MISSION HOSPITALS
IN CHINA.

PAPERS READ AT THE CONFERENCE
OF THE
China Medical Missionary Association

PEKING. FEBRUARY, 1920.

"The old order changeth, yielding place to new."
AN ENQUIRY INTO THE SCIENTIFIC EFFICIENCY
OF MISSION HOSPITALS IN CHINA

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Christian University, Tsinanfu, China

The marked progress which has been made of recent years in China, in the development of higher standards of medical education, and in the growing appreciation of Western medical science, has led all who are interested in medical mission work to think seriously as to how far the mission hospitals which have been established in this country are adequately staffed and efficiently equipped for the carrying on of medical work along modern lines.

Twenty years ago it was almost utopian to think in terms of modern science in relation to mission hospitals. At that time the great objective was the winning of the patients' confidence and friendship, and in that endeavor it was inevitable for medical missions to be established and carried on under conditions which were frankly opposed to every idea of hygiene and good nursing, or of scientific methods of diagnosis and treatment.

But to-day, apart from far inland districts, that is no longer the case. Not only have mission hospitals won their way throughout the country, making it no longer necessary to perpetuate the older methods, but we are actually finding in the larger centers a growing demand on the part of many of the Chinese themselves for a higher level of hospital efficiency—a demand to which medical missionaries all over China are giving considerable attention.

Before any step could be taken with a view to improving the facilities for employing modern hospital methods, it was obviously necessary, in the first place, to obtain exact information as to the conditions under which medical and nursing work are at the present time being carried on in our various mission hospitals. A somewhat elaborate and lengthy questionnaire was therefore prepared, and this has been sent out during the past twelve months to every hospital connected with the China Medical Missionary Association. It is admittedly a wearisome undertaking to fill up a long questionnaire form, especially when much of the matter contained in the enquiry would appear quite irrelevant to such recipients as are forced to work under conditions which make scientific medicine a practical impossibility; but the response that the enquiry elicited has been of a most gratifying character. As will be seen from Table I, replies have been received from all but 18% of the hospitals to which the questionnaire was originally addressed; and of the 250 hospitals which, so far as we have been able to ascertain, have been open during 1919, filled-in returns have come to hand from 200.
Table I

1. The Basis upon which Statistics have been Calculated

<table>
<thead>
<tr>
<th>Number of hospitals to which questionnaires were sent</th>
<th>289</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forms filled in, and included in accompanying statistics</td>
<td>197</td>
</tr>
<tr>
<td>Forms filled in, but not included</td>
<td>3</td>
</tr>
<tr>
<td>Replies from centers where hospital is closed, or only a dispensary exists</td>
<td>39</td>
</tr>
<tr>
<td>No replies from</td>
<td>50</td>
</tr>
<tr>
<td>289</td>
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</tr>
</tbody>
</table>

Percentage of non-closed hospitals sending in returns | 80% |

Percentage of hospitals which did not reply to the communication | 18% |

Percentage of replies according to provinces:

- Kansu, Kwangsi, Kweichow, Shantung, Shen, and Yunnan | 100% |
- Chihli | 95%
- Anhwei and Hupeh | 87%
- Hunan | 84%
- Chekiang | 83%
- Honan | 78%
- Fukien and Kiangsi | 75%
- Kwangtung | 73%
- Shanxi | 71%
- Szechwan | 70%
- Kiangsu | 68%
- Manchuria | 55%

Before attempting to investigate the mass of information which these replies have produced, there are two or three facts which should first be borne in mind.

In the first place, it must be remembered that this is not an attempt by any body, partial or impartial, to appraise and evaluate the efficiency of mission hospitals in China. It is in every case an evaluation by those in charge of the individual hospital themselves. In some cases the physician's testimony concerning the hospital that is under his care may err on the side of severity; in other cases, he may be unduly lenient and optimistic toward his own work. But the statistics have all been compiled from these personal records, without any change.

In the second place, it should be pointed out that the scope of the enquiry was confined to the scientific side of mission hospital work, and for that reason no reference was made to the efficiency of the hospital as an evangelizing and Christianizing agency. This was not for one moment intended to imply that the one was more important than the other. Far from it. The whole purpose of the enquiry was an attempt to answer the question:

"How far are our mission hospitals able at the present time, in their attempt to represent and prosecute Christianity, to exhibit the highest ideals of careful and thorough medical and nursing work, and thus avoid the belittling of that Christian message which it is their first purpose to propagate?"

Lastly, in comparing the various provincial statistics one with the other, due allowance must be made for the fact that from certain provinces the returns are far from complete—notably Manchuria (55%) and Kiangsu (68%); while it should also be mentioned...
that those provinces in which there are but two or three mission hospitals, such as Yunnan, Kansu, Kweichow, and Kwangsi, are not, as a rule, included in any comparative tables.

The questionnaire was divided into a number of different sections, and it will be a convenience to follow these sections in considering the replies which have been received.

1. Hospital Buildings

Mission hospitals in China are housed in a variety of buildings, good, bad, and indifferent, but only a very small minority of them (11%) are in rented or borrowed Chinese premises, the great majority having been erected for hospital purposes in the first instance, and owned by the mission. The large proportion are built in foreign style, though some fifty-five hospitals report a modified or pure Chinese form of architecture, this being especially the case in the province of Honan and in Manchuria.*

A — Premises erected originally as hospital
B — Premises adapted from other mission buildings
C — Premises adapted from Chinese houses

The one-storey style of building still prevails completely in sixty-three hospitals—mainly in Manchuria, Shantung, Hupeh, and Honan*
—but in the coast provinces almost all hospitals now consist of two or more storeys, no one-storey hospital being reported at all from Kiangsu.

It is of interest to note the period at which most of the hospitals have been built. While there still exist two hospitals which date back to the sixties, more than 80% of our hospitals have been erected subsequent to 1900, 72 being built between 1900 and 1909, and a further 76 since 1909. The oldest hospitals are found mostly in Kwangtung, Kiangsu, and Fukien, while this last decade has seen most hospital building in Kwangtung, Chihli, and Szechwan.
The orientation of hospital premises is a matter of continual interest and discussion among architects in China. Enquiry has revealed that in the northern provinces and in Szechwan the majority of hospitals are built on an east-west axis, but that in Kwangtung, Fukien, Kiangsu, and Anhwei the preference is for north-south. A slanting axis, usually N.E.—S.W., is reported from eight hospitals.

2. Capital Expenditure

The returns of 152 hospitals show a total expenditure upon original buildings and subsequent additions of slightly over four and a quarter million Mexican dollars, while another half million has been spent in equipment—an aggregate of nearly Mex. $5,000,000. This gives an average per hospital of Mex. $28,271 for buildings, and Mex. $4,548 for equipment (only 122 hospitals have supplied their figures for equipment)—or a total average per hospital bed of Mex. $502.

The most costly hospitals, taking the average for the province, have been in Hunan, Kwangtung, and Kiangsu, while the smallest average expenditure is reported from Honan. For hospital equipment Shantung, Kwangtung, and Hupeh show the largest average figures.

Table II

<table>
<thead>
<tr>
<th>Cost of Hospital and Equipment</th>
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</thead>
<tbody>
<tr>
<td>Total cost of original buildings of 152 hospitals</td>
</tr>
<tr>
<td>Total cost of additional buildings of 95 hospitals</td>
</tr>
<tr>
<td>Total cost of equipment of 122 hospitals</td>
</tr>
</tbody>
</table>

3. Out-Patient Dispensaries

Of all hospital buildings it would appear as though, in the large majority of cases, the out-patient dispensary was the most neglected. Only fifty-two hospitals out of one hundred and sixty-eight (31%) have reported an out-patient department fitted up in accordance with modern aseptic ideas—that is, possessing floors, walls, and furniture that are easily and regularly cleaned; only fifty-seven such departments (33% of the hospitals reporting) have any facilities for laboratory work, or attempt to use laboratory methods in the examination of out-patients; fifty per cent of them have no dark room for ophthalmic investigation; and fifty-two per cent report that their clinic is too large for any careful, detailed examination of individual patients.

In the matter of furnishing, the out-patient dispensaries in Kiangsu, Anhwei, and Chihli would appear to have the best record, while the poorest facilities for out-patient work seem to be found in Manchuria, Honan, Shantung, and Shansi.

Social service and follow-up work has been attempted in 46% of the hospitals reporting, mainly in Chekiang, Fukien, and Hunan,
Out-Patient Department

I. Location

A. Forming part of general hospital building ........................................ 55
B. Occupying separate building................................................................. 68
   In separate buildings—chiefly Chihli, Shantung, Hupel.
   In general hospital building—chiefly Kwangtung.

II. Aseptic Fittings

A. Fitted up according to modern aseptic ideas ........................................ 52
B. Not so fitted up ....................................................................................... 116
   Fitted up on aseptic lines—chiefly Kiangsu, Kiangsi.
   Not so fitted up—chiefly Shansi, Honan, Manchuria.
III. Laboratory Facilities

A. Having facilities for laboratory work ..................................................... 57
B. Not having facilities for laboratory work ............................................. 113

Having clinical laboratory—chiefly Anhwei, Chihli, Kiangsu.
Not having clinical laboratory—chiefly Manchuria, Honan, Shantung.

IV. Ophthalmic Facilities

A. Having ophthalmic dark room ......................................................... 87
B. Not having ophthalmic dark room .................................................... 83

V. Size of Clinic

A. Out-patient dept. too large for detailed examination of patients .... 90
B. Not too large for such detailed examination of patients ............... 84

Clinic not too large for detailed work—chiefly Fukien, Chihli.
Clinic too large for detailed work—chiefly Hunan, Shantung, Hupeh.

Operating Room

Having operating room—chiefly Shansi, Kiangsu.
Not having operating room—chiefly Chekiang, Manchuria.

Social Service Among Out-Patients

Social service or follow-up work—chiefly Chekiang, Fukien, Hunan.
Social service or follow-up work—least Anhwei, Shansi, Kiangsu.
4. Hospital Accommodation

One hundred and twenty-six hospitals have reported the reception of both male and female patients—though not, as a rule, in the same building—while thirty-three hospitals confine their work to men, and a further thirty-six to women and children. Those receiving both sexes into the same building are chiefly found in Kwangtung, Kiangsu, Shantung, Hunan, and Anhwei, while the greatest number of separate men’s hospitals are located in Chihli, and of separate women’s and children’s hospitals in Fukien.

The average number of beds per hospital varies from forty in Shantung to ninety-eight in Chekiang, the largest being in Chekiang, Hupeh, and Kiangsu, and the smallest in Shantung, Anhwei, and Shansi. The average for all hospitals works out at sixty-three, which is increased to seventy-six when crowded.

The average number of beds to the provincial population is extremely varied, the lowest figure being that of Fukien (one bed to 9,210 people), followed closely by Kiangsu (9,240), Chekiang (9,850), and Kwangtung (11,940); while the highest figures are those for Yunnan (one bed to 246,490), Kiangsi (151,600), Kansu (86,540), and Shensi (81,250). In making this calculation it has had to be assumed that those hospitals whose returns had not been received had the same average number of beds each as the other hospitals in the same province. On this same calculation the average for the whole of China and Manchuria works out at one mission hospital bed to 26,640 people.
Proportion of population per mission hospital bed (reckoned on assumption that those hospitals whose returns have not been received had same average number of beds each as the hospitals in same province whose returns are included.)

<table>
<thead>
<tr>
<th>Province</th>
<th>Bed Count per Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yunnan</td>
<td>246,490</td>
</tr>
<tr>
<td>Kiangsi</td>
<td>151,600</td>
</tr>
<tr>
<td>Kansu</td>
<td>86,540</td>
</tr>
<tr>
<td>Shensi</td>
<td>81,250</td>
</tr>
<tr>
<td>Kweichow</td>
<td>76,500</td>
</tr>
<tr>
<td>Anhwei</td>
<td>70,900</td>
</tr>
<tr>
<td>Szechwan</td>
<td>69,180</td>
</tr>
<tr>
<td>Kwangsi</td>
<td>44,000</td>
</tr>
<tr>
<td>Honan</td>
<td>42,550</td>
</tr>
<tr>
<td>Shantung</td>
<td>38,240</td>
</tr>
<tr>
<td>Hupeh</td>
<td>36,590</td>
</tr>
<tr>
<td>Shansi</td>
<td>31,130</td>
</tr>
<tr>
<td>Hunan</td>
<td>25,700</td>
</tr>
<tr>
<td>Chihli</td>
<td>20,130</td>
</tr>
<tr>
<td>Manchuria</td>
<td>20,100</td>
</tr>
<tr>
<td>Kwangtung</td>
<td>19,840</td>
</tr>
<tr>
<td>Chekiang</td>
<td>9,850</td>
</tr>
<tr>
<td>Kiangsū</td>
<td>9,240</td>
</tr>
<tr>
<td>Fukien</td>
<td>9,210</td>
</tr>
</tbody>
</table>

The average number of beds per foreign or foreign-trained physician is forty-three, the highest being found in Kweichow (100), Chekiang (82), Fukien (63), and Kansu (60); and the lowest in Shantung (28), Kwangsi (29), Chihli (30), and Honan (31).

5. Building Materials

The vast majority of hospitals are built of burned brick, a few—notably in Shantung—being of stone, and a few others (especially in Fukien and Kwangtung) of mud brick.

For roofing purposes, Chinese tiles are used in 72% of those reporting, the remainder including such interesting variations as foreign tiles, chiefly in Kwangtung, Shantung, Hunan, and Hupeh; slate, mainly Chihli and Kiangsi; corrugated iron, mainly Kiangsu; Malthoid or Ruberoid in Chekiang, Fukien, and Hunan; thatch; felt; lime; and mud.

Portland cement is used for ground floors, wholly or partly, in less than fifty per cent of the hospitals, mainly Hupeh, Chihli, Shantung, and Kwangtung, the other materials employed including
wood, brick, Chinese concrete, and stone. In the case of upper floors the large majority of hospitals use wood, reënforced cement being employed in only a comparatively few instances.

A very meager proportion of hospitals (18%) have rounded corners throughout, though a somewhat larger number have their wards built in this way, and nearly 50% report rounded corners in the operating room. Hospitals in Chihli, Hunan, and Shansi give the best average in this respect, while the poorest are in Manchuria, Honan, and Szechwan.

There are no hospitals reporting tiled ward walls, and only twenty-nine (15%) with tiled operating rooms, these being chiefly in Kwangtung and Shantung. In most instances the ward walls are plastered or color-washed, though some 26%, especially in Chihli, are painted and oiled.
6. Ventilation and Air Space

Ventilation is reported as being sufficient in about 82% of the hospitals, adverse reports chiefly coming from Honan and Shantung, where also are the largest number of hospitals which still use paper windows, in whole or in part.

Windows

A. Hospital windows wholly glass ... ... 175
B. Hospital windows mostly glass ... ... 15
C. Hospital windows paper throughout ... ... 4
D. Not replying ... ... ... ... 6

Ventilation

A. Hospitals wards freely ventilated ... ... 158
B. Hospital wards not freely ventilated ... ... 34
C. Not replying ... ... ... ... 8

As regards air space, fifty-six per cent of the one hundred and ten hospitals that have filled in their figures have less than eight hundred cubic feet per patient (particularly in Honan, Manchuria, and Chihli), while twenty per cent are even below five hundred cubic feet. The greatest average air space per patient occurs in the Hupeh and Shantung hospitals.

Air Space

A. Air space per patient less than 500 cu. ft. ... ... ... ... 22
B. Air space per patient between 500 and 800 cu. ft. ... ... ... ... 40
C. Air space per patient between 800 and 1,200 cu. ft. ... ... ... ... 28
D. Air space per patient 1,200 cu. ft. or over ... ... ... ... 20
Verandah space appears to be adequate in two thirds of all the hospitals, those which are insufficient being chiefly reported from Honan, Shantung, and Szechwan.

Hospitals having adequate verandah space ............................................123
Hospitals having inadequate verandah space ............................................66

7. Protection from Infection, and from Insect-Borne Disease

There is a very marked lack in the facilities with which mission hospitals are provided for protection of the patients from infection or from insect-borne disease. Only sixty-eight hospitals out of a total of one hundred and ninety-five (35%) report that they have any isolation block or courtyard for cases of infectious fever, the hospitals in Chekiang and Anhwei being best provided in this respect, while those in Kwangtung, Shantung, and Hunan would appear to be the worst.

I. Isolation

A. Having means of isolation for infectious cases .................................. 68
B. Not having means of isolation for infectious cases ........................... 127

For protection from flies, mosquitoes, etc., forty-five per cent of one hundred and ninety-three hospitals are screened throughout, (particularly hospitals in Anhwei, Shantung, Chihli, and Shansi); while a further eighteen per cent (mostly in Kwangtung and Fukien) provide nets for all their patients. This leaves some thirty-seven per cent without any protection at all beyond what individual patients may choose to provide themselves, this lack being particularly noticeable in the reports from Honan, Szechwan, Kwangtung, and Fukien.

In connection with the matter of screening, the condition of the kitchens and latrines is probably most of all important, and it is just there that so large a proportion of hospitals are lacking. Only thirty-three per cent of one hundred and ninety-seven hospitals have fly-screened kitchens, and only twenty-nine per cent have fly-screened latrines, the best averages in both cases being reported from Anhwei and Chihli. No hospital in Manchuria has so far reported screened latrines, and only one each in Szechwan and Hubei; while Fukien, Hunan, Szechwan, and Hubei all show very low averages for screened kitchens.
II. Protection from Flies and Mosquitoes

A. Hospitals screened throughout... ... ... ... 87
B. Hospitals providing mosquito nets for all patients ... ... 34
C. Hospitals without means of protection... ... ... ... 72
D. Not replying... ... ... ... ... ... ... ... ... 7
A. Kitchens screened ... ... ... ... ... ... 65
B. Kitchens not screened ... ... ... ... ... ... 132
C. Not replying... ... ... ... ... ... ... ... ... 3
A. Latrines screened ... ... ... ... ... ... 57
B. Latrines not screened ... ... ... ... ... ... 140
C. Not replying... ... ... ... ... ... ... ... ... 3

8. Beds and Bedding

The bedsteads employed in the hospitals include foreign iron beds, iron frameworks with wooden boards, wooden beds, cocoa-fiber beds, and brick kangs. Forty-five per cent of one hundred and eighty-five hospitals report the use of iron throughout, these being mostly from Anhwei, Hunan, and Kiangsu, and least of all from Shansi and Manchuria. The largest proportion of wooden beds would appear to be in Kwangtung and Shansi, while the brick kangs are chiefly reported from Manchuria.
I. Bedsteads

A. Hospitals having iron beds ........................................................... 84
B. Hospitals having iron framework, wooden boards .................... 35
C. Hospitals having wooden beds ..................................................... 51
D. Hospitals having cocoa-fiber beds ............................................. 6
E. Hospitals having brick kangs .................................................... 9

One of the most significant reports, to any one concerned with the efforts of the mission hospitals to raise their standards of cleanliness and hygiene, has reference to the supply of hospital bedding. Only sixty-three per cent of one hundred and ninety-three hospitals are yet able to supply a majority of their patients with clean bedding, no less than seventy-two hospitals reporting that they possess no bedding at all, or only sufficient for a very few of the dirtiest or most destitute patients. The most favored provinces in this particular are Chekiang, Anhwei, Hupeh, and Szechwan, the most needy being Manchuria, Honan, and Shansi.

II. Bedding

A. Percentage of hospitals providing all patients with bedding ............................ 50
B. Percentage of hospitals providing most patients with bedding ............................ 10
C. Percentage of hospitals providing a few patients with bedding ............................ 12
D. Percentage of hospitals unable to provide any patients with bedding ............................ 24
E. Percentage of hospitals not replying ................................................................................... L4

Where bedding is provided, Chinese wadded quilts—presumably in washable covers—are mostly employed, only 47% of the hospitals which have their own bedding reporting the use of blankets (and that mostly in Chihli and Hupeh), and only 49% the use of sheets—chiefly Anhwei, Chihli, and Kiangsu. Fukien is especially marked by the fewness of the hospitals using blankets or sheets.

III. Nature of Bedding—where provided

A. Chinese wadded quilts supplied in 80% of cases
B. Blankets supplied in 47% of cases
C. Sheets supplied in 49% of cases
9. Patients' Clothing

If the statistics regarding hospital bedding are significant, as has been stated above, those which have reference to facilities for offering clean garments to the patients are still more suggestive, for out of one hundred and ninety hospitals there are but 19% in which all patients are provided with such a change, and not more than 42% in which even the majority of patients are so treated. In other words, more than half the hospitals which have reported on this matter have no facilities for providing clean garments to their patients, or at best can only do so for a very small minority of them. This is especially marked in Fukien, where twenty out of twenty-three hospitals state that they have no such facilities; on the other hand, the provinces which appear best provided are Anhwei, Chihli, and Kiangsu.

In those hospitals where a change of clothes is given to the patients, their own garments are as a rule stored by the hospital authorities just as they are, or handed back to their friends, only eighteen hospitals (mostly in Chihli) having any provision for the sterilization of such clothing prior to storage.

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Facilities for Providing Patients with Clean Clothes

<table>
<thead>
<tr>
<th></th>
<th>Hospitals where all patients change into clean garments</th>
<th></th>
<th>Hospitals where most patients change</th>
<th></th>
<th>Hospitals where a few patients change</th>
<th></th>
<th>Hospitals where no patients change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
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<td>B</td>
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<td>C</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
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<td></td>
</tr>
</tbody>
</table>

10. Accommodation of Patients' Friends

In the early days of medical missionary work in China it was neither easy nor politic to induce patients to come into the hospital unless they were allowed to bring their friends in to live with them. To-day that necessity no longer exists in most places, but owing to the lack of nurses or orderlies, or to other causes, thirty-seven per
cent of one hundred and eighty-eight hospitals report that all patients still bring their own friends into the wards to stay with them, while a further fifty-one per cent (making 88% in all) state that friends are allowed to live with them in certain cases. Honan, Fukien, Shansi, and Kwangtung supply the largest proportion of hospitals in which this practice is followed, the smallest proportion being from Szechwan, Chekiang, and Hupeh.

A. Hospitals where all patients bring their friends to live in wards with them ........................................................................... 69
B. Hospitals where friends are occasionally allowed to live in wards 96
C. Hospitals where friends are not allowed to live in wards ........ 23

In a few hospitals—notably in Chihli—special accommodation outside the hospital is provided for friends who have come from a distance, and who desire to live near the patients while they are under treatment. This excellent method of caring for these friends, while at the same time preserving the hospital from becoming a mere inn, is receiving careful consideration in various quarters at the present time, in connection with plans for building new mission hospitals in China.

A. Hospitals that provide outside accommodation ........ 22
B. Hospitals without such accommodation .......................... 167

Very few of the hospitals that allow visitors to live in the wards provide them with a change of garments—not more than thirteen per cent, and that chiefly in Shantung and Shansi.
11. Diets and Kitchens

The question of dietetics is one which has so far received but little study in China, and there is a vast field of interesting and profitable research waiting to be opened up in this direction.

Hitherto, the hospital kitchen in China has in too many instances been left to the mercies of the not-over-hygienic cook and to the capricious whims of the patient, with the result that up to the present time a bare fifty per cent of the hospitals are able to report that the patients' diet is wholly controlled by the medical and nursing staff, some twenty-two hospitals (mostly in Shantung and Chekiang) stating that no control whatever is exercised, the patients' friends usually cooking for them.

To a still less extent is there any classified diet system in the majority of mission hospitals, only sixty hospitals out of one hundred and seventy-two (35%) reporting a complete system throughout. Hupeh seems to lead the way in the matter of controlled diets, followed by Kwangsi, Chihli, and Kiangsu; while the provinces where most hospitals report that nothing has been done along this line are Honan, Fukien, Shansi, and Shantung.
II. Classified Diet Systems

A. Having classified diet system throughout ........................................ 60
B. Having partial diet system ................................................................ 25
C. Having no regular diet system ............................................................. 87
D. Not replying .................................................................................... 28

In the great majority of cases (70% of 187 hospitals) the kitchen appears to be situated in an outhouse, not forming part of the hospital proper, and in some instances, notably in Honan, not being under the control of the doctor or nurse; while, as stated above under Section 7, only thirty-three per cent of them are screened from flies.

Native stoves seem to predominate everywhere, with but few exceptions, and every variety of fuel is utilized, from coal balls to bamboo sticks.

I. Location

A. Forming part of hospital building .................................................... 58
B. Located in outhouse ............................................................................. 129
C. Not replying ............................................................................................ 13

II. Supervision

A. Under control of hospital.................................................................... 170
B. Not controlled by hospital ..................................................................... 13
C. Not replying............................................................................................. 17

III. Protection from Flies and Mosquitoes

A. Completely screened ........................................................................... 65
B. Not screened ........................................................................................... 132
C. Not replying............................................................................................. 3

IV. Kitchen Stoves

A. Using foreign stoves ............................................................................ 11
B. Using Chinese stoves ........................................................................... 173
C. Not replying............................................................................................. 16
12. Heating and Lighting

About 67% of the hospitals reporting are heated in winter, those not heated being mostly those situated in the southern provinces of Kwangtung and Fukien, and also in Szechwan. Various are the methods of heating employed, from steam radiators to brick kangs, but by far the greatest number of hospitals (74%) are dependent on separate stoves, only twenty hospitals in all (16%) reporting the use of central heating by means of hot water or steam, these being mainly situated in Chihli, Shantung, and Hunan. In Shansi, central heating by means of hot air seems quite common.

### I. Heating

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Hospitals heated throughout</td>
<td>122</td>
</tr>
<tr>
<td>B. Operating rooms alone heated</td>
<td>4</td>
</tr>
<tr>
<td>C. No heating employed</td>
<td>62</td>
</tr>
<tr>
<td>D. Not replying</td>
<td>12</td>
</tr>
</tbody>
</table>

### II. Form of Heating

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Central heating: hot water</td>
<td>6</td>
</tr>
<tr>
<td>B. Central heating: steam</td>
<td>14</td>
</tr>
<tr>
<td>C. Central heating: hot air</td>
<td>9</td>
</tr>
<tr>
<td>D. Separate stoves</td>
<td>93</td>
</tr>
<tr>
<td>E. Brick kangs</td>
<td>4</td>
</tr>
<tr>
<td>F. Not replying</td>
<td>74</td>
</tr>
</tbody>
</table>

### III. Form of Lighting

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Electricity</td>
<td>71</td>
</tr>
<tr>
<td>B. Kerosene oil</td>
<td>115</td>
</tr>
<tr>
<td>C. Partly, with acetylene</td>
<td>2</td>
</tr>
<tr>
<td>D. Not reporting</td>
<td>12</td>
</tr>
</tbody>
</table>
A minority of hospitals (32% of 189 hospitals) are so far lighted with electricity, those being chiefly in Fukien, Kiangsu, and Chekiang. The remainder are almost wholly dependent on kerosene oil, though two hospitals in Anhwei report the use of acetylene.

13. **Water Supply**

The great source of water supply for the hospitals is that of surface wells, only fifteen hospitals out of one hundred and eighty-nine (mainly in Chihli) reporting an artesian well supply. In Szechwan and Kiangsu, water from neighboring rivers or creeks is largely used.

A very small proportion of the hospitals (about 8%) both boil and filter their water before use; a further forty-two per cent depend on boiling without filtration; while in sixty hospitals out of one hundred and seventy-eight (33%) no treatment of any kind is employed, such hospitals being mainly located in Manchuria, Chihli, Hunan, and Hupeh.
Most mission hospitals are badly handicapped in the convenience of their water supply, only eleven hospitals out of a total of one hundred and ninety-three (6%) being able to report that they have running water laid on throughout, though a few others (a further 9%) report such a convenience in their operating room or laundry. From Honan, Szechwan, Kiangsi, and Shensi there has not so far been received the report of any hospital provided with running water, while only one hospital each in Manchuria and Shansi has so reported. Hot-water cisterns are installed in nineteen per cent of one hundred and ninety-three hospitals, none being reported from Szechwan, Manchuria, Honan, Hupeh, or Kiangsi.

III. Water Supply

A. Hospitals with running water throughout ......................................... 11
B. Hospitals with running water in operating room or laundry only ... 18
C. Hospitals with hot-water cisterns ....................................................... 37

14. Bathing Facilities

Mission hospitals are provided with an interesting variety of bathtubs, including porcelain and enameled iron baths (particularly in Chihli); the famous "Soochow" tubs, which are reported from no fewer than nine provinces; galvanized iron baths; and wooden tubs. Sixteen hospitals, scattered in Shantung, Kwangtung, Chihli, and Fukien are obliged to report the melancholy fact that they do not possess a bath of any description whatever. The greatest number of baths per hospital is reported from Kiangsu and Chekiang; the smallest, from Honan and Shansi.

Varieties of Bathtubs

A. Porcelain ......................................................... 11
B. Enameled iron ..................................................... 22
C. Soochow tubs ..................................................... 16
D. Cement ............................................................ 3
E. Galvanized iron ................................................... 47
F. Wooden tubs ...................................................... 31
G. Miscellaneous .................................................... 33
Hospitals having no baths at all ................................................... 16
In forty per cent of one hundred and eighty-six hospitals all patients are bathed on admission, these being chiefly in Szechwan, Hupeh, and Chihli; while the greatest proportion of hospitals comprising the remaining 60% are found in Honan, Shansi, and Fukien.

I. Baths on Admission

A. Hospitals where all patients are bathed on admission ... 74
B. Hospitals where all patients not bathed on admission ... 112
C. Not replying ... ... ... ... ... ... ... 14

In 50% of the hospitals—notably in Hupeh, Chihli, Szechwan, and Hunan—the patients are regularly bathed, while hospitals that never or seldom bathe their patients are mostly reported from Honan, Chekiang, Fukien, and Anhwei.

II. Regular Bathing

A. Hospitals where patients are bathed regularly ... ... ... 83
B. Hospitals where patients are bathed irregularly or never ... ... 81

Only thirty-three hospitals out of one hundred and seventy-one have running water laid on for their baths, these being chiefly in Chihli and Kiangsu.

III. Baths with Running Water

A. Hospitals supplied with running water for baths ... ... 33
B. Hospitals not supplied with running water for baths ... ... 138
15. Laundries

Out of one hundred and eighty-three hospitals, 57% are able to report that they have adequate laundry accommodation to take care of all their hospital linen, etc., these being chiefly in Chihli, Shansi, Anhwei, and Hupeh. Seventy-eight hospitals, however, have no laundries at all or have inadequate accommodation, this report coming mostly from Honan, Fukien, and Kwangtung.

Comparatively few hospitals—only thirty-five in all—appear to possess foreign machinery, the great majority being wholly dependent on manual labor, the average number of washermen (or women) per hospital being about two.

A. Percentage of hospitals replying having laundry accommodation sufficient for work of hospital ............................ 57
B. Percentage of hospitals replying where all hospital linen is washed at least weekly ........................................ 72
C. Percentage of hospitals replying with laundries having foreign machinery .................................................................. 20

16. Sanitary System

In a country like China, in which a drainage system is almost unknown, it is not surprising that the large majority of hospitals (67% of 186) are dependent on ordinary Chinese latrines or mao-fangs, this being particularly noticeable in Shansi, Honan, Szechwan, and Kiangsi. Fifty-one hospitals—chiefly situated in Chihli, Shantung, Kwangtung, and Fukien—report the use of water flush closets, while thirty-one hospitals, scattered throughout thirteen provinces, have installed their own septic tank.

Where dependent on Chinese latrines, most hospitals (74%) arrange for them to be emptied daily, though this practice seems to be less common in Shensi. In the majority of cases the emptying and cleaning is left to outsiders, only forty-one of the hospitals reporting the care of the latrines as being in the hands of their own employees.
I. Sanitary Equipment

A. Percentage of hospitals with water flush closets ....................25.5
B. Percentage of hospitals with dry earth closets ................ 6.5
C. Percentage of hospitals with Chinese latrines ............... 62
D. Not replying .............................................................................. 6

Water flush closets chiefly reported from Chihli, Shantung, Kwangtung, Fukien.
Chinese latrines chiefly reported from Shansi, Honan, Szechwan, Kiangsi.

II. Drainage System and Septic Tanks

A. Percentage of hospitals having drainage system ... . , 38
B. Percentage of hospitals having septic tank ....................15.5
C. Percentage of hospitals not having septic tank nor drainage ............................................................................... 36
D. Not replying ..................................................................................10.5

Drainage systems chiefly reported from Chihli and Szechwan.
Drainage systems fewest in Hunan, Honan, Shantung.
Septic tanks used in 13 provinces, mostly in Chihli and Kwangtung.

III. Chinese Latrines

Percentage of hospitals where latrines are emptied daily ... 74%
Deodorant chiefly used in Kiangsu, Anhwei, Chekiang, Hunan.
Deodorant least used in Manchuria and Kwangtung.
Latrines under same roof as wards, chiefly Hupah and Kiangsu.
Latrines in separate building, chiefly Szechwan, Honan, Fukien.

IV. Bedpans and Urinals

Adequate bedpans and urinals chiefly reported from Kiangsu, Szechwan, Shantung.
Inadequate bedpans and urinals chiefly reported from Honan.
Percentage of hospitals having sufficient supply for all patients, 83%

17. Facilities for Sterilization

While the large majority of hospitals are supplied with adequate facilities for the sterilization of ward utensils, etc., thirty-seven hospitals out of one hundred and seventy-nine—(21%) mostly in Chekiang and Kwangtung—are not so provided, while sixty-one
hospitals out of one hundred and seventy-nine (34%) are without a pressure sterilizer in their equipment, this lack being specially felt in some of the hospitals in Fukien, Hupeh, Szechwan, and Kwangtung.

But the most startling fact that has come to light under this heading is that no less than thirty-six hospitals out of one hundred and eighty-one, or twenty per cent of those reporting on this point, state that they do not sterilize their ward dressings before use.

Facilities for the sterilization of bedding and mattresses are but rarely met with, only twenty-seven per cent of one hundred and eighty hospitals being so equipped, the largest average being in Kiangsu and Chihli. Only twenty-one hospitals have steel and enamel furniture in the wards—chiefly Anhwei, Kiangsu, and Shantung.

<table>
<thead>
<tr>
<th></th>
<th>Number of hospitals having pressure sterilizer</th>
<th>118</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Number of hospitals having facilities for sterilizing ward utensils</td>
<td>138</td>
</tr>
<tr>
<td>C</td>
<td>Number in which all surgical dressings are sterilized</td>
<td>145</td>
</tr>
<tr>
<td>D</td>
<td>Number in which bedding and mattresses can be sterilized</td>
<td>50</td>
</tr>
</tbody>
</table>

18. Operating Room Equipment

It is probably correct to say that in the matter of hospital equipment it is the operating room of the average mission hospital which
is usually best provided for, but there are still many occasions for appeal. In seventy-four hospitals out of one hundred and sixty-nine (44%) the operating room is dependent on ordinary Chinese kettles for its supply of sterile water, this being especially the case in Shantung, Kwangtung, and Hupeh; only 32%, chiefly in Kiangsu and Chihli, possess a water-sterilizer for the purpose.

Sixty-three hospitals out of one hundred and eighty, of which the largest average is in Shantung and Kiangsu, complain of an inadequate supply of surgical instruments, while only twenty-one hospitals, and those mainly in Chihli, report the possession of those special electrical instruments of investigation (cystoscopes, bronchoscopes, and the like) which form so important a part of the equipment of modern operating rooms.

<table>
<thead>
<tr>
<th>Furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Operating room fitted up with steel and enamel furniture</td>
</tr>
<tr>
<td>B. Operating room fitted up with wooden furniture</td>
</tr>
<tr>
<td>C. Not replying</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surgical Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Having adequate supply of instruments</td>
</tr>
<tr>
<td>B. Having inadequate supply of instruments</td>
</tr>
<tr>
<td>C. Not replying</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Having electrical instruments of investigation</td>
</tr>
<tr>
<td>B. Not having electrical instruments of investigation</td>
</tr>
<tr>
<td>C. Not replying</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratories</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Out of a total of one hundred and ninety-seven hospitals, 47% possess laboratories in regular use, this being chiefly reported from Chekiang, Anhwei, and Kiangsu. A further 22%, especially in Honan and Manchuria, have laboratories but do not use them regularly; while sixty-one hospitals (31%), chiefly in Shantung, Manchuria, Honan, and Fukien, have no laboratories at all.</td>
</tr>
</tbody>
</table>
Fourteen hospitals out of one hundred and seventy-one, mostly in Shantung and Manchuria, do not possess a microscope with oil-immersion lens, while only thirty-one hospitals out of that same total (18%) are equipped with a bacteriological incubator, these being chiefly in Anhwei, Kiangsu, and Hunan. No hospital possessing facilities for the study and growth of bacteria has so far sent in a report from Manchuria, Szechwan, or Honan.

Only a few hospitals—forty out of one hundred and sixty-eight—are provided with a skilled technician, these being chiefly in Kiangsu and Chekiang.

Regarding the use of laboratory methods of diagnosis, 60% of one hundred seventy hospitals are now able to make routine blood examinations on their patients, all hospitals which have filled up questionnaire forms in Kiangsu and Anhwei reporting that they are so doing. Sixty-six per cent of one hundred and sixty-four hospitals are regularly examining feces, there being no exception to this rule in any of the hospitals reporting from Kiangsu, Chekiang, and Anhwei. Only twenty-four per cent are able to examine sections of tumours, etc., this being chiefly in Kiangsu. The provinces in which fewest hospitals employ routine laboratory methods are Shansi, Manchuria, Szechwan, and Shantung.

20. Facilities for Specialization

Mission hospitals have hitherto had but little facilities for specialization, this being partly due to the shortage of staff and partly
to the inadequacy of equipment. Only twenty-five hospitals out of one hundred and seventy-seven (14%) report that the medical staff is able to specialize, this being chiefly in Anhwei, Chekiang, and Honan, no hospitals in either Fukien, Shansi, or Manchuria having so reported.

II. Routine Laboratory Work

A. Hospitals where routine blood examination is performed 104
B. Hospitals where routine fecal examination is performed 109
C. Hospitals where routine tumor examination is performed 38

One hundred and seventy hospitals reporting

Forty-one hospitals out of a total of one hundred ninety-seven (21%) possess special departments, these being mainly situated in Kiangsu, Hunan, and Chihli. Of these the chief are gynecological, (especially in Kiangsu, Fukien, and Hunan); ear, nose, and throat (especially in Chihli and Kwangtung); X-ray, mainly in Kiangsu and Chekiang; and ophthalmic, particularly Kiangsu. Dental departments seem extremely rare at present.

Twenty-one hospitals out of one hundred and sixty-one (13%) report the possession of an X-ray installation in proper use, these being chiefly in Kwangtung, Chekiang, Kiangsu, and Fukien. Three other hospitals state that they possess an equipment but that it is unusable. No X-ray plant has so far been reported from either Shansi, Honan, Anhwei, or Manchuria.

Electrotherapeutic apparatus is only reported from fifteen hospitals out of one hundred and forty-three, mostly in Kiangsu.

Finally, eighty-six per cent of the hospitals state that their departmental equipment is entirely inadequate.
I. Special Departments
A. Hospitals having special departments ... ... ... 41
   Gynecological ... ... ... 17
   Ear, nose, throat ... ... ... 15
   Ophthalmic ... ... ... 12
   X-ray ... ... ... 10
   Dental ... ... ... 1
B. Hospitals not having special departments ... ... ... 156
C. Not replying ... ... ... ... ... 3

II. Adequate Departmental Equipment
A. Hospitals with adequate departmental equipment ... ... 20
B. Hospitals with inadequate departmental equipment ... ... 122
C. Hospitals not replying ... ... ... ... ... 58

III. Special Apparatus
A. Hospitals with X-ray installation ... ... ... 24
B. Hospitals with no X-ray installation ... ... ... 137
C. Hospitals not replying ... ... ... ... ... 30

IV. Modern Electrical Apparatus
A. Hospitals possessing modern electrical apparatus ... ... 15
B. Hospitals not possessing modern electrical apparatus ... ... 128
C. Hospitals not replying ... ... ... ... ... 57
One of the most surprising facts which this enquiry has brought to light is that no less than eighty per cent of the hospitals whose reports have been received (157 out of 197) have had but one foreign, or foreign-trained physician on the field during the last year, or in some cases none at all. The greatest proportion of one-man (or one-woman) hospitals seem to be in Szechwan, Shansi, Manchuria, and Chekiang, while the smallest proportion is reported from Chihli and Honan.

### I. Foreign or Foreign-Trained Doctors

| A. Hospitals with only one or no doctors on the field | ... | 157 |
| B. Hospitals with only two doctors on the field | ... | 27 |
| C. Hospitals with only three doctors on the field | ... | 6 |
| D. Hospitals with more than three doctors on the field | ... | 7 |

### II. Specialization

Out of 177 hospitals only 14% of the staff are able to specialize, being too busily occupied in general work | ... | 86 |

Seventy-nine per cent of the one hundred and ninety-seven hospitals have medical assistants trained in China, with an average of nearly two per hospital, those best supplied being in Chekiang, Kiangsu, and Kwangtung, while the lack of such assistants is most apparent in Shansi, Szechwan, Manchuria, and Hupeh.

Only nine hospitals, chiefly in Chihli, Shantung, and Hupeh, report a foreign pharmacist on their staff.

One hundred and twenty-one hospitals (61%) have student assistants or dressers, the average number per hospital being between four and
five. They appear to be mainly used in the hospitals in Manchuria, Chekiang, Shansi, and Chihli, and least of all in Anhwei. In some hospitals they have a definite standard of entrance requirements, and are given regular classes throughout their course, this latter, notably in Fukien and Manchuria; in others their work appears to be quite indefinite.

The average number of beds per physician in the various provinces has already been mentioned under section four.

III

III. Chinese Medical Assistance

1. Chinese medical assistants trained in China
   A. 155 hospitals have a total of 284 Chinese medical assistants.
   B. 42 hospitals have no Chinese medical assistants.
   C. Not replying ........................................ 3

2. Pharmacists
   A. Hospitals with qualified pharmacist ............... 9
   B. Hospitals without qualified pharmacist ........ 173
   C. Not replying ......................................... 18

3. Student Assistants or Dressers
   A. Hospitals with student assistants or dressers .... 121
   B. Hospitals without student assistants or dressers .... 76
   Average number of student assistants to each hospital ... 4.8

22. Nursing Arrangements

If, as stated in the last section, these hospital returns reveal a serious shortage of doctors in China, it is equally true to state that they present a clamant appeal for more qualified nurses. Of the one hundred and ninety-two hospitals which have reported on this subject, only ninety-three (48%) have a trained foreign nurse or nurses on their staff, and usually only one; ninety-four hospitals (49%) have between them two hundred and fifty-three Chinese graduate nurses; fifty hospitals (26%) each possess only one trained nurse, either foreign or Chinese; and sixty-six hospitals (34%) have no nurse at all. In other words, in one third of all these hospitals there is no sort of skilled nursing whatever, and in 60% of them there is no more than can be attempted by a single graduate nurse.
With foreign nurses, the hospitals in Kiangsu and Szechwan appear to be the best staffed, and those in Manchuria, Honan, Shansi, and Kwangtung the worst. With Chinese graduate nurses, the most favored provinces are Chihli, Kiangsu, and Hupeh, with Manchuria, Honan, and Chekiang at the other end of the list. The largest proportion of hospitals in which there is no skilled nursing at all seems to be in Manchuria, Honan, and Shansi; the smallest proportion in Kiangsu and Hupeh.

I. Graduate Nurses

A. Hospitals provided with skilled nurses

B. Hospitals not provided with skilled nurses or not replying

II. Nurses

A. Hospitals having foreign nurses

B. Hospitals having Chinese graduates

C. Hospitals having undergraduate Chinese nurses (average to each hospital)

D. Hospitals training both male and female nurses

Turning to the question of the training of Chinese undergraduate nurses, we find eighty-two hospitals out of one hundred and ninety-seven (41%) undertaking this work, this being specially the case in Kiangsu and Fukien, and least of all in Manchuria and Honan. The average number of undergraduate nurses in such hospitals is twelve, the greatest number of nurses in training being found in Kiangsu, Fukien, and Hupeh.

Where both male and female nurses are in training in the same hospital, as is true of 56% of the hospitals which have reported on this point, the majority have their classes entirely separate, but in twelve cases out of thirty-four—particularly in Shantung and Chekiang—some classes at least are now being held jointly.
Up to the present it is a very great rarity to find female Chinese nurses attending male patients, but seven hospitals in no less than five provinces, Chihli, Kwangtung, Kwangsi, Szechwan, and Shansi, report that they are now following this practice.

In those hospitals where neither graduate nor undergraduate nurses are employed, the care of the patients is necessarily left to their own friends, and in this connection it should be noted that only seventy-five hospitals out of one hundred and ninety-seven (38%) report that they have any regular system of night nursing. The provinces of Kiangsu, Anhwei, and Hupeh show the best average in this respect; Fukien and Honan the worst.

23. Hospital Records and Scientific Work

Out of one hundred and eighty-six hospitals, forty-one per cent report that they are keeping full records of all their patients, this being specially claimed from Shansi and Hunan; while Manchuria, Chekiang, and Honan appear to have the largest proportion of hospitals which are unable to carry this out.

Research work, in some form or other, is being attempted in twenty-five out of one hundred and eighty-three hospitals (14%), Hunan having the best average. No hospitals in Shansi, Fukien, Honan, or Manchuria have yet reported that they are engaged on any form of scientific research.

Of one hundred and eighty-five hospitals, fifty-two (26%) are able to report that their medical and surgical work is now always based on pathological investigation, this being specially noted in reports from Kiangsu, Hunan, and Chihli. This, however, leaves no less than seventy-two per cent unable to put forward such a claim, Honan, Kwangtung, and Shansi having the largest proportion of hospitals so handicapped.

Autopsies were performed last year in thirty-two hospitals, the total number being eighty-eight. The coast provinces of Chihli, Kiangsu, and Kwangtung were naturally the ones in which most autopsies were attempted, though Hunan also has a good average in this connection. No post-mortem examinations have so far been reported from Anhwei, Honan, Shansi, Kiangsi, or Kwangsi.
Serum-reaction tests (Widal, Wassermann, etc.) can at present be carried on in thirty-six out of one hundred and ninety-seven hospitals (18%), particularly in hospitals in Kiangsu and Kwangtung.

Major abdominal surgery is attempted in ninety-four hospitals out of the one hundred and ninety-seven (48%), the largest proportion of hospitals performing laparotomies last year being reported from Kiangsu, Hupeh, Anhwei, and Chekiang; the smallest, from Kwangtung, Shantung, and Honan. The largest total number of operations of this nature took place in Kiangsi, Anhwei, and Szechwan.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18%</td>
<td>I. Hospitals where regular research work is carried on</td>
</tr>
<tr>
<td>26%</td>
<td>II. Hospitals where all medical work is based on pathological investigation</td>
</tr>
<tr>
<td>16%</td>
<td>III. Hospitals where autopsies were performed last year</td>
</tr>
<tr>
<td>18%</td>
<td>IV. Hospitals where serum-reaction tests (Widal, Wassermann, etc., are regularly carried out</td>
</tr>
<tr>
<td>48%</td>
<td>V. Hospitals where abdominal operations are performed</td>
</tr>
</tbody>
</table>

Eighty-one hospitals out of one hundred and eighty-seven (43%) are now using salvarsan or one of its equivalents as a routine therapeutic measure. This is chiefly reported from Anhwei and Kiangsu; Honan and Shansi having the fewest hospitals where this method of treatment is being employed.

24. Hospital Organization and Administration

The control of the majority of mission hospitals, 75% of one hundred and seventy-one hospitals, is in the hands of the medical and nursing staff, the minority being made up of cases in which a special hospital committee, a committee of the mission, or an outside hospital board has the controlling voice. Most of the hospital boards have been reported from Kwangtung, in which province also occur most of the hospitals that are controlled by committees upon which the doctors and nurses are in the minority.
Fifty-four hospitals out of one hundred and seventy-five (30%), the largest proportion of which are in Kiangsu, Anhwei, and Chihli, have appointed a hospital superintendent, in almost every case a medical man. In the great majority of instances where no superintendent has been elected, it is not because of any objection to the procedure, but merely because there is but one doctor to the hospital.

Foreign business managers are reported from only twenty-one hospitals out of one hundred and sixty (13%), chiefly in Fukien, Shantung, and Chekiang. No hospital in Shansi, Szechwan, or Manchuria has so far reported that they have a business manager on their staff.

25. Hospital Local Support

It has always been the aim of mission hospitals to become as far as possible self-supporting, though it is to be feared that in many instances this endeavor has militated against their true efficiency, owing to shortage of funds.

At the present time twenty-seven per cent of one hundred and forty hospitals report that they are entirely self-supporting apart from foreign salaries, Kwangtung showing the largest proportion of such hospitals. A further fifty-three per cent can claim to be more than half self-supporting, leaving but twenty per cent whose local support amounts to less than half their annual expenditure, exclusive of foreign salaries. Chekiang and Kiangsu have the best average for hospitals more than half self-supporting, Szechwan being the least advanced in this respect.

The total annual appropriation from home mission boards for the one hundred and twenty-six hospitals whose figures have been given,—again, exclusive of foreign allowances—amounted last year to Mex. $247,223,—an average of Mex. $1,962 for each of those hospitals. The largest average appropriation per hospital goes to Kiangsu, Hunan, and Anhwei; the smallest, to Chekiang and Shansi.

| Hospitals wholly self-supporting, apart from foreign salaries | ... | 38 |
| Hospitals more than two-thirds self-supporting | ... | 52 |
| Hospitals from one-half to two-thirds self-supporting | ... | 22 |
| Hospitals from one-third to one-half self-supporting | ... | 19 |
| Hospitals less than one-third self-supporting | ... | 9 |
26. Hospital Budget

The total annual budget of one hundred and twenty-seven hospitals, inclusive of foreign allowances, amounted last year to Mex. $1,649,604—an average of Mex. $12,989 per hospital, and of Mex. $205 per bed. The largest average budgets are from Kiangsu and Hunan; the smallest, from Manchuria and Shansi.
On analyzing the sources of income, it is interesting to find that the general average percentage derived from Chinese patients' fees is twenty-eight per cent; from Chinese donations, twenty-seven per cent; and from local foreign donations or fees, nineteen per cent. The hospitals in Kiangsu, Manchuria, and Shantung show the best average percentage from Chinese donations; Szechwan, the worst. Kiangsu, Kwangtung, Chihli, and Hupeh show the highest percentage from Chinese patients' fees; Shantung, and Szechwan, the lowest. Fukien, Kiangsu, and Shansi have the highest average percentage from the fees and donations of local foreigners; Hunan, Szechwan, and Manchuria, the lowest.

<table>
<thead>
<tr>
<th></th>
<th>A. Average amount from Chinese subscriptions</th>
<th>27% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B. Average amount from patients' fees</td>
<td>28% of total</td>
</tr>
<tr>
<td></td>
<td>C. Average amount from foreign donations</td>
<td>19% of total</td>
</tr>
<tr>
<td></td>
<td>D. Average amount from home boards</td>
<td>26% of total</td>
</tr>
</tbody>
</table>

27. The Hospitals' Greatest Needs

A careful study of the facts contained in the preceding sections will make it abundantly clear that the appeals which medical missionaries are continually making for better equipment and larger staffs are not without strong foundation. If we but glance at the summarized statement which is given at the conclusion of this paper, we cannot fail to see that a large proportion of the hospitals are working under most severe handicaps, from the point of view of scientific methods; and if the supporters of medical missions are anxious, as we believe they are, to make the mission hospitals truly efficient, large reinforcements and greatly increased financial support will be required.

In answer to the question as to what each hospital regards as its most urgent need at the present time, the following facts have emerged:

One hundred and twenty-nine hospitals are appealing for two hundred and three more foreign doctors, the largest proportion of hospitals making such an appeal being in Shansi, Anhwei, and Chekiang, and the largest aggregate being called for from Kwangtung, Shantung, and Chihli.*

Note: This means that the total number of foreign physicians asked for is greatest from Kwangtung, Shantung, and Chihli, but that proportionately there are more hospitals in Shansi, Anhwei, and Chekiang than in the other provinces appealing for foreign doctors.
One hundred and fifteen hospitals are appealing for two hundred and five more qualified Chinese doctors, Szechwan, Anhwei, and Chekiang supplying the largest proportion of hospitals putting forward this need, while the largest aggregation is asked for from Shantung and Kiangsu. In this connection it is of interest to add that eighty-one of these hospitals are asking for internes from the medical colleges, and offering them a good service.

One hundred and thirteen hospitals are appealing for one hundred and forty-eight new foreign nurses, the largest proportion of hospitals making this appeal being from Szechwan, while the largest total of nurses required for the whole province is for Chekiang, Shantung, and Kiangsu.

Ninety-eight hospitals are appealing for four hundred and one new Chinese graduate nurses, the largest proportion of hospitals urging this need being in Chekiang and Anhwei, while the largest total of nurses is required for Fukien and Chihli.

Ninety-four hospitals are appealing for new or enlarged buildings at a total cost of Mex. $5,039,800. Kiangsu and Chekiang supply the greatest number of hospitals making this appeal, the largest amount of money for the whole province being asked for in Kwangtung and Kiangsu.

Ninety-one hospitals are appealing for new equipment, at a total cost of Mex. $862,300. The greatest amount of money for this purpose is appealed for from Kiangsu and Shantung, while the largest proportion of hospitals putting forward this need is in Szechwan, Kiangsu, and Anhwei.

Sixty-seven hospitals are asking for increased appropriations from the home boards, amounting to a total of Mex. $383,300 per annum, this request coming chiefly from hospitals in Anhwei and Hunan, while the largest total sum of money is asked for by the hospitals in Kiangsu.

We are now in a position to summarize the main facts upon which these appeals are based, and which this enquiry has revealed. They are as follows:

There is at present on an average only one mission hospital bed to every 26,640 people in China.

Eighty per cent of the hospitals whose reports have been received state that they had only one foreign or foreign-trained doctor last year.

Thirty-four per cent have no nurse, foreign or Chinese; fifty-two per cent have no foreign nurses; and sixty per cent not more than one graduate nurse in all.
Sixty-two per cent have no regular system of night nursing.
Thirty-seven per cent depend entirely on the patients' friends for all nursing.
Less than fifty per cent have out-patient departments equipped for efficient medical work.
Fifty-six per cent of the in-patient departments have less than eight hundred cubic feet air space per patient.
Sixty-five per cent have no isolation block or courtyard.
Thirty-seven per cent have no protection whatever against flies or mosquitoes; sixty-seven per cent have no screening for their kitchens, and seventy-one per cent have no screening for the latrines.
Thirty-seven per cent possess no bedding, or only sufficient for a very few patients.
Fifty-eight per cent are unable to clothe the patients in clean hospital garments.
Only eight per cent have a pure water supply, and only six per cent have running water laid on throughout the hospital.
Fifty per cent seldom or never bathe their patients.
Forty-three per cent have no laundries, or insufficient accommodation for dealing with the hospital linen, etc.
Fifty per cent have no controlled diets for the patients.
Thirty-four per cent do not possess a pressure sterilizer for surgical dressings.
Seventy-three per cent have no means of sterilizing bedding or mattresses.
Thirty-one per cent do not possess a laboratory of any kind.
Eighty-two per cent do not possess a bacteriological incubator.
Eighty-seven per cent do not possess an X-ray plant.
Seventy-two per cent state that they are unable to base their medical and surgical work upon pathological investigation.*

I cannot conclude this paper without acknowledging my great indebtedness to those who have so generously assisted in the laborious work of preparing the data for the report, particularly to the Rev. Milton T. Stauffer, Secretary of the Sub-Committee on Survey and Occupation of the China Continuation Committee, who not only gave

*It must be remembered that the above percentages are in every case calculated upon the number of hospitals who have filled in the return,—usually 180 or 190,—and not upon the total number of mission hospitals in China.
most valuable advice but also personally prepared all the charts for the purpose; and to Dr. John H. Snoke, Dr. Louis H. Braafladt, Rev. B. M. McOwan, Mrs. Crane and Miss Kupfer, who all spent many long hours helping to tabulate the replies to the various questions. Without their assistance it would have been quite impossible to complete the enquiry.
THE CITY HOSPITAL.

JOHN A. SNELL, M.D., SOOCHOW.

This paper is confined to a general consideration of a hospital in a large and central place where work has been carried on for a long time. A doctor has perhaps been there for years and his name is well known for many scores of miles throughout the country. He is known as the doctor who can heal the desperately ill, who has a kind heart for the poor. The seriously sick are told: "The foreign doctor is the only one who can cure you." He has trained a number of assistants and sent them out to practise the Western art of healing. Western medicine is now well known to nearly all the people and many are strong believers in it.

Work of this kind has been slowly developed by this one devoted, God-fearing man who loves his work for the satisfaction he receives in healing the suffering. At times he has had a co-worker. He has had to spend much of his time cultivating the Mission Board and his home constituency; further, he has had to guard most carefully all actions of his mission lest he suddenly find his work his only financial resource. Originally the hospital was opened with the smallest possible investment that would carry out the aim of obtaining a friendly entrance to an important centre and securing the hearing of the people for the preaching of the Gospel. From time to time additions have been made to the plant and equipment of the hospital by contributions of numerous friends who have derived benefit from its ministrations, supplemented by appropriations from the Board sufficient to prevent the doctor from resigning because of lack of support. In spite of his inadequate plant and poor equipment, in spite of the manifold demands on his time by other mission affairs, in spite of having no other doctor or nurse to help him, he has built up a large clinic, operated on many desperate cases and made Western medicine popular in his district of several millions of people.

I.—THE AIM.

In considering the improvement of this medical centre, what should now be its aim? What kind of an ideal should it adopt? What standard should it take for its future? Situated in a district of several millions of people and being responsible for the health of at least two millions, measured by Western standards how much of the task should
we hope to accomplish? With all the present liberal backing of an awakened America and Europe, with the new conception of medical missions on the part of the Mission Boards, and with the co-operation of many of the local people themselves, how much of the necessary healing can we ourselves hope to accomplish?

Writers on medical missions have generally defined the aim and purpose of the medical work as purely evangelistic and its value is measured by its direct evangelistic results. The aim of mission work as a whole is the spread of the Gospel of Jesus Christ; but a medical mission is not the whole, it is only a part and its aim should be defined with reference to the part it plays. It should not assume the aim of the whole and inadequately meet it. The aim of medical mission work should be defined with reference to what it can be made to accomplish in the great whole, and this should be the aim of every one of our present day mission hospitals, whether large or small, whether old or new. The aim, therefore, should be primarily to prevent and heal disease in the name of the Great Physician, whose own aim in healing disease was to relieve suffering. If we express our aim in medical terms and endeavor to heal disease in the most efficient way possible, all in the name of Christ, shall we not accomplish more for the propagation of this Gospel, than by haranguing this new doctrine throughout our wards and clinics to a people who read actions much more clearly than they understand words? It is the kind and loving touch of the healing hand, the Christ-like personality, that makes the lasting impression on those we treat. I maintain that medical missions can do far more directly for missions as a whole by doing an efficient up-to-date medical work than by submerging the healing by the preaching. The very best in modern medicine is still not good enough to properly represent our Great Healing Master. How much longer shall we continue to give this people a stone for bread?

Measured by modern standards we certainly cannot hope to care adequately for the health of this large district; then what part shall we do and what part shall we leave undone? We dare not make plans to cure all the disease of this great area; then in what way can we accomplish the most toward the most efficient healing? Is it not by setting up a model, by raising a standard for those who will in the future carry the burden of removing the disease of the people? In many of these large centres we are rather late in establishing this model work. The people are awake and are looking here and there for a model healing institution to copy, and we have lost a great opportunity for the spread of the gospel by not having the standard ready. In many small cities the local gentry, or one or more philanthropists, are anxious to have Western medical work established
among them. Not having a proper pattern what is attempted is usually a big failure.

Let us express the aim of a medical mission to be the establishment of a model, modern, scientific hospital for the healing and prevention of disease in the name of Jesus Christ.

II.—BUILDINGS AND EQUIPMENT.

With this idea of a model in mind let us attempt to construct an ideal institution under the conditions which we find here and which are sure to remain for years to come. First of all the work must be divided into in-patient and out-patient departments. The constituency of such a work as this is quite different from what we are accustomed to at home. There are many patients with minor complaints who come long distances for treatment and require more than one treatment. Were the patients living nearby they could be cared for in the out-patient clinic by daily visits. What shall we do with them? Modern hospital ward work is rather expensive. Estimating one-half the staff expenses in the in-patient service, I estimate that a patient will cost about $2.00 per day. For instance, here is a patient with a minor ailment which does not require such expensive treatment; but still we must provide for this class. Why not provide a good but an inexpensive building where this ambulatory patient can pass the time. Provide for him entertainment, religious and general instruction. His disease is not so severe but that he can take in a little instruction. If every hospital superintendent would go over the records of his in-patients for the past few years most of them would find from 50 per cent. to 75 per cent. were ambulatory patients and could be cared for in these inexpensive quarters; in fact, that is where we have been caring for them and we have also put in with them our more serious cases which should receive real hospital attention. Let there be a division between the ambulatory patients or those suffering from comparatively slight ailments, and the serious medical and surgical cases. Put the ambulatory patients into our existing old-time quarters which we can designate as hostels, and continue to care for them about as we have been; then take from among them the seriously sick, those saturated with disease, and put them into a real modern hospital where they will have the constant attention of skilled, faithful, loving nurses and the expert attentions of competent doctors. Many more of this class will then be sent home well and happy instead of in coffins. This is what may be called intensive work and is capable of very great development as the work of a hospital grows. Operative cases can enter the hospital the day before operation and may be taken out in a week or ten days and kept in the hostel for a few days longer before returning home.
By thus managing the in-patients the expensive beds can be worked to the limit of their capacity. The ambulatory patients or those living in the hostel can be cared for in the out-patient or clinic department with a minimum of trouble and expense. The opportunity in this department for the development of social work and religious instruction is unlimited and in few places has yet been touched. Very little of this intensive work has yet been done in our mission institutions and it is this division with the construction of the modern in-patient quarters that is so much needed.

As to the architecture of the buildings there are as many forms as locations. Each locality should adopt plans suitable to its own surroundings and plot. A few principles should not be overlooked. Every room and ward should at some time of the day receive sunshine, that greatest of all disinfectants. There should be no porch to keep it out when desired, but there should be provision to cut off intense sunshine when it is not wanted. There must be provision for warming the wards if the winters are cold. The sick cannot stand ice-cold rooms. The prevailing winds must not be forgotten. If there is a roof garden the chimney should not be located where the use of the roof will be spoiled by the smoke. Such a building should be of fire-proof and permanent construction as this is the cheapest in the end. All materials should be selected with due consideration to economy and not merely price. It does not pay to put up a model building of cheap construction, for it immediately fails to be a model. Floors should be of hard wood, terrazzo, or tile, depending on their situation and use. It is difficult to make financial estimates owing to the fluctuations of exchange and the rising cost of labor and material, but at the present time such a building, with proper equipment, plumbing and heating apparatus, etc., will cost not less than $2,000.00 per bed, exclusive of nursing quarters. If we include all capital the price will be about $4,000.00 per bed.

III.—Staff.

The staff that can be secured and maintained should determine the size of the institution that should be built. It is not right to put $4,000.00 capital into a bed and not properly use that bed. How many such beds for in-patients, besides the beds in the hostel, together with the many other patients who come to him can one doctor with a native assistant or interne care for? For several years we had twelve such intensive beds fitted up in our hospital and with these beds constantly occupied I was uncomfortably busy and had no clinical work. However, I was short of assistants and nurses. I would place fifteen as the maximum number of intensive beds per foreign staff with an equal number in the hostel. These patients scientifically cared for
together with the many accompanying demands on the doctor's time will be all he can possibly do.

In such a centre as this I believe we could not hope to maintain a staff of more than five foreign doctors and the same number of nurses. Out of this number one at least will always be on furlough. Shall we place as the maximum number of beds for such a model institution sixty of the important or intensive type, and about the same number in the hostel or ambulatory department? The necessary capital for such an institution, including land, residences, hospital, clinic, hostel, etc., will be $300,000.00, with an annual budget for maintenance of approximately $75,000.00. Assuming that five is the number of the staff that we can maintain, how should it be organized, and how should the work be divided. We have the whole field of human ailments to cover. Should the whole field be divided into medical, surgical and pathological and put a first and second on medicine and surgery? I believe better results will be secured by making each man head of a department and each a specialist in his own department, somewhat as follows: (1) Medicine; (2) Surgery; (3) Eye, Ear, Nose and Throat; (4) Gynecology and Obstetrics; and (5) Pathology. This might make furlough substitution more difficult, but I believe it would work out with better harmony and more efficient results. All the minor groups of diseases would have to be allotted to the proper department.

IV.—Management.

What about the control and management of such an institution? Is not an institution with a capital of $250,000.00 to $300,000.00 sufficiently important to justify a special board of managers who shall guide it properly and maintain its staff? I would say have a Board in control of the institution. Let this Board select a member of the staff to act as superintendent of the hospital and let the burden of detail rest on him. He should be a very capable man with a fair degree of business capacity and well supplied with common sense and tact. If an institution is fortunate enough to have such a man on the staff as superintendent, each of the other members can have a free hand to devote himself exclusively to the best development of his particular work. If a man capable of assuming the responsibility of such details is not on the staff, I believe the staff as a whole should give the necessary attention to the details of management through the medium of a superintendent. This, however, is a waste of much time on the part of all the staff. One superintendent is the ideal when an ideal man can be secured.

The nursing staff must be directly responsible to the superintendent through its own chief or superintendent of nurses. The
superintendent of the hospital must hold the superintendent of nurses responsible for all details in her department. This position also requires a wise and strong personality.

In many centres it would be possible for two or more missions to unite in the establishment of this plant and thus be more certain always to maintain the staff and plant up to a high standard of efficiency. A great difficulty in such joint work is to secure a basis of union which does not sacrifice efficiency. Petty jealousies on the part of missions, fears of this or that mission securing the greatest influence on the staff, or among the people, do much harm to the working efficiency of a union.

Even greater results than union might be obtained in many places by an individual mission concentrating its work in one centre and the absolute avoidance of two missions opening or developing an independent medical work in the same centre. It would be far better for a mission to concentrate itself in one large important centre and there build up an institution as here outlined, than to scatter its efforts on three or four small hospitals. The results in medical work would be greater and the results for the Kingdom would be more far-reaching. Let me again state that the very best that modern medicine can supply is still a poor representation of the Christ we are supposed to be exemplifying. Let us live the Christ life with the best of love and the best of service that our present day knowledge will permit.

V.—Finance.

The financial problem of the mission hospital varies much with different localities, but there is one principle to which I think we should adhere as rigidly as possible in all places, viz., making the constituency supply as much as possible of both capital and funds for maintenance. I believe that in most large centres, if not all, the people can be taken into co-operation with us and induced to contribute no small amount of the capital, certainly all the land required; if the field has been well cultivated, even more than that. Many of the wealthy are anxious to do this kind of philanthropical work. It is good for the community to feel that the hospital belongs to it. The burden of maintenance should also be carried locally so far as possible. The aim should be that ultimately, and not in the too far distant future, no money whatever shall come from abroad. In this type of institution certainly the annual budget, excepting the salaries of the foreign staff, should be the minimum cared for locally, and the aim of gradually taking on the foreign staff support should be kept in mind. Would it be putting the staff support off too late to say that, as it was found wise to put in Chinese as heads of departments on an equality with foreigners, their
support should be assumed locally? In some places financial advance
might be made more rapidly than the additions to the Chinese staff.

What are the resources for this budget? (1) The scale of regular
charges for attendance at clinics, out-patient calls and hospital patients.
I believe in many places too much charity is done. The Chinese, as a
rule, are ready to pay for what they receive. Let us be sure we are
really giving them something for their money when we charge for a
prescription and let us not pauperize or depreciate our work by giving
where one is able to pay. (2) Grants of public money can be made for
the maintenance of a hospital and should be. This should be
cultivated. (3) Gifts from the wealthy should be sought.

The institution has a relation and responsibility to the native
constituency which must not be overlooked or treated lightly. The
very fact that we are trying to establish a model for them (not for other
missions) means that we must bring them into co-operation with us in
every possible way. In the first place they should be given a
representation on the board of managers. In all co-operative work
they should be made to carry just as much responsibility as possible.
If we allow them to take part in directing the institution they will be
glad to contribute to its capital and maintenance; but far more than
this will be the giving to them the knowledge and experience of
conducting such an institution. It will in reality be putting into their
hands the model we are anxious for them to adopt. When it comes
to building their own public hospital they will think in terms of what
we have given them.

There is another relationship which should not be overlooked;
our relation to the native Western-trained profession. In the larger
centres there are not a few Chinese who pretend to be Western trained
doctors. Some have been trained in the old time one-man medical
school, and a number of these have a large practice. Others
have been associated with some mission hospital as a student, nurse, or
coolie. What shall be our attitude and relation to these men? Certainly
where ability is found it should be recognized. We shall lose
nothing if we maintain a close association with those who are doing
honest and worthy medical work though it may not be highly scientific.
We should encourage them, help them in diagnosis, give them the
benefit of our laboratories, encourage them to call us in consultation,
receive their hospital cases and give them all possible incentive to send
patients to the hospital. In special cases, I believe no mistake would
be made if we allowed them to take charge of their own patients in our
hospitals. Where there are a number of competent doctors it would be
well worth while to have regular medical meetings. This regular
contact with the native profession is just as much a part of the model
we are offering as is the physical plant and should be carried out in the same spirit.

In conclusion, let us reconstruct and reorganize our central mission hospitals with a medical aim and a scientific purpose, endeavoring to exalt the Christ by giving to others the very best He has put in our possession. Let us take into partnership with us the people among whom and for whom we are working and co-operate with them to establish such medical standards as will in the end drive out all superstition, quackery and ignorant practices. Let us place on the Chinese all the responsibilities we can in connection with the control of the institution, the staff, and the maintenance. Let us see to it that each individual coming to us is sent back home with a clean body and a soul that has been touched by the love of Christ.

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THE UP-COUNTRY HOSPITAL.

ALLEN C. HUTCHESON, M.D., Nanking.

The Programme Committee requested me to bring to the conference a paper on "The Up-Country Hospital" in contradistinction to the large port hospital which will receive its own presentation before the conference. There should not be and there is no pitting of the one against the other, for each has its own sphere of usefulness in China, just as the base hospitals and the emergency hospitals of the war each had its own work to do. Although my connection at present is with a hospital whose aims and prospects frankly place it in the base or training hospital type, yet my own associations for many years were with one of the smaller hospitals and I am intensely interested in that form of our work.

The term "Up-country Hospital" is rather an elastic one and covers many different kinds of hospital work now being done in China. In order, therefore, to define our subject and to clear the ground somewhat, might we not see what types of hospitals we are really planning for in China? To my mind, there should be three different types: First, the large teaching hospital placed in large centres with the object of training the internes who are fresh from our more adequately equipped medical schools. These hospitals should have a staff of four or five foreign physicians with as many or more native physicians, and emphasis should be given to specializing. Second, the
smaller up-country hospital, with perhaps two foreign physicians and several native physicians. Third, the strictly pioneer type of hospital which always will remain a part of our programme, and a most necessary part, but which type I shall not take up for discussion in this paper.

The small up-country hospital needs no apology or justification for its existence in China to-day; but when we hear so much on all sides of the amalgamation of small works and the development of large and expensive hospital plants, the claims of the smaller hospitals might be helped by the elucidation of their aims. The hospital of any size is an integral part of our mission work and we do not think that any hospital under mission control can afford to restate its aims so much as to say that it exists for the advancement of the scientific side of medicine alone. The mission hospital is a mighty and permanent factor in the Christian missionary enterprise in China. None of us would countenance inefficiency and carelessness in the conduct of our hospitals, but the two-man hospital, yea, even the one-man hospital, is not at all necessarily synonymous with inefficiency and careless work. There is a definite and valuable work for the smaller institutions, and without such institutions our medical mission work would be only one-sided and incomplete.

In any discussion of mission hospitals we must not forget that there is a twofold phase to all our medical work in China: educative and scientific on the one side, and definite service to a sick and suffering world around us on the other. The appeal and stress in the past at home and on the mission field has been laid largely on this latter phase of the work, whereas there is now a tendency to lay stress on education and the attainment of scientific efficiency. We must be careful not to let the pendulum swing too far in this direction and overlook altogether the service side of our work, the sympathetic touch of the Christian physician on the mission field. We must remember that the greatest enthusiasm and support of the missionary cause at home is because of its appeal to the humanitarian side and the example which the mission hospital affords of loving, Christ-like service. At the same time there is no excuse for inefficiency and careless indifference to dirt in the conduct of any hospital in China to-day. I have heard it said that a certain physician had left the field because he would not work under certain conditions which did not satisfy his heart as a medical man. I have also heard doctors say they would not work in a one-man station. Such men may be excellent professionally, but I do not believe they make ideal medical missionaries. There are men, on the other hand, who care nothing for the quality of their work, but whose
sole desire is to see and treat thousands of patients each year in a more or less slipshod manner. Between these two extremes we must steer a happy course.

There should be a definite policy of turning over our whole missionary enterprise to the Chinese Christian constituency as soon as it is able to assume that responsibility. We all agree that since we are aiming at self-support it would be a great mistake to put a lot of foreign money into foreign churches. And so, since we want this same policy to prevail in our medical work, we do not want great top-heavy institutions growing more each year and getting farther and farther from the hope of the Chinese Church taking them over. We want the Church to be able to take over and manage these mission hospitals. Christ healed and preached, and we believe that the Church in China will find its highest office in deliberately carrying on this double programme. It should be the aim then of certain hospitals to go over into Chinese hands as soon as such leadership is developed among the Chinese. Therefore, we are all anxious to see the Chinese doctors take up their work in earnest and be able to assume this responsibility. The missionary societies should ever be pioneers in seeking new fields and the medical arm should ever go with the clerical. We do not want simply a few heavily staffed institutions in China, but we want a progressive programme of development, equipment, standardizing, stabilizing and moving on to conquer new fields. Stagnation or too much concentration would kill the missionary spirit at home and on the field.

In each district the up-country hospital is, and will continue to be, the centre of education in principles of hygiene and sanitation and decent living; a place from which the knowledge of cleanliness and the efficient care of the sick shall be disseminated. I believe we should maintain a great many of these hospitals; limiting them in their use of foreign funds and foreign staff, but not in their efficiency as a unit. In order to be able to carry on this programme, and to realize the fullest possibilities of these hospitals, we must have our native physicians an integral part of the institutions. Therefore, one of the greatest aims of the up-country hospital should be the training and retaining of what might be called junior colleagues with the end in view of fitting such men for the independent conduct of such hospitals; their training to include the actual principles of hospital management. I think it can be stated categorically that it is only in connection with a hospital that really good and creditable medical work is being done and can be done in China to-day. We all know the tremendous difficulty that the young Chinese physician trained
in Western schools encounters in doing really good and honest work in private practice. Quackery once flourished in Europe and America, and the conditions are fourfold worse in China to-day. Dr. Wu Lien-teh once said that few Chinese doctors outside of established hospitals were really doing scientific work in China. He is right, as we all know, and we cannot as yet expect much more of these men under the present conditions in China. We help these young men through college and medical school, get them into a hospital perhaps, and then they go out to sink or swim in the depressing influences and environment of practice among their ignorant and suspicious countrymen. To expect them to do good work is to expect them to do almost the impossible. Right here is where our effort of years is dissipated. Let us tie up these men permanently to our hospitals, and not loose them into the outside influences of charlatantry and quackery. And how shall we do it but by the maintenance of many smaller up-country hospitals under efficient and careful management where the best Christian physicians shall be actual colleagues and part of the institutions. In the past it has been hard to get Chinese graduates capable of taking over these large responsibilities of efficient hospital management, but with our higher standards in the medical schools, and with the increase in the number of our large teaching hospitals, such men will become more and more the rule. We have not come to establish great foreign institutions, but to help in the establishment of an indigenous, efficient and aggressive body of medical practitioners in China. If larger openings were made for these young men, as junior colleagues in the smaller hospitals, we should retain the best men within our ranks as definite assets to our Christian forces rather than as indifferent and sometimes even hostile critics and competitors. Therefore, let us hold them and make for the development of strong, native Christian hospitals, and thereby for the economy of our foreign mission forces.

To sum up before going on, we shall then have our efficient medical schools, our well-staffed teaching hospitals and many smaller but efficient up-country hospitals; these latter definitely planning to limit themselves in the supply of foreign physicians and in the employment of foreign funds by the use of native physicians and so knitting themselves into the life of the native Church that the day will be hastened when these institutions can be turned over to the native Christian constituency. By such a programme we could hope to double our effective Christian medical forces and conserve the energy which we are now gaining by our improved training in better teaching institutions. Since the hospital is the medical centre for each city, and since it is almost scientific death to throw a young Chinese doctor
into private practice to-day, let us build around the hospital the new medical profession of China, for from this institution radiates the highest type of professional work and it will be so for years to come. For this reason, we need many, many of these smaller up-country hospitals.

Now, granted that this is the case, what shall we say of the staffing and equipment of these hospitals? Can we lay down rules or dogmatize on this subject? I think we can lay down certain rules to guide us and place before ourselves certain standards toward which to strive, or at least an irreducible minimum below which we shall not allow ourselves to fall. I do not think we can dogmatize and say, for instance, that no mission hospital shall be conducted with less than two foreign physicians; but we can say that no mission board has a right to send out a well-trained medical missionary and refuse to give him proper equipment and funds to carry on a clean and efficient work. Every hospital should be a complete demonstration of all that is best in all phases of mission work, and each should be a clean and efficient unit. The size of the institution may depend on the ability of the staff and the funds at their command, but cleanliness and efficiency should ever be its motto. In fact, there is absolutely no excuse for a hospital that disregards these principles altogether. Can we standardize these smaller hospitals? I think we can and should do so. Men's standards differ materially, but there are certain things which should be emphasized. First, the staff. The Association has reiterated its resolution regarding the necessity of each station having two medical men, and I believe that should be our ideal; but I do not think that we are prepared at this stage to recommend that all one-man hospitals should be closed until the arrival of reinforcements on the field. Such action, if it were possible, would close some of our most useful and efficient medical work in China to-day. It remains true, however, that furloughs and the constant drain on one man's energy when alone make two men for each hospital a necessity for continuous and efficient work.

The next requirement is a foreign trained nurse. To my mind, this is a necessity for doing good work. No man, I care not who he is, can fill the place of a nurse in the attention to details of nursing and cleanliness in the care of patients. Every hospital needs a woman's touch, and in China especially is this true. One nurse is a necessity, two nurses a comfort, three a luxury.

Shall there be a limit to the number of beds in an up-country hospital? We believe there should be, but no one man can arbitrarily state what should be the limit of another. Some men can handle
efficiently twice as many beds as others, but I think each doctor should set his own limit for the efficient conduct of his own particular hospital. For instance, in answer to a question sent out to fifteen physicians in regard to the limiting of the number of beds in a hospital with two foreign physicians, each man thought that there should be a limit, but all differed in the statement of what that limit should be, the number varying from forty to one hundred and fifty beds. Of course much depends on whether there are many and efficient native physicians and nurses on the staff. Personally, if I were asked to set an arbitrary limit, I should say for a hospital with two foreign physicians, two native doctors and one foreign nurse, eighty beds. A great deal depends on the ability of the staff, but the principle should be established of setting a certain high standard for the work, and then when the number of patients exceeds our ability to handle them in a clean and efficient way, the doors should be resolutely closed.

Opinions differ as to whether a hospital with only one foreign nurse should attempt to train nurses. Personally, I feel that since help must be secured for the patients, it is more satisfactory to train your own nurses as best as you can. If the training cannot measure up to the standard set by the Nurses' Association of China, your pupil nurses should be frankly told that this is the case, but you should give them the very best possible training any way. I do not believe that all the hospitals in China should depend for their nursing staff on the graduates from the few more fortunate and well-staffed hospitals. These graduates are more expensive and more uncertain in their loyalty to the hospital in which they are simply employed. I believe we should push our well-staffed nursing schools in certain centres, but I do not believe the time has come for us to discourage all other small training schools. Small hospitals in Europe and America still have their own schools, and why should we not have them in China?

A hospital should take an active part in actual public health and hygiene propaganda for the whole local community. The hospital should be the centre for such education and a certain amount of time should be devoted to this propaganda.

The cultivation of the surrounding territory, with dispensary visits from time to time, is an ideal to be attained in some places perhaps, and to be worked out in the future, but there is much danger of the staff spreading itself out too thinly, and thereby losing in efficiency what it is trying to gain in width of activity. An out-patient dispensary at a distant point is something that I believe few men can handle in an efficient way. When the hospital is cared for properly, the necessary amount of teaching of nurses done, and the wise
supervision given to the native assistants, I believe there is little energy left for an outside dispensary, at least in a two-man hospital.

The religious programme of the hospital should be put on a good, strong basis. We should not pay our doctors a high salary for their services, and then begrudge the salary of a good evangelist. If we make this very apparent distinction, we cannot but weaken our appeal to the spiritual side. The hospital staff would soon feel that we laid little emphasis on this side of the work. Get a good man and give him a fair living salary. However splendid an evangelist we may put in this position, the missionary physician must show by his every act and by his daily presence that his heart is in the spiritual side of the work. Daily hospital prayers for all the staff, with the presence of the physicians in charge, is a minimum of activity for that side of the work. Follow-up work should be done by the hospital evangelist.

The buildings of a hospital should be erected on some sort of generally approved plan, and one should build for the future, not for the present only. There should be a committee on Hospital Organization, Building and Management, appointed by the China Medical Missionary Association, and no one should attempt a new hospital building without consulting such a committee for help and advice. There is no economy in each man being a pioneer in the erection of hospitals. Many problems have been already met and solved, and many standards have already been established. These should be at the disposal of all for the benefit of all. Many mistakes would thus be avoided in the conduct and planning of our work. Someone has suggested that there be a section in the China Medical Journal devoted to these very problems of the up-country hospital where free exchange of ideas could and would be indulged in. On one point we shall all agree, that the screening of a hospital in China is a necessity, and this especially applies to the hospital kitchen.

Hospital records should be kept; histories taken and preserved. This takes time and effort, but the character of the work in the hospital will change with the introduction of records and the effect on the internes is tremendous. The kinds and the fullness of the records will vary with the energy and the staffing of the hospital, but the fuller the records the better. Records give a hospital self-respect; they may be compared to the clothes on a savage, uncomfortable and strange at first, but once acquired their value is soon realized.

A very important point, and a result that can be attained by the limitation of one's extensive work, is that the staff should have some time for study of cases and for planning on a wiser and saner scale than is allowed when the staff is at it from morning till night. In this
connection, I should advise that dispensary hours be strictly limited and the patients calling at odd hours should be heavily penalized for this by a good fee. The superintendent especially should be relieved from seeing patients all day long. He should detail this to the native physician, leaving himself time for more vital, comprehensive work for the hospital development and conduct. Definite operating days or times should be appointed, and operations should not be done simply as the patients straggle in. I think that the dispensary is most important as a feeder to the hospital, and should be held in a clean and conveniently arranged building. I believe it is essential that the foreign physicians be there during the hours of dispensary to oversee most carefully the conduct of the work from first to last. It is unwise to leave this to the junior members of the staff alone, whether foreign or Chinese. I believe in this connection that the surgeon should see his dressings each day, not necessarily doing any himself, but he should go from dressing room to dressing room and see that the dressings are done in an efficient and cleanly manner. The principles of cleanliness and economy of dressing materials can only in this way be inculcated in the staff.

I believe that there is no excuse for a surgeon in China doing his work without rubber gloves on the ground of economy. A mission society that cannot afford to supply its workers with rubber gloves cannot afford to maintain a hospital at all. A surgeon should certainly have a good sterilizer, not necessarily the best on the market, but there are many good gasolene sterilizers which can be run fairly economically, if one cannot afford the larger ones with a steam-boiler.

Laboratory work is an essential to efficient work. Every hospital calling itself such should be able to make the ordinary blood, urine and fecal examinations that are called for in the ordinary run of cases. In fact, it should be routine. A hospital without a microscope in constant use is an anachronism to-day. An X-ray outfit is becoming a necessity, and now that there are many small outfits on the market a two-man hospital can easily operate such a valuable addition to its equipment for good work.

As to bedding and clothes, I think that the ideal plan is for a hospital to furnish all the bedding and the clothes. While this is ideal, I am not prepared to say that it is an absolute sine qua non of hospital efficiency to furnish clothing. I think that the bedding and covering should be furnished by every hospital; but the clothes of the patients in winter would be a great financial tax, and I am not prepared to say that every hospital should be able to supply all the winter clothes to all the patients. I think this should be our ideal, however, and we should
begin by furnishing all the bedding. This can be done very well by having straw mattresses with cotton covers. After each patient leaves the hospital, this straw can be burned and the cover washed and filled with new straw. This straw would cost the hospital of one hundred beds not more than fifty dollars a year, and the straw could be utilized as fuel at some further saving on this amount. All summer clothes could and should be furnished the patients. Dr. Balme has estimated that an out-lay of fifty dollars a bed would furnish all clothing and bedding for the year in the coldest climate in China. Each patient on entering should have a bath and be put into hospital clothes if possible, and certainly this should be done if he is going to the operating room.

A little point of efficiency and comfort occurs to me here. Unless the hospital is heated properly, all dressings should be done in a warm dressing room. It is better to carry each patient into this room on a stretcher than to expose him in a cold, cheerless room when his vital powers are already low.

I realize that I have little to offer that is really new and startling, but I think the time is ripe for us to try to standardize our hospitals and to face the whole question of what shall be our programme of hospital development for China, and in a statesmanlike way to determine a programme for the whole of China for years to come. We have tried to put our medical schools on some sort of a standard basis, and now it is time to take up the hospitals. If this paper shall succeed in opening up a healthy discussion of the matter, I shall be fully rewarded.

DISCUSSION.

Dr. D. M. Gibson (Kaifengfu).—In the papers which have been presented to us there is material for much study and reflection, but I cannot hope to touch on more than a few points in opening this discussion.

To most of us our greatest difficulty is financial. There are some hospitals (I think not many), so poorly supported that we should help the physicians in charge to make their home Boards ashamed of the existing conditions. Above this class are institutions which are better, yet do not reach the desired standard. Much in the way of equipment is asked for, which by general consent is deemed necessary, but the means are not forthcoming. At the same time we realize that the efficiency of the work of the whole mission station is a larger thing than mission hospital efficiency by itself. How to obtain the latter without grabbing at an undue proportion of the limited funds and leaving our clerical and educational brethren to starve is a difficult question to answer. So we struggle on hoping for better times. We have to discuss whether through this Association we can obtain support for this class of hospital without taking away support from other branches of our Master's work. Unquestionably, in the result of Dr. Balme's questionnaire we find the groundwork of an appeal for such support.

As regards the estimate of the up-keep of a hospital, would it not be possible to omit the cost of patients' food as nearly all the patients pay for their food. I think the omission would render our statistics more accurate and by reducing the estimate of the cost per bed to this extent, it would lessen and therefore soften our demands on the Home Board.
I will close with some curious figures from Dr. Balme's report. Whereas only 31 hospitals have an incubator and only 26 hospitals can do Wassermann and other laboratory tests, yet the number of hospitals where medical and surgical work is said to be based on pathology is 53.

Dr. J. O. Thomson (Canton).—The city hospital should lead in all forms of medical activity—medical education (in the few strategic centres), the training of nurses, the correct diagnosis and treatment of the sick, preventive medicine and public health propaganda, social service, research work, and evangelism, the last being of paramount importance. Due proportion should be given to the different branches of our work; no one side should be unduly emphasized at the expense of the others. Our work should be missionary, medical, scientific, and humanitarian. We must keep in close touch with the Chinese church and the Chinese medical profession; upon the Chinese ultimately, not upon us, the destinies of the work will depend. There must be progress, first in consolidating and then in extending.

Buildings.—Standardized plans should be prepared, accessible to all, of hospital buildings suited to the climatic and other conditions of different parts of the country; the specifications should require local material where possible. A hostel for receiving the many chronic cases coming to us from great distances is a good suggestion.

Staff.—The chief reliance should continue to be placed upon a full-time staff of specialists, the heads of departments. The size of the staff that can be maintained will necessarily be one of the chief factors in determining the number of beds in the institution. The number of beds per staff physician, ranging from fifteen to fifty, is dependent upon his ability and temperament, the type of cases, the amount of other work for which he may be responsible, the number and capability of the assistant staff. Too many beds means a sacrifice of efficiency; too few will result in a limitation of clinical experience for physicians, internes, medical students and nurses. We must try to strike the happy medium. At the Canton Hospital each chief has an assistant and one intern to 12-15 beds.

The teaching hospital, of course, will have a large staff of specialists. For a hospital which will train internes and nurses only, a staff of five or six will probably suffice, consisting of two surgeons, two physicians, a specialist in diseases of the eye, ear, nose and throat, and one of the staff might be responsible for pathology, bacteriology and Roentgenology; or one or more of these branches might be assigned to other staff members.

Management.—Under present conditions in China the success of the management, financial and otherwise, will probably depend to a very great extent upon the efforts of the staff, since there is no body of capitalists ready to finance such institutions. The Chinese people must be educated to give. The Board of Directors should comprise men of ability, energy and balance who can and will accept financial responsibility, and not merely serve to protect the mission or constituency from what may be considered the exorbitant demands for equipment, etc., of the medical staff. There should be representative members of the Chinese community upon the Board. It might be well to retire them at stated intervals so that drones will be eliminated and active men secured. In order to secure the confidence and support of the Chinese community a hospital must "make good" in every way and keep efficient. The Boards of Directors, in conjunction possibly with the superintendent, should relieve the staff of financial responsibility.

Dr. J. C. Carr (Pengyangfu).—I feel that already we have sounded the essential notes working for success in the two lines of medical and evangelistic efficiency. Bishop Norris has warned us that essential as scientific efficiency is, rigid insistence everywhere upon a high standard under present conditions in the interior of China, may seriously imperil, what is even more paramount, a right spiritual tone throughout the institution; our work must be carried on in an atmosphere of earnest prayerfulness if it is to bear fruit to the glory of God.
While it should be fully recognized that there is no excuse for permanent inefficiency, I beg to take strong exception to limiting our work exclusively to those patients who can be accommodated under ideal conditions. A great door and effectual, now widely opened to us, will in this way be closed to a narrow chink, and multitudes may go unhealed and without the knowledge of Christ who otherwise might have received not only healing of body, but comfort of soul.

I would urge, then, that in addition to wards of the first grade, there should be second grade or even third grade wards in country hospitals, to which cases of ulcers, skin diseases, etc., could be admitted. Students and nurses will lose nothing by having to attend in rotation to patients under these somewhat unfavorable conditions; in fact, the attendant difficulties will enable them to cope with the greater difficulties they will assuredly meet with later in practice. The excellent idea of an "inn" for such cases has been suggested. The lack of funds is one of our greatest difficulties. Should not each mission or hospital have a supporting medical auxiliary or committee at home, which would make the welfare of its medical mission its supreme concern?

**Dr. Paul H. Stevenson** (Luchowfu).—[Dr. Stevenson’s contribution to the discussion is contained in his paper on “Mission Hospitals and the Policy for the Future,” printed elsewhere in this Supplement.]

Mr. Roger S. Greene (Peking).—Pardon a guest for speaking, as I wish to comment on Dr. Hutcheson’s statement that “one nurse is a necessity, two a comfort, and three a luxury.”

The work of nurses is more continuous than that of physicians. How is it possible for one nurse to look after all the patients in a hospital, train pupil nurses, and find the time and opportunity to take a furlough when she very much needs it. Then there is the danger, if she is alone, that on her return from furlough she may find that the work she has organized has broken down during her absence. I have known of nurses who have gone without a much-needed furlough just to prevent this. The minimum should certainly be more than one nurse.

**Dr. J. S. McSparrren** (Tokyo).—In Japan we have passed through the stage in which you are just entering in China: the scientific development of your medical work. We have turned over our scientific work to native practitioners, and I am sorry to say that in doing so it seems we have made a sacrifice of the ideals for which we have laboured. From the standpoint of the medical missionary we look around and wonder what has become of the Christian hospitals which were handed over to the Japanese medical profession. Medicine has become more scientific, and the emphasis that we place on science in the medical profession is right and proper, but it looks as though it might go too far in this direction and defeat the mission that we are trying to fulfil.

**Dr. E. C. Perkins** (Kiukiang).—It is a helpful suggestion that we should do more to cooperate with the Chinese doctors near us who have received an education in Western medicine. I wonder whether a Chinese physician, surrounded by an ignorant and superstitious community, can earn an honest living by practising modern medicine without bowing to the superstitions and prejudices of the people in his district. I shall return with the resolve that when such a man appears on my horizon, I shall offer him the hospital facilities at our disposal. It seems to me that cooperation of this kind will help to strengthen the Christian influences in the Chinese medical profession.

**Dr. J. C. McCracken** (Shanghai).—The up-country hospitals should be able to obtain without difficulty well-qualified Chinese physicians. But we cannot supply the demand for them until we have more medical schools. We must use the facts presented by Dr. Balme to show this necessity. The support will be forthcoming if the Home Boards realize more fully the importance of medical education in carrying out the great purpose for which we all came to China.
Dr. H. Balme (Tainan).—Delegates at this Conference will take home with them a great challenge: “Can we attain to both medical and evangelistic efficiency?” One side of missionary work is not more important than the other. There are two important things to remember: (1) To represent Jesus Christ to the individual lives we touch is the thing that brought us to China; (2) we should endeavour to the utmost to do worthy scientific work. Unfortunately, sometimes the one appears to mean the partial elimination of the other. It is not always easy to maintain a Christian spirit in an institution when one is seeking for a high standard of medical efficiency, but it is most important. We are all doing important work in China to-day along educational lines; but the greatest thing of all should be in planting ideals in accordance with Christ’s standards. The work we are doing must be truly educational, both from a spiritual and scientific standpoint. It is not right to touch merely the fringe of the crowds that come around us; we must strike deeply, and leave something permanent behind us. We should present the challenge to reach higher standards to the home church, and we have faith to believe there will be a larger response than perhaps any of us have imagined.

Dr. F. H. Cooke (Kutienhsien, Fu).—To bring our up-country and city work to a high standard depends to a great deal upon the churches at home. In some way a campaign should be started to impress upon the Home Boards our imperative needs. At a recent meeting we asked our (Methodist) Church to make provision that doctors be placed upon our Home Board and that an auxiliary medical society, national in scope, should be organized. I have a vision of all Christian physicians of our land and those who sympathize with medical missionary work being formed into auxiliary bodies. If this could be done our hospitals would be more numerous and better staffed and equipped. These auxiliary societies could find high-grade candidates and see to it that their pre-missionary course fitted them for their future work; and through their influence doors would be opened to us for post-graduate work from one end of the country to the other when we went home on furlough. Our Board Secretaries would then have a competent body to consult with in regard to medical affairs.

Dr. Percy T. Watson (Fenchow).—The up-country hospital must be a growth; it does not come ready made. It may take ten, twenty, or thirty years to reach its full development. Depending on the degree of success in growth and management and upon the size of the district it serves, we submit the following suggestions:

1. In the out-patient department the classification of diseases should be more thorough, and more time should be given to the study of individual cases. “Physicians should allow not less than twenty minutes to the average new case. Old cases usually require six to twelve minutes of time.” (Davis and Warner, Dispensaries, 1918.) Rooms should be provided where the patient and doctor may have quiet and be free from on-lookers. One room should be provided for suspected or actual cases of contagious disease.

2. If an engineer or technician can be secured as hospital superintendent or business manager, so much the better. Scientific medicine is daily growing more technical. X-ray work both in medicine and surgery is indispensable in doing work of a high standard.

3. Two or three foreign doctors, three or four Chinese doctors, and at least two foreign nurses are desirable in the fully developed up-country hospital. Sixty beds should be well cared for before adding to the number.

4. A trained director should be in charge of the religious and social activities of the hospital. This department offers opportunities for missionary service as extensive as is offered in any other. Someone with a nurse’s training should aid in visiting patients in their homes.

5. The hospital site should be large enough so that the hospital is free from noise and dirt. It should offer a free sweep to air currents. Future enlargement should be considered and provided for. Expert opinion is needed on the hospital site as much as on any other point. Not a little of the value of medical treatment depends on attractive surroundings.
(6) When we consider the toll which typhus fever alone has taken among mission doctors, hospital bedding and patients' clothes, together with the means for sterilizing them, are factors we cannot afford to neglect.

(7) A small sub-hospital of 20 beds, if well equipped and in charge of a well-trained Chinese doctor, we believe would bring more permanent results than the same amount of energy invested in scattered out-patient dispensaries. In general, public health work and preventive medicine we believe give better returns than the out-station dispensary work if the same amount of time is put into it. The police forces and provincial daily papers are fruitful fields for educational work.

(8) Little by little the work of the up-country hospital should be more specialized. Institutions like the Union Medical College, Peking, now offer the opportunity for post-graduate work to Chinese physicians. To our mind, the greatest service of this institution to the missionary cause lies in this provision. The more highly trained the product of the church, the greater the respect of the entire Chinese community for the church as an institution.

In proportion as the spirit prevailing in the up-country hospital regards the genuine welfare and success of the Chinese hospital staff and all are willing to spend and be spent for the up-country hospital, will it reach its highest realization.

Dr. T. Percy Wigfield (Medical Secretary, Wesleyan Missionary Society, England).—I deeply appreciate the courtesy of your Association and your Executive Committee in inviting me to be present at this Conference. I have listened with the greatest interest to the different speakers, and while I do not say that I agree with everything that has been said, yet the discussion has been helpful. There is one point on which I am frank to confess I am surprised; nothing has been said about the work for women. As we try to see the field from the home end, this is a great problem.

As to the main topic, there never was a day when the people in the churches were more honestly behind missionary workers than they are at the present time. The church at home is trying to realize your difficulties; not least, the laymen of our churches at home are really trying to grapple with them. In Great Britain there are missionary societies which have representative medical men on their general committees. While more sympathetic than ever before, however, the missionary societies in England are not able to make financial appropriations much in advance of their income. The amounts appropriated depend largely on what the church at home offers. Be patient with your Home Boards. Do not write them down as unintelligent, or misjudge them. Ask for what you need, tell your Home Boards what they ought to do, make your plans as big as they should be, and then let your Home Boards decide whether they can be carried out. We look forward to the day when missions will be self-supporting here in China, as in other parts of the world. The growth of the church in Africa has been step by step with self-support. You should face the question of self-support in China.

THE MISSION HOSPITAL AND ITS POLICY FOR THE FUTURE.

P. H. STEVENSON, M.D., Luchowfu (Hofei), Anhwei.

Much attention is being given now to our mission hospitals in China, their present problems, and their future outlook. Evidences, more easily sensed than expressed, seem to indicate an impending

change of direction, an approaching turn in the road. That the available funds for mission work in general are today more nearly adequate to meet the demands of the work than ever before, and that as a consequence many of the deplorable deficiencies of plant and equipment of mission hospitals are about to be remedied, we know to be true. But is this all? Larger buildings, better equipment, cleaner hospitals, all will undoubtedly follow, but as mere matter of course. These can hardly be said to constitute the real mission hospital problem of today. In spite of the assurance with which we are spending our thousands for hospital enlargements, in spite of the satisfaction that comes with the materialization of past dreams, in spite of all the enthusiasm and new life that these bring, still there remains a question, an intangible feeling of uncertainty, underlying our plans for the future.

As a whole, the present problems of our hospitals do not differ fundamentally from the greater problems of the China of today. What institution, social, political, religious, or educational, does not share in this uncertainty of this day of transition. The problem is essentially one of reaction to a new environment and to its new needs. And because the new era has not yet proclaimed itself what it shall be, because the ever-widening horizons have not yet become fixed, because all things are still in that state called fluid, we are forced to endure a period of indecision and live in the future only as we are able to interpret the prevailing tendencies of the present. Is the mission hospital able at this time to discern in these present tendencies any movement that will affect its future usefulness? Seeing such, is the mission hospital able or willing at this early day to make such adjustments as will enable it not alone to enjoy participation in the movement but to become a positive factor in the larger evolutionary movement that these tendencies may represent?

Modern medicine is still, practically speaking, unknown and unpractised among the great masses of China. However creditable may have been its performance of the heroic task of opening the door and driving the "entering wedge" for Christianity, still the mere matter of physical limitation alone has made it impossible for medical missions of the past to do more than touch the surface of the larger problem of really healing China. Perhaps our intuitive loyalty to over a half-century of medical missionary effort makes this bold statement rather repellent to us. But there is still the well patronized native medicine shop, with its dried snake-skins and beetle eyes, growing rich almost at the very gates of our mission hospitals, to say nothing of the flourishing of the cruel practices and superstitious absurdities of the old
Chinese medical man among even the better classes of Chinese and in such centres of modern advancement as Shanghai and Nanking. All this leads us to the sober conclusion that our ever-widening circle of influence is narrower than we think, and the depth of our impression until the present is far more superficial than we allow ourselves to admit.

China is beginning to realize that the ultimate strength of a nation rests very largely upon the sound physical bodies and the alert minds of its people, and that she can never hope to take her true place in the great family of nations while her vitals are being eaten away with disease and the masses of her people are as weak and as physically inefficient as they are to-day. To bring the forces of modern scientific medicine to bear as quickly and as efficiently as possible upon the problem of the health of the masses, bulks large not only as one of the greatest needs of China to-day, but as the tendency which challenges the mission hospital, along with all the rest of the forces of modern medicine represented on the field, to make such adjustments as will be necessary for the quickest and best solution of the problem.

Any programme which has for its end the permeation of the masses of China with Western medicine must admit at the very outset the utter inadequacy of foreign agencies, except in so far as they help the Chinese to help themselves. A wisely conceived and firmly founded programme of medical education will go the farthest, and will offer the best opportunity for foreign contribution to the solution of the problem of any of the plans than might be suggested. This certainly needs no argument. But medical education confined to medical schools alone will not suffice. At this point it may be well to ask ourselves, what of the mission hospital? In the first place, has it a part in a programme of medical education? Secondly, does it wish to take a part in a programme of medical education, or does it wish to formulate and follow an independent programme of its own? Thirdly, having a part and wishing to take it, is the mission hospital able or willing to make such adjustments or alterations of plan or policy as will insure its making a definite contribution to, and becoming a positive force in, such a programme of helping the Chinese to work out their own salvation?

We believe that the answer to all three of these questions, allowing the first part of the second to state the point in question, to be unqualifiedly and unhesitatingly in the affirmative. Nevertheless, we believe that wrapped up in these three questions is really the main problem before the hospital to-day. No answer should be lightly or quickly given, and any pertinent discussion that brings nearer the best solution of the problem is desirable.
Certainly of the first importance is a correct attitude on the part of the mission hospital toward the medical school. On the way to the recent conference held in Peking, one could not but infer from the conversations and remarks among the delegates that the uniformly courteous and helpful attitude of the two medical schools of the north toward the mission hospital and its problem was far from being reciprocated in kind by a considerable percentage of those entering into the conversation. There was a feeling that the forces that have recently come to stimulate medical education have come to dominate, to dictate, and to usurp the field of the medical missionary rather than to supplement his heroic labours. One well-known medical missionary gave it as his emphatic opinion that these forces "sounded the death-knell of Christian medical missions."

We shall not pause to discuss the ungrounded fears of the shortsighted. The coming of the medical schools—and the next ten years ought to see well established schools of high grade in at least such cities as Chengtu, Changsha, Canton, Shanghai, Tsinan, Peking, and Mukden—not only marks the first definite step toward the solution of the greater problem of teaching the Chinese to heal themselves, but also removes from the shoulders of the hospital that part of the heavy medical burden that has never really belonged there. To the medical school will fall, perhaps, the larger part in the solution of the larger medical problem of China; but it will be a specific and well defined part with no essential point of conflict with the mission hospital and its interests. On the other hand, released from the necessity of vicariously functioning, not only as the main if not the only agency of Christian evangelism in the field, but also as the only source of medical training, as in the past, the hospital is now given its first opportunity to develop along its own special lines of hospital organization and management, not to mention its very special field of the training of a profession of nurses for China. The most generous attitude of respect and co-operation on the part both of the mission hospital and the medical school toward one another will hasten the solution of the problem that has brought us all to China. Without this attitude, either or both will fall short of its aim of highest usefulness.

The correct attitude of the hospital toward the medical school implies a correct attitude toward the graduates of the school also. And in this the hospital makes its greatest and most practical contribution to the solution of the larger problem. The graduate from the medical school of to-day is the real physician of the China of to-morrow. How is the hospital able to help him?

There may be several answers to this problem and all of them equally good. The few suggestions that follow are most general.
The new equipment that is going into so many of our hospitals now, or which will be installed in the next few years, will be the first reflection of our attitude toward this new physician of to-morrow. In purchasing our hospital equipment shall we recognize him or ignore him? Will our new list of apparatus reflect only our own particular bent, our own peculiarities, or those of the period of our own training? Or shall we, at the expense perhaps of a little investigation, include also some of the commoner items of the equipment that we ourselves may never have used but the use of which is being taught the medical students in our schools to-day? Take the laboratory, for instance, the most neglected part of our mission hospitals. Even if the laboratory is the acme of perfection from the standpoint of one's own training, or the groove of one's own daily routine, it may nevertheless be absolutely strange to the young doctor who comes to us, though he has been thoroughly trained to use the laboratory elsewhere for diagnosis and treatment. In its lack of some of the numerous simple instruments or appliances, the dispensary or out-patient department may similarly fail to strike a familiar chord. The system of records that we use, or do not use, may really be a model of its kind, the child of our own brain and of course in our own estimation superior to anything we have ever seen along that line, but at the same time the young doctor who has been trained to use records all through his medical school and early hospital life may be singularly stupid when it comes to appreciating the fine points of the system, and may even insist upon using the reverse side of the various sheets to record the data that he has been taught are essential to his work.

These may all of them be small matters, but we believe that they are worth considering if our hospital is to provide an opportunity for the young graduate to continue his growth along the lines of his training and to continue to cultivate the habits of laboratory work, keeping of records, and so forth.

But of far greater importance than material equipment in expressing the correct attitude toward the young physician is the less tangible question of staff organization and division of the medical work. This will answer to a certain extent the question, "What is to be his relation to the foreign doctor and that of the foreign doctor to him?" Does he come merely as hired help, expected to fit in anywhere and to "help out" wherever we may have our greatest need at the time? Has he no right to expect anything for himself except the salary that he is paid?

If the training as well as esprit de corps of his class in the medical school shall have meant to him all that it should, he will come
to us with a certain amount of individuality, of personality, of medical consciousness entirely apart from our own. It represents almost as much to him, as a vital part of his equipment for leadership among his own people and a place of honour among those of his own profession, as his training. What shall we do with this new personality? Until now we have been the only real doctors on the premises. The answer is not hard, for we shall either suppress or develop this individuality, and the latter will be easier than the former. It we are wise and alive to the needs of our young medical graduate, we shall endeavor through our staff organization to develop to the uttermost all the latent individuality in him. The repression of individuality, which has lasted for centuries, is still one of the strongest retarding factors in Chinese life to-day. For the young Chinese physician to have to decide, to be forced to act, to feel that he is trusted with responsibility and that that responsibility falls back upon no one but himself, to realize that his own personal success reflects itself in the success of the institution even more than that of the foreigner—these are some of the things that will help him to grow strong in those attributes which shall make possible the Chinese leadership for which we are waiting.

For most of us, this will be no easy thing to do. The hospital compound has for years been our own little kingdom and we have come to consider ourselves entitled to all the scant glory our position affords. Benevolent though our autocratic reign has been, our word has nevertheless been the only law, and our own will ever supreme. Despotism always dies hard, and our battle will not be an easy one. Tact, patience, a sympathetic and helpful attitude toward mistakes, faith when an individual here and there will use the opportunities solely for his own ends and possibly to the detriment of the hospital, courage in the face of that lack of gratitude that hurts us all so badly now and then in the case of our young Chinese friends, willingness to "take the back seat" at times, Christian grace to remember that they must increase whereas we must decrease, all of these and more we shall need. Verily the day of heroism in medical missions is not past.

Nor can we pass over a needed change of attitude toward those qualified graduate physicians who will soon be appearing in increasing numbers in our city or community outside the hospital. To continue the spirit of competition that now exists would certainly be to lose one of the greatest opportunities of the mission hospital. One of the greatest dangers confronting medical education in China to-day is that of bringing Western medicine with its increased power to the Chinese, but without the high ideals of public service and the ethics of personal
relationship between the members of the medical fraternity that have given to the profession of healing such a high position among the nations of the West. We know only too well how hard are the battles to be fought and often lost by the young Chinese doctor as he comes into intimate contact and competition with the quackery, superstition, and the love of the bizarre in the healing profession of his own country, where the credulity and ignorance of the people put a premium upon "ways that are dark and tricks that are vain."

Our medical schools may give a didactic course on "medical ethics," but it is for the mission hospital of the community to translate that course into practical life. No mere pleasant social relationship with its occasional "t'an t'an" or periodic feast will do. The mission hospital must take the initiative in such plans as will tie these young practitioners up to the hospital. A staff organization that will give them positions as visiting members of the staff, looking forward to extending the privileges of such membership so as to include operating upon and treating in the hospital such patients of their own as shall be in urgent need of constant hospital care; in short, all the privileges of visiting members on the staffs of hospitals in the homeland. Such positions should also suggest regular courses of lectures by them to the nurses in the training school; participation with these young graduate doctors in the staffing of special or charity clinics, preferably under the control of some city or public health organization; the formation of a medical discussion or reading club, and the equipment of the hospital library with the latest medical books and papers to keep them abreast of the advances being made—these are merely a few of the ways in which the young physicians of the city might be kept in contact with ideals of public service and the ethics of Western medicine.

It has been the purpose of this paper to deal with the future; in some instances, we fear, we have looked a long way into the future. But we have tried to confine our vision to that part of the future indicated by the present tendencies as they relate themselves to the solution of China's great medical problem. We believe that the future destiny of the mission hospital lies in its contribution to the solution of that problem, and that the present is the time to make the necessary adjustments and such reactions as will insure the best possible contribution in the years to come. The writer quarrels with no other phase of mission policy so much as that of the usual compromise, the minimum deviation from established routine, the least concession possible to pass through the immediate crisis and hang on a little longer in the struggle for existence. As expressed in the opening paragraph, our mission hospitals are approaching a turn in the road. The important
question is not that of the presence of the turn, but whether we are able or willing to make the turn. Or, upon making the turn, whether we shall do so as those forced by circumstances entirely beyond their control, or as those who have seen the approaching turn and make it fully prepared with a positive contribution to the onward movement in the new direction?

DEVOLUTION OF CONTROL OF MISSION HOSPITALS. *

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In using the term "devolution of control," we understand it to mean that with regard to finance and all business matters in connection with mission hospitals (herein afterwards called business matters) the responsibility of the same, support, upkeep, and all business affairs, is to be removed from the mission, its local committees, or individual workers, and transferred in part, or wholly, to some other body or bodies.

Such devolution should not touch control of the spiritual or missionary side of the work, nor of the professional or technical side, unless or until:

1. A sufficiently strong independent church has grown up which is ready, and able, to take over the responsibility of the spiritual side of the hospital, or

2. A capable staff of local doctors has become attached to the hospital, who will satisfactorily and adequately carry on its Christian and professional work.

When this stage has been reached, the mission hospital, with all its needs and problems, may be entirely handed over to the local church and Christian community.

This is the goal to which all mission work should strive to attain. I would advocate that whenever and wherever possible, devolution of control should be initiated and encouraged, provided always that the missionary and professional sides of the work do not suffer thereby.

Each institution necessarily has its own peculiar setting and conditions and must accordingly work out its own methods of devolution. The following are suggested as ways in which this may be done. The details, to attain the ends advocated, must be left to those on the spot to elaborate for the local institution.

*A report presented to the China Council of the London Missionary Society.
Devolution of control may be carried out in varying degrees by one or more of the following methods:

1) By the local mission creating an advisory or consultative committee which shall co-operate with the doctor and his colleagues to promote in every way possible the welfare of the hospital.

2) By a hospital staff committee being formed, composed of the resident doctor or doctors (European or Chinese), European nurses or matrons, European dispenser or business man, together with all the visiting doctors. This staff committee to be responsible for all the working of the institution. Further, it may work in co-operation with any, or all, of the other committees suggested.

3) By placing the entire control of the business matters of the hospital in the hands of a hospital or house committee. This committee, chosen by the local mission, should be composed of local professional men and laymen, European and Chinese, who are in sympathy with the objects and work of the hospital, and should include one or more members of the resident staff of doctors and matrons. Under this committee the missionary work goes on as usual.

4) A committee similar to the one just described, but to be appointed by an annual public meeting of subscribers, and in its agreement with the mission it should be provided that the mission work shall go on as usual.

5) By handing the hospital and hospital property over to a trust and to trustees appointed by the mission, who shall hold the property under terms and conditions favourable to the mission work, and shall administer it with the help of a hospital committee such as proposed above.

6) A hospital or house committee, but the trustees and committee to be appointed at a public annual meeting of subscribers, the mission being allowed to retain its original rights and privileges of carrying on missionary work in the hospital.

7) By selling outright to such a trust, if it be found impracticable to retain sufficient influence in the work of the hospital to ensure, in a final appeal, respect for the wishes and feelings of members of the mission in regard to the administration of the institution vis-à-vis the mission work.

8) By joining up with another mission or missions, in the town, to form a union medical work. By this means, joint staffing, joint support, and joint control and management are secured, thus expand-
ing the basis on which the work stands, lessening the burden, financial and personal, on the individual mission, and affording greater help and strength in every respect.

**APPLICATION OF METHODS OF DEVOLUTION.**

The application of these methods of devolution of control must of necessity differ greatly when applied to an up-country hospital and when applied to a hospital in one of the large treaty ports with a large European and foreignized Chinese population.

(A) *Up-country hospitals.*—There may be no means possible for devolution of control in an up-country hospital. On the other hand, and as the work develops, more may be possible than has up to the present been realised or attempted. At any rate, it would be well to initiate the movement at the earliest moment possible.

As a beginning I would suggest the following steps: (1) The local mission from their own number, from amongst the leading church members, and from the gentry and officials of good repute and philanthropic spirit, should form a consultative or advisory committee. This committee, co-operating with the doctor and his staff, should constitute a strong and most useful adjunct to the work. By possessing such a committee the hospital will become more one with the community, deeper interest in its work will be created, its needs and condition will be the better understood and advertised; its appeals for support and help will be strengthened, and generally its work and welfare will be promoted and extended. At the same time, to a greater or less extent, the burden of its administration will be increasingly removed from the doctor to his co-operating committee. (2) Secure help from foreign doctors or foreign-trained Chinese doctors who may be practising in the town. This may be possible if they are of good repute. One or more of them may be invited to join the staff of the hospital, a ward or a certain number of beds may be allotted to them, or they may take the out-patient clinic on certain days of the week. By this means great benefit would be bestowed upon the young foreign-trained Chinese practitioner and perhaps no small benefit would accrue to the hospital and its work, besides bringing relief to the over-worked doctor.

be carried out in the treaty ports. The difficulty here is how to limit the devolution, not how to initiate or carry it out.

(b) *Hospitals in Treaty Ports.*—Any of the above methods may

In our own mission we have had central sites for our hospitals in the original settlements, with work instituted long years ago, and our
hospitals have built up a well-deserved reputation and good-will. The funds which have enabled the mission to do this have largely been local contributions. It is most natural and also most desirable, provided the missionary side of the work is sufficiently safe-guarded, that the business matters of these hospitals should be devolved on to an outside committee, composed of business men and others, European and Chinese, who are Christian or at least sympathetic with the aim and objects of the work. Owing to its advantages as to site, priority in the field, etc., it is incumbent on the hospital that it should develop and expand along with and commensurately with, the demands of the city. Funds to meet these demands should be supplied solely from local sources, viz., from firms and others who derive benefit from the work of the institution. For this development, mission funds should not be called for. But as more support is thus needed and a larger plant required, and as the medical and surgical work increases, it is only natural that the local supporters should feel that more permanence should be secured for them with regard to their hold over the property, that more power with regard to the management of the institution should be put in their hands, and that more benefit from the hospital practice should be derived by their own community doctors, which in the long run would benefit themselves. Hence the demand by them for their own committee, and eventually for a trust which will hold the property in perpetuity for the benefit of the locality in general. In my opinion, the mission should not obstruct this natural development and expansion, but fall in with it, and use it as long and as far as it is able, maintaining in all ways possible the missionary side of the work.

The Permanence of Mission Work.

The missionary side of the work may be maintained in the following ways:

1. By the mission maintaining or securing the right to choose and appoint all members of the resident staff,—doctors, nurses, dispensers, business men, etc. These should be members of the mission, though not all necessarily voting members, so as not to swamp the local mission committee. They should all study the vernacular and pass the usual examinations in it, and should all receive the ordinary mission salary allowance. All the resident staff should be supported by the local funds with the exception of one, or at most two, who should be supported by mission funds.

2. By securing in all ways possible, a preponderation or large influence on the Board of Trustees or House Committee, through the election of members of the mission, or supporters of the mission on to these bodies.
(8) By securing, when the agreement is made for the transfer of the property, terms favourable for the mission as to the use of the property, conduct of the work, privileges to carry on the mission work, etc. So long as the mission is able to continue its work in the hospital and through its representatives and agents maintain a Christian atmosphere in the institution, so long is it advisable to continue connection with the work. If the dominating influence, on the other hand, is against the mission and its work, and circumstances are constantly adverse and detrimental to the mission work, then the mission would be well advised not to hinder the trend of events but to sell out entirely to the trust on the best terms possible for the securing of the continuance of some form of Christian work in the future working of the institution. The funds so obtained could be used to establish medical mission work elsewhere.

To run a second-rate work and be faced with a well supported up-to-date city hospital, established nearby as a competitor, is most undesirable and the above step should be taken rather than have such a situation.

Devolution should be gradual. In my opinion the time for allowing the working to devolve entirely into the hands of the Chinese is yet distant and need not be considered now.
THE TRAINING OF HOSPITAL ASSISTANTS
AND NURSES.
THE HOSPITAL ASSISTANT IN CHINA.

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It is the aim of this paper to demonstrate the need for further medical and expert assistance in our China hospitals; to advocate the introduction of the official grade of "Hospital Assistant" as it is known in India; and to enquire how such an Assistant should be trained.

At the outset it is necessary to recognize a divergence between interests of the modern development of medical educational standards in China, and the needs of the smaller mission hospitals. The former is concerned with the whole future of the medical profession; the latter with the old problem of how to do its work within its means. The serious fact to be realized is that the too sudden coming of the new era has seriously embarrassed the economics of the smaller hospitals.

In the old days our small stations chose bright boys, sent them for training to the comparatively simple schools of the period, and received back modest helpers who may have been poor doctors but were excellent assistants. The medical school was an appanage to the hospital. At the present time the standards have been so far advanced that it may be said a new medical profession has been brought to birth. The schools have been remodelled, redistributed, and readapted for its service, and the hospitals can now get only what the profession will give them. Only high-school graduates are now accepted for matriculation in the Colleges of Medicine, and in country mission stations these are almost as rare as snakes in Ireland. The medical course, with its preliminaries, has expanded to nearer ten years than five. The compulsory requirement of a knowledge of the English language and the policy of concentrating medical education in a few big schools add further to the difficulties. It has become practically impossible for the average hospital to send its own men up for training. And if it could it is yet a heavy gamble on the future to send untried school-boys for mission training to a modern College of Medicine. Our own college life should teach us that this strange enthusiasm for an idea that sends men to the mission life, is not to be guaranteed in any man from such a school-boy beginning. In any case it seems bad psychology, if nothing else, to send a tied man to a modern college and then expect from him any kind of enthusiasm for measures that mean an economic saving to his mission society.
Thus our old type of mission medical school has disappeared, and in the new professional schools the old provident system of recruiting has broken down. Our small hospitals, if they want medical help, must look for it in the open market, where, except possibly in South China, it is at a cruel premium. The future promises little relief. For as Western medicine more and more comes to its own; as the Army Medical Service improves in standard, and modern trained men replace the present old-time seniors; as the new profession finds its feet, and native medical firms look for new partners, it seems certain that competition will make it more and more difficult for us to recruit, and that salaries will continue steadily to rise. Indeed, it is entirely healthy and right that salaries should rise. The very existence of the new profession demands that its prospects shall be such as shall tempt men of standing and ability into it. The entry of such men, in its turn, must have its effect, and as the medical profession begins to take its rightful place amongst the occupations of gentlemen, incomes must inevitably keep pace with the status of its members. The days of small things are gone for ever. The new medical profession has been born, and all the future is in its hand.

A word, then, to the leaders of this profession. What think we of the outlook for the physician connected with a small hospital? During one moment of insight, put yourself in his place. Cut down your expectation of an annual income to $2,000 Mex. for a hospital of fifty beds, and which attends to fifteen thousand out-patients per annum; cut down your receipts in fees to half the amount; out of the total buy your dressings, drugs, and pay the salaries of a nursing staff; then surround yourself by a desert of sand, cover yourself with a heaven of brass, take your coat off, and get to work! Aye, to double work, for help from modern graduates is no longer available for the small hospitals.

The one hope for our mission hospitals lies in the development of a system of temporary house-physicians who have recently graduated, as at home. It seems to offer an immediate solution for the staffing difficulties of our larger city hospitals. But the smaller hospitals, for many years to come, can hope for little help. Their poor equipment, their low standards of work, their distance from great centres, their awkwardness of access, all combine to make them unattractive to the city-bred, highly-trained, ambitious young graduate, seeking experience, and with all the world before him. Besides, for a long time to come, the medical profession, in competition with the openings offered by commercial firms and public services, will not be attractive in proportion to the expense and long unproductiveness of
The Hospital Assistant in China.

the course; and there will not be an output from the schools at all adequate to our new needs.

Therefore, as a practical man, the writer, the best part of whose life has been given to the study of the problems of small hospitals, is impatient of the cold comfort served out to us by our leaders, immersed, as they justifiably are, in the future of the profession and in its present problems. For what doth it profit us, my brethren, if ye shall say to us, "Be ye clothed and filled," yet ye give us not the things that are needed!

The Grade of "Hospital Assistant."

There is, then, a real problem confronting our mission institutions, that is being but imperfectly met by the existing colleges. The same problem was found in India, where they are nearly a generation ahead of us in medical matters. They met the need by the creation of a special grade of Hospital Assistant, recognised by Government, and exercising the functions of a permanent junior house physician.* A similar need, and a similar remedy are expressed in the Felcher of the Russian plains, and in the medical deacon of Scandinavian countries. Even the midwife and the district nurses of our British slums, and in America the school and visiting nurses, are expressions of the response to the same need. So in many countries, and in very varied circumstances, this need is met in the less favoured parts of the community for supplementing the regular medical profession. In each case, the remedy introduces a worker who may be an anomaly to the academician, but who meets a real need and is regularized by the community. Such a worker we suggest should be introduced in China.

*The following excerpt from a recent address to the students of the Medical College, Calcutta, by Sir KOLAS CHANDRA BOSE, Kt., M.D. (Indian Medical Gazette, December 1919), will help to explain the origin and value of the qualifications of "Hospital Assistant," as officially recognised in India.

"With the opening of the new hospital and the introduction of physiology into the curriculum of medical study, the status of medical education was very much raised and the professors devoted better attention to the progress of their students. The number of applications for admission into the College was greatly increased, and there was a peculiar sort of craving amongst the respectable class of students to learn medicine. When the rush became great, Government was pleased to withdraw its grant, but continued to give free tuition up till the year 1860. It was about this time the University Entrance Certificate was enforced as the minimum qualification of students soliciting admission into the Medical College. With the growing desire of people to learn medicine and the crying demands of the populace for medical help in cities, towns, and villages, it appeared in the wisdom of Government to open a vernacular class for the training of students who could understand the lectures, and write good Bengali and Hindustani. In 1850 a Bengali class was opened for the benefit of the tolerably educated Bengali youths. Every facility was given them to acquire sufficient knowledge of medicine and surgery, and
Who, and what, then, is the Hospital Assistant to be in China? In our further enquiry, he may be thought of (1) as a subordinate medical aid; (2) as an administrator; (3) as a technician.

The Hospital Assistant as Subordinate Medical Aid.

1.—As subordinate medical aid, the Assistant in China, like his prototype in India, may function as junior house physician. He can admit patients, take histories, and make the preliminary examinations. In the routine of the hospital he can care for the common dressings, the routine ward rounds, the routine out-patient work. In the operating room, he is assistant, or anaesthetist. He never stands alone. He is an extra eye, ear, and hand to his chief. Yet experience demonstrates that in actual practice he can attain to a truly remarkable proficiency as a clinician. Who shall deny it to him? Were not our great fathers in the profession trained under a mere system of apprenticeship, even less favoured than he?

Have we here to meet the criticism that this anomalous worker of ours is not a graduate from the schools of the profession? If regarded as a competitor he is scarcely worthy of your steel. He is not a professional rival. In a medical capacity he can never even be a serious factor in the community. As we have said above, we have ample precedent for him, even in countries where the medical profession is no longer young. But if you press your criticisms, our all-sufficient plea is that we are destitute. Were it not so, have we not a precedent for employing workers who are not graduates even nearer home than India? Do not our leaders use them? Does not every teaching hospital in the land dispense with two, or three, or four house-surgeons by using their senior students in the wards? What becomes then of the objection? Is there one law for the great, and another?
for the small? Or is it perhaps that we should not train men to be assistants? But if you and we may legitimately use them, surely we may train them for this purpose. So far as the non-graduated student is concerned, it is quite an accident that he goes on to further honours. He is trained so far, and then used; year in, year out, that grade of worker in the hospital is trained and used. May not we in the small hospitals do likewise? Or is it that the quality of our worker is poor? That would need to be proved. But, in passing, it is absurd to demand of us, "Is this non-graduated worker as good as the graduated?" He may be, or he may not. But the true question at issue is, "Are the non-graduates good enough to use?" The proof of the pudding is in the eating, and our teaching hospitals seem to find such workers are useful. Is it contended, then, that the student works only under supervision and in a subordinate capacity? The same principle is inherent in the very conception of the Hospital Assistant; it is inherent in his very name. Is it possibly feared that this grade of Assistants may cut the ground from under the new profession? The fear might once have had justification, when the profession was fighting for its standards. Now its standards are assured, and the fear is ridiculous. We shall never go back to the low-grade school. Is it then, that this Assistant will go out into the world and become a quack? This objection leaves us unimoved. Quacks abound everywhere. How many are there in any single city in the land, in any village? And how many Hospital Assistants shall we train in the whole of China? Suppose that every one of the men trained for the whole 200 hospitals went out; what, even then, would these be amongst so many. We should have added one for every two millions of the population, in the same proportion as if there were three for the City of London; say a dozen for a province. The objection is negligible.

Actually our scheme is a small thing for the stage on which it is set. We propose only to train mission men for mission hospitals, as our theological schools train evangelists. We shall accept no others. Each man is sent up by a definite mission, and is trained for a definite post. Within the limits of mission comity, there will be no free market for these assistants any more than there now is for evangelists. The whole development is something quite apart from the great medical profession which, in the nature of things, has to be framed big-boned, and generous, rigid in its requirements, jealous of its standards, insistent on its etiquette, tenacious of its privileges. This new thing is limited in its scope, trifling in its numbers, designed to fill a gap left by the profession itself. The experience of other countries suggests that it may have some qualities of permanence. But for the
present it is a little thing; a temporary missionary expedient, to meet a temporary missionary need.

The value of the Hospital Assistant, even as subordinate medical aid, would not be confined to the smallest hospitals. For even hospitals of the middle grade are seldom staffed up to their conceptions of their requirements. And they can often, by recruiting at the bottom of the ladder, set free better men from routine, or technical work, who thus become available for more responsible work elsewhere. A man so set free from minor necessary work is as good as the addition of another high-grade man to the staff. The Hospital Assistant would be also invaluable in extension work of the Convalescent Home kind, or the hostel type of ward. Every prosperous hospital needs both in China; the former to secure a more active service in our overcrowded wards by moving out the convalescent and all chronic cases, to make room for new; the hostel for patients with ailments such as entropion, acute abscess, ankylostomiasis, etc., who need accommodation only for a few nights; and for the venereal, the tuberculous, those with skin diseases, chronic ulcers and others who badly need our care but whom we are loth to admit to our proper wards. All this kind of work can be cared for through our Hospital Assistant; and that such men are to be obtained will often make possible this true addition to our work in many a hospital where it would otherwise be impossible.

As for the value of the scheme generally, it cannot be too strongly urged upon those in charge of large and well-supported institutions that what the priceless graduate medical assistants are to the large hospitals, the humble Hospital Assistant is to the small hospital. Could the work of a large hospital be done without medical assistants, house-surgeons, and resident internes? If not, ought the small hospital be asked to do its work without the needed assistance, to stay for ever in the mire of drudgery, overwork, and inefficiency? If the question be answered in the negative, in what way can the small hospital be staffed? Can a guarantee be given of a reasonable certainty of supply to the more than 200 hospitals in the country, at a price that small hospitals can afford? Such a guarantee should be based on accurate information not on the casual optimism of those in cities to which men gravitate, where privation would mean desolation indeed. There are many of us who have been reduced to a condition of despair, of entire submergence; have our leaders any assurance to put over against this fact? If not they must bear the onus of demonstrating to the world why the Medical Association should not take these steps now urged upon it by a large section of the community for meeting the truly tragic needs of the smaller hospitals in this matter of medical help.
The Hospital Assistant in China.

The Assistant as Hospital Administrator.

As hospital administrator, the demand for the Hospital Assistant reminds us that though we in China have advanced amazingly in treating patients and in the nursing of them, we have advanced neither so consciously, nor so far in the organization of our hospitals. On the average, they are far from being a credit to us. The matter is notorious. But neither the diagnosis nor the treatment of our hospital difficulties has always been very perspicuous. Poverty is not always the cause; nor is money always the remedy. Much more often the disease is a moral one, and needs a moral cure. The remedy for a pig-sty cottage is neither a larger nor a more elaborate house; it is a new housekeeper. Which thing is not a whit less true in hospitals. For I have seen this thing under the sun, that money does not bring happiness; neither does it bring efficiency. It helps. But, luxuries apart, the cottage can be as perfect a place to live in as the big and elaborate house; and this paper makes bold to claim that with efficient management, any hospital with four permanent, intelligent, and contented nurses, can, in its degree, do everything that the most elaborate hospital in the land can do, bating only such elaborate requirements as electricity, X-rays, and intelligence on the part of the doctor! Further, it is claimed that any hospital can work up to that standard from zero within two or three years; or possibly in half-a-dozen years if the staff be absolutely raw or, worse, perverted. No reservation is asked concerning the number of beds. Given the "housekeeper," and the nucleus staff, the rest of the work can be performed by students, or coolie nurses up to any extent required. The secret is not money, but method; and efficient methods are the product of a trained man. This brings us back again to our Assistant as an administrator.

Doctors as a class are not trained administrators. Hospital machinery runs so silently at home, that we are not conscious of it. We seldom even think of it; we certainly have no reason to study it. Out here, therefore, when things go wrong, we scarcely understand what it is that baffles us. If we could stand aside and watch our own efforts, as one might watch bees in an observation hive, we should see our little selves rushing here and there in a cloud of dust, with a tail of helpers, while behind us, as we pass on, the institution relapses into lethargy. An administration expert standing by would point out that our miniature doubles have obviously been trained only along one line, and face their problems too exclusively along that single line. They go straight for the work for which they were trained. Where their own two hands are insufficient they add those of helpers; where compelled, they produce more or less obvious and crude machinery.
But even then, they seldom think beyond directing everything under their own eyes, and with their own brains. As a result, he would point out, there is always congestion at the point of action, and lethargy away from it. "As a further result," he would say, "you are conscious that there is no spontaneity in the work; that nothing moves without your personal volition and oversight; and it becomes drudgery. See the reason," he would continue: "nothing does move without your initiating it; you have never taught it to; you have never asked more than to be helped in the work you have to do. Your failure has been in not designing automatic machinery for handling every detail that does not demand your actual personal attention. To do that needs thinking quite different from anything you have given to it. It needs switching your mind entirely off the thing you want to get done; it means standing back and looking at the job as a whole, analysing it back to its farthest details, and then designing, cog by cog, a mechanism for doing it. When the machine is made," he would conclude, "if it be a good machine, it will do that piece of work automatically, and for ever!"

There is little more to be said. The working out of these principles is the absorbing function of the specialised administrator. Each little piece of mechanism is a new problem. Some of the smallest parts are the most baffling. To combine them all into one efficient instrument is the work of the hospital expert. It is a mistake to think that such an instrument can be evolved without careful thought and experience, and the success of it is the greatest thing that differentiates the efficient from the inefficient hospital. And again it is worthy of note that success or failure is a moral and not a material matter.

The reward of success is shared by the whole institution. To the chief, the hospital becomes no longer a burden and a drag, but a real instrument in his hand. Economy and efficiency are the twin gains to the hospital itself. Every piece of work is analysed, and exactly provided for; every member of the staff is studied, and given one man's work to do. Mechanism for the work, time-tables for the staff, co-ordination for both, will reveal a working power in our institution that has rarely been suspected. Contentment and morale are the gains to the staff. By the co-ordination of work, congestions are avoided; duties are distributed; time-tables are enforced. Where every man is doing his work, each man does his own. Then men will be on duty and busy; or off duty and at leisure. Their days will pass quickly and pleasantly. The work will never drag. Men take first an interest in their work, and then a pride in it. They end by taking a pride in the whole institution, a pride to which, such is the happy
converse of the vicious circle, the administrator can appeal for ever better work and ever higher standards!

Examining the particular duties of the Hospital Assistant, we already find the rudiments of them in the duties of the improvised assistant, partly nurse, partly general man and business agent, employed in nearly every country hospital in the land. He usually holds his position in virtue of his seniority, and combines the offices of the business department and general factotum with charge of one of the more specialised departments, commonly the dispensary, or the operating room of the institution. He rarely nurses in the wards. He is financier of the institution. The kitchen is in his hands, and the superintendence of all the coolies. Often he is a superintendent of nurses. He is general supervisor of workmen and of works. He is the doctor's right-hand man. In scheduled returns it is nearly impossible to enter his position aright. Nurse he may have been, but the term no longer describes him. Dispenser he may still be but he is more. Acting business agent he might be called, but the designation does not fit; it is at once too narrow and too broad. He is an improvised Assistant,—and an amateur. There's the rub. He represents the need; he occupies the position; he exercises the functions,—but he is no expert in his job. Imagine him trained to handle hospital problems as the trained nurse handles his patients,—organising the laboratory; grading up the dispensary; installing the tablet machine; establishing a modern system of records; training dressing-teams; making asepsis an instinct in the institution; systematising the Out-patient Department; studying the psychology of the men; specialising in staff-management; reducing nursing to schedule; enforcing time-tables; studying the patients; designing furniture; adapting old premises; introducing the telephone; reconstituting the kitchen; installing a water-supply; creating the sanitary organisation; putting and keeping the laundry in commission; reducing store lists to order; reforming finances; managing workmen; and making one coolie do what three did before. When we get such a man trained to think expertly of the hospital as a whole, that day will be the beginning of the regeneration of our hospitals in China!

There is a phenomenon connected with the working of the hospital administrator which deserves more than passing attention, and that is the power of an institution to absorb within itself new ideas, and so to establish them as traditions of the institution that they become a part of its very life. Of all the results obtained in the hospital in which the fundamental beliefs of this paper were worked out, this has been perhaps the most vital and far-reaching interest for the reformer to-day. It has been amply demonstrated that almost any
imported idea may be made to take root in an institution, and to thrive and propagate itself there with so real a vitality of its own that only the passing of all the existing staff can entirely eradicate it. So to introduce ideas, to incubate them, to care for them until they become true traditions in the hospital, is the supreme work of the hospital expert; so grafting his ideas into the very fabric of the institution that in a few years he can transform its very nature.

Is not this the step that we have so long awaited, for grading up the rank and file of our hospitals? May we not go to our missionary societies and say,—"This scheme promises much economy with its efficiency; give us the means to develop it?"

THE HOSPITAL ASSISTANT AS TECHNICIAN.

The Hospital Assistant as technician opens up great vistas of new possibilities to our smaller hospitals, with their deficiency in specialised departments—notably the departments of records, and the laboratory. These are the very gateways through which our hospitals enter the life of higher efficiency. Of these departments, the dispensary may be taken as the type, because it alone is general; and yet of all of them it is the most wonderful demonstration of what simple technicians can do. For even in the poorest of our hospitals the prescriptions are written in the kind of Latin that we use, and they are compounded and dispensed by men who never spoke a word of English in their lives. The thing is so familiar that we have ceased to marvel at it. We accept it as belonging to the nature of things. And yet it is nothing of the kind. The whip of necessity has forced every hospital to obtain a dispensing technician, and he has brought the department into being. That is all. But for our present purpose it is everything. For there is nothing in the laboratory, nothing in the problems of record-keeping, nothing even in refractive optics, or in elementary dentistry, that is so inherently impossible as that these boys, without any knowledge of Western languages, should read our so-called Latin, and without any knowledge of pharmacology should handle arsenic, alkaloids, cough mixtures, and magnesium sulphate, in foreign weights and measures, without so much as raising a riot or even a serious doubt in the minds of us who are looking on!

What the technician has done for our dispensaries, he could do for our laboratories. They, too, might be universal. In the writer's experiment, doctors were unavailable, but a laboratory was needed; therefore a doctorless laboratory was developed. It was done, not by attempting any great thing in research, but very gently. A beginning was made with intestinal parasites. One man was set aside for this work and introduced to the use of the microscope. What he
recognised, he noted; what he did not, he asked about. He never
passed by what was unfamiliar. To this day he would ask to see a
tapeworm egg that has never been seen through a microscope tube
in South Hunan. Everything was drawn as observed. By slow stages
he advanced to examination of the blood with analysis of urine as
recreation; and from that to the simple bacteriology of every-day work
and, supremely important, the organisation of the laboratory in all its
ramifications throughout the institution. Thus was our technician
trained. After that understudies were introduced, and the laboratory
tradition took root in the hospital. Nothing was ambitious in the
programme; but the net result was a department competent to make
full routine report on all patients admitted to the wards, and to perform
all ordinary examinations that might be asked of them. Our unoriginal
discovery was only that men who are not graduates in medicine can do
first-class laboratory work,—a thing no Edinburgh man, who had
known Richard Muir, should ever have forgotten—and that intelligent,
accurate observers are numerous amongst our Chinese workers. Our
youths may be deficient in book-learning but they can differentiate
Entamoeba histolytica from Entamoeba coli; can recognise tubercle
bacilli when they see them, and put in far more conscientious
work with the Thoma-Zeiss, or the differential stains, than ever their
chief could have patience to achieve.

The progress of the experiment demonstrated several details of
great importance as illustrating the need in our hospitals for the
technician and his staff. Notably it demonstrated that the laboratory
requires for true routine work an amount of time that no solitary house-
physician can possibly give to it, for the simple reason, if for no other,
that he cannot be in two places at once! For no laboratory is worthy
of the name that does not give an out-patient service, or that does not
send down its admission reports in time for the chief's first visit to his
patients; and at such times the house-physician has more than enough
business of his own. Besides, by the time a house-surgeon has done
dhis ward dressings, made his rounds with his chief, attended through
the out-patient hours, written up his daily average of four new
admissions that any active hospital must expect, and made an out-call
or two, he has neither the routine hours nor the nervous energy to spend
in the laboratory for any kind of conscientious work. Therefore efficient
laboratory routine in the traditional manner is practically impossible
in the average middle-grade hospital; in the small hospital it is out of
the question. But, in our experiment, the technician's organised
team-work, emancipated from tradition, demonstrated beyond cavil
that a full laboratory routine can be done in any hospital whatever,
where the technician has been at work.
The experiment also showed the need of the organising mind in a properly equipped laboratory. The enthusiast may ask for nothing more than a place to work in; but the routine workers need every encouragement that a well thought-out arrangement, efficient mechanism of records, plenty of stationery, a decent supply of glassware and reagents, an automatic delivery of specimens, and a routine cleaning-up can give. And these things do not grow by Nature!

We also demonstrated the need for consolidating the laboratory into an organised department, with its own mechanism and routine, altogether independent of the men who work in it. While specimens came automatically to the laboratory, there was never difficulty in getting them attended to by the laboratory staff. But if ward men had to take their specimens to the laboratory and examine them; or the laboratory men had to go down to the wards to seek their specimens routine was broken and human nature was very easily discouraged. Creating the mechanism of the department was also the work of the technician, acting as an administrator.

We demonstrated further that the laboratory must be a permanent institution. It cannot be in any way dependent on the house-physicians. They come and go; the laboratory must run on for ever. Therefore it must have an existence of its own as a self-contained department of the hospital. Then, if there be a house-physician present, he can work in it; if he goes away, he is not missed. He may influence, he ought to inspire the work; but he is unnecessary to its life. That life can only be guaranteed by the self-existing root of tradition, firmly implanted in the institution by our expert-trained Hospital Assistant.

The question is put quite boldly: Is there a hospital in China to-day, from the least even unto the greatest, that has not place and welcome for a laboratory technician? Is there a hospital that, with all its staff and specialisation, has not use for the continuity, for the consistency of work, for the certainty of routine that a permanent technician can give? If there be, let its staff, alone in all this land, oppose our plea for the training of this technician, but let all other good men join with us to demand that such men shall be trained for our help and comfort.

Moreover, is it not marvellous that although the Medical Association has laboured mightily to promote research in China, appointing committee after committee these many years to organise it, the Association has never, as part of its policy, done one little thing to help men or to encourage them in developing their laboratories. Only its sub-committees know how bootless a pastime it has been to try to
produce any kind of research under present conditions. Men have neither the time nor the reserve of energy needed for making bricks without straw! Give us first the skilled assistants that are needed, and the laboratories they will bring. Then will the reproach pass from China, and we shall show the world what the Missionary Association can do.

It is but a step from the laboratory to the keeping of records, another of those technical accomplishments so greatly desired, yet so rarely achieved. In itself the keeping of records means much drudgery, and unless a man can see his records accumulate where they ought to be, can refer to them, can follow out his series, study his results, and find solid value in them, his interest inevitably and quickly dies. In the home hospitals the records are automatically made. The entering of the patient into the wards sets the machinery in motion, and the records are opened; his leaving closes them and sends them to the files. While they are open before him, the doctor at his convenience writes there what he will; before and after, they are no concern of his; the office looks after all the rest. And just here for most of us is the pith of the problem, how, in an up-country hospital, to do the work that elsewhere is done for us by an office of records and a staff of clerks.

The Technician solves the difficulty. He solves it by creating a department of records, that is automatic in its working, and altogether independent of the doctor. In our experiment even the writing-up of case histories was put into his hands. Why not? After the marvel of the dispensary, what is there remarkable in an unlearned man armed with experience and a case-taking form, extracting intelligently truly excellent histories that can be vouched for? And although the writing be in Chinese, and but Greek to most of us, yet the difficulty at worst is but an inconvenience. The man who took the history is always present at the examination of the patient, and knows the case by heart. At all other times, the ward nurse accompanies the doctor on his rounds. For the permanent record, is not one language as good as another? Not quite, perhaps, but the difference is all the price we pay in our humble hospital for the greater adequacy of the records kept. This is not the place to examine the details of the mechanism, though it is extraordinarily simple. Suffice to say that what has been done for years in our experiment can be done in any hospital whatever in the land. The excellence of the records varied a good deal with the health of the chief. But it may be put on record that, without any of the Chinese staff knowing a word of English or ever a house-physician to help, a very useful record system was brought into being. The records were bound yearly according to
diseases, cross-indexed by number, date, and geographical location (this last for the follow-up system); every bit of it was automatically the work of the technician, and all of it performed without the slightest intervention of the doctor. So much in a little detail of three typical departments to illustrate the place and possibilities of the Hospital Assistant as technician. Time would fail to tell of him as anaesthetist, operating room expert, tablet-maker, surgical dresser, medical tray-maker, electrician, specialist in stores-lists, in practical laundry details, in kitchen details, in sanitation, in book-binding, in furniture designs, as a technical expert in refractive optics, in simple dentistry. X-ray work, photography, electro-therapeutics, hydro-therapeutics, and massage.

Thus exploring neglected byways of our work, we learn our many needs; and analysing our needs we learn how great possibilities of remedy lie in developing a hospital, medical, administrative, and technical expert.

THE TRAINING OF THE HOSPITAL ASSISTANT.

For the training of the Hospital Assistant three entirely different types of suggestion have been made, producing entirely different types of men.

1.—It has been proposed to re-establish for him one of the older type of mission schools, training mission nominees as medical students for mission hospitals. But our Assistant is not a medical student. Both as administrator and as technician he is hospital specialised and hospital trained. Even, as we shall see, in his capacity as medical aid, he can be trained in close association with ordinary hospital routine. Besides, the expense of inaugurating the school would kill the project.

2.—Alternatively, it was suggested to recognise training in individual hospitals and standardise it by a fixed curriculum and yearly examinations. This in the manner of the Nursing Association. The proposal might be attractive if we merely desired an output of routine men for the market. But nothing is further from our thoughts. We want to produce highly specialised men for specially designated posts. Also, if this Assistant is to mean anything to our work, he must bring inspiration and progress to our smaller hospitals. He must link them with the centres of educational energy and thought. He must be trained in a specialised school. Otherwise we shall stagnate where we stand.

3.—A third plan is to modify one or more of our existing nursing schools for the purpose. This is much the most promising suggestion
of the three. If it prove practicable it promises to supply us with established institutions, and ready-made machinery to our hand. And happily our nursing schools are now so generally excellent, so widely distributed, and so numerous, that there need be little difficulty in arranging in suitable centres for the change of function.

A brief examination of the requirements of the curriculum will indicate what the possibilities may be. It must be kept in mind that no one student would be expected to take the whole course. The schools must attempt to supply for the varied demands of all the hospitals, but individual men will specialise.

For training the Hospital Assistant as medical aid the necessary equipment will correspond remarkably with that supplied by the modern nursing schools. For their standard of book-work is extraordinarily high, aiming, as they do, to make their students understand what underlies every phenomenon that comes under their observation, and every act of their profession. They are taught all the underlying principles of health and disease, stopping short only at the more or less clearly defined boundaries of diagnosis, and treatment. Thus, in the nursing course, all the preliminary sciences are surveyed, biology, chemistry, and physics; then the earlier professional subjects of health, physiology, and anatomy; then the later subjects of disease, pathology and bacteriology; and finally, materia medica, the means of treatment. Only systematic medicine and therapeutics are omitted from a remarkably comprehensive outline of a medical course in its essentials. This book-work is supplemented by four years of unrivalled opportunities for clinical observation. To adapt this course for the Assistant, it is proposed to supplement it by a post-graduate year in the subjects omitted—systematic medicine, including the borderlands of surgery and therapeutics. Surgery, as such, with its load of specialised anatomy, is omitted entirely. So also are obstetrics and gynaecology.* For the end in view they are unnecessary, and they would overload the course to an impossible extent.

With a foundation of general medical knowledge such as this course will give, the student will have a firm basis for unlimited clinical development. Actually he is in a position very similar to that of every newly graduated house-physician. And it is probable that, within his limits, this medical Assistant, with his more specialised outlook, can and will turn out quite as useful a man as the average house-physician, and quite as capable of profiting from his clinical

* The problems of Women's Hospitals are so different that it has not been attempted to include them in this survey. Should the scheme prove feasible, there can be little doubt that a similar work for women could be developed.
experience. On the other hand, he will himself be healthily conscious of his complete limitation in obstetrics, and surgery—limitations that will ordinarily matter little to his chief, but will make the man himself less likely to cut adrift from the hospital.

The Hospital Assistant as administrator is as different from a nurse as the electrician is different from the telephone operator. He creates the machinery that the nurse uses. But obviously to do it he must be familiar with nursing work in all its details. Therefore, our nursing experts tell us, he must put in two and a half or three years of straightforward nursing (including classwork) before he begins to specialise. It is said there will be no difficulty about the teaching; but it will need a teacher who herself has specialised in administration.

In the training of technicians, we are thinking of practical men, trained for everyday service in ordinary hospitals. Therefore we are unwilling to reduce our projects to an absurdity by riding off in search of logical professional perfections in each department. As the work develops, there may be a demand for advanced training in special subjects. When that time comes, we should hope that the school would rise to the demand. But in the meantime, we aim to supply useful workers, where otherwise there were no workers at all.

Of the many technical subjects, some belong to the hospital routine, and should be compulsory; such subjects are the dispensary, tablet-making, laboratory, dressings, records, sanitation, telephones, anaesthetics, operation-assistancy, sterilizations, etc. These can be introduced, our nursing teachers tell us, in the midst of the ordinary nursing course. Others, notably the telephones and bells, furniture design, and the technical aspects of adaptations, require a little special attention to the common things around us, together with some practical fitting work, and a few classes. The major technical subjects, refractive optics, dentistry, x-rays, electro-therapeutics, hydro-therapeutics, massage, and, for women, obstetrics, are in a class by themselves, and may need special treatment. It is a formidable array of subjects though incomplete, suggesting to the philosophic mind how truly great has been the need of our hospitals left hitherto entirely to haphazard.

The staff requirements of such a school may be made to vary enormously. The amazing work done by our nursing teachers demonstrates how much can be achieved by how small a staff. And the success of our own experiment suggests that much more can be accomplished by the aid of technical departmental instructors under the lead of an inspiring director. A beginning then could probably be made with an increase of one foreign teaching nurse specialised in
administrative and technical work, of a staff of departmental technicians who would probably be themselves to train, and of one foreign doctor specialising on the school; these over and above the existing staff of the hospital and nursing school. After the beginning, necessity or success would make its own demands.

Should the school be associated with one of the existing medical teaching centres? There might be an initial gain in technical and professional standards; possibly there might be useful arrangements of staff co-operation. But there would be greater freedom in a hospital of fewer demands, and the contact with the patients would be likely to be more sympathetic. The technical and other standards might be left to take care of themselves; where better? The general atmosphere, too, could be kept more in consonance with our general aim. Service, sympathy, loyalty are the qualities most desired; at a college institution, ambition, professional efficiency, and self-interest are very apt to be the dominating moral notes. On the whole it were probably well to keep the school apart, that it may work out its own destiny, and cultivate its own soul.

In closing, I would emphasize again that the thought of this Assistant has come out of the experience of a great need, out of much reflection on the state of our smaller hospitals, out of a shame at so small an output in research amongst us, out of much experimental thinking and hard work. That we are not accustomed to him may make him appear grotesque to some, unprofessional to others, dangerous to a third group. I would not myself think it necessary to stamp his image too rigidly as he appears in this paper. But the idea of him I would press upon the Association for most careful consideration, as the most immediately practical step at present before us for the grading up of all our hospitals towards the ideal so wonderfully expressed in this institution of the China Medical Board in which we meet.

THE PREPARATION OF NURSES FOR CHINA.

Miss Nina D. Gage, Peking.

The work you will require of your nurses after you have taught them will determine the preparation you will wish to give them.

THE SERVANT TYPE.

If you want merely the "Sairey Gamp" type, the servant nurse of the early part of the nineteenth century, you need not bother to
teach your nurses at all, and thereby save much time, expense, and hard work. But will nurses of this type content you, nurses who think only of their own comfort and ease, and are careless of the welfare of the patient—your patient,—who do as little as possible as long as they get their money, food, and sleep?

**The Religious Type Without Scientific Training.**

Then there is the religious type of nurse, trained to self-devotion and sacrifice, but whose scientific training has been inadequate. Along certain lines much may be accomplished with this type of nurse. She will always be faithful, and the patient will not die of neglect, as with the mercenary servant type. But the history of the Hotel-Dieu in Paris, and of other hospitals managed by this type of nurse in both France and Italy, prove that the doctors were dissatisfied; the hygiene of the institutions was poor, and the patients not intelligently cared for. Because of having depended in the Great War exclusively on this type of nurse, France had not enough nurses to care for her soldiers, and there followed all the troubles in her army medical work of which we have heard.

Neither the servant type of nurse nor the inadequately trained religious type we have described, provides the material for progressive development in a nursing service. They provide simply for the accomplishment of certain manual tasks which must be completed daily in the care of sick people. This is not nursing.

**The Student Nurse.**

The best nursing and the best morale is maintained by the student nurse, of course the Christian student. The spirit of eager learning, of welcoming all kinds of work as a factor in one's education, is bound to reflect in better care of the patient. The stimulus of constant inquiry into causes and effects and reasons why, from student nurses, reacts on head nurses, and even attending physicians, and stimulates them to better work. Discipline is easier in a hospital with student nurses and orders can be more easily enforced. This kind of nursing will cost more in money, if it is fairly done and real teaching is given the pupils, instead of their being exploited as has been done too often. Yet it pays in the end. The hard-headed directors of a railway in America maintained a school of nursing in one of their railway hospitals, while all the other nursing was done by graduates who came and went intermittently. It was found that the hospital with the nursing school was the most expensive of the system, and many attempts were made to give it up and economize. But because
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of the superior nursing done by the pupils these attempts were always foiled, and that one hospital was maintained for the worst cases of illness.

**Definition of Nursing.**

Nursing means "nourishing," and is defined by Florence Nightingale, the founder of modern nursing, as "helping the patient to live." According to Saleeby, "the only reason why nursing, which consists so largely of hand work, may not be included under the category of surgery, is that the word is really so much richer and more beautiful, containing the idea of nourishment and tending. . . . The surgeon merely manipulates, the nurse sustains. . . . People are still to be found who think that a nurse's duties are partly menial and partly angelic, making the bed and smoothing the midnight pillow. . . . Modern nursing requires training for many important and critical duties intermediate between these two." (Surgery and Society, 1912.)

A patient's life is varied, representing personal and social habits, economic, psychological. To help him to live, to nourish him, demands that we understand his problems. Without a sound educational foundation, coupled with practical experience, can we have imagination enough to get his point of view? The French proverb says, "Tout savoir est tout pardonner." Just so; we always find that it is the man with little experience, little imagination, little education, who is intolerant and uncomprehending of others' difficulties and shortcomings. The Bolsheviki can see no point of view but their own of hatred of ability and capital. But the thoroughly educated man, even though he may not agree with them, can yet see their standpoint, see why it is warped and twisted because of their lack of acquaintance with anything outside their own narrow circle, their inability to foresee what will happen to a State conducted along their lines. Thus a nurse must understand something of the whys and wherefores of her patient's state of mind, if she is to lead him back to health. Some of the success of modern medical social service is due to just this: we have been getting the patient's point of view, and by elimination of some of the causes of the disease have induced recovery. Miss Annie W. Goodrich, Associate Professor of Nursing and Health at Teachers' College, Columbia University, New York, says that "the nurse is a remedial agent, whose services, calling her to all classes of society, at frequent intervals, and in prolonged and intimate association, afford an almost unlimited opportunity for health education, which is the keynote of preventive medicine." (Modern Hospital, Dec., 1917.) And Miss Lillian Wald, Director of Nursing, and one of the founders of the Henry Street Nurses' Settlement in New
York, says in the same journal: “The great army of nurses is educating the people, translating into simple terms the message of the expert and the scientist.” Education of the masses is to be more imperatively necessary from now on, but physicians busy in the laboratory, or with books, or with many patients, cannot do this work as it should be done. There must be experts in this field too, and this is what we claim for our nurses, health education. The nurse can always be the confidante of the people; by virtue of her intimate association she can teach and influence them as the doctor never can. For they are often afraid of him, or too much in awe to tell him their inmost feelings. For this reason medical men have found themselves more and more dependent on the nurse in their preventive medical work, as well as in their remedial work in hospital and home. An article in the *Jour. Amer. Med. Assoc.*, October, 1918, makes plain the place of the nurse as a foundation for the doctor’s work, enforcing his orders, seeing and studying new conditions, bringing them to the attention of the medical man. You are all busy now pushing the medical profession in this country ahead as fast as possible, believing that China needs well-trained medical men to improve her sanitation, public health, hygiene, if she is to take her place among the nations. We want nurses ready to help these doctors.

**Curriculum of Nurses’ Schools**

As Miss Goodrich says in the article quoted above, “What shall be the essential branches in a nursing school must be determined by a study of the needs of the community, not by the branches found in any one institution.” Nursing education is a part of community education, and as it is given for the purpose of fitting pupils to take their places in society and work for it, society must determine what shall be the content of that education. The mistake of many so-called schools in the past has been that they have not planned for the future, but have taught the pupils simply what was necessary to get the work of the hospital done day by day. That is exploitation of the pupils, pure and simple. Nursing educationists at home are beginning now to see this, and are readjusting the system accordingly. Out here we must anticipate future needs, not fall behind and fail those who are looking to us for leadership. According to Miss Logan, Professor of Nursing and Health in the University of Cincinnati: “The whole gamut of problems and readjustments, budgets included, in my judgment, resolves itself into an educational problem which concerns on the one hand the status of training schools for nurses as educational institutions; and, on the other, the education of the community to its recognition of its responsibility therein. The only solution lies in the
Training of Nurses.

...bring into existence of as sound and universal an educational system and basis for the training of the nurse for professional usefulness as the community has long since provided for other groups of public servants—librarians, teachers, engineers, chemists, physicians, or lawyers. . . . Society has always been ready to assume its obligations toward any group when it sees that such a group may render an important service." (Modern Hospital, Nov., 1919.)

The abstract sciences of a nurse's course could be omitted, and a special course arranged giving only the nursing applications of such necessary sciences, provided the secondary schools give the required scientific foundation before the pupil enters the school of nursing. This would save much laboratory equipment in the hospital, time, expense, and re-duplication of effort and material. High schools and universities at home are more and more giving pre-nursing courses which render unnecessary a repetition of the sciences in the hospital curriculum—chemistry, physics, bacteriology, anatomy, biology. Of course this means education of the schools on our part, for far too many of them still think that nursing requires only manual labour for its accomplishment.

If laboratory work, or anything special is to be demanded of our graduates, we could arrange special courses to prepare them for this, provided you inform us what you want them to know in order to take their rightful place in, and do their rightful work for, the society from which they spring.

Nursing School Instructors.

Of instructors for nursing schools there is a great dearth, not only in China, but at home. Instructors capable of adjusting and administering the details of a curriculum to the needs, always before them, of the community for which their pupils are to work, must have a sound educational foundation, and possess breadth of view. The only possible solution of our problem in China is for those of us now on the spot to train up Chinese teachers of nursing. Give them training in psychology, pedagogy, history, science. Send the most promising ones to colleges in this country. If the agencies already here are utilized, it is not necessary for them to go abroad. In fact, it is generally better for them not to go. We ask the doctors to assist us in this teaching; many of you already give generously to us of your time and strength.

Equipment of Nursing School.

The equipment of the school should be simple and not expensive. Home-made apparatus is often more satisfactory than something
bought at a high price. If the sciences can be taught to the pupils while in the secondary schools before admission to the nursing school, the same apparatus and instructor will do for two sets of pupils. Use the talent of the Chinese for drawing, and have them copy charts and diagrams from the reference books. Get the medical schools to make sections of anatomical material, prepare slides for the microscope, prepare bones, etc. Use rats, cats, frogs, as illustrations of many anatomical facts and processes. These usually give concrete ideas of the principles involved, and can be obtained at small expense.

CONCLUSION.

We shall not be able in every hospital to give the pupils the teaching and training they should receive. Co-operation and condensation must come in this, as in other lines of education. A few good schools giving first rate training should be built up, admitting only well prepared students. Other hospitals may possibly be manned by attendants, taught only to do routine things, with real nurses to direct them and see that the patients are properly nursed. This is still a much discussed question, even at home. But only in some such way can we be honest with the society which is going to need our nurses' services, with the pupils we receive promising to them an education in nursing, and with the doctors who are to be assisted by our graduates. Give well, when you do give, but do not promise what you cannot give.

DISCUSSION.

Dr. J. M. Gaston (Laichow).—The training of assistants in our hospitals is absolutely necessary, and there is no better way that I have found than the one outlined yesterday.

When I came out in 1908 the hospitals in Shantung were not conducted on a modern scientific basis. I was informed that if we wanted trained nurses, we would have to train them ourselves for none were to be had. Therefore our hospital began the training of nurses and, so far as I know, it was the first in this province to do so. The men and women learning to be nurses take a three years' course. I wish to emphasize the advantage of a post-graduate course in the hospital, so that nurses can continue to advance and get credit for what they receive. This will stimulate them to remain in the hospital.

We can give as our experience the training of some young men who have remained with us for seven years; the last four were spent in laboratory work, in rendering subordinate medical aid, and in administrative work. The nurses help to train other workers. The addition of an attractive feature to the work of each year, such as aiding in refraction tests, urinary analysis, and making out-calls with the physician, often holds a nurse who would otherwise leave the service.

Dr. D. M. Gibson (Kaifeng).—We are missionaries of the Cross of Christ, the R.A.M.C. of Christ's Forces in China, and because of this we must be efficient.

For an efficient hospital we must have specially trained men and we cannot at present get them from the existing medical schools. The graduates from these schools are not enough to go round and they are often too costly. Dr. Hadden proposes to supply men who are not fully qualified physicians but specially trained experts.
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The hospital should also be Christian. We must have men not merely specially trained but soundly converted; men who love their work and do it, not for financial gain, but for the glory of the Son of God and the good of the sons of men.

The handing over of routine work in the various branches of hospital activity to competent Chinese would relieve the pressure on the foreign doctor and give him a chance to give closer attention to the weightier matters of treatment, hospital administration, and possibly also teaching.

I would emphasize two points: (1) Careful choice of men for training, especially as regards Christian character and educational status. (2) Early specialization after a three years' course in fundamentals.

A serious query arises in connection with this proposition: Can these specialized assistants be retained permanently? Two factors would assist in retaining them. First, the fact of their training being specialized along essentially hospital lines; second, the conviction on the part of the assistant that he is called of God to his work.

Dr. Charles Lewis (Paotingfu).—We have very few of these consecrated people who remain with us simply for the glory of the Lord. Conditions are such that all Chinese are led to think closely of financial ways and means. One assistant came to me very much dissatisfied. He felt that he ought to make some provision for his family in the event of his death. We all think of this contingency ourselves and we should expect them to think in the same way. I asked him if he would be satisfied if I took out a life insurance policy for him of $2,000 for the benefit of his family. The proposal impressed him very favourably indeed. So I say take out life insurance policies for your assistants and you will hold them. I have never had any trouble with this assistant since; he is perfectly satisfied. Taking out life insurance will not cost a large amount, and will be a paying proposition in every way.

Dr. Harold Balmé (Tsianan).—There are one or two points which I feel should not be allowed to go unchallenged. I do not believe that we shall have to wait several decades before we have a sufficient number of internes and assistants. We have reason to hope that not only from existing schools connected with the C.M.M.A. but also from others, we are going to obtain the assistants we require. There are two ways in which these men can be found. In the first place, when hospitals are prepared to give men good service there will be an increasing number of graduates every year who will apply for an appointment as interne for one year. In the second place, there will be men who wish to remain in permanent hospital employment. Out of 32 men who served in the hospital at Tsianan, all wanted to remain but two. There are not many hospitals to cover, and we shall not have to wait. As to the question of cost, there is an exaggerated idea abroad as to what these men expect. In some places internes get from $15.00 to $20.00 per month; in other places they are being paid for the first few years, $30.00 or $35.00 per month.

Dr. E. Cundall (Anlu, Hupeh).—There was a point at which Dr. Hadden's paper on "Assistants" touched that of Miss Gage's on "Nursing," Miss Gage thought that if extra subjects or a more advanced course on any subject was necessary they could be given. That would doubtless be the correct course. But I wish to speak a word of warning against putting these extras into the ordinary nursing syllabus. More than half our hospitals have no under-graduate nurses and the amount of theoretical work now required is such that we cannot expect the smaller hospitals to enter nurses for the nursing examination if anything more is added. The Nursing Association has a very capable committee and I feel sure this will have their attention, especially in view of the opposition that is apparent in various quarters to the attempt to make a large work on materia medica a text-book for the examination, and also in view of the results of the examination this year when, out of some ten subjects, 75 per cent. I believe failed in anatomy.

Dr. Henry S. Houghton (Peking).—It seemed to me in listening to Dr. Hadden's paper, that perhaps for the average mission hospital and the average physician and average assistant the picture drawn was somewhat more
roseate than the facts will warrant. It is doubtful true that much can be done with hopeful material by one with a genius for organization, but the problem should not be left to individual hospitals to be dealt with casually and experimentally.

I feel that this is a question of the profoundest importance to our mission hospitals, and it should be studied with the utmost care by a special council or committee to which the problem might be referred during the coming biennium. We have to face in China the unusual situation of having no government control of the licence to practise medicine, whereas in India the system of hospital assistants has been established by the British Government and is successfully working under rigid requirements as to preparation and conditions of institutional employment and practice.

Dr. O. H. Lovz (Tunghsien).—Make the internes specialize early; put them to work at certain problems in the hospitals. My experience has been that where men specialize early, their observations are more accurate and their work altogether more satisfactory.

Dr. W. W. Cadbury (Canton).—In 1914 the Canton Hospital decided to try the plan of taking internes without salary. Many predictions were made that the plan would fail. However, four men were engaged. They were given rooms, but no salary. After a few months they left us. We tried again and secured two or three internes who completed their year's service and received the certificate of the hospital.

In 1916, there were six internes; in 1917 there were eight and in 1918 there were five. Since 1915 we have never had trouble to secure recent graduates from schools in Canton and now there are more applicants than we can accommodate. It is necessary to have faith in the plan and then start out upon it.

Dr. J. P. Maxwell (Peking).—I wish to endorse Dr. Houghton's plea that something definite should be done in this matter by referring the subject to a specially appointed committee. Some of the speakers seem to be too pessimistic. Years ago I secured middle-school boys and trained them to be technicians, pharmacists or operating-room attendants. This plan may be still suitable in certain places. Very great advances have been made in the last twenty years and there is no reason why progress should cease.

Dr. C. A. Hayes (Canton).—Referring to Dr. Hadden's paper, I will admit that many entropion operations can be done in the out-patient department if there is insufficient room in the wards, or if the financial inability of the patient makes it impossible for him to come into the hospital; but I would deplore the performance of this class of operations in such a manner if it can be avoided. The patients should be taken into the hospital when possible, and given the same care and attention as when a more serious operation is required.

As to internes it should be our business to teach them and give them something that is worth while. Do not treat them simply as employes and turn work over to them without instructing and guiding them. When they come to us they come to learn, and if we give them instruction that is worth while, they will stay with us at least until they finish their internship.

Dr. Mary L. James (Wuchang).—The discussion on the subject of hospital assistants has made me wonder why more doctors have not turned their attention toward the training of pharmacists, who could also learn to be laboratory technicians, to give anaesthetics and do other necessary work in the hospital. When I was in the United States on furlough recently, I was impressed with the extent to which students in the regular schools of pharmacy were being given a side-training as laboratory technicians.

Acting on this idea, I took into our hospital a year ago last September two girls with a little Middle School education, who understood enough English to use text-books in that language, provided that the text-book was supplemented by explanations in Chinese. Using this bilingual method I have taught them as much pharmacy and clinical laboratory work as I could find time for. Though the rush of work has left much to be desired in the teaching I have
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given them, they are already very useful to me in the laboratory as well as in the drug room. If only I can give them more teaching they will become very useful indeed. Even now, however, it is no small thing to find my laboratory in working order, with distilled water always on hand, and with stains made up. (This latter work I still direct.) I have not yet trained them sufficiently in the use of the microscope to do that side of the work, but they can do urinalysis, and prepare smears, etc., for me.

Facing the absence of my one foreign nurse on furlough, and feeling that my senior Chinese nurses were too busy with the distinctly nursing work of the hospital to learn to give anaesthetics, I began last year to give these two girls a course in anaesthesia. I gave them one class-room course on this subject last year from a Chinese book, and a fuller course this year in type-written English lectures. Last year my foreign nurse gave them practical instruction in giving anaesthetics. As a result, now that she is gone, I depend entirely on these girls to give ether, except in very special cases.

These girls also copy all prescriptions and orders on the patients' charts in the wards, since both can write English well. This work was formerly done by my foreign nurse or by myself, and is no small part of record keeping.

So far, I consider the experiment of taking in such students successful, though I have not tried it out long enough to speak with authority. These girls enter primarily as pharmacy students, and I hope soon to have a trained pharmacist, now studying in New York, to give them much more pharmacy than I could ever teach them. But even without such a pharmacist much can be done.

These so-called "pharmacy students" enter the hospital on exactly the same terms as our nurses, and for a course of equal length, i.e., four years. Besides their own special instruction, they attend all the classes for the nurses (except those on strictly nursing subjects, such as "General Surgical and Medical Nursing" and "Obstetrical Nursing"), and with the nurses they have attended all courses in anatomy, physiology, bacteriology, and materia medica.

As I look at this experiment it seems to me to offer a partial solution of the problem of the anomalous "hospital assistant" suggested by Dr. Hadden. Such students have a regular standing, and will, in due time, be graduated pharmacists, with additional certificates for laboratory work and anaesthesia. They fit into the institution side by side with the nurses in training without friction. The training of such workers, while it leaves much room for improvement in the courses given, does not create a class of anomalous assistants, but aims to turn out qualified pharmacists and technicians—a class of workers with standing in the hospitals of the home land.

Dr. Stevenson (Luchowfu).—I am glad that Dr. Balme has corrected the impression that graduates from our medical schools are both insufficient in number and prohibitive on account of expense. Personally, I do not believe that the superhuman type of man so ably described by Dr. Hadden should be encouraged too much. On the other hand, I think we should do well to visit our medical schools and in other ways commend the medical profession to the best young men of our schools, and seek to interest them in medicine as a live profession. Let us use a part of the energy that we are at present using in making imperfect assistants in sending more men through the regular channels of medical education.
HOSPITAL ACCOUNTS, RECORDS, AND PURCHASING AGENCY.
METHODS OF HOSPITAL ACCOUNTING.

HENRY S. HOUGHTON, M.D., Peking.

The requirements of an accounting system which will be suitably adapted to the use of the small mission hospital are as follows in the order of importance:—

1.—**Simplicity.** The average missionary physician on coming to the field is wholly inexperienced in accounting methods and finds himself confronted with the problem of making a systematic record of the varied financial operations of his hospital. In order to do this successfully without encroaching upon his time and strength with complicated accounts, brevity, simplicity and clarity are the most important requirements of any book-keeping system used.

2.—**Flexibility.** While in a general way the problem for all mission hospitals is the same, it will be realized that certain institutions require much more complex financial records than others, and any standard suggested for adoption should take this disparity into account.

3.—**Uniformity.** It is hoped that the Executive Committee of the China Medical Missionary Association will recommend to mission hospitals a principle of reporting under a few standard headings the income and outgo of their funds, and the resolution which I am proposing for adoption commends to the Executive Committee this proposal. It is not asked that it shall adopt any one system of accounting, or any particular form of cash book or journal, but that it should urge upon our mission hospitals the desirability of uniformity in the main outlines of financial reports. If action of this sort is taken by the Executive Committee during the coming biennium, I am prepared to perfect as far as possible, with the aid and counsel of accountants experienced in work of this character in China and of physicians who have faced the practical difficulties involved, a simple cash book which for the smaller hospitals should be ample to cover the entire work of accounting.

I hope to have this printed on durable paper in loose-leaf form and made available for purchase at cost by those interested.
The following resolution is now presented:—

Resolved. That the Executive Committee of the China Medical Missionary Association be authorized to adopt and recommend for use in mission hospitals a uniform system of accounting and recording.

(Note.—In accordance with the terms of the resolution the Conference referred it to the Executive Committee.—Ed.)

A PLEA FOR THE ADOPTION OF A UNIFORM SYSTEM OF CASE RECORDS AND METHODS OF REPORTING STATISTICS IN OUR ANNUAL REPORTS.*

A. S. Crawford, M.D., Changsha.

The subject of case records and statistics hardly needs an introduction to this conference after all that has been written of late in our journals, and it has already been brought to your attention by preceding speakers.

Nor does it seem necessary to use any time in trying to justify a plea for reform and co-operation. Thanks to the recent great conventions and conferences, we are being taught to think and plan in big terms. We are now passing from the stage of individual effort to one of co-operation. We are now thinking of our medical work in China as a whole, and our hospitals as but small units of a great enterprise.

May we state briefly why this paper was compiled. During a prolonged illness of the writer, feeling that he could use his spare time to work out improvements for his own hospital, he wrote to find out what had been done in the study and preparation of record charts, etc., for China. So far as he could learn at that time, Dr. Kilgore and Dr. Hadden were the only ones who had done much work on this subject. Dr. Kilgore was then preparing a paper for this Conference. We were asked to present his material and to work, in addition, on the necessities of the small hospital. Unfortunately, we had had no personal experience in any work of this kind, so decided to risk another questionnaire. A brief one was sent out in November, 1919. To date, less than one-third of the questionnaires have been answered. Of those who replied about 80 per cent. appeared to have adequate systems fairly well carried out. The rest seemed unsatisfactory.

*A paper read at the Conference of the C.M.M.A., held in Peking, February, 1920.
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the extenuating reasons given being understaffing and shortage of funds; some wrote that their hospitals were still under construction; and some seemed to show no particular interest in the matter. Although it is hardly safe to draw conclusions from so few replies, yet they have given us glimpses into some of the conditions and problems. Our admiration has been increased by the heroic work of our brothers in the profession. Understaffing and financial stringency have been real difficulties in the way of progress.

Dr. Balme told us in his admirable paper, that less than 50 per cent. of nearly 200 hospitals have adequate record systems in operation. The majority of letters we received, however, admitted the importance of records, and many expressed their desire to co-operate in a uniform system, if a satisfactory one can be worked out. The lack of uniformity in the record systems we have seen has been very noticeable, but is not surprising if we consider the many countries represented here and the great variations in record keeping which exist between even the best hospitals at home. In the past the task of working out the record system for a given place has been usually left to an individual, and this without standards to go by, and with great difference of opinions as to the importance of records in the hospital routine. Naturally we would expect to find about as many different systems as there are hospitals. This is true of the systems described in the letters we have received.

We have been told by Dr. Baxter, who has recently been working on hospital standardization in the United States, that there a similar condition exists, and much is being done now to work out a unified system of keeping records and recording statistics. Only in this way can standards be maintained, real co-operation by all be assured, and the knowledge and experience of each be made useable for all. Incidentally, printing is made much cheaper when done in large lots.

There can be no question concerning the great need for improvements in our record systems in China. As we do not feel we know as yet all the real needs of the small up-country hospital, we have decided to work on fundamental principles, present the problem to the medical body, and propose that it take definite action to work out an adequate solution. Of course most of the work can be left to a sub-committee.

The purpose then of this paper is to show the need, suggest a solution, and then offer some definite data for purposes of discussion. We shall divide the subject into two parts; first, Records; second, Statistics.
If one or two simple systems could be compiled and tried out in some of our hospitals in order to ascertain defects, and then one of these chosen to be finally perfected, this should adequately meet the needs of our hospitals. It may be necessary to have two systems; one, quite simple for our small one-man hospitals; the other, more comprehensive and capable of expansion for our larger hospitals.

But if such a system or systems are to be practicable we must first be assured of the hearty co-operation of all. Some must be willing to change their systems and this may mean increasing the budget on this item; but surely we cannot consider raising the general standards of our hospitals without including this most important phase.

As our contribution we have formulated some general principles and compiled a tentative set of blanks, for the sole purpose of bringing out definite discussion before this Conference. This ought to result in the definition, at least, of fundamental principles, leaving details to the special committee.

These principles are:

1.—That any system we adopt should provide forms for (a) temperature chart; (b) history and physical examination; (c) continuation (or progress) notes; (d) operation and anesthesia notes; (e) general laboratory reports; (f) general orders and bedside notes. In addition, specialized forms for obstetrical and gynecological cases may be made to substitute for the general forms. We shall not concern ourselves with other specialities in this paper.

2.—All the forms should be of a good standard size, such as 8½ ins. by 11 ins. Quality of paper and different colors for various services, etc., can be decided individually, depending upon tastes and resources.

3.—We suggest that both sides of all the charts be used, excepting the temperature chart. (This exception is made because of the danger of errors in charting.)

4.—That we record our data in English. We are aware that many will not agree on this point. If it is premature to suggest this, at least let us consider the point. Could we not make it possible by using more English-speaking student assistants? It surely would add greatly to the usefulness of our records. We should also agree on some good standard
system of romanization for our names, such as Wade's. This ensures accuracy and uniformity.

5.—That we keep permanently all our hospital and dispensary records and file by "Discharge number." (This is urged strongly by Dr. Kilgore.) The two methods proposed are: (a) the unit history system, in which each history is kept in a separate envelope and is always easily accessible; (b) binding serially by number, a cheaper but less flexible method. The former is being more and more used in the States. We emphasize the importance of filing by "Discharge number," for in this way we do not have to wait months or years for chronic cases to be discharged, and so can bind at once. The only disadvantage is that it will necessitate two sets of numbers: "Admission number," while in the hospital, and "Discharge number," but we can easily provide for this difficulty.

6.—That we card-index our hospital histories, using as a minimum two cards, one for "Name," filed alphabetically, the other for "Diagnosis." In addition, those who can use a card for "Complications" will make their material more valuable for future study. For surgical cases, indexing by "Region" is very desirable.

7.—That in addition to the cards a large office book be used in which can be entered the essential personal data as well as admission and discharge numbers. This will be useful for office reference and with it one can always find an unknown history, as we have "Name" and "Diagnosis" cards in the files. Dr. Kilgore offers for this purpose a double admission and discharge register, which we shall consider later on.

Let us now consider the number and form of sheets necessary to record the above data. For the smaller hospitals, the forms must be condensed. Just how much is the question. The larger hospitals ought to have one sheet for each of the groups of data. We have made out a set in this way, not attempting the great condensation. Thanks to Dr. Houghton we have been able to have lantern slides made of these and can see them at this time. Let us bear in mind that we are interested more in principles than in details. We have tried to go mid-way between the extremes of (a) leaving practically blank spaces to be filled in as desired, and (b) printing practically every possibility, so that all that is necessary is to underline or cross out, and add "plus" or "minus" signs. We believe a busy man saves time and does more scientific work if he has a certain number of reminders of what he is supposed to record. It is more expensive of course.
The forms we are submitting are as follows: *

1. — Temperature Chart (Chart I). This is a chart adapted from several, using the ruling of the Hadden chart, but omitting laboratory reports and marginal data. It uses both Fahrenheit and Centigrade scales, the former being given the preference because most of us still use it. When shall we be consistent and adopt the metric system in its entirety? The decimal lines should be lighter and the normal lines red. We recommend writing important medication and treatment in red ink across the face of the temperature chart.

2. — History and Examination Charts (Charts II and III). The first (Chart II) collects essential personal data at the top of the page, including also facts concerning stay in the hospital. Diagnosis and complications are to be filled in upon discharge. Past or subsequent admissions are important for reference. The rest is for "Patient's History and Present Illness." The reverse side (Chart III) is for "Physical Examination." It is the blank space type of form.

3. — Continuation Chart (Chart IV) is the blank for progress notes and any other purposes desired.

In the smallest hospitals, these three sheets may be all that are needed, entering on this last sheet, operation and anesthesia notes, laboratory and other findings, orders, and nurses' notes, etc. Dr. Hadden's suggestion of using different colored inks and enclosing in squares, etc., will add to ease in reading.

4. — Clinical Charts (V and VI). Chart V condenses on one side all common clinical examinations, including Wassermann and Widal tests, etc. The reverse side (Chart VI) is for Pathological and X-ray reports. If more space is needed for additional regular reports, another sheet can be used or it may be advisable to use the reverse for this purpose instead of for Pathology, etc.

5. — Surgical and Anesthesia Notes (Charts VII and VIII). All the face of Chart VII is to be filled in by the anesthetist, except the lower few lines. This space and the reverse of the sheet (Chart VIII) are to be filled in by the surgeon or his assistant. The last part must be left till the discharge examination.

6. — General Ward Sheet (Chart IX). This combines the Order Sheet and Bedside Notes Sheet in one. The doctor can write in his own orders in the appropriate column and the nurse can rewrite orders.

* In passing through Hankow on his way to Changsha, Dr. Crawford had the misfortune to lose all the charts upon which he had expended so many hours of painstaking labor. Some of them he has been able to reproduce in time for publication but not all. This explains the omission of charts referred to in the paper which do not appear here—Ed.
when given, if desired. To cancel orders, the date and the initials of
the doctor can be written in red ink under or through the order. Many
may prefer to use two separate sheets. The reverse is identical in
form and need not be shown.

The next three sheets are, like the last three, specialized sheets.
These if used can replace the general sheets shown above.

7.—Obstetrical History Sheet (Chart X) needs no comments.
It uses the more detailed form for collecting data.

8.—Labor, Puerperium and Baby Records (Charts XI and
XII). Chart XI condenses all the essential data of examinations and
delivery. The reverse (Chart XII) records data of Puerperium, Baby
Examination and Baby Daily Record (for 10 days)

9.—Gynecological Charts (Charts XIII and XIV). Chart XIII
is similar to the General History Sheet, but the lower half contains
space for details of gynecological history. The reverse (Chart XIV)
gives space for physical examination.*

We have not worked out forms for ophthalmology, genito-
urinary diseases, etc., as we have submitted enough to illustrate
principles. Let us have free discussion on such points as these: the
number of sheets as the minimum for our small up-country hospitals;
which form is the most practicable; what type they shall be, i.e., mostly
blank spaces or made to check off and underline; how the various
data shall be grouped, etc. Also bear in mind that we are not
considering the question of large specialized and teaching hospitals such
as those connected with our medical schools. All these points should
be worked out by a committee of specialists. We have also omitted
the various slips for orders, transfers, etc., as they are beyond the scope
of this paper.

Let us next consider the minimal needs for the record room.
We think two more cards are needed. One, the "Name" card
(Chart XV) to be filed alphabetically; the other, the "Diagnosis" card
(Chart XVI). The "D" preceding the numbers is used for "Discharge
Number." "A" to be used for "Admission." Dr. Kilgore advocates
prefixing the digits "1" and "2" for this purpose. His method may
be better.

In addition to these two cards, a set according to
"Complication" (Chart XVII) adds greatly to the value for making

*In reading this paper at the Conference we apparently failed to
make clear the point that we do not consider the above eight double sheets
as the minimum for the small hospital. The first two, plus the temperature
chart, may be all that are used, and surely all the data may be condensed
on fewer sheets. We are leaving this matter to the special committee.—A.S.C.
studies of disease. And for surgical cases cross-indexing according to "Region" involved is advisable if possible. These two sets, however, are not indispensable for small places.

For the hospital office, two forms are recommended. (1) The Hospital Patients Register Book (Chart XVIII). This enters essential personal and medical data and has space for the three sets of numbers: "Admission," "O. P. D.," and "Discharge." This is essential if we file records by the latter number. If more data than these are desired, the book can be made larger. (2) The bedside slip (Chart XIX). This is of paper made into pads and kept in the office. After being filled out, the slip goes with the patient to the ward where it is retained on the bed for identification. Upon discharge, the slip, after being filled out, is sent back to the office, where the discharge number is filled in. Here all these slips are retained till the end of the year. By sorting them in turn by the various data, one has an easy and rapid way of tabulating statistics. The method is so simple it can be done by Chinese assistants. These slips are discarded after all the data have been obtained.

As to the needs of the Out-Patient Department, we recommend using a separate card system of any standard size, such as 5 ins. by 8 ins. To distinguish between the various services, we can either use different colors, or colored stripes across the upper left-hand corner of white cards. The details of form can well be left to the special committee. We suggest using the face for history and physical findings, and the reverse side for treatment and medication.

These cards can be filed by "Name," alphabetically, according to services, without cross indexing. Of course filing by number and cross-indexing by "Name," "Diagnosis," etc., is desirable if possible, but not a necessity in small places. To make easy the collecting of statistics, we recommend entering the summary of each day's attendance in a large book, one page being devoted to a month's report. The items we recommend are: Return and Total Visits, under Medical, Surgical, Eye and other Specialities; Pay and Free Cases; Cash Receipts; Number of Prescriptions (?) Filled; Number of Patients referred to Hospital; Cost per Patient per Day. A better form can no doubt be worked out than this. To make up the diagnosis list for the Annual Report, an easy way would be to have a list of all the diseases, with spaces to mark in the number of new diagnoses of each day's clinic. The clerk ought to be able to do this every day, reading from the cards before they are filed away. This again assumes an English-speaking clerk.
Case Records and Annual Reports.

We have not taken up the items of small cards and slips, etc., to complete the Dispensary Record System, but advocate extreme simplicity. For some of us to be able to keep up such a system as this means an increase in the number and efficiency of our English-speaking Chinese staff. We all look forward to the time when we shall all have good internes. Until then temporary ways must be worked out. To indicate these is beyond the scope of this paper; but it does seem that if we put thought and patient effort into training some of the graduates of our mission schools, we shall have a class of Chinese that can well take from off our hands most, or at least much, of the clerical routine, and by preparing blanks of detailed questions made out in Chinese and English, they could take much or all of the histories in the wards and clinics. This may not be ideal, but it may be necessary. We shall hear more on this subject from Dr. Hadden when he reads his paper on Chinese assistants.

II.—Statistics.

Let us now consider the question of annual reports and methods of presenting statistics. There is at the present time considerable variation in the form and scope of our annual reports. Some report few or no detailed statistics of patients; others are models of completeness and attractiveness. We differ in the stress laid upon the different data reported, and there is a noticeable lack of uniformity in the matter of diagnosis lists and so forth.

Is it not time that we thoroughly discuss this matter and try to agree on the amount and kind of data reported, the system of nomenclature we should all adhere to, and the best forms for the arrangements of data, and similar points?

One of Dr. Kilgore’s papers deals with just this problem. At his request, we shall present some of his material, although it must needs be but a brief digest. He has prepared several tables to make graphic his suggestions. These we have enlarged and will show at this time. There will not be time for presenting any of the speaker’s material. The forms for tables he has prepared are on exhibit and will be turned over to the committee for consideration.

We have already mentioned his recommendation to use the “Discharge Number” to file and bind histories. So, logically, we should use it in reporting cases. The total cases actually discharged during a year means the number on whom treatment has been completed and whose diagnoses are final. We can then omit the items of “Number of patients in the hospital at the beginning and end of the year” and so forth.
The other general point is that of a system of classification. He thinks, as we do, that it should be left to the special committee, but suggests that the International List be seriously considered, perhaps with modification. We cannot discuss this matter at the present time, but will proceed to the consideration of the charts, etc., which Dr. Kilgore has prepared.*

Table I.—The 2nd entry (return case) is not to be included in the final tables. The column is put here only for comparative study. This table shows on one page the total gross statistics of the hospital.

Table II.—This is a diagnosis list for hospitals and O. P. D. arranged side by side. If there are enough foreigners treated, another column can be added. We feel that "secondary" as well as "primary" diagnoses should be counted, but not differentiated in the list. The totals can be put at the head of this list. Also, the percentage of one to the other. Age, Sex, Result of Treatment, and so forth, do not seem to us essential in this list.

It is important to devise a way to keep track of regular clinic patients who are later sent to the hospital; we must avoid counting them twice. Dr. Kilgore offers a good suggestion for this which we have worked out into a slip. These we call "Refer Slips"; they are made into a pad and hung on a wire hook in the clinic office. When a patient is to be referred to the hospital, the stub and slip are filled out. The latter is sent to the hospital office and kept there. The former is kept in the Clinic office till the end of the year. These slips will be an index of the number of patients referred and we can then know the percentage actually entering the hospital. The slips will also enable us to avoid counting diagnoses twice in the lists.

Table III.—Needs no comment. It is a good form.

Table IV.—Provides in a simple manner for the co-ordination of occupation with disease. This makes the data very much more valuable.

Form V.—Dr. Kilgore's Double Admission and Discharge Register card-file to take care of the double sets of numbers. We accomplish the same result by using the Hospital Patients Record Book. On the reverse side he has a summary of patients' statements (V., a).

Dr. Kilgore's papers and charts are all on exhibition. We regret we have not had time to draw the attention to them they deserve. Certainly he should be a member of any committee which is to work on Records and Statistics.

*These charts, etc., greatly enlarged were shown to the conference when Dr. Kilgore's paper was read; but it seems unnecessary to reproduce them here, as the paper with the charts will doubtless be published eventually by him.
We have prepared a rather extensive exhibit showing our proposed forms, all of Dr. Kilgore’s material, several of our best American Record systems, the complete system of twelve of our hospitals in China, large and small, and many Annual Reports to show the great variations in methods being used. Also some articles by prominent educators on this subject. We hope this will be used and will help to bring out definite suggestions on this problem.

To summarize: we believe that we are ready in our medical work in China to take a step ahead and to plan together common standards of increased efficiency. We must devise ways so that we may all be able to attain these standards. This applies to our Record Systems.

The first step must be taken by this Conference. The challenge is out to us to take it now. General principles can be formulated here, but most of the work ought to be left to a special committee which should have power to act for our whole medical body. Dr. Kilgore and the speaker are offering some definite suggestions and material. The committee working on the same problem in the States has assured us of their desire to assist in every way and are waiting with interest our decisions and plans.

We can formulate here general principles concerning size, form and number of blanks, methods of filing, indexing and preserving the histories, the nature and arrangement of statistical data to be put in our Annual Reports, and so forth. We must begin to work out the problem of training a proper corps of English-speaking Chinese assistants for our now inadequately staffed hospitals.

In conclusion, the speaker wishes to acknowledge the many helpful replies to the questionnaire sent out in November. He still wishes to hear from those who have not answered. He also desires to express his grateful appreciation to Dr. Lennox, Dr. Houghton, and Miss Barret for their untiring help and suggestions; to Dr. Baxter and Miss Brinkley, fresh from a study of the problem in the States, for their advice; and to Dr. Branch, Dr. Hadden, Miss Gage, Mr. Kendall and Mr. Hogg for help and suggestions. We are all grateful to Dr. Kilgore for giving us the results of his labors for the past few years. We also acknowledge the help we have received from scores of other systems and reports too numerous to mention.

It is also gratifying to be assured of the desire for cooperation on the part of the men who are working on this problem in the States. The desire is surely mutual.

Finally, it is our sincere hope that these words will help to bring conviction, which will result in action. Let us accept the
challenge and prove our greater effectiveness and power as we carry on, with broadening vision, our great task of bringing the highest type of Christian medicine to China."

**DISCUSSION.**

Dr. L. F. Heimburger (Weihsien).—Since coming to China and finding out the great need there is of good, reliable records, I have spent considerable time in attempting to revise the method of record-keeping in the hospital to which I have been assigned, so as to make our files more valuable for scientific study and thereby make the statistics which we publish more reliable. Records which are kept in a careless and unbusiness like manner are worse than no records at all and reports based on such records are misleading. After four years of such investigation we have finally worked out a system in many regards similar to the one just proposed by Dr. Crawford, which we think is suitable to our hospital.

Dr. Crawford has very admirably and painstakingly laid before us an excellent plan for the standardization of our methods of records and annual reports. There is no doubt that here in China a vast amount of valuable scientific knowledge and medical experience is going to waste because the busy missionary doctor has not the method whereby he can easily and accurately record his findings. As soon as we decide upon a plan of recording medical work which will be intelligible to the medical world as a whole, standardized to make comparative study easier, and systemized so as to relieve the overworked doctor of much of the simpler routine examinations and the recording of such, we shall approach the efficiency to which we all aspire.

I do not propose to take the various items mentioned in Dr. Crawford's paper and discuss each separately, but will confine myself to a few remarks on the essential conditions which will make this system acceptable to the majority of the hospitals in China.

We are agreed that in order to have a standard system these records must be applicable to all the conditions met with in the mission hospital, and some customs now in vogue in the hospitals must be changed so that the records can be applied. Uniformity in size, in quality of paper, and in the amount of printing to the page will lead to a minimum cost and an ease in ordering blanks.

In suggesting any scheme for unifying the methods of keeping and reporting records, the form which will be the foundation of all records and which will be most acceptable will be that which will insure the maximum efficiency in record keeping for the small or up-country hospital, where the burden of keeping these records will be taken from the over-worked foreign doctor and given to reliable native assistants, supervised, of course, by the doctor in charge.

With this in mind I come to the main criticism of Dr. Crawford's general principles as offered for adoption in the recording of our data. As to the fourth principle, Dr. Crawford suggests "that we record all our data in English, and romanize the names according to some good standard system such as Wade's." This may work in such large medical centres as Peking, Shanghai, Changsha, and other ports where English-speaking assistants are available, and where they can be procured by interior hospitals with large financial resources; but in most of the hospitals throughout China the financial stringency is so keenly felt that it is very difficult to make ends meet even by using the cheapest methods of management. The assistants, therefore, are generally those with the minimum amount of Chinese education necessary to be of assistance to the hospital. Inasmuch as the majority of the records in the greater number of the present mission hospitals in China must be kept by non-English speaking assistants...
II. HISTORY CHART

<table>
<thead>
<tr>
<th>Name</th>
<th>Attending Physician</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Address</th>
<th>Age</th>
<th>Sex</th>
<th>Race</th>
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<table>
<thead>
<tr>
<th>Occupation</th>
<th>Civil State (S.M.D.W.)</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Nativity</th>
<th>Religion</th>
<th>Date of Admission</th>
<th>Date of Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Outside Physician</th>
<th>Address</th>
<th>Relative or Friend</th>
<th>Address</th>
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<table>
<thead>
<tr>
<th>Admitted to</th>
<th>Transferred to</th>
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<table>
<thead>
<tr>
<th>Tentative Diagnosis</th>
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<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Diagnosis and Complications</th>
</tr>
</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Condition on Discharge</th>
<th>Discharge No.</th>
<th>Examined by Dr.</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Former or Subsequent Admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Adm. &amp; Disch.</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>History of Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family History</td>
</tr>
<tr>
<td>Past History</td>
</tr>
<tr>
<td>Present Illness:</td>
</tr>
<tr>
<td></td>
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<tr>
<td>Date</td>
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</table>
### IV. CONTINUATION CHART

<table>
<thead>
<tr>
<th>Name</th>
<th>Ward</th>
<th>Bed</th>
<th>Service</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

**Admission No.**

**Discharge No.**
V.—CLINICAL CHARTS.

<table>
<thead>
<tr>
<th>Admission No.</th>
<th>Ward</th>
<th>Bed</th>
<th>Service</th>
</tr>
</thead>
</table>

**Urine**

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount (cc)</th>
<th>Color</th>
<th>Reaction</th>
<th>Specific Gravity</th>
<th>Sediment</th>
<th>Albumin</th>
<th>Sugar</th>
<th>Acetone</th>
<th>Special Tests (albumin, bile, blood, etc.)</th>
<th>Microscopic Findings (casts: casts, cysts, etc.)</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

**Stomach Contents**

<table>
<thead>
<tr>
<th>Date</th>
<th>Kind of Test Meal</th>
<th>Amt. Recovered</th>
<th>Time After Meal</th>
<th>Character</th>
<th>Mucus</th>
<th>Blood (test)</th>
<th>Free Hel.</th>
<th>Total Hel.</th>
<th>Lactic Acid</th>
<th>Remarks</th>
<th>Examiner</th>
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</table>

**Stools**

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount</th>
<th>Consistency</th>
<th>Color</th>
<th>Mucus</th>
<th>Blood (Test)</th>
<th>For</th>
<th>Microscopic Characteristics (cysts, parasites, etc.)</th>
<th>Examiner</th>
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<tbody>
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</table>

**Sputum**

<table>
<thead>
<tr>
<th>Date</th>
<th>Consistency</th>
<th>Character</th>
<th>Elastin Tissue</th>
<th>Blood (Test)</th>
<th>Tubercle Bacilli</th>
<th>Other Micro-organisms</th>
<th>Remarks</th>
<th>Examiner</th>
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**Blood**

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</table>

**Fibrins (Abnormal Cells, etc.)**

**Special Reports**

<table>
<thead>
<tr>
<th>Date</th>
<th>Wassermann</th>
<th>Tuberculin</th>
<th>Widal</th>
<th>Blood Culture</th>
<th>Bacteriology</th>
<th>Examiner</th>
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<tbody>
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**Additional Reports**

<table>
<thead>
<tr>
<th>Date</th>
<th>Examiner</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Date</td>
<td>Pathology (Gross and Microscopical Material)</td>
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<td>--------------------------------------------</td>
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</tbody>
</table>

Clinical Diagnosis (before Autopsy).
Signed by Dr.

<table>
<thead>
<tr>
<th>Date</th>
<th>Autopsy Report</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Clinical Diagnosis (after Autopsy).
Signed by Dr.

<table>
<thead>
<tr>
<th>Date</th>
<th>X-Ray Report</th>
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</tbody>
</table>

Diagnosis.
### VII—SURGICAL AND ANESTHESIA NOTES.

<table>
<thead>
<tr>
<th>Admission No.</th>
<th>Discharge No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Name: ___________  
#### Lungs: ________  
#### Heart: ________  
#### Hemoglobin: ________  
#### Urine: Albumin: ________  
#### Casts: ________  
#### Sugar: ________  
#### Diagnosis: ________  
#### Operator: ________  
#### Assistants: ________  
#### Preliminary Medication: ________  
#### Anesthetic (kind): ________  
#### Amount used: ________  
#### Time started: ________  
#### Time stopped: ________  
#### Stimulants during Operation: ________  
#### Saline (Intravenous): ________ c.c.  
#### Blood Pressure: ________  
#### Arteriosclerosis: ________  
#### Condition during Operation: ________  
#### Vomiting, Cyanosis, etc.: ________  
#### Condition after Operation: ________  
#### Signed (Anesthetist): ________  

#### TIME 1 HOUR 2 HOURS

| TIME | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
|------|---|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|---|
| B.P. | 210 | 190 | | | | | | | | | | | | | | | | | | | | | | | | |
| Resp. | 200 | 180 | | | | | | | | | | | | | | | | | | | | | | | | |
| Pulse | 190 | 170 | | | | | | | | | | | | | | | | | | | | | | | | |
| 180 | 160 | | | | | | | | | | | | | | | | | | | | | | | | |
| 170 | 150 | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 | 140 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 130 | | | | | | | | | | | | | | | | | | | | | | | | |
| 140 | 120 | | | | | | | | | | | | | | | | | | | | | | | | |
| 130 | 110 | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 90 | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 80 | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 70 | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 50 | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 40 | | | | | | | | | | | | | | | | | | | | | | | | |

### SURGEON'S NOTES

#### Preliminary Diagnosis: ________  
#### Post-operative Diagnosis: ________  
#### Operation (in standard terminology): ________  

#### Remarks:    

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**VIII.—SURGEON'S NOTES.**

- Operation
- Preparation of Operative Field
- Primary, Clean or Infected
- Incision
- Description of Operation
- Drainage
- Room and Instrument Count
- Course of Wound
  - (a) Deep Sutures
  - (b) Skin Sutures
- Healing of Wound
  - (a) 1st Intention
  - (b) Granulation
  - (c) Abscess
  - (d) Hematomas
  - (e) Deep Sepsis
- Tissues Removed
- Condition of Wound on Discharge

Signed by Dr. ___________________________ Assistant.
### IX. GENERAL WARD CHART

<table>
<thead>
<tr>
<th>Name</th>
<th>Ward</th>
<th>Bed</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Hour</td>
<td>Temp</td>
<td>Puls</td>
</tr>
</tbody>
</table>

**Admission No.**

**Discharge No.**

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*DO NOT WRITE IN THIS SPACE*
### IX.—GENERAL WARD CHART—(Continued).

<table>
<thead>
<tr>
<th>Date</th>
<th>Hour</th>
<th>Temp.</th>
<th>Pulse</th>
<th>Resp.</th>
<th>Nourishment</th>
<th>Amount</th>
<th>Medication and Treatment</th>
<th>Urine</th>
<th>Stools</th>
<th>Notes:—</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td>e.g., Cond. of Mind, Sleep, Pain, Sweating, Cond. of Wound</td>
</tr>
</tbody>
</table>

**NOTES:**
- e.g., Cond. of Mind, Sleep, Pain, Sweating, Cond. of Wound
**X - OBSTETRICAL CHART.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Ward</th>
<th>Bed</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitton No.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Age</td>
<td>Color</td>
<td>Nativity</td>
</tr>
<tr>
<td>Visiting Physician or Surgeon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referred by</td>
<td>Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Pregnancy</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Expected Date of Confinement</td>
<td>19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HISTORY OF PREVIOUS PREGNANCIES**

<table>
<thead>
<tr>
<th>Abortions or Miscarriages (dates and period of development)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Still-Births (date of Maceration of Fetus)</td>
<td></td>
</tr>
<tr>
<td>Premature Labor (dates, etc.)</td>
<td></td>
</tr>
<tr>
<td>Other Pregnancies, Labors, etc. (dates and data)</td>
<td></td>
</tr>
</tbody>
</table>

| Menstruation began at yrs; occurs every days; lasts days; with pain | |
| Last Menstruation; Preceding period; Lasts days, more flow than usual | |
| Fetal Movements first felt 19 | |
| Present Pregnancy (toxic symptoms, hemorrhage, etc.) |      |

| Family History |      |
| Special Notes (serious illnesses, operations, etc.) |      |

**GENERAL PHYSICAL EXAMINATION**

<table>
<thead>
<tr>
<th>General Physical Examination</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyroid</td>
<td>Heart</td>
</tr>
<tr>
<td>Breast</td>
<td>Nipples</td>
</tr>
<tr>
<td>Liver</td>
<td>Bony frame</td>
</tr>
</tbody>
</table>

**ABDOMINAL EXAMINATION**

<table>
<thead>
<tr>
<th>Date</th>
<th>Height of Fundus</th>
<th>Position</th>
<th>Presentation</th>
<th>Fetal Heart Sounds</th>
</tr>
</thead>
</table>

**PELVIC MEASUREMENTS [METHOD]**

|--------------------|----------|---------|-----------|

**VAGINAL EXAMINATION (BEFORE LABOR)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Vulva</th>
<th>Perineum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vagina</td>
<td>Cervix</td>
<td>Exam. by Dr.</td>
</tr>
<tr>
<td>Other findings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Labour Record

**Admission No.**

<table>
<thead>
<tr>
<th>Name</th>
<th>WARD</th>
<th>BED</th>
<th>ATTENDING PHYSICIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Abdominal Exam.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Contraction Interval</th>
<th>Contraction Duration</th>
<th>Engagement</th>
<th>Fetal Heart Sounds Location</th>
<th>Fetal Heart Sounds Date</th>
<th>Remarks</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Rectal Examinations (During Labour)

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Cervical Dilation</th>
<th>Position</th>
<th>Presentation</th>
<th>Exam.</th>
<th>Date</th>
<th>Time</th>
<th>Cervical Dilation</th>
<th>Dilation</th>
<th>Presentation</th>
<th>Position</th>
<th>Exam.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Vaginal Examination (During Labour)

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Cervical Dilation</th>
<th>Presentation</th>
<th>Position</th>
<th>Membranes</th>
<th>Remarks</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pains began** m. 19. **Membranes rupt. Spont.** m. 16.

**Infant Male** born. **Placenta delivered** m. 19.

**Duration of labor** hours; 1st stage approx.; 2nd stage ; 3rd stage.

**Mechanism of 2nd stage**

**Mechanism of 3rd stage**

**Management of 2nd stage**

**Condition of child**

**Respiration:** spont. **artificially produced**

**Condition and weight of placenta**

**Perineum**

**Complications:**

**Interference**

**Medication during labour**

**Anesthesia:** kind , amount cc., result

**Condition of uterus, one hour post partem**

**Surgeon in charge** Assistant , Nurse in charge

**Special Notes:**

---

**Birth Certificate filled out by Dr.** Date.
XII.—PUERPERIUM AND BABY RECORDS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Ward</th>
<th>Bed</th>
</tr>
</thead>
</table>

Notes on Puerperium [Fundus, Lochia, Perineum, Breasts, Nipples, Treatment, and Remarks]

<table>
<thead>
<tr>
<th>Pelvic Condition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1st day</td>
</tr>
<tr>
<td>2nd day</td>
</tr>
<tr>
<td>3rd day</td>
</tr>
</tbody>
</table>

General Condition of Mother on Discharge:

Date of Discharge: , Discharged by Dr.

CHILD'S HISTORY

Time of Birth: , Sex: M. F., Condition at Birth

<table>
<thead>
<tr>
<th>Weight</th>
<th>gms.</th>
<th>Length</th>
<th>cm.</th>
</tr>
</thead>
</table>

Dressing on Cord

<table>
<thead>
<tr>
<th>Separation of Cord on th day</th>
<th>O.M.</th>
<th>S.O.B.</th>
<th>O.M.</th>
<th>S.O.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
<td>cm.</td>
</tr>
</tbody>
</table>

Icterus, amount on th day, on th day

<table>
<thead>
<tr>
<th>O.F.</th>
<th>cm.</th>
<th>B.P.</th>
<th>cm.</th>
</tr>
</thead>
</table>

Conjunctivitis

| 8.O.F. | cm. | B.T. | cm. |

Mode of Feeding

ANOMALIES

BABY'S RECORD

<table>
<thead>
<tr>
<th>Day of Life</th>
<th>Date</th>
<th>Hour</th>
<th>Temp.</th>
<th>Stools</th>
<th>No.</th>
<th>Character</th>
<th>Cord</th>
<th>Eyes</th>
<th>Source</th>
<th>Feeding</th>
<th>Amount</th>
<th>Interval</th>
<th>Weight (gms.)</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Condition at time of Discharge [gen., feedings, cicatrix, etc.], Discharged by Dr.
### XIII. GYNECOLOGICAL CHART

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Attending Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>[S.M.D.W.]</td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td>Religion</td>
<td></td>
</tr>
<tr>
<td>Referred by Dr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative or Friend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tentative Diagnosis</th>
<th>FORMER OR SUBSEQUENT ADMISSIONS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date of Adm. &amp; Disch.</th>
<th>Discharge No.</th>
<th>Diagnosis</th>
<th>Condition [C.I.U.I]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HISTORY OF PATIENT</th>
</tr>
</thead>
</table>

- No. of Yrs. married | No. of Pregnancies | Normal | Abnormal |

<table>
<thead>
<tr>
<th>History of Pregnancies</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Menstrual History: age of onset</th>
<th>interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>flow</td>
</tr>
<tr>
<td>Intermenstrual bleeding?</td>
<td>character</td>
</tr>
<tr>
<td>Leucorrhrea?</td>
<td>amount</td>
</tr>
<tr>
<td>Last period from</td>
<td>to</td>
</tr>
<tr>
<td>Preceding period, from</td>
<td>to</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous Diseases, Treatments, or Operations:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Present Illness:</th>
</tr>
</thead>
</table>

---
### XIV.—PHYSICAL EXAMINATION (Gynecological).

Physical Examination:

- General Appearance:

- Head, (eyes, nose, throat, teeth, etc.)

- Chest:
  - Breasts, etc.
  - Heart
  - Lungs

Abdominal Examination:

Gynecic Examination:

- Vaginal Outlet
- Cervix
- Uterus
- Rt. Adnexa
- L. Adnexa

Pelvic Examination:

- Pelvic Diagnosis:

- Treatment or Operation

- Discharge Notes on:
  - Wound
  - Pelvis

- General Condition of Patient

- Treatment Advised

Signed by Dr.
Case Records and Annual Reports.

assistants, the blanks for such standard records as are here proposed must be intelligible to those who are going to take the records, and therefore must be printed in the Chinese character.

If we uphold the principle suggested in Dr. Crawford's sixth recommendation, viz., "that we try to devise a means to add to the number and efficiency of our staff of Chinese assistants, thus giving the busy doctor more time for the care of patients and keeping more complete records," we must relieve him of routine history taking, physical examinations, laboratory examinations, and the recording of such, and this cannot be done by having all records kept in English.

I therefore recommend either of two changes in article four of Dr. Crawford's general principles:

1. That the records be kept in either English or Chinese, the blanks for such records being bilingual.

2. That two sets of blanks be prepared, one in English the other in Chinese, the Chinese being an exact translation of the English, either set to be used at the discretion of the hospital concerned.

In either method of keeping the records we are assuming that the foreign doctor has a fair knowledge of medical Chinese, can read through the records of those cases which he wishes to report; also that the interns who do not read English and the native doctors who wish enlightenment on certain cases can readily find the knowledge for which they seek without hunting up the foreign doctor to translate. In the larger hospitals which can afford to have English speaking assistants, the same blanks or similar blanks can be used and all data written in the English language.

The cost of printing these blanks would be increased very little if the bilingual system was used; the printing in the Chinese character alone would not be any more expensive than printing in the English alone.

Apart from the few points criticised, the principles presented by Dr. Crawford are excellent and we shall be doing well if we agree to the adoption of some such system as he advocates.

Annual reports should be made out in English and, if so desired, Chinese translations of these can be made for circulation among our Chinese friends. For simplification in compiling these reports other blanks may be used which can be prepared by each individual hospital, but we should all adhere to a uniform method of presenting the statistics as suggested by Dr. Crawford.

I also support Dr. Crawford in his suggestion that a special committee be appointed by the Conference to work out one, good, efficient system of case records and methods of reporting statistics in our annual reports. This committee might first submit its system to every hospital in China for criticism. Then after a revision has been made in the light of these criticisms the completed plan could be placed in the hands of the Executive Committee for acceptance.

Dr. R. H. Stevenson (Luchowfu)—I believe that the right attitude toward records, if assumed at the start, will at once eliminate many of the obstacles that we feel are opposed to their universal use. Records, if we only knew it, help rather than hinder our work. If they are the right kind they will make our work easier, not harder. Not only the continuity of our own work but its usefulness to others depends upon the records that we keep. A short time of real serious attention to our records will prove that our work is made easier and more profitable by them.

Dr. W. B. Russell (Changchow)—For the hospital with a small staff I think that all charts and records should be made as simple as possible, both in the out-clinic and in the in-patient department, and that such charts and records should always be kept as a guarantee that each one of our patients gets the best we are capable of giving him. In our work in the Changchow General Hospital we have in our record forms little that is original; but in all departments we try to keep such records that are flexible enough for all cases and yet lead to the efficient handling of our patients by our limited staff. We file our out-patient records by clinic classes in packs of one hundred, and the Chinese registrar finds them by number, as he is able to write foreign numbers. Even if the patient has lost his registration ticket the record is
usually quickly found by name and approximate date of first visit. We have never used the discharge number recommended by Drs. Kilgore and Crawford, but we think we shall try it when we return to our work. As superintendent we take a short summary of the charts of all our in-patients and file them as well as our charts, so that they may be had in case the patient returns for treatment.

Dr. C. A. Hayes (Canton).—Dr. Crawford has suggested a splendid system for keeping the records of patients. As part of that system he has suggested special obstetrical, surgical and medical charts, but no special charts are provided for patients with eye, ear, nose and throat diseases. There should be a special chart for patients in this department which should also have spaces arranged on it for recording examinations of blood, faces, and urine. These examinations should be a routine part of the examination of this class of patients; if not performed, the patients may leave hospital without a full diagnosis having been made of the disease and without it being treated as it should be.

Regarding transfer slips, there should also be transfer slips from one department of the dispensary to another in hospitals where the work is divided into departments.

Dr. F. W. Goddard (Shaohingfu).—Hospital record blanks should be so made as to minimize the waste of paper by unfilled spaces, margins, etc. The sheets should be large enough to contain the necessary data, but small enough to be easily handled. The records should also be so made as to avoid duplication of entries as far as possible.

In the Christian Hospital, Shaohing, a sheet, 4-ins. by 6-ins., has been adopted; the temperature chart is made without margins; the admission card contains all the usual data required for compiling statistical records, and at the end of the year is filed in the name-card index, serving at the same time as a cross index to the diagnosis file; the hospital number and main diagnosis are written on the history card in such a position that the whole case record can be held together in an envelope or by a clip. This is filed under the diagnosis, thus obviating the use of an index card.

Dr. W. S. New (Peking).—I believe the unit system of filing, which I understand Dr. Crawford advocates, is impracticable, because the histories are so apt to get lost. For instance, I have at the present time in my room a history belonging to another hospital here in Peking. Because it was filed by the unit system I was able to take it out. Some day it may get lost, and this is the difficulty with all unit system filing. I think the only proper way to file histories is by having them bound according to either the discharge number or the admission number.

Having a separate operation sheet is also very inconvenient. This system is being used at the Massachusetts General Hospital, and when I was there every time I had to look up the cause for a rise of temperature, or anything else in relation to an operation, instead of turning to the proper dates I had to refer to the operating sheet first and then go back to the regular history. It seems to me that one can dispense with this operation sheet by simply having the operations written in red ink on the regular history sheet under the consecutive dates, so that they can be seen readily without difficulty.

Dr. Crawford also mentioned having history sheets printed so that a certain space is devoted to the complaint, another space to family history, present illness, etc. This is bad for the internes because we want to train them to take histories on their own initiative; they should be encouraged to think of every possibility while they are taking the histories, and not be limited to a certain space. These printed columns may be all right for up-country hospitals where the internes or clerical help is limited, but it will certainly be disadvantageous for a large teaching hospital to use them.

In regard to out-patient histories, Dr. Crawford mentioned filing histories alphabetically. From my own practical experience in handling 40,000 records in the out-patient department of the Peking Union Medical College Hospital, I think this method of filing is extremely inefficient. We used to
file all our histories alphabetically, and I discovered that it took four minutes, on the average, to find any one particular history. I made a study of this problem and ascertained that in six months time there were 847 persons by the name of Wang out of a total number of 5,000 patients. You can therefore readily see how many histories under the name of Wang you would have to go through in ten or twenty years' time to find a particular case. The only way of filing out-patient histories is by numerical order. This is the system that I use in the out-patient department of the Peking Union Medical College Hospital. The first two digits stand for the year: for instance, 1918 histories all begin with 18. The third figure is the real number of the history. For example, the 1918 histories will be 181, 182, etc. up to 189, and then the next number is 1810 instead of 190. In other words, the first two digits always remain constant for that year, the real number for the history beginning with the third digit. By this method of filing I can locate any history within fifteen seconds instead of taking four minutes. However, if one adopts the numerical filing system in the out-patient department, he must at the same time have a cross-index which contains only the name and the number of the history. Then if the patient should lose his identification number, it can easily be found by referring to the cross-index for his name. For all indexing and filing, I suggest that typewriting be used. However carefully one may write, his writing will never be as neat and as legible as typewriting.

Dr. Crawford mentioned Dr. Kilgore's scheme for using double slips for patients that are referred from the out-patient department to the wards, such slips to be kept on file for a year, so that at the end of the year we may know how many patients are referred to the hospital but never enter it. This is a very cumbersome way. The slips are apt to be lost, and in the mass they are apt to be quite bulky. In our out-patient department I have simply used a book ruled off in different columns: one for the name of the patient, another for the date that he is referred to the hospital, a third for the date he is admitted into the hospital, and a column for the date when he is discharged from the hospital. When a patient is referred to the hospital the out-patient clerk writes down his name and out-patient history number. When the patient enters the hospital, the hospital clerk notifies the out-patient clerk the next day that the patient has been admitted, and the out-patient clerk simply stamps under the second column the date of his admission. When the patient is discharged from the hospital, the hospital record clerk notifies the out-patient record clerk and the latter stamps the date under the column relating to the patient's discharge. At the end of the year it can easily be counted how many spaces are left vacant that should have been filled if the patients had entered the hospital. I think this is a much simpler and more logical way.

A PURCHASING AGENCY FOR HOSPITALS IN CHINA.

ROBERT C. BEEBE, M.D., Shanghai.

In the consideration of a purchasing agency for mission and other hospitals in China the utility of such an agency must be determined largely on economic grounds; and the economic phase has to do not only with the prices of the commodities bought, but also with several other features such as the quality of the goods, the competence of the agency to meet requirements, its convenience and general efficiency. What can be gained in utility must be considered, not simply the money that can be saved.
There are in China at the present time, distributed over a very wide area, 317 mission hospitals, 229 dispensaries, and 29 hospitals soon to be built. Now it is reasonable to suppose that if all the medical and surgical supplies for these hospitals, or a large proportion of them, could be purchased through one agency, there would be a great advantage in securing the best terms; and, by thus combining and co-operating, expense could be lessened and a general experience gained that might be of great value to all the hospitals interested.

The supplies purchased abroad by these hospitals reach them through three ports: Hongkong, Shanghai, and Tientsin. Eighty hospitals are supplied through Hongkong, 188 through Shanghai, and 45 through Tientsin. Many of the supplies for the 45 hospitals shipped through Tientsin might possibly be sent through Shanghai at very little or no increased expense.

The expense and convenience of shipping is an important matter for consideration as the port of entry may determine the character and extent of a hospital's single order. The facts given here seem to point to Shanghai as the place to locate the purchasing agency.

Unless it should be found that re-shipping from Shanghai would not greatly increase the cost of an order, hospitals in the interior from Hongkong, if they made use of the agency, would have need to make up their orders in quantities that could be supplied in original packages, be shipped direct from the first source of supply, and sent in bulk sufficient to make a profitable shipment, i.e., not less than one ton cubic measurement. This may also be true of the hospitals in the interior from Tientsin. It is a problem that would have to be worked out through experience. It would seem, however, that all hospitals wherever situated would find it profitable to buy in original packages i.e., in packages containing a certain quantity and put up by the employes of the firm which first sells the articles. Ability to do this is possible to nearly every hospital in the case of most of its supplies.

I suppose that every hospital has its budget and it is known in a general way how much money will be available for its year's supplies. Some hospitals keep a record of the quantity of each article used in a year. If this is not done by any hospital the practice should be commenced. By referring to past records a knowledge of the coming year's needs can be approximated with fair accuracy and such a proportion ordered as funds in hands will allow.

With most mission hospitals the funds come in during the year with more or less regularity, but very few hospitals have any surplus or accumulated capital. To buy to the best advantage cash payments
should be made. As this cannot be done by all it will be necessary that the purchasing agency should have some capital of its own, and a certain percentage will have to be added in such a case to orders for overhead charges to cover the use of this capital. Any hospital that can pay for its order when purchased could be relieved of this charge. The undertaking of such an enterprise would present the same problem as any ordinary business venture. A certain amount of capital would be needed for its inception, and behind the enterprise there should be a responsible body prepared to assume all risks. Should the agency prove a success this initial capital could be retired and only enough retained in the business to meet cash payments for hospitals unable to pay for their orders in advance.

It very frequently happens that owing to an emergency, or to failure to forecast needs, an article is needed in a short time. If an attempt is to be made to meet such contingencies, the expense of the agency will be materially increased, as a certain amount of capital will have to be kept invested in the stock, an allowance must be made for deterioration and loss, more space will be needed for the business, as well as a larger staff of employés. Ordinary prudence would indicate that this department should be deferred until experience had demonstrated the general success of the agency and has shown what stock can be profitably carried. This latter feature would require a man of some experience and special training to look after the details of the business.

No accurate figures are available to show how much is expended each year by the mission hospitals in China in the purchase of supplies. Certain facts are known from which an estimate may be made, but in doing this there may be a wide difference of opinion. For the purpose of this paper we are considering only medical and surgical supplies, not such expenses as those required for bedsteads or other articles of permanent equipment, nor for fuel, food, or petty local expenditures. Computing an estimate of the cost to a hospital of its medical and surgical supplies based on the latest statistics, and estimating that each hospital will expend $500.00 a year in supplies and each dispensary $100.00, there will be a total expenditure of $195,000.00 or about $200,000.00.

A purchasing agent, with experience in buying for a large business enterprise in China, has given me the following estimate of expenses of this purchasing agency.

Premises:—
Office, 2 rooms.
Godown, 2,500 square feet.
Wages of Staff:—

<table>
<thead>
<tr>
<th>Position</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager, say</td>
<td>$500.00</td>
</tr>
<tr>
<td>Book-keeper</td>
<td>250.00</td>
</tr>
<tr>
<td>Stenographer and file clerk</td>
<td>200.00</td>
</tr>
<tr>
<td>Outside man, customs and shipping</td>
<td>75.00</td>
</tr>
<tr>
<td>Shipping clerk</td>
<td>35.00</td>
</tr>
<tr>
<td>Packer</td>
<td>17.00</td>
</tr>
<tr>
<td>Packer’s assistants, 2 at $12</td>
<td>24.00</td>
</tr>
<tr>
<td>Office coolie</td>
<td>10.00</td>
</tr>
<tr>
<td>Office boy</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Total monthly wages = $1,121.00

Office Expenses:—

<table>
<thead>
<tr>
<th>Expense</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent of office</td>
<td>$100.00</td>
</tr>
<tr>
<td>Godown</td>
<td>100.00</td>
</tr>
<tr>
<td>Light and heat</td>
<td>20.00</td>
</tr>
<tr>
<td>Telephone</td>
<td>15.00</td>
</tr>
<tr>
<td>Taxes</td>
<td>30.00</td>
</tr>
<tr>
<td>Postage</td>
<td>10.00</td>
</tr>
<tr>
<td>Stationery</td>
<td>25.00</td>
</tr>
<tr>
<td>Contingencies</td>
<td>75.00</td>
</tr>
</tbody>
</table>

Total office expenses = $375.00

Office Equipment:—

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk and chairs</td>
<td>$250.00</td>
</tr>
<tr>
<td>Account books, etc.</td>
<td>75.00</td>
</tr>
<tr>
<td>Stationery</td>
<td>100.00</td>
</tr>
<tr>
<td>Safe</td>
<td>200.00</td>
</tr>
<tr>
<td>Typewriter</td>
<td>150.00</td>
</tr>
</tbody>
</table>

Total office equipment = $775.00

Summary of Expenses per Annum:—

- Staff, per mensem, $1,212.00 x 12 = $13,452.00
- Expenses, per mensem, $375.00 x 12 = 4,500.00

Total expenses per annum = $17,952.00

The figures given to indicate expenditures by hospitals and dispensaries will be considered too high by some doctors and by others too low, but the result may be considered a very safe estimate of the average, and probably is less than the actual amount expended.

In the foregoing statement there was included a capital estimate of $125,000.00, and 5 per cent. for interest on this sum should be added to the yearly budget. Inasmuch as we are considering the needs of mission hospitals and the probability that arrangements could be made...
through the various missionary societies for cash payments, I have omitted the consideration of capital requirements from the sum total of yearly expenditure required. To cover this expense it would require a profit of 9 per cent. on the estimated amount of purchases; this is too large a sum to be added to that amount, but could the turnover be made to reach, say $400,000.00, a profit of 5 per cent. would cover all expenses. In the beginning a start might be made with somewhat less expense; but if such an agency is to meet the needs of the hospitals efficiently, which would include promptness, economy, a minimum of trouble and the giving of general satisfaction, it is difficult to see how the estimates can be reduced. However, it is quite probable that should such an agency include purchasing for other mission institutions and mission families, the turnover for a year would easily reach $400,000.00, or even a much larger sum. So it may be safely estimated that if 5 per cent. be allowed to the agency its expenses could be met and it could save to its patrons from 10 per cent. to 15 per cent. on all purchases made.

It might be well to consider whether it would be better to conduct co-operative purchasing through the establishment of an independent agency, or through a reputable, well-established business house having experience and equipment and with wide business connections in England and America. Should the volume of trade of the purchasing agency prove large enough such a house might profitably add it to their activities, thus very materially reducing the overhead charges of their business, and do it at as small a percentage of profit to itself as would be necessary to cover the expense of an independent agency. This would be a matter for investigation and careful consideration.

In either case the matter of co-operative purchasing seems worthy of investigation, and it might be well for the present conference to refer the matter to the executive committee of the C.M.M.A., for a survey of possibilities with power to act without involving the association in any financial responsibility. In such a survey might be included an investigation as to whether any plan can be devised for standardizing hospital supplies by comparison of reports, etc., so that the relative value of supplies can be determined, etc. This is a feature that might be developed after the financial success of the enterprise has been assured.

Perhaps the most difficult feature of the undertaking under qualifications to conduct the agency. The project requires a man with consideration would be to secure a person with the requisite business experience, tact, and business ability of a high order. Such a man,
provided with the necessary capital, might extend his buying activities so as to meet all the needs of missionary institutions and families, and thus build up a business of no mean dimensions and importance. But the enterprise is not one to be commenced without the most careful consideration, as a serious mistake at the beginning, such as the selection of an incompetent manager, might be sufficient to wreck it completely.
THE PROBLEMS OF OUR MISSION HOSPITALS.
(A Review of Previous Papers and Discussions)

HENRY FOWLER, L.R.C.P.S., Siaokan.

"The physician is the flower (such as it is) of our civilization: and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race." So writes our Louis Stevenson.

This conference which has for its main topic "the ever-pressing problems of the doctor-missionary in his efforts to make his hospital work ten parts efficient," at least shows that we ourselves are "in the making," that the things about us are yet in a state of evolution, and that the maladies of the people continue to demand the presence and services of the physician and surgeon.

As to our virtues, if Stevenson's views are to be relied upon, these are apparently to obtain recognition later. Meantime, we shall be in the sure line of tradition if we do not here unduly "cry our own wares," nor from a wrong sense of modesty fail to glory in the heights of our calling.

Most of us on our entrance upon the thorny paths of medicine, as we got into intelligent grip with ourselves and our surroundings, doubtless felt with the author of "Confessio Medici" that there is one substance above all else in nature, the texture, Man, infinitely complex, infinitely precious. "We touch heaven," we are told, "when we lay our hands on the human body." What higher calling we thought could there be than endeavouring to make that body whole.

Time has brought us into closer contact with this complex thing and we have known the agonies of suspense as we have dosed it and operated upon it. Our successes we have felt might belong to anybody, but our unsuccessful results have belonged specially to ourselves. Maybe through the years we have found ourselves admitting that this after all is the saving grace of our profession; it certainly would not be out of place to regard it as the "discipline of practice."

To be quite frank, we are all at times under such discipline; it is the sense of it probably which brings us together on such occasions as this. Not our successes, so much as the consciousness of imperfect
work and serious limitations causes us in many cases to travel long distances, that in council we may honestly face our difficulties, and endeavour to find solutions to our problems.

Quite a range of subjects bearing on the work of our hospitals have been considered at the previous sessions of this conference. They will have provoked thought and given rise to much discussion. How can we adjust ourselves and our resources so as to best house the patient, feed and clothe him, care for him, and send him back to his friends whole in body and soul. All these points and others have of late years been claiming our attention and an adequate answer to them will justify this conference.

Dr. Snell's paper calls to mind an oft-quoted remark of a celebrated physician: "Great hospitals," he said, "are something more than blocks of buildings where patients are doctored and students taught." "There is," he claimed, "the spirit of the place; the 'genius loci' is really there."

In these rapidly changing times with open doors everywhere inviting entrance, and with a newer and more scientific conception of hospital methods and practice before us, it is increasingly necessary that we bring to them our best gifts of heart and mind, and watch with increasing diligence that our places of healing never become mere machines. "Sickness," as Lucretius says of impending death, "shows us things as they are; the mask is torn off, the facts remain." That is the spiritual method of the hospital; it makes use of sickness to show us things as they are. Here are the two factors it seems to us acting and reacting on each other, which should determine our approach to the problems of the teaching hospital, the base or city hospital, and indeed to all our problems.

It is well to remind ourselves again of the origin of the typical mission hospital established before, or at the beginning of, the present century; of the devoted God-fearing physician "loving his work," as Dr. Snell has said, "for the satisfaction received in healing the suffering." Under the impulse of "the mighty ordination of the pierced hands," he begins seeing patients maybe in modest surroundings, often in ill-adapted Chinese buildings. In course of time the suspicion and opposition of his immediate neighbourhood are broken down, his name as a successful operator spreads far and wide, he begins to be trusted as no other foreigner or native is trusted, and he demonstrates that "if a doctor's life is not a divine vocation, then no life is a vocation, and nothing is divine."

But success may be its own undoing, and although with profound thankfulness he sees the sick gathering daily at the place of healing there necessarily comes a time when conscience is troubled.
With great heart-searching he asks himself the question, "Is the best possible in healing and religious instruction being brought to these crowds of patients?" Under such circumstances a situation generally arises demanding wise and sympathetic application of drastic remedies. What are the usual results of such an awakening? Too often, alas! these are quite inadequate to meet the case and are limited to repeated appeals to the Home Board for increased appropriations and for additions to staff. Sometimes this disturbs the balance of the various mission activities of the centre, and much debating on local and other Boards has to be endured. In the end, unless a wealthy commoner in the homeland identifies himself with the project, a compromise is struck and help of a limited nature is given.

Visits and enquiries at over fifty hospitals and institutions in the Far East have often revealed just such a condition of things as is here presented. We have gone on our way, sometimes sorely troubled in mind as to how on the one hand, to suggest remedies to meet the ever growing demands of the sick; and on the other, how to unravel the tangled web of cares which seems to oppress the overwrought physician.

Some six years ago, Dr. James L. Maxwell drew attention to the prevailing conditions in the following terms: "We are not giving," he said, "our best to the service of Christ, and we should be laughed out of court anywhere but in a heathen land, where something very far from the best is still infinitely better than the natives possess."

At the time we were inclined to dispute the gravity of the situation. To-day, with the results of Dr. Balme's paper and questionnaire before us, what can we say but that a case for adjustment at least has been made out? The members of the Committee responsible for these meetings were evidently burdened with the present outlook, for they suggest to us "that in view of expanding work with a diminished staff of workers we must appraise it with fresh eyes, must concentrate, energise, and have constructive suggestions for a way up and out." Naturally also our Boards in the West and our colleagues on the field will look to us for guidance how best to meet the present situation and whether, and in what way, new fields of service shall be entered upon. In seeking to reciprocate their good intentions it seems to us that we are bound here and now to come to some definite conclusions as to our aims and desires.

Probably it will help us greatly if we can focus our attention on certain points which seem obvious, and which can be dealt with in logical sequence.
1.—In no profession or calling have greater discoveries in recent years been made than in that of medicine and surgery. It behoves us therefore in our fight with disease and injuries to invoke the aid of them all.

2.—That a superficial grasp of facts and an ignorance of our ways are no longer excusable. We must with skill, energy, foresight, thoroughness and knowledge decide on what our next course shall be and boldly enter upon it.

3.—That medical work having entered upon a new stage of its development, it is clear that what sufficed in the past will not be justifiable to-day. Whether looked at therefore from a purely humanitarian or philanthropic point of view, or by the missionary statesman from the Christian propaganda standpoint, it will be necessary to recognise that this is by no means an inexpensive branch of service and must, if undertaken, be adequately supported.

4.—That in seeking to bring its best to China the Christian Church cannot hope to provide for all the ills of the people. Such a task and responsibility must finally rest with the nation itself.

5.—That meantime, while the West must meet the East with renewed spiritual and moral forces, and assist it with model institutions of healing and teaching, as far and as soon as possible, the burden of maintenance of the longer established hospitals at the treaty ports and other flourishing cities should be borne locally, thus relieving funds for meeting the obligations in the interior.

The committee has wisely suggested that the character of this communication, closing the symposium, shall be more constructive than controversial. It has even been urged that it should act as a kind of healing lotion on two days of close debate. Let it therefore be distinctly understood that in introducing the aforesaid first two clauses, not the slightest intention exists of discrediting or reflecting on the faithful labours, often heroic, of the pioneers of medical mission enterprise in China. Those who have reached their field of service in recent years little know the rich inheritance into which they enter nor the toil and sacrifices of those who preceded them. It will be profitable for us to reflect at every stage of our career that the secret of progress is a noble discontent, and that dissatisfaction with past achievement marks the path of every true scientist. Things worth while often seem impossible, but the impossible of to-day, by the providence of God, may be the accomplishment of to-morrow. "The wise man, like a great mountain, refuses no clay or soil." Every bit of knowledge is made use of in the building up of his life-work.
A feature of modern times is the opportunities which now exist for acquiring the technique of the latest lines of treatment. Postgraduate courses are to be had both in Great Britain and in the United States. Twenty years ago these courses were almost unheard of. Of recent text books also there seem no end. The Boards at home should again be urged to make it possible for its medical missionaries when on furlough to fit themselves for further periods of service by attendance at such courses.

In connection with actual medical work in the Far East, one of the most surprising events of the past decade has been the great uplift which has come to it through the projected activities of the China Medical Board. Some claim indeed that it has been the direct cause of much of the present concern as to the standardization of our Mission hospitals. Whether this is so or not, undoubtedly in coming days it will set a high standard of scientific work which none of us can ignore. President Vincent gave unbounded cause for rejoicing when last summer he announced the intention of the Board with regard to the contemplated plans for post-graduate courses each season in Peking for medical missionaries and others. It is to be hoped that this Conference will make some pronouncement with respect to its appreciation of such generous offers. Possibly we shall best show our thanks by arranging to attend the courses in large numbers. Rule-of-thumb work, which in the presence of so much sickness is hard to resist, will, in the light of modern methods to be observed here, be found an injustice both to ourselves and those whom we try to aid. We should endeavour to find other ways of bringing help to the vast neglected crowds which, whether mute or articulate, appeal to us continually. How this may be done, in part at least, we may now consider.

No one with intimate knowledge of the results of the China Continuation Committee's China Survey can doubt that the Christian Church has but just touched the fringe of the vast unevangelised masses of the country. For the most part mission centres are confined to the provinces next the sea, and along the great water-ways and rail-heads of the country. Beyond these are vast districts seething with people who so far have never been brought into contact with the outside world, much less with Western ideas of healing. The city life of any nation always presents problems to thinking people, but here in China they are intensified beyond words. Nor is there any relief whatsoever, when the crowded country districts of these vast provinces are considered; rather the problem becomes overwhelming. So extensive is the country and so profound the ignorance and consequent distress, that it seems well nigh impossible that any agency from the West can hope at this juncture successfully to bring relief to the
whole. It is wise therefore that, with the adequate maps to be supplied by the Survey Committee of the China Continuation Committee, we again consider our aims and what plans can be suggested to meet the situation.

Dr. Balme’s paper shows a remarkable state of affairs. Within comparative recent times he finds that nearly five million Mexican dollars have been invested in hospital buildings and equipment, and a further sum of nearly six millions is asked for in order to meet the immediate needs.

Now although Dr. Snell rightly reminds us that the very best in modern discovery is still not good enough to represent our Great Healing Master, we must confess to great anxiety as to how, and where, such a large sum of money and so many highly trained workers are to be used.

Many have urged that we halt, take advantage of a generous and awakened America and Canada, and secure for our present work the funds needed for concentration and development along modern lines. But is there not a danger, a grave danger, of sinking too much capital and of stationing too many medical workers in fields already supplied with institutions and workers?

There is this further point to consider. We shall agree that so long as funds are derived directly from mission sources, so long are we bound to work as a balanced instrument. It would be impossible, and altogether undesirable, to divorce our medical activities from educational and evangelistic work and actual Church planting. With the findings of the China Survey before them, it is not unreasonable to believe that the Boards will demand the consideration of a balance being established between the different branches of mission work. It is, moreover, unthinkable that the question of concentration will be attractive to missionary statesmen. It seems very clear that we shall have to take the long view, as well as the near one, and prepare forthwith to march alongside our colleagues in other branches of service. Some of us, maybe, would go ahead of them! In our early days it may have satisfied us to sing, “You in your small corner and I in mine,” but corners do not content the adult; they suggest boxing in, contraction, and undevelopment.

Would it not be advisable therefore at this stage to think a little of the unexplored country beyond, and adopting a kind of military nomenclature and practice, make a steady march forward into the land of the enemy? Besides raising the standard of our well established institutions, could we not carefully plan and commend to our home organizations, the medical school with its teaching hospital, the base hospital, the field hospitals, and beyond them, the mobile work at the
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actual fighting line? As new railways develop and fresh trade routes cross and criss-cross the country, surely we should be alive to enter in and take possession in the name of the Lord! In connection with our Association an Intelligence Department seems called for in order that national development may be taken advantage of, and plans formulated for dealing with new conditions.

Curiously enough, as a remedy for the present state of affairs intensive work is demanded by not a few. We venture to suggest that it may have even greater dangers than ill-directed wide-spread work. Intensive work, in missions at any rate, is complementary to extensive work. Intensive work fails in its object if it remains such. It must in mission work only be a temporary stage to wider issues. "The unfinished task" is the insistent call for every missionary.

Dr. Snell has made a proposal in connection with the base hospital which will claim the attention of the Conference. Whether it is advisable to divide up the classes of in-patients as he suggests, and to make such a difference in cost and method of treatment, is certainly debatable. It is further questionable if even a union missionary hospital is justified in spending so much money per bed in intensive work, as he urges.

One thing is quite certain. Few who have seen the fields beyond would be prepared to vote outright for such an expenditure of mission funds. What is probably the best policy at the moment is to urge that a kind of clearing house be established, either in connection with our Association, or through the China Continuation Committee. Here the experiences of our members could be gathered, classified, and comparisons be carefully made, all preparatory to future proposals by the Executive, or any other body appointed for the purpose. This Conference however might at this stage consider the ideal staffing of the base hospital. It will help the consideration of other types of hospitals.

The best proposals we have so far seen are those made by Dr. James Maxwell. He regards the following as an adequate staff: (1) physician; (2) surgeon; (3) a man to undertake the surgery of the special senses, and maybe take up gynaecology; (4) a pathologist; (5) two foreign nurses; (6) a business man. Presumably, such a staff with Chinese internes, could easily care for 120 inmates.

This method of staffing introduces a system of specialization, a term much under discussion these days and one we think which is greatly misunderstood. To our mind, a true specialist, whether he be physician or surgeon, is one who, with a wide knowledge of all, has paid special attention to some particular branch or branches of medicine or surgery. Should he direct his thoughts, however, exclusively to a
limited range of subjects he is likely in time to lose all sense of proportion. With ordinary care there need be no fear of this happening in connection with any of our base hospitals. Opportunities for helping in other departments constantly occur and visits to up-country hospitals must, we think, be encouraged.

The model district hospitals, up-country hospitals or field hospitals should be strategically placed. The best definition of a strategic mission centre we have so far seen is that given by Roland Allan: "It is," he says, "one in which you do not stay but from which you advance." It would be advisable to limit the capacity of these hospitals to 80 beds. Twenty of these could be devoted to female patients. Such places, as Dr. Hutcheson well says, would be centres of blessing, educating the people in the principles of hygiene, sanitation and decent living. They would in particular exhibit constantly the practical outcome of Christianity. From experience we advocate that strong men of faith and purpose should be stationed at these outposts. Two doctors should always be in residence, of whom one could well be a competent Chinese graduate from a good school of medicine. One foreign nurse at least is required.

The greatest consideration of all should in our judgment be given to the work at the fighting line, for it is here that we make our first real impression on the new districts. One of our most competent and active doctors should have charge of this work. In the very circumstances of the case he would need to be a man of resource and good judgment. Given such a man with a gift of leadership, there is no estimating the good he may accomplish. Co-ordinating his work, and co-operating closely with those responsible for other sections of the Christian propaganda, he would quickly gather about him equally earnest men intent on healing and teaching. With their loyal co-operation and the help of the Chinese Church at the base, together with grants from an instructed and aroused Home Board, a great and effective work could be accomplished among the sick. Multiply this kind of programme in every unevangelised centre and we begin to understand what it may mean to China. What is perhaps needed in our missionary experience is "a fresh vision of the hill country, some great up-towering peaks which dominate the common plain." Shall we not find it in an inspiring forward programme in close co-operation with our Chinese Church and the product of our medical schools?

We heartily agree with Dr. Hutcheson that the one-man and two-man hospital is not necessarily synonymous with inefficient and careless work. After all is said and done, we shall admit that "the work is the man; it is not the work which counts, but the man at
work." That is the reason why it seems so necessary to insist that our most competent, active and successful men shall be at the very front.

In considering these and other plans which may have evolved during previous discussions, it will be necessary for us to keep well in mind the contribution given by Dr. Balme, on "Efficient Mission Hospitals: The Irreducible Minimum" (Ch. Med. Jour., 1919, p. 567). Although we may not all agree with his opening statements, not one of his later items can, without injury to the work in the actual hospital buildings, be ignored. With respect to other papers which have come before the Conference, it is well to state that if hospital account-keeping has been "a stone of stumbling" to some, the ordering and securing of drugs and stores has certainly been "a rock of offence" to many. We shall gladly welcome all the aid the Association can give in these matters.

Regarding records and statistics, our experience in visiting other institutions has convinced us that what is needed is not some complicated system which adds to our burdens, but rather a simple uniform method which can be adapted to our smallest hospital. It may be possible for a group of experts to formulate some such system before the Conference separates, and to submit it for adoption at a later session, or through the Journal when all is in order. The point is, that there is no necessity to wait for this urgent requirement till the next Conference.

The training of assistants as carried on in some hospitals in the south and in other places, and the planning of suitable courses for the efficient training of nurses, are problems in themselves. We surely are on safer ground, and shall ultimately be of better service to the country, if we send the former to a high-grade medical school, and fit the latter to act as nurses and not as young practitioners!

Experience has taught us that an up-country hospital may submit to many limitations but it certainly should never be deprived of its foreign nurse. Here again, however, caution is needed. W. J. Locke has reminded us that there are three kinds of angels, viz., angels of wrath, angels of mercy, and mere angels. We want neither the former nor the latter. The women to bring blessing and smooth working to our hospitals are the angels of mercy—sweet, humorous, gladsome, capable women. Given these, patients and staff alike quickly reflect the wholesome influence of the one, whom we might fitly call, "the angel of the ward."

References have been made to the actual hospital buildings. It has often occurred to us that the ancients were right in demanding that a perfect doctor needed to have been a patient himself. A modern has dared to say: "You cannot be a perfect surgeon, till you have
enjoyed in your own person some surgical experience." We venture to add that no architect can plan a hospital who does not know how many hours there are in a sleepless night, nor any criticise his architecture who has not experienced the agonies of the sun's metallic rays. It is not right that we keep "all our imagination for scientific purposes." We need to bring it to bear constantly upon the commonest arrangements of the hospital itself.

The crown of experience is said to be like the ancient crown of Lombardy, a band of iron set in a band of gold. The iron for us medical men when planning for all phases of our work is possibly of more value than the gold. Certainly, "There is some soul of goodness in things evil, Would men observingly distil it out."

Proceeding from the evil days of understaffing, inefficiency, bad exchange, war, and many another adverse circumstance, there may, to our great comfort, be distilled fragrant additions to our knowledge and purpose. If during our discussions we have caught but a glimmer of the future co-operative activities of an awakened and enlightened China; of a Chinese Christian Church assuming responsibility for its own sick; of a financially interested constituency of our fellow-countrymen both here in China and in the homelands, we shall feel how light are our present embarrassments, and will gladly spend and be spent in this service.

A friend of ours, himself a medical missionary of the first type, a past President of this Association and now long gone to his reward, addressing a medical missionary audience, made use of words which have been, amid many hospital and other cares and anxieties, a constant inspiration and incentive.

"A medical missionary's life," he said, "if lived in its fullness is a strenuous one. It is a life of great anxiety, of great responsibility and of great physical exhaustion. You must be ever studying, ever investigating, ever learning,—the servant of all; night and day you are at the call of all. You may not live long, but you will live well, and, withal, you will live gladly."

Most of us here will confirm all that he said of this full life, and we shall joyfully say from our hearts, as he on his dying bed said of his labours, "It is all worth while."
HOSPITAL EVANGELISM.
THE IRREDUCIBLE MINIMUM IN EDUCATIONAL EVANGELISM.
HOSPITAL FOLLOW-UP WORK.
HOSPITAL EVANGELISM.

D. M. GIBSON, M.B., B.S., KAIFENG.

The aim of our medical work is not merely science, but souls; not merely temporary alleviation of physical suffering, but the eternal and entire salvation of the individual.

For each patient we desire four things: (1) A contented mind; (2) a comfortable body; (3) a cured disease; (4) a converted soul.

To obtain even the first of these something more is needed than professional efficiency. What is this absolute requisite? The adequate and faithful presentation of the Gospel. On this we are all agreed. The question then arises, how to present the Gospel so as to procure the desired results, the actual conversion of men and women from false faiths to a living faith in a living Lord, not merely the persuasion of the mind to an acknowledgement of the fact that Christianity is quite a sound proposition.

The Gospel of Jesus Christ must be presented not only educationally as a cult, but individually as a call; not merely a religious code to be compared with other codes, but a vital something which concerns the depths of a man, his character now, his condition hereafter.

Speaking broadly, the usual acknowledged method of presenting the Gospel is by word of mouth. This may take the form of preaching to a crowd or of conversation with a single patient. Preaching is good, if it is good. But care should be taken that the preaching is not just speechifying, and that the preachers really do present the Gospel of the cross of Jesus and not content themselves with what will not content the souls of their hearers, namely, discourses on the futility of idols and the excellence of Christian ethics.

One method is to have a service immediately after breakfast for the patients who can walk and for out-patients who come early. This service can be taken in rotation by squads of assistants or nurses, one squad being responsible for each day in the week. One member of the squad does the preaching and the others hunt up the congregation and generally support the speaker. The service should be under the joint control of the Chinese evangelist and a member of the foreign staff. In style it should be brief and to the point. The singing of hymns
unintelligible to nine-tenths of the audience, and the expounding of
abstruse doctrine should be discouraged.

During the morning there should be an evangelist with books
for sale among the out-patients who are waiting their turn to be seen
by the physician. The same man can then spend the remainder of his
time in systematically making the rounds of the wards. In fact, two
or more such men or women can well be used in this all-important
bedside work.

But in a hospital with an in-patient department of considerable
size, even two men cannot nearly compass the task of affording every
patient a clear opportunity of personally receiving the truth. Therefore I would lay the most forceful emphasis on the maxim "every
hospital employé an evangelist." The daytime is full of employment
for doctor, assistant and coolie alike, but if possible the evening hour
after supper should be held sacred for personal work in the wards. A
rally can be fixed for 7 p.m. or 7.30 p.m. at which special cases are
mentioned and prayer offered, and then every assistant should go to
the bedside of the patient he is to seek to lead to Christ. The assistants
can thus work into the hands of the evangelist and vice versa.
Doctors, assistants and coolies should all take part in this hour of
personal work and, if possible, no classes should be arranged for the
evening.

So much for set times. All day long, however, the staff and the
patients are in close contact in consulting room, dressing room, wards,
etc., and all day long the Gospel may and should be presented in two
other ways besides that of word of mouth. I refer to the presentation
of the Gospel by touch of hand and by attitude of mind.

Presentation of the Gospel by Touch of Hand. It cannot be
denied that what the patient comes for is to get physical relief. His
soul is inside his body, and the way to the former is through the latter.
In other words, the first thing to do is to present the Gospel to his
body. In the first place, this must be done by careful and painstaking
diagnosis. Spot diagnosis may be a time-saving expedient for the
doctor, but the patient prefers a little fuss. His particular complaint
is the only one of any importance to him, even if it be no more than
a patch of white skin on his otherwise imperially saffron countenance,
and that particular complaint of his is worthy of our particular
attention. In the second place, the Gospel must be presented to his
body by skilled and kindly treatment. A successful operation has
often opened the way not only into a patient's physical interior but
also into his heart, and made him accessible to the truth. Conversely,
a dressing wrenched off or other maltreatment has often the reverse
effect. Patients are very quick to differentiate between the man who takes pains to save them pain, and the man who scamps his work. The latter type should be eliminated as far as possible from the ranks of our hospital staffs.

_Presentation of the Gospel by Attitude of Mind._ This method is of paramount importance, for the attitude of mind of doctor, assistant, and coolie towards the patient is pretty sure to find expression in some way of which the patient will be conscious, and which will either produce resentment on his part or influence him favourably. We may have our patients graded on admission as Buddhists, Taoists, Moslems, etc., and pigeon-holed on discharge as opposed to or interested in Christianity; we may have our preaching and personal work organised to the highest degree; but unless the mind that was in Christ Jesus be also in you and in me, in our hospital assistants and employés, all our organisation will effect little or nothing.

The attitude of mind of Christ Jesus toward sick folk was that of impartial compassion. It was not so much what Christ said, as the way He looked, the tone in which He spoke, the manner in which He did things that won the hearts of men.

Gallows or dishonest behaviour on the part of hospital employés may smash the efficacy of our work, for the patients are quick to detect the real worth of a man, be he foreigner or Chinese.

It behoves us, therefore, first and foremost, to look to our hospital tone. A hospital without the love of Christ vibrating through all its activities is as potent for good as an X-ray apparatus minus the electric current. Nay, a currentless X-ray plant is merely inert, but a hospital in which there is little or no compassion is active for evil, is antagonistic to the realisation of our supreme aim. We would do well then to have a care lest we who pride ourselves on our rigid asepsis have our own souls sullied before God.

We should exert the utmost vigilance in the employment of fresh hands on our hospital staffs. We should labour incessantly by precept and practice to instil into the souls of all our assistants and employés the truth that the evangelistic efficiency of the hospital depends on them every bit as much as it does on the doctors and evangelist.

In this way the whole hospital, in all its members and in all its activities, will be a living throbbing force making known the Christ who by His magnificent sacrifice and mighty power can save both body and soul from death and corruption.
THE IRREDUCIBLE MINIMUM IN EDUCATIONAL EVANGELISM.


The irreducible minimum in evangelism is the maximum possible under average working conditions in a hospital. It should therefore be well considered, clearly defined, and properly balanced. In actual practice no hard and fast line can be drawn between inspirational and educational evangelism. But for the purpose of discussing it before the Conference it has been found convenient to deal with these two aspects of hospital evangelism separately. I will confine my remarks to evangelism by means of books and classes, though it is scarcely necessary to point out that the hospital itself, all that is done in it, and particularly the spirit in which all is done, should serve always as a great and effective object lesson in active Christianity.

First, as regards the hospital staff. In many hospitals it is found to be desirable, in addition to daily worship, to have a weekly class with the staff; or, if possible, two or more such classes, one for the more educated dressers or nurses, and one for coolies, gate-keepers and others. It is well if the medical missionary himself can find time to conduct at least the former class, not only for the sake of elevating the general tone of his relations with his staff in connection with all the secular classes and work, but also for his own sake, because in this way it becomes part of his regular work to keep his mind in touch with religious subjects somewhat more advanced than those which are constantly dwelt upon in work among the patients.

For this class one of the most helpful forms of instruction I can recollect was based on one of the little "guide Text Books," issued by the Church of Scotland (A. and C. Black), the subject being "Our Lord's Teaching." Another helpful series was one in which an attempt was made to summarise very briefly, and thus enable the members of the class to memorise, the main facts and teaching in each chapter of the books of the Old Testament, revising as we went along; in this way they obtained a very definite idea of what the book was about, and where to find useful references in it. My temporary colleague, Dr. McFarlane, gave a useful series of out-line addresses with illustrations and Bible references which were copied down by the dressers for future use.
The main subject of interest, however, for all of us is the work amongst the patients.

The writer's experience is mostly confined to work in country hospitals in North China, and his presentation of the subject is necessarily a very one-sided one. He hopes that other aspects of the work may be presented by those who have worked under very different conditions.

For those who have not had any country experience a little explanation is very necessary here. The Chinese in country districts are born and bred amid noisy surroundings. So noise of any kind in the hospital does not disturb them. Also, nearly all our cases are surgical with the mind unaffected by the surgical condition. Of course patients who are very ill are put into a quiet room; but the average patient prefers to have something interesting going on, and is not in the least disturbed by classes, even if he has not yet become sufficiently interested to join one himself.

The patients we have had to deal with in the Tsangchow hospitals can be roughly divided into five groups:—

I.—A small group of intelligent educated men.

II.—A larger group of men who possess a very slight knowledge of Chinese written characters, having been to school perhaps for two or three years in boyhood.

III.—A considerable number of men with no education, and no knowledge of the written characters.

IV.—The younger women, all illiterate, with rare exceptions.

V.—The older women, all illiterate, with rare exceptions.

GROUP I.—THE EDUCATED MEN.

These men form a small proportion of our numbers, and I trust that other speakers will be able to deal more effectively with the problem of helping them.

Our experience has been that, as regards direct religious education, it is best to confine ourselves to supplying them with suitable literature, and allowing them to adopt the attitude of patronising onlookers. In this way they learn the elementary principles of the Christian religion indirectly, as it were, and yet in the way in which they best learn to be effective helpers afterwards. They would "lose face" if we were to suggest before the others that there is anything that can be put into simple language which they do not know or understand. Those of them who show an interest in their fellow-patients soon become quite keen and help to explain the difficulties of their more ignorant neighbours in a quite gracious and condescending manner. I cannot recollect a single instance of one who
openly opposed our teaching. All seem to hold idolatry and superstition in supreme contempt, so far as one can judge by outward protestations, and all say that the doctrine is good, especially for other people. But when one of these men is really converted and understands, he at once becomes a tremendous help, first in the hospital, and then in his village, and it is usually indirectly that such men have been won and taught.

GROUP II.—THE SLIGHTLY EDUCATED MEN.

These men know a few characters of the language. When they have been won over to take an active interest in Christianity they are supplied with Testaments and hymn books in the Mandarin dialect. Here I would like to put in a word for the educative value of hymns. Hymn singing is usually regarded as the preserve of the inspirationist, the effect being to "soothe the savage breast," and prepare an atmosphere for religious appeal. I have thought that the first effect of hymn singing (not in falsetto) upon the raw countrymen of North China must be very nearly the same as was that of the exercise of the gift of tongues in ancient times. "Verily thou praisest well but the other is not edified." But hymns, wisely employed, may have a very considerable educational value in religion. The hymn book has been called "the layman's manual of theology." For this reason we have made a small selection of hymns which are sung over and over again, so that both words and tunes become familiar to every patient, instead of spreading ourselves over an indefinite number, none of which will be remembered. For Christian congregations the desire for variety and freshness is natural, and one gets tired of singing the same old hymns; but for an ever-changing heathen community our most familiar hymns are too fresh, and only after many repetitions do the patients begin to get hold of the tunes.

Unfortunately, even to the educated many of our hymns which are commonly sung are quite unintelligible until they have been explained. The average country patients will look at you with astonishment if you ask them what is meant by the words they have been singing, as though that were a thing that "no fellow can find out." Once explained, however, the "tao-li" or doctrine in the hymn sticks like a burr, and will be carried away and retained indefinitely. The tune and meter serve as an "ambceptor"; all that is required is to "activate" the words. Following the apostle Paul I would rather the patients sang five hymns with the understanding than ten thousand in an unknown tongue. Before leaving the subject of hymns let me recommend both words and tunes of many of the hymns of Chinese composition in the Pentatonic Hymn Book. This will save the musical ear from many an excruciating pain.
I said that the inquirer is supplied with a New Testament, but as to that, the general complaint is that they "cannot understand the order." For this reason, and because of the very limited time they can read under instruction, we have drawn up a "List of Progressive Lessons in the New Testament," beginning with "Rejection of Idols" and ending with "The Christian Hope." On the scroll you will see the titles of these lessons, and the references to the places where they may be found. A companion scroll gives a brief statement of the New Testament faith. The idea of the ornamental scrolls is that, being presented to the really interested inquirer on his leaving hospital, they serve, with a New Testament, to help him to answer many questions as to what that book is all about. Hung in his room they invite inquiry, and encourage him to pass on what he has learnt to others. These selected passages, read in order, serve as a sort of raised pathway leading to all parts of the New Testament compound.

The scrolls also provide a sort of preliminary bird's-eye view of the New Testament as a whole, in a way in which no single Gospel, or other portion of the book as it stands, can possibly do by itself. After becoming familiar with these passages and having had them explained to him, the reader does not feel himself a stranger in any part of the New Testament, except in some of the more obscure passages. When I first came to China it was the custom in our hospital to teach inquirers to repeat the catechism aloud from memory. I found that by the time the average patient went home he could tell you a good deal about Adam and Eve, and original sin, but very little indeed about Christ or Christian ideals. A catechism is a very good supplement to the New Testament for a beginner who can read it easily and intelligently; but for the average uneducated patient it requires too much explanation. The time will be better spent in reading with the inquirer and explaining verse by verse carefully chosen and ordered passages, "key passages," from the New Testament itself, so as directly to introduce those who can read it to that book which is to be their companion for life. In preparing these selections, considerable pains were taken to leave no part of the New Testament unrepresented which is at all comprehensible by the beginner.

A preliminary conception of "God as Creator, Sustainer and Moral Ruler of All," is essential to an intelligent appreciation of any part of the New Testament. This is supplied, not in the first chapter of Matthew's Gospel, but scattered through other books which come later in the volume. Extracts are therefore taken from the Acts of the

*Space could not be spared for the printing in Chinese of the scrolls here referred to, but we are sure the author will gladly send copies to all who apply for them.—Ed.
Apostles, cc. XIV. and XVII. and from the first chapter of the Epistle to the Romans. The latter passage also gives an impression of "The Need of a Saviour," and of what it is He came to save us from. The injunction to reject idols suggests as a complement another preliminary idea, namely, that One has come into the world who is "The Image of the invisible God." The first three verses of the Epistle to the Hebrews afford an excellent summary of the objects served by the "Incarnation of our Lord."

With this difficult but essential introduction, the story of "The Birth of Jesus" can be approached by the Chinese inquirer in a right and reverential frame of mind. Where time is too limited, these beautiful stories need only to be briefly narrated in conjunction with the preceding, and not dwelt upon at length. They are more likely to be believed later on.

It is well to proceed at once now to the first chapter of the Gospel of Mark, which gives a condensed summary of the beginning of the earthly "Ministry of our Lord," as well as a clear idea of the way in which He used to spend His days and nights. One or two of the "Parables and Miracles" are next chosen, and the inquirer is shewn how to look for spiritual teaching from them.

Instead of dwelling at this stage upon the teaching of Jesus, this is left until a soil of moral earnestness has been prepared to receive it, and the inquirer is taken at once to Peter's great confession and Christ's immediate prediction of what "His Messiahship" would involve.

In order to prepare the inquirer to understand the "Hatred of the Priests and Rulers," the incident of the cleansing of the Temple is explained (an incident which readily appeals to the Chinese imagination where fairs are regularly held in temple courts). This is followed by the account of "The Trial of Jesus," and Jesus' claim, in face of death, to be "The Son of God."

"The Passion" is followed in the words of Luke xxiii, vv. 33-46, shewing Our Lord's "Divine Love Triumphant" over the fiercest trials; triumphant both in love to His enemies, and in faith in His Heavenly Father, in spite of all the outward seeming. The latter part of Luke, c. xxiv, supplies the next lesson on "The Resurrection" with Christ's summary of what is involved in these great happenings. This is followed up by a few verses from II Corinthians, c.v., which summarise, in a marvellous and soul-stirring manner, all the great consequences necessarily involved in the death and resurrection of "A Divine Messiah." "The Ascension" is touched upon, and then follow some verses containing Christ's promises concerning "The Holy
Spirit,” the events at “Pentecost” with the immediate consequences, and the essentials of Peter’s message.


In most of these passages there occur one or two verses which give the essence of the teaching, and it is well that the learner should commit them to memory.

The full list as we employ it, contains some 300 verses, equivalent in amount of material to some seven or eight chapters of Mark’s Gospel. This is all that a fairly intelligent inquirer of this uneducated class can be expected to assimilate in three weeks or a month, unless he is exceptionally anxious to learn, and it is this which may be called the irreducible minimum of educational evangelism. We try to give the essence of every section rather than the fullness of a few; and to make sure that the inquirer understands what he does read, rather than that he should read much without intelligence. This is the more important in that the literary style of the Mandarin New Testament is such that only educated people can follow it readily, even in the simplest sentences. Being translated into character it is naturally intended to be understood by the eye as well as by the ear; but when many of these passages are read as they stand to an uneducated man there is little that he can make of them. Of course this has a direct bearing upon the usefulness of the Scriptures in phonetic.

Several of our patients each year have succeeded in passing a very creditable examination on the above course, and they are not confined to the men who could read Chinese characters when they came in. We urge men who cannot complete the course to return at Chinese New Year, and join our station class.

It will at once be objected to the course outlined above, that the Gospel stories are dealt with too briefly, though the teaching of Jesus on repentance, forgiveness, Christian character, and conduct, is represented in the latter sections. It would seem, however, as if the very juice and sweetness of the four Gospels had been expressed and left out. The course suggested is predominantly educational, and is designed for drilling in the matters which need close study and hard teaching if they are to be understood at all.

In our lantern lectures given weekly, the Gospel stories, so essential to a proper appreciation of the personality of our Lord, are very thoroughly dealt with, and they are the constant theme of speakers at morning worship and out-patient services. Fortunately, the stories have a unique and inherent faculty of making themselves
remembered without much effort on the part of either teachers or taught. This is one of the spheres where educational and inspirational evangelism become quite indistinguishable. Should the above outlined course be adopted for use at morning worship, it ought certainly to be greatly amplified in this respect. It may be said that the New Testament presupposes (1) Theism, which is certified and made Christian by (2) Theophany, which is interpreted by (3) Theology, with the object to establish a walk with God, and (4) Theophily, which it guides to practical self-expression in (5) Philanthropy of a highly specialised type.

The problem before us in the difficult conditions of our work is to give our ignorant but interested patients a justly balanced presentation of all these indispensable elements of New Testament religion. It is not as though any subconscious familiarity with Christian ideas could be taken for granted as a basis for purely practical instruction, or for a simple appeal to the will. Heathen ideas underlie the very terms we employ until they have been given a New Testament content and background. Nor can we hope that many of our patients will be able to place themselves under Christian instruction when they leave hospital. We must aim to give them something in the way of instruction complete in itself, however elementary, rather than some ornate fragment of truth. A small room with foundation, floor, walls, windows and roof will serve them better than extensive foundations on which they cannot build, or heaps of material they cannot use. If any one of the above-mentioned five elements is neglected the result will be an unstable compound, for each depends upon all the others for its full interpretation and permanence.

GROUPS III, IV, V.—THE ILLITERATES.

These groups require special methods of teaching. The first need to be met is the awful one of complete inability to read. Our system of phonetic script has solved this problem for large numbers of our patients. It is important, however, to insure that mere learning to read does not take up all the time. The patients should learn to read by means of a primer which deals with the main elements of the Christian religion. The primer we use is devised to cover the essential and irreducible elements of New Testament religion in utter simplicity of thought and speech. At the same time it contains all the 400 syllables of Northern Mandarin. Anyone who has mastered the little primer can read every word ever printed in any book in the system, and knows how to form the words he reads into sentences the meaning of which can be heard by anyone who understands the style of language in which they are printed. What is more, his mind has
already become familiarised with the most important names and ideas in the New Testament.

Many of Group III, and a few of Group IV, get so far as to master quite a useful number of the New Testament passages above mentioned (after they have been carefully explained), reading them in phonetic from our Book of Selected Passages. This contains, in addition to those on the list, a very full collection of representative passages. These are grouped under the same headings as those in the course, and greatly amplify each section of it. The supplementary passages form, as it were, ever-expanding concentric rings, like the wavelets in a pool into which a pebble has been thrown. Read at home, in the light of what has been studied in hospital, they enable the keener illiterate, who has patience to study them to become, if he wishes, a person of light and leading in any group of village inquirers, educated or otherwise. The system also gives them command of a little hymn book and a catechism, and enables us to correspond with them and them with us.

Last and not least, all the younger and more energetic members of these groups can, and many do, learn sufficient characters without a teacher from our double column books, to read any page of the Mandarin Bible in character, with only a few unrecognised characters, and these they can inquire about at their convenience, and record at once for study at their leisure—a thing hitherto impossible for the uneducated Chinese.

It is the impossibility of learning anything without personal oral instruction which is the prison-house of the illiterate mind. This system breaks open the prison, and sets the illiterate free to learn in time, if he will, almost anything.

GROUP IV.—The Young Illiterate Women.

This class gets on splendidly with the primer above described, and with the hymns. One illiterate girl could read the primer quite passably after a week, with about one hour of instruction every day. In four days (between two amputations) she learnt to read any single word. She has since learnt to write in phonetics without any oral instruction. Of course she was exceptionally quick.

Most of these women, after learning the primer, make a beginning on the New Testament Selections. Unfortunately, the language of the New Testament is not the language which they speak themselves, or ever hear used within the narrow environment of their homes. Of course it is Mandarin, but it is far too condensed in style, and nothing but a paraphrase or a colloquial version of key passages will ever make that book easy to follow, even in its simplest parts, by
uneducated people, unless they have been long connected with a Christian community.

**GROUP V.**—**THE ELDERLY ILLITERATE WOMEN.**

Alas! this class is almost beyond hospital educational evangelism. It takes them so long to "wake up," and begin to believe in the possibility of learning anything new, that it is time for them to leave hospital before they can make any great progress. Any of them, however, who do get interested and stay a little longer than usual, can and do learn to read and to understand quite a useful modicum; but the time required to penetrate such dense apathy, ignorance, and self-despair, leaves small opportunity for educational effort to be brought to bear upon them. Inspirational influences, however, are not without result, and our lady workers say that when they meet with these women who have been in hospital they always receive a warmer welcome, and a more ready and intelligent hearing than from others.

In case it should be thought that too much has been said about the difficulty of the Mandarin version for illiterates, let me analyse a sentence from it. [Analysis given.] Of course it is not contended that it is possible to give even the irreducible minimum of educational evangelism without adding to the illiterate's vocabulary. There are a great many sentences in the Mandarin text which could hardly be made simpler; but, unfortunately for the illiterate, these intelligible sentences are constantly interrupted by others which might easily be made quite plain, but are, as they stand, quite unintelligible to them. This makes it all the more essential that during the short time illiterate patients are under personal instruction we should concentrate upon the perfect elucidation of the irreducible minimum (which is the maximum possible) of carefully chosen "key" passages which we may hope will serve to illuminate the meaning of the rest.

The writer yields to none in his admiration for the beautiful and lucid Mandarin style of the present version of the New Testament, and he would be far from proposing any substitution of a more colloquial version for general use. But he feels that for work amongst illiterates, who really constitute the mass of the population, things would be made a great deal easier by the preparation of a free paraphrase, in simple colloquial style, of considerable portions of the New Testament, for the different parts of Mandarin-speaking China. This however is getting a bit beyond the scope of mere hospital evangelism.

It may be asked whether by the use of the Government system of phonetic the same things may be accomplished as are recorded above, in similar circumstances. Possibly some here will be able to tell us. If not, is it not up to some one else to find out and let us know? There is no doubt that the successful use of a system of
Chinese phonetic, along the lines described above, adds at least 100 per cent. to the evangelistic efficiency of any mission hospital working amongst the illiterates.

Lest there should be any misunderstanding arising from the use of the term "educational" in connection with the subject of evangelism, it is perhaps necessary to say that the writer would regard as sheer waste any educational effort along these lines which was conducted in such a spirit that the lessons did not inspire the inquirer with a sense of reverence for God, devotion to Jesus Christ, a deeper moral earnestness, and a brighter hope for the future.

HOSPITAL FOLLOW-UP WORK.

CHARLES LEWIS, M.D., Paotingfu.

While there are great possibilities in wise plans for following up our hospital efforts, and in the full execution of these plans, no uniform system seems to have been yet adopted in China.

Judging from replies coming from different parts of the country, one is led to believe that a practical and efficient plan for following up our patients after they leave the hospital would be generally welcomed; we wish to know not only how successful our efforts to cure disease have been, but, what is of still more importance, to ascertain and conserve whatever impressions for good have been made upon the patients.

From the very fact that some hospitals in the desire to obtain evangelistic efficiency have discharged their field evangelists and have committed their duties to the regular church evangelists, while others have reversed this method, it is evident that the efficacy is not so much in the method as in the way in which it is executed. The method is important, but the wise carrying out of the method is probably of much more importance.

Given a number of evangelists, however, of equal tact and devotion to the cause, we believe that the one giving his whole time and working directly for the hospital and who is held accountable to the hospital for his work, will accomplish very much more than a number of men can do, who are located throughout the field; who have other regular duties to carry out besides the visiting of patients, and whose obligations are to the evangelist in whose direct charge they are.

Formerly, we depended upon the church evangelists working through our country field to do our follow-up work. This consisted in
taking the names of the patients according to the districts, visiting
them in their homes, giving them religious instruction, and ascertaining
their physical condition. But many of these church evangelists
proved to be only partially interested, and their reports to us were very
meager and in many cases worthless.

Four years ago we secured the services of a genial, earnest,
strong young man, whom we provided with a bicycle to do the follow-
up work in the district worked by our mission. Each month this man
spends twenty days in the country and ten days in the hospital. This
enables him to meet most of the in-patients and become acquainted
with them, so that when he calls upon them in their homes he has the
advantage of being an old friend, and he soon finds out what progress
they have made in the knowledge of the Gospel. Where the distances
are not too great it would be a better arrangement to have the man
spend ten days in the country and five days in the hospital at a time,
as by this arrangement he would meet practically every in-patient.

This evangelist collects the names of all the patients living in the
section of country he proposes to visit, and going on his bicycle he
travels from village to village seeing all the patients in their homes,
being careful to avoid taking meals with them, or making himself in
any way a burden to them. When he finds them interested in Christian
teaching, studying the books they received at the hospital, he spends
time in further instructing them. In many instances he has found a
patient has interested the members of his family and the neighbours in
Christian teaching and so has a nucleus for a new group of those who
may become interested in the truth.

The report of this evangelist for the past year shows that he
has visited 332 different patients in 10 different counties and many
were visited several times. Of these, 2 were admitted to the church as
members, 14 are candidates for church membership and 5 others have
joined enquirers' classes. Besides these, the number of relatives and
friends coming with them of whom no record was kept have been many.

The map of our entire field just completed will be a great help in
keeping in touch with these patients, and we plan to have a doctor
visit some of the centers where there are a number interested, and
where it is also desirable to go for medical investigations. Dr. Wylie
has made one such visit to a region where there have been a large
number of patients with kala-azar. This trip has been of great profit
to him as well as to the patients. In this way the physician can study
the etiology of certain diseases peculiar to certain regions, and at the
same time give a stimulus to the spiritual growth of his patients.

Our medical field includes the territory worked by three different
missions, and our travelling evangelist works only that district which
is occupied by our own mission, the Northern Presbyterian. We have a promise from one of the other missions, the A.B.C.F.M., of a man to give his entire time to this follow-up work throughout its field. We send the names and addresses of all patients coming from the district of the China Inland Mission to its missionary in charge of the work there. These other missions have been of great help to us in gathering information concerning our patients. We hope in this way to be able to follow up the impression made for good upon all our patients, and to be kept informed of the results of our medical and surgical work.

There is now another way of keeping in touch with former patients which was impossible before the Chinese postal system had become so extensive as it is at present. This is by the use of blanks sent by mail for the patients to fill out. These are enclosed in a stamped, addressed envelope, accompanied by a letter expressing our deep interest in their welfare. It may also include any special information or request. We are giving this plan its initial trial and it remains to be seen what the results will be.

I believe all hospitals should keep at least one travelling evangelist with a good map of the field, upon which he should continue to delineate the roads and villages as new patients are added to his list. Records should be kept of all who show religious interest and each should be introduced to the church evangelist working in his district. When this shall be accomplished for all our patients, I am sure we shall agree that the hospital has fulfilled its mission to the Church and justified its existence.

**Discussion.**

Dr. W. L. Bemst (Hengchow).—Dr. Lewis has carefully surveyed one of our most difficult problems and definitely pointed to one plan for its solution—that of having a regularly appointed evangelist directly responsible to the hospital management. It would be a fine thing if this conference would approve this method as one for our hospitals to follow. If something definite is put before the hospitals, something definite will be accomplished. I believe this plan will commend itself to most of us.

However, whatever plan is adopted, much of the success will depend upon the push that the foreigner supervising the work puts into it, thus inspiring his workers. The Chinese evangelist employed by the hospital must be a man endowed with unlimited tact, patience, and a spirit of co-operation with the regular country evangelists. He must in no way oppose them. He should be very keen on taking notes, which should include the results of his spiritual investigation as of primary importance. He must, however, be taught—not just told—how to report carefully and in detail the former patient's present condition. Is he well and happy? Was he quite satisfied with his treatment in the hospital? Is his disease returning, or is there something else the matter with him? Thus we can study the end results of our treatment in a far more scientific way.

It is of the utmost importance, when these reports are turned in, to keep a careful record, with card index and cross-index, of every man seen. His former hospital record, evangelistic and medical, can be added to or completed. Without this, any method will be inefficient.
THE
CHINESE GENERAL HOSPITAL
IN FRANCE.
THE CHINESE GENERAL HOSPITAL IN FRANCE.*

Lieutenant-Colonel G. DOUGLAS GRAY, M.D.,
British Legation, Peking.

The subject of my address will be the Chinese General Hospital of which I was in charge during the Great War, particularly the management of the sick and wounded of that large body of 100,000 men who joined the Chinese Labour Corps in France.

The majority of these coolies were agricultural labourers, an unsophisticated class who, from the day of their embarkation, found themselves under new and totally changed conditions of life. They were well clothed, well fed, and usually well housed. On the whole, it might be said that they did not have such a long or exacting day's work as was their wont in China. But there was a perpetual stress and strain from their new surroundings and, in many cases, mental worries, due chiefly to three causes, gambling losses, personal quarrels, and misunderstandings between themselves and officers and soldiers who did not know their language. With few exceptions, they were humanely treated. Exposure to air raids, and in some accidental instances to shell-fire, found them fairly philosophical if they realized that reasonable precautions were being taken to help them; but where, as at Dunkirk, they had to sustain prolonged exposure to repeated aeroplane attacks without sufficient protection, they revolted and were difficult to manage till safe dug-outs were provided for them.

On landing in France each successive shipment was sent to Noyelles where a dépôt had been established that verified each individual coolie, provided him with a complete outfit, sorted him into appropriate companies and classified him according to his trade or calling. This dépôt was the headquarters of the corps and it was here that was established the Base Hospital which had three main functions to fulfil: (1) the thorough examination of every incoming coolie; (2) the treatment of all those sent to it from out-companies and subsidiary hospitals; and (3) the selection of cases for repatriation comprising those who were unfit for further work in France.

*A paper read at the Conference of the C.M.M.A., held in Peking, February, 1920.
The first three shipments yielded a large number of cases of beri-beri. Nor was it long before a larger problem presented itself in the high percentage of coolies that were found to be suffering from trachoma. The army authorities soon made up their minds that the menace of this disease being conveyed to European troops must be dealt with promptly. A special Eye Department was therefore formed under Captain E. J. Stuckey, the eyelids of every coolie were examined, and measures for segregation were at once put in hand. I had been informed that a hospital of 1,000 beds was being established, but on arrival in Noyelles found rudimentary accommodation for 200 patients. Captain A. R. Leggate (of Manchuria) had already arrived and was making the best of the few facilities given him. We were placed on a footing of a hospital of 300 beds. One month later, the standard was raised to a hospital of 500 beds, and later to the standard of a General Hospital of 1,040 beds. By the end of 1917 our accommodation was put up to 1,500 which figure was frequently exceeded by several hundreds. The largest number of cases we had at one time was 2,650, many of which were trachomatous. This was fortunate in one way as we were able to use their labour in extending the hospital.

Situated as we were in the open country, outside a small agricultural village, with no stores, water supply, or drainage effluent, there were many problems to face, since every mouthful of food, and all drugs, furnishing, fuel, lighting, etc., had to be brought from Abbeville, twelve miles distant. Some marquees and a green field were available and the rest depended on the staff of men. Let me here say that from the outset the hospital was more than ordinarily fortunate in the classes of medical officers that were posted to us. Practically all of them were medical missionaries from China who had answered the call of duty to help in the way they best could. It would have been extremely difficult for non-Chinese speaking doctors to have been appointed as we had no interpreters. The chief success of the hospital in addition to the treatment it gave, lay in the comfort it afforded the labourers in being able to speak directly to the doctors, to tell all their troubles in their own tongue, and not only to feel they were understood but to receive a sympathetic reply which gained their confidence.

They willingly submitted to all kinds of operations and where, as sometimes happened, a patient showed any reluctance, his doubts were soon cleared away by the other occupants of his ward who told him of their experiences.

The British Army Hospital standard of scrupulous cleanliness is a high one. The authorities, after some doubts on the subject as to whether we should be a native or British establishment, at length yielded and gave us the latter designation, so that we had every
incentive to see that the hospital would be kept up to the same
standard as though occupied by British officers and men. Each ward
had a Royal Army Medical Corps orderly as wardmaster, assisted by
Chinese dressers on duty day and night, whose work lay in nursing the
patients and keeping the ward clean. The duty of the wardmaster
was to see that they did it. Language difficulties were never very
great. The British soldier picked up a varying amount of useful
Chinese words and phrases and was met half-way by many of the
dressers who acquired some English.

The arrival of Captain H. D. Matthews (of Foochow) put us in
possession of a trained bacteriologist and pathologist, and so no time
was lost in the establishment of a laboratory, which became an
adjunct to the clinical work of the greatest importance and developed
the scientific side of the hospital’s work. In all fatal cases
post-mortem examinations were held, and were done very
circumspectly. Though the Chinese may have had their suspicions,
yet owing to their rigid exclusion from the post-mortem room their
susceptibilities in this respect were dealt with as prudently as possible.
No complaints ever reached our ears.

Every patient on admission handed in his clothes and kit-bag
for which he received a detailed receipt, and was given a bundle of
hospital clothing the same as issued to British soldiers, even to the red
tie which afforded amusement to the Chinese and an outlet for their
ingenuity in tying it into our conventional sailor’s knot. A daily wash
of the hands and face, with hot bath twice weekly, and attention from
the hospital barbers seemed to them a mild form of European madness
to which the coolies found they soon had to submit and they gave very
little trouble in this respect. It was interesting to note the quick
growth of disciplinary habits. Instead of crowding to the kitchen door
they took their place in an orderly queue. Every patient received
his meals in individual tins from the kitchen; these were served in
hot water jacketed trays so that the food had not cooled on arrival in
the wards; in addition there was the fact, dear to the Chinese mind,
that each man was getting his fair share.

During the first year the marquees were gradually replaced by
large, roomy, and well ventilated huts of forty beds each. In these
huts, with iron bedsteads, spring mattresses, blankets and sheets, as
well as a bedside table in which to stow their knick-knacks, the coolies
had no lack of comfort and could not but feel they were well dealt with
by the British Government. The installation of an electric light plant
proved a great convenience. At the end of the coolie’s stay in hospital
he was discharged to duty, or sent for a few days to the convalescent
ward to find his feet. If coolies were permanently maimed or too
debilitated to do a full day's work, they were sent to the Convalescent Company at Crécy Forest where, under the eye of Captain R. G. Struthers (of Weihuifu, Honan), they were assigned to different grades of light work. This Convalescent Company was very popular as the men were able to earn wages in it; in the Hospital it was different as to prevent malingering the ruling had been made that all pay ceased during illness, except in the case of those who were injured in accidents on duty or by bombs, etc., who received full pay all the time. It seemed hard on those in broken-down health, and troubled the patients not a little, especially tuberculous cases, that during their long and enforced stay in the hospital they should not be receiving any pay; but it was the only method by which the authorities thought we would be able to cope with the coolies' craftiness, and in the main it worked well. It certainly stimulated the patient in his wish to hasten recovery. All those who had lost limbs were sent to Rouen where they were fitted with artificial legs of the best modern jointed pattern made by a French firm. Our own Chinese carpenters, not to be beaten, made some very clever artificial hands with a movable thumb worked by a spring which enabled the wearer to grasp articles.

In such a wood and canvas city as ours, the duty of fire prevention was important and was well handled by Captain W. R. Reeds of Changtefu who took command of the Fire Brigade and saw to the supply of fire extinction apparatus in every nook of the hospital. Captain Reeds being a noted Canadian athlete also took in hand the physical training of the R.A.M.C. Detachment, which proved the greatest benefit to the men in addition to providing distraction of a healthy kind.

The British "Tommies" and the Chinese Coolies.

A word as to the British soldier engaged in this work. He was another example of the adaptability of our "Tommies" to surrounding circumstances throughout the War. Knowing nothing of the language or customs or prejudices of the Chinese, he linked up with them in a quaintly efficient way. His small vocabulary of Chinese words was constantly being added to, though they were mostly all mispronounced and very often complicated by the cockney misuse of aspirant sounds. Rough and ready, always cheerful, usually industrious, his sense of discipline sufficiently developed to have things done in the manner laid down that they should be done, he became able to infuse some of his spirit into the dressers and patients, with whom he was nearly always popular, and he evoked among them a spirit of camaraderie which contributed greatly to the smooth working of the hospital. The soldiers got to like the coolie, who in the vast majority of instances showed himself an inoffensive, likeable person, and not a
few of the wardmasters have expressed a wish to find employment in China as the result of their experience with us in France. The dressers were at first a problem. As a rule they had little knowledge of reliable nursing work. Non-observance of instructions, untrue recording of temperatures, wrong handling of patients, were a few of their faults. A course of practical teaching was inaugurated and compulsory attendance at these classes with promotion after examinations helped to stimulate them, and latterly they reached a very satisfactory standard, thanks mainly to the tuition and experience which they were fortunate in getting from Drs. Peill and Stuckey. They were put through a long course of company drill and there can be no doubt of the benefit gained by this in the inculcation of discipline, that ready obedience, smartness and willingness to work, which were the characteristics of our army life.

X-RAY WORK.

In the course of time we acquired a complete X-ray plant which was installed by Captain S. C. Wilford, a Canadian medical missionary from Szechuen, who was lent to us for a time. Captain F. M. Auld (of Weihiifu) had been studying the subject and very ably stepped into the break when Captain Wilford was recalled to his unit. Whether on the surgical or the medical side, Captain Auld proved himself the typical medical missionary, who invariably put his shoulder to every wheel with an eye to enlarging his experience for the good of his subsequent return to China. The X-ray apparatus was always kept busy. The varied nature of the work the labourers were called upon to do made accidents inevitable. The labour comprised heavy work in transhipping cargo of all kinds in the docks, loading and unloading trains, salvage work on the battlefields, repairs in machine shops and to tanks, stripping and handling shells and bombs. Hence the majority of the cases were accidents, such as fractures due to direct and indirect violence, crushing by machinery, accidental explosions, etc.

Of the first thousand cases X-rayed, 360 were fractures. The apparatus was also of great use in diagnosing tubercular lungs and pleural effusions. One case of bilateral cervical ribs was encountered where the patient complained of pain in the shoulders and at the root of the neck during winter when heavy clothes were worn. Our plant was a 12-inch spark. I asked Captain Auld to go into the matter of the most suitable apparatus for a hospital in China, and he spent considerable time and pains while on short leave in visiting the factories and showrooms of X-ray plant manufacturers in London. Having regard to simplicity of construction, ease of operation, likelihood of running
long periods without needing the attentions of an expert electrician, and capable of doing all X-ray ordinary work, the "Snook Parvus" made by Messrs. Newton and Wright, London, seemed undoubtedly the best. Captain Auld reported this plant as being very compact, easily operated, and once installed a Chinese assistant could be taught to operate it in a short time with very little supervision. Experience in the Chinese General Hospitals showed us how readily an ordinary intelligent Chinese could be taught to do X-ray work.

**ADVANTAGES OF CO-OPERATION.**

Perhaps the predominant feeling among our officers was the splendid opportunity the hospital afforded them of working in co-partnership and daily interchange of views with insight into each others departments. Coming as most of them did from sole medical charge of their hospitals in China, it was a relief to concentrate on special subjects and have the benefit of consultations and help in any complications arising in their clinics. From the outset the surgical division, under charge of Captain E. J. Peill (of Tsangchow), was kept up to the high standard required by the Army authorities as evidenced by the satisfaction frequently expressed by the Inspecting Consulting Surgeon. The surgery was of a more general character than the almost purely gunshot surgery of War Hospitals, and ours was the only British unit in France where the bone-plating of fractures was permitted. This was begun by Captain C. F. Strange, of Hangchow, who as Surgical Specialist and latterly as Surgical Divisional Officer maintained the character of the operative work. He had a more than ordinary striking series of successes in one of the most difficult branches of modern surgery. Not long after, Dr. E. R. Wheeler (of Tsinanfu) arrived, whose previous reputation in China and his work in France marked him out for the post of Surgical Specialist. His genial bonhomie with the patients, coupled with the results of his operations, was a very great asset on the surgical side. Our Divisional Medical Officer, Major W. H. G. Aspland, having been selected for the post of Medical Officer in charge of a convoy of sick and wounded being repatriated to China, Captain Peill took over during his absence the Medical Division, as his administrative ability made me feel the direction of it would be safe in his hands. Tuberculosis in all its manifestations was the most prevalent scourge of the coolies. Two large wards were constantly full of phthisical cases and the patients were indeed fortunate in being under the devoted care of that well known medical missionary, Dr. E. H. Edwards, who after long years in Taiyuanfu gave up the retirement he had earned and joined up as a Lieutenant to take his part. Whole days he spent in the tubercular
wards and though the percentage of deaths was high, from the hopeless character of so many of the cases, it can be claimed that these patients lacked nothing whatever of the care and comfort he so unsparingly showed them.

**Venereal Diseases.**

A fair number of coolies arrived in France suffering from the various manifestations of untreated syphilis and gonorrhoea. In addition to these were the cases where infection had been incurred in France. It became necessary to form a special department which was placed in charge of Dr. J. R. Watson, of Tsinanfu. It was a fortunate choice as he managed it with the tactful yet kindly firmness so necessary in helping his patients to submit with good grace to intravenous injections and other foreign methods of treatment.

Captain (now Major) Watson, to further qualify himself for this work, underwent a course of study at a special hospital at Rouen and needless to say his patients got the benefit of this. It was interesting to see the way in which this veteran in medical missionary service took up the work of this department. During all the time it was open he had no lack of patients, the victims of a social evil which it is only just to the Army authorities to say they did their best to combat, but under circumstances which they were powerless to control. The best reflection that can be made on this subject is that whenever a coolie was found to be infected, he was at once placed on the sick list and the active curative measures have resulted in cures which will prevent them taking back infection to their relatives in China.

**The Hospital During Night Raids.**

During the summer of 1918 the hospital went through a trying period from the visits of German aeroplanes at night. On warning being given every light was at once extinguished from the power station, and the occupants of wards went into a series of deep trenches which were dug in vacant spaces outside. Only the very ill who could not be moved were left to take their chance, and it is satisfactory to reflect they were constantly visited and reassured while the raids were in progress. But the work of putting 1,500 patients into trenches in the dark was greatly robbed of its difficulties by the ready and orderly way they sought cover as soon as warning was given. On different "raids" bombs were dropped all round the hospital, some of them in close proximity, but fortunately no direct hits were registered. At times we were spattered with bits of burst shells which had been fired by our defensive anti-aircraft guns, and on one occasion the ground shook with the explosions of a neighbouring ammunition dump when several million shells exploded. Each ward was built round
with a rampart of sand bags to intercept burst bomb fragments and the beds of those who could not be moved were lowered on to the floor. Every precaution that could be thought of was taken, but none would have been of any avail had a bomb struck a ward

MENTAL DISEASES.

During the first two years of the Chinese Labour Corps in France there occurred 335 cases of mental breakdown. At first sight this may seem a high figure, but when it is remembered that the latest available statistics (1910) show that in England the proportion of registered lunatics to the total population is 1 to 274, it will be noticed that the relative proportion of our cases is somewhat less. The two main groups were melancholia and feeble-mindedness. Under the former heading could be included mental stupor and attempted suicide. It is unfortunate that no reliable data were available as to the previous history of these cases nor as to any neuropathic heredity. Equally is it unfortunate that we have been unable to follow their subsequent history after repatriation from France. Sixty-five per cent. of these cases recovered their mental equilibrium while under our asylum care and treatment, but the frequency of relapses soon made it apparent that few if any of them could be discharged to duty, to again live under the same conditions that had induced their breakdown.

A few words may not be out of place as to the general symptoms presented by the more common types of our cases.

Melancholia.—The patients usually arrived in a state of chronic moody misery with spells of more acute depression, crying, etc. Their will-power seemed paralyzed and they would not work or keep themselves clean unless obliged to do so; in fact they were entirely indifferent to their surroundings. When left alone the melancholic would brood, and when spoken to would often not trouble to answer questions. If left unwatched for a moment, suicide would be attempted. This happened on three occasions inside the Mental Block, and twice among men who had been admitted to the Convalescent Company as presumably cured. Many melancholics got over their depression but could never be trusted not to relapse; each one of them was always regarded as a potential suicide.

Feeble-mindedness.—It would take a volume to describe all the interesting quips and turns, and the idiotic actions which gained admission to the Mental Block of all those who were, perhaps, somewhat loosely diagnosed under this term. Absurd ideas, inability to do their work, general inefficiency, quarrelsome ness, destructiveness, silly laughter, uncontrollable excitement, dirty habits, etc., were a few of the characteristics which soon marked them in the minds of their
comrades as being “feng-tzu.” They were teased and bullied until at last they came under the notice of their officers by some specially silly act and were then consigned to us. As a rule they proved ideal patients. The calm and regular occupation found them willing workers; now and then they were discontented as to the absence of pay but in some instances they were quite indifferent even to this, as in the case of the man who tore to bits some French bank notes which had been given him in payment for basket making. Irrelevant answers, foolish jocularity and various little eccentricities showed their enfeebled mental powers. As a rule they had no care for the future. Their appetites were good and they had no difficulty in keeping themselves clean and in conforming to the mild discipline enforced in the Block.

Mania.—Under this heading came the cases of acute mania, primary dementia, acute and chronic delusional insanity, dementia praecox and cyclical insanity. These patients showed suspension of all the intellectual, moral and instinctive faculties and some of them were very dangerous cases. It has been claimed that in no modern mental institution should there be a padded cell; but this proved an absolute necessity for some of the raving lunatics who were subject to sudden maniacal outbreaks, complete loss of control over emotions, tendencies to depression followed by excitement, and hallucinations resulting in brain storms, during which the mental attendants and the officer in charge were on various occasions attacked. Such outbreaks were followed by quieter periods in which the enfeeblement of the mental powers showed itself. As a rule, such cases refused to do any work, were dirty and untidy, and unable to take any care of themselves.

Epilepsy.—Only the worst cases of this disorder were given mental care. In most of them the attacks took the form of a series of recurrent fits quickly succeeding one another and leaving the victim stupid and drowsy. Dr. J. B. Fearn, of Shanghai, who, though an American, had accepted a commission in the R.A.M.C., when given charge of the Mental Block, took up his quarters there and the tactful friendliness he showed these poor mentals speedily gained their confidence. His mere personal presence among them became an important curative influence. What we saw of this special branch of our work in France made us wish that more attention could be paid in China to the care of the mentally sick; except for the Kerr Memorial Hospital for the Insane in Canton there is no modern mental institution in China.

The Commissariat.

A brief reference may be acceptable on the subject of feeding our large family. Careful economy without any unwise stinting of
provisions was the order throughout the Army and the whole of our dietary was similar to that in British Army Hospitals, though differing in some respects. There were three diets: (1) milk, which included custards and milk puddings, soup, biscuits and tea. (2) Chicken for patients who had begun convalescence but were still with weak digestion; porridge for breakfast, milk pudding for dinner, and the same for supper with tea. (3) Ordinary diet—bacon, bread and tea for breakfast; for dinner, a large plate of stew made up of meat, macaroni, margarine and fresh vegetables; the same for supper with an additional plateful of rice, also tea. Fresh fish was given when obtainable. This menu may seem to lack in variety but in practice it was very satisfactory, while at the same time it was of comparatively low cost per head. The Commissariat Department was under the care of Captain A. C. Little, R.A.M.C., an experienced Army Quartermaster who had made himself a master of dietetics and could tell off-hand the value in calories of any article of diet. The ordinary diet just described had a value of 3,443 calories per patient. Sometimes this department is regarded as a subsidiary one not meriting particular attention. Let me impress upon you its importance. Indifferent cooking and delayed distribution of food are as detrimental to the patients as an inefficient medical or nursing service. Wasteful and bad cooking is not only a loss to the hospital purse but also to the individual patient.

Hospital Sanitation.

As before remarked, we were placed on a green field with no water supply or effluent drainage system. Fortunately, this field was on a gentle slope and on the highest part of it a well 70 feet deep was dug and a steam pump installed. The well yielded us 12,000 gallons per day. The water supply which was led through the hospital in pipes worked out as follows: for drinking purposes, one gallon per head; for personal ablutions, two gallons per head; for general cleanliness and sanitation, one gallon per head; for laundry, two gallons per head. As regards disposal of refuse, room can only be found for a short summary. For liquid refuse, recourse was had to sullage pits 18 feet deep, filled in with old tin containers (from which the paper had been burnt off) to within a foot of the surface and covered by boards. Solid refuse was disposed of by burning in two closed brick incinerators of the Horsfall shape. Round these incinerators we built a large corrugated iron shed and led the chimneys through it so that the heat given off from them made an excellent drying room able to thoroughly dry over 1,000 articles per day from the laundry at no extra cost. These pipes gave off a heat averaging 85 degrees. It is remarkable how large quantities of nightsoil can be disposed of in the midst of a hospital with the
absence of any bad odours. Plentiful latrine accommodation (10 per cent.) was provided. The latrines were simple wooden huts with open sides and cement floor. The buckets were made of oil-drums placed beneath wooden fly-proof seats; these on removal had the liquid drained off and the solid refuse mixed with the general dry refuse of the hospital supplemented by sawdust. The buckets when emptied were rinsed out and then coated with heavy oil which has two important uses: to prevent flies congregating round them, and to make them easy to empty and clean. The coolies belonging to the Sanitary Gang did their work intelligently. We were never troubled with flies in summer, and the fact that close on 3,000 people were able to live so closely together without any sanitary inconvenience or danger proves that this simple and economical system of refuse disposal on the spot was thoroughly efficient. All washing was done on the premises by a laundry staff of twenty men superintended by an R.A.M.C. Corporal. General repairs were done by a staff of skilled workmen whose capabilities we had got to know while they were patients. Thus we had four carpenters, two tinsmiths, two painters, a cobbler and a tailor. These workmen made from old provision boxes a Pagoda which was greatly admired by the patients, many of whom said it made them "hsiang China."

SURGERY.

The surgery was of a most varied description. Complete records were kept of each case, and some day it is to be hoped the War Office may make use of them as a small contribution to the great advancement of the science of modern surgery, which is one of the few practical benefits to humanity that the war has brought about. It would be impossible to assess the proper value to the lay Chinese mind of the experienced Western surgical skill which saved lives or avoided permanent damage to their badly battered bodies. Every hospital had its statistics which differ little in the main. Let me content myself therefore with recalling not more than three cases to show the character of the surgery of which the coolies had the benefit.

CASE 1.—A labourer was knocked down by a lorry while engaged in road repair. He was brought to hospital with his pelvis fractured in four places, and a compound comminuted fracture of the right femur with bone protruding through the skin in the upper third of the thigh. The wound was excised and closed and he was put up in extension as was possible with a badly fractured pelvis. The next day the patient had retention and extravasation of urine. An external urethrotomy was performed and the urethra found to be lacerated an inch in extent and all the perineal muscles lacerated and torn from their attachments. In course of time the fractures united but later he developed general peritonitis. Laparotomy was performed and purulent fluid removed from the peritoneal cavity. This was freely drained and he made an uninterrupted recovery.
Case 2.—A coolie was employed in a factory where he accidentally got entangled in a revolving lathe. He was picked up, whirled round and then flung violently across the room, sustaining six different fractures of the long bones in addition to other injuries. He was too ill to be removed from the field hospital to which he was taken, so that by the time he arrived at Noyelles these fractures had all set in bad position. They were cut down upon, the overlapping fragments of bone were sawn through and trimmed, bone-plating was done and he eventually made a perfect recovery.

Case 3.—A man who was brought to hospital for attempted suicide; he had plunged a knife into his abdomen and cut sixteen holes in his intestinal walls. These were traced and sewn up and healed without any complications.

Glandular, bony, and abdominal tuberculosis formed a high percentage of the cases requiring operation. Four outstanding names of medical missionaries who did so much surgically for the Chinese in France are those of Peill, Strange, Wheeler and Simpson. As one who has worked in a number of hospitals I can testify to the distinguished ability of their work.

OPHTHALMIC DEPARTMENT.

The eye work of the hospital was under charge of Captain E. J. Stuckey and he had two other officers, Captains H. Tomlin and C. A. Hughes, who were R.A.M.C. eye specialists, to assist him. Because of the high percentage of trachoma in the Chinese Labour Corps this department became the largest in the hospital. When it is remembered that there were 100,000 coolies in France and that each individual had both his upper eyelids everted on several occasions, it can be easily imagined how arduous was the task, and that it was well accomplished is shown by the avoidance of the spread of infection to British troops.

The subject of trachoma is too important, having regard to its prevalence in China, to be dealt with in this general review, and I therefore propose to publish separately in the "China Medical Journal" the valuable report handed me by Captain Stuckey.* All three officers were brought to notice by mention in despatches, and it is pleasing to add that Stuckey's work received special recognition in the award of the Order of the British Empire.

CONVALESCENT COMPANY

The Convalescent Company was an adjunct to our hospital that one could well wish to see as a more common feature of hospital life. A patient on recovery from, say, a fractured femur, or any of the acute medical diseases such as pneumonia, typhoid, etc., is often by no means fit on his exit from hospital to sustain the physical demands of his return to daily toil.

There are many convalescent homes in Europe and America, but none that I know of in China. We were fortunate enough to secure a site in the historic Forest of Crécy for the establishment of a Convalescent Company where the patients, if unable to resume full duty, were put to work in one of four grades:—

1. Work in sawmills, mainly for recovered mental cases.

2. Less strenuous work, such as cutting logs, making firewood, etc., for patients with bronchitis, debility, epilepsy.

3. Light work not far from Camp, such as clearing brushwood, levelling charcoal pits, for patients with chronic rheumatism, tuberculosis, etc.

4. Very light work in the compound, such as bundling brushwood, bagging leaves, sawing firewood, for cripples, the blind, and cardiac cases.

The convalescents were under the care of Captain R. G. Struthers who made himself intimate with the circumstances of each one and proved himself a splendid organizer and cheerful friend to them. He made the Company a great success in every way, and the work accomplished proved most useful to the Army in the shape of many thousands of pickets, hurdles, fascines and other field material which were continually being sent to the Front from Crécy Forest. This Company was inspected by H.M. King George who was highly pleased with his visit.

The Hospital Staff.

In conclusion, it is only fitting to say something of the officers to whom the hospital owed its career of usefulness. It was indeed fortunate in the type of men, nearly all of them members of the China Medical Missionary Association, who answered the call of duty in the way their energies could best be utilized. No Commanding Officer could have had a more easy task than fell to my lot, for the enthusiasm and single-minded devotion shown by each of them without any exception were characteristics begotten by their previous careers in China. One could not live and work among them without feeling a better man for it.

Cooper, of Foochow; J. C. Carr of Pingyangfu, and H. L. Clift, of Canton. These are all names that should receive honourable notice in the records of the Association for the part they played in the war. An interesting addition to our staff was Dr. A. H. Chu, a graduate of Edinburgh University. He came out to help in any way he could and after he had served some months with us we were able to secure for him a commission as Lieutenant in the R.A.M.C. All these officers earned the gratitude of many a stricken Chinese in France, and contributed very greatly to Western prestige in a way that I feel sure will not be forgotten by the many thousand coolies who have returned to China after what has been for all of them one long thrilling experience.

The Chinese Labour Corps was under the command of Colonel B. C. Fairfax, C.M.G., and latterly of Colonel R. I. Purdon, O.B.E., who were both officers of Chinese experience and were ever alive to the interests of the labourers.

THE CHINESE HOSPITAL IN FRANCE, 1917-1919

C. Frederick Strange, M.R.C.S., F.R.G.S.,
CAPTAIN, R.A.M.C.; MEDAILLE D’HONNEUR DES EPIDEMIES.

It is possible in this article to tell only part of the story of the First Chinese General Hospital in France, and of all the good work that was done there. When it was realised that the outcome of the Great War was going to be determined by man power, and that every Britisher available was wanted for the firing line, it was decided to form a corps recruited from Chinese voluntary labour for work on the lines of communication and at the ports. From small beginnings the corps rapidly assumed great dimensions, so that when the Armistice was signed there were approximately 130,000 Chinese labourers in France, all on a three years’ agreement. Noyelles was chosen as Chinese Depot Headquarters and a large hospital built there for the sick and wounded. This was the main hospital, but there were smaller ones established in various centres such as Calais, Boulogne, Dieppe, Rouen, which acted as feeders to the one central base hospital, which was known originally as No. 1 Chinese General Hospital (to which I acted as surgical specialist), but afterwards as No. 3 Native Labour General Hospital. Commencing in the spring of 1917, while the battle of Arras was still raging, it grew rapidly in dimensions to a 2000-bedded hospital.
The greatest number of in-patients on any one day was 2,600. When hostilities ceased there was not a better organised or better equipped hospital in France, and under the able command of Lieutenant-Colonel G. Douglas Gray, of the British Legation, Peking, there grew up large special departments to cope with the ever-increasing demands. These departments, each under the charge of specialists, included: surgical, medical, ophthalmic, mental, tuberculosis, leprosy, venereal, pathological and bacteriological. The hospital covered a very large area and, fortunately, had plenty of room to expand.

Speaking generally, there were no special diseases peculiar to the Chinese, but uncommon diseases such as leprosy, insanity, and tuberculosis with various unusual clinical manifestations, occurred. Diseases of the eyes necessitated special treatment to prevent their spread amongst British troops and the French population, with whom the Chinese mixed freely.

There was a peculiar and insistent belief prevalent amongst a large section of the British Army that there were many Chinese women amongst the labourers in the Chinese Labour Corps. But I gladly take this opportunity of denying this charge. There was not a single woman amongst them, though some of the Chinese labourers, either in facial appearance or in dress, appeared like women to the eyes of the untravelled Westerner.

**Medical Examination.**

The Corps was recruited from picked labourers, mostly from North China, where the climate resembles that of Northern France. All were submitted to a thorough medical examination at Wei-hai-wei or Shanghai before embarkation. Many thousands were rejected in China as unfit. After a long voyage round the world they ultimately arrived in France, and were immediately taken to the Headquarter Depot, where they had to undergo another most thorough inspection by the medical officers of the hospital. Every recruit was examined by at least three doctors before he was passed as fit into a labour unit. This examination was undoubtedly very amusing to those who had the opportunity to witness it and who do not know the Oriental. The men were assembled in companies spread out in long lines on a wide field reserved for the purpose. They came along in single file to the doctor who examined first the throat, abdomen, and limbs; the throat and neck with special reference to mumps and tubercular glands; the abdomen with special reference to enlarged spleen and intestinal troubles; and the musculature of the arms and legs to detect any evidence of beri-beri or leprosy. When passed they ran away shouting for joy to another part of the field, where they were stripped behind
screens and a thorough urino-genital examination was carried out for any evident of syphilis or gonorrhoea. Thence they were conducted to another part of the field, where the eye specialists—always two or three in number—examined their eyes, especially for trachoma, which is very common amongst the Chinese. On the whole, the various shipments arrived in excellent health. Any found diseased were immediately admitted to hospital and not allowed to leave until cured.

"The Old Disease."

Amongst medical diseases tuberculosis was far the most rampant and destructive to life. It was astonishing to note the rapidity with which men, apparently healthy on arrival in France, fell victims to this disease. We had many special wards where all cases of tuberculosis were isolated, and, generally speaking, the only deaths which occurred in hospital were from phthisis or other forms of general tuberculosis. The hospital cemetery at Noyelles bears testimony by the hundreds of white crosses to the ravages of this disease amongst the Chinese. Almost every day there was at least one death from phthisis. We had special wards for surgical tuberculosis, so that this disease was isolated at once and everything done to prevent its spread. The Chinese as a nation have suffered from pulmonary tuberculosis for many centuries past, so that it is now called by them by the significant title "The Old Disease." Major Graham Aspland made a very efficient officer in charge of the Medical Division, and when he went to China in charge of a hospital ship full of the sick and afflicted his place was efficiently taken by Captain E. J. Peill.

Lunacy.

I cannot explain why so many Chinese went mad in France. Our mental hospital was very well organised indeed and came in for universal praise from visitors. Frequently there were over a hundred insane Chinese housed in it. Captain J. B. Fearn, of Shanghai, made an excellent officer in charge. He lived in the same compound with the insane and slept on the same premises within barbed wire. Very rarely a lunatic escaped. One religious maniac managed to do so. He was always wanting everybody to baptise him, and he got upon the top of the hut one day in search of someone for this purpose and fell off, breaking his right tibia and fibula. He was admitted to one of my surgical wards and I successfully plated his tibia, but he had to be shackled to the bed all the time he was in my ward. When healed, he returned to the mental compound, but took the first opportunity to escape. How he managed the barbed wire no one knows, but he was found at 5 a.m., at a height of 20 feet, on the top of the water-tank—
the main hospital supply—trying to defile the water. He resisted all efforts to get him down, a free fight ensued, and he fell, again grazing the old broken leg from knee to ankle, but his leg stood the strain well and it made no difference to the plate. Another lunatic pierced his abdomen 14 times with a pointed steel file, bending the tip of it against his lumbar vertebrae in his determined efforts to kill himself. However, all the 14 wounds in his intestines were sutured, and he made a good recovery. But he developed maniacal symptoms again, and was re-admitted to the mental block. We were sorry at the relapse, because he was skilled at wood-carving and did some exquisite work.

**Leprosy, Venereal Disease, Influenza.**

As the war went on leprosy began to manifest itself amongst the Chinese. So we had to establish a small leper colony, of which there were a dozen inmates when the Armistice was signed. All symptoms of leprosy developed after arrival in France, and the disease was usually observed by M.O.'s who had been familiar with it in China.

Our venereal wards were always full and an amazing amount of salvarsan and mercury had to be used.

During the influenza epidemic, which caused so much havoc amongst European troops, the Chinese were not great sufferers. We had special wards for influenza cases. It ran very much the same course as amongst the soldiers, with the same clinical manifestations. We were lucky in having a comparatively small mortality list.

**Ophthalmic and Surgical Cases.**

Perhaps the most widely known medical work amongst the Chinese was in connexion with the ophthalmic department. Trachoma is a disease very common in North China, and every precaution was taken to prevent its spread in France. Every Chinese Labour Corps unit from Calais to Verdun was regularly inspected by our eye specialists. This involved an enormous amount of travelling and incessant work. The ophthalmic wards were separated by a road from the general hospital, and all these unhappy sufferers were rigidly isolated, one part under canvas for ordinary conjunctivitis, and other wards for trachoma. When well enough to work the latter were formed into special trachoma companies, and were not allowed to mix with other labourers. At their special depôts they were under constant medical supervision, and were provided with all facilities for carrying out the special treatment for this disease.

The surgical cases were many and varied. The surgical specialist was much envied by visitors to the hospital, who were invariably surprised at the number, variety, and interest of the surgical
cases, and expressed unreservedly their appreciation of the excellence of the surgical work. There were six surgical wards of 50 beds each and these were always full. This being the "Blighty" base hospital for the Chinese we had a remarkable lot of clean surgical work, as well as a fair share of those wounded by bombs, shells, aerial torpedoes, explosions, and accidents.

**Hospital Nursing.**

The nursing in the hospital was done entirely by Chinese male nurses and dressers, who had had a certain amount of hospital training in mission hospitals in China and who were brought over from China for this special duty. There was never a large enough supply of English nurses in France to spare any for the Chinese Hospital, and yet the cleanliness of the wards and the good nursing were the subjects of frequent comments by visiting sisters and nurses. The hospital garden provided an ample supply of vegetables, and we took seven prizes at the British Exhibition of Agriculture at Abbeville in 1918. The splendid discipline displayed and the fact that Chinese-speaking medical officers, who knew and understood the Chinaman, were gathered together for duty at this hospital reflects the greatest credit upon the O.C., Lieutenant-Colonel G. Douglas Gray.

Politically it was of the greatest importance that we did well for these 130,000 Chinese in France, for each one passed through the hospital at least twice, if not oftener, and their good report may help to cement Anglo-Chinese friendship in a country growing in importance every day. I would conclude by pointing out what splendid scope there is for British medical education in China to-day. It ought to be seized by us before any other nation gets in, as the Germans did in Japan, and robs us of a great opportunity.