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INDICES

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THE CHEMICAL INVESTIGATION OF THE ALIMENTARY CANAL IN CHINESE.*


The object of this paper is to urge the importance and simplicity of chemical investigation as an important aid to the diagnosis and treatment of diseases of the alimentary canal.

In diseases of the blood or urine, no physician would regard his diagnosis as complete without making microscopical or chemical tests; why should one be less careful and painstaking where diseases of the all-important digestive tract are concerned?

In most cases of disease of the alimentary canal the laboratory diagnosis must be considered along with the results of a careful examination of the patient and the study of the history of his illness; it cannot alone be considered conclusive, as it is in the case of syphilis, ankylostomiasis, or malaria.

But though chemical investigation alone is not sufficient for an accurate diagnosis, neither is the clinical picture nor the history of the patient; achylia gastrica, for example, can only be discovered by chemical tests.

In Europe and America it is not necessary in most cases for the general practitioner to carry out analyses of gastric contents, because scientific research, carried out over many years, has established a definite relationship between certain symptoms and definite chemical states of the gastric juice. For example, discomfort or pain two or three hours after a meal may be assumed to indicate an increased percentage of hydrochloric acid.

* A paper read at the Biennial Conference of the China Medical Missionary Association, held in Shanghai, February, 1915.
In China, however, where the words used by patients to describe their symptoms do not exactly correspond to the descriptive terms used by English-speaking people, and where the patients' dietetic habits differ so widely from those of Western peoples, these European findings may not apply, and the physician must make his own investigation in each individual case.

The investigation must be planned to yield the maximum of information with the minimum of discomfort to the patient. We may consider first, methods to which the patient can have no objection.

**THE EXAMINATION OF THE FECES FOR OCCULT BLOOD.**

The methods described in most of the text-books are unnecessarily complicated (ether is usually required as a solvent, and the various solutions used in the test "must be freshly prepared"), but a method has recently been described which is at once more simple and more sensitive than these, indicating the presence of blood in a dilution of 1 in 800,000.

To two c.c. of a watery solution of the feces is added one c.c. of an alkaline solution of phenolphthalein* (i.e., reduced and therefore colourless phenolphthalein) and then a drop of hydrogen peroxide. In the presence of blood some of the phenolphthalein is re-oxidised to phenolphthalein and a bright red colour appears.

The importance of such a simple test for blood is obvious in view of the fact that blood is constantly present in the feces in cases of carcinoma of the stomach, and is also found from time to time in all cases of ulceration of the digestive tract. The absence of blood on repeated examination will enable us to exclude these most serious conditions. As occult blood is also present in all but the mildest cases of ankylostome infection, and as many of these patients complain of abdominal pain and acid eructations, care must be taken lest the discovery of blood in the feces should lead to an erroneous diagnosis of gastric or duodenal ulcer in such a case.

The text-books all draw attention to the necessity of excluding meat from the diet for three days before the test for occult blood is made—a precaution that is especially necessary when using such a sensitive reagent as the phenolphthalein solution.

---

*The reagent is prepared as follows:—100 c.c. of a 20 % solution of caustic soda are treated with 2 grammes of phenolphthalein and 10 grammes of zinc dust. The bright rose-coloured solution is heated gradually until it has assumed a slightly yellowish tone. The supernatant fluid is poured off into a coloured glass bottle and the access of air is prevented by the addition of a little liquid paraffin which floats on the top.
GASTRIC MOTILITY.

Another simple investigation that causes no discomfort to the patient is the test for gastric motility which can be made by administering along with a meal either iodipin (a combination of iodine with oil of sesame) or salol.

So long as the iodipin remains in the stomach it cannot be absorbed, but when it enters the intestine the pancreatic juice sets free the iodine which is at once excreted in the saliva, where it can be detected by the blue colour obtained on the addition of starch and nitric acid.

Salol is insoluble in the acid gastric contents, and can only be absorbed after it has been dissolved by the alkaline secretions that are poured into the duodenum. After absorption some of it is excreted in the urine in the form of salicyluric acid which gives a violet colour on the addition of perchloride of iron. In cases of chronic gastric catarrh, in which little hydrochloric acid and much alkaline mucus may be secreted, this test should not be employed.

If these tests of gastric motility are to be of any use it is necessary to know how long a period of time should elapse, in the case of a healthy individual, between the administration of the drug selected and its excretion. There is a considerable difference between the standard figures given in English text-books and the results obtained in South China. According to the best authorities, iodine should be found in the saliva in from 15 to 45 minutes, and salicyluric acid in the urine in from 30 to 60 minutes, after the administration of iodipin and salol respectively; with either drug "a delay beyond 75 minutes means either defective motility or pyloric obstruction."

In over 50% of the Swatow cases, however, iodine and salicyuric acid were not excreted till more than one hour and a half after their administration: the average length of time was one hour and 53 minutes. (See Table I.)

Occasionally, while there is no delay in the gastric contents beginning to enter the intestine, there is considerable delay in the stomach being completely emptied. Obviously iodine and salicyluric acid will continue to be present till after the stomach is empty, and in healthy people may be present as late as 27 hours after their administration. In the Swatow cases the average time that elapsed before iodine and salicyluric acid disappeared from the secretions was 28 hours. (See Table II.)
GASTRIC ANALYSIS.

In the consideration of gastro-intestinal diseases, however, we often require to know more than whether blood is or is not present in the stool, and whether gastric motility is or is not impaired: we require, even at some discomfort to the patient, to obtain the gastric contents for analysis. To one accustomed to the suspicion with which the Chinese rustic regards our new-fangled Western ways, it may seem surprising that the patients were willing to allow their gastric contents to be drawn off. If we had followed the example of the scientific Teuton and had endeavoured to remove the gastric contents on successive days at different intervals of time after varying test meals, the patients would doubtless have been less docile. But we contented ourselves with a single examination after a standard test meal, and only once found a patient unwilling to meet our wishes, and he objected, not to the passage of the stomach tube, but to drinking the half pint of weak tea that formed part of the test meal employed.

When a patient is met with who will not allow the passage of the stomach tube, other measures can be adopted. To estimate the acidity of the gastric contents, 30 grs. of bicarbonate of soda may be administered in two ounces of water one hour after a test meal. In the presence of a normal degree of acidity a fizzing sound will be heard when the ear is applied over the upper part of the abdomen. Similarly, the degree of peptic activity can be measured by getting the patient to swallow rubber packets containing methylene blue tied with catgut or fibrin; as soon as the ligature is digested the package will discharge its contents, and methylene blue will forthwith appear in the urine.

In most cases, however, it will not be difficult to secure permission to pass the stomach tube. The following points should be noted:—

1. In order that comparison may be made between the results obtained in different cases, it is necessary that the same test meal should always be used. The most commonly employed is Ewald's test breakfast, which consists of 35 gms. of bread and 400 c.c. of water or weak tea (without milk or sugar), i.e., an ordinary slice of bread and a breakfast cup and a half of tea.

2. The time between the administration of the breakfast and the withdrawal of the gastric contents should be exactly one hour.

3. Water must not be poured into the stomach to assist the removal of the gastric contents, for this will not only give an inaccurate figure for the quantity of the residue, but by diluting this, will render inaccurate all the other results of the examination.
We will now consider the findings obtained in 33 healthy natives of Swatow, no one of whom had made any complaint of dyspeptic symptoms.

Quantity of Gastric Residue. As we have already found that the motor power of the stomach is diminished in Chinese as compared with Europeans, it is not surprising to find that the amount of the gastric contents an hour after a test meal is usually much larger than the European text-books would lead one to expect. Thus, while according to Boas this is normally 20-25 c.c. only two of those examined showed so small a quantity as this, and the average was 112 c.c. Musser states that quantities between 100 and 300 c.c. "are due either to hyper-secretion or more probably to organic obstruction at the outflow"; but quantities over 100 c.c. appear to be normal for natives of South China. (See Table III.)

Hydrochloric Acid. The gastric contents of each patient were tested with freshly prepared phloroglucin and vanillin for the presence of free hydrochloric acid, which was found in every case. The percentage of free hydrochloric acid was then determined by means of methyl orange and decinormal soda solution.* In the cases examined this was found to vary between .09% and .18%, with an average of .14%—practically the same figure as that obtained by Strauss on examining 170 healthy Europeans. (See Table IV.)

Total Acidity. The next point was to determine the degree of acidity to phenolphthalein, which remains colourless till not only the free hydrochloric acid, but also that which is combined with proteid matter, the acid salts, and also any organic acids present, have all been neutralised, when a further addition of soda produces a pink colour. This total acidity varied between 36 and 82, i.e., that number of cubic centimetres of deci-normal caustic soda were required to neutralise the acidity of 100 c.c. of gastric contents. This shows little divergence from the wide range that the text books allow, viz., 30 to 70, or 50 to 75. (See Table V.)

Lactic Acid. Lactic acid was tested for by Kelling's method, which is simpler and more definite than the test most generally quoted

*The red colour which methyl orange (dimethyl-amido-azo-benzol) gives in the presence of free hydrochloric acid changes to a pale straw colour as soon as enough soda has been added to neutralise the free acid. The percentage of free hydrochloric acid can be calculated from the quantity of deci-normal sodium hydrate required to effect the neutralisation. Lactic acid, if present to the extent of .5%, also gives a red colour with methyl orange, but it is very rarely present in so large an amount.
in the books.* In no case was lactic acid found, the amount that might be present in the bread of Ewald’s test breakfast being negligible.

Ferments. The study of the ferments of the gastric juice is even more interesting than that of its acidity. In the case of organic diseases of the stomach the acids and ferments are proportionately diminished; in the case of constitutional diseases on the other hand, though the acids are often diminished, the ferments are never affected.

(a) Rennin (Chymosin). Nothing is easier than to test for the presence of rennin. Add a small quantity of filtered gastric contents to a little milk, and if rennin is present, clotting will rapidly take place. The test can be made a quantitative one by using a series of test-tubes containing fresh milk along with progressive dilutions of gastric contents. After two hours the temperature is raised to 37° C., whereupon clotting will be found to have taken place in those tubes which contain sufficient rennin. Clotting normally takes place in dilutions of 1-100 to 1-150 (Boas), and failure to clot in a dilution of 1-10 may be taken as evidence of a gastric catarrh that is incurable and probably secondary to carcinoma of the stomach. In the Swatow cases it was found that the average of the greatest dilution in which clotting occurred was 1-80. (See Table VI.)

(b) Pepsin. It is equally easy to measure the other ferment of the gastric juice, pepsin. An Esbach’s albuminometer is filled up to the mark U with a mixture containing two parts of white of egg solution and one part of gastric juice. Another albuminometer is filled up to the same mark with two parts of the same egg solution and one part of distilled water. These tubes are kept at 37° C. for an hour, and are then filled up to the mark R with Esbach’s picric acid solution, whereupon the unpeptonised white of egg will be precipitated. Twenty-four hours later the amount of the precipitate may be read off, and the difference between the two tubes will show the degree of peptonising activity of the gastric juice.

We have no time here for the consideration of the tests for the functional activity of the liver and the pancreas—the two principal glands whose secretions are poured into the duodenum—but it may be said that the tests are simple, yield valuable information, and in the case of the liver at any rate, can be carried out without causing any discomfort to the patient.

*Simon’s modification of Kelling’s test:—To a test-tube full of water a drop or two of solution of perchloride of iron is added, so that the liquid is barely coloured. One half is poured into a second tube to serve as a control, and a small amount of gastric filtrate is added to the first tube, when in the presence of lactic acid a canary-yellow colour develops at once.
In conclusion I would submit:

1. That it is the duty of every practitioner treating cases of dyspepsia amongst the Chinese to endeavour to find out what is the pathological condition causing their discomfort, and that this can best be done by a careful chemical investigation of the contents of the alimentary canal.

2. That it is worth the while of a busy man to spend some weeks in training a trustworthy Chinese assistant to carry out the simple tests outlined in this paper.

3. That the presence of occult blood in the stools of a dyspeptic patient must not be assumed to be evidence of the existence of a pyloric ulcer, for in Chinese the usual cause of this combination is ankylostome infection.

4. That the motor power of a Chinese stomach, at any rate in the Swatow region, is less than that of a European, so that (a) if tests are made with iodipin and salol one must not expect iodine and salicyluric acid to appear in the secretions as soon as they do in Europeans; and (b) if the gastric contents are removed one hour after a test meal the amount of residue will be larger than is usually found in Europe or America.

Table I.—Gastric Motility.

Showing the length of time that was found to elapse in 33 healthy individuals between the administration of salol (or iodipin) with the food, and the appearance of salicyluric acid (iodine) in the urine (and saliva).

The drug appeared in the secretion in:

<table>
<thead>
<tr>
<th>Time</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½ hour</td>
<td>1 case</td>
</tr>
<tr>
<td>2 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>2½ hours</td>
<td>5 cases</td>
</tr>
<tr>
<td>3 hours</td>
<td>9 cases</td>
</tr>
<tr>
<td>3½ hours</td>
<td>8 cases</td>
</tr>
<tr>
<td>4 hours</td>
<td>7 cases</td>
</tr>
<tr>
<td>5 hours</td>
<td>2 cases</td>
</tr>
<tr>
<td>6½ hours</td>
<td>2 cases</td>
</tr>
</tbody>
</table>

Average = one hour fifty-three minutes.

Table II.—Gastric Motility.

Showing the length of time that was found to elapse in 26 healthy individuals between the administration of salol (or iodipin) with the food, and the disappearance of salicyluric acid (iodine) from the urine (and saliva).

The drug disappeared from the secretion in:

<table>
<thead>
<tr>
<th>Time</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 hours</td>
<td>2 cases</td>
</tr>
<tr>
<td>25 hours</td>
<td>10 cases</td>
</tr>
<tr>
<td>26 hours</td>
<td>5 cases</td>
</tr>
<tr>
<td>27 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>28 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>29 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>30 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>31 hours</td>
<td>1 case</td>
</tr>
<tr>
<td>32 hours</td>
<td>4 cases</td>
</tr>
</tbody>
</table>

Average 28 hours.
TABLE III.—QUANTITY OF GASTRIC RESIDUE.

Showing the volume of gastric contents removed from the stomachs of 33 healthy Chinese one hour after an Ewald's test breakfast.

<table>
<thead>
<tr>
<th>Less than 40 c.c.</th>
<th>40-79 c.c.</th>
<th>80-119 c.c.</th>
<th>120-159 c.c.</th>
<th>160-199 c.c.</th>
<th>200-239 c.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 cases</td>
<td>10 cases</td>
<td>10 cases</td>
<td>4 cases</td>
<td>5 cases</td>
<td>2 cases</td>
</tr>
</tbody>
</table>

Average 112 c.c.

TABLE IV.—FREE HYDROCHLORIC ACID.

Showing the percentage of free hydrochloric acid present in the filtered gastric contents referred to in Table III.

<table>
<thead>
<tr>
<th>Less than .076%</th>
<th>.076-.1%</th>
<th>.101-.125%</th>
<th>.126-.15%</th>
<th>.151-.175%</th>
<th>.176-.2%</th>
<th>.201-.225%</th>
<th>.226-.25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 case</td>
<td>6 cases</td>
<td>7 cases</td>
<td>7 cases</td>
<td>4 cases</td>
<td>3 cases</td>
<td>3 cases</td>
<td>2 cases</td>
</tr>
</tbody>
</table>

The average figure was .14% of hydrochloric acid.

TABLE V.—TOTAL ACIDITY OF GASTRIC CONTENTS.

Showing the number of cubic centimetres of deci-normal soda solution required to neutralise 100 c.c. of the filtered gastric contents (to phenolphthalein).

<table>
<thead>
<tr>
<th>31-40 c.c.</th>
<th>41-50 c.c.</th>
<th>51-50 c.c.</th>
<th>61-70 c.c.</th>
<th>70-80 c.c.</th>
<th>81-90 c.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cases</td>
<td>8 cases</td>
<td>8 cases</td>
<td>5 cases</td>
<td>7 cases</td>
<td>2 cases</td>
</tr>
</tbody>
</table>

The average number of cubic centimetres required in these cases was sixty.

TABLE VI.—ESTIMATION OF RENNIN (CHYMOSIN).

Showing for each dilution of the gastric juice the number of cases in which it caused milk to clot within two hours.

<table>
<thead>
<tr>
<th>Ratio of gastric contents to milk...</th>
<th>1:24</th>
<th>1:48</th>
<th>1:96</th>
<th>1:192</th>
<th>1:384</th>
<th>1:768</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases in which clotting was complete in two hours...</td>
<td>33</td>
<td>32</td>
<td>19</td>
<td>11</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

The average of the weakest dilution in which clotting took place was one part of gastric juice in 80 parts of milk.
Diet Lists for Chinese.

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Hutchison, R. and Rainy, H. "Clinical Methods."
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Panton, P. N. "Clinical Pathology."
Riegel, F. "Diseases of the Stomach" (Nothnagel's Practice of Medicine).

The following articles were also referred to:

DIET LISTS FOR USE IN THE HOSPITAL OF THE UNION MEDICAL COLLEGE, TSINAN, SHANTUNG.*

JAMES BOYD NEAL, M.A., M.D.

The following lists are an attempt to apply to the diet of the Chinese the rules which hold in determining the food of foreigners in their native lands, using in every case, except in the milk diets, the articles of food in common use among the Chinese, and endeavoring, as far as possible, to meet their tastes and wishes. Before making them out some investigation was made into the amount of food usually eaten by ordinary Chinese, and after the lists were complete (in fact during the process of compiling them) they were constantly checked by reference to what was consumed by various classes of Chinese. Some of these investigations, all of which were carried out by the medical students of the college, will be referred to later.

It was determined from the first to make out three lists, one for the use of the ordinary employees about the hospital, such as nurses, coolies, etc.; another for the use of patients lying in bed after operations, who had no fever nor other complications which would forbid their eating ordinary food, but who were taking no exercise: and finally one made up principally of milk for the use of fever and other patients who were incapable of digesting ordinary fare.

* A paper read at the Biennial Conference of the C. M. M. A., held in Shanghai, February, 1915.
The standard used was that determined by Atwater, quoted in Howell's Physiology, namely, 3,400,000 calories for a man doing moderate muscular work, and 2,400,000 calories for a man doing no muscular work, the milk diet being based on the general usage of four pints a day, or thereabouts, supplemented by other light foods.

The practical working out of these lists in actual practice has yet to be tested, and will have to be done on a large scale before reliable results can be arrived at.

Four lists have been made out for each variety of diet, so that a certain variety may be secured by weekly or daily changes, and each list is in both grams and Chinese weights.

A. DIETS FOR ABLE-BODIED MEN OR WOMEN, DOING MODERATE MUSCULAR WORK:


| 800 grams Bread (Chinese momo)... | 73.60 | 10.40 | 424.80 | 2,084,000 |
| 80 ,, Rice ... ... ... | 6.40 | 1.60 | 61.60 | 286,080 |
| 80 ,, Millet ... ... ... | 9.44 | 3.20 | 45.92 | 258,880 |
| 60 ,, Bean Oil ... ... ... ... | 60.00 | ...... | ..... | 364,000 |
| 600 ,, Cabbage ... ... ... | 8.40 | 1.20 | 28.80 | 157,800 |
| 97.84 | 76.40 | 561.12 | 3,344,760 |

1b.

| 9 momo @ 93 grams each, 837 grams | 77.00 | 11.88 | 444.44 | 2,180,385 |
| 2 ozs. Rice, 76 grams ... ... ... | 6.08 | 1.52 | 58.52 | 271,776 |
| 2 ozs. Millet, 76 grams ... ... ... | 8.97 | 3.04 | 43.62 | 245,936 |
| 1½ ozs. Bean Oil, 57 grams ... ... ... ... | 57.00 | ...... | ...... | 335,800 |
| 1 catty Cabbage, 604 grams ... ... ... | 8.45 | 1.20 | 28.98 | 152,912 |
| 100.50 | 74.64 | 575.56 | 3,386,709 |

2a.

| 900 grams Bread (Chinese momo)... | 82.80 | 11.70 | 497.90 | 2,344,500 |
| 80 ,, Millet ... ... ... | 9.44 | 3.20 | 45.92 | 258,880 |
| 400 ,, Cabbage ... ... ... | 5.60 | 0.80 | 19.20 | 101,200 |
| 120 ,, Spinach ... ... ... | 2.50 | 0.36 | 3.84 | 29,160 |
| 60 ,, Bean Oil ... ... ... ... | 60.00 | ...... | ..... | 364,000 |
| 40 ,, Pork... ... ... ... | 5.36 | 9.68 | ...... | 112,150 |
| 105.70 | 85.74 | 566.86 | 3,409,900 |

2b.

| 9 momo @ 93 grams each, 837 ... ... ... | 77.00 | 10.88 | 444.44 | 2,180,385 |
| 2 ozs. Millet, @ 38.76 grams ... ... ... | 8.97 | 3.04 | 43.62 | 245,936 |
| 10 ozs. Cabbage, @ 380 grams ... ... ... | 5.32 | 0.76 | 18.24 | 96,140 |
| 3 ozs. Spinach, 114 grams ... ... ... | 2.39 | 0.34 | 3.65 | 27,702 |
| 1½ ozs. Bean Oil, 57 grams... ... ... ... | 57.00 | ...... | ..... | 335,800 |
| 1 oz. Pork, 38 grams ... ... ... | 5.09 | 9.19 | ...... | 106,552 |
| 6 ozs. Sweet Potatoes, 228 grams ... ... ... | 3.19 | 1.37 | 49.93 | 221,388 |
| 101.96 | 82.58 | 559.88 | 3,413,903 |
### Diet Lists for Chinese

#### 3a.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>700 grams Bread (Chinese momo)...</td>
<td>64.40</td>
<td>9.10</td>
<td>371.70</td>
<td>1,823,500</td>
</tr>
<tr>
<td>280</td>
<td>Rice...</td>
<td>22.40</td>
<td>5.60</td>
<td>215.60</td>
</tr>
<tr>
<td>80</td>
<td>Beef...</td>
<td>16.16</td>
<td>1.92</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>Celery</td>
<td>2.64</td>
<td>8.16</td>
<td>42,240</td>
</tr>
<tr>
<td>40</td>
<td>Bean Oil</td>
<td>.....</td>
<td>40.00</td>
<td>375,000</td>
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</table>

105.60 56.50 595.46 3,326,860

#### 3b.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7 momo @ 93, 651 grams ...</td>
<td>59.89</td>
<td>8.46</td>
<td>345.58</td>
<td>1,695,855</td>
</tr>
<tr>
<td>8 ozs. Rice, 304 grams ...</td>
<td>24.32</td>
<td>8.08</td>
<td>234.08</td>
<td>1,087,104</td>
</tr>
<tr>
<td>2 ozs. Beef, 76 grams ...</td>
<td>15.38</td>
<td>1.82</td>
<td></td>
<td>79,648</td>
</tr>
<tr>
<td>6 ozs. Celery, 228 grams ...</td>
<td>251</td>
<td>.....</td>
<td>7.75</td>
<td>40,128</td>
</tr>
<tr>
<td>1½ ozs. Bean Oil, 57 grams ...</td>
<td>.....</td>
<td>57.00</td>
<td></td>
<td>535,800</td>
</tr>
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</table>

102.07 75.36 587.51 3,438,535

#### 4a.

<table>
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>900 grams Bread ...</td>
<td>82.80</td>
<td>11.70</td>
<td>477.90</td>
<td>2,344,500</td>
</tr>
<tr>
<td>80</td>
<td>Millet</td>
<td>9.44</td>
<td>3.20</td>
<td>459.92</td>
</tr>
<tr>
<td>400</td>
<td>Celery</td>
<td>4.40</td>
<td>13.00</td>
<td>70,400</td>
</tr>
<tr>
<td>40</td>
<td>Pork</td>
<td>5.36</td>
<td>9.68</td>
<td>112,160</td>
</tr>
<tr>
<td>60</td>
<td>Bean Oil</td>
<td>.....</td>
<td>60.00</td>
<td>564,000</td>
</tr>
</tbody>
</table>

102.60 84.58 537.42 3,349,940

#### 4b.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9 momo, 837 grams...</td>
<td>77.00</td>
<td>10.88</td>
<td>444.44</td>
<td>2,180,385</td>
</tr>
<tr>
<td>2 ozs. Millet, 76 grams ...</td>
<td>8.96</td>
<td>3.04</td>
<td>43.62</td>
<td>245,936</td>
</tr>
<tr>
<td>10 ozs. Cabbage, 380 grams ...</td>
<td>4.18</td>
<td>12.92</td>
<td>66.8 0</td>
<td></td>
</tr>
<tr>
<td>2 ozs. Pork, 76 grams ...</td>
<td>10.18</td>
<td>18.38</td>
<td>213,104</td>
<td></td>
</tr>
<tr>
<td>1½ ozs. Bean Oil, 57 grams ...</td>
<td>.....</td>
<td>57.00</td>
<td></td>
<td>535,800</td>
</tr>
<tr>
<td>5 ozs. Sweet Potatoes, 190 grams...</td>
<td>2.66</td>
<td>11.14</td>
<td>184,490</td>
<td></td>
</tr>
</tbody>
</table>

102.98 90.44 542.59 3,426,595

#### B. Diets for Patients Lying in Bed and Doing No Muscular Work

##### 5a.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>700 grams Bread ...</td>
<td>64.40</td>
<td>9.10</td>
<td>371.70</td>
<td>1,823,500</td>
</tr>
<tr>
<td>40</td>
<td>Rice...</td>
<td>3.20</td>
<td>.80</td>
<td>30.80</td>
</tr>
<tr>
<td>80</td>
<td>Millet</td>
<td>9.44</td>
<td>3.20</td>
<td>45.92</td>
</tr>
<tr>
<td>450</td>
<td>Cabbage</td>
<td>6.30</td>
<td>.90</td>
<td>21.60</td>
</tr>
<tr>
<td>40</td>
<td>Beef...</td>
<td>8.08</td>
<td>.96</td>
<td></td>
</tr>
</tbody>
</table>

91.42 14.96 470.02 2,381,190

##### 5b.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 momo, 744 grams...</td>
<td>68.44</td>
<td>10.67</td>
<td>395.05</td>
<td>1,938,120</td>
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<tr>
<td>1 oz. Rice, 38 grams ...</td>
<td>3.04</td>
<td>.76</td>
<td>29.26</td>
<td>135,888</td>
</tr>
<tr>
<td>2 ozs. Millet, 76 grams ...</td>
<td>8.96</td>
<td>3.04</td>
<td>43.62</td>
<td>245,936</td>
</tr>
<tr>
<td>12 ozs. Cabbage, 456 grams ...</td>
<td>6.38</td>
<td>.91</td>
<td>21.88</td>
<td>113,565</td>
</tr>
<tr>
<td>1 oz. Beef, 38 grams ...</td>
<td>7.67</td>
<td>.91</td>
<td></td>
<td>39,824</td>
</tr>
</tbody>
</table>

94.49 16.29 489.82 2,475,136
### MODIFIED MILK DIETS FOR INVALIDS:

<table>
<thead>
<tr>
<th>Description</th>
<th>Protein</th>
<th>Fat</th>
<th>Carbohydrates</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,800 cc. Milk, 4 pints, 3 catties</td>
<td>59.40</td>
<td>72.00</td>
<td>90.00</td>
<td>1,251,000</td>
</tr>
<tr>
<td>600 cc. Beef broth, 1 catty</td>
<td>26.40</td>
<td>2.40</td>
<td>6.60</td>
<td>159,000</td>
</tr>
<tr>
<td>85.80</td>
<td>74.40</td>
<td>96.60</td>
<td>1,410,000</td>
<td></td>
</tr>
</tbody>
</table>

**6a.** 600 grams Bread ... ... ... 55.20 7.80 318.60 1,563,000
120 ,, Millet ... ... 14.16 4.80 68.88 358,320
66 ,, Eggs (2) ... ... 9.76 6.93 44.24 101,244
160 ,, Celery ... ... 1.76 ...... 5.44 26,160
20 ,, Lard ... ... ...... 20.00 ...... 188,000
80 ,, Beef ... ... 16.16 1.92 ...... 83,840

97.04 41.45 392.92 2,352,564

**6b.** 7 momo, 651 grams ... ... 59.88 9.46 345.68 1,695,855
3 ozs. Millet, 114 grams ... ... 13.45 4.59 65.43 368,504
2 Eggs, 66 grams ... ... 9.76 6.93 44.24 101,244
4 ozs. Celery, 152 grams ... ... 1.67 ...... 5.17 26,752
7/2 oz. Lard, 19 grams ... ... ...... 19.00 ...... 178,600
2 ozs. Beef, 76 grams ... ... 15.35 1.82 ...... 79,648

100.11 41.77 416.28 2,451,003

**7a.** 600 grams Bread ... ... ... 55.20 7.80 318.60 1,563,000
200 ,, Rice ... ... 16.00 4.00 154.00 715,200
60 ,, Beef ... ... 12.12 1.44 ...... 62,880
120 ,, Celery ... ... 1.32 ...... 4.08 21,120

84.64 13.24 476.58 2,352,200

**7b.** 7 momo, 651 grams ... ... 59.88 8.46 345.68 1,695,855
3 ozs. Rice, 150 grams ... ... 15.20 3.80 146.30 679,440
1 1/2 ozs. Beef, 57 grams ... ... 11.51 1.37 ...... 59,736
5 ozs. Celery, 150 grams ... ... 2.09 ...... 6.46 33,440

88.68 13.65 498.44 2,458,471

**8a.** 700 grams Bread ... ... ... 64.40 9.10 371.70 1,825,500
140 ,, Millet ... ... 16.52 5.60 80.36 453,040
400 ,, Cabbage ... ... 5.60 .89 19.20 101,200
20 ,, Beef ... ... 4.04 .48 ...... 20,960

90.86 15.98 471.26 2,398,700

**8b.** 8 momo, 744 grams ... ... 68.45 9.67 395.06 1,938,120
3 ozs. Millet, 114 grams ... ... 13.45 4.59 65.43 368,904
10 ozs. Cabbage, 380 grams ... ... 5.32 .76 18.24 96,140
1 oz. Beef, 38 grams ... ... 7.66 .90 ...... 39,824

94.88 15.89 478.73 2,442,988

C. MODIFIED MILK DIETS FOR INVALIDS:
### Diet Lists for Chinese.

<table>
<thead>
<tr>
<th></th>
<th>Proteid</th>
<th>Fat</th>
<th>Carbohydrates</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>1,800 cc. Milk, 4 pints, 3 catties, 100 grams Rice, 2½ ozs. Chinese</td>
<td>59.40</td>
<td>72.00</td>
<td>90.00</td>
</tr>
<tr>
<td></td>
<td>8.00</td>
<td>2.00</td>
<td>77.00</td>
<td>557,600</td>
</tr>
<tr>
<td></td>
<td>67.40</td>
<td>74.00</td>
<td>167.00</td>
<td>1,608,600</td>
</tr>
<tr>
<td>11.</td>
<td>1,800 cc. Milk, 4 pints, 3 catties. 4 Eggs, 132 grams</td>
<td>59.40</td>
<td>72.00</td>
<td>90.00</td>
</tr>
<tr>
<td></td>
<td>19.54</td>
<td>13.86</td>
<td>202,488</td>
<td></td>
</tr>
<tr>
<td></td>
<td>73.94</td>
<td>85.86</td>
<td>90.00</td>
<td>1,453,488</td>
</tr>
<tr>
<td>12.</td>
<td>1,800 cc. Milk, 2 catties. 4 Eggs, 132 grams 100 grams Arrowroot, 2½ ozs. Chinese</td>
<td>39.60</td>
<td>48.00</td>
<td>60.00</td>
</tr>
<tr>
<td></td>
<td>19.54</td>
<td>13.86</td>
<td>202,488</td>
<td></td>
</tr>
<tr>
<td></td>
<td>59.14</td>
<td>61.86</td>
<td>160.00</td>
<td>1,448,488</td>
</tr>
</tbody>
</table>

In all the above calculations a Chinese catty has been taken as equal approximately to 600 grams, and a Chinese ounce to 38 grams. In the ordinary diets an attempt has been made to confine the amount of proteid matter to approximately 100 grams.

The number of calories yielded by the different kinds of food were taken from charts issued by the United States Government in Washington, supplemented in a few instances from other sources. Pure proteids were taken as yielding 4,100 calories per gram; pure carbohydrates the same, namely 4,100, and pure fats 9,400 calories.

The following investigations were made by the students in the class in physiological chemistry, in connection with the fixing of the foregoing tables:

1st. The food furnished to 26 people in our own hospital, by the hospital cook, including men, women, and children, five nurses and two cooks, at a contract price of 9,000 cash per month, equivalent to about Mex. $3.30. The individual average per day was as follows: Proteid, 116 grams; Fat, 24 grams; Carbohydrates, 611 grams; yielding in all 3,117,300 Calories.

2nd. The food of eight medical students in the summer of 1914 at a contract price of 10,000 cash, equal to Mex. $3.70. The average per individual was as follows: Proteid, 121; Fat, 75; Carbohydrates, 574; yielding Calories 3,494,900.

3rd. The food of 38 medical students in the autumn of 1914, at an average cost of 8,500 cash, equal to Mex. $3.10, was as follows: Proteid, 110; Fat, 24; Carbohydrates, 504; yielding Calories 2,670,000.

4th. The food of 47 scholars in the Mission Middle School of Tsinan, between the ages of 14 and 20, was the following per individual:
Proteid, 133; Fat, 30; Carbohydrate, 597; Calories, 3,290,000; costing on an average 7,300 cash, equal to Mex. $2.70.

5th. The food of 35 men in the Commercial School yielded the following results: Proteid, 106; Fat, 154; Carbohydrates, 469; Calories, 3,819,944; the cost being 12,000 cash, equal to Mex. $4.40.

In each of the above cases the supply of food was carefully gone into and the amounts of the different constituents and the calories calculated from the government tables referred to above.

CAUSES AND TREATMENT OF INDIGESTION AMONG THE KOREANS.

T. H. DANIEL, M.D., Chunju, Korea.

In Korea probably no ailment or disease is met with more frequently by the physician than Indigestion. A little reflection shows this may be expected, for its causes are interwoven with habits and customs of the people which have been passed down for generations. From the standpoint of treatment this is discouraging as it will be difficult to secure permanently satisfactory results until the habits and customs inimical to health have been changed. It is an axiom of therapeutics that the cure of any morbid condition requires the removal of the cause.

If the Korean had as his object in life the development of alimentary disorders, he could hardly secure it more effectively than by adhering to his present methods of feeding and insanitary habits. For instance, the newly-born baby is nursed, not at regular intervals or with any regular amount of food, but with the one idea of stuffing it until it does not cry. The fact that the stomach frequently rebels and throws off what it cannot hold is disregarded, and with the idea that what was thrown off must be replaced the stomach is stuffed again. Frequently, in this way, a vicious circle is established.

Fortunately for the Korean race, the women are good milk producers. But when mother's milk fails the child is stuffed with rice gruel, or, among the well to do, with condensed milk, in an utterly unscientific way, and usually with direful results. By the time the child has reached the age when it could with impunity be given gruels, it is usually given rice in large quantities, pickled cabbage and turnips, and green fruits in season. Thus from infancy the seed of digestive troubles is planted by the improper use of proper food, and the use of utterly unsuitable food.
But the violation of nature's laws is not confined to the early years of life. To initiate the processes of digestion it is necessary that rice, their staple article of diet, should be thoroughly masticated to break up the solid parts, and well mixed with the saliva, so that the ptyalin may convert it into a soluble starch. With the Korean, however, these processes are reduced to the minimum. He bolts his food without sufficient mastication and without thoroughly mixing it with saliva. Of course, this throws an extra burden on the stomach, the continuance of which cannot fail to bring trouble later on.

The lack of proper care of the teeth is another thing that certainly must have its effect. The very general use of salt in cleansing the teeth is good, but the best of care does not always eliminate the need of dental work, and the entire lack of any means of repairing decayed teeth has not failed to add to the digestive chain of troubles.

The character of the food is another link in the chain of causes. Rice is a good food, but rice as the only food cannot completely meet the needs of the system. The more highly artificial the civilization, the greater the need of a varied diet. I am convinced that a greater variety in the Korean's diet would improve and render more efficient the digestive processes.

Constipation might be mentioned as one of the effects of indigestion, but I am inclined to put it among the causes, for I believe that in no inconsiderable degree digestive troubles are due to the ignorance of the necessity of regular bowel evacuations. Koreans, like most people and things, are apt to move along lines of least resistance, and it is troublesome to go to stool daily, when apparently every second, third or fourth day will do equally well. Some months ago a young mother brought her six weeks old baby to me stating that it was vomiting constantly. When I asked about the bowels she stated that they were all right. Upon more careful inquiry, however, as to what she considered all right, I found that the baby was having one hard constipated movement a week! The mother was greatly surprised at the way I received the information and stated that such a condition in their infants was considered most desirable by Korean mothers.

Unclean food contaminated with the ova of intestinal parasites is, I think, a common cause of intestinal disorders. The intestinal canal of the Oriental seems to provide every essential favorable to the development of every variety of parasite. Anyone who has investigated along this line is persuaded that the Korean who cannot provide him with at least two varieties of parasites for study is a very uncommon individual. In our hospital, where routine examination of stools
of all patients is made, we find that over 95% of all cases are infected. The whipworm leads all parasites in frequency, but whether or not this is pathogenic is an unsettled question. I have not been able to make out a case against it, but ascaris, ankylostoma, taenia, clonorchus sinensis and other parasites, when present, are largely responsible for many digestive disturbances. Too much emphasis cannot be laid on the importance of animal parasites in the etiology of indigestion. Some observers have stated that the round-worms and tape-worms are not pathogenic, but the burden of proof is on them. Marked improvement after the canal has been rid of these worms has been too commonly observed in my work for me to entertain any other idea than that they are important causes of trouble in the alimentary canal. Every case of indigestion should be examined for worms, and I feel sure that such a procedure would soon prove its value.

In the discussion of the varieties of indigestion we have a difficult matter to deal with. The lack of autopsy work and of careful chemical examinations of gastric contents render it difficult to treat the matter in a scientific way. We have to depend largely upon clinical observations.

One of the most noteworthy things it seems to me, after nearly eleven years' work in Korea, is the absence of two conditions so frequently met with in western lands, viz., hyperchlorhydria with peptic ulcer, and appendicitis. I have yet to see the first case out here which I could diagnose as ulcer of the stomach. No doubt such cases exist, and some of you have probably seen them, but they are certainly not so common as in western lands. Dr. Mills, of Severance Hospital, Seoul, tells me that all the examinations of gastric contents made by him have shown much less acid than is met with in the average American or European. No doubt the lack of meat diet explains this partly, but it is also very likely that the lack of strenuosity and nervous tension in the daily life has something to do with it. If those who live the simple, unhurried and unworried life are comparatively free from hyperchlorhydria, then certainly the Korean should be almost immune!

The second condition, the infrequency of which is noteworthy, is appendicitis. I was so struck with this the first few years of my practice out here that I really questioned whether the Korean possessed such an organ as an appendix; and I recall that at the first autopsy I performed, which was done, by the way, behind locked doors and screened windows, the first thing I did was to ascertain the presence of this organ. In later years I have had some cases, and there are undoubtedly many cases of appendicitis that we never see, but certainly the trouble is far less frequent than in our homeland. The
Indigestion Among the Koreans.

cause of this I will not attempt to establish. It would be interesting to
know whether in the future, when the habits, customs and diet of the
people have been influenced by contact with the western world, there
will be an increase in these two conditions.

So much for the varieties of disease not frequently met with. It
would be impracticable in a paper of this length to incorporate all the
varieties we do see. In order to be as definite and practical as possible
I have chosen to consider the subject under two main heads, viz.,
disorders of the stomach, and of the intestines.

Acute Gastritis is frequently met with, but a far larger num-
ber of cases never come to us as the Korean rarely seeks the foreign
physician at the beginning of the trouble, and many of the cases
recover without medical treatment. Epigastric pain and burning;
nausea and vomiting, characterize the attacks and sometimes the
exhaustion following a prolonged attack is pronounced. If vomiting
continues for a long time the vomiting may be streaked with blood:
In a large majority of these cases my experience has been that they
quickly yield to treatment. If vomiting has been free, lavage is
usually not necessary. Allow no food of any kind, give calomel in
small divided doses without water, maintain absolute quiet, and these
cases will usually respond favorably. If these measures do not give
relief, continued bathing of the face with iced water, or the application
of a mustard plaster to the epigastrium, or sips of hot water, or
crushed ice, may help. In persistent cases the stomach tube must be
resorted to, but I have not usually found it necessary.

Chronic Gastritis: Just what proportion of cases which give
symptoms of this condition really show the pathology of a chronic
inflammation I am not in a position to state. I recall a few years
ago hearing Dr. R. C. Cabot of Harvard make the statement that
chronic gastritis, as a true pathological condition, was such a rarity
that it might be stated as not existing. Such a statement from such
an authority, based on his extensive observations in the autopsy room,
is hard to contradict.

But how are we to explain the cases we see every day,—with
precordial and epigastric pain after eating, belching; nausea and
vomiting? Clinically, we certainly have a condition which seems to be
a chronic gastritis. The following case is one of many which could be
given to illustrate this:

A young man 24 years of age, of well-to-do family, temperate habits, entered
the hospital giving a history of chronic indigestion for two years. He was rather
weak and anæmic looking, and stated that for nearly two years he had been able
to retain but very little food on his stomach; the statement being that he vomited two-thirds of all the solid food he ate, but he could retain gruels. The bowels were fairly regular, never going more than two days without a movement. No tenderness of abdomen could be elicited. History was verified during his stay in the hospital. During the first few days solid food was allowed in small amounts and each time vomiting followed. Milk and gruels were retained. Examination of stools showed the presence of trichocephalus eggs only. Lavage before breakfast showed no remains of what had been eaten in the middle of the night.

This might be explained as a neurosis of the stomach, but the occurrence of such cases is too frequent for this explanation to be satisfactory.

Atony and dilatation of the stomach are also frequently met with. I have found the following to be the easiest and most satisfactory method of demonstrating the dilated stomach:—Dissolve the two parts of a Seidlitz powder separately in two tumblers half full of water, and let the patient swallow the two in rapid succession and lie down at once. The outline of the stomach can usually be made out by the eye, but percussion will facilitate the examination. This is far less disagreeable to the patient than inflation through the stomach tube.

The treatment of these cases is most unsatisfactory. One reason of this is that most of the patients do not come into the hospital and it is next to an impossibility to get them to diet themselves at home. Indeed, the diet is no easy thing to arrange when they do enter the hospital, owing to the very limited variety of foods known in Korea. But a restricted diet is necessary, and the importance of thorough mastication should be impressed upon all these patients. Bowel evacuations should be secured daily, and to my mind nothing is better for this than Cascara Sagrada. In atony or dilatation, washing out the stomach daily gives some relief. Medicinally, I have found Hydrochloric Acid to be of considerable help, usually combined with Tr. Nux Vomica and Tr. Gentian. On the other hand, alkalies—soda or magnesia—not infrequently are very agreeable to the patient.

Passing from the stomach to the intestines, I think it may be safely said that the cause of most of the complaints can be summed up in the one word,—WORMS.

It is in the description of his intestinal disorders that the Korean waxes eloquent. He tells of a mass in the abdomen, about the size and shape of his fist, which moves about from one part to another but can never find a place where it is willing to repose in peace. This mass cannot be found on examination, but the almost complete unanimity with which it is described by all classes of patients is proof that the subjective symptoms must be very real. There is usually pain in the umbilical region. Examination of feces shows undigested
food and, in many cases, round-worms. It is no infrequent occurrence for these worms to work their way into the stomach and then be vomited out.

The clinical picture of an advanced case of hook-worm disease is so pronounced that it can usually be diagnosed without faecal examination. But the microscope will frequently show the presence of ucinaria when the symptoms are vague. Hence I repeat that to secure satisfactory results in the treatment of these intestinal disorders it is essential that careful microscopic examinations should be made of the stools. Intermittent diarrhoea with passing of undigested food and vague abdominal discomfort usually mean hook-worm disease.

Tape-worm also has its share in causing intestinal disorders. The segments passed are easily visible to the naked eye, so that the patient himself usually makes the diagnosis.

The treatment for these three varieties of helminthiasis is so commonly known that there is no use in detailing it here, but it may not be out of place to urge the continuance of treatment until the eggs are no longer found. It is remarkable how long some of these cases, especially of the hook-worm disease can resist treatment, but perseverance will usually give success.

Another parasite which is quite common, but which has not received the attention it merits, is the clonorchus sinensis. It is said to give rise to jaundice and diarrhoea, and it is very probable that it may account for some of the symptoms so commonly seen here in Korea. The worm and eggs are well described and illustrated in the "Diseases of China" by Jefferys and Maxwell. I have not been able to dislodge the parasite with any of the usual anthelmintics.

In bringing these few remarks to a close, let me state again that I believe the real causes of indigestion among the Koreans to be intimately related to their method of living, and that as practitioners we are not doing our full duty if we simply try to treat the individual case, and do not help the people to rid themselves of the underlying cause. At the time that directions are given to the patients for taking medicine, impress upon them the necessity of eating slowly, of thoroughly masticating the food, of careful attention to the bowels, of cleanliness in all matters connected with food and drink and of the food itself, and mothers should be instructed in the care and feeding of infants. These oral directions should be supplemented by literature bearing on the subject. A start has been made in this line with good results. So far so good, but the half has not been told, and not one in a hundred of the people has been reached.
FIVE YEARS' EXPERIENCE IN ASEPtic SURGERY IN AN INLAND HOSPITAL,*

O. T. LOGAN, M.D., Changteli, Hunan.

"Control your contact and you can operate in an outhouse," said Dr. J. M. T. Finney to me in Baltimore when I was home in 1909 and expressed my surprise that he would elect to operate on a wooden table. He went on to say that a glass table is not aseptic, and that it has to be covered as carefully with sterile sheets as does the wooden one. His wise remarks sank deep into my consciousness and the longer I watched his work the more I appreciated his point of view. One of the results of his counsel was that I spent nothing of my hardly obtained fund of seven hundred gold dollars for glass tables and so-called aseptic furniture, but instead invested heavily in a first class pressure sterilizer and a lot of additional instruments, laying in a lavish supply of artery forceps of several styles.

Now, I have no objections to an operating room with all the latest equipment; indeed, I hope we may have one some day, but I do not hesitate to say, in the light of five years' experience, that for once, at least, we acted wisely.

If I were given the choice of doing surgical work in the finest hospital building in China without a pressure sterilizer and rubber gloves, or of working in the plainest sort of a shed with them, I would not hesitate a moment in choosing the shed.

Prior to 1908, when I went on furlough, we were getting "good" results in the healing of wounds, using bare hands and plenty of bichloride solution, which we applied freely to the wounds whether they were clean or infected. We had been taught to take no chances on germs, and that it was good surgery to kill any that might have strayed into the wound during the operation. I do not know how many germs we killed, but I now know that we destroyed a lot of good tissue cells by this chemical treatment of freshly wounded surfaces. I would now no sooner irrigate a clean wound with bichloride or any other chemical than I would throw acid in the face of a friend. I love my friends the tissue cells that heal wounds of my making and cover up a lot of my surgical faults, so why should I insult them by killing off the first line of defense by.

*A paper read at the Biennial Conference of the C. M. M. A. held in Shanghai, February, 1915.
Caustics—for all antiseptics are caustics to exposed tissue. Normal salt is the only solution we allow for irrigation and sponging clean wounds, and it has served us ideally.

The purpose of this paper is to tell briefly the conditions under which our work has been done, and to give the results for what they may be worth.

Ours is an operating room with floor, furniture, and operating table all made of wood. The walls are whitewashed. There is a visitors' stand in the room, and it is generally filled with friends and well-wishers of the patient who is under the knife. We believe in the "open door" in China, so far as it is practicable, and always encourage visitors and friends to be present at operations. To this policy we owe, in my opinion, a good deal of the confidence the people show us. I believe that a great deal of bad talk is prevented by this practice. All our work, except cases known to be infected with streptococci, is done in this room. During the whole period under consideration the hospital has had the help of a foreign-trained nurse, and most of the time we have also had two Chinese physicians, graduates of the Union Medical College of Hankow. Many of the operations to be mentioned were done by these men, either assisted by myself or alone. Let it be written large that neither of the two infected cases reported is chargeable to them, for both were my operations.

Our city is comparatively free from dust. The country about here is low lying, and most of the dust we have is from mud carried in on the feet. The people are comparatively well-fed except in famine years. I mention these things so that the paper may better be understood, and that we may take no more credit than is due, for I know that many hospitals cannot report such good assistants and favorable conditions. I cannot refrain from expressing my belief, however, that given a good supply of sterile dressings, gowns, sheets, towels, and rubber gloves for all who have anything to do with the wound, results approximately as good as we have had can be obtained anywhere in China. Indeed, I shall not be surprised to hear that some of my colleagues have had better results in healing than we have had, under conditions less favorable than ours.

It was my purpose when I began this paper to give in detail the technic of preparation of patient, cleansing of the field and the hands of the operators and assistants, but I shall omit most of this and refer my hearers to modern text-books on the subject. I shall mention only a few things in which our practice has been a little different from that of most hospitals.
Rubber Gloves. Halstead dates aseptic surgery from the time rubber gloves were adopted. Our own Jefferys expressed my feelings when I was visiting St. Luke's Hospital, Shanghai, some years ago. I asked him his opinion of rubber gloves and he replied, "I have a decided prejudice against syphilis so I always wear rubber gloves." We believe that the patient has a right to be protected against the hands of surgeon and nurses in clean cases, and that we have the right to be protected in the septic cases, so we always wear them in all operations except those on the eye.

We use the heaviest surgical gloves made by Johnson & Johnson. These are seamless, and are lighter than the seamed gloves that were used by most of the surgeons in Johns Hopkins Hospital when I was watching the work there in 1909. Finney used these heavy seamed gloves and operated very rapidly and smoothly. I tried them awhile, but think they are harder to keep clean than the seamless glove and they do not last any longer. I like the heavy gloves, for they give a sense of security that one does not have with the lighter ones, and they are not so likely to wrinkle on the fingers.

We sterilize them by filling them with a solution of very hot bichloride 1:1000, and dropping them into a pitcher containing the same solution. They remain in this solution for an hour, after which they are dried on sterile towels by a nurse who wears sterile gloves. Finally they are dusted with sterile talc and stored in sterile double wrappers.

Our rule is that the gloves are to be thoroughly washed by those who are wearing them before removal after an operation, so as to cleanse them thoroughly. After pus cases the gloves are boiled, and in these cases we do not use our best gloves. Some excellent surgeons prefer to put on gloves while these are filled with a solution of bichloride, but I have seen some hands made very rough and tender by this method, and it seems to me that such hands cannot be scrubbed clean or sterilized by any process, so we have used the dry method with the result that the more one operates the smoother his hands become. It is hardly necessary to add that we prepare our hands and arms just as carefully as we would if we were not wearing gloves.

Ligatures. I was surprised to see Halstead and Finney using nothing but silk for ligatures. Finney told me that he had used all sorts of materials for ligatures but that he always came back to silk. For deep sutures we have sometimes used catgut and kangaroo tendon, but the bulk of the work beneath the skin has been done with fine silk. The white silk is much stronger than the black as the dye lessens the tensile strength. The reason for seldom using catgut is that every surgeon of
experience will tell you that he has had some serious infectious due to its use. Our little experience helps to bear out Halstead's contention that fine silk does not cause any trouble in wounds whether clean or infected. We have known of only one case where silk came to the surface. This was an interrupted heavy silk suture that was placed in an abdominal muscle. It came to the surface after several weeks but it came aseptically accompanied by a little bloody serum.

_Sterilizing Saline Solution._ We do not have apparatus for sterilizing water under pressure. It is very expensive and, in my opinion, unnecessary. I noticed that one of the best hospitals in the States that had a set of these did not use them but depended upon the method now to be described. Thin boiling flasks of one liter capacity are bought in Japan for about ten sen each, the saline solution is filtered into them, a plug of gauze is lightly inserted into the mouth of the flask, and a cap of cotton wool that covers the rim and a part of the neck is tied around this. Care is taken not to fill the flasks more than half full, as the ebullition of the solution will make the cap quite wet if more than this amount is used. The cap is tied on not too tightly to avoid breaking the neck of the flask when the heat expands the glass. The solution can be stored in these containers for a long time, and can be heated very quickly in the flasks, and by mixing the hot and cold solutions one can obtain any desired temperature very quickly. There is no chance of contamination from the mouths of such flasks, and they are very handy to use.

_Dressings._ These are sterilized in double wrappers made of sheeting or some fairly closely woven cloth. Metal containers are expensive and I think not so safe as the wrappers, provided these are stored in a dry place.

We use very little cotton wool for dressings but use gauze instead. The gauze is repeatedly washed, boiled, sterilized, and used for secondary dressings.

It is hardly necessary to mention that a good stock of towels, sheets, operating gowns, mouth protectors, and caps are indispensable if we are to control our contact. The cost of these supplies is considerable, and it takes a good deal of work to keep a stock of them sterilized, but one saves a great deal of dressing material because the average clean case will not require more than two dressings if it is done aseptically. The aseptic surgeon will do his work and spend his money before the operation, while the other sort will spend his money in dressings after the pus starts, but there is no question which one gives the patient the best service.
Definition of a "Clean" Case. In reporting our series of clean cases I must explain the standard of a clean case as determined by this paper. Generally speaking we shall say that a clean case is one that presents a surface that can be cleansed, and a region that can be kept clean afterward by dressings. During these five years we have performed 517 operations under general anesthetic, 948 under local anesthetic, and 2,622 without anesthesia. It is surprising to see in how few of these cases the surgeon had it in his power to control the field before, during, and after operation. We might have included our cases of intravenous injections during the cholera epidemic of 1912. We have records of 96 patients out of 518 treated, and none of these wounds were infected, but the wound in these cases is so small that it does not seem fair to bolster up our percentage by including them. We exclude also all eye operations although suppuration in these is very rare. Operations on the bladder, rectum, and vagina, and even hare-lips, are not eligible for the clean list, although most of these cases heal by first intention. Sharpe, formerly of the Harvard Medical School, Shanghai, said to us students one day, that the tissues of the body that are in contact or in close proximity to certain kinds of germs seem to become immune to them, but if these germs are transferred to another part of the body they are capable of doing serious damage. This accounts for the rapid healing of the tissues of the mouth, rectum, and vagina, but does not give us the right to presume, as I have known men to do, that since wounds of these parts heal so well in the midst of germs, it is waste of time to be careful about parts that are naturally more nearly clean.

Exceptional Cases. Included in our series are five cases that do not, strictly speaking, belong in this list, but as the purpose of this paper is practical rather than scientific, they are included on account of the lessons they taught us.

Case 1. A gambler had his olecranon cut off and the elbow joint exposed. The wound was made with a heavy knife which passed through his clothing. Burnt paper was applied to the wound. He was brought in some hours after the injury. Protecting the wound with sterile gauze, the surrounding skin was thoroughly washed with tincture of iodine, using it as one would use any other cleansing agent instead of painting it on in the usual way. The skin in the immediate vicinity of the wound was treated in the same way, but no iodine solution was allowed to get into the wound. After mechanically removing all the burnt paper that could be seen, the wound was flushed with saline solution without stint by pouring from the boiling flasks from a height of more than a foot, the idea being to mechanically wash out anything that might do harm later. The olecranon was wired, the wound closed, with the exception of a tiny drain of rubber dam, and the case healed ideally.

Case 2. A bystander was slashed with the sword of a soldier, and the ankle joint opened, and a piece of the astragalus cut off. The sword passed through the
Aseptic Surgery in an Inland Hospital.

A patient's socks. He came to the hospital about an hour after the injury, and was treated in the same manner as was the patient first mentioned and with the same result.

CASE 3. A man was received into the hospital five or six hours after an injury which opened up the metacarpo-phalangeal joint of the thumb. The wound was covered with grass that had been chewed and applied by a well-wisher. I said to Dr. Pao when he was attending the case that I thought it would hardly be possible to prevent suppuration but he, encouraged by former successes, very patiently cleansed the wound on the lines mentioned and was rewarded by a perfect result.

CASES 3 and 4. These men were injured by bayonet thrusts and were kicked about in the muddy street afterward. Their clothing was plastered with mud, and a piece of omentum was protruding from the posterior wound of one of them who had been thrust through the lower abdomen. This omentum was covered with mud. The cleansing was done as before specified, the omentum tied off, the wounds enlarged and the intestines examined for injuries, and the abdomen in each case closed with a small drain. The healing was by first intention.

CASE 5. A slave girl had been badly beaten by her mistress, and as a final stroke of cruelty the abdomen was perforated with a scissor-blade which brought out a piece of omentum when the blade was withdrawn. This wound fared equally as well as the others mentioned.

It may be that it is the good fortune of some to have such results, and to have them consistently under antiseptic methods, but such was not our experience in the days when we wrought with bare hands and without the help of dressings and coverings that had been exposed to superheated steam for a half-hour. The difference between now and then is that we have been able to accomplish with almost mathematical certainty under asepsis, what we succeeded in doing tolerably often under the old régime. We have learned never to despair over a wound less than a day old, no matter how it may have been handled, for the tissue cells have in many cases shown themselves able to overcome a reasonable amount of infective material, if they are assisted by the mechanical cleansing that normal salt solution gives.

Two Cases of Infection. The first was a case of unreduced hip dislocation of a year's standing. Having read in my latest text-books of surgical reduction that had been successfully done by men of whom I have never heard, we undertook the operation at the patient's insistence. He was a soldier and his living depended upon a good pair of legs, so we gave him the best operation we could devise, failed to reduce, but got an aseptic result. About this time Dr. Peter cast in his lot with us for a season with the idea of learning the purest Mandarin spoken in China! After the wound had healed and the patient still having confidence, with the assistance of Dr. Peter we operated the second time. After cutting, it seemed to me, every structure from the tendon Achillis to the ligamentum nuchae, and almost pulling the leg from the body, we succeeded in getting the head of the femur into the acetabulum.
The operation was a very long one and it is probable that the wound was not properly protected during the many manipulations. At any rate there was a moderate infection. Parenthetically I will add that in spite of the extension that was applied for some time after the wound was healed, we did not succeed in inducing the head of the bone to stay in its socket, but, as Kipling would say, that is another story.

The second case of infection occurred after an operation for elephantiasis of the scrotum. The mass was about the size of a small baby's head, and the man also had both arms affected. The classical operation was done excepting that, following the technic of A. S. Taylor, the tumor was attacked in the median line. I think one might be pardoned if he excluded this case since the parts are so hard to cleanse, and it is difficult to keep the wound protected after operation; moreover, these cases are subject to recurrent erysipelasoid attacks even when the skin is unbroken.

List of Cases.

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<td>2</td>
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Acute abdominal conditions so seldom come to the surgeon in China for operative relief before it is too late, that it has seemed desirable to report the following case.

The patient was a Chinese man, resident in Canton, aged 30 years, married, a school teacher by profession. He is temperate in his habits. The family and previous personal history were negative. Admitted to the dispensary of the Canton Hospital (Dispensary No. 6,091) October 16, 1914. He complained of sharp pains in the epigastric region. A localized spot of tenderness was discovered and a diagnosis of gastric ulcer was made. Patient complained of chronic constipation. Liquid diet was prescribed, and a prescription containing sodium bicarbonate, tincture of nux vomica and fluid extract of cascara sagrada was given. Patient was seen in the dispensary on several subsequent occasions and on the last visit, October 22nd, he declared himself very much better.

On November 16th, patient states that at 2 p.m., after taking a bowl of congee, he was seized by a sudden attack of severe abdominal pain in the right side of the abdomen. He was seen at his home by the writer at 9 p.m. His temperature was then 100 °F. He had taken an emetic shortly before and vomited. Examination showed marked rigidity of the abdominal muscles especially of the upper half of the right rectus. Great tenderness all over the right side of the abdomen.

On November 17th, the patient was admitted to the Canton Hospital (Hospital No. 1626) at 8 a.m. Condition about the same as on the previous evening. No vomiting, bowels had not moved. Enema given with very slight result. Heat was applied to the abdomen, but the patient became very restless so that morphine gr. 1/4 and atropine gr. 1/100 were administered hypodermically. All feeding by mouth stopped.

Following the injection of morphia patient became very quiet and there were no further severe paroxysms of pain. Tenderness persisted over abdomen, especially in the right hypochondrium.

November 20th: Abdominal muscles relaxed except in the upper right quadrant, where there was also an area of slight tenderness. Patient feels much better. Nutritive enemata, twice daily, of milk, egg and brandy prescribed. No food by mouth. On the 22nd, albumen water in small quantities was given by mouth. And on the
twenty-fourth sixty cubic centimeters of a mixture of equal parts of milk, lime water and congee were given every two hours. By this time the bowels had moved freely. Faeces showed no ova. Urine:— acid; Sp. G. 1027. No albumen, no glucose. An area of dullness with slight rigidity was noted over the right rectus muscle in the right hypochondriac region. This area gradually enlarged and became more prominent. On the 28th, the leucocytes numbered 19,000 and a tumor was clearly visible in the right hypochondriac region. November 30th: abdominal section performed by Drs. J. O. Thomson and P. J. Todd. Incision made in the right rectus muscle. A large perigastric abscess was discovered, lying between the anterior abdominal wall, the stomach and the liver, completely walled off from the rest of the abdominal cavity. About 500 cc. of pus were drained off from the abscess. A counter-incision was made in the flank and tubular drainage inserted, while a cigarette drain was introduced into the anterior wound.

December 1st, patient restless and uncomfortable. Morphine administered hypodermically. Nutritive enemata continued. On the fourth the mixture of milk, lime water and congee was again resumed by mouth. On December 7th, after drinking milk the patient noted a gush of fluid from the abdominal wound. The fluid was found to be the milk that had just been drunk. This leakage from the stomach continued for two days and then the gastric fistula which was responsible for it gradually closed up and the fluid ceased to escape. The appearance of this fistula fully confirmed the original diagnosis of a perforating gastric ulcer. The temperature at no time rose above 101.° F. and after the operation it gradually fell to normal, reaching that point on December 6th.

Patient was dismissed from the hospital on January 11th, 1915. The abdominal wound was completely closed. He has been seen in the dispensary on several subsequent occasions and showed no signs of any recurrence of the condition. There was a little soreness at times at the site of the operation wound.

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GASTRO-INTESTINAL SURGERY—MAYO CLINIC.*

During the two weeks which I spent at the Mayo Clinic in Rochester, Minn., over 416 major operations were performed. Of these, 131, more than one-third, were gastro-intestinal operations. The

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*This article is part only of a paper by Dr. Bulkley entitled "A Visit to the Mayo Clinic." The remainder will be published later.
figures giving total attendance at the clinic show that one-half of all the patients, including the operation cases, come for gastro-intestinal disorders.

I was much impressed by the painstaking care with which the cases were studied from every angle. The radiographs, after a barium meal or enema, are brought into the operating room when the patient is on the table, and discussed by the surgeon and the radiographer. The actual findings after abdominal section and careful exploration, of course, really determine what shall be done. The diagnosis was generally right, but almost never was the operator satisfied to find and remedy the single diagnosed lesion through the nearest and smallest incision, as taught and practised by some surgeons. Instead, a free incision was made and the operator's hand explored the whole interior of the abdomen. This thoroughness and care impressed me very favorably. I came away with the feeling that I should prefer to be in their hands, and be "split wide open,"—as one onlooker described the opening incision,—if they thought it necessary, and thus be certain afterwards that nothing had been overlooked, even if my symptoms suggested to me at the time nothing more than a simple appendicitis.

The preparation of the patient for operation, in general, is simple. He is given 32 of castor oil the night before, a light supper, and the abdomen is washed with soap. In the morning, no breakfast, and an enema if necessary. While the patient is on the table, the abdomen is shaved and wiped with benzine and iodine. Then Tr. Iodine, half-strength, is used liberally. The surgeon's hands were washed with plain soap and rinsing water, no brush used, then alcohol, and gloves put on wet.

In operating the right rectus incision might be called their stand-by. It seemed the first choice unless there were very especial reasons for something else. The appendix is attacked through the low oblique incision only in children, for in adults there is too great a likelihood of there being coincident ulcer, gall-bladder or pelvic disease. The whole gloved hand passed through the incision every time. W. Mayo was very positive in his contention as to the innocuousness of large skin incisions, urging that they never harm a patient, or cause any shock. Rather, harm is done if we cannot see what is needed and consequently drag excessively on the mesentery, overlook pathological conditions, or fail to get complete hemostasis.

In establishing stomach and intestinal anastomosis they use the double "Roosevelt" forceps a great deal, if not exclusively, and for closing the bowel or stomach a very powerful crushing forceps or
enterotribe. These with twenty-day catgut and white silk composed, in the main, their armamentarium. Linen they have now discarded. Pyloric or duodenal ulcer was one of their commonest diagnoses and findings. "Gentlemen" said W. Mayo one morning to the spectators, after he had opened an abdomen, "look at this closely, it is said to be a rare condition". We all craned our necks, and he continued, "a well-known physician told me he had never encountered it in a living subject, nor found it at an autopsy. It is a duodenal ulcer. We find in this clinic only 60 to 100 cases of this condition a month." Hence their monographs on its diagnosis and treatment are well worth reading, for it would seem that among our many patients in the East with chronic gastric disturbance, pain after eating, eructation, etc., relieved by alkalies, there must be a fair proportion that should have surgical treatment, in fact, a larger number than our hospital statistics show. Eusterman's classification of chronic dyspepsia may be useful here:

1. Gross or surgical lesions of the stomach or duodenum, such as chronic simple ulcer or cancer.
2. Reflex dyspepsias resulting from diseased conditions, chiefly of the gall-bladder and appendix.
3. Dyspepsias dependent on or associated with constitutional diseases such as cardiac, renal or hepatic disease, pernicious anaemia, chronic pulmonary tuberculosis, arteriosclerosis, syphilis and diseases of the central nervous system.
4. So-called functional disturbances of the stomach including gastroprosis.

The first two groups are the surgical types, the last two the medical types. The large percentage of patients at the Mayo clinic with chronic gastric disturbance and who have come to operation, show no demonstrable lesion of stomach or duodenum, but rather gall-bladder disease and appendicitis.

The apparent innocence of the symptoms of ulcer should be emphasized, and the long intervals of complete relief. Appetite may continue good, loss of weight not noted, tenderness slight, blood in vomit or stool only in 20% of the cases. Hemorrhage should play only a small part in the diagnosis of ulcer, for 4% of gall-bladder cases also give hemorrhage, and 2% of appendix cases. Yet a severe lesion may be present with the distinct danger of perforation, hemorrhage, or malignant change. The pain after eating, at longer or shorter intervals of from two to four hours dependent on the position of the ulcer, and relieved by food, alkalies, or induced vomiting, should arouse our suspicions. It may awaken the patient at night, and there may be gas
and sour secretion. The periodicity of the attacks is very important, and the patient may be seen to be gradually losing ground, lasting over many years. In practically all the cases I saw, the posterior operation was done. They warn against doing any gastro-enterotomy if the symptoms point to ulcer and none is found on exploration. If this is the case it is probably a reflex from appendix or gall-bladder, etc., and if the anastomosis is made the patient is more likely to do badly. Duodenal ulcer they find twice as often as gastric, and three out of four patients are men. They emphasize the fact that duodenal ulcer practically never takes on malignant change, for malignancy seems to occur only in acid mouth, urinary bladder, stomach, colon, etc.

Their incision was regularly in the right rectus one inch from mid-line, ribs to umbilicus. The posterior no-loop operation was the commonest, using the Roosevelt forceps, placing a row of white silk, then catgut and white silk again. To prevent hernia the transverse meso-colon was sewed to the stomach above the line of anastomosis.

For pyloric or intestinal resection, etc., the powerful enterotribe with grooved jaws effectively crushes the edges and is a safeguard against hemorrhage. It seemed a satisfactory and easily used instrument, withdrawn with no difficulty at all after the first row of sutures, inverting the edges, had been applied.

The Kraske operation for cancer of the rectum is with them a simple affair, with apparently a good outcome. They say 33% of their cases have lived over five years, though they operate on growths of any extent provided there are no metastases. The operation is done fourteen days after a preliminary colostomy, the rectum having been frequently washed, back and forth. The anus was sewed up, and the suture left long as a tractor. The posterior skin incision divided below to surround this. After wide retraction of the flaps, the sacrum was quickly freed, cut across between the 3rd and 4th vertebrae and lifted away. Then, beginning at the anus, the rectum was dissected up to the sigmoid using the ligature as a tractor. A sound in the urethra is important to protect that structure, the seminal vesicles, etc. The bowel was clamped, canterized with a soldering iron and removed, and the stump closed and sewed to the surrounding peritoneum. They consider it important to remove the adjacent fat and glands as these are often infected. The cavity was very thoroughly dried and closed without deep sutures, but with a cigarette drain. Very little blood was lost, and no infusions, hypodermics, etc., were used in the several cases I saw; all seemed in good condition. "Pulse is 90, the patient
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has stood the operation better than I myself," said W. Mayo after an extreme case involving the prostate and three inches of the sigmoid.

I will close with a few more of their valuable observations and recommendations: "The rule that a palpable growth in the stomach is no longer operable is not true. You must open the abdomen and see if it is operable or not."

"Avoid loss of blood and too much handling from insufficient exposure and you will not have shock." Hemorrhage, traction on the mesentery, and sepsis, are the three factors which W. Mayo considers the most potent in causing shock, and this he reiterated again and again. He was particularly severe on those that stimulate, infuse, etc., while the patient is still losing blood, an error one still occasionally sees. After some of the most severe operations with long incision, he would call attention to the excellent condition of the patient, with a pulse of 90-100, as proof of his contention that the above considerations were the really important ones, while the length of incision was of no moment. He was quite sarcastic on the many safeguards others use. "They are not needed," he says, "if we do good work." In the Rochester clinic these things are noticeable by their absence. "If we think a patient needs any such drug as digitalis or strychnine, we first make up our minds which one it is, then we send for it and for the syringe, and by the time they have been found, the apparent need has passed, and so the patient is spared." Commenting on the methods of Crile, he had only praise for him and his work, and attributes his good results to his speed and skill, rather than to his many precautions.

Ether by the drop method is used, given by a nurse, who also watches the pulse. "The nurse is the best anaesthetist and need keep no hypodermics at hand. Ether is the best drug, and local anaesthesia is next best." He has done the Kraske operation with it, but more time is needed. If he had to go off in the country and operate without good assistants he would use local anaesthesia.

I learned of one death that occurred during my stay, just before a thyroid operation, and doubtless there were many others with or without operation. But I remember no patients, in the 100 or more that I saw on the table, that caused the least flurry or excitement to anaesthetist or operator.

Lucius C. Bulkley, M.D.

Trang, Siam.
Those of us doing hospital work and busying ourselves with all the varying phases of medical, surgical, and sanitary endeavour, who yet consider ourselves as being primarily evangelists and secondarily doctors or nurses, must all be most grateful to Drs. Taylor and Peill for their papers on "Medical Evangelism," and to the others who took part in the discussion on this subject at the C.M.M.A. Conference last year, as they helped us to realize once again, and more forcibly than ever, the measure of responsibility that has been laid on us in the opportunities for evangelism offered by hospital work.

While, as Dr Taylor says, the patients may be divided into the two classes, out-patients and in-patients as regards the plans to be followed in preaching and teaching, it must seem to many of us that the more important division should rather be that of, (1) those under our ministrations, and (2) those who have passed out of our direct medical care. It is evident that 99% of our patients, hospital or dispensary, while for a time short or long in the former class will eventually pass into the second, that is, they will be out-patients who need come no longer to the hospital, or in-patients who have returned home.

We cannot but be grateful for the counsel given us as regards the first of these two classes, but I feel sure that the real problem lies in the question of how to deal with the second class, and specially with that part of it that we can call old in-patients.

Dr. Peill has put on paper a plan that ought to work well, but there are one or two criticisms that may perhaps be allowed. (1) It provides only for a very broken and discontinuous method of following up patients. (2) In many cases it may take months or even years before such a sufficiently large group of old in-patients forms at any one point as to justify the method he advocates, of a prolonged stay in that centre; and in the meantime these old patients may have lost much or all of their former interest in the Gospel. (3) Patients may live in some lonely out-of-the-way place where there is never any such group formed at all, and to my mind these are the very ones we should seek most to help, for those in the more populous centres are more likely to receive help from passing preachers or church colporteurs, or from churches planted in their midst.

Another plan that has been suggested more than once is that of carefully noting the addresses, etc., of old in-patients, and then asking by
letter or otherwise the nearest evangelist or church worker to visit
them and seek to draw them nearer to Christ. Unfortunately, as I
think Dr. Maxwell pointed out some time ago, there is the great
and sorry difficulty that we can seldom get our evangelists to bestir
themselves in this way. The time will come when with a deeper
Christian and evangelistic spirit in their hearts these workers will
respond to the hospital's call for help. We should always be trying
for it, even if not succeeding at once.

A third plan is that of a periodic visitation by the hospital
evangelist or doctor round as many homes as he can get to within a
reasonable space of time. This again is open to the objection that it is
far too intermittent and limited, and allows nothing for the weakening
of interest in the Gospel inevitable in the greater part of those who are
cut off from its teachings say for more than five or six months.

Other plans no doubt have been proposed and are in use in various
districts. In our hospital in Tsao Shih, we use yet another system,
viz., that of continuous visitation of a limited area by a colporteur
employed by the hospital.

My conviction is that in no one method alone is to be found the
complete answer to this problem.

I would beg of my readers not to misunderstand the criticisms
made above. I am far from claiming that any one method, least of all
the one we use in Tsao Shih, and the faults in which I understand best,
can satisfy all requirements. My only aim is to promote helpful
discussion and practical examination into a matter that has with many
of us been left too long in abeyance.

I shall describe as briefly as may be the system we have adopted,
and then attempt by pointing out its failures, and by filling in these
lacunae from other sources of evangelistic effort, to put forward a scheme
for a completer solution of the question of how to conserve the results
of hospital evangelism and draw our patients to the feet of Christ for life.

For the past 22 months we have had in the service of the hospital
a colporteur who had received about six months training in the local
head-station Bible School. The choice of the man to do this kind of
work is important, for not only must he be one with some elementary
training in preaching, and especially one with a distinct measure of
Grace in his heart, but also he must be one able and willing to bear a
carrying-pole, and to tramp through the country-side. The financial
side was made easy for us by the help of the B.&F.B.S. through its
Hankow agent, Mr. Gould, who provides this man with the scriptures
necessary and a portion of his salary, (this latter is $5.00 a month, the
value of the books he sells being sufficient to provide him with travelling expenses, etc.). Careful lists of addresses are kept, and varying routes are marked out for the colporteur by means of a large map of the district, and he travels over these routes passing from side to side, and reaching to the little hamlet away amongst the hills as well as to the open market town of the plains. He may be absent for two, four, or more weeks at a time, but all the way he keeps careful record of the places he visits, and the books he sells. Returning to us, he rests a day or two, and then sets out again in a different direction. The district we work in covers 2½ "hsiens" [縣] very thickly populated, and we find that it takes this man about four to six months to cover the district, and to visit the old patients of the last three or four years of whom we have adequate records. As the result of this work we have definite communication with a large and growing number of former patients and through them with their families and relatives. We have helped even in these few months in raising the call for preachers and teachers in a number of places, and we have certainly helped to keep alive the interest in Christ's teachings in the hearts of many who otherwise would soon have forgotten them. In addition to former in-patients, the colporteur is constantly meeting with and helping old out-patients though no definite records of these are kept here. This description is of necessity very brief, but most readers will be able to fill in many of the details for themselves.

Now for the objections to the scheme as it stands, i.e., without being linked on to any other method.

(1) One strong objection is that while in some cases it may lead to definite conversion, in many cases it leads to nowhere in particular beyond keeping up a somewhat spasmodic interest in the Gospel. This is only too true, and here it is, in my opinion, that Dr. Peill's plan would work to most benefit, except in out-of-the-way hamlets where the colporteur must do his best work.

(2) The colporteur may get rusty and become a routinist. To allow for this it is demanded that one month in the year be spent by him in the local Bible School.

(3) It does not allow for closer union to be formed with the evangelistic agencies of the church proper, and may mitigate against such closer union. This is to my mind a very real danger, and one that must be avoided. In some places there may be a mild form of jealousy between the hospital workers and the church workers. I shall speak of it again later in connection with the possibility of getting help from evangelists, etc.
It is possible that the inclusion of too many names, or the slackening off of the colporteur, or his want of understanding of the deep necessities of individual souls, may lead to very scrappy visitation. This must be guarded against by careful and repeated instruction, and by other methods to be spoken of below.

Other difficulties and dangers may seem likely to arise, but these are the chief difficulties so far as our experience goes.

As regards linking up this system with others in order to make it as complete as possible, as well as the greater perfecting of the method itself, it may be most useful if I give briefly the plans we have in mind in Tsao Shih to these ends.

1. By keeping a more careful register of patients and their attitude towards the Gospel and their knowledge of it, and by requiring the colporteur to furnish additional statements regarding each of them after visitation, it will be possible to keep in closer touch with them individually, and to help the colporteur to keep strong in the spirit of evangelising. This will also prove a help and stimulus to the hospital evangelist.

2. By visitation of groups of old patients by the hospital or other evangelist, the way may be opened for the commencement of a preaching station or of a small school.

3. By gaining the willing assistance and co-operation of the evangelists, colporteurs, elders, and other Christian workers in the churches throughout the district, we would get one of the biggest helps possible, and it is our hope that by careful study of the question, to find out what are the root objections to co-operation in this work. Probably many would base their objections on the score that they cannot betake themselves to all sorts of places, sometimes at a considerable distance, in order to visit old patients. Whatever may be the objections we must set ourselves to discovering them, and then to overcoming them in whatever way seems best. If this were done it would add mightily to the power of the hospital evangelistic work and would obviate the difficulty of the colporteur having too many old patients on his hands.

4. In and through all our endeavours we constantly keep before us the desire to unite the hospital and the churches ever more closely together, so that no one could mention the hospital without having in his mind the Church also.

There are other plans in our minds, but these are the chief.

I have written at almost too great length on this subject, but my apology is that it is one of the most important factors in our medical evangelistic efforts, and unfortunately it is, so far, one of the most backward.
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All communications on Editorial Matters, Articles, Letters, and Books for Review should be addressed to the Editor of the Journal.

Changes of address, departures and arrivals of members of the Association should be notified to the Business Manager, Mr. A. W. Hayward, 9 Woosung Road, Shanghai. Members are requested to invite all missionary physicians who come to China and other parts of the East to join the Association.

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

Editorial.

THE YEAR 1915.

It is impossible to refer to the events of the past year bearing on our work as medical missionaries without alluding to the dreadful European war which was raging when the year began and is still continuing. Its sinister influence has affected China in various ways, and to such an extent as to give rise to the rumor that she was to be drawn into the struggle. Missionaries belonging to the warring nations, cannot but respond to the appeals which reach them and the response means sacrifice, anxiety and sorrow. Some of our professional brethren have gone to the front to tend the sick and wounded from the battle-fields. Their duties here have been undertaken to the best of their ability by overworked colleagues. Missionary societies are being warned to be most careful in their expenditures in case there should be a serious diminution of income. The cost of medical and surgical supplies has increased exceedingly. Despite all hindrances and discouragements, however, there has been no irremediable weakening or abandonment of our work. On the contrary, progress is still being made. In this issue of the Journal alone, descriptions are given of the opening of several new institutions.

Early in the year the Biennial Conference, which was extremely well attended, was held in Shanghai. So important were the results, direct and indirect, that we may well say the Conference built better than it knew.

In the first place, a permanent Executive Secretary has been appointed to bring closer together by his influence the widely-
scattered units of the Association, to be its representative in all matters affecting its welfare, and to promote its medical, educational and spiritual ideals. Our hearty thanks are due to the American Methodist Episcopal Mission for setting apart Dr. Beebe, of Nan­king, for this work.

Next, a "Council on Public Health" has been formed to diffuse among the Chinese people by means of lectures, tracts, and lantern exhibitions, a knowledge of personal hygiene, municipal sanitation, etc., according to Western standards. "Campaigns" have already been held in various cities and interest in the subject is becoming very widespread. An appeal is made to all physicians in China to co-operate with the Council in its efforts to improve the public health. In this connection it may be remembered that part of the general work of this biennium is the careful inves­tigation of normal physical standards among the Chinese.

During the Conference the Curriculum Committee presented a very able report on medical education in China, and on its recom­mendation a "Council on Medical Education" was created. The Committee also defined the standards which it considered all medical schools should meet before being approved officially by the Association. This report was adopted by the Conference. The way now seemed clear for united missionary effort to place our medical schools on firm foundations, medical as well as religious, and to develop them so that in time there would be sent forth annually a large and steadily increasing number of well-trained Christian physicians. The advent of the China Medical Board of the Rocke­feller Foundation with its scheme of establishing or aiding medical schools, in which the teaching shall be in English, in Peking, Shanghai, Changsha and Canton, has altered the situation greatly. It is hardly worth while for mission medical schools also teaching in English to attempt to occupy the same field. But it will be a lamentable mistake if it is assumed that the friends and supporters of missions may now cease to take any practical interest in medical education. The three or four schools of the Rockefeller Founda­tion, however strong they may be, cannot possibly supply all the medical practitioners required by the millions of China, especially as it is hoped that a considerable number of their graduates will devote themselves to teaching and medical research. There is
still urgent need for well-trained Chinese graduates in Western medicine to do ordinary hospital work and to practise medicine among their own people, rich and poor. These students can be taught in their own language—eventually all medical schools in China must come to that—and yet be given a sufficient knowledge of English or other foreign language to enable them to keep abreast of medical progress in other lands. Hence the existing medical schools teaching in Mandarin, and others which may be hereafter formed, deserve the strong support of all interested in the welfare of the Chinese.

An indirect outcome of the Conference was the formation of the "National Medical Association of China." The regular and associate members are Chinese exclusively. It has a Journal of its own the first number of which has already appeared, and next month it will hold a Conference in Shanghai. We congratulate our Chinese friends and colleagues on their enterprise and wish it every success.

Other developments might be mentioned did space permit. The war may bring great changes but surveying the past we can face with hope and courage the future with all the further problems it may have in store. May the New Year bring peace to the nations now in conflict, firmly established government and national progress to China, and a steady advance everywhere of true Christianity.
Chinese people, is the deplorable fact that in the event of war or revolution there is no adequate provision for the care of the sick and wounded on a scale at all commensurate with the probable need.

Moreover, it is difficult to drive away the fear—let us hope it is quite unfounded—that in the future when non-Christian nations engage in war equipped with all the terrible inventions of the West, and with full knowledge of the ruthless methods of warfare now practised in avowedly Christian countries, their methods may be even more ruthless. When an influential European newspaper declares that "In war there is no such thing as humanity nor should there be, and all the lucubrations of the Hague Conference are but so much childish prattle," it will not be surprising if the humane restrictions of warfare, which it was thought Christian civilisation had imposed on the nations of the West, should also be contemptuously ignored by non-Christian nations. Nevertheless, it is still the duty of the Christian Church, and of such philanthropic organisations as the Red Cross Society, to do all in their power to promulgate and maintain the merciful and chivalrous principles which should always govern human conduct however desperate the strife or circumstances may be.

Attention should therefore be given to the important and immediate work of organisation and education which lies before the Red Cross Society of China. Medical missionaries are fully justified in publicly stating their opinions on this subject as upon them and their societies fell the brunt of the care of the sick and wounded during recent revolutions. If the need arose similar help would again be given, but it will be conferring a lasting benefit upon the Chinese people if they are taught, in some measure at least, to care for their own sick and wounded in the stress of warfare.

In the Chinese Revolution of 1911, while very efficient and timely aid to both sides in the struggle was rendered by several Red Cross societies, it must be admitted that in certain districts they labored under disadvantages due to the lack of comprehensive organisation. Consequently, the first step which it seems should at once be taken is the formation of a powerful central committee, competent to act for any part or even for the whole of China. As various kinds of service are required and also strong financial
support, this organization should consist of representatives of the missionary, medical and nursing associations, bankers, merchants, high Chinese officials, foreign consuls, and other wealthy and influential persons drawn from all the provinces of China. Provincial or local Red Cross societies should be affiliated with and under the control of this central organization. Having obtained the official and exclusive recognition of the Genevan Convention and of the Chinese Government, a national society so formed and supported would command the confidence of all parties, and ensure harmony and strength in carrying out its purposes. The existence of other societies presuming to work under the same name would then be unlawful. At the last Genevan Convention it was agreed that "the Signatory Governments in countries the legislation of which is not at present adequate for the purpose, undertake to adopt or to propose to their legislative bodies such measures as may be necessary to prevent at all times the employment of the emblem or the name of 'Red Cross' or 'Geneva Cross' by private individuals or by societies other than those which are entitled to do so under the present Convention."

In time of peace, besides responding to urgent demands created by famine, pestilence, and other national disasters, the Red Cross Society should energetically perform the work required in its own distinctive field. Indeed, owing to the peculiar conditions prevailing in China, this field should be even wider than in other lands. Local committees should be formed in every important centre. In all cities and towns classes should be formed for regular instruction in "First Aid to the Injured," stretcher drill, etc., followed by examination and the granting of certificates. Much of this particular work could be done in co-operation with the Y.M.C.A. The most intelligent and handy of those attending could be trained as nurses. In Japan, for example, the orderlies are well-trained men of superior social position and good education. Of course, during war women nurses would be required in large numbers and it should be known where these can be procured. It would also be most helpful if Chinese women generally were induced to take a practical interest in Red Cross work. On the outbreak of hostilities with Russia, the Japanese Red Cross Hospital had the exclusive privilege of supplying the Japanese army with nurses. It was ready to
do so as it had built up a reserve of no less than 3,000 members. Valuable help was also given by the multitude of Japanese women and girls who had been taught how to make and roll bandages. In fact, all the bandages required by the Japanese army were supplied by them; not a single one was bought or made by machine. There is not the least doubt that Chinese women could be induced to help the Red Cross work in the same way. The Society should also keep records of all buildings which could be requisitioned for use as hospitals or as refuges for the homeless. Ample medical and surgical supplies should be accumulated in various centres. The sanitary supervision of cities and camps should be provided for. Among other details too numerous to mention, arrangements should be made for the prompt issue of passports and badges to members, and to members only, on the outbreak of war. Being thus well prepared the whole machinery of the society would move much more smoothly and efficiently when war occurred than if everything had to be done on the spur of a great emergency.

Complete figures are not at hand of the strength of the Red Cross Societies of the nations now in conflict, but it can be said that the British Red Cross Society by March, 1912, had raised and registered at the War Office, 1,208 Red Cross Detachments with the total personnel of 35,772. There were also 25,000 men holding the certificates of the St. John's Ambulance Association, most of whom have now volunteered for active service. In France the Rouge Croix is splendidly organised and has very large financial resources. In Russia the Red Cross has eight Boards of District Administration, 509 local Red Cross Committees, 60 communities of nurses, each community consisting of 200 members; 90 "ambulatory clinics," 6 emergency hospitals and 7 convalescent homes. The Austrian Red Cross Society—distinct from the Hungarian—before the war had 73,000 members; to-day it has 250,000. The German Red Cross Society no doubt is even stronger. These figures are mentioned simply to show the great need of China in this respect.

If the scheme above outlined were carried through to completion, not only would the country be better prepared to care for its sick and wounded in time of war, it would also be benefited immeasurably in other ways. The wide dissemination among the
Chinese people of an elementary but practical knowledge of Western medicine and surgery would tend to banish much remaining prejudice, ignorance and superstition. Thousands would be enabled to attend properly to many of the simple ailments and injuries of everyday life. More students would be drawn to the full study of medicine, and after graduation they would find the field prepared for them for the independent practice of medicine and surgery.

The literary and educational work which can be done by the Chinese Red Cross Society will be dealt with in our next issue.

EXECUTIVE COMMITTEE, C. M. M. A.

Minutes of a meeting of the Executive Committee held October 12th, 1915.

Called to order by the president, Dr. Venable, who opened the meeting with prayer. The minutes of the last meeting were read and approved. The following members were present, Drs. Venable, Beebe, Davenport, Evans, Houghton, Main, Merrins and Morris.

The Secretary reported Dr. L.Y. Tsao's acceptance as examiner for the Nurses' Association.

Dr. Beebe gave a report of his trip to the north and his meeting with the members of the China Medical Board of the Rockefeller Foundation then present in China.

A resolution was passed that we represent to the conference of the Board of Mission Secretaries in the U.S.A. the importance and the urgent need of the medical situation in China. A similar resolution was passed to be sent to the English conference.

Upon request from the Research Committee the sum of $50 was appropriated for the remainder of the biennium.

Dr. Houghton reported on the work done by the Council on Public Health and Hygiene, and requested an appropriation of $750 to complete the $1500 needed by that Council to carry out their program. This sum was appropriated.

A sub-committee was appointed to inquire into the financial position of the Journal, and if necessary, to take into consideration ways and means of increasing the income, either by decreasing the cost of printing the Journal, if possible, or by raising the membership dues, or by whatever method may be deemed advisable.

A motion was unanimously carried that we ask the Methodist Episcopal Mission to allow Dr. Beebe to continue permanently as
Executive Secretary, and expressing our sincere appreciation of the valuable work he is doing for the Association.

The meeting then adjourned.

H. H. Morris, Secretary.

Minutes of a meeting of the Executive Committee held November 8th, 1915.

The meeting was called to order by Dr. Beebe in the absence of Dr. Venable. The minutes of the last meeting were read and approved. The following members were present: Drs. Beebe, Davenport, Evans, Houghton, Merrins and Morris. Dr. Balme, of Tsinanfu, and Dr. Shields were present by invitation.

A letter was read from Bishop Lewis, of the American Methodist Mission, allowing Dr. Beebe to devote his whole time to the work of Executive Secretary.

Dr. Simon Flexner, of the China Medical Board of the Rockefeller Foundation was then introduced, and he explained the reasons why the Board had decided to take up medical educational work in China. He also set forth the ideals they were hoping to attain in the schools they might establish. Some discussion followed and several questions were asked him. Drs. Buttrick and Gates were also present.

The meeting then adjourned.

H. H. Morris, Secretary.

THE ROCKEFELLER FOUNDATION IN CHINA.

During their brief stay in Shanghai the members of the China Medical Board at a large and representative meeting were given the opportunity of stating the aims of Mr. Rockefeller and his associates in extending and strengthening the cause of medical education in China. Dr. Arthur Stanley presided. Dr. W. H. Welch of Johns Hopkins University made the principal address which we regret cannot be given in full, but the following is the gist of it.

After sketching the history of medicine and showing how modern medicine broke with the past by investigators basing it, not on philosophical theories, but on exact observation, experiment, and the verification of hypotheses by experience, Dr. Welch said that in this regard China has never broken with the past. She stands where we stood before the new lever of progress was discovered. This consideration is fundamental to an understanding of the educational situation in China.
He then referred to the recent revolutionary discoveries in medicine and surgery, especially in the control and treatment of infectious diseases, and continued: "The whole world now began to realize that medicine had the power to benefit mankind in a hitherto undreamed of way. Formerly, medicine had been step-mothered by philanthropy, but now contributions began to come in for schools and hospitals, and institutes for research. The recognition of this great power that modern medicine possesses is what gives its great significance to this effort for China.

"We do not consider that we have undertaken an entirely new enterprise in China. The missionary work that has already been done furnishes a foundation for our efforts. Missions were greatly advanced by the introduction of western education as a part of their work. They were still farther advanced by the entrance of the medical missionary into the field. The work that these men have done is beyond all praise. I would like to pay the highest tribute to those men who felt the impulse to treat men's bodies as well as their souls. They came, primarily, not for medical teaching, but as the work grew they felt the necessity of training men to help them. So the medical schools as they now exist have gradually grown up to supply this need. Considering the insufficient staffs and meagre equipment it is wonderful what they have done. Much of the work has developed around strong personalities. You cannot help being stirred and inspired by some of them. It is an education in itself to come under their influence.

"But these men would be the first to realize that they are merely meeting the immediate needs of the day. They would be the first to welcome the coming of others to build on the foundations that they have laid. We have come to China with the hope of establishing two or three medical schools as good as those in western countries. This is not a revolution in medical education, for there does exist here the recognition, and in part the realization, of this ideal. We saw this morning the work of the German Medical School, where young men, with such facilities and equipment as they possessed, were engaged in training students in medicine, and stimulating them to research.

"Our purpose is not to impose something foreign on the Chinese, but to train up a truly Chinese medical profession. The sooner they can come into their own, the sooner they can begin the creation of a medical literature that is worth while, the better we shall feel about our work. The ultimate aim is to put the work entirely into the hands of the Chinese themselves, and to be able, with confidence in their future, to withdraw from the field. The rapidity with which
they accept scientific medicine as their own, and the rapidity with which our importance in the field diminishes and their importance increases, will be the measure of success.

"In regard to our policy, I think we can do better for China by concentrating on a few centers the funds at our disposal, which are small in comparison to the aggregate need. Modern medicine means far more than the care of the sick and wounded, important as that is. It touches all phases of society. It has a broad and liberalizing effect on education. No wonder all the workers in hygiene and social reform have grasped in a peculiar way the significance of modern medicine for the uplift of society and the progress of civilization. Our great modern cities, for instance, could not exist without the help of modern medical science. You could not live here in Shanghai without the knowledge and power that has been placed in Dr. Stanley's hands to stay pestilence and to promote conditions of healthy living. The indirect benefits to be expected from the introduction of the best medical education and of the science and art of modern medicine into China are far reaching, relating, as they do, to other departments of education and knowledge and to fundamental problems of industry and of society."

"It is the purpose of Mr. Rockefeller and the foundation to connect this work of the China Medical Board with the missionary effort. I doubt if a similar opportunity has ever come to the missions before. If they connect themselves with this larger endeavor how vastly greater will their influence and the beneficial scope and results of their work become. I am sure they will rise to the opportunity with its great promise for the future."

Dr. Welch was followed by Dr. Flexner, who spoke briefly. He cautioned his hearers not to expect immediate results as the work the Board was undertaking was a slow one.

"It will take time to create a plant such as we want," he said, "and even more time to create the faculty and to get the proper body of students. The more you co-operate, the more you help us with your support, not financial so much as moral, the sooner will our great object be realized."
THE NEW "HOSTEL" MOUKDEN MEDICAL COLLEGE.
Moukden Medical College Report.

MOUKDEN MEDICAL COLLEGE REPORT

OPENING OF NEW HOSTEL.

The latest Annual Report of the Moukden Medical College, which is a union institution under the U. F. Church of Scotland, the Danish Lutheran Mission, and the Irish Presbyterian Mission, covers the time from the spring of 1914 to the spring of 1915. The staff is as follows:—


The work has progressed in a most satisfactory and encouraging way. There are two classes of students in the College, 34 Seniors having just completed their 3rd year, and 35 Juniors their first year. The Juniors passed their First Professional Examination during the year, 30 passing in all subjects, 6 with over 85 per cent, and 7 more with over 75. The second Professional Examination included Anatomy, Physiology, Histology, Materia Medica, and Practical Pharmacy, and 23 of the Seniors passed in all subjects at their first attempt, 10 gaining over 75 per cent, and one over 85. The College maintains a high standard, and does not allow the inefficient to slip through. "Most of those who have failed will be examined again before the spring holidays. They are being coached by some of those who passed highest in the various subjects, and it is gratifying to find how ready these students are to help. It means the sacrifice of some of their own time for study or recreation, but they refuse to accept any remuneration.''

The Senior students have also practical work in the adjoining Hospital (which has 140 beds). "Each man has charge of two beds, case-taking, dressings, etc., just as students have in our home hospitals, and they receive a good deal of clinical teaching. They are also present at operations. Thirty of the men voluntarily take part in Christian work, and conduct "Sunday services in two of the wards, ten coming each Sunday morning. The speaking is usually remarkably good, and the men enter into it with enthusiasm." Many of the
The original College building (opened three years ago) is intended for teaching work only. To provide the necessary accommodation for students a Hostel was erected during the year, three minutes' walk distant, with dormitories for 150, dining-room, etc. This is now about to be occupied by the students, who have hitherto been housed in the College.

"The opening of a College such as ours implies obligations to the general public. In the Christian high schools throughout Manchuria," (besides Government Schools) "are many lads preparing to study medicine... In all probability we shall admit about 50 new students in January 1916." "We aim at admitting men regularly every two years, and we want to be able to train them thoroughly in their profession, to gain a personal influence over them individually, and to guide their development in Christian life and work. We would like to emphasize again that this is pre-eminently a missionary College, which is likely to have a strong influence not only on the people of Manchuria, but also on its missionary activities."

The College is to be congratulated on the steady progress it has made despite the difficulties it has encountered due to the European war. In common with other mission medical schools teaching in Manchuria it is helping to meet the pressing need of the vast population of China for well-trained physicians and surgeons whose professional aims and conduct are bound to be influenced by the Christian teaching they have received. The sympathy and support given to these institutions should in no wise be lessened, but rather increased, if other medical schools are established in the near future by various governments and organizations, as none of these will render unnecessary the particular and distinctive work of mission medical schools. The Japanese Medical College in Moukden, for example, can never do the work of the Medical College of which Dr. Dugald Christie is the Principal.

MEDICAL PROGRESS IN CHINA. The standard of a nation's progress is often judged by its management of affairs relating to the public health; that being so, it is of the first importance that China should not fall behind other countries in the matter of medical practice.—Dr. Wu Lien Teh.
UNION MEDICAL COLLEGE HOSPITAL, TSINANFU. OUT-PATIENTS' DEPARTMENT.
OPENING OF THE NEW UNION MEDICAL COLLEGE HOSPITAL, TSINANFU

The new Hospital, which has just been built by the English Baptist Mission at Tsinanfu, in connection with the Union Medical College, was formally opened on September 27th, 1915, thus marking a most important advance in the history of this institution. Nine years ago, when the Medical College was first formed, as an integral part of the Shantung Christian University, a small hospital, administered on native lines, seemed amply sufficient for the needs of the work; but so rapid has been the progress since that time, both in the supply of students and the vast opportunities for educational and medical work, that two years ago, it became quite apparent that nothing less than a large modern hospital, built and equipped on thoroughly up-to-date lines, could possibly suffice. An appeal was accordingly launched and most generously responded to by friends in Great Britain, with the result that a sum of nearly nine thousand pounds sterling was contributed for the purpose. At the same time, the Medical College Faculty were most fortunate in being able to secure the services of Mr. Gilbert H. Perriam, one of the architects of the Shantung Christian University, who undertook the whole work of erecting the new buildings.

The situation of the Hospital is a very happy one. To the north it abuts on an important street, and is directly in touch with one of the most populous and influential portions of the city. To the east, it adjoins the land upon which are built the Union Church (Chinese) and the well-known Tsinanfu Institute; whilst to the south there is, first, the large Medical College compound, of which the Hospital thus forms a part, and beyond that there stretches out the splendid new site of the Shantung Christian University, with its background of hills and valleys.

The buildings themselves consist of two parts, the Out-Patient Dispensary being on the East, and the In-Patient Department, or Hospital proper, on the West, together comprising a frontage of 400 feet. Being thus separated, it is impossible for out-patients to wander into the wards, but each building is equally accessible from the College grounds, affording a ready entrance for staff and students to the wards and the dispensary rooms. (Here follows a very interesting description of the plan of the buildings and of the arrangements for the reception and treatment of patients, which unfortunately cannot be inserted for want of space. Ed.,).
The main Operating Theatre is situated immediately above the front hall, and is provided with three entrances. That on the east is reserved for the surgeons and staff, and leads into an outer room, for disrobing and preparing, and an inner room where the sterile garments and dressings are kept. The west entrance is for the patient and anaesthetizer, whilst the centre door leads into the students' gallery, which is shut off completely from the operating theatre by a glass screen. By this arrangement a patient can be put under the anaesthetic quietly, without knowing what is going on around him, and an opportunity is also given to have prayer with him before the operation. When one operation is completed, the patient is wheeled out on one side whilst the next case is being brought in on the other. The operating room is walled with white tiles and provided with a large north light.

The topmost floor of the building is reserved for the worst of the septic cases, and contains one general ward, a private ward, and a special operating theatre and dressing room. About one hundred patients can thus be accommodated in the building, apart from infectious cases.

All the rooms are provided with electric light and heated from hot water radiators, whilst hot and cold water is also laid on throughout the whole building.

The Out-Patient Dispensary is built of similar material to the Hospital, and consists of a central two-storey block with semi-basement below, and a single-floor wing on either side. A large clinic is held here daily (the attendances for 1914 aggregating over 36,000). Ordinary patients are charged five cents for their first visit, but only one cent for each subsequent one (provided they bring back their card and bottle), but any patient who wishes to do so can be seen for nothing by waiting until all the others have been attended; on the other hand, any better-class patient who does not wish to wait for his turn with the rest can be seen immediately on payment of a dollar. Formerly no charges were made whatever, it being thought by many that since the Government Hospital in the city gave medical treatment gratuitously, it would ill become a Christian institution to ask for any payment, however small. With the opening of the new Out-patient dispensary, however, it was decided to institute the above series of charges, and it has been a very interesting fact to notice that within a few weeks the Government Hospital followed suit with an almost identical three-fold system.

The patients after registration are shown into a large Waiting Room, fitted up with comfortable seats and a platform. Here a short
Evangelistic service is held for exactly half an hour before the clinic begins, a bell being rung at the commencement and end of this time so that any who do not wish to attend may remain outside. A number of the Chinese Christians assist voluntarily in this evangelistic work, but it was found at first that they all tended to collect on the platform and carry on a running series of addresses lasting for an hour to two hours. This did not seem to be at all an ideal way of attracting men or women who, after all, had not come with any primary intention of listening to the Gospel, so a new system was introduced by which the actual preaching on any day was limited to half an hour and entrusted to two people, one of whom introduces the subject and leads the patients in prayer, whilst the other gives a short address. Outside those limits the Christians are encouraged to come for as long as possible, not to preach from the platform but to sit with small groups of patients, distributing books among them and generally helping them.

The two new buildings which have been added to the plant of the Tsinaifu Medical College, have now been formally opened. The opening ceremony commenced at ten in the morning, when a reception was held in the out-patient waiting room, which was decorated with numerous presentation banners and flowers. The Military and Civil Governors of Shantung and all the leading officials were present, as also the British and Japanese Consuls, Bishop Iliff of Taianfu, and a large company of European and American friends. Having first made a tour of the Out-Patient Department, the whole assembly was conducted to the front door of the Hospital, which the Chiangchun then opened with a silver key. The wards and other rooms having been duly inspected and enthusiastically commented on, the company then gathered in the large west ward on the ground floor, where the official proceedings were to take place. The Chair was taken by the Rev. J. P. Bruce, M.A, who warmly welcomed the two Governors and other visitors on behalf of the Medical College faculty, and described the double purpose for which the hospital had been erected, the relief of suffering and disease, and the presentation of the Christian evangel.

General Chiu, the Chiangchun, then gave a short address, expressing in most kind terms his appreciation of the work which was being accomplished in Tsinaifu and his sympathy with the objects of the Hospital. He was followed by the British Consul, Mr. J. T. Pratt, who, in a most graceful speech, offered his warm congratulations on the completion of the new buildings, and referred, in most appreci-
ative terms, to the architectural beauty which they displayed. Whilst China is the home of the fine arts, architecture, one of the noblest of them all, can hardly be said to exist in the country, and he considered that the erection of such splendid buildings was in itself a fine piece of missionary work, especially when one considered the grand purpose to which the building was to be devoted.

A national hymn having been sung by the College choir, the Civil Governor then spoke, drawing attention to the fact that the money with which the hospital had been built had all been contributed by friends abroad, out of love for the Chinese people. The proceedings then terminated with the singing of the doxology and the pronouncing of the benediction.

The remainder of the week was entirely given up to festivities in connection with the opening ceremony, receptions being held each day for different classes of the community, by special invitation. On the Tuesday morning, representatives of the leading Colleges and of the Press were received and shown round the hospital, and also Dr. Robert Speer and his party, who had unfortunately been prevented from arriving in time for the official opening. Wednesday was given up to the leading merchants and business people, nearly a hundred of whom accepted the invitation, and all of whom were most cordial in their expressions of appreciation. But perhaps the most interesting morning of the week was the Thursday, when all the chief Mohammedans, including the old Mullahs, arrived. Most friendly relations exist between the Hospital and the Mohammedan population, who never forget that the life of one of their Mullahs was saved a few years ago. A great crowd of them came, and no one could have been more hearty and kind. On that same day also the Faculty had the pleasure of welcoming Dr. Simon Flexner, Dr. Welch, and the other members of the Rockefeller Commission.

Friday was reserved for the leading Chinese ladies of the city, some two hundred of whom visited the hospital, whilst other mornings were given up to the local neighbours and to the Chinese Christians. In this way every class of the community had an opportunity of inspecting the buildings, and nothing could have exceeded the friendliness and confidence which each and all displayed, and which should augur well for the future work of the institution.

NECESSITY OF MEDICAL SCHOOLS. Medical Missionary education is as old as Medical Mission work itself, and rests upon a like basis of reason and necessity. Selected.
LAYING OF CORNER-STONE OF NEW HUNAN-YALE HOSPITAL.

Fair weather and clear skies made an auspicious setting for the important ceremony of the laying of the corner-stone of the new Hunan-Yale Hospital on October 18th, 1915. The visit of the representatives of the China Medical Board coincided with the progress of the building operations, and on account of his friendship with the donor, as well as his being a Yale man, Professor William H. Welch was asked to perform the ceremony. H.E. the Military Governor of Hunan kindly presided, and with him on the platform were several distinguished guests, including members of the China Medical Board, and citizens of Changsha.

The audience was striking because of its representative character. On the one hand stood a large delegation from the Women's Social Service League, all wearing badges to indicate their membership. Near them was a large group of high school and college students, and in the background a group of distinguished Changsha gentry, as well as of foreign visitors, including the Japanese, German, and American consuls.

After an address of welcome by the Governor, Dr. Hume briefly sketched the history of the Hospital from the time when its work began in rented quarters in the centre of the city in 1906. Mr. C. L. Nieh, secretary of the Young Men's Christian Association, described the formation of the Hunan-Yale Medical Educational Association, laying emphasis on the fact that China was not at present in a position to carry on scientific education alone, and that this fact opened the way to the significant fellowship now existing in Changsha between Chinese and foreigners. Dr. Flexner, Director of the Rockefeller Institute, pointed out in his speech the three functions of a hospital. (1) The care and treatment of the sick. (2) The training of medical students. (3) The investigation into the causes of disease. Unless these functions were all discharged by any given hospital, its usefulness would be greatly curtailed. After Mr. Chang, chairman of the Joint Board of Managers, had expressed his gratitude for the help given medical education in Changsha by The China Medical Board, as well as his conviction that the hospital should be supported out of local funds, Mr. R. S. Greene, resident director for China of the China Medical Board, urged the citizens of Changsha not to be impatient for numerical results. He said that it would be far better that there should be one thoroughly qualified
student in the first graduating class, than that there should be a large number of poorly trained men, who might go out and by their carelessness and inefficiency do an incalculable amount of harm to the community. The closing address was made by Professor Welch who spoke of the benevolence of the donor in America and his deep interest in medical education. He said that it was most important that every class in the community should take upon itself a share of the responsibility for the work of the hospital. He expressed great pleasure in the activity of the women of Changsha and urged that the amount of work done by the Social Service League should be greatly increased.

After this address, Mr. Stanley Wilson, supervising architect, raised the corner stone sufficiently for a layer of mortar to be spread over the underlying block, and then H.E. the Governor presented to Dr. Welch a trowel of Hunan silver, and requested him to lay the stone. Dr. Welch declared the stone well and truly laid, and expressed the wish that the institution thus begun might have a long life of useful service for the community.

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**HANGCHOW LEPER ASYLUM.**

On November 15, Dr. Main's new Leper Asylum was opened, after many months of difficult negotiations for the site and of weary waiting for the contractors to finish the work, by H.E. General Chu Jui in the presence of a large crowd of interested visitors among whom were the Civil Governor's deputy, the British and Japanese Consuls, the Commissioner of Customs, the Commissioner of Foreign Affairs, Mr. Kierkegaard of the Post Office, the representative of the Asiatic Petroleum Company, the Hanchow Taoyin, Dr. Li, P.M.O. of the Military Hospital, Dr. Yu of the 6th Regiment, the superintendent of police, several other officials, a number of the gentry, and most of the missionaries in the city.

The lepers were dressed in their Sunday best and the place was tastefully decorated with flowers and palms, and the flags of most nations. The weather was perfect, and everything went off without a hitch. The General arrived in time with a substantial bodyguard, which apparently it is wise for him to have these days, and as he was carried up the stone steps in his chair, a few crackers provided by the poor lepers themselves, were let off to welcome him.

Dr. Main opened the proceedings by giving a short account of his work among the lepers. Then Mr. Loh, in an interesting speech, told of the difficulties which had to be overcome in procuring a site for the
Hangchow Leper Asylum.  

Asylum. For thirty years, he said, Dr. Main had been treating lepers and planning for the best interests of their bodies and souls. The first Leper Refuge built by him was twenty-four years ago and it was in the city. Then, ten years later, he removed the Refuge to the side of the beautiful West Lake. Since China has become a Republic, a new road has been made at one side of the Lake, and more roads are planned to go all round it. It was felt that as visitors to the Lake increased, the lepers there would be a menace, a danger to the public, so Dr. Main then planned to remove them to a lonely and yet lovely spot at the back of the City Hall, and there he bought a nice, suitable piece of land on which to build the new Refuge. When he began to build trouble arose, and those who had no love for the lepers said it was Temple land and could not be sold. The case went into court. Right was on our side and we could have retained the land, but after long negotiations with the Consul and the Chinese officials the site was finally given up at great sacrifice for the sake of peace and quietness. The present site was obtained with the goodwill of the officials, and $900 was actually subscribed by a few of them privately. The new site is ideal, so all's well that ends well. The buildings are very complete. The large and beautiful Refuge has accommodation for fifty lepers, and there is every convenience,—kitchens, wash-house, wood-house, incinerator, etc. outside; and inside, dressing room, operation room, guest room, bath rooms, isolation rooms, clothes and bedding rooms, etc. The caretaker's house is quite isolated. There is also a small Refuge with twelve beds for women a little distance off. In addition we have a gardener's house and a green house, and lots of ground for planting vegetables and flowers, and there is an abundant supply of water.

A statement of the moneys received and spent was then given, which showed that $20,000 had been spent on land and buildings. Of this amount $900 had been given by Chinese officials, General Chu subscribing $500 out of his private purse. The rest of the money was given by the Leper Mission; by a friend through Pastor Findlay; by Dr. Main, and part came from the sale of the old site at the side of the Lake.

Mr. Bristow, the British Consul, said a few appropriate words, which were followed by a neat little speech by the Rev. J. H. Judson, who pointed out that what we saw with our eyes was the outcome of loving hearts. Many of the visitors went over the building, inspecting it and congratulating the lepers on their many comforts and pleasant surroundings, and not a few were deeply impressed by the cleanliness and efficient management of the Asylum and by the remarkable brightness and happy spirit of the inmates.
CUSTOMS REPORT,—HEALTH OF WENCHOW.

During the half-year ending March 31, 1914, Wenchow has been free from any great epidemics. The last case of Cholera was reported about the middle of October, 1913. At Christmas time small-pox was in the city; but few patients sought foreign aid.

Among the foreigners, there has been one case of sprue, in a young lady who had been resident in this district for some five years. The disease was not far advanced, and she has returned to England. A son has been born to a British member of the Customs Staff.

The Methodist Mission Hospital has been busy. About half the cases admitted as in-patients have been uninteresting ulcers, and diseases of the eye. The former are lesions of syphilitic, traumatic and septic origin; and among the latter are glaucoma in all its stages, iritis and cataract.

The more interesting cases includes gun-shot wounds; many of the victims are Fukienese men, and the wounds are inflicted by pirates who attack their junks at sea.

Ascites is common,—renal, cardiac and other cases due to some form of portal obstruction, with or without enlargement of the liver or spleen; such cases usually hurry out of Hospital as soon as they are relieved of the excessive fluid, and a diagnosis is not made. One woman, aged about 50, with ascites, was admitted weighing 125 catties, and left ten days later weighing 45 catties!

There have been several cases of granulomata. These occur for the most part on the lower half of the body, in young adult males. They do not conform to any of the familiar types of this class; and do not respond to anti-syphilitic treatment. They are limited to the skin and subcutaneous tissue, and are characterised by extreme chronicity. A history of ten or fifteen years in a man of 25 is common. They are often limited to one thigh, or one buttock. The tumours are at first isolated, about the size of a cherry stone, palpable but not visible, and seem to be lying in the subcutaneous tissues. Gradually they become visible, and the skin over them becomes smooth; the tumour is now the size of a hazel-nut and blue. Satellites appear and an area as large as the palm of the hand is involved. The skin assumes a deep suffused red colour and ulceration sets in. Ultimately the area is as large as the extended hand, with fungating ulcers the size of golf balls. There is no evidence of any spontaneous healing. Removal of the whole affected area, with skin-grafting where necessary, gives very good immediate results.
Surgical Progress.

There has been one instructive case of quinine poisoning. A young man was admitted at about noon, with a temperature of 104°F. The malarial parasite was demonstrated in the blood. By 9.00 a.m. the next day he had had three doses of grs. x. of quinine sulphate in solution; and at 10.00 a.m., two hours before the rigor was expected, he had a further dose of grs. xii. All that day he appeared to be perfectly well, but in the evening he complained of slight darkness of vision. A tablet of quinine bisulphate grs. v. was given in the evening; and this was the last dose of quinine. On the following day he complained of complete blindness. After seven days he could count fingers with difficulty; and then he left Hospital, and took to Chinese treatment. After four months he can see in day-light and by electric light, but must be led about in a room lighted by oil lamps. There has been no return of the malaria. The dispenser denied the possibility of an error in the dose.

W. B. G. ANGUS.

Medical and Surgical Progress.

Surgery.

J. C. McCracken, M.D., Shanghai.

Cancer of Breast. Dr. Carl Beck (Journal of the American Medical Association, May 22, 1915) reports eight cases of so-called “inoperable” carcinoma of the breast upon which he has operated with considerable success. Here in China where our cases do not present themselves for operation until the disease is well advanced, this article should be read with interest and profit.

Dr. Beck’s operation consists in the exarticulation of the whole shoulder girdle including clavicle, arm and scapula with the plexus and vessels of the affected side. Should the ribs also be invaded they too are removed. The operation begins with the formation of a large skin flap destined to cover the whole area of the defect. The clavicle is then disarticulated and the tissues of the neck and axilla dissected in one block. Each vessel, as it is reached, is ligated and each nerve trunk cautiously cut. Lastly the scapula is separated and excised.

Case VI. was one of the most interesting and successful ones:

“Miss J., a school teacher, aged 30, was brought to my office from the depot, just about to return home from the hospital. She had a severe hemorrhage from a tumor of the breast. All the patient’s clothes were saturated with blood, which was running down on her body. She had been at one of the hospitals treated with Roentgen ray for an inoperable carcinoma of the breast, and was sent home with the decision that nothing more could be done. Before her entrance to the hospital she had been operated on at her home twice within a year by a local physician, an incomplete removal of the breast tumor having been done; then she came to Chicago, but radical operation was thought impossible by one of our most competent surgeons. As she
The China Medical Journal.

reached the depot hemorrhage occurred. Hemorrhage had occurred twice before while at the hospital. By a compression bandage I stopped the hemorrhage and after two days we took a roentogram and ascertained that the lungs and pleurae were free. I decided on an excartilication. Technic as usual. She made a quick and splendid recovery and has been well ever since; has had no recurrence and was shown at the Clinical Congress of Surgeons in 1913."

Dr. Beck does not consider the results obtained ideal, but when the desperate condition of the patient is considered he believes the results good and the operation commendable. In hospitals in China where public opinion is such as will allow the surgeon to follow his own best judgment some of these desperate cases should be given the benefit of this last chance.

**Extraction of Needles from Tissues.** P. G. Skillern Jr., M.D., *(Interstate Medical Journal, March 1915)*.

When the X-ray is not available there are several important points to be observed in searching for a needle in the tissues. The field should be absolutely bloodless. This is accomplished by means of a Martin bandage. Local infiltration with novocain-suprarenin should be used, supplemented with nitrous oxide if necessary. The black track leading from the skin puncture to the needle should be followed and the tissues should be properly retracted. No time should be lost searching through the fat, since the needle always passes beyond this into fascia or deeper. Incisions should be ample and the dissection should be carried on in planes, *i.e.* the fascia, then the muscles, etc., down to the bone. When found care must be taken to make traction only on the long axis of the needle to prevent its breaking.

**Disinfection of Surgeon's Hands Before Operation.** Ellice McDonald, M.D., in the *Journal of Surgery, Gynecology and Obstetrics*, Vol. xxi. reviews the literature upon the subject and gives the results obtained by him with the use of a new disinfectant which he has used with unusual success. The most common substances heretofore used for this purpose were alcohol and the mercury salts.

Alcohol is a weak germicide. Koch grew spores after 110 days in alcohol. Goenner grew streptococcus after fifteen minutes in alcohol; and Senger, staphylococcus aurens after twenty minutes. McDonald's own experience convinced him that alcohol as a germicide was of little value.

Bichloride of mercury is the most widely used substance for skin disinfection. This salt while a powerful germicide under test tube conditions, is rendered inert by organic matter, *such as pus, serum, blood, soap, skin, mucous membrane, albuminous fluids, etc.* Positive results of growth of bacteria from the skin after treatment with mercuric chloride are frequently reported. Geppert grew cultures after a fifteen minutes' application of 1:1000 mercuric chloride. The other mercury salts are equally impracticable.

Iodine solutions are also impracticable for hand disinfection because of the irritation to the skin which they cause.

Alcoholic solutions of iodine give only superficial disinfection, while with the solutions of iodine in fat solvents, such as carbon tetrachloride or acetone, there is complete penetration of the entire cutis. Loiacono and Robb, who have studied the subject thoroughly, have come to the conclusion that iodine alone is not a reliable skin disinfectant.

McDonald claims that an ideal skin disinfectant should:
Internal Medicine.

(1) Perform its work quickly and without irritation to the skin.
(2) It should be a fat solvent and able to penetrate into the interstices, hair follicles, and sweat glands.
(3) It should be cheap and easily made.
(4) It must be efficient and sterilize the skin within five minutes.

McDonald believes his solution fulfills all the above requirements. It has the following composition:

- Acetone (commercial) ... 40 parts.
- Denatured Alcohol ... 60 parts.
- Pyxol ... ... ... 2 parts.

With this solution in no case was any growth obtained after thirty-seconds' immersion. In practice one minute is advised to provide a margin of safety. Preliminary washing, with soap and water did not add to its efficiency. The hands are simply immersed in the solution and as an additional precaution a nail brush is used for the fingers and a cloth is used to wipe the skin.

This solution has the following advantages:

- It is reasonably cheap. It does not irritate the skin. It contains a fat solvent which causes the solution to penetrate. It contains a strong germicide, twenty times as germicidal as carbolic acid in equal strength. Its efficacy is not impaired by the presence of pus, soap, serum or other albuminous matter.
- As it is possible to sterilize the hands so thoroughly and in such a quick and easy fashion, rubber gloves do not seem to be needed. Dr. McDonald, since he has been convinced of the efficiency of this method of sterilization of the hands has not used rubber gloves, and claims that he has had better wounds with more perfect healing than ever before.

Internal Medicine.

E. H. Hume M.D., Changsha.

PULMONARY TUBERCULOSIS.

Phthisis and Soldiering.—(Progressive Medicine, September, 1915). The most striking contribution to phthisiology during the past year, perhaps the greatest of its teachings, has arisen out of the war. It is the confirmation, and the late development of a great principle, originated in England long ago by Bodington. After its long-delayed arrival, it had been discredited for a while by reckless overdoing among the British invalid colony at Davos. But it was finally placed upon safe and successful working lines by Patterson at Frimley. The principle is that the convalescence from phthisis is not by rest and feeding alone, but by gradual muscular re-education—a cardio-pulmonary convalescence.

Nature discriminates between the open lesion and the closed; yet for both of them she "works" the lung. The main difference is in her modes of exercising it, for the "open" case by cough; for the "closed" by ambulant and avocational work. In the first, she attacks the lesion itself by powerful, though too often, ineffectual, lateral pressures to endeavor to squeeze it empty. In the second, there is no such direct attack. She attends merely to the great cardio-pulmonary cure, namely, by an even increase (proportionate to the extent of the loss of tissue by incarcervation) in the general pulmonary expansion required for a continuation of the work-a-day life of the unsuspecting sufferer; though in many instances the stress of a sympathetic dry cough may be superadded.
The China Medical Journal.

The Phtisical Soldier at the Front. (British Medical Journal 1915, February 27). "The facts which have occasioned these remarks have been given great prominence by Sir Thomas Oliver in connection with the case of a soldier, aged twenty-six years—originally a coal-miner, recently invalided from Mons and the Aisne, where he had served with efficiency and fitness in the transport corps, under highly strenuous circumstances, until he developed extensive pulmonary catarrh from continued exposure to wet and cold. Since his initial pleurisy five years ago, followed by tubercular symptoms for which he spent six months in a sanatorium, he had worked for twelve months as a laborer, but broke down under the heavier work of a plater's help in a Tyneside shipyard, and had remained under treatment at the Newcastle Tuberculosis Dispensary until passed as fit for active service with the R.A.M.C. on August 5th. He had previously had hemoptysis, but at the front had good health, and felt perfectly well. On his return, the condition on examination was as follows: the upper half of the left chest dull, with numerous small crackling rales and signs of excavation; the right lung almost normal; no displacement of the heart.

Oliver believes that similar instances are just as numerous, if not more so, among the Germans. In the "Times" (February 13th) "Eye-Witness" reports that a dead German was found having two medical certificates in his pocket stating that he was suffering from consumption, and an application from the father that the son should not be sent on active service as he was suffering from lung trouble. He concludes that his ability to endure speaks well for the present treatment of pulmonary tuberculosis by sanatorium and open-air, and of suitable cases by artificial pneumothorax.

Etiology. "Tuberculosis is not Directly Inheritable," is the conclusion drawn by Peluh and Chalier (Arch. d. Med. des Enfant, January, 1915), from their extensive study of recent literature. The off-spring of the tuberculous is merely a more receptive soil for any disease. Transmission through the placenta is so rare as to be negligible. On the main question as to the inheritance of acquired properties, V. Franz's ten years' experimental research (Medical Klin. March 1915) establishes that some properties are undoubtedly transmissible, on the plan that the obvious "adaptive variation," or, rather, the "acquired adaptation" of individual living matter to its environment is visibly transmitted through generations.

Dry Tuberculous Dust is, according to Chausse's experimental research. (Ann. Inst. Pasteur, 1914, XXVIII) the main vehicle of infection. He altogether discards Flugge's "tuberculous spray". Sputum dried on a handkerchief is still virulent after ten days. But bacilli, after drying and a few days exposure to light, lose their virulence even when still surviving. Hence, as confirmed by his experiment, the dusty air of public places is rarely infectious.

II. Early Diagnosis of Pulmonary Tuberculosis. E. Stern (Berlin. Klinwoch, July 27th, 1914), adds to the well-known symptoms a "larynx sign" and an "iris sign," both observable on the side affected. The vocal cord is slightly "lame" with an irregular margin, and with more phlegm. The iris is slightly "dilated," and "slow". These are changes analogous to the "lagging" thoracic excursion. He
believes that they are all largely due to pressure on the nerves by enlarged lymphatic glands.

For successful auscultation, Biefeld recommends the "whispering" method. This undoubtedly presents many advantages.

Percussion. David Lees (British Med. Journal, Sept. 12, 1914), believes in digital percussion (in firm dorsal recumbency for the front; on the contrary, in the sitting posture for the back) as competent to diagnose readily and reliably chronic pulmonary tuberculosis at its early stage in infancy and childhood.

III. The Treatment of Pulmonary Tuberculosis. In the complete "Outline of our present treatment" given in the serial articles (Journal of A. M. A. April, 1914) on "The Tuberculosis Problem" only a few points need be mentioned. There is no "specific cure". The important treatment is "hygiene". (1) Climatically there is no "Mecca" curative, or even suitable for all cases. For many "home" is the only abode of "comfort". For others, deficient in stability, the sanatorium is an "indispensable". The bacillus thrives best in cold, damp climates, and next best in hot damp climates. Winds make a bad climate worse, and perhaps a good climate better. Therefore for patients not seriously ill, a sea voyage is often excellent. The high altitude is not suitable for all. The value of the pine regions has also, perhaps, been overestimated. A rough working rule is that if both apices present softening and cavities, or much infiltration, a change of climate can hardly give but slight relief. (2) Fresh-air treatment does not mean that the patient should be frozen to death in winter, or lie out on a verandah in a fog. Foolish exposure of babies to cold is a potent cause of the increase in post-nasal adenoids. (3) Rest. When fever rises in the afternoon and evening, the patient should be kept absolutely at rest. If the physician is in doubt, it is better to err on the side of rest. When should exercise begin? This can only be decided by testing the patient in walking, calisthenics, or light work (and all must be graded). A patient under cure for the lungs should not have deep breathing exercises. A patient under tuberculin should not exercise on the days of the injections. (4) Increase in weight is not always a good indicator. "Hyper-alimentation" by forcing foods down is a mistake.

Two present day fads are inveighed against by A. M. McWhinnie. (N. Y. Med. Jour. April 18, 1914) The cold plunge bath, because of its overstimulation and excessive expenditure of energy; and, with undoubted warrant, "the cold damp bed" in which the open-air consumptive is made to lie. We air our sheets before the fire, but his bed awaits him cold and damp during inclement weather, from perpetual exposure in an unsuitable sleeping porch. An ideal porch is depicted, with a way through the wall in and out of a cold room. There is common sense in it.

Hemoptysis has been successfully treated by various observers with hypodermic injections of emetine. The general hemostatic value of the latter is attested by J. Weinstein. (Med. Record, Jan. 16, 1915). A dose of \( \frac{1}{2} \) grain of the hydrochloride is efficient against hemorrhage in throat and nose operations. Chauvillard (Bull. Acad. Med. Jan. 20, 1915), shares that good opinion. He trusts to the injection for hemoptysis, whether due to tubercle, congestion, or perforating amebic liver abscess. But B. Nicola, from his reasoned ex-
experience in 24 cases of tuberculosis, expects good results only in the early and moderate hemorrhages, or in cases of high blood-pressure; but not in passive venous congestions, or in ulcerative lesions with low tension.

Practical conclusions as to Tuberculin Treatment seem to be at last emerging, after a quarter of a century, from the only field which could yield them. The "King's" sanatorium is royally fulfilling the lofty purpose of its august founder, and of Sir Ernest Cassel its munificent donor, in clearing the way for the long-hampered advance. All credit is due to Noel D. Bardswell for having planned that obstacle-razing campaign; and for having patiently carried out its Fabian tactics slowly and surely.

The initial difficulty, as pointed out by Bardswell, (Lancet, Jan. 9, 1915), in any assessment of tuberculin as a "remedial agent", is that the cases have to be more or less "selected". (2) In early tuberculosis, when free from bacilli in the sputum, the results of the treatment are equally favorable "with or without" tuberculin. (3) In the other series (T.B. in sputum), tuberculin did not seem to yield any appreciable effect; except that in 5 per cent of the cases the bacilli disappeared from the sputum.

On that basis the following propositions stand out: (a) Tuberculin cannot be described as a "cure", as its beneficial effects, very slow to mature, are almost imperceptible. (b) Striking results can no longer be expected from it. (c) Material help from it could only be looked for in cases possessing a favorable outlook under any conditions. (d) It is incapable of converting any unfavorable case into a favorable one. The obvious practical conclusion is that "Tuberculin" cannot be considered a suitable routine remedy for tuberculosis. In fact, Tuberculin has not proved to be suitable as a routine remedy.

Percutaneous Preventive Treatment. A. Kutschera's (Wien, Klin. Woch, June 4, 1914) preventive method is this: The patients drop their tuberculin on the skin once a week, varying the site, and rub it in with the thumb till it all disappears. Starting with one drop of a 1/25 solution, each following week, up to the fourth, another drop is added. Then follows a four-weeks' similar increase with a 1.5 solution. Finally, 1 drop of pure tuberculin is to be used; and to be increased up to 4 drops only. He has tried this method with success "as a protection" for 600 cloistered nuns. He recommends it for continued use (up to two years) in tuberculous surroundings. But, for declared cases, he resorts to the injection.

Tuberculosis Stamped Out. J. Petruschky (Munch. Med. Woch, Feb. 1915,) claims to have achieved locally that great consummation for the 500 inhabitants of Hela, near Dantzig, simply by universal percutaneous tuberculin immunization with which he now combines antigens against other infections. Since 1911 no open tuberculosis has developed, and meanwhile the "closed" or latent cases have completed their recovery. — (Abstracts from Progressive Medicine, September, 1915).
Preventive Medicine

PUBLIC HEALTH WORK IN KAI FENG.

Dr. W. W. Peter of Shanghai, recently paid a visit to this city bringing with him his well known Public Health exhibit.

The city theatre which had been hired for the occasion, displayed the exhibit to the best advantage, the diagrams, maps and pictures being placed round the hall under the galleries, and the mechanical apparatus on the platform.

Special arrangements had been made for the officials. Over two hundred invitations had been issued to the public offices in the city, and at the opening meeting practically all who had been invited came, the Governor sending a representative. A large number of gentry assembled with the officials, and this audience of influential men listened with close attention to the lecture.

At later meetings business men and students in turn thronged the hall, and packed the building to the full.

At the close of the first meeting, one man was noticed to remain studying the diagrams after all others had left. He proved to be a doctor. During conversation, he expressed a desire to see something done to better the condition of the people. The following day at his invitation a number of western trained doctors and gentry met Dr. Peter at dinner to discuss the question, and it was decided to form a Public Health Association.

A meeting was arranged for the following Tuesday. At another dinner in the evening, a very warm expression of thanks was made to Dr. Peter for all the trouble he had taken in coming from Shanghai to deliver his illustrated lectures.

It has been very interesting to witness the progress of affairs since Dr. Peter left. The Tuesday gathering met in a Chinese hospital in the city. We found that the promoters of the scheme were ready with a well thought out programme. It concerned questions relating to:

1. Educating the public by means of lectures and literature.
2. Making known the aims of the society to officials, gentry and scholars so as to win their co-operation.
3. Plans for winning the goodwill of the people.
4. The appointment of Public Health Inspectors.
5. The holding of monthly meetings of the society, and an annual meeting open to the public with slides or exhibits, etc. Emergency meetings to be arranged when necessary.
6. The question of premises for the Association meetings was discussed and it was suggested that meetings, pro tem., should be held in the Chamber of Commerce.
7. The matter of finance was broached, and it was decided that this should be dealt with at the meeting which would be called in the near future to organize the Public Health Association for Kaifeng.

A temporary executive of nine members was elected to arrange the meeting. On this committee, the heads of the police are co-operating with the doctors of the military bodies, and are very keen to see the needed reforms carried out. A missionary doctor has been invited to join the executive.

There are ten men here with knowledge of Western medicine. Six of these are Cantonese students from the Military Academy at Tientsin. Others are from the Union Medical and Government Colleges of Peking.
The foreign missionary doctors and Y.M.C.A. workers will co-operate in the work, and all look forward confidently to the establishment of an association that should prove of the greatest benefit to Kaifeng.

A hope has been expressed that eventually a Medical School might be started in Kaifeng. This thought has come from the Chinese, and it may be realized in fact in the future, but for the present it is out of the question. The thirty-five millions of Honan certainly need such a school.

The Evangelistic campaign for students that followed Dr. Peter's meetings, was conducted by Dr. McGillivray of Shanghai. Large gatherings of students and business men met, and over 100 men have signed cards indicating their desire to study the Bible. Classes have been arranged at the different Missions, and last Sunday a considerable number of students attended. It is hoped that this will form a nucleus from which others will be reached.

The Foreign Office entertained the visitors to dinner at which twenty-two officials and foreigners gathered.

The feeling of goodwill was most apparent.

G. W. GUINNESS.
China Inland Mission, Kaifeng.

PUBLIC HEALTH WORK IN CHANGSHA.

The following extract from a letter sent by Dr. F. C. Yen of the Huuan-Yale Mission in Changsha, is of great interest as it presents briefly two aspects of all philanthropic effort,—accomplishment, and what might be accomplished but is not.

"The founding of the Tuberculosis Sanatorium is in a large measure due to the C. M. M. A. exhibit held May 6-16th. A campaign was started right after the exhibit and persisted in for four months with the result that a total sum of Mex. $20,000 was raised. Of this amount one half was given by the Governor and the rest was contributed by the interested officials and gentry. A suitable lot outside the North Gate, close to the new Yale Campus and owned by the local Red Cross Society, will be used for the Sanatorium. The construction of the building has already begun. Due to the fact that the Sanatorium will be very close to the new Yale Hospital, there will be no dispensary attached. In addition to treating tuberculous in-patients, the staff will also direct an Educational Campaign in the city. A nurse supported by the local ladies' Social Service League will devote her entire time to visiting consumptive homes.

As to the Public Health Society, I am sorry to say that it has never been followed up. There is a lot of interest among the people in Public Health work, but owing to lack of time on the part of doctors, such interests have not been gathered together and made productive."

VITALITY AND DISEASE.—The diminution of vitality is, generally speaking, the cause of diseases in the human being. Especially does this condition favor the appearance of tuberculosis. If we wish to combat tuberculosis we must seek to raise the vitality, not only of the individual, but of the nation.—G. Schenker Aran.
The Medical Clinics of Chicago. Published Bi-Monthly by W. B. Saunders Company. $8 a year (gold). 35/-

The first number contains about 200 pages of reading matter along with thirty-five excellent plates of which more than half are reproductions of X-rays.

Based on the same principle as the Clinical Studies by Bramwell of Edinburgh, issued some years ago, this series of Medical Clinics is intended to do for medicine what has been so well done for Surgery by Murphy’s Clinics. It takes one away from theoretical considerations as to what ought to be the symptoms of a particular disease and brings one face to face with the patient himself, so that one is shown not the “typical” case of the text-book (which is proverbially rare), but the actual symptoms and signs as they are presented in actual individual cases.

This series differs from the Surgical one in that it presents the cases not of one teacher but of many; in this first number there are contributions from eight workers associated with four different Hospitals. Tuberculosis is dealt with by Mix and Abt; circulatory disorders by Williamson, Preble, Tice and Hamburger; while Hamill and Goodkind describe diseases of the nervous system. There are also studies of blood conditions, pneumonia, etc., etc.

The volume is easy reading and does not require the concentration of effort that is demanded by a systematic treatise on medicine. A perusal of the book shows much that is interesting, but there is little that is new save Goodkind’s description of two early signs of tabes dorsalis and Mix’s insistence on the many occasions in which “errors have been made [in examining for tubercle bacilli] by using distilled water in which acid-fast bacilli have been growing”. A modern view, though hardly a new one, is emphasized by Williamson, viz., that when oedema has occurred in a case of chronic nephritis and the blood pressure is found to be high, it may be the physician’s first duty to get the pressure still higher till compensation is again established. Williamson acknowledges that it is “dangerous to push an already high blood-pressure higher” but he rightly points out that “a patient with a contracted kidney is able to live only because his blood pressure is high enough to push the urine through his kidney”. Preble emphasizes the same point, that vaso-dilators are to be avoided. The blood-pressure may only be reduced by reducing the toxic processes.

One may select two points for criticism: (1) Hamill’s theory that intermittent claudication is due “to a thickening of the blood-vessel...
wall along the course of the pyramidal tract" which does not carry conviction. He advances no arguments against the old established view that this condition is due to an interference with the blood supply to the lower limbs. (2) The failure to examine the urine for urobilin or urobilinogen in a very obscure case in which hepatic disease was suspected. If its presence had been determined the physician would have been encouraged to make, at an earlier date than he did, the diagnostic puncture which revealed the presence of an hepatic abscess after the patient had been in the wards for eighteen days.

Taking the clinics as a whole, however, one has no hesitation in saying that to many a busy practitioner, whether in China or elsewhere, these volumes will prove most suggestive and helpful, reminding the reader of diseases that he rarely sees in his own practice and stimulating him to a more careful study of each of his own patients.

G. D. W.


This is the first number of a new medical Journal launched by the recently formed and very energetic "National Medical Association of China". It opens with a thoughtful article by Dr. Tyau, of Shanghai, on "The Demand of Modern Medicine upon the Profession, the College, and the Government." The Editor describes a hygienic Chinese dining table which he has invented. Dr. Chun writes on "A case of Chondro-sarcoma of Upper Jaw". A courageous attempt was made to remove the formidable growth completely by operation. Dr. Chun also contributes "Rambling Notes". An account is given by Dr. Yen of the first official autopsy ever performed at Changsha. Official notifications of the Chinese Government, medical and surgical annotations, the constitution and bye-laws of the Association, the provisional programme for the conference to be held in February, 1916, and miscellaneous matter complete this most interesting number. The illustrations are by Chinese artists. Our friends and colleagues are to be congratulated upon their venture, and we wish it all success.


This is one of the best text-books on Physiology designed for the use of students and practitioners of medicine. While presenting physiology as a growing subject which is continually widening its knowledge and readjusting its theories, the author does not bewilder the student, where there is still uncertainty, with the conflicting
views advanced, leaving him to judge for himself as to their value, but sifts the evidence and emphasizes those conclusions which seem to be most justified by experiment and observation. This is of great importance in the training of students in this country. Not many Chinese students, when they begin the study of medicine, appear to possess that independence of judgment and alertness of mind necessary for the appreciation of the fine points of a physiological or other scientific argument, nor that painstaking critical faculty required in medical research or other form of scientific investigation. In the future such qualities of mind may be developed earlier and be more general when the stimulating methods of Western education have wholly displaced the Chinese methods in which sheer memory plays so important a part. What students seem to require at the present time, therefore, is knowledge presented with lucidity and authority, yet leaving the impression that beyond the limits of their acquirement in any particular subject there is very much more to be learned. This is the form of sound teaching given by the author of the text book under review. In this edition, the sixth, the work has been thoroughly revised so that the information keeps well abreast of the latest advances in physiological science.


This is the first number of another new Journal. Inevitably, as the editor remarks, the question arises, why start a new journal of this description? Why ask the medical man to add another to the great heap of periodicals that—often unopened—burden his table? The answer is that at present there is a wide chasm between the research man and the practitioner, and the aim of this journal is to bring discovery and its application closer together, to supply the research man with a strictly scientific organ through which he can report the results of his labours, and to suggest to the practitioner how he may use the latest discoveries. The following are the original articles in this number: (1) A new method for the production of general analgesia and anaesthesia with a description of the apparatus used. (2) Specific treatment in typhoid fever. (3) Laboratory and clinical examinations. (4) On the probable toxic effects of prolonged administration of parathyroid glands. (5) Pre-cancerous conditions of the skin. (6) Staining sections of living tissue, unfixed. (7) Intestinal stasis and intestinal intoxications,—a critical review. (8) A very useful paper on Laboratory methods by the Editor. There are also several instructive editorials. If the high standard set by this first number is maintained, the Journal will certainly accomplish its purpose.
The China Medical Journal.

PATHOLOGICAL TECHNIQUE. A Practical Manual for workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies, and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School; Pathologist to the Boston City Hospital; and James Homer Wright, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard University Medical School. Sixth Edition, revised and enlarged, with 174 illustrations. Philadelphia and London, W. B. Saunders Company, 1915.

The first part of this work gives full directions for the careful and systematic performance of post-mortem examinations. But while the cause of death may often be discovered by macroscopic examination of the organs and tissues, far more frequently the complete and final solution of the problems presented by the fatal issue can only be reached by means of the microscope. Consequently, the authors next deal with the subject of bacteriology, including the preparation of culture media, bacteriological examination, methods of studying bacteria in cultures, and special bacteriology. Then follows a study of histological methods, the various steps in the preparation of tissues—both normal and pathological—being given in logical order. Only those methods and formulae are given which have been found by the authors of the greatest service. This gives added value to their recommendations, and perhaps explains why certain tropical diseases such as Kala-azar are not mentioned. Designed especially for use in pathological laboratories as a guide to beginners and a source of reference for the more advanced, the book well fulfils its purpose, and as the Chinese Government now sanctions the performance of autopsies, it meets still more completely the needs of practitioners in this country who are doing general pathological work.

LIST OF DRUGS, BRITISH PHARMACOPEIA, 1914, with both Imperial and Metric doses. Issued by the Medical Missionary Association of India. Price Four Annas.

This very handy booklet may be obtained from the Editor, Dr. J. M. Macphail, Bamdah, via Simaltala, E. I. R. Some notes at the end add to its value. Attention is called to the fact that a considerable number of indigenous Indian drugs are now included in the B. P., for the first time.


Copies of this most interesting biography, which was reviewed in the issue of the Journal of last September, may be obtained from the Mission Book Company, 18 Peking Road, Shanghai, and from the "Central China Post," Hankow, Price Mex, $1.50.
Nurses' Association of China.

OFFICERS, 1914 to 1915.

President:—Miss E. Hope-Bell, Hankow.
Vice-President:—Mrs. Bayard Lyon, Tientsin.
Treasurer:—Miss Chisholm, Shanghai.
General Secretary:—Miss Alice Clark, Shanghai.
Editorial Secretary:—Miss Laura Lenhart, Shanghai.

At the Annual Conference of the Nurses' Association of China, held in Peking, September 1915, the following rules were adopted for the examination of Chinese candidates for nursing certificates:

1. The date of examination decided upon by the Assistant Secretary, must be strictly adhered to by those in charge of the examination.
2. A candidate shall be known only by number. Candidate's name to be known only to the Assistant Secretary.
3. Candidates must write their own answers in clear character.
4. No talking to be allowed in the examination room.
5. Time limit of the papers must be adhered to.
6. Question paper to be fastened on to the answers, and to be returned per registered post to the Assistant Secretary.
7. The number of the question to be written at the beginning of each answer.

8. The examiners will set papers in the following subjects:
   a. Elementary Anatomy and Physiology.
   b. Materia Medica and poisons.
   c. General nursing.
   d. Medical nursing.
   e. Surgical nursing.
   f. Nursing of children.
   g. Ophthalmic nursing, Ambulance and First Aid.
   h. (For women.) Nursing of Gynaecological and Obstetric cases.
   i. (For men.) Nursing of Genito-urinary cases.

Twelve questions will be set on each of the above subjects, ten of which should be answered.

j. Elementary Bacteriology.
   k. Dietetics.

Six questions each will be set on these two subjects, five of which should be answered.

9. As candidates for examination increase in number, centres for practical examinations will have to be decided upon by the Assistant Secretary in consultation with the Executive Committee.
10. Practical examinations must in no case be conducted by mem­bers of the staff of the hospital and training school to which the candidate belongs.

11. Lists of tests for practical examinations shall be decided on by the Assistant Secretary.

12. Selection of instruments, and questions on bandaging to be left to the practical examination.

13. The Assistant Secretary is authorised to co-ordinate the questions of the four Examiners, and substitute questions should duplica­tion occur. She will notify the Examiners, should any alteration be made.

14. Examinations shall be arranged so that not more than one subject be taken on any one day.

15. Examination questions from the previous year will be sent to the Examiners of the following year, as a guide to the standard required.

Notice.—Will Superintendents of Training Schools for Nurses having candidates who are read)7  for the N. A. C. Examinations to be given in May 1916, kindly send the names of the candidates before March 1, 1916 to Miss Mary Reed Ogden, St. James Hospital, Anking?

Japanese Obstetrics.—Even in ancient Japan the treatment of pregnant women received great attention. There was a special birth-chamber in which the women remained three weeks before and three weeks after delivery. In the second half of pregnancy a belt was worn and by rubbing the abdomen the production of a correct presentation was attempted. During the birth and for eight days afterward a special birth stool was employed. After the middle of the eighteenth century obstetrics received a great impulse through Kagawa Shigen, at one time a rubber and acupuncturer. He published in 1765 an epoch­making work, San-ron, in which he attacked many erroneous Chinese views and collated many sound observations intermingled with \( a \ priori \) conclusions. The successors of Kagawa Shigen worthily continued these rational endeavors. The following particulars may be mentioned as having been known and practiced: the knee-elbow parturient attitude; care of perineum; double ligature of umbilical cord and section of same with scissors; powdered gall as a styptic; removal of the retained placenta by rubbing the abdomen and pulling on the cord; eventual instrumental extraction; nursing only after the fourth day.—Neuberger, History of Medicine.
Correspondents are requested to write on one side of the paper only, and always to send their real names and addresses. The Journal does not hold itself responsible for the opinions or assertions of correspondents; nor can it undertake to return unused MSS.

The Disease of the Shunamite's Son.

To the Editor, C. M. J.

DEAR SIR:—In Dr. Duncan Whyte's very helpful digest of recent medical literature concerning "Cerebro-spinal Meningitis," he quotes an interesting reference to the death of the son of the Shunamite woman (2 Kings IV) as being due to this disease. Is not this diagnosis open to question? May not the child, taken suddenly ill while exposed to the sun's rays in the harvest field, have died from sunstroke? Osier, in his "Practice of Medicine" (8th ed., p. 390) writes that sunstroke "is one of the oldest of recognized diseases. The case of the son of the Shunamite woman is perhaps the oldest on record." Sir Risdon Bennett, M.D., in his "Diseases of the Bible," also states that this case "has usually been considered as one of sunstroke or insolation, and this is probably the correct name." But he adds, "If the child's exclamation, 'My head, my head,' is to be understood as intimating sudden severe pain of the head, it is possible that it may have been an instance of sudden meningitis supervening in a delicate child."

That sunstroke was not uncommon among the Israelites is evident from such passages in the Bible as "the sun shall not smite thee by day," etc. We also read that "the sun beat upon the head of Jonah that he fainted," and in the Apocrypha it is said of Judith that "Manasses was her husband, of her tribe and kindred, who died in the barley harvest. For as he stood over seeing them that bound sheaves in the field, the heat came upon his head, and he fell upon his bed, and died in the city of Bethulia, and they buried him with his fathers."

The question raised is an interesting one for medical missionaries, but as the facts presented are very few, probably there will be always room for difference of opinion.

Yours truly,
SIMONIAS.

November, 1915.

A Generous Offer.

To the Editor, C. M. J.

DEAR SIR:—Should any colleague wish to make use of one or other of the following books they may be had for the asking and payment of postage from Kuling. They are all in excellent condition.

Osler's Practice of Medicine (6th Ed.)
Movilhan's Abdominal Operations (2nd Ed.)
DeSchweinitz—Eye (4th Ed.)
Burney Yeo, Two Vols.
Practical Medical Series, Ten Vols.
1910.

Williams' Obstetrics. 1906.
Gray's Anatomy (13th Ed.)
Foster's Physiology.
Dictionary of Treatment, Whitlaw (4th Ed.)
Practical Dietetics. Thompson.
Holt's Diseases of Children (4th Ed.)

Yours truly,
H. G. BARRE.

November 3, 1915.

Post-Mortems in China.

To the Editor, C. M. J.

DEAR SIR:—Just before leaving China I noticed a comment in the Rockefeller Medical Commission's report upon the fact that few post-mortems had been reported, even though permission for such has been given by the Chinese Government.

Perhaps others as well as myself had not realized the importance of doing so. In July I did my first post-mortem examination in China. The family of the deceased gave full and free permission. My Hospital helpers assisted willingly, and there was no difficulty whatever attending the matter. I realize, however, that such would not always be the case. Although we have government sanction, it will always be a delicate matter requiring the greatest tact and discretion.

J. M. GASTON.

November, 1915.

Five Years of Aseptic Surgery.

To the Editor of C. M. J.

DEAR SIR:—Dr. Logan sent the following reply to a correspondent who had congratulated him on the very successful results of aseptic surgery in perfectly clean cases, but who wondered if the unfavorable reports of aseptic surgery in the present European war (see "The Treatment of Infected Wounds," CHINA
The China Medical Journal.

MEDICAL JOURNAL, July 1915, did not require some modification of the statement concerning possibly infected wounds, that one need not despair of aseptic surgery in wounds "less than a day old, no matter how they have been handled"; and who also asked if the use of Tincture of Iodine in surgery did not bring the operation, in some measure at least, under the heading of "antiseptic" rather than aseptic surgery. Hoping you will be able to find room for both communications,

Yours truly, ANON.

DEAR DOCTOR,—Thank you so much for your letter with its criticism of my paper on "Aseptic Surgery." I am very grateful indeed to have an opportunity to make myself plain on the points you mention.

1. In regard to the "infected cases," I think a careful reading of my paper will show that I have not dealt with infected cases at all. It is true that several of the cases were probably potentially infected and were prevented from actual suppuration by chemical (Tr. Iodine) cleansing of the surrounding skin up to the edge of the wound, and mechanical cleansing of the wound surface by normal salt solution poured from a height of about two feet.

We think we have found that most of the incised wounds we meet that can be freely flushed with the saline solution will heal by first intention, provided we get them within half a day after the wound was made. Such cases are always drained with a small strip of rubber dam, and if infection occurs they are opened up freely.

2. You speak of military surgery and the cry "Back to Lister." I have had some experience in a Red Cross Hospital during the Chinese Revolution. The results of neglected wounds are still fresh in my mind. My paper did not deal with such cases or circumstances; it was based upon observations under normal conditions and upon experience gained in a well-ordered mission hospital, if we may lay claim to such an institution.

3. You say you have heard the question asked "What is the difference between cleansing a wound with tincture iodine and antiseptic surgery?" My answer is, there is no difference; but as I have said above, and tried to say in my paper, tincture iodine was never used in the wound in the cases reported. This antiseptic was only used to cleanse the surrounding skin surface. A piece of sterile gauze placed over the wound protected it from the iodine solution while the skin was being treated with this antiseptic. Later, this gauze was removed and the skin was similarly treated up to the lips of the wound, but no iodine was allowed to enter the wound. There is no doubt in my mind that in the class of cases included in my paper any antiseptic introduced into the wounds would have made suppuration more likely by destroying the first line of tissue cells.

Very truly yours.

O. T. LOGAN.

Changteh, Hunan.

A New Antiseptic.

DEAR SIR:—We have been reading in the papers occasionally of a new antiseptic used with great success in the military hospitals in France. The formula finally appeared in the Journal of the American Medical Association for September 25, 1915, p. 1132. I have been using it for a short time with good results, and hoping that it will be useful to someone who has not seen it, I pass it on.

The formula is as follows,—

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium carbonate</td>
<td>140</td>
</tr>
<tr>
<td>Chlorinated lime</td>
<td>200</td>
</tr>
<tr>
<td>Water</td>
<td>10,000</td>
</tr>
<tr>
<td>Boric acid</td>
<td>0.5</td>
</tr>
</tbody>
</table>

1. Dissolve the sodium carbonate in the water.
2. Add the chlorinated lime.
3. Shake thoroughly.
4. Let stand for 30 minutes.
5. Siphon off and filter through cotton.
6. Add boric acid till a drop of the solution does not redden a few drops of phenolphthalein solution. Usually about 25 to 40 gm. of the boric acid are required. Phenolphthalein solution is prepared by dissolving one gram of phenolphthalein in one litre of 50% alcohol.

The antiseptic has the names of Carrel and Dakin connected with it. The "new" part is the addition of boric acid to make it neutral or acid, thus making it a stronger antiseptic and at the same time non-destructive to tissues.

Sincerely yours,

J. H. BALDWIN.

The Metric System in Prescribing.

To the Editor C. M. J.

Dear Sir,—In revising the formulae for our local hospital pharmacopoeia there arose once more the question of altering the number of cubic centimeters to the dose, and the number of doses to the bottle, for the various mixtures prescribed.

In the home-land we are accustomed to prescribe either one-half ounce or one ounce of the mixture as the dose. Put into metric measures this is 15 cc. or 30 cc., respectively. I think those who have had experience in pharmacy lecture or laboratory work will agree with me that the use of these quantities has many objections.

At Peking and many other centres it has been the custom to prescribe mixtures of 180 cc. (6 ozs.), containing 12 doses of 15 cc. (½ oz.) each. English lovers of l. s. d. like 12 coppers for a shilling, but why should we have a 12 dose mixture? Surely 10, or a multiple of 10, would be more convenient. With in-patients and city out-patients 10 would be a suitable number, but I believe the country hospitals would like to provide their patients with 20 or 40 doses.

Now a 150 cc. mixture of 10 doses of 15 cc. each, would not be as good as a 200 cc. mixture of 20 cc. doses, or 1,000 cc. of 50 doses of 20 cc. for two very good reasons. First, the formula given in the various text-books, (such as the new B.P., B.P.C., etc.) are given in parts per 100 or 1,000. One hundred being a multiple of 10, in the calculation for one dose, or one mixture bottle, the amount of arithmetic is very small compared with that required to calculate a 15 cc. dose, or the multiple of the fraction \( \frac{1}{12} \). Arithmetic is not the Chinese students’ forte so by introducing a 20 cc. dose we are lessening possibilities of error. Second, my experience of the foreign doctor is that even after many years in China constantly writing the metric system, he still thinks in grains and minims, and carries in his pocket a well-worn little copy of his old hospital pharmacopoeia of 6 oz., tablespoonsful mixtures, which for the sake of his students and assistants he conscientiously converts with much fatigue into 180 cc. quantities.

The conversion of a 6 oz. mixture of 12 doses, into a 10 dose, 200 cc. mixture is very simple:—

\[
\text{Multiply grains or minims by } \frac{1}{12} \text{ and express the result in decigrams or decimals. Multiply dramms by } \frac{1}{120} \text{ and express the result in grams or cc. (Mix.)}
\]

For example:—

R Potassium Brumidi 
Syrup Auranti 
Aq ad


If the imperial measures be divided by 12, and the metric measures by 10, we get in each case a dose of 4 grains of Potassium Iodide, a half dram of Sal Volatile, and an unimportant varying quantity of the vehicle.

I suggest also that to correspond with the one ounce bottle with teaspoonful dose of the mixtures or liniments for children used in the home country, a 50 cc. bottle with 10 doses of 5 cc. would be more appropriate. Conversion of the same would be by multiplying by 8 and expressing the result in centigrams, cc.,

R Chloral Hydratis 8 grains 0.64 grams 
Potass Bromidi 8 grains 0.64 grams 
Syrup Auranti 46 minims 3.84 cc.

Mix. Dose, 1 teaspoonful; (5 cc.)

Divide the imperial measures by 8, and the metric measures by 10, and in each case we get a dose of 1 grain each of Chloral and Potassium Brom., and 6 minims of Syrup Auranti.

The change from half an ounce to 20 cc. and from 1 dram to 5 cc. would be a change for the better, because with a larger dose the graduations on the bottle are not so cramped and can therefore be made more uniformly accurate.

With regard to the supply of suitable bottles, St. Luke’s Pharmacy of Tokio lays itself out to supply anything wanted at very cheap rates. This country also has a number of glass factories that make anything to pattern.

In conclusion may I urge that our conversion to the metric system be real with all preparations, liniments, lotions, guttae, etc., etc., using 100 cc. or 10 cc. bottles as the case may be, and leaving the old imperial weights and measures altogether.

The only objection that I have heard against a 10 dose mixture is that seeing mixtures are usually prescribed: ‘Three times a day after meals.’ 10 is not so convenient a multiple as 12, which provides sufficient medicine for 4 days. In reply to this one might say that the majority of Chinese only take 2 meals a day, and therefore it would be better if medicines were more often prescribed, ‘Twice a day after meals’.

Yours faithfully,

Bernard E. Read.

Union Medical College, Peking.
PERSONALIA.

BIRTH.
On October 26, 1915, to Dr. and Mrs. George T. Tootell of Changteb, Hunan, a son (John Edward).

MARRIAGES.
Paivy-Easton.—On Tuesday, November 16, 1915, at the Holy Trinity Cathedral, by the Rev. W. H. Price, Frank Ernest, son of Dr. H. L. and Mrs. Paivy, of the China Inland Mission, to Catherine Edith, daughter of G. F. and Mrs. Easton, also of the China Inland Mission.

Dyer-Humphreys.—On November 6, 1915 at noon, in Grace Church, Soochow, the Rev. E. R. Dyer and Dr. Anne Humphreys were married by Bishop Graves.

DEPARTURES.
October 19, 1915, Dr. and Mrs. W. S. Heyward and child, London Missionary Society, Hankow.
November 12, 1915, Dr. and Mrs. McCartney, Methodist Episcopal Mission, Chungking.
Dr. and Mrs. Claud M. Lee and children, American Church Mission, Wusih, sailed from Shanghai on November 12, 1915, on the Chiyo Maru. They expect to remain a year in America.

NURSES.—October 25, 1915, Miss Alice Shaclleton, Wesleyan Mission Hospital, Hankow.
November 19, 1915, Miss Corrier, Southern Presbyterian Mission, Kashing.

ARRIVALS.
October 10, 1915, Miss M. Anderson, M.D. Methodist Episcopal Mission, Peking, Miss M'Catht M.D., Canadian Presbyterian Mission.
October 11, 1915, Dr. and Mrs. Smith, Canadian Methodist Mission, Junglisien. Miss McMinn, M.D., Irish Presbyterian Mission.
NURSES.—September 19, 1915, Miss Laura Wells, American Church Mission, Nanking.
October 20, 1915, Miss G. Stephen-son, Wesleyan Missionary Society, Hankow.
October 25, 1915, Miss M. G. Bender, St. Luke's Hospital, American Church Mission, Shanghai.

Dr. and Mrs. Petit of the American Church Mission, are to sail from America on December 18, 1915, and on their arrival in China will be sent to Wusih.

The supreme court of the Panama Pacific Exposition awarded a silver medal for Red Cross work to Mr. Charles D. Jameson, the American civil engineer who made the pioneer flood prevention study in the Hwai River district of China, and also to Lieut.-Col. Wilhem L. Sibert, Engineer Corps, U. S. Army, who served as chairman of the American Red Cross Chinese Conservancy Board, and directed the final investigation which resulted in the formulation of a definite plan of flood prevention work in the Hwai River region.

NOTICE.
The following papers, which will appear in due course, have been recently received by the Editor—
"The Value of Leverage in the Treatment of Unreduced Dislocations." By C. C. Elliott, M.D., F.R.C.S., P'ao-ning Sze.
"Acute Complete Inversion of the Uterus." By Dr. Mabel L. Hanking.
"Mononuclear Counts in Subtertian Fever." By Dr. Ina Kahn.
"The term Malaria and its colloquial Synonyms." By William Malcolm, M.D.
"The Treatment of Leprosy." By Dr. Duncan Main.
"Emetine Hydrochloride in Hemorrhagic Purpura." By Dr. H. H. Morris.
"On Untreated Strangulated Inguinal Hernia." By J. Preston Maxwell, M.D., F.R.C.S.
"Surgical Mortality from the Stand-pont of the Anaesthetist." By Dr. G. W. Leavell.
"Vincent's Angina." By J. F. Lue, M.D.
"On Malta and Paratyphoid Fevers in Province of Fukien." By Dr. J. P. Maxwell.
"Some Methods in teaching Men Nurses." By Miss Hope-Bell.
"The Horse-fly and Anthrax." By Dr. J. W. H. Chun, Manchuria. In this paper cases are given apparently proving that Anthrax may be conveyed from horses to human beings by a species of Tabinisde.