent of her husband first, who was two days journey away. As the time approached for her delivery I examined her again and advised the operation at once, but she put it off till her husband's arrival. Three days after the examination labour began about midnight. The pains were very severe, and in the interval there was considerable show of blood. Friends with whom she was staying tried to get her into a hospital but for various reasons did not succeed until daylight, when a note telling me of her condition reached me, three miles outside the city. At once I hastened to the city and made arrangements to receive her into the Canadian Mission hospital. We were ready to begin the operation at 11 o'clock, just 24 hours after the labour began. At this stage she was in fairly good condition but bleeding profusely between pains. All the preliminary preparation she had was painting her abdomen with Tincture of Iodine. Under chloroform anaesthesia the ordinary incision was made, and as soon as the uterus was delivered the child protruded through a transverse tear in the uterus, near the junction of the vagina with the anterior surface of the uterus. We delivered the child and placenta at once, but found the child had been dead for some time. The rent was sewed up, the
internal mucous coat with catgut, the muscular also with catgut and with continuous silk sutures externally. The tubes were then ligated and cut, and the abdominal wound sewed up in the ordinary way. She made an uneventful recovery.

An unusual feature in this case was the tear which had evidently occurred about twelve hours before she was delivered, but on account of the constant contracting pains forcing the ruptured part between the head of the child and the pelvic brim, the woman was saved from bleeding to death.

J. H. McCartney, M.D.

CHUNGKING, SZE.

EXTENSIVE VESICO-VAGINAL FISTULA.

In this case, there was an extensive vesico-vaginal fistula caused by the pressure of the head of the child in the last labor, which had lasted several days. The septum between the vagina and bladder was composed of scar tissue entirely, and the fistulous openings, of which there were several, would easily admit of a finger. The mucous membrane of the bladder prolapsed through each of these. The vaginal outlet was so narrow that it forbade any possibility of attempting operating through this tract. This being the case, and the vaginal wall being composed entirely of scar tissue, we decided that the best chance in doing a successful operation would be in making the vagina adjunct to the bladder by doing a plastic operation and closing the vagina.

We accordingly dissected up one side at the junction of the skin with the mucous membrane. On the other side a flap was made, the convexity of the flap being carried out at least ½ inch farther than the convexity of the first incision. This flap was dissected up, and by means of chromic catgut was pulled in under the first made flap with its skin surface turned in. This brought two raw surfaces into apposition, and the flaps were stitched together with a double row of catgut similar to Lane's operation for cleft palate. We now had a perfect wall with nothing to prevent healing if we could keep the urine from infecting it. We overcame this difficulty by inserting a male rubber catheter, and keeping the woman on her stomach. This kept the surfaces fairly free from urine, and we obtained splendid union of the flaps. On the 5th day the catheter was removed, and on the 10th day she was allowed to get up. Since the operation she has been able to retain her urine through the day, but has some leakage at night.
Clinical Notes.

She pronounces herself eight-teenths cured, and seems perfectly satisfied that she has no vagina. I believe the results have justified the obliteration of the vagina in this woman's case, as she was a nuisance to herself and everybody else before the operation.

J. H. McCARTNEY, M.D.

CHUNGKING, SZE.

ANAPHYLACTIC SHOCK.

Before presenting the details of the case it is desired to report, it may be well to give a recent description of anaphylaxis and anaphylactic shock, in order to emphasise a particular point.

"Anaphylaxis is a term which indicates the opposite of prophylaxis. It was noted that after a period of incubation of at least ten days a second injection of horse serum produced symptoms of respiratory embarrassment, convulsions and, at times, death. The primary injection had during the period of incubation sensitized the cells to this particular proteid."

"Rosenau and Anderson working with guinea-pigs showed that small doses were efficient for sensitization, that the condition was transmissible from mother to offspring and that a second animal could be sensitized by being injected with serum of a sensitized animal."

"This group of symptoms, the so-called anaphylactic shock, which is apt to set in within a few minutes after the second injection, is often preceded by restlessness and great excitement and together with the dyspnœic manifestations there is cardiac weakness and great fall of blood-pressure. The more serious symptoms and at times death are more apt to appear after intracerebral injections than after intraperitoneal. Subcutaneous injections are least apt to produce anaphylactic symptoms. Our attention to this phenomenon commenced with the study of "serum sickness" or "serum disease." In this an erythematous rash or urticaria associated with more or less oedema comes on after eight to twelve days from the time of the first and only injection of horse serum. It is supposed to be due to the fact that some of the serum originally injected remains unchanged in the tissues so that when the sensitization takes place there is present and at hand the same foreign proteid to bring about anaphylactic symptoms."

"Immunization against anaphylaxis is possible by repeating injection of the sensitizing serum or proteid during the period of incubation."

"It is important to note that this hypersusceptibility appears to be very rarely of importance in the matter of the administration of a
second injection of diphtheria antitoxin after the period of anaphylactic incubation."  

The case reported below did follow a second injection of antitoxin after the period of "anaphylactic incubation." We would, however, emphasize the fact that in at least a hundred second injections of diphtheria antitoxin this is the only case of anaphylactic shock that we have seen. Of "serum sickness" we have seen quite a little, as in the past four years we have given more than a thousand injections of diphtheria antitoxin, and a number of the larger quantities of serum used in the streptococcic infections. "Serum sickness" is much more likely to follow the injection of large quantities of serum, than it is to follow the use of the more concentrated anti-diphtheritic sera. The usual doses of the latter are not at all bulky.

T. Y. H. Male, 27 months old. Perfectly healthy. Has never had asthma and does not show any stigmata of the "status lymphaticus." Had broncho-pneumonia eleven months ago.

Was given prophylactic dose of 700 units of diphtheria antitoxin, hypodermically, two years ago.

On Dec. 17th, 1914, at 1.15 p.m., a second 700 units of diphtheria antitoxin was given hypodermically for prophylaxis. Five minutes after injection an erythematous rash appeared all over the body which soon became urticarial. At the same time the child was very restless. The hands became gradually cold and face cyanosed. In a few minutes he was unconscious. Pulse was almost imperceptible at the wrist. While the child was in this state the urticaria disappeared. Temperature, per rectum, normal.

After a short while the cyanosis disappeared, the pulse became stronger and the child fell into a sleep. Had an involuntary stool and vomited as the cyanosis was clearing up. The attack was all over in three hours. The night was uneventful and the following morning there was a macular and papular eruption all over the body.

A week later the child showed symptoms of "serum sickness."

S. Z. HYUI, M.D.

WUSH, Kiangsu.

The China Medical Journal.


The yearly subscription to the China Medical Missionary Association is $4.00, payable in January of each year. This includes the JOURNAL and postage on it, whether local or foreign.

All changes of address, departures and arrivals from furlough should be notified to Mr. A. W. Hayward, 9 Woosung Road, Shanghai. Members are requested to invite new comers to join the Association.

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

Editorial.

PUBLIC HEALTH, THE PAST AND THE FUTURE.

Our conceptions of Public Health are continually enlarging and extending with the increase of knowledge and the advance of civilization.

The science and art of medicine are passing more and more from therapeutics to prophylaxis.

We are approaching the time when some of the disorders which afflict mankind will have disappeared: there are none the gravity of which has not been markedly attenuated in recent years.

Pasteur, one of the supreme benefactors of the race, the father of scientific preventive medicine, cast down the old humoral and vitalistic doctrines, destroyed the idea of spontaneous generation, and established on a firm basis the microbial theory of disease.

Since the dawn of medical science no light comparable to that which resulted from the discoveries of Pasteur and his school, has come at any time to illuminate the obscure problems of disease. The antirabic inoculation is one of the most amazing prophylactic and therapeutic triumphs of all time.

Pasteur himself linked his own researches with the immortal labours of Jenner on vaccination against small-pox, Jenner who made England the country of efficient prophylaxis.

It seemed that the last word in etiology had been spoken, and that all pathological phenomena were to be explained by microbial action. But knowledge advanced by leaps and bounds and still further light was thrown on the origins of disease.
Sir Patrick Manson, the father of tropical medicine, and a host of workers inspired by his genius, have, by their discoveries in protozoology, helminthology and entomology, made such advances in our knowledge of tropical diseases, that salubrity has been brought to fever-stricken regions, and desolate places have become habitable by man.

In addition to those of microbial and parasitic origin, there are groups of disorders dependent on the biological factors of variation, heredity and adaptation to environment,—disorders of development, not only of the pre-natal, but also of the post-natal period.

These arise as variations in the evolutionary process; their origin is prehistoric; they make their appearance as the result of unfavourable environment, a term connoting not only those circumstances which surround the human being, but also those substances which, taken internally, circulate in the body, and truly form an environment to the organs and cells.

The science of genetics, through the imaginative foresight of Francis Galton is contributing to the elucidation of special problems of disease and will play a vital part in the control of the destinies of mankind.

All epoch-making advances in medical science have been biological, and only on foundations of biology can the true Public Health be built.

It is impossible to do more than indicate a few of the achievements that have resulted from these accumulations of knowledge.

A century ago small-pox claimed by death one-tenth of the population of England. To-day small-pox has been virtually banished.

Twenty years ago diphtheria was the scourge of childhood; to-day it is held securely in check by the antitoxin of Behring.

Typhoid fever was stigmatised by Huxley as the scourge and disgrace of England; to-day the vaccine of Sir Almroth Wright offers immunity to whoever will.

Freedom from typhoid and small-pox is an index of the sanitary intelligence of a community.

Plague, malaria, dysentery, cholera, sleeping-sickness, undulant and relapsing fever,—all have yielded up their secrets.
America has triumphed over the malaria-haunted zone of Panama, has banished yellow-fever from Cuba, and is organizing a world-wide crusade against ankylostomiasis.

Great as the achievements of the past have been there is little ground for complacency.

Many obscure problems are struggling towards the light: over many others there still hangs a dark pall of ignorance: our knowledge is far from complete, yet is sufficient for measures of vital importance to Public Health to be put in operation, measures which must cost money, but which will save vastly more in the end. It has been well said, "A nation's health is a nation's wealth."

There must be as eager an ambition for perfect national health as for national renown in war, in the arts, or in commerce.

Had but a fraction of the vast sums spent on war during the history of the world been spent on scientific research into the causes of disease and in putting into operation the necessary measures of prevention, it is not extravagant to say that disease would have vanished, and the golden age would have arrived.

It is time to purge our minds of those preconceptions and prejudices which obscure new issues, to clear away those personal and vested interests which obstruct the progress of the world.

The doctors of the future will be members of great national organizations for the Public Health, under the guidance and administration of Ministers of Public Health, chosen for breadth of knowledge, imaginative insight and organizing power.

They will pursue their own special vocations in the hospital, the laboratory, the research institute,—physicians, surgeons, bacteriologists, parasitologists, psychologists, anthropologists and others,—all working towards a common end, the perfect health of the people.

If such an end seem utopian, let us remember that Utopia is the land at which humanity is always arriving.

C. Noel Davis, M.D. (Lond.), D.P.H., D.T.M.

PUBLIC HEALTH SERVICE IN CHINA.

In devoting such a large part of the present issue of the Journal to questions of public health in China, we feel confident that it will meet with the approval of the members of the Associa-
tion. At the last Biennial Conference no other subject aroused so much interest, we may say enthusiasm, both among Chinese and foreigners. The admirable Health Exhibit, no doubt, created and stimulated this interest to a remarkable extent. Nor was it confined to the medical men attending the Conference. The crowds of Chinese students and others who came to the Exhibition gave unmistakable proof of the interest in the subject which had been aroused among the people at large. For their benefit the Exhibit remained open to the inspection of the public long after the Conference had closed.

One result of this movement has been the appointment by the Conference of a "Council on Public Health," to initiate work of its own, and to co-operate with the Health Division of the Lecture Department of the Y. M. C. A., in all measures for promoting the health of the Chinese people. And through the generosity of a member of the Association it is hoped that one of our number will be able to devote his whole time to this work. The Council and the Y. M. C. A. realise the great opportunities which lie before them, and a vigorous health campaign is now being conducted in various Chinese cities under the able leadership of Dr. W. W. Peter and his colleagues. Members of the Association desiring to see work of this kind started in their stations are advised to communicate with them. There are vast educational and practical possibilities in this direction, and in the various other ways outlined in the papers published in this issue.

Unfortunately, we have not been able to obtain, as we hoped, a paper on this subject by a Japanese physician describing the methods adopted by the Japanese government in dealing with the problems of hygiene and sanitation which exist in an Eastern land. Judging by the medical reports we have read, its attitude is one of benevolent despotism. Thus, in Formosa, the measures adopted for the eradication of malaria leave little to the freedom and initiative of the people. In every malarial district, all the inhabitants and sojourners are summoned to appear on an appointed day, their blood is examined, and to every infected person thus discovered quinine is administered compulsorily for a period of thirty days during two months. All the housekeepers in such localities are given orders to use mosquito nets at night, and to keep their
premises clean. The duty of controlling the inhabitants and of treating the human parasite-carriers falls on the police officials.

We mention such forcible measures as we think there is no need to wait until the great mass of the Chinese people have been educated to appreciate the benefits of Western medicine and hygiene before bringing pressure to bear on the Chinese authorities to establish as soon as possible the municipal health departments, and to put in force the other practical measures advocated by our contributors in their excellent papers. Even now there are not a few well-trained Chinese physicians competent to undertake the charge of such work. The Chinese are not a people to object to benevolent compulsion when convinced it is for their good. They would quite agree with the great strategist, Von Moltke, who said, "Thanks be to God, the old patriarchal régime, the old theory that people are to be made happy in spite of themselves, still subsists, in spite of progress." But, as more than one writer forcibly observes, the one real and permanent source of progress in public health is national education founded on the bed rock of science.

OUR "CLINICAL NOTES."

The valedictory reports of previous editors of the Journal do not form very cheerful reading, at least not for the acting editor, for nearly always the complaint is made that members of the Association, taken as a whole, are not very enthusiastic contributors, and yet it is upon them that the Journal must depend for material. It is true that a special effort is made at the time of each conference to provide papers to be read at the meetings, and there is a tacit understanding that all conference papers, whatever their merit may be, are to be printed in the Journal. But these papers are not sufficiently numerous to provide "copy" for two years, so that if other papers are not sent in steadily, it is evident that the editor may find himself in an unfortunate position unless he borrows freely from other medical papers. Our Association is so large there ought to be sufficient "copy" to issue the Journal every month. Why is it then, that so few articles, comparatively, are sent in? Doubtless, some men really have not the time for literary work, they are so overwhelmed by hospital and dispensary
work, and other important business. Some are diffident, imagining they have no gift for writing. Others think that whatever they send in must be so learned and exhaustive as to be above all carping criticism, and as work of this kind requires much time and thought their articles are few and far between, but of great value when they do appear. Perhaps a certain number, we hope it is very small, regard writing for the Journal as a waste of strength. In fact, the hindrances are many which prevent men from sending in articles.

There is one class of possible contributors, however, to which for the moment a special appeal is made. There are members quite competent to write long and learned articles but who have neither the time nor the inclination for the task, who would be willing to send in short accounts of cases of unusual interest, not involving much time or work, if they were quite sure that the reports are desired. It need hardly be said that such reports are always welcome. And they are desired not simply to meet the requirements of the Journal, but what is of far greater importance, the facts contained in these reports ought to be recorded in permanent and accessible form for the benefit of other medical workers, perhaps in quite different fields. For instance, embedded in one of our hospital reports recently issued, is the account of an extensive spinal injury followed by almost complete paralysis, of extraordinary interest to the physiologist, yet as the hospital report appears to be intended mainly for the laity, the supporters of the hospital, it is doubtful if any physiological writer will see it. Then there are the rare and perplexing cases which we come across. If reported in the Journal these will draw forth the opinions and judgments of others to the benefit of all. There is hardly a medical missionary, apart from those wholly engaged in educational work, who cannot send in occasionally contributions of one kind or another. If accompanied by instructive photographs, so much the better.

To a certain extent brief reports of this kind have always been appearing in the Journal, but a beginning has been made in this issue to group them under the heading "Clinical Notes" in the hope that hereafter they will form a distinct, regular, and interesting feature of the Journal.
MEETING OF THE EXECUTIVE COMMITTEE.

A meeting of the Executive Committee was held in Shanghai on April 15th, 1915, with Dr. Venable in the chair.

The following members were present:—Drs. Venable, Beebe, Cole, Davenport, Evans, Houghton, Merrins, and Morris. Rev. E. C. Lobenstine, Secretary of the China Continuation Committee was also present by invitation.

The secretary reported that Dr. Mary Stone, of Kiukiang, had accepted the position of examiner for the Nurses’ Association for the next biennium, in place of Dr. Tatchell, whose term expires this year.

The secretary reported in regard to a business manager during Dr. Snell’s absence, that arrangements had been made with Mr. A. W. Hayward of Shanghai, to take the position at reasonable remuneration.

The election of Dr. Beebe to the position of Executive Secretary, and his acceptance of the position were announced.

The main business of the meeting being the discussion of educational matters in connection with the report of the Rockefeller Commission, and as the Council on Medical Education had been called together for the same purpose and were meeting in the next room, an invitation was extended to them to meet with the Executive, and discuss educational matters in joint session.

The following members of the Council on Medical Education were present:—Dr. Hume (chairman), Dr. Shields (secretary), Dr. Cochran, Dr. Cormack and Dr. Davenport (the latter being a member of both committees). Dr. H. Balme, of Tsinanfu, was present by invitation. Dr. Hume reported on action taken by the Council. Dr. Cormack reported on action taken by the Union Medical School in Peking. Dr. Houghton gave a brief account of a meeting between the faculties of the Pennsylvania Medical School (which is the Medical Department of St. John’s University, Shanghai), and the Harvard Medical School. Dr. Shields reported a resolution which had been passed by the faculty of the Union Medical School in Nanking, and also of the action taken at a meeting of committees representing the faculties of Nanking Medical School and St. John’s Medical School.

A general discussion then took place as to what should be the policy of the Association in regard to the proposals of the Rockefeller Commission as outlined in their report. A committee consisting of Drs. Beebe, Cochran, and Davenport was appointed to frame properly any resolutions which might be adopted in regard to this question. Various proposals were brought forward, and several resolutions were
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passed in rough form, and at 12:25 p.m. the meeting adjourned until 2:00 p.m.

At the afternoon session Dr. Gamewell, Executive Secretary of the Educational Association was present by request. After a good deal of discussion, the following preamble to a series of resolutions relating to the plans of the China Medical Board of the Rockefeller Foundation was approved:

Having received the report of the proposed plans of the Rockefeller Foundation for the establishment and assistance of Medical Schools in China, we desire to express our deep gratification in the prospect of such substantial resources of experience and funds being made available for medical education in China, and we record our desire to heartily co-operate in the proposed undertakings.

We further wish to express our appreciation of the attitude of the China Medical Commission toward the Medical Mission work and the expressed purpose of co-operating with existing Medical Missionary Institutions.

After passing the resolutions it was decided to hold them in abeyance until the arrival in China of Mr. Roger S. Green, the Resident Director in this country of the China Medical Board.

The joint meeting adjourned at 4:20 p.m.

The Executive Committee met at 5:15 p.m. for a further session. Dr. Houghton reported on the possibility of securing a member of the Association to give his whole time to the work of the Council on Public Health. A promise of G. $1,000 per annum for two years had been made. The following resolution was then passed: "That the Council on Public Health be authorized to add to its membership by the appointment of one other member for the period of the present biennium, provided that no financial obligations beyond the sum already appropriated to the said Council are necessarily incurred."

A motion was carried that request for G. $1,500 be made to the China Continuation Committee, for the office expenses, etc., of the Executive Secretary, in accordance with the desire of the Continuation Committee to help the C.M.M.A. in this manner as expressed two years ago.

A motion was carried that the Executive Secretary be requested to present to the China Continuation Committee a report on medical work in China.

Drs. Beebe and Shields were appointed to represent the C.M.M.A. as delegates to the Christian Publishers' Association of China.

A motion was carried that the Executive Committee approve the travelling expenses of the Council on Medical Education to this meeting, and that these expenses be paid out of the funds of the C. M. M. A., recognizing this occasion as a special emergency.
A motion was carried that Dr. E. H. Hume be appointed to repre-
sent the Association, during his visit to America, in all matters relat-
ing to the medical educational plans of the China Medical Board of the
Rockefeller Foundation.

H. H. Morris, Secretary.

THE EDITOR VOLUNTEERS FOR MILITARY SERVICE.

My dear Dr. Venable,

Will you please inform the members of the Executive Committee
of the C.M.M.A. that I have volunteered for service at the Front
and hope to leave Shanghai about the end of June for England. This
will, of course, entail my resignation of the Editorship of the CHINA
MEDICAL JOURNAL, which the associate editor has very kindly promised
to assume entirely.

An Englishman need not explain to a citizen of the land of Freedom
the reasons for such action as mine and that of many other members
of the Association: it is a great wrench all the same to leave one's
work and friends in China, for how long who can tell? The editing
of the C.M. JOURNAL these few months has given me an increased
interest in affairs generally and a wider circle of friends, who I trust
will forgive me if I fail to write and thank them severally for their
loyal support. Any letters you can find time to send to me with news
of yourselves will be most welcome.

Yours very sincerely,

Arthur F. Cole.

Whatever may be our opinions as to the rights and wrongs of the terrible
war now being waged in Europe and in other parts of the world, we cannot but
sympathize with those of our fellow-workers who are nobly offering themselves
in the day of battle to the service of their country. We hope that Dr. Cole and
his compatriots will all return safely to us and resume their work in this great
land where their services will always be urgently needed.


Meetings.—In all ten meetings of the Association were held,
which is one more than was arranged for on the schedule for the year.
This was owing to special meetings arranged to confer with Dr. Main,
and with the Rockefeller Commission, when visiting Hankow. Of these
meetings, five were held at the Concession, one at Hanyang, two at
Wusheng Miao. Those arranged for Wuchang were changed owing
to few of the members being able to cross the river at the time of meeting.

Five meetings were clinical, and at three meetings papers were
submitted.
The clinical meetings on several occasions afforded ample material for discussion and profitable investigation.

Some of the more interesting cases shown during the year were:

- Multiple papillomatous naevi;
- Multiple bone necroses after smallpox;
- Two cases of deep extensive ulceration of scalp, one penetrating the bone;
- Aneurism of the Subclavian;
- Lymphosarcoma;
- Specimen of bowel removed from a woman, aged 40, for intussusception.

The papers presented were by (1) Dr. Huntley, who gave a short review of matters of medical and surgical interest collected during his recent trip to America.

The second, by Dr. Aird, consisted of the record of a case of cerebral syphilis, with observations on the course of the disease during life, and condition found post mortem. He also gave some valuable practical observations on methods of staining the organism, and suggestions for the use of salvarsan. The third paper was by Dr. Heyward who based his remarks on the subject of efficiency in medical mission work, referring more particularly to the aspects of equipment and organization of the work.

Membership.—The number of members this year stands at 12, with an average attendance at meetings of about 7. There have been various reasons to account for the smaller numbers as compared with previous years, as some former members are absent on furlough, and others have removed from this centre. On the other hand, we have been pleased to welcome several new workers in this centre who have joined the Association, and have been present at as many meetings as possible.

Nursing Examinations.—These were arranged and carried out by the special committee appointed for the purpose. Papers were set and examined and certificates presented to successful candidates. Of these some came from this centre, and several from other places in the surrounding districts.

Special Meetings.—It would not be an accurate summary of the work of the association during the year if no mention were made of the visit of Dr. Main to Hankow, as the President of the C. M. M. A. His visit had special reference to the question of medical education work. A full and representative meeting of all members and some visitors was obtained and a profitable and instructive gathering resulted.

A second special meeting was arranged to meet the members of the Rockefeller Commission when they visited Hankow. A good attendance
was secured, and all available information calculated to be of service to the Commission in its investigation of the needs and possibilities of this centre was supplied by various members who dealt with different aspects of the work. This was followed by an informal discussion and by questions dealing with local conditions.

**FINANCIAL POSITION.**—This is satisfactory, the treasurer's statement showing a substantial credit balance for the year.

H. M. Byles, M.B., B.S.,
Hon. Secretary for 1915.

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**Book Reviews.**


A text-book on Hygiene, to cover the subject completely, should not only formulate and explain the underlying principles of sanitation and the scientific methods of their application, but should also state how the whole population of a country may be induced to co-operate in the enforcement of all laws intended to promote the public health. Laws to which the great mass of the people are utterly indifferent have little effect. Herein lies the weakness of most hygienic works written by English or American authors when regarded as authorities for use in Oriental countries, where the people are so ignorant of sanitary laws and regulations as prescribed in the West. Even when this ignorance has been removed by the spread of education, yet religious observances and prejudices, ancient customs, and apathy, may still prove almost insurmountable obstacles to hygienic progress.

Accordingly, this treatise on Hygiene written by Indian authors and dealing particularly with the sanitary conditions and problems of India should be welcomed as a step in the right direction towards the production of our ideal text-book. It is only a step, though a long one, as the work does not deal fundamentally with the difficulties mentioned. For instance, in the chapter on vital statistics, in giving statements concerning child marriages, no adverse criticism is made of the custom itself as being injurious to the moral and physical welfare of the people.
On this latter point, indeed, the authors are of the opinion that the rapid succession of generations, probably five or more in a century, is favorable to the process of adjustment to an environment that is subject to constant changes. As a corollary, there must also be an extremely high death-rate, as there actually is in most parts of India. Such a scheme of things may be all right from the point of view of the survivors, but it is hard on those who go under.

Apart from criticism of this kind, the book deserves the heartiest commendation. It is in handy form, covers the whole subject of hygiene with sufficient fullness for medical students, the information conveyed is accurate and up to date, and the book is published at a moderate price. It may well serve as a text-book in our medical schools, leaving larger and more discursive works for collateral reading.

E. M. M.


This volume covers a large and varied subject in a clear and concise manner. The chapters on the anatomy of the pelvis and on normal delivery are excellent. The use of pituitary extract is explained. The only point open to unfavorable criticism is that in the opinion of many, the treatment advocated for abortion and adherent placenta may be regarded as meddlesome obstetrics. Such a book should not be relied upon as a text-book, but as a means of reviewing a subject quickly, with neat emphasis upon the essential facts, it is very satisfactory.

G. F. A.


The arrangement followed in this book makes it a very useful one. The drugs are classified according to their main action, and then a description of the action of the drug on the different systems (nervous, circulatory, etc.) is given in brief form, but bringing out the important features in each case. In this way one can see at a glance just how the drug acts, and what would be the advantages or dangers from its use in a given case.

There are several statements made which conflict somewhat with the ideas and experience we have accumulated here in the East, as, for instance, when we are told that Spigelia is the best drug for getting rid of the Ascaris Lumbricoides, Santonin being mentioned last.

A large section of the book is devoted to a description of the most important of the new and non-official remedies passed by the Council
on Pharmacy and Chemistry of the American Medical Association. These include sera and vaccines, so that it is a very useful addition to a work on Therapeutics.

On the whole, the book can be recommended as a helpful one in acquiring a thorough knowledge of the use of drugs.

H. H. M.

Materia Medica, Tables and Notes. Second Edition. Published by the Union Medical College, Peking. 1915.

This admirable little publication in English and Chinese, compiled by Dr. Bernard E. Read, of the Union Medical College, Peking, will be very useful to all physicians and medical students. The various preparations and strengths have been altered to agree with the new British Pharmacopoeia. The former index of diseases and remedies has been changed for a therapeutic index as it is thought this will be more helpful to the student. This new edition has been very carefully revised, and the few errors which appeared in the former edition have been corrected. The price is not given.

E. M. M.

Nurses' Association of China.

Miss L. Lenhart, Editorial Secretary.

Annual Conference of Nurses' Association.

The Annual Conference of the Association will be held in Peking, from September 1st to 6th, 1915. The headquarters of the Conference will be at the Union Medical College, by kind permission of the Faculty of the College. All nurses, whether members of the Association or not, are heartily invited to attend. Will those who are planning to attend, kindly send their names as soon as possible to:—Miss Powell, Methodist Mission, Peking, who is in charge of the hospitality arrangements. Delegates going via Tientsin, will be met at train or boat, if word is sent to Miss Gregg, Isabella Fisher Hospital, South Gate, Tientsin.

Provisional Programme.

Wednesday, September 1st.

2:30 p.m. Devotional Service.

4:00 p.m. Preliminary meeting. Address of welcome.

4:00 p.m. Reception, to which all delegates, physicians, and friends are invited.
Thursday, September 2nd.
9:30—12:00. Paper on "Hospital Economies and Prevention of Waste." Exhibition and paper on "Nursing Requisites as Made on the Native Street." Discussion.
2:00 p.m. Meeting with Chinese Nurses.
4:00—6:00 p.m. Visit to Llama and Confucian Temples.
8:00—10:00 p.m. Meeting with Medical Association. Papers on "A Scheme for District Nursing," and "Methods of Teaching Men Nurses." Discussion.

Friday, September 3rd.
Afternoon session to be held in the Temple of Heaven Grounds.
Picnic Supper.

Saturday, September 4th.
Afternoon. Automobile ride to the Summer Palace and Ching Hua College.

Monday, September 6th.
9:30—12:00. (and afternoon if necessary,) Business sessions. Items for the agenda to reach the Secretary, Women's Hospital, Shantung Road, Shanghai, by August 20th.

N.B.—Arrangements are being made for an audience with the President, Yuan Shih Kai. Time to be announced later.
Arrangements will be made for any who wish to do so, to visit the Ming Tombs and the Great Wall at Nankow Pass.

The Training of the Chinese Pupil Nurse.

Miss Cora E. Simpson, R. N., Foochow.

When we realize how the training schools of America have been revolutionized during the last twenty years, we can the better understand the difficulties which lie in the training of the Chinese Pupil Nurse.

Good food, good sleeping and living accommodation, shorter hours on duty, less "floor scrubbing" and more lectures of a practical nature, these are being emphasized in the courses of training in the home lands; graduation from an University with a diploma in nursing is followed by state registration, and then the mission of the "Ministering Angel" becomes in addition that of the "Guardian Angel of Public Health," judging from the many and ever-increasing possibilities afforded to the nurse thus trained.

Some of these ideals may need modification in our Chinese surroundings: let us choose the essentials and learn to let the non-essentials go.
FOOCHOW.

Florence Nightingale Nurses Training School, 1915 Class.

Ellen M. Lyon, M.D., Lena Hatfield, M.D., Cora E. Simpson, R.N.
In considering the training of nurses in China we must remember that until the customs change, she can at best be only half a nurse, for we believe that a nurse must know how to care for both sexes before she can be a complete nurse. Again, we must remember that the care of the sick has always been looked upon as "work only fit for coolies" in China. In many places sickness is still looked upon not only as sickness but as devil possession, and as long as this is believed, nursing cannot take the place it holds in Christian lands. Again, Chinese women have not the constitutions of their Western sisters. After centuries of being kept indoors with little, bound feet, one or two generations will not make them strong. They can stand just so much. What shall it be? Again, we must remember that China has always held the student and teacher as the highest ideal of a life in China and for many years to come this idea will still be the prevailing one. Again, we must remember that gaining an education in Chinese characters is not like an education in English. An English pupil nurse can soon learn a new book, but in China, as yet, many of the medical terms are entirely new even to the educated Chinese woman, and she must be given more time to study than would be given in Western lands. We are here to build up a great profession. If we demand all work and no study from the pupils, we cannot get the educated women, and if we do they are not strong enough to do both. If we do not train them in books we will soon find the profession is looked down upon by the educated Chinese, by the very ones who might quickest help the nurses to help China. Another thing, we are foreigners here for a few years at longest, and China will one day control her own institutions. We have to be away on furloughs and vacations on account of this hot climate. The nurses must be taught to rely on themselves as soon as possible.

Another thing, we are training these nurses not only to care for the sick in the hospitals and homes, we also want them to go out and be teachers to the women of China. We want them to help clean out these terrible unsanitary streets, to eradicate contagious diseases, and to get such an army in the field that the law makers of China shall be compelled to listen and help them make this land a sanitary land. The work of the Chinese trained nurse for the next century is as much to be a teacher of sanitation and health as it is to care for the sick and help them back to health again. Florence Nightingale did not give us a great list of rules for nursing, she gave us the principles. "A nurse's work is not only to nourish back to life, but to make disease impossible on the earth." someone has said. The great Physician said,
"I am come that ye might have life and that ye might have it more abundantly." What better motto can we find for our student nurses?

I think that a nurse must do all kinds of work long enough to learn how it should be done, whether it takes a longer or shorter period of time. She ought to have regular hours for study, recreation, and class-room work. She ought to have good nourishing food and a comfortable place to sleep in, away from the patients. When on night duty she ought to have hours for rest and sleep, and right here we may say that Chinese nurses cannot stand long periods of night duty. They may for a while, but it will injure their health if continued long at a time. If they do not leave the school in as good if not better condition than when they entered, there is something wrong with the methods of the one who has the charge of their health, unless the ill-health is due to contracted diseases or accidents. Everything that we can plan in the way of education, as magazines, lectures, papers, etc. will only help to make our nurses more efficient when they leave us. On account of so many Chinese holidays and feast days, and until our hospitals are doing more strenuous work, our nurses will have "breathing spells," so they may not require so many regular hours off to study and recite every day.

Another thing, we must remember that the Chinese live in great families. The nurse will always find plenty of people at hand ready to help with the work they can do. Those who employ her will expect her to do the scientific part, and thus her training will fit her for her life in the Chinese homes. As long as unskilled labor is so cheap in China, it will pay us to have ward maids to help the nurse. It will save her strength, give her time for study and training along the lines she needs, and will in no way unfit her for the place she will occupy after graduation.

Another thing that we must remember is that we do not know how unkind the patients often are to the nurses. These non-Christian people do not have our ideals of service for others, and many times they look on the nurse when they first enter the hospital as a servant, and begin to order her about as such. These things require more tact and patience from the nurses than we very often know, unless we get in very close contact with people. Also we must remember that the girls we are trying to train are just beginning to know what a nurse's life and duties are. Again, we do not always understand the customs and superstitions of the people, and sometimes a custom that may seem very unimportant to us may be most important from the Chinese view point. Let us learn to look at things
as much as we can from their viewpoint and ever be ready to hear their side of the story. If a new advance is desired, before giving the order explain it to the nurses, and you will find that they are usually ready for new things, and to help you carry them out. Now is our day in China to introduce new methods, new books, etc.

As to uniform, each school certainly ought to have a uniform. It ought to be Chinese in every way. We are here to educate and Christianize, and not to foreignize our students. I prefer the uniforms to be of light blue or white cloth, and, of course, with an apron to be worn when doing dressings, making medicines, diets, etc. I prefer the large surgical gowns for operations and obstetrical cases. They soon learn to look forward with pride to the time when they can wear the "operating gowns." I prefer the classes not to wear marks of distinction. The patients will soon learn these marks and will object to the newer classes doing things for them. Have the work perfectly understood among the nurses but not so that the patients will know. Caps I would never recommend for use in China, at least not as long as the white cap is a sign of mourning for parents. Among foreigners, who would like their nurse to wear a crêpe bonnet in the sick room? The Chinese women wear their hair so smooth there need be no fear of germs being conveyed by it. As Dr. Stone says, "it is so slick that if a fly attempted to light on it he would fall down and break his legs." So I guess we need not fear germs from the nurse's hair.

I think the candidate ought to have at least eight years of study before she enters the hospital for training, and as much more as possible. If you cannot get the educated women up to the standard they ought to attain, do not begin to call your helpers "nurses." If you do so before this standard is reached, it will harm the name when you want the better educated women to take up the training. In our Western lands we have struggled too long for our nursing standards of education to be willing to have this name applied to ignorant women in this land, where we are trying to build up the profession.

The fields open to the graduate nurses are as broad as the fields of her sisters in the Western lands, but I suppose that here, as in other lands, most of them will find their life work inside the walls of their own homes. I hope they will, because what better training can we give a girl to fit her for wife and mother than the nurses' training course? The profession means to them just what we make it mean. China certainly needs the graduate nurse, perhaps more than she needs anything else just now. To be sure, China does not realize her need, but the nurse by our help must make herself so entirely
indispensable and helpful to China, that she will soon be recognized as a very important factor in the national life. We can best help her by making our training schools the very best possible and by giving her the best training we can, by keeping the work before the public by lectures and through the press, by being all we can personally to the Chinese people. If the Chinese in your city see that your work is important and they like you, very soon you will find parents bringing their daughters to you to be trained. We can help her by mingling with the people, letting them know of our work, by explaining it to the educated ladies in the hospitals, by producing such fine, educated, consecrated, trained young women that the people the nurse meets will at once recognize in her the teacher who has come to do "only good" to her country. One successful Chinese nurse is better than anything else to advertise the work. The Chinese people know "a good thing" when they see it. Pour into your girls your very best self. Teach them everything connected with nursing, giving them examples. Open to them all the fields of usefulness that are open to nurses in other lands. Hold ever before them that they are to help China as individuals and as a body, that they are to be the teachers of China, tell them of the wonderful opportunities and responsibilities open to them just now. Tell them that this work has been committed to them because they are Chinese, and the people here are their own people and it is their country. You will have disappointments and heartaches, and wonder sometimes if they ever will understand what it means and realize their responsibility, and again you will be raised to the seventh heaven over something that "your girls" have done, and it is the future years that will be the test. Take them into the Nurses' Association as fast as they are qualified, and make them responsible for this as soon as possible. Force responsibility upon them if need be. Compel them to be the leaders and helpers, and then, when the nurse has come into her own in China, and from Thibet to Shanghai, and from Mongolia to Singapore, there is a great army of the daughters of the land nursing and caring for our beloved Chinese people, it will be enough for us that we had a share in laying the foundations. Be a true friend to each nurse, guide her, cheer her, trust her, give her a vision, and if need be push her out into this path of service for her own people. And if He has counted us worthy to lead them into this path of blessed service, to follow in the footsteps of Him, "who came not to be ministered unto but to minister and to give His life," that will be enough for us because we are also here only to serve in His name.
THE TREATMENT OF INFECTED WOUNDS.

In the present European war, the usual methods of dressing gunshot and shell wounds, whether aseptic or antiseptic, have proven unsatisfactory. As the result of elaborate investigations by Sir Almroth Wright and his colleagues, it now seems to be generally admitted that diminution in sepsis can be most readily attained not by the application of bactericidal substances from without, but rather by utilising the antibacterial bodies normally circulating in the blood and lymph. Aerobic and anaerobic organisms are present in the nooks and crannies of wounds in positions quite inaccessible to any antiseptic solution applied from without, but readily destroyed if sufficient bactericidal bodies can be brought into contact with the same by means of the lymph stream. In other words, lymph lavage is the all important factor in the treatment of septic wounds. The following memorandum, largely based on this theory, because of its great importance is given in full. It is reprinted from "The Lancet," April 24, 1915:

MEMORANDUM ON THE TREATMENT OF THE BACTERIAL INFECTIONS OF PROJECTILE WOUNDS.

BY

Cols. F. F. Burghard, Sir W. B. Leishman, F.R.S., Sir B. Mowbray, and Sir A. E. Wright, F.R.S.,
ARMY MEDICAL SERVICE.

It is proposed in this Memorandum (a) to synopsise the experience obtained in connexion with wounds in this war; (b) to supplement this by setting out the chief data which have been furnished by a bacteriological study of the wounds; and (c) to lay down certain broad principles of treatment for the guidance of those who have not seen the conditions in the present war, or who have seen only an early or a late phase in the history of the wounds.

The present Memorandum will be followed up, as soon as certain researches are completed, by Memoranda on the Employment of Antiseptics and Vaccines respectively.

I.—CHARACTERS OF PROJECTILE WOUNDS AND BACTERIOLOGY OF THE INITIAL INFECTION.

The wounds made by projectiles are not in any respect comparable to clean-cut, swabbed-out, aseptic operation wounds or to any of the accident wounds seen in civil surgery.

Where the projectile has passed through the flesh there will, in the ordinary case, be a torn and ragged track, with an irregular surface of heights and hollows produced by the hernia of muscle and the retraction of the severed fibres. Where the projectile has come against bone this will be generally splintered, and the track will lead down into widely ramifying crevices between comminuted fragments.

There will also in practically every artillery wound be included foreign matter—a projectile, or shreds of clothing, or fragments of bone, and with these lacerated muscular and connective tissues which will slough. In addition, the wound will be full of blood clot and effused lymph. And lastly, the projectile, when it has traversed soiled clothes or a soiled skin surface, will have carried in micro-
bes, and these will have been sown all along the track.

This deep sowing of microbes, taken together with the blockage of the wound by blood clot, and the not infrequent obliteration of a section of the track by hernia of muscle, will, in the case of any deep or perforating wound, make the effective sterilization of the wound by antiseptics impossible.

Of the microbes which are carried into the wound the most formidable are the anaerobes and facultative anaerobes. These are found in very large numbers in practically every case arriving at the base from the front.

Three species of microbes here come into consideration. The *Streptococcus*, the one microbe which is, one may say, invariably present, is primarily responsible for the suppuration which will supervene in the wound. The *Tetanus bacillus*, or a bacillus which is morphologically indistinguishable from this, is present in the pus from a certain proportion of cases. And in practically all the wounds we have also the *Bacillus aerogenes capsulatus* of Welch (*Bacillus perfringens*). This produces a characteristically offensive, thick, frothy, rusty brown, sometimes almost faecal, discharge.*

The anaerobic infections of the imprisoned discharges which are here in question, may, if unchecked, lead to graver consequences. The streptococcal infection may lead to an infection of the tissues in the form of erysipelas or deep cellulitis, and it may culminate in septicemia. The *Tetanus* infection will, if the microbe cultivates itself sufficiently freely and elaborates enough toxin in the wound, give rise to tetanus. And the *Welch bacillus*, when it manages to invade the tissues, will generate gas, producing a gas phlegmone and also an obstructive gangrene in the affected limb (so-called *gaseous gangrene*).

II.—**Measures for Checking the Anaerobic Infection of Discharges and Preventing the Development of Tetanus, Gas Phlegmone with Gangrene, and Streptococcal Infection of the Tissues.**

The rational line of treatment for the prevention of the grave sequelæ which are here in question will be to check at the earliest possible moment the anaerobic infection of the discharges.

The wound ought to be freely opened up. It ought then to be carefully cleansed with an antiseptic solution (*vide* Memorandum on Antiseptics—Therapeutic Employment); all foreign bodies, sloughs, and blood clot (as far as this is possible without risk of haemorrhage) being carefully removed. Then a very wide drainage-tube which will admit air to the interior ought to be inserted, and, especially in those cases where there is much laceration, steps ought to be taken to promote the outflow of lymph from the walls of the wound (*vide infra* Section IV.)

By such steps we may hope to put an end to the anaerobic infection and to obtain instead of foul smelling, gas impregnated, decomposing discharges a more or less "laudable pus."

Where owing to the exigencies of war conditions it is for the moment impossible to carry out the required surgical measures or where from the nature of the case the wound cannot be effectively drained,
it will be specially important to abstain from doing anything which might still further favour the anaerobic infection.

(a) Wounds should not be sewn up after operation. We can never be sure that the projectile has not carried in infection, and we cannot under war conditions and during transport count upon the patient being kept, as he should be, under continuous observation. Plugs, except where there is actual risk of haemorrhage, should never be left behind in the wound, for they bank back the discharges and establish anaerobic conditions. For the same reasons it will be necessary to see that the wound is not wrapped up air-tight, that discharges are not allowed to dry upon the bandages, and that the mouths of drainage-tubes are not blocked by the pressure of the dressings.

(b) Moreover, it will, pending the opening up and cleansing of the wound, be very desirable to take certain specific prophylactic measures. By an injection of antitetanic serum we may hope to neutralise any tetanic poison which may be absorbed from the wound.

(c) Further, by the injection of a prophylactic dose of a vaccine containing the bacillus of Welch and the streptococcus (issued as Combined Antigangrene and Antiseptic Vaccine) we may hope to stave off an invasion of the tissues by these micro-organisms (vide Memorandum on the Employment of Vaccines).

It must, however, be clearly realised with regard to these measures that they are only temporising methods, and ancillary to such cleansing and drainage of the wounds as may in a particular case have been for the moment practicable.

III.—Treatment of Streptococcus Infections of the Tissues and Gas Phlegmon.

When by an unchecked anaerobic infection of the discharges the resistance of the tissues has been lowered, and these have been invaded by microbes, it will be necessary to take immediate steps to stem that invasion.

We have at disposal two different methods of procedure: (a) We may take steps to increase the antibacterial powers of the blood fluids; and (b) we may lay open and effectively drain the tissues (vide infra Section IV.) and so bring back to these their normal resisting power. These methods will be applicable according to circumstances, separately or in combination.

A streptococcal infection which takes the form of erysipelas can practically be always promptly extinguished by an injection of streptococcus vaccine (vide Memorandum on Employment of Vaccines) without recourse to any surgical measures.

When a streptococcal infection takes the form of a diffuse cellulitis vaccine therapy will rank only as an auxiliary measure, and the laying open of the infected tissues and the establishment of effective lymph lavage by the method indicated in the next section will be the essential.

What applies to the case of streptococcal cellulitis applies a fortiori to all infections of the tissues by the bacillus of Welch. In every case these must be opened up and effective lymph lavage induced.

In connexion with the actual surgical measures we have two cases to consider:

(a) Where the infection follows a superficial course manifesting itself in dusky blotchings of the skin and gaseous emphysema in the subcutaneous tissue, it will suffice to open this up freely by incisions carried down to the plane of the muscle. (And it is here thrown out as a suggestion that a more efficient evacuation of the lymph would be obtained if the incisions were disposed transversely instead of axially to the limb.)

(b) Where the deeper tissues are diffusely invaded, and where the limb, owing to the internal tension, has assumed a blanched, wax-like appearance, incisions into the subcutaneous tissue would not relieve matters, for the underlying muscle would protrude into and block the wounds. In these eminently dangerous
cases it will generally be necessary to amputate. But it may sometimes be possible to save the limb by the free opening up of the deeper tissues and the introduction of large drainage-tubes.

In amputating for diffuse infection of the deeper tissues, or, as the case may be, for a progressive infection of the subcutaneous tissue, it is advisable, inasmuch as it is in these cases essential to obtain an absolute maximum of drainage, to do the flapless amputation—i.e., to cut across all the tissues at one and the same level and to leave the wound completely open.

IV.—General Considerations in connexion with Drainage and Measures for Promoting the Outflow of Lymph from an Incision or the Infiltrated Wall of a Wound.

The primary object of all opening up of wounds and infected tissues, in short, of all drainage operations, is, of course, to provide issue for pus and infected discharges.

But the mere provision of an outlet is not enough, nor is it enough to see the outlet so disposed as to allow of gravity carrying off accumulated discharges.

What we are seeking to secure will not have been attained until such lymph as may have become poisonous to leucocytes and impotent upon bacteria has been extracted from the tissues; until that lymph has been replaced by a lymph which is favourable to phagocytic activity and inimical to microbes; and until this last is “drawn” into the wound and is establishing in it conditions which are favourable to healing.

When anything less than this has been achieved by the use of the knife and, in particular, in the case where in despite of incisions the infective process has advanced, our drainage operation will have failed in its object, and our failure will be attributable to a sealing up of the fenestrae in the tissues and a stanching of the lymph outflow.

The remedy for this is to apply to the wound a hypertonic solution of salt to promote the outflow of lymph.

For ordinary use the best application will be a 5 per cent solution of common salt combined with \(\frac{1}{2}\) per cent. citrate of soda to render the lymph incoagulable. Where citrate of soda, or a similar decalciant, is not available a simple 5 per cent solution of salt will serve. Sea water, this being equivalent to a 2.5 per cent solution of salt, may also be employed. In dealing with dry and infiltrated wound surfaces stronger solutions of salt (up to 10 per cent.) will be found to resolve the induration and to clean up the wound surfaces much more quickly than weaker solutions.

In the case of deep wounds the simplest procedure will be to pour in the hypertonic solution and then plug lightly with gauze. Superficial wounds may be dealt with by laying on gauze thoroughly soaked in the solution. The limb should then be wrapped in waterproof material to prevent the bed becoming soaked with the very copious discharge, and an application of vaseline will prevent irritation of the skin and stinging on freshly cut skin surfaces.

The “drawing agent” has done its work as soon as it has checked the spreading invasion of the tissues or has cleaned up the dry and indurated wound surface, and this last has clothed itself in bright coral red granulations. The hypertonic salt solution may then be replaced by some simple dressing (\textit{vide} the final paragraph of this Memorandum).
V.—TREATMENT OF THE SUPPURATION WHICH WILL SUPERVENON UPON THE LAYING OPEN OF WOUNDS AND INFECTED TISSUES.

The laying open of the wound or the infected tissue effects, as consideration will show, only the conversion of a more into a less dangerous form of infection, and we are, after our operative procedures, faced with a suppurative infection of our open wound and of our superadded incisions, and have now to check that infection.

It will in practically every case be an infection by the streptococcus combined with staphylococcus. And in very many cases there will be a superadded infection by coliform organisms, in particular by the bacillus proteus.

The therapeutic methods which we have here at disposal are the following:

1. Provision of Satisfactory Drainage and Lymph Lavage.

The first and most important thing will be to provide in the dependent portion of the wound a free outlet for the discharges and to secure, when we are dealing with infiltrated wound surfaces, a free outflow of lymph (vide Section IV.)

If, by either of these methods or by a combination of the two, we succeed in providing effective lymph lavage for our wound, we shall have very little difficulty with the infection.

But it will in a very large proportion of cases be quite impracticable to obtain all that would be desirable in the matter of drainage, and it is all-important to recognise in connexion with these cases that "conservative surgery," as applied to the wounded, means making, for the purpose of conserving a limb, legitimate sacrifices with respect to drainage. The question, and it is the most anxious and responsible question in all surgical procedures, as to how far one may sacrifice drainage, can only be arrived at by balancing in each particular case the advantage of preserving a limb against the risks of long-continued suppuration and eventual septicemia.

We require here to have clear conceptions as to what amount of help is obtainable, on the one hand, from vaccine-therapy, from the employment of antiseptics in the wound, and from frequent dressings.

2. Vaccine-Therapy in its Application to Suppurating Wounds.

It is important in connexion with this method of treatment to realise (a) that it aims at increasing the antibacterial powers of the blood, and (b) that the conditions which determine our success or failure are essentially the same when we employ vaccines as when we set ourselves to combat infections by the aid of the antibacterial power of the normal blood.

Ideally favourable conditions for the successful employment of a vaccine will be given when this is employed in treating a perfectly well-drained wound (let us say, such a wound as that furnished by a flapless amputation); or again, in treating an incursion of a microbe into a tissue where there is a very free lymph flow (let us say, such an infection as erysipelas). Here, by the use of an appropriate dose of the proper vaccine or vaccine mixture, successful results may be confidently expected.

The most unpromising cases for vaccine treatment are those where we are dealing with an unopened abscess sac, or a quite undrained wound, or an old-standing cicatrised tissue infection. Here the microbes are shut off from the blood fluids,
and in these the utmost we have any right to expect is to prevent an extension of the infection and to ward off septicæmic complications.

In the case here specially in view, that of the imperfectly drained wound, we may expect to obtain by the repeated inoculation of the appropriate dose of the proper vaccine or vaccine mixture, not anything in the nature of dramatic results, but a certain improvement in the local conditions, together with a certain protection against septicaemia.

We may, in short, expect from vaccine-therapy results which will make it possible to employ conservative methods in a larger proportion of cases; to hold on longer to these methods; and to carry them oftener to a successful issue. It would therefore be advisable to carry out vaccine-therapy as part of the routine treatment of suppurating wounds. *(Vide Instructions issued with Antisepsis Vaccine.)*

(3). Employment of Antiseptics in Wounds.

It is notorious that the results of the treatment of suppurating wounds by antiseptics are disappointing, and that the reasoning which led to the universal adoption of this therapeutic method was, in point of fact, too unsophisticated. It was tacitly assumed of chemical agents which acted as antiseptics in watery solution that they would do so also in blood fluids and pus; and that they would also penetrate a certain distance into the tissues and into blood clots. We know now that antiseptics do in these respects very much less than was anticipated.

It was further tacitly assumed that an antiseptic which gave good results with one particular microbe or group of microbes ought to give good results indiscriminately with all. But it is possible that particular antiseptics may be appropriate to particular microbes and groups of microbes; that, for instance, such an antiseptic as peroxide of hydrogen, which has very little effect on ordinary pyogenic microbes, may be specially effective on anaerobic micro-organisms.

But, at any rate, the principle has emerged that in choosing our antiseptics and the strength in which these are to be used we ought to guide ourselves by actual experiments on wounds and on the microbes which come into consideration in connexion with those wounds. And it would be clearly inadmissible in choosing antiseptics for employment in projectile wounds to leave out of sight the fact that anaerobic microbes and their spores have to be dealt with, and that the antiseptics we employ ought to be competent to kill these.

Again, it is still tacitly assumed by practically everyone who employs antiseptics that even if treatment with an antiseptic effects only a partial sterilisation, such partial sterilisation will always be something to the good. This amounts in point of fact to the assumption that by substituting a smaller for a larger sowing the number of microbes in a culture will always be sensibly reduced.

In reality this will depend upon two factors: (a) the nature of the culture medium, and (b) the shorter or longer period allowed for the cultivation.

When we are dealing with a culture medium which is ideally favourable to the multiplication of microbes, the smaller sowing will, after a short space of time, give exactly the same number of microbes as the larger.

When we have a culture medium in which microbes develop very slowly the smaller sowing will for
When a cultivation medium which is unfavourable to microbes is, after a certain lapse of time, converted into a medium which is favourable to them, it will not be the larger or the smaller sowing, but the date at which the character of the fluid changes which will govern the result.

We have now to apply these general principles to the case of the cultivation of microbes in wounds; and we may consider first the evolution of events in wounds treated without antiseptics, and then inquire in what respect the use of antiseptics could modify this evolution.

There will after washing out remain behind in every wound a certain quantity of pus. In one case it will be a question of minimal collections left in the shallow depressions of a granulating surface; in another a question of quite large collections, held up in inaccessible pockets.

This residual pus will furnish the sowing of microbes, and a culture will be set going as soon as lymph begins to trickle into the wound.

But the new culture will start off very slowly. And for two reasons: first, because the lymph in the condition in which it exudes inhibits nearly all microbial growth; secondly, because we have in the lymph phagocytically active leucocytes.

For a certain time these natural checks of microbial growths will be maintained. The conditions will, however, when the lymph is fouled by an appreciable mixture of residual pus, change rapidly. Phagocytosis will be arrested, and the effused lymph will be transformed into a medium which will be eminently favourable to the multiplication of all manner of microbes. If we now wait for only a few more hours we shall have in the wound a very luxuriant growth.

Coming now to the question how good could come of the employment of antiseptics in wounds, we recognise, in the first place, that we might by these means achieve an appreciably smaller sowing of microbes. Further, it is conceivable that if we were to leave behind in the wound a sufficiency of antiseptic we might obtain from it such a reinforcement of the growth-inhibiting power of the lymph as should more than offset the setback inflicted by the antiseptic in paralysing the phagocytic action of the leucocytes. Lastly, it is possible that an antiseptic, left behind in the wound in sufficient quantity, might prevent the residual pus converting the lymph into a good nutrient medium.

In reality these possibilities do not amount to much. It is clear that that appreciably smaller sowing of microbes which we are working for would be realised only where the whole wound surface can be thoroughly washed with an antiseptic. But these are precisely the cases where the effect of a smaller sowing of microbes would not make itself very much felt, for where the wound is left practically free of residual pus the natural checks of microbial growth would be longest maintained.

With regard to the other possibilities, all that is necessary to say is that they must rank only as possibilities, and that up to the present experiment has not furnished anything in confirmation of the idea that the introduction of antiseptics into wounds would be likely to contribute to the arrest of suppuration.

It must, however, be emphasized, in conclusion, that in the treatment of the wounded in hospital it is es-
sential to look beyond the individual to the aggregate. And even if it were finally to emerge that the employment of antiseptics did not do anything towards the arrest of suppuration in an infected wound, the taking of careful antiseptic precautions, and the washing out of the wound by antiseptic solutions, would none the less be indispensable. For if such precautions were omitted, infective microbes would inevitably be carried from one wound to another, and there would inevitably, by such "passaging," be bred out in hospital very virulent strains of microbes, which would, as in pre-Listerian days, induce all manner of fatal septic infection.

(4) Frequent and Efficient Dressing of the Wound.

Coming back from this general consideration to the question of the individual infected wound, it will be clear from what has been said above that the frequent and efficient washing out and dressing of the wound will be a factor of dominating importance in the treatment of the infection. Where comparatively long intervals intervene between the dressings, where pus is left behind in the wound, where the discharges are confined by plugs or multiple folds of dressing, and where, in the case of a deep wound, too small drainage-tubes are employed little or no progress will be made. Where large drainage-tubes are employed, where the wound is frequently washed out, where no pus is left behind, and where only a very light dressing is employed, we shall be making progress.

And clearly, so long as a wound is heavily infected, the ideal method of treatment, if only it were always practicable, would be immersion in a bath or continuous irrigation with some aseptic or mildly antiseptic fluid.

When the continuous bath or, as the case may be, lymph lavage induced by hypertonic salt solution has brought the infection under control, what remains of that infection may very often be extinguished by freely exposing the open wound to the air. The part which the drying off of the wound surfaces and the concentration of the discharges plays in the killing off of the residual microbes has not yet been investigated.

Note.—The recommendations with regard to surgery which are put forward in the Memorandum have been formulated in consultation with Colonel Sir B. Moynihan and Colonel F.F. Burghard.
In the American Journal of Obstetrics for January, 1915, Dr. Asa B. Davis, of New York, has an interesting report of several hundred Caesarian sections done during twenty years of work,—the majority having been done during the last ten years. He estimates that over eighty thousand women have been delivered at the Lying-In Hospital, with which he is officially connected, in the twenty years. Of this number 571 have been delivered by Caesarian section. Five hundred and ten of these mothers have been discharged from the hospital in good condition, and five were waiting at the time of writing, all in assured good condition. The maternal recovery following the operation is thus 89.3%. The date of discharge has been steadily lessened as the following table shows. On an average, the first hundred were discharged on the 25th day; the second hundred on the 20th day; the third hundred on the 19.2 day; the fourth hundred on the 17.5 day; the fifth hundred on the 17.7 day.

If several complicated cases could be excluded which lingered long, the total average would be about fourteen days.

Sixty-one mothers have died. Most of these deaths were not from the operation, but from other causes. Thirteen were from toxæmias which would have produced fatal results under any procedure.

In considering the “Border-line” cases, where it is a question as to what is the best measure, he affirms you cannot decide from pelvic measurements alone as the size of the child must be taken into consideration. Often the women with undersized pelves bear undersized children and so are able to pass them safely through a contracted birth canal. Often women who have normal pelves, or even too large, have difficult or impossible labors because of the size of the child. Other cases which call for good judgment and expert decision are those when efforts at labor have produced physical exhaustion, or foetal impaction, or the risk of infection from the manipulations of the physician in the effort to help. This class gives a high morbidity and mortality rate to both mother and child. These unborn children may be dead, or may be in good condition, or they may be injured so that they die soon after birth from sepsis. The question then arises as to whether craniotomy or Caesarian section is best. Dr. Davis finds the maternal mortality from craniotomy to be 15.5%. Since craniotomy is not a safe or an easy operation it will always remain a question of choice to be seriously considered. He drops symphysiotomy and pubiotomy out of consideration. High forceps operation and difficult version, even under the best conditions—expert physicians and hospital surroundings—have been found to be the most dangerous of operations to the mother, and the child is liable to be dead or injured. In clean uncomplicated cases, Dr. Davis claims a mortality of only 2% or 3% for mothers, and no death or injury to the children. Taking all cases they came, infected or otherwise, the death rate was 10.77. In the 571 Cesarian sections, 577 children were delivered. Four per cent. of these were still-born. Of the children of the sixty-one mothers who died, forty-four children survived.

Speaking of the necessity for Cesarian section, Dr. Davis says
The largest number, 79 per cent., were due to contracted pelves or deformities of spinal column, nine cases were because of some neoplasm, nine were because of previous operations for suspension of the uterus. Eighteen of the children were too large for normal pelves. In thirty-five cases the operation was undertaken because of eclampsia and toxæmia, of whom twenty-four mothers recovered, and twenty-six of the children lived. Twenty-one cases were owing to placenta praevia. Two mothers died of sepsis, and fourteen children survived. The large fatality was due to prematurity. Accidental hæmorrhage was responsible for three cases; all three mothers and one child lived. In six cases, rupture of the uterus occurred; three mothers and four children died. Sixty of the mothers had been delivered by Caesarian section once before; fifteen, twice before; one, three times before; one, four times before; and one, five times before.

TECHNIQUE OF OPERATION.

"The abdomen is opened by a medium incision 8 cm. to 10 cm. long, from above down to the umbilicus. One or two gauze pads, wet with warm normal salt solution, are placed in the abdomen, above the fundus of the uterus, to hold the omentum and intestines back. Often the uterus is found twisted on its long axis, usually toward the right side. An assistant, standing beside the patient, opposite the operator, makes pressure with his hands against the outside walls of the abdomen, and rotates the uterus so that the anterior wall looks directly forward. He must regulate his pressure so that the uterus is held well up to the abdominal opening, and hold it there until it is emptied of its contents and several deep sutures are placed and tied." This is in no sense a manœuvre to control hæmorrhage. The uterus is carefully incised so as to keep the "bag of waters" intact. The incision may be a little longer than the abdominal opening. It is made from just below the fundus downward. If the placenta is found beneath this wound (it frequently is), it should be pushed aside or torn through, and with the hand in the uterus, the membranes should be separated from the uterine wall while they are yet distended. Neglect of this precaution often means that the membranes must be removed piecemeal later, sometimes with difficulty and delay, after the child is delivered and contraction and retraction have begun. The anterior thigh of the child, or the one most easily found, is then grasped and extracted; a breach extraction is done. After the shoulders are out the child is turned till its face looks toward the face of the mother. Then with the index and middle fingers of the right hand astride the neck, and with the same fingers of the left hand in the mouth, make traction on the lower jaw, carefully delivering the head so there will be no jolting or tearing of the uterus. An assistant stands ready with two long forceps with which he grasps the umbilical cord. Cut the cord and take the child away to have respiration established. Hook two fingers in the upper angle of the uterine wound, place and tie the upper deep suture. This is repeated at the lower angle, with the right hand in the uterus. The placenta membranes are now removed. The attendant now discontinues abdominal pressure and holds the uterine wound up to, but not out of, the abdominal wound by means of the two sutures just put in. The uterine wound is closed by two layers of sutures. The deep layer is done with No. 2 chromic catgut, interrupted stitches and about 1 cm. apart. They are
passed through the uterine peritoneum near the cut edge through the muscle and out near, but not through, the endometrium, and out on the other side in reverse order. A double turn is taken in the first suture, which keeps it in place without an assistant holding it with forceps. The stitches are drawn tight enough to bring the edges of the wound into apposition, but not too tight. The suture should be tied three times and cut short. The entrance and exit of these deep stitches should be very close to the cut edge of peritoneum, and the short threads are easier to bury by the next layer, which is of continuous sutures, of No. 1 plain gut. Beginning at the lower angle of the wound, the suture is inserted and tied, and the knot covered by the folding of the peritoneum over it with subsequent stitches. Passing the needle well outside the tissues included in the deep layer of sutures, and parallel to the line of the uterine incision, the peritoneum and some uterine muscle are caught up alternately on one side and then the other, folding them over, and completely burying the deep layer, much after the manner of the Cushing stitch in closing intestinal wounds. This leaves no raw surface or sutures, or knot ends exposed, and so reduces to a minimum the danger of adhesions. The pads are removed and the abdominal wound is closed in three layers. Dry sterile gauze pads are held in place by a snug adhesive strap across the abdominal wound. This forms an added support to the abdominal suture. Elsewhere the abdominal dressings are loose so that the uterus may have free movement. "The mother usually nurses her child at the end of forty-eight hours, on the eighth day she sits up, and is ready on the twelfth to leave the hospital." Dr. Davis chooses this high incision because he thinks there is less danger of troublesome adhesions, the uterine involution is more normal, at this place the abdominal walls are thinner and more elastic so that the wound may be smaller and there is less trouble in keeping back intestines and omentum, and lastly there is much less danger of hernia, as the recti muscles give more support at this height.

Dr. Findley, in reporting some clinical observations in Germany, records that in several cases the wounds of Caesarian section have healed in such a way as to form a wedge convexity in the uterine wall, its sides being the separated muscle wall of uterus, and its apex being the peritoneum. In reporting a case of ruptured uterus, he gave the opinion, in which several obstetricians concurred, that one Caesarian section required the same operation to be performed before labor began in the next pregnancy. Rhodes of Pennsylvania writes, "I used to say that it took a better man to tell when not to use forceps than to tell how to use them. The same might be said of Cæsarian section." The operation is spectacular, the slightly abnormal labors require time and patience, hence the danger of resorting too quickly to this procedure.
Diseases of the Skin.

Furunculosis.—As there are many sufferers, especially in the East during the summer months, from boils and similar infections of the skin, Allen's article on this subject in the Therapeutic Gazette, January, 1915, should prove interesting. At one time, Allen himself was a constant sufferer. He tried all the local remedies that had ever been suggested, including injections into the centre of the area of solutions of carbolic acid, which did some good, but he does not recommend it as a routine measure. Autogenous vaccines were tried and abandoned. A long course of sulphur baths was indulged in, but without permanent benefit. Then he tried eating yeast, a whole cake a day for several weeks, with no other result than to amuse his friends, who facetiously remarked that his eating of yeast was due to his desire to rise in the profession and kindly predicted for him a great future. Then he tried dilute sulphuric and phosphoric acids which were also inefficacious. Luckily, a colleague told him to try a freshly-made preparation of dilute nitromuriatic acid, 10 to 15 drops in water after each meal. He did so, and the venomous coccus at last was routed.

Ringworm.—Marshall, in describing a new species of the Tinea capitis tropicalis, in the Journal of Tropical Medicine and Hygiene, states that in the way of treatment he has tried a variety of remedies which all do temporary and not permanent good. Of all remedies, the nicotiana-seife or tobacco-soap made by C. Mentzel in Bremen, seems to promise best results for places in the tropics where a Rontgen apparatus is not available.

Amoebic Dermatitis.—This form of amoebic disease begins as minute papules, red and hard, discrete and very suggestive of variola, but there is no fever. A clear fluid appears in a day or two. The vesicles may attain the size of a small pea. The discharge is a serum which forms a crust like that of vaccinia. Each papule ultimately breaks down and then may heal up or leave a depressed ulcer. Rarely the parasites spread widely and cause diffuse spreading erythema with pus in the subcutaneous tissues. When opened, the fresh pus may show large granular amoebae, closely resembling the Entamoeba histolytica. The skin around the healed ulcers may become deeply pigmented. The Chinese of Swatow recognize the papular form as the "black blotch." The ulcers are depressed. They may present a smooth cut surface or may be covered with a yellowish-white exudate. The surrounding skin is thickened and red. The ulcer enlarges or tends to heal. The disease is very itchy and contagious, but tends to heal itself, and spreads to a new site. Amoebae are generally found in the stools. Patients may or may not have had dysentery. In the majority of cases the disease first appeared in the vicinity of the anus.

Situation.—It may occur anywhere, but mainly in the buttocks, and spreads thence to the back, the limbs, face and trunk; no site seems exempt.

Complications.—If extensive, blood poisoning may be the result. Abscesses, cachexia, and renal complications have resulted from extension of the disease. The discharges appear to be singularly
free from micro-organisms except the amœbæ.

The Parasite.—From fresh papules, only small amœbæ with fine granules may be seen, but from the large sinuses, large amœbæ with conspicuous granules, vacuoles, and amœboid movement are easily seen; these appear indistinguishable from the Entamoeba histolytica. The parasite is never seen destroyed by phagocytosis in a progressive case; but after the injection of emetine chloride, the amœbæ can be seen degenerating amidst the agglomerated masses of the leucocytes. After a week of repeated injections with emetine, parasites disappeared from the discharges in a very severe case where the sinus extended from the lumbo-sacral region to the neck.

Treatment.—Injections of emetine chloride hypodermically are required in extensive invasions of the skin and subcutaneous tissues. Superficial ulcers may be treated by ung. hydrarg. ammon., and ung. sulphuris. The usual antiseptic remedies may also be tried, but the above are the best. For the complications, appropriate treatment for each condition is required. Lim Boon Keng, M.B., C.M. Edin. in the Journal of Tropical Medicine and Hygiene.

"The Minor Horrors of War." As these "horrors" are not infrequently encountered in times of peace in China, we quote the following simple and inexpensive method for the extermination of lice which has been very successfully employed in the war zone: After bathing, the body is lathered, especially over hairy parts, with cresol-soap solution consisting of water, 10 gallons; Jeyes' fluid, 1/2 ounces; soft soap, 1/2 pounds. The lather should be allowed to dry on the skin. Shirts are to be washed in the same solution made with boiling water. Tunics and trousers to be turned inside out and rubbed with same lather, especially along the seams, and allowed to dry on the garment.

Another military surgeon recommends very strongly the use of this powder:

\[
\text{Ry. Hydrarg. ammoniati } 5i. \\
\text{Zinci oxidi } 3ss \\
\text{Magnes. silicatis } 3ss
\]

Fiat pulvis.

The powder is thoroughly applied to the infested areas on a lint pad, or by means of a pepper-box arrangement, and being non-greasy, the necessity of shaving the infested part is avoided. No toxic effects are produced.

In Sibley on "The Treatment of Diseases of the Skin," it is stated that "sulphur wrapped up in a piece of flannel or in a porous bag and worn about the person next to the skin acts in many cases as a preventive."
The Public Health campaign in Changsha has opened most successfully. Dr. W. W. Peter writes to a friend:

"The first day of the Changsha Public Health Campaign opened yesterday—in rain. There were three lectures during the day and lantern slide lectures in four places in the evening, with a total attendance, I was told this morning, of 5,450. Dr. F. C. Yen is at the head of things. The campaign was started (1) to organize a 卫生会 and (2) to build a $20,000 sanatorium for consumptives. The Police department is paying $150.00 of the campaign expenses."

The following "Surgeon's Prayer" is contributed to the Dietetic and Hygienic Gazette by "L. M. K."

"Oh Lord, now that this day is over, grant me gift of sleep. Watch over my ligatures and may the peritoneum do its duty. Let me not be envious of the success of the men who work harder than I do. Endow me with humility so that I may change my methods for better ones. May my mistakes give me more concern than my successes. And, O Lord, keep my conscience awake even when my intellect nods. Lead me not into the temptation of fee-splitting. Permit me to rise early, O Lord, making one less mistake each day. Deliver me from the too-long delayed operation, but grant me strength to do my duty no matter what my mortality statistics may be. For all these, and the chief blessing of work, I humbly ask, Amen."

"There shall not be found among you anyone that maketh his son or his daughter to pass through the fire, or that useth divination, or an observer of times, or an enchanter, or a witch, or a charmer, or a consulter with familiar spirits, or a wizard, or a necromancer." Deuteronomy c. xi. vv. 10, 11.

A very serious schism has occurred in the Uganda Mission of the Church of England, largely due to a misunderstanding or mistranslation of Scripture. It appears that the word for "charmer" in the above passage, has been translated as "omusawo" in the Uganda version of the Scriptures, which is the same word that is used by the natives in common speech for a doctor. As a writer in the "Church Missionary Review" observes, it is not surprising that some of the Christians assumed from this that doctors are persons to be avoided. Many of them separated from the Anglican Church, formed a separate sect, built a church of their own, appointed a catechist, and began to baptize adherents. The outward success of the movement is shown by the fact that 2,400 were baptized on one occasion in a single day. Unhappily, this success must be mainly accounted for by the fact that no previous testing or preparation is required, there are no sponsors, and the only creed imposed is, "I believe in one God." A few influential Baganda chiefs have given support to the movement. It is not unlikely to come into conflict with the Government, as it defies or ignores regulations as to the declaration of disease.

The list of medical missionaries with British qualifications, published in the January number of Medical Missions at Home and Abroad, shows a slight decrease as compared with the list of the previous year. Dr. Maxwell, the compiler, adds a note that will be read with grave concern by all interested in medical missions.

"The Medical Missionary list of the year is not encouraging. It is not that there are four fewer names as compared with last year; that might be due to various causes of a temporary nature. It is that while the churches and societies are everywhere calling for more men, they are not to be had. During an experience of thirty years, I have never known the contrast between demand and supply so marked for the worse. While the earthly war is attracting very many, and no one will regret it, the greater war for the carrying out of the Lord's commission is securing the services of very few. It is painful to have to say, as the writer has had to say very frequently of late to earnest enquiries for Medical Missionary labourers, either to fill vacant places or to extend the work, that such
labourers are not to be had. This is not due to the war. The same lack was there before the war began. It is due to a lack of interest in the things of the Kingdom. The greatest work in the world is not commanding the appreciation or the love of young hearts."

In a paper on "The War and Typhoid Fever," by Sir William Osler, read before the Society of Tropical Medicine and Hygiene, he concluded by saying, "In the midst of this great struggle we stand aghast at the carnage—at the sacrifice of so many lives in their prime—That many men so beautiful, And they all dead did lie.

The bitterness of it comes home every morning as we read in the Roll of Honor the names of the much loved sons of dear friends. Strange that man who dominates nature has so departed from nature as to be the only animal to wage relentless war on his own species. But there are wars and wars, and let our thought to-night be of the other army waging peaceful battles against our true foes. No one has so well contrasted the work of these two armies as the poet laureate of the profession, Oliver Wendell Holmes—

"As Life's unending column pours, Two marshalled hosts are seen— Two armies on the trampled shores That Death flows black between."

One marches to the drum-beats' roll, The wide-mouth clarion's bray, And bears upon a crimson scroll, "Our glory is to slay."

One moves in silence by the stream, With sad yet watchful eyes, Calm as the patient planet's gleam That walks the clouded skies. Along its front no sabres shine, No blood-red pennons wave; Its banners bear the single line, "Our duty is to save.""

Correspondence.

Correspondents are requested to write on one side of the paper only, and always to send their real names and addresses. The Journal does not hold itself responsible for the opinions or assertions of correspondents; nor can it undertake to return unused MSS.

Doubtful Case of Emetine Poisoning

To the Editor of the Journal.

Dear Sir: We are greatly indebted to Dr. Snell for his account of the case which possibly died of the effects of emetine.

Three points, however, are raised by his paper which deserve careful consideration.

1. Is it proved that cases of neuritis following the administration of this drug for the cure of dysentery are due to the use of this drug?

Emetine injected into dogs in sufficient quantity, will produce a diarrhoea sometimes bloody, and an acute irritation of the intestinal mucous membrane. It also causes weakness of muscular contraction, but this is due to a poisoned muscle, and not to neuritis (see Brunton, Pharmacology, under Ipecacuanha.)

In a paper presented to the last meeting of the C. M. M. A., I pointed out that a neuritis closely resembling beriberi was known to develop after dysentery. One of the cases quoted was that of a student of my own who had been injected with emetine. Since that time he has either had a relapse or a new attack, and received the same quantity of emetine.

This time he was at once placed on unimpounded rice, and has had no sign of his neuritis.

In the Yungchun hospital we have administered considerably over 1,000 injections, and we rarely now give less than a grain for a dose, but we have had no experience remotely approaching the case in question. We have had no rashes, nor have I been able to learn of such amongst my students engaged in private practice.

As to the effect of heavy doses; having myself a slight recurrence of an old amebic dysentery, with the idea of treating it with a massive dose, three injections of a grain each were given in the course of twenty-four hours. After the last there was a little tendency to salivation, and two watery stools, bright orange in colour, but there was no other ill-effect.

One can quite understand that if emetine is injected deeply into the back of the arm in the vicinity of the musculo-spiral nerve, temporary wrist-drop might follow.

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On the whole I think one must consider that a neuritis due to emetine poisoning is as yet unproven, and the criticism made above applies equally to
the case quoted in the editorial on this subject.

(2) Is the assumption in the second conclusion of Dr. Snell's paper a fair one? Is it not surprising that if a small dose of emetine in ipecacuanha had given rise to a rash on two previous occasions, on the present occasion it took 64 grains of emetine to produce the rash, and this did not appear till twelve days after the injections had been commenced, in spite of one having been intravenous.

The rash, too, is stated to have been petechial, whilst quinine as a rule produces an erythema, an urticaria, or a vesicular eruption, and a purpuric eruption is one of the rare and in my experience very rare forms.

(3) Was the case one of uncomplicated amoebic dysentery?

Dr. Snell does not tell us whether the amoebae were amoebae coli or amoebae histolytica, and although there is sometimes a difficulty in being certain, as a rule one can give a fair opinion.

In the Yungchun hospital we have, both in paratyphoid fever and in septicaemia, met with evacuations which resemble dysentery, contain amoebae of both or either type, and yet are not true amoebic dysentery. Some of them improve for a time under emetine, but it does not cure them, although the mucus may in some cases to a great extent disappear, and the stools change to a simple watery diarrhoea, or even become solid for a day or two.

I would make the suggestion that the case was possibly one of paratyphoid fever, the amoebic infection superadded (it seems from the account that the dysentery was possibly a recrudescence of an old trouble), and the rash septicemic in nature.

It is important that any case in which there is a doubt as to emetine poisoning should for the not long for the drug has become one of our most valuable remedies, and if there are any precautions which would make its use safer, or still more certain in its effect, they should certainly be adopted.

Yours faithfully,
J. PRESTON MAXWELL, M.D., F.R.C.S.
YUNGCHUN, FUKIHN, June 4th, 1915.

To the Editor of the Journal.
DEAR SIR: I feel impelled to write a few lines to you to bring before your readers my humble opinion as to the great value to every one of them of "The Edinburgh Stereoscopic Atlas of Anatomy," published by T. C. and E. C. Jack, Causewayside, Edinburgh. The fact that the Department of Anatomy of Edinburgh University is associated with the publication, and the name of Cunningham is to be found approving, should be in itself a sufficient guarantee of its worth.

I have had the set of 250 views only a little over a month and honestly I cannot find words to convey my sense of appreciation as to their practical value to the needs of the practical physician and surgeon. They in fact bring an Anatomical Museum and Dissecting Room within the reach of every man who can raise the cost of their purchase. We all know how easily our Anatomy goes when we get into practice, yet by the help of this Atlas one need never get rusty.

The views are arranged on cards, with descriptive matter at the top so that one can in a small compass review the essentials of any part. For example, this week I had to tie the Subclavian vessels in their third part preparatory to amputating the upper extremity for sarcoma of the upper end of the humerus. The whole of the operative area is given in great detail, and as one read the operation one had the part always before the eye just as clearly as if in the operative surgery class room, in fact more clearly, as one had only to go from one view to another to get all the information needed for the case in hand.

I have lately read through those on the pelvis together with Cunningham's small dissecting book, which in fact the set of views follows, and many points which in my student days were vague were at once most clear. They are really so clear that a child could follow many of them. Those on the Thorax are magnificent beyond words, also the Brain is a work of art. But I have not space to go over the lot. I would most strongly urge every medical man in China, especially teachers of Anatomy or operative surgeons, to become the owners of this set of views follows, and many points which in my student days were vague were at once most clear. They are really so clear that a child could follow many of them.

One word in closing, get this set and be anatomically happy ever after, and you will be better fitted to make your patients surgically happy after your treatment.

Yours,
G. GUSHUE-TAYLOR, M.B., B.S., M.R.C.S.
TAinan, FORMOSA.
was published several years ago, and on behalf of teachers of anatomy in China who were obliged, in the days before human dissection was permitted, to have recourse to every possible help to the teaching of their difficult subject, it may be said that they have long known and appreciated the excellence of this atlas. Not a few operative surgeons also possess it. An interesting reference to it will be found in the China Medical Journal, May, 1911, page 202. Nevertheless, Dr. Taylor is rendering good service in directing attention again to its merits and those who do not own it, will do well to follow his advice.—Ed

Chinese Terms and Phrases.
The Editor of The Journal.

Dear Sir:—As one who lives in the South, and has no knowledge of the Mandarin language, may I venture to make a suggestion for the increased effectiveness of the Journal? To us who only speak "dialects", the Mandarin romanisation has no earthly meaning, and if your contributors and correspondents would be kind enough to add the characters whenever a Chinese term is used, it would be found helpful. Were this extended to geographical names, all the better.

Yours truly,
B. RANDALL VICKERS.
Wuchow, West River.

* * The suggestion is a good one. It has been incorporated in the notice to Contributors which appears on the opening page of each issue of the JOURNAL.—Ed.

The Horrors of War.
86th Field Ambulance, 28th Division, British Expeditionary Force.

May 6th, 1915.

My dear Cole: One has no idea of the horrors of war until one has experienced them. I write this in the cellar of what was once the cellar of a flourishing institution in what was once a large Cathedral town well-known to you from the papers (12,000 inhabitants now none at all), but which I am not at liberty to name. The shells burst all around us but being in the cellar gives one a sense of security while we wait for wounded to be brought in. The other night I was out collecting wounded in an area which was very warm; we could hear the bullets and had to keep as quiet as possible, and to shew a light would have meant death for us all. The country is devastated, not a house standing for miles, great holes in roads and fields, daily becoming more numerous. Twice shells have burst close to me covering me with debris, but fortunately nothing worse. A road we passed over was being heavily shelled, and on our way back we saw a group of seven British soldiers lying dead together, where a shell had caught them; dead horses abound but are being buried as soon as possible. Some of the wounds, shrapnel ones chiefly, are ghastly, and many of the cases die on stretchers. Did I mention that last Thursday, nearly a week ago, I was transferred from the base Hospital at Rouen to the 86th Field Ambulance. The officers and men work splendidly together. All days in the week are the same to us. We had to evacuate our last position as it was getting too hot for us; even where our billets are we hear the screech of shells and their loud explosions; we sleep under canvas but have our meals in a Flemish farm. I hope your work is getting on well; I am thankful I am getting experience of this, even though some of us do not get out of it. One feels that the need in China can surely be left to the Chinese themselves, while our own countrymen are suffering like this, not that I think you should leave your work.

To those that think this war will end soon, well, we see no signs of it. Would to God it did soon end. I have just received a message for help I cannot give, but it will be soon forthcoming from the nearest clearing Hospital, viz., atropine for a few hundreds of asphyxiated men... Well, no more at present. It is impossible to write a cheerful letter... You can hand this note round if you like.

Yours very sincerely,
B. SCOTT-BROWNE
(Of Ningpo.)
PERSONALIA.

BIRTHS.

Evans.—On May 18th, 1915, to Dr. and Mrs. P. S. Evans, Jr., American Southern Baptist Mission, Nanking, a daughter (Harriett Ellis).

Bulkley.—On January 26th, 1915, to Dr. and Mrs. Lucius C. Bulkley, American Presbyterian Mission, Siam, a daughter (Dorothy).

MARRIAGE.


DEATHS.

Weir.—At Yushuting, April 5th, Mary Evelyn Weir, M.B. (née Simms), wife of Rev. A. Weir, Irish Presbyterian Church Mission, Manchuria.

Wilson.—At Weihaiwei, April 20th, Dudley F. Wilson, Medical Missionary Student, aged nineteen years, the beloved son of Mr. and Mrs. J. Ward Wilson, unconnected.

ARRIVALS.

March 23rd, Dr. and Mrs. T. A. Hearn and child, Methodist Episcopal Church South, U. S. A., Shanghai.

April 8th, Dr. and Mrs. R. Wolfendale, Canadian Methodist Mission, Chungking, Szechuen.

April 13th, Dr. and Mrs. J. K. Robson, United Methodist Church Mission, Yungpingfu, Chekiang.

April 21st, Dr. Georgia A. Filley, Methodist Episcopal Mission, (ret.).

DEPARTURES.

April 2nd, Dr. and Mrs. Anderson and child, A. S. M.

April 9th, Dr. Ellen M. Lyon, Methodist Episcopal Mission, Foochow, and Dr. Anna Gloss, of Methodist Episcopal Mission, Peking.

May 5th, Dr. and Mrs. F. M. Kent and two children, Methodist Episcopal Mission, Changli, Chihli.

Dr. and Mrs. F. H. Judd, China Inland Mission, Jaechow, Ki.

May 6th, Dr. F. A. M. Nelson, China Inland Mission.

May 9th, Dr. and Mrs. H. S. Houghton, Harvard Medical School, Shanghai.

Dr. A. C. Hutcheson, of Kashing, a former editor of the Journal, at home on furlough, has recently undergone a surgical operation, a large internal papilloma having been removed by Dr. Crile of Cleveland. Owing to secondary hemorrhage a second operation was necessary. We hope that he is now quite well.

Our Vice-President Dr. James L. Maxwell writes:—

"I am sorry that, so far away from you all, I can be of so little service to the Association. Just now I am trying to do 'my little bit' for the Old Country. I am in charge of a large Military Hospital with nearly 500 beds under me; the buildings were originally used as a mental asylum and have just been refitted entirely. We expect our wounded soldiers in any day now. I am likely to have my hands pretty full, as the men under me are all physicians rather than surgeons. It is very queer for a medical missionary to be prancing about in khaki and answering to the title of Major, but 'every man in his time plays many parts.'"

In England we have beds now ready for 100,000 wounded, with a reserve of another 40,000 in Scotland, and I don't know how many in Ireland. I fear there is a terrible time coming."

H. G. Barrie M.D., F.S.C.S., with his family, has just reached Peking from London via Siberia. The doctor is fresh from active service with the Allies having been sent to Servia in charge of the First British Red Cross Mission by Sir Frederick Treves, the eminent surgeon. In addition to several decorations for valuable work in combating typhus fever, Dr. Barrie received the rank of Honorary Colonel in the Servian Army. We hope that he will be able to send to the Journal an account of his medical experiences in Servia.

A hearty welcome to China is extended to Dr. Ross M. Bradley, of Methodist Episcopal Church, Wuhu, who arrived in Shanghai on June 17th, 1915; also to Dr. Bliss, of the American Church Mission, who will be stationed in Anking where he will be the colleague of Dr. Harry B. Taylor.