PRELIMINARY REPORT OF COMMITTEE ON INFANT AND INVALID DIET.

Variations in Percentages of Fats in Different Brands of Canned Milks. Differences in Foreign and Native Cows' Milk. Effects of "Crossing" Native and Foreign Cows. Native Cows' Milk High Fat and Low Proteid Content, making a Theoretical Ideal Milk for Modification for Infant Feeding. Necessity of Mission Stations Possessing Reliable Milk Testers. Practical Suggestions for Obtaining and Caring for a Herd in Central China, etc.

By O. T. Logan, M.D., and Adrian S. Taylor, M.D.

History.—At the Triennial Conference of the C. M. M. A. which met in Hankow in February, 1910, the following resolution was passed:

"That a Committee be appointed to deal with the subject of Infant and Invalid Diet from Chinese Sources and Report through the Journal: Dr. Logan to be Chairman of this Committee and that he select two others to act with him."

The Chairman has to report that the third member of the Committee has not been secured, but it has seemed best to submit this report at the present time, rather than delay it further.

Introduction.—After two years of consideration of the subject, it is evident that to make a full report would require the cooperation of many men in different parts of China. There can be little doubt that the food of infants as well as adults must differ in the warmer and colder parts of China. It is possible and even probable that the cows of different sections of China produce milk that varies considerably; certain it is that different breeds of cows in the same section give milk that varies greatly in fats. It is hoped that reports from the northern and southern sections of China may be forthcoming soon, so that the subject may be more fully covered. This report, in the
Foreign and Chinese Staff of the International Hospital, Hankow, and some typical Convalescents.
main, applies to Central and East-Central China, so far as data of fresh milk are concerned.

Owing to geographical separation, it has seemed that the publication of the work in two sections, representing the work done by the different members (each checking the other's work, however) would be the most satisfactory way.

PART I, BY O. T. LOGAN, M.D.,

The main effort of this section of the paper is to point out the differences between brands of canned milk and the normal variations of milks from different species of cows. The aim being a contribution toward a more intelligent modification of milk, and to point out the danger of changing from one kind of milk to another without first calculating the difference in food values.

CHINA COWS' MILK.

The only reliable complete analysis of China cows' milk that has been obtained is from Dr. A. Moore of the Shanghai Municipal Health Department. He writes under date of October 17th, 1910, in part:

"There is a radical difference in the herds in, and around, Shanghai, some being composed of fine bred Australian cows, others of a mixture of these with water buffaloes.

The composition of the milk obtained from pure herds in the Shanghai District varies with somewhat wide limits; the fat content ranging between 3.6 and 10.3% with smaller proportionate differences in the amounts of the other constituents.

The average composition of genuine milk from (A.) Australian cows and (B.) water buffaloes in the Shanghai herds might be taken as follows:—

<table>
<thead>
<tr>
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<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>Water</td>
<td>87.04%</td>
<td>84.9%</td>
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<tr>
<td>Fat</td>
<td>4.00%</td>
<td>6.00%</td>
</tr>
<tr>
<td>Milk sugar</td>
<td>4.86%</td>
<td>4.95%</td>
</tr>
<tr>
<td>Proteins</td>
<td>3.35%</td>
<td>3.38%</td>
</tr>
<tr>
<td>Ash</td>
<td>0.75%</td>
<td>0.77%</td>
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</tbody>
</table>

Unusually rich milks are more often encountered in China than in other lands. The Annual Report of the Shanghai Municipal Health Department, 1910, gives analyses of four lots of "rich milks."

The average of these is:

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<thead>
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</thead>
<tbody>
<tr>
<td>Fats</td>
<td>9.07%</td>
</tr>
<tr>
<td>Proteids</td>
<td>4.44%</td>
</tr>
<tr>
<td>Sugar</td>
<td>4.04%</td>
</tr>
</tbody>
</table>

Dr. Shields of Nanking gives the following information regarding milks tested in Mokanshan during the summer of 1910: "I found that yellow cow (milk) ran about 6 to 7% fat and buffalo about 10% (when
gotten from the animal, not the milkman).” He used Gerber’s Butyriometer in his tests.

Dr. Samuel Cochran informs me that he has a herd of cows that are half-breeds—the bull being of foreign stock. Such cows, he says, are better milkers and have shorter dry seasons than the pure native cow. Repeated tests of the milk from his herd shows that it averages 5% fat.

Through the courtesy of Mr. J. L. Duff, I was permitted to witness the testing of milk from yellow native cows, bought by him of the dairymen at Kuling, the milk being paid for on the basis of fats present. Tests were made by the Babcock method. Although no definite record was made by me at the time, I was distinctly impressed by the high fat content of the milks tested, and am confident that the average was something near 7.5%. Mr. Duff says the fat content is lowest in May and June, when it averages 6.6% and highest in November and December, when it averages 8.5%, the average for the year being 7.2 to 7.5%.

The literature that the author has perused during his thirteen years in China has been conspicuous in its avoidance of the subject of milk, but the impression he has held was that cows’ milk in China was characterized by an excess of curd. The startling and very gratifying discovery is that while the China cows’ milk is almost twice as rich in fats compared to average home cows’ milk, the proteids are slightly less. The importance of this happy combination is evident to all who have modified cows’ milk for infant feeding. Holt’s second series of formulae is based on the upper half of the bottle of whole milk (4%) which has been allowed to stand for some time. The upper half of this milk is found to be 7% fat and 3 50% proteids—for practical purposes exactly what China cows’ milk is when fresh from the cow. By the extremely simple process of adding 9% milk sugar to such milk and diluting with an equal part of water, a milk results that contains almost exactly the same amount of fats, milk sugar, and proteids that average mothers’ milk does. China cows’ milk, generally speaking, has the disadvantage of not being so clean as home cows’ milk, but it has a very great advantage of coming from the cow in more nearly the right proportions of fats and proteids, so that it can be modified at once by adding the water and milk sugar and sterilized immediately. It has been found that the number of bacteria increase rapidly in milk after standing, and it is possible that, in China, milk fresh from the cow, even if it be not immaculate, would compare favorably with good milk in the home lands as an infant food, provided it be received very fresh and modified and sterilized at once.
The following will illustrate the above:

<table>
<thead>
<tr>
<th></th>
<th>Average American Milk</th>
<th>Mothers' Milk</th>
<th>Buffalo Cows' Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fats,</td>
<td>4.00</td>
<td>4.00</td>
<td>6.00</td>
</tr>
<tr>
<td>Milk sugar</td>
<td>4.50</td>
<td>7.00</td>
<td>4.95</td>
</tr>
<tr>
<td>Proteids,</td>
<td>3.50</td>
<td>1.50</td>
<td>3.38</td>
</tr>
</tbody>
</table>

**CHART 1.** **MOTHERS' MILK AND UNDILUTED BUFFALO COWS' MILK (6%) COMPARED.**

- **Fats**
  - 4% (Moore)
  - 6% (Holt)
  - 7% (Moore)
- **Sugar**
  - 1.50% (Holt)
  - 4.95% (Holt)
  - 3.38% (Moore)
- **Proteids**
  - 3% (Moore)
  - 4% (Holt)
  - 7% (Moore)

**CHART 2.** **MOTHERS' MILK COMPARED WITH COWS' MILK (6%) TO WHICH 9% MILK SUGAR HAS BEEN ADDED AND THE MIXTURE SUBSEQUENTLY DILUTED WITH AN EQUAL PART OF WATER.**

(The percentage of sugar of milk is based on the amount of the undiluted milk, not on the total amount of the mixture).

- **Fats**
  - 3% (Moore)
  - 4% (Holt)
  - 7% (Moore)
- **Sugar**
  - 1.50% (Holt)
  - 6.97% (Moore)
  - 1.69% (Moore)
- **Proteids**
  - 1.50% (Holt)
  - 6.97% (Moore)
  - 1.69% (Moore)

**CHART 3.** **MOTHERS' MILK COMPARED WITH 8% COWS' MILK (NOT AN UNUSUAL PERCENTAGE IN CHINA COWS' MILK) TO WHICH HAS BEEN ADDED 9% SUGAR OF MILK, AND THE MIXTURE SUBSEQUENTLY DILUTED WITH AN EQUAL AMOUNT OF WATER.**

(The percentage of sugar of milk is based on the amount of the undiluted milk, not on the total amount of the mixture).

- **Fats**
  - 4% (Holt)
  - 7% (Moore)
  - 1.69% (Moore)
- **Sugar**
  - 4% (Moore)
  - 6.97% (Moore)
  - 1.69% (Moore)
- **Proteids**
  - 1.50% (Holt)
  - 6.97% (Moore)
  - 1.69% (Moore)

**Note.**—This chart presupposes that the proteids in 8% milk will be the same as in 6% milk (Moore). They will probably be lower, as the rule is that the higher the fats the lower the proteids. If proteids are lower, the above mixture would still more closely approximate mothers' milk.

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- Mothers' milk.
- Cows' milk.
For all practical purposes 10% of sugar of milk might be added instead of 9%, and the formulae further simplified. A sample formula based on 8% milk would be as follows:

- **Milk**: 10 oz.
- **Sugar of milk**: 1 oz.
- **Water to make**: 20 oz.

Such a mixture would be only 0.5% richer in sugar of milk than mothers' milk.

It is hardly necessary to point out that many infants, especially the very young and weak, cannot digest milk made according to either of the above formulae. As Chapin points out, the matter of infant feeding is a question of biology as well as one of modifying food. For instance: given twins born with apparently the same vitality and fed by the mother in the same way, one may thrive and the other waste away.

**MODIFYING FRESH MILK.**

*Holt's Method.*

This is one of the simplest methods yet introduced. If milk is used that contains less fat than the formulae call for, it must be allowed to stand until the cream has risen somewhat, and then the top half or two-thirds is used.

**CANNED MILKS.**

The following analyses of canned milks, made in several parts of the world, show that there is a wide variation in the cream contents of different brands of milk and also that the same brand differs somewhat from time to time, due, no doubt to seasonal influence. It is probable that competition in different parts of the world determines the amount of condensing for the particular milk sent to that part.

Theoretically, canned milks are not so suitable for infant food as fresh cows' milk, because there is no known way to get the fats to rise, and therefore it is impossible to modify the relation of fats to proteids. In unsweetened condensed milks the fats and proteids are, approximately, in relation to each other as 1:1, whereas in mothers' milk the fats are in much higher percentage being about 4:1.50.

Canned milk has the advantage in being sterile and, practically, many children do well on it. In the opinion of the author the average child has a far better chance if it can get reasonably good fresh cows' milk of a known percentage of fat, as this milk, especially when it contains 6 to 8% of fat, is far easier to modify than canned milk, and as the proteids are less in such cows' milks, the curd will be far easier to digest.
### TABLE I. UNSWEETENED CANNED MILK.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Analyst</th>
<th>Fats</th>
<th>M. Sugar</th>
<th>Proteids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear, &quot;Natural&quot;</td>
<td>M. and R.</td>
<td>4.27</td>
<td>4.06</td>
<td>3.07</td>
</tr>
<tr>
<td>Bear, Condensed</td>
<td>M. and R.</td>
<td>9.07</td>
<td>9.79</td>
<td>7.84</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>M. and R.</td>
<td>7.86</td>
<td>11.75</td>
<td>8.40</td>
</tr>
<tr>
<td>Highland</td>
<td>C. Ex. S.</td>
<td>8.78</td>
<td>11.40</td>
<td>8.31</td>
</tr>
<tr>
<td>Pet</td>
<td>M. and R.</td>
<td>9.75</td>
<td>9.91</td>
<td>7.14</td>
</tr>
<tr>
<td>Bear, Condensed</td>
<td>Logan</td>
<td>7.47</td>
<td>10.43</td>
<td>6.86</td>
</tr>
<tr>
<td>Highland</td>
<td>M. and R.</td>
<td>3.07</td>
<td>3.22</td>
<td>2.29</td>
</tr>
<tr>
<td>Highland</td>
<td>Logan</td>
<td>9.5</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>M. and R.</td>
<td>3.2</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>M. and R.</td>
<td>9.75</td>
<td>9.91</td>
<td>7.14</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>C. Ex. S.</td>
<td>7.47</td>
<td>10.43</td>
<td>6.86</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>Logan</td>
<td>7.60</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>M. and R.</td>
<td>6.60</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>Moore</td>
<td>6.37</td>
<td>9.45</td>
<td>6.39</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>C. Ex. S.</td>
<td>7.60</td>
<td>10.25</td>
<td>6.95</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>L. of I. R.</td>
<td>5.50</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bear, Cream</td>
<td>C. Ex. S.</td>
<td>7.48</td>
<td>10.45</td>
<td>7.05</td>
</tr>
<tr>
<td>Van Camp</td>
<td>Logan</td>
<td>7.50</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Alpine</td>
<td>Logan</td>
<td>7.50</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Carnation</td>
<td>Logan</td>
<td>7.20</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Milkmaid</td>
<td>Logan</td>
<td>8.20</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

### TABLE II. SWEETENED CANNED MILK.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Analyst</th>
<th>Fats</th>
<th>M. Sugar</th>
<th>Proteids</th>
<th>Cane Sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nestle's</td>
<td>Chapin</td>
<td>10.62</td>
<td>12.53</td>
<td>7.90</td>
<td>40.56</td>
</tr>
<tr>
<td>Eagle</td>
<td>L. of I. R.</td>
<td>7.87</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Eagle</td>
<td>T. G. R.</td>
<td>9.1</td>
<td>14.5</td>
<td>8.</td>
<td>41.5</td>
</tr>
<tr>
<td>Eagle</td>
<td>M. and R.</td>
<td>8.44</td>
<td>11.69</td>
<td>7.23</td>
<td>41.52</td>
</tr>
<tr>
<td>Eagle</td>
<td>L. of I. R.</td>
<td>8.00</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Milkmaid</td>
<td>M. and R.</td>
<td>9.63</td>
<td>11.00</td>
<td>4.33</td>
<td>47.88</td>
</tr>
<tr>
<td>Gold Seal</td>
<td>M. and R.</td>
<td>8.25</td>
<td>9.75</td>
<td>7.46</td>
<td>59.57</td>
</tr>
<tr>
<td>Milkmaid</td>
<td>L. of I. R.</td>
<td>7.33</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

(c). Moore of Shanghai, Private letter, October 17th, 1910.
(f). Laboratory of the Inland Revenue Department, Ottawa, Canada, Bulletin 144. 1908
(g). Logan, Analyses made from stock milk at Kuling, August 1910.

**Note.—** L. A. Rogers, of the United States Department of Agriculture, Dairy Division, kindly compiled from many sources analyses of most of the milks found in Tables I and II.
TABLE III. DILUTIONS NECESSARY, USING WELL-KNOWN BRANDS OF UNSWEETENED MILKS, TO MAKE 4% MILK (AVERAGE AMERICAN MILK). ALSO SHOWS THE APPROXIMATE COMPARATIVE VALUE OF DIFFERENT MILKS ISSUED IN LARGE AND SMALL TINS.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Ounces in Tin</th>
<th>Percentage of Fat</th>
<th>*Total amol. of Fat in 1 tin.</th>
<th>Dilution Necessary to Make 4% Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Charles (large tin)</td>
<td>16.05</td>
<td>6.6%</td>
<td>1.059</td>
<td>0.6</td>
</tr>
<tr>
<td>Alpine</td>
<td>16.0</td>
<td>7.5%</td>
<td>1.200</td>
<td>0.9</td>
</tr>
<tr>
<td>Carnation</td>
<td>16.0</td>
<td>7.2%</td>
<td>1.152</td>
<td>0.8</td>
</tr>
<tr>
<td>St. Charles (small tin)</td>
<td>11.15</td>
<td>7.6%</td>
<td>0.880</td>
<td>0.9</td>
</tr>
<tr>
<td>Milkmaid</td>
<td>12.3</td>
<td>8.2%</td>
<td>1.008</td>
<td>1.05</td>
</tr>
<tr>
<td>Bear Brand</td>
<td>12.75</td>
<td>9.5%</td>
<td>1.211</td>
<td>1.4</td>
</tr>
</tbody>
</table>

* This column represents the comparative monetary value of one tin. Based on Logan's analyses.
† Actual weight.
‡ Approximate weight.

CHART II. SHOWING DIFFERENCES IN PERCENTAGE BETWEEN VARIOUS BRANDS OF CANNED MILK, (Logan's analyses).

<table>
<thead>
<tr>
<th>PERCENT</th>
<th>BEAR BRAND</th>
<th>MILKMAID</th>
<th>ST. CHARLES (SMALL TIN)</th>
<th>ALPINE</th>
<th>CARNATION</th>
<th>ST. CHARLES (LARGE TIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
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<td>95</td>
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<td>70</td>
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<td>5</td>
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<td>0</td>
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</table>

Explanation of Chart II. The object of this chart is to show the danger of changing from one brand of canned milk to another without allowing for the difference in richness. Bear Brand (9.5% fat) is taken as standard (100%) because it happens to be the richest milk tested, Milkmaid (8.2% fat) is 13% poorer in fat than Bear Brand, while St. Charles (Small tin)—7.6% fat—is 20% poorer in cream than Bear Brand, and if a change is made from, for instance, Bear Brand to St. Charles (small tin) milk, it would be necessary to add 20% more diluent when using the weaker milk. A glance at the right hand side of the chart will show at once the relative differences in percentage of fat between given brands.

PANAMA METHOD OF INFANT FEEDING, COMBINING SWEETENED AND UNSWEETENED CONDENSED MILKS.

Deeks, (The Journal of Tropical Medicine and Hygiene, August 1st, 1911) who is Chief of the Medical Clinic, Ancon, Panama Hospital, gives a method of infant feeding that has given ideal results for
five years in that hospital. It would seem that this method might be of great value especially in hot weather and in the southern parts of China where the climatic conditions are somewhat similar to those of Panama.

The following tables published by Deeks are based on sweetened milk containing 10.11% fat and unsweetened milk containing 8.40% fat.

"Using these analyses as our basis, the milk is modified according to age as follows, with the composition set after each formula:

<table>
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<th></th>
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</thead>
<tbody>
<tr>
<td>(Parts)</td>
<td>(Percentage)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>60</td>
<td>.55</td>
<td>1.33</td>
<td>.47</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>50</td>
<td>.55</td>
<td>1.58</td>
<td>.58</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>40</td>
<td>.80</td>
<td>1.93</td>
<td>.88</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>30</td>
<td>1.03</td>
<td>2.51</td>
<td>.85</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>24</td>
<td>1.26</td>
<td>3.05</td>
<td>1.08</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>20</td>
<td>1.43</td>
<td>3.55</td>
<td>1.26</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>16</td>
<td>1.76</td>
<td>4.26</td>
<td>1.51</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>12</td>
<td>2.20</td>
<td>5.33</td>
<td>1.88</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>10</td>
<td>2.52</td>
<td>6.09</td>
<td>2.16</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>6</td>
<td>2.80</td>
<td>3.45</td>
<td>2.29</td>
</tr>
</tbody>
</table>

**SCHEDULE OF INFANT FEEDING (WEEKS.)**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 days</td>
<td>1 3</td>
<td>60</td>
<td>2 hrs.</td>
<td>6 to 8</td>
<td>Boiling water.</td>
</tr>
<tr>
<td>3</td>
<td>1 3</td>
<td>50</td>
<td>2 &quot;</td>
<td>8 &quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>4</td>
<td>1 3</td>
<td>40</td>
<td>2 &quot;</td>
<td>10 &quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>5</td>
<td>1 3</td>
<td>30</td>
<td>2 &quot;</td>
<td>10 &quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>6</td>
<td>1 3</td>
<td>24</td>
<td>1/2 oz.</td>
<td>8 to 10</td>
<td>&quot;</td>
</tr>
<tr>
<td>7</td>
<td>1 3</td>
<td>20</td>
<td>1 1/2 oz.</td>
<td>8 to 10</td>
<td>&quot;</td>
</tr>
<tr>
<td>1 to 4 weeks</td>
<td>1 3</td>
<td>16</td>
<td>2 oz.</td>
<td>8 &quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>4 wks to 3 mo.</td>
<td>1 3</td>
<td>12</td>
<td>3 to 4 oz.</td>
<td>7 to 8</td>
<td>&quot;</td>
</tr>
<tr>
<td>3 mo. to 6 mo.</td>
<td>1 3</td>
<td>12</td>
<td>5 to 7 oz.</td>
<td>7 &quot;</td>
<td>Barley</td>
</tr>
<tr>
<td>6 mo. to 9 mo.</td>
<td>1 3</td>
<td>12</td>
<td>7 to 9 oz.</td>
<td>6 &quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>9 mo. to 11 mo.</td>
<td>1 3</td>
<td>12</td>
<td>8 to 10 oz.</td>
<td>4 &quot;</td>
<td>5 &quot;</td>
</tr>
</tbody>
</table>

x=Sweet condensed milk.
y=Unsweetened condensed milk.
z=Boiling water, or after 6 months of age, barley water.

"To each bottle add one or two teaspoonfuls of lime water, or, if constipation be present, one teaspoonful of milk of magnesia."

The main purpose of this preliminary report as before stated, is to point out some basic principles that can be tested out in actual cases. If the majority of his colleagues are as ignorant of the composition of the available milks in China as the author was in the beginning of this investigation, it would seem that what has been pointed out above must be a step in advance of the unscientific method.
previously practised by a great number of us. In order to make the most of milk modification it will be necessary for each community to possess a reliable milk tester. Babcock's apparatus is inexpensive and so simple to use that any person of ordinary intelligence can be taught all he needs to know about it in a half hour. The only chemical needed is concentrated sulphuric acid which is cheap and easily obtained. For $3.00 to $11.00 gold, these Babcock testers, together with all necessary tubes, measures, and pipettes can be purchased from a well-known American house.* The cheaper apparatus is quite sufficient for ordinary communities or individuals as it tests two samples at the same time. Even if one owns one's own cows, such an apparatus is necessary as it enables one to know the exact amount of cream at any time. This amount varies with the seasons and the food the cow gets.

CONCLUSIONS.

1. Average native cows' milk theoretically lends itself to modification for the most used formula (fats to proteids 2:1). As it comes from the cow in this proportion, it is not necessary to wait for the cream to rise before modifying and sterilizing.

2. In order to know what quality of milk is being delivered, every household or neighborhood should have a tester as accurate as a Babcock. These are not luxuries where life and health depend so much upon milk.

3. Cows' milk varies considerably in the same cow and herd; this emphasizes the above.

4. Canned milks vary widely in cream content. The same brand varies within narrow limits from time to time, and different brands vary greatly; 30% difference being noted between the weakest and the richest unsweetened milks used in China.

5. In view of the high fat content, it would seem that disturbances in digestion of children using China cows' milk has been more on account of high fat than high proteid percentage.

APPENDIX.

LIME WATER.—This is easily prepared by any intelligent person by taking a lump of good unslaked lime weighing about two ounces and placing it in a pint of water. This will make a milky mixture which will settle in a short time. When the settlement is complete, throw away the clear liquid. Repeat this process twice. The object

*Montgomery Ward and Co. Chicago.
is to wash out the impurities. After these three washings, add a gallon of water (boiled or distilled) to the white sediment that is left, and stir thoroughly. Bottle the clear liquid, which is proper lime water now, in well corked bottles, filling them to the necks. If a small amount of the remaining undissolved lime is placed in each bottle it will insure the lime water keeping better but only the clear part must be used in preparing infant food.

The rationale of the above is that lime contains harmful soluble impurities which are dissolved and thrown away with the three washings of water. Lime itself is soluble in 800 times its own weight of water, and therefore the quantity given (2 oz.) is far in excess of what is actually needed to make a gallon of lime water, but as lime water easily takes up carbonic acid from the air which turns it into chalk, it is necessary to have bottles well filled and corked. The excess of lime in the bottom of the bottle does not make the lime water stronger but simply insures a saturated solution at all times.

**Barley water.**—This may be made either from the grains or from the flour. When the grains are used the following is the formula: To two tablespoonfuls of pearl barley, add one quart water, and boil continuously for six hours, keeping the quantity up to a quart by the addition of water, strain through coarse muslin.

An almost identical product may be made in an easier way by using barley flour, one even tablespoonful to each twelve ounces of water and cooking for twenty minutes.

**Rice water, Oatmeal water.**—These may be made in the same manner as the Barley water, using the same proportions either of the flour or the grains.

When there is a tendency to constipation oatmeal is preferred; when to looseness, barley or rice water.

**Caloric Feeding.**—According to the authorities, the average infant in health needs about 100 calories per day for each kilo (2.2 lb.) of body weight from the third week to the sixth month. The proportion gradually decreases until at the end of the first year the need is 70-80 calories per kilo. The caloric requirements are greater for very active children; also for premature or wasted infants on account of their relatively larger body surface to radiate heat.

The caloric value of any modification of cows' milk of known percentages may be calculated as follows: An infant six months old, weighing 15 lbs. (7 kilos.), is taking six feedings of six ounces, or 36 ounces daily, of a milk containing, fat 3.5%, sugar 7%, proteids 1.75%.
Infant and Invalid Diet.

I.43

0.035 (fat \( \frac{2}{3} \)) \times 9.3 \text{ (caloric value of fat)} = 3.25 \text{ caloric value of fat in 1 grm. of food.}

0.07 \text{ (sugar } \frac{1}{2}) \times 4.1 \text{ (sugar)} = 0.287 \text{ caloric value of sugar.}

0.0175 \text{ (proteids } \frac{1}{2}) \times 4.1 \text{ (proteids)} = 0.072 \text{ caloric value of proteids.}

0.074 caloric value of 1 gram of food.

0.84 \times 1000 = 840. \text{ (caloric value of 1 litre of food).}

36 ounces = 1.06 litres; 1.06 \times 840 = 725 \text{ (calories in food taken daily).}

\( \frac{725}{4} \) \text{ (body wt. in kilos)} = 184 \text{ (calories per kilo), which is slightly above the normal requirements.} \quad (\text{Holt, Dis. Inf. and Ch. 5th, Ed.).}

The following formulae are taken from Holt, (Dis. Inf. and Ch. 5th, Ed.) with slight modification. The caloric value is computed and added by the author of this paper.

**FIRST SERIES OF FORMULAE.—FAT TO PROTEIDS 3:1**

**PRIMARY FORMULA. TEN-PER-CENT MILK.**

Fat 10% Sugar 4.3% Proteids 3.3%.

**Derived Formulae, giving Quantities for 20 ounce Mixtures.**

<table>
<thead>
<tr>
<th>Fat</th>
<th>Per cent.</th>
<th>Sugar</th>
<th>Per cent.</th>
<th>Proteids</th>
<th>Per cent.</th>
<th>Calories in the 20 oz. mixture.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Milk sugar 1 oz.</td>
<td>I.</td>
<td>+</td>
<td>Lime-water 1 oz.</td>
<td>with 2 oz. of 10% milk = 1.00</td>
<td>5.50</td>
</tr>
<tr>
<td>I.</td>
<td>+</td>
<td>Water to make 20 oz.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>3 oz.</td>
<td></td>
<td>= 1.50</td>
<td>5.50</td>
</tr>
<tr>
<td>III.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>4 oz.</td>
<td></td>
<td>= 2.00</td>
<td>6.00</td>
</tr>
<tr>
<td>IV.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>5 oz.</td>
<td></td>
<td>= 2.50</td>
<td>6.00</td>
</tr>
<tr>
<td>V.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>6 oz.</td>
<td></td>
<td>= 3.00</td>
<td>6.00</td>
</tr>
<tr>
<td>VI.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>7 oz.</td>
<td></td>
<td>= 3.50</td>
<td>6.50</td>
</tr>
</tbody>
</table>

* If cane-sugar be used, use half as much (1/8 oz.).
† If lime water cannot be had, use 15 grains bicarbonate of soda to the 20 oz. mixture.
¶ Barley water, rice water, or oatmeal water may be added after the sixth month. Oatmeal water is laxative.

**SECOND SERIES OF FORMULAE. FAT TO PROTEIDS 2:1**

**PRIMARY FORMULA. SEVEN-PER-CENT MILK.**

Fat 7% Sugar 4.40% Proteids 3.50%.

**Derived Formulae, giving Quantities for 20 ounce Mixtures.**

<table>
<thead>
<tr>
<th>Fat</th>
<th>Per cent.</th>
<th>Sugar</th>
<th>Per cent.</th>
<th>Proteids</th>
<th>Per cent.</th>
<th>Calories in the 20 oz. mixture.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Milk sugar 1 oz.</td>
<td>I.</td>
<td>+</td>
<td>Lime-water 1 oz.</td>
<td>with 3 oz. of 7% milk = 1.00</td>
<td>5.50</td>
</tr>
<tr>
<td>I.</td>
<td>+</td>
<td>Water to make 20 oz.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>4 oz.</td>
<td></td>
<td>= 1.40</td>
<td>5.75</td>
</tr>
<tr>
<td>III.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>5 oz.</td>
<td></td>
<td>= 1.75</td>
<td>6.00</td>
</tr>
<tr>
<td>IV.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>6 oz.</td>
<td></td>
<td>= 2.10</td>
<td>6.60</td>
</tr>
<tr>
<td>V.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>7 oz.</td>
<td></td>
<td>= 2.50</td>
<td>6.50</td>
</tr>
<tr>
<td>VI.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>8 oz.</td>
<td></td>
<td>= 2.85</td>
<td>6.50</td>
</tr>
<tr>
<td>VII.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>9 oz.</td>
<td></td>
<td>= 3.15</td>
<td>7.00</td>
</tr>
<tr>
<td>VIII.</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>&quot; &quot;</td>
<td>10 oz.</td>
<td></td>
<td>= 3.50</td>
<td>7.00</td>
</tr>
<tr>
<td>IX.</td>
<td>*Milk sugar 1/2 oz.</td>
<td>I.</td>
<td>+</td>
<td>Lime-water 1 oz.</td>
<td>with 12 oz.</td>
<td></td>
</tr>
<tr>
<td>IX.</td>
<td>+</td>
<td>Water to make 20 oz.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* If cane-sugar be used, use only half as much.
† If lime water cannot be had, use 15 grains bicarbonate of soda to the 20 oz. mixture.
¶ Barley water, rice water, or oatmeal water may be added after the sixth month. Oatmeal water is laxative.
No hard and fast rule can be laid down for the use of the above formulae. Holt recommends the weaker formulae for very young and weak children, gradually going to the stronger mixtures as the child can stand them. By checking the number of calories (see appendix) it is easy to see whether or not a child is getting sufficient food.

*NOTES FROM THE CONGRESS OF TROPICAL MEDICINE.

ELLEN C. FULLERTON, M.D.

Without attempting to present a complete report of the recent Congress of Tropical Medicine, the following notes may serve to give the main points of some of the more important papers.

The first day's session was merely preliminary. The Governor of Victoria formally opened the Congress with an address of welcome, after which Dr. Atkinson took the chair and made his presidential address. This latter was a most interesting historical review of the development of our knowledge of tropical medicine, and described in considerable detail the discovery of, and easy experiments with, the malarial parasite, then discussed less particularly such diseases as yellow fever, sleeping sickness, Kala azar, dysentery, Malta fever, etc.

The real business of the Congress began with the second day which was devoted entirely to a consideration of beriberi. Captain E. B. Vedder in the opening paper gave the result of the Philippine investigations of that substance in rice polishings, the absence of which from the native dietary apparently leads to the development of beriberi. He states that the exact nature of this substance was not determined but that it showed certain definite reactions, among these solubility in alcohol. The alcoholic extract was used in a series of experiments in treating polyneuritis in fowls. The disease is practically identical in etiology, symptomatology, and pathology with beriberi in man. A polyneuritis which was produced by an exclusive diet of overmilled rice could, in every case, be cured by feeding alcoholic extract of rice polishings. This line of experimentation was then continued on the human subject. There is a disease prevalent in Manila among breast-fed infants which has been considered for some time an enigma, but which Captain Vedder is convinced is infantile beriberi. Infants under 3 months of age are attacked with vomiting, this symptom being quickly followed by heart complications and general oedema—and finally by aphonia. If the child continue to nurse its mother the case

* Read at the February Meeting of the Shanghai Branch of the C. M. M. A.
usually terminates fatally. It was found that the mother of every such case had a history of, or was at the time suffering from beriberi, and was living on a white rice diet, the inference being that the breast milk was deficient in that same substance which was lacking in the mother's dietary. Fifteen infantile cases were taken for experiment and given 20 drop doses of extract of rice polishings every two hours. Most remarkable improvement was noticed in a day or two—œdema disappeared, heart action became normal, and digestive symptoms quieted down. Aphonia usually persisted two months, this probably being the time necessary for the repair of degenerate nerve fibres. The extract of rice polishings was considered from the results of these experiments to act in a way comparable to the action of fruit juice in scurvy. The difficulty in obtaining sufficient quantities of extract had prevented experiments on adults, but a firm of manufacturing chemists is preparing to put the drug on the market, so that its value can be thoroughly tested. The paper states that the investigations were incomplete, but that it was the opinion of the writer, and those working with him, that beriberi is a nutritional disease.

Dr. Frazer's paper also advanced this view of the etiology. He states that beriberi was uncommon among the well-to-do because, although they also ate white rice, yet their diet was supplemented by fresh vegetables and meat which supplied that substance lacking in polished rice. The Manila investigations established phosphorus pentoxide as an indicator in standardizing rice, 0.4% being necessary in order to prevent a white rice diet being harmful. The presence of phosphorus pentoxide does not itself prevent the development of beriberi, but its percentage varies pari passu with the as yet unknown substance in the pericarp of rice which does prevent the occurrence of the disease.

All the papers presented at the conference were in accordance with this view of the etiology of beriberi with one exception. Dr. Davis sent in a report of beriberi in the Shanghai Municipal Gaol when the occurrence of the disease seemed to point toward an infection origin. He reported a very material decrease in the number of cases after the removal of prisoners from the old gaol to the new building, and a still further decrease after a determined effort to rid the place of vermin—and this without any change in diet. A similar history could be obtained at the Door of Hope, a large Rescue Home in Shanghai, where the number of beriberi cases fell very markedly after systematic cleaning and fumigating of the buildings was begun. Dr. Davis had been able to produce clinical beriberi by allowing a healthy individual to be bitten by a bedbug which had supposedly been infected from a beri-
beri case. As Dr. Davis himself was not present to defend his views this paper was not discussed.

The interest of the congress on the subject of beriberi centred on the question of what measures the official delegates present could recommend to their various Governments to control the spread of the disease. This practically resolved itself into the question of how the use of overmilled rice could be prohibited. The discussion which began the first day was continued at intervals to the end of the congress. The mortality from beriberi in southern latitudes is so appallingly heavy that, in the interest of ordinary humanity, it was felt that such knowledge of the disease as we possess ought to be used on behalf of those affected. The possibility of so taxing either the manufacture or sale of overmilled rice that the product would be placed beyond the purchasing power of the average native was discussed at great length. Finally a committee was appointed who drew up the following resolution.

RESOLVED:

"That the results of the work submitted to this meeting of the Far Eastern Association of Tropical Medicine have been to confirm the accuracy of the resolution adopted at the meeting in 1910, and it is resolved to adopt as a standard, that a harmless rice shall contain not less than 0.4 per cent. of Phosphorus pentoxide:

It is further resolved:—

(1.) That efforts of an educational nature for the suppression of beriberi should be generally adopted;

(2.) that in view of the varying economic conditions obtaining in the different countries concerned, uniformity of legislation appears impracticable, but any action taken should be based on the work done, and the above standard of phosphorus content is recommended for adoption;

(3.) it is suggested that legislation which is directed either to the taxation of polished rice or of the dealers in polished rice will be the most effective."

After discussion, this resolution was not adopted; many of those present felt that until we know more definitely the character of that substance lacking in polished rice, standardization ought not to be attempted. Others felt that in view of the wide-spread prejudice against eating brown rice, enforcing any legislation with regard to it would meet with absolutely insuperable obstacles. The official delegates were unwilling to recommend a course of action which their
Governments would consider visionary. A second committee was then appointed and this brought in the following report.

**RESOLVED:**

"That the accuracy of the opinion of this Association, recorded in 1910, has received further and more complete confirmation by investigators in Japan, China, French Indo-China, the Philippine Islands, Siam, Netherlands-India, the Straits Settlements, and the Federated Malay States, namely that 'beriberi' is associated with the continuous consumption of white (polished) rice as the staple article of diet."

It is therefore again desired to bring this opinion to the notice of the various Governments concerned and to recommend international action.

The following is the resolution which was adopted in 1910:

**Resolved.—**"That in the opinion of this Association sufficient evidence has now been produced in support of the view that beriberi is associated with the continuous consumption of white (polished) rice as the staple article of diet, and the Association accordingly desires to bring this matter to the notice of the various Governments concerned."

This resolution was adopted by the congress at its closing session.

The third day was largely given up to a discussion of dysentery and plague. Capt. Vedder gave a series of experiments demonstrating the action of ipecac in dysentery. He said that the great difference of opinion held as to the value of this drug was due to its indiscriminate use in both bacillary and amebic forms of the disease and also in part due to the variable quality of the drug itself. The comparative susceptibility of the bacillus and amebae was demonstrated in the following way; to living cultures of the bacillus was added 2% ipecac, and controls were similarly treated with hydrastis, opium, and digitalis. There was growth of the cultures treated with ipecac but not more so than of the controls. Cultures of amebae were then tested in the same way—and controls—hydrastis, opium, or digitalis did not inhibit the growth of amebae, but ipecac in solutions of of 1-10,000, 1-20,000, and 1-50,000, was immediately effective. Emetine in solution of 1-100, also killed amebae. Ipecac apparently had a distinctly specific action. Capt. Vedder emphasized the need of care in selecting a good drug. That supplied by some firms is practically inactive. The bactericidal power does not vary directly with the percentage of any one alkaloid. It may be due to a proper mixture of alkaloids or may be due to the presence of some substance.
as yet not isolated. More experimental work is still needed in the hope that the bactericidal element may be separated from the emetic principle.

An article by Dr. Muller of Hongkong recommended very highly the operative treatment of dysentery and reported a series of cases of both forms—bacillary and amœbic—in both acute and chronic stages, where operation had apparently not only saved life, but had materially shortened the course of the disease. In the discussion which followed, opinions were given both for and against this procedure, the chief argument against being that the untoward results of chronic dysentery arose from stricture and adhesions—two conditions which could not be affected by any amount of colon irrigation.

During the discussion on plague, Dr. Strong of Manila reported a series of experiments on immunization against the pneumonic form. The statistics gathered during the Manchurian epidemic had not proved the value of preventive inoculation, and the Plague Commission had recommended further experimentation. The fact that inoculation protected against bubonic plague was not considered by any means an indication that it would do so in the pulmonary form. The portal of entry makes a very considerable difference in the character of a disease,—for instance in the case of tetanus. The subcutaneous or pulmonary entrance of the infection might materially affect its virulence. The first series of experiments was to determine the value of preventive inoculation against subcutaneous infection. Guinea pigs and monkeys were vaccinated with attenuated organisms and later inoculated subcutaneously with active forms; 80% of the pigs and 61% of monkeys were protected. Vaccinating with dead cultures gave only 20% protection. The second series of experiments was intended to show the effect of preventive inoculation in the pneumonic form. Vaccinated guinea pigs were enclosed in glass cages and active cultures sprayed into their faces with the idea that the inspired air would carry bacilli to the lungs and cause there a primary lesion. Of the first cage 72.7% were protected while all controls died; in the second, 69.6% were protected while all but one control died. At necropsy, however, the dead guinea pigs were found to have succumbed to neck and throat infection or to general septicaemia. There was no case of primary lung involvement.

This last set of experiments was then repeated, using monkeys instead of guinea pigs, and the hoped-for result was obtained. The monkeys did develop pneumonic plague. In one series, 9% were protected while all controls died; in the second series, 40.5% were
protected while 18.2% of the controls also lived; in the third series, 9.5% survived and all controls died. The result of protective inoculation in these monkeys was considered to be practically what might be expected in the human subject, and shows that vaccination does not protect against the pneumonic, as it does against the bubonic, form. It was stated that the more virulent the organism used for preventive inoculation, the greater the percentage of protected cases, but the use of highly active bacilli is, of course, not practicable in experiments on the human subject.

On the fourth day of the Congress, Dr. Jordan of Hongkong gave a demonstration of the use of carbon dioxide snow in dermatology. The snow collected at the open valve of its container was compressed into the form of a pencil, and this pencil shaped off to the desired size. Application was from 20 to 60 sec. according to the type of tissue being treated. The writer had used it for warts, naevi-psoriasis, ulcers of all kinds, and even X-Ray burns, with the most conspicuous success. Perhaps the most remarkable cures were those of trachoma. Out of 69 cases treated with one application, 52 were reported cured with only one recurrence. During the discussion other observers said that they had found several applications necessary for well-marked cases. The results, however, were extremely good.

In view of all that has been written about the effect of tropical sunlight and the so-called actinic rays, an article by Dr. Freer on that subject was particularly interesting. He reported in great detail observations which had been collected from all over the world, showing that for a given length of time and for given atmospheric and other conditions, the intensity of the violet and ultra-violet rays and of the red and ultra-red rays, was the same in all latitudes. The apparent difference in intensity is due to the fact that in certain places the sun shines fewer hours, so the surface of the earth has few hours of absorption and many hours of heat dispersion, and consequently presents a very different mean temperature from a place where the sun shines practically all the time.

A series of experiments was reported demonstrating the effect of direct sunlight on animals. Monkeys exposed to the direct rays underwent a steady rise of temperature and died in an hour or two, but if shade was provided, even so slight as one board, they could live indefinitely. If they were placed in the direct sunlight and cooled by an artificial draught of air they could live. Death here was directly due to increased body temperature and not to the effect of the "actinic" rays. The monkey, having no sweat glands, is particularly dependent
on external means for regulating his temperature. He is normally altogether a forest dweller, and must be kept in the shade.

The effect of color as a protection against the sun was tested by exposing three sets of rabbits, black, grey, and white. The first two died in about an hour, the blacks before the grey, while the white rabbits at the end of an hour and a half were placed in the shade again and quickly revived. Men were similarly tested; a white-skinned European, a negrillo, and a coal-black negro. The temperature of the negro immediately went up 3° to 4°, whereas the European kept normal, his only inconvenience being a bad case of sunburn. As far as the skin color itself was concerned, the European seemed better adapted for enduring sunlight than the negro. The question naturally arises how does natural selection leave all the inhabitants of tropical countries with black skin. One answer suggested was that the color protected not against the sun but against predatory foes who, in man's primitive condition, were considerably more deadly than sunstroke. Dr. Freer believes that the use of red or orange garments in the tropics is untenable, but that the ideal dress would be a single white garment. As to the effect of exercise it was found that a man moderately exercising in the sun kept a lower body temperature than a man lying quiescent. It was the opinion of the author that the bad effect of tropical residence on Europeans was due to lack of exercise and lack of sufficient drinking water. The average person does not drink enough to allow of free perspiration, and also there is the additional factor of contaminated drinking water. Many illnesses are attributed to the sun which are really water-borne infections.

The effect of tropical climate was further discussed by Dr. Hartson in a paper on the care of children. The European child in the tropics has a nervous system developed out of all proportion to its muscular system. He overtires easily, and readily falls into a condition of hysteria very similar to that condition in the adult. Being constantly overtired, the child loses his appetite and this, combined with the fact that the usual tropical dietary is not nourishing, puts the child in a state of malnutrition. The skeleton and brain develop while the muscle and fat are below par.

The author emphasizes the need of careful supervision of such children and the need of their early removal to home conditions.

An article by Dr. Duncan Whyte was especially applicable for those of us who practise among the Chinese. The point of this paper was that the physiological standard recognized as normal for a European was not in most cases normal for a Chinese, and if we
interpret our laboratory findings by European standards we will be led to consider as pathological a condition which is really normal in the Chinese. For instance, the proportion of weight to height is much less in the Chinese than in the European. In urine examination the specific gravity and total solids are low, while the amount of fluid is very large. The gastric contents in the Chinese is normally hypoacid. Hæmoglobin is not over 65% in Assam and not over 70-80% normally in southern China. The red blood count is usually over 5,000,000. An increase of mononuclears is not uncommon even in cases not suffering from any form of infection. As to intestinal contents, since parasites are present in over 90% of Chinese, we might almost say that this also is normal. At all events one should keep in mind the variation from European normal standards in interpreting laboratory findings when dealing with Chinese patients.

It is impossible in a short article to even mention all the papers given at a week's congress—but a word or two on a few more reports may be of interest. A series of cases of relapsing fever was reported which had been successfully treated with salvarsan, 0.25 to 0.4 gms. being sufficient to prevent a relapse. Rat experiments also were positive.

A case was reported which showed unusual parasites in a case of tertian malaria. These forms were interpreted as being a sexual cycle developing in the circulating blood. This report was of interest taken in connection with a later paper on blackwater fever in which the author claimed that the bad effects of haphazard dosing with large amounts of quinine was due to the fact that such medication favored the development of a sexual cycle in the blood, and that the presence of this form was responsible for the clinical manifestation of blackwater fever. A laboratory test was given for diagnosing malaria in the absence of organisms in the blood—namely a positive lead acetate reaction for bilirubin in the urine. This reaction is not effected by taking quinine and had not been found in any condition likely to be confused with malaria except in one case of liver abscess. Another diagnostic indication is the proportionate increase in mononuclears, but of course this phenomenon may occur in other infections.

The guests of the Congress were most royally entertained during the week in Hongkong. The time not actually spent in session was filled with excursions to the hospitals and points of interest in the city, as arranged by the executive committee, and on various
occasions the whole Congress was entertained in some of the private homes of Hongkong. Those who had the arrangements of the Congress in charge succeeded in giving their guests a very profitable and enjoyable time.

NOTES ON RED CROSS WORK AT HANKOW AND WUCHANG.

Howard G. Barrie, M.D.

The Red Cross Society of China may justly claim the distinction of bearing the heavy end of the rough and tumble work which was inevitable during the days of active campaign about these centres. It arrived in Hankow from Shanghai equipped for emergency work only, and expecting to serve under canvas. This program was not carried out owing to the proximity of the fighting to the above cities, where suitable premises were secured, with the assistance of the local Red Cross Association. Notwithstanding, that after settling down in improvised quarters, the Society was subjected to three laborious shifts—lock, stock, and barrel—in which patients, operating-room furniture, ward utensils, supplies, and bedding were transported from one hospital to another on short and urgent notices, it succeeded in ministering to nearly two thousand wounded.

The most serious of these shifts was that necessary when Hanyang was evacuated by the Republican army. Three hours previous to its fall, we received a secret message from Republican headquarters advising, that as that city was to be immediately evacuated we should do well to move our patients from the premises then occupied to one less exposed. It became immediately necessary to shift over two hundred patients a distance of one mile, as gun fire, already somewhat perturbing, threatened at any moment to become positively dangerous. Besides this number already berthed in the hospital, the wide avenue of approach to the building was blocked with recently-arrived wounded, and others were still coming in. The receiving rooms had to be closed and severe cases ready for the operating room were hurriedly prepared for the longer transportation. A number were suffering from shock or beginning to recover from it, and, notwithstanding that judicious stimulation was administered to the worst cases, the transfer was responsible for the death of three, and much interruption in the recovery of others. The number transported did not include the recently-arrived wounded who, with their bearers, were crowding about the hospital approach,
Red Cross launch generously loaned to the Shanghai Society by the Commissioner of Customs, Hankow.

A common and effective means of litter-bearing among the common people, soldiers, etc.
but those who had been received into the hospital, for whom we felt primarily responsible. Two hundred litter-bearers were sent from Republican headquarters which were only a stone's throw away. It was soon apparent that the mere wearing of the red cross badge did not transform into stretcher-bearers, what appeared to be ordinary coolies, for there was a marked absence of gentleness in the process. One wonders that the number of casualties from the transfer alone was not greater. The Chinese coolie excels as a mere carrier of burdens, and from this standpoint transportation was accomplished scientifically and expeditiously. A large corps of bearers swinging along at a smart pace, with each litter adjusted upon the shoulders of four men, presents a striking sight, but the requirements of the patient are not considered as they should be.

The absence of trained litter-bearers has been very noticeable from both camps as well as from the hospital wards. In hospitals where dressings were done in the wards, results have been strikingly superior to those obtained where it has been necessary to carry patients to and from the dressing-rooms for attention.

Difficulties in the way of maintaining asepsis were a subject of comment among the workers of this Society, and from both observation and inquiry I find that precisely similar difficulties were experienced by others. In discussing this topic it may be of interest to note some at least of the prominent causes responsible for the widespread sepsis which made so noticeable a demand upon the patience of attendants and wounded alike. Fortunately, hospital supplies continued fairly steady. The mission hospitals which bore the brunt of numbers had in the main received their stocks of dressings, etc., in anticipation of the regular winter's work, and besides, the local dealers had considerable quantities in reserve. A discussion of infection must not be allowed to disguise the fact that a large amount of work was done with aseptic results. Operations, when performed in the presence of fresh wounds and when bodily resistance was not unduly lowered by pain or confinement to bed, often yielded results gratifyingly free from suppuration. When first aid had been skilfully applied with iodine dressings, results were unmistakably good and one regretted that this dressing was not more generally employed.

Sepsis was greatly multiplied by delay in getting the wounded into the hospitals. One patient was brought up after a lapse of twenty days, and, as he suffered from an infected compound fracture of the femur and a wounded radial artery, his condition after such an interval can be well imagined. When wounded he had been carried in accord-
ance with his own desires to the seclusion of his hut and, no litter-bearer appearing on the scene to dispute this, he had his wish. This is an extreme case of delay, but it was common enough for wounded men to be carried by relatives or companions to some refuge other than to a hospital in charge of foreigners. Had he been taken to an average hospital or dispensary in charge of a Chinese doctor, general opinion would be satisfied that he was fairly well off, but I fancy the care he would receive, even under these circumstances, would be but little less deplorable than that obtained in the hut. This particular patient ultimately found his way to us after spending a week in a Chinese hospital, and his condition was desperate. Such cases did much to foul our dressing and operating rooms.

The delay in getting patients into the hospital appeared to be due to the absence from both camps of an adequate medical staff. The unstinted labours of foreign voluntary workers did much to make good this deficiency, for with their Chinese colleagues they accomplished unofficially a great life-saving work, and greater good would have been done had the irresponsible firing by soldiers on both sides not acted as a deterrent. This was particularly true about Hankow. It is only just to say, however, that the major part of the relief dispensed by the various Red Cross hospitals was given after the wounded were brought in. Ordinary coolies or fellow-soldiers, who had no experience in handling wounded, brought in their disabled companions after what seemed to us an unnecessary delay.

The bad effects of delay in getting patients into the hospital were further emphasised by inability to secure the patient's consent when it was necessary to remove a limb, or resort to a serious operation. The natural repugnance of the Chinese to the loss of a limb has been responsible for not a few deaths. Serious fractures, infected, comminuted, and compound, made up the most troublesome cases. When operation was refused, these became increasingly troublesome, and often an injury giving a promise of recovery quickly got out of hand owing to lack of reliable attendants, sterilisation facilities, or the highly disorganising effects of the shifts to which we were subjected.

Again, the proximity of fighting to populous Chinese centres must not be overlooked in its bearing upon the subject of infection by contact. Hanyang and Hankow became cock-pits of slaughter, and were hot-beds of infection. This is in marked contrast to the conditions prevailing, for example, on the sun baked veldt during the South African War, where engagements were usually remote from
towns and cities, and where the habits of cleanliness, private and public, presented such a marked contrast to the filth of these Chinese cities.

Still another consideration is seen in the nature of the buildings which, in many cases, were quite unsuitable for hospital purposes. Godowns, for example, with a maximum of dust and a minimum of light and ventilation, were made use of, and one building in process of erection was utilized in the absence of something better. Such were the best that could be had and the communities generously put all available buildings at the disposal of the Red Cross organizations, but, judged from the standpoint of modern surgical requirements, some were little better than native huts would have been. Where mission hospitals were concerned it was otherwise. The number of such hospitals ready for the emergency was unique, and to these belong the credit of handling the largest numbers and securing as good results as were to be found on the entire field; but even here aseptic conditions being difficult enough in times of peace the problem was not simplified in dealing with the sudden and large influx of wounded, which crowded into already ordinarily filled wards and overflowed to all available corners.

Mention must be made of the low resistance, physically, of the average Republican soldier one has seen in the hospital, and this applies especially to the people of Hupeh. The common food consists of rice and vegetables, and I fancy, for the vast majority of such men as fought in the ranks, items such as meat and fish are eaten as relishes rather than in necessary quantities. In the early days of the campaign it was common enough for men and officers to retire to their own homes, or to their favorite eating shops for meals, and ordinary food was frequently carried direct to the lines from the cities where it had been prepared. On the whole, therefore, there was no fundamental alteration in the eating habits of the average soldier. Added to this, the climatic conditions were ideal, and corresponded to autumn or Indian summer of Western lands. Altogether the campaign was carried on under conditions so favourable as to make the least demand upon physical endurance, and yet, when wounded, the organism with striking frequency offered a poor resistance to the inroads of infection. Curious indeed have been some of the extensive dissections caused by burrowing pus and often with an amazing absence of local reaction.

The ordinary wadded garments worn by the Chinese must have been a fruitful source of infection. The cotton wadding which lies
between two layers of calico often does service for years, and, more likely than not, it reeks with combined ancient and modern filth. Bullets passing through it are almost certain to be infected, and likely to carry infected material into the wound.

Finally, sepsis has been introduced and prolonged to a very considerable extent by inexperienced or untrained attendants. One has seen much unclean work surgically. In one instance an amputation through the upper third of the thigh, was undertaken in a hospital by a Chinese doctor who had the reputation of being foreign-trained. The instruments were boiled, but the surgeon's hands received such a meagre wash that they could not be considered decently clean from a social point of view. The towels employed about the field had been picked up from several parts of the room where they had served other purposes.

Non-sterile dressings have been freely applied to open wounds and cavities alike. Native doctors who know nothing of modern surgery have added their quota of infection. One of whom I personally know was in the habit of plugging the bullet track with commercial sulphur wherever he could collect his fee in advance, and his clientele was no mean one. Many of these cases ultimately found their way to the foreign doctors but with the serious handicap of established suppuration.

The Republicans were much worse off than the Imperialists by way of provision for their wounded. At the outset there was no medical staff. General Li at the eleventh hour invited a medical missionary to take in hand the organization of a medical staff, but the invitation, owing to its manifestly partisan nature, was declined. An organization was effected among themselves but its achievements could not have been brilliant. The life-saving work of foreign doctors about these centres mainly benefited Republican troops, and this benefit was considerable, for, in addition to the regular mission hospitals, there were from seven to ten improvised Red Cross hospitals ministering to their needs. The reasons for this seeming partiality were two: one a vicissitude of war and the other the failure of the Imperialists to understand the motive which prompted an organization to serve the Republicans disinterestedly and impartially. Any hospital that was not serving Imperial troops exclusively was looked upon with unconcealed suspicion. The great bulk of their wounded were entrained as quickly as possible and hurried to the North where they were lost sight of in Hsiaokan, Siniangchow, and Tungchow, etc. When wounded Imperialist soldiers were brought to
the local hospitals they were frequently accompanied by an officer
detailed ostensibly to see that the wounded lacked nothing; but
obviously to prevent, as far as possible, their contamination by the
doctrines of Republicanism. In the early days of fighting, had some
Red Cross Society arisen which would have guaranteed that no
Republican soldier should ever recover from his wounds, the anomaly
would have held a place high in the councils of the Northern leaders.
The Imperialists had a fair medical organization, and while very in-
adequate for the demands made upon it, the quality of its work was
greatly in advance of that done by the Republican Medical Staff. The
determined men from the North won few friends in these centres, but
they impressed one as being tolerably good soldiers. They had little
scruple in cutting off the heads of their wounded enemies or otherwise
despatching them. One young Chinese doctor, foreign-trained, who
started from the North, was an eye-witness of such scenes, and
because he remonstrated with his compatriots for their actions he
stirred up an animosity toward himself that led him to desert. Com-
ing south he made his way to Wuchang where he joined the staff of
one of the Red Cross Hospitals. In this connection it is stated by the
foreigner who had charge of the Shanghai Society's Burial Depart-
ment, that evidence in a hut visited, showed that one unfortunate
wounded Republican had been burned alive by the enemy.

Incidence of disease was not observed among the soldiers, except-
ing the lighting up of a few old tubercular lesions or the onset in
acute forms of old dysenteries. Typhoid or beriberi I have not heard
of. Elimination of disease-producing factors has not been accountable for
this interesting fact, for there was no such campaign. On the other
hand it does not indicate the entire absence of disease, for if a soldier
felt unfit for duty he could retire into civil life, either temporarily or
permanently; and that without reproach or obstacle. While lost sight
of he would, in all likelihood, have recourse to a native doctor. The
real factors militating against the incidence of disease were: the short
duration of the campaign; the slight variation from the usual food and
habits of life; and the ideal weather prevailing at the time.

The majority of the wounds were caused by high velocity bullets
of the Mauser and Lee-Metford type. No wound from a soft-nosed
bullet was recognized in our wards nor did we hear of any in other
quarters. Cartridges containing wooden bullets were seen among the
men, but no wound from them noted. Guns using explosive shells
were few in number and of small calibre but they managed to inflict
some nasty gashes. Shrapnel has been responsible for a large number
of patients among the Republicans. Bayonet wounds I have not seen; they must have been extremely rare.

The number of killed and wounded about these centres is problematical. The following numbers are ventured in the absence, as yet, of accurate records, and can, at best, be approximate.

**DEAD:**

- Died in Red Cross and Mission Hospitals in Hankow and Wuchang... 600
- Republican bodies buried by China Red Cross Society ... ... 1,250
- Republican bodies buried by other Red Cross Organizations ... ... 300
- Manchus slain at Wuchang at the outbreak ... ... 600
- Buried by Imperials in the neighborhood of Hankow ... ... 200
- Imperial bodies taken north ... ... ... 4,000
- Buried by Republicans ... ... ... 500
- Civilians and soldiers burned in conflagration of Hankow ... 600
- Bodies carried away in the Yangtze, mainly Republican ... 1,000

Total dead ... 9,050

Wounded... ... ... ... ... ... ... ... 15,000

Total casualties ... 24,050

Taking the customary ratio existing between wounded and killed as four to one, the unusualness of these figures becomes at once evident. Fierceness of fighting will not account for it. The one striking example of this was the attack of the Imperial troops on the enemy's position at Hehsan when it is estimated the attacking party lost two thousand killed; but it was not a common feature of the fighting. The real secret, I fancy, lies in the needless exposure to which both sides subjected themselves, but in particular the Republicans. This was obvious enough throughout the campaign, but in the evacuation of Hanyang fully two thousand Republicans were shot down as they recklessly sought to embark upon the junks and other small craft awaiting at the South Gate of that city, ready for Wuchang.

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**A RIEDEL'S LOBE OF THE LIVER, SIMULATING CHOLELITHIASIS.**

Dr. William Sharpe, The Harvard Medical School of China.

Owing to the large number of liver affections in China that simulate acute surgical conditions, I wish to report the following case, which is an example of a condition that must always be considered as a probable etiological factor in producing symptoms referable to cholelithiasis.
Mrs..........................: white; 32 years of age; housewife; married six years; born in the United States of German parentage.

P. H.—Negative.

P. H.—Measles and Mumps as a child. Gastro-Intestinal: No history of typhoid nor dysentery. Appetite has always been fair; some constipation, no diarrhoea. Catarrhal Jaundice: Four years ago, characterized by the gradual onset of jaundice without pain, and lasting three weeks; some fever; urine dark, and the stools clay colored; no diarrhoea; no nausea nor vomiting. As the jaundice was disappearing, however, several small abscesses developed in the left cheek, supposedly due to a tooth; healed upon incision allowing pus to escape; no bacteriological examination made. Cardio-Respiratory: "Palpitation of heart" at eleven years of age. No cough nor edema of extremities. Genito-Urinary: Habits—good. Menstrual history, negative; one child 14 months old; normal delivery; no miscarriage; no nocturnal micturition; no alcohol.

P. I.—Patient has not considered herself strong during the past ten years; becomes exhausted rather easily; no definite complaints, however. Has been told by several physicians that she was anaemic; no blood examination was ever made.

On January 19th, 1912, at 6:30 a.m., as patient was lying quietly in bed, a dull, but severe, pain began in the right hypochondrium and right lumbar region. No radiation of pain into right shoulder or down into pelvis. Rapidly became nauseated, and vomited some yellowish material; no blood observed. Patient had been in her usual good health; bowels had moved on the preceding day, and also during the attack of pain, and they were of normal color. No blood observed in urine. Temperature, 99; Pulse, 90. Upon physical examination, there was definite rigidity over the right half of the abdomen, and distinct tenderness upon palpation in the right hypochondrium; no masses felt.

Patient was removed to hospital in Shanghai where a consultation was held; an operation was advised, the diagnosis being gall stones; but as the pain rapidly lessened in severity upon the application of hot stupes to the abdomen, the operation was refused. By 3 p.m. (9 hours after beginning of attack) the pain was scarcely noticeable; and by 10 p.m. the patient felt entirely well, though somewhat weak. Patient remained in hospital three days, and at time of discharge there was some tenderness upon deep pressure in the right hypochondrium; otherwise, the physical examination was negative. There had been no evidences of jaundice in the conjunctivæ and skin, and the stools
The China Medical Journal.

and urine had been normal; no fever. Upon leaving the hospital, patient still complained of some "deep soreness" in the right hypochondrium; this soreness continued, however, only three days, and then disappeared entirely.

I was consulted by the patient for the first time on February 8th, 19 days after the preceding attack. The patient desired my opinion regarding a change of her residence to an inland town about two weeks distant from Shanghai. I made a careful examination of the abdomen and elicited slight tenderness in the right hypochondrium over the gall bladder region, especially upon deep palpation. There was also some voluntary muscular rigidity in this area. I distinctly felt the lower border of the liver extending below the right costal margin; upper border at the fourth rib. Spleen not felt, but the splenic dulness was normal. The stools were reported normal. No signs of jaundice; there was a simple anaemia, however, the red cells being but 2,400,000, and the hæmoglobin was but 60%; no abnormal cells observed; no leucocytosis. Upon learning that there are only very meager facilities for an emergency operation in that region of China where the patient wished to reside, I strongly advised her to undergo an exploratory operation—our diagnosis being gall stones—an impaction of a stone in the cystic duct producing her last attack, and, of course, no jaundice resulting.

At the operation on February 15th, 1912, the usual gall bladder incision was made through the right rectus muscle. Upon opening the peritoneum about two inches beneath the costal margin, I was surprised to find liver substance beneath my incision and extending downwards below the level of the umbilicus. The incision was therefore enlarged downwards, which enabled me to ascertain the real condition. The lower border of the liver was just below the right costal margin, but extending from the quadrate lobe downwards to the right iliac crest, lying exactly on the appendix, and carrying the gall bladder with it, was a tongue-like process of liver tissue 4½ inches in length, and 3 inches in width, but only one inch in thickness; the gall bladder was attached to its inferior surface, the cystic duct being quite tense; there were no adhesions, and no signs of an existing inflammation upon its surface; its color and consistency were the same as normal liver tissue. Both the appendix and the right kidney were apparently normal, while the gall bladder had its characteristic bluish tint, and its contents were easily expelled through the patent cystic duct. As no stones could be palpated in the empty gall bladder, nor in either the cystic or common bile duct, I considered
that either the tension of the cystic duct, or a possible torsion of this so-called Riedel's lobe of the liver at its base (giving rise to the biliary colic) was responsible for the attack of pain. For fear that its pedicle might become twisted at its loose end, a possible cause for the past attack, I sutured its anterior surface to the peritoneum and posterior sheath of the rectus muscle with chronicized catgut, and closed my incision in the usual manner; no drainage.

The presence of a linguiform lobe of liver tissue, or Riedel's lobe (so-called on account of the observations of this abnormality by Riedel) is fairly common. In many cases it simulates gall stone disease, especially where the gall bladder is attached to it, as in this case, while undoubtedly in the larger number of cases no symptoms at all are produced, being found at operation for other abnormal conditions, or at autopsy. Rolleston has observed, however, that if the history be carefully examined, there will be a preceding period of digestive disturbances, referable entirely to the stomach, usually very mild, such as the belching of small amounts of gas, and slight nausea after meals. The cases in which no symptoms are produced are those in which the tissue-like process arises from the right lobe of the liver, therefore to the right of the gall bladder; fortunately, this is the usual situation.

The condition is congenital in most cases; corsets have been considered as a possible etiological factor, but it is difficult to conceive how they could produce such a slender projection of liver tissue downwards. Cholecystitis, with infection passing through the walls of the gall bladder to the surrounding liver substance and stimulating its growth might be a very possible cause for such hypoplasia of liver tissue. In this case, however, there were no signs of inflammation, nor any adhesions.

Regarding prognosis, I should say it is very good. The lobe may continue to grow and increase the tension on the biliary tract; this, however, is rather improbable. A torsion of its pedicle is no longer possible,—now being anchored to the anterior abdominal wall.

This type of case demonstrates again the great value of examinations under ether in practically all obscure abdominal conditions.
We have received the accompanying letter from Dr. Leslie. The letter speaks for itself and is of such importance that it should not be delayed until another Research Report is ready.

We hope that its publication will lead to a careful enquiry into the distribution of Kala-azar in Honan and surrounding provinces. It would be well again to call attention to the method of examination of lymph nodes elaborated by Dr. S. Cochran, as this method, apart from the possible danger of visceral puncture, appears to give more uniformly good results.

J. L. M.

Dear Dr. Maxwell:—Just a few lines to let you know that we have, during the last few months, isolated a few cases of parasite of Kala-azar. Dr. Dow and self have punctured five cases of enlarged spleen, usually extending as low as the spleen. None of these showed facial ulceration.

Spleen Puncture 4 cases
Liver ,, 1 ,, 

Of the above spleen cases I first punctured the liver in one case, but, failing to locate the parasite, punctured the spleen with positive results.

These cases were all in children under ten years of age. One other case with sloughing of the entire lips, both upper and lower, and with slightly enlarged spleen did not show presence of parasite.

In another case of a young adult with enlarged spleen, no parasites were found. In this latter case the condition was afebrile. All the positive cases showed fever, ranging from 100 to 104.

I have not noticed reports of these cases north of the Yellow River before, except from Peking, where, I believe, occasional cases have been isolated.

With kind regards,

Yours faithfully,

Percy C. Leslie.
Branch Reports.

CENTRAL CHINA BRANCH.

At the Business Meeting held in December, 1910, the following officers were duly elected for the year 1911. President, Dr. E. M. Merrins; Vice-president, Dr. McAll; Treasurer, Dr. I. Wilkinson; Secretary, Dr. Byles.

Of the Standing Committees, Drs. McWillie, Booth, and Huntley were elected members of the Purchasing Committee, and Drs. Booth, Massey, and McAll of the Nurses Examination Committee.

The year 1911 was most eventful and disturbing. It opened with a terrible epidemic of pneumatic plague which raged in the north and which would doubtless have swept over the Empire had it not been fought so bravely and skillfully by Dr. Wu Lien-teh, his colleagues and assistants, ably and generously supported by the Chinese Government which then existed. As it was feared that the plague might extend southwards to our district every possible precaution was taken and our Association sanctioned the issue of a circular compiled by one of its Committees for the guidance of missionaries resident in Central China should the plague appear in their midst. It is a plan well worth considering whether each of our local associations, acting in conjunction with other medical men of the locality, should not act as a unit and take the lead in giving direction in all matters affecting the health of the whole local community.

In the summer our secretary became so seriously ill that for a time her life was almost despaired of, and she has since been obliged to return to England in order that her health may be fully reestablished, while the present secretary was asked to assume her secretarial duties. Another of our members was also obliged to return home for a few months because of impaired health, and we are glad to be able to say that the purpose of the journey was accomplished.

In October the political Revolution began with startling suddenness in Wuchang. The fighting in and around Hankow lasted for several weeks. Nearly all our members were kept very busy in attending to the sick and wounded, and in the performance of other Red Cross work. As it was difficult to meet while the cities were in a stage of siege, several of the meetings scheduled for the year had to be abandoned. Although often exposed to serious perils, no one engaged in medical or other Red Cross work was seriously injured, therefore the first Association meeting of this year was well opened with an expression of devout thankfulness to God for His protecting care during this troubled period.

Altogether nine meetings were held during the year that has just passed. Very practical and interesting papers were read on the Surgery of Tuberculosis by Dr. E. H. Hume and on Emergency Surgery by Dr. J. L. H. Paterson. New methods in the Diagnosis and Treatment of Syphilis was the subject of a capital paper by Dr. Aird which was illustrated by photographs and clinical reports demonstrating the wonderful efficacy of Salvarsan in certain cases. Several specimens of moving spirochaetae pallidae were
also shown under the microscope by means of dark ground illumination.

The President’s closing address on “The Formation of Red Cross Societies in China,” which appears in the China Medical Journal for March 1912, was not delivered, as no meeting at the time could be held.

There were four clinical meetings; the great majority of cases shown coming from the London Mission Hospitals. The following were of particular interest: (1) Rhythmic choreiform contraction of the scapular muscle shewn by Dr. McAll: (2) An extraordinary quantity of cystic gravel removed by suprapubic operation shewn by Dr. Gillison: (3) Resection of eighteen inches of small intestine of a man gored through the abdomen by horns of bull, specimen shewn by Dr. Booth: (4) Huge inguinal hernia necessitating insertion of supporting silver filigree six by three inches also shewn by Dr. Booth.

Partly owing to the circumstances mentioned, and to the numerous meetings of one kind and another constantly taking place in such a centre as Hankow, the attendance at the Medical meetings has not been quite so good as it should be. The proposed Wu Han University and Medical School plans occupied much of our time in the early part of the year. However, it is hoped that we may soon be able to proceed on the even tenor of our way. There are still occasional mutterings of the storm through which we have passed, but as peace may now be said to reign, no further interruption of our meetings is anticipated.

C. J. Crawford.
Hon. Secretary.

Kuling Branch China Medical Missionary Association.

To the Members of the Association:

Dear Doctor:

The Executive Committee of the Kuling Branch is glad to be able to announce for the coming summer a step in advance in the shape of a considerably extended program.

You will doubtless have heard of the post-graduate courses offered this winter to practitioners of medicine by the newly-established Harvard Medical School in Shanghai. You will probably have also heard, from friends who have been able to avail themselves of this opportunity, of the excellence and thoroughness of the instruction given. Twenty-five physicians entered the classes, and so great was the demand that supplemental courses were offered in which seventeen participated. At our request the Dean of the School has kindly consented to arrange for several courses at Kuling this summer, at a considerable expense of time and pains to the members of the faculty, as will be readily appreciated. While somewhat shorter than those given in the winter—a curtailment necessitated by the fact that they are offered during vacation and amid the well-known press of the engagements at Kuling—they will be thorough to the extent of the ground covered, and are intended only for those desiring serious work.

In order that the participants may receive full benefit from them, the size of the sections is strictly limited, and members will be enrolled in order of their applications. It will not be possible for one person to take more than a single course.

We are printing herewith a tentative program for the regular
evening meetings of the Association, subject to possible rearrangement in case of emergencies altering the plans of those who are to read papers. We are also glad to offer two short courses of instruction in practical subjects by members of the Association.

Application for enrollment in courses given by the Harvard Medical School should be sent to the Dean of the school. For registration in the courses in Blood Examination and Refraction apply to Dr. Agnes Gordon Murdoch, Hwaiyuan, Anhwei. The charge for the two latter courses will be $2.00 each.

Very sincerely yours,

SAMUEL COCHRAN,
President.

AGNES GORDON MURDOCH,
Secretary.

Hwaiyuan, Anhwei.

MEETINGS OF THE KULING BRANCH
CHINA MEDICAL MISSIONARY
ASSOCIATION SCHEDULE
OF MEETINGS 1912.

July 16th, Dr. Mary Stone. Obstetrical Outfit for China.

July 23rd, Dr. Harry E. Eggers. General bearings of Serum work, and its applications to Diagnosis.

July 30th, Dr. Henry Fowler. Leprosy.

August 6th, Dr. E. T. Wills, Dr. P. Lonsdale McAll, and Dr. H. B. Taylor. Leg Ulcers.

August 13th, Dr. O. T. Logan. Clinical Aspects of Helminthiasis as observed in China.

August 20th, Dr. James Butchart. Trachoma, Pterygium, and Entropion.

Besides these regular evening meetings, courses will be given by the Harvard Medical School faculty as indicated in the accompanying announcement; and the following two courses are also offered:


Refraction. Dr. James Butchart. August 19th to 27th. Six Sessions.

POST-GRADUATE COURSES GIVEN
BY HARVARD MEDICAL
SCHOOL AT KULING.

I.—Serology, July 15-26, Dr. H. Eggers. Ten lectures, with experimental illustrations.

A rapid survey of the various developments in the lines of serum pathology and diagnosis.

Cost: $5.00.


A lecture course with demonstrations and laboratory work.

Cost: $8.00.

III.—Surgical Technique, July 15-26, Dr. William Sharpe. Ten sessions—forenoons—9-12. Practical work on animals by members of the class, including operations on various regions of the body (chiefly abdominal) which involve special technique.

Limited to five members.

Cost: $10.00.

III. A. August 12-23, Dr. W. G. Hiltner. Ten sessions—forenoons—9-12. Course identical with III. Limited to five members. Given only in case of sufficient applications.

Cost $10.00.
IV.—Laboratory Diagnosis, August 12-23, Dr. Martin R. Edwards. Limited to ten members. Ten sessions—forenoons—9-12. Cost: $8.00. Sputum—Urine—Feces—Gastric Contents. Applications should be forwarded, as early as possible, to Staining for gonococcus and treponema. Dean of the Harvard Medical School, Shanghai.

Report of the Union Medical College for 1911-1912.

This has been a broken and eventful year for us in common with all other educational institutions in China. The opening was delayed by the plague and the fact that our doctors and students were engaged in helping the Government in the work of fighting this deadly disease. At the end of the year school work was interfered with and finally interrupted by the revolution and the consequent unsettled conditions.

Our College was privileged to play no small part in the successful measures adopted by the Government in dealing with the plague. The New Year vacation made it possible for us to set free most of our staff and all our senior students for this work. Drs. Gibb, Aspland, and Stenhouse at Harbin, Dr. Young at Kuang-chen-tzu, Drs. Lewis and Dilley at Paotingfu, Drs. Wenham, Hill, and Cormack in Peking and Tientsin, all took part. Our students helped at all these places—the bulk of them being engaged in Peking and Tientsin.

The services rendered by our doctors were recognized by the decorations given to three of them by the Government.

The testimony borne by the authorities to the work done by our students was very gratifying to all of us. They specially laid emphasis on their trustworthiness and reliability; qualities apparently lacking in some of those on plague duty. Alas! their faithfulness to duty cost two of the students in Tientsin, Ch'en Ch'eng-chang and Pei Yi-chen, their lives. The former was the most brilliant student in the College and a man of beautiful Christian character, and his death was a great loss to us all.

Drs. Aspland, Hill, and Gray attended the International Plague Conference at Mukden as members, the former being appointed Medical Secretary of the Conference. The following message was sent by the Conference to the graduation ceremony:—"The International Plague Conference unites in congratulating the Union Medical College on the graduation of its first class of students to-day."
They welcome the graduates to the membership of the medical profession and send them their best wishes for a successful career."

The graduation ceremony of our first 16 graduates was postponed for some time owing to the exigencies of the plague work: at the earnest request of the authorities it had been decided by the Faculty to arrange matters so that they could continue at work till the end of March. The ceremony was held on April 7th, in a large pavilion erected in the College grounds. Sir John Jordan, the British Minister, presided, and addressed the students. H.E Grand Councillor Na T'ung, who represented the Throne at the inauguration of the College, was again present to address the students and present the graduates with their diplomas. The American Minister, Dr. W. A. P. Martin, and the Principal, Dr. Cochrane, also addressed the meeting. Representatives of the various Boards and other high Chinese officials were present and there was a full attendance of the missionary body of Peking and Tungchow. Thirteen of the teaching staff in academic costume were on the platform. The graduates wore trencher caps and black Geneva gowns with facings of purple satin.

In addition to the College diploma of M.D., the following diploma was given by the Board of Education:

"The Board of Education in issuing this diploma, recognises that in the 32nd year of Kuang Hsu the Union Medical College of Peking, at its inauguration was registered by this Board. Now a student of the said College, Mr., entered its classes in the first moon 32nd year of Kuang Hsu and continued till the 12th moon 2nd year of Hsuan Tung. The period of five years being completed, this Board appointed examiners to hold an examination along with the Faculty of the College, and he obtained an average of...% of marks, thus attaining the standard required. Therefore this diploma is issued allowing him to act as a physician.

The following is a note of student's birth and parentage:

This is to be held by ..., a graduate of the Union Medical College, Peking. Sealed by the Board of Education.

1/3/3 of Hsuan Tung.

An almost identical diploma was granted in the autumn by the Board of Home Affairs, which is charged with the registration of medical practitioners in the Empire.

After the outbreak of the revolution in the south we managed to hold the students at their work for some weeks, but as wave after wave of panic broke over the city, we had hard work to pacify their minds. We promised to stand by them in the event of trouble, and
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made what provision we could for eventualities. Some of the students left the city but most of these returned. The arrival of Yuan Shih-kai in Peking calmed things considerably. Just when they seemed to be settling down, the Manchurian students were recalled by their people from fear of a rising in Manchuria, and lest the railway communication be cut. The defection of this large body upset the whole school again; they said they had no heart for their work and asked to be excused their monthly examinations. Just then the Diplomatic Corps agreed to sanction foreign doctors engaging in Red Cross work, and, to prevent the school gradually melting away, we decided to throw our energies into that work.

So we regretfully find ourselves at the close of the year with the year's work only three-fourths complete.

**The Staff.**

Dr. Wenham was on furlough the first half of the year. Dr. Ingram left on furlough in the summer. Dr. Lowry returned from furlough in October.

Dr. Cochrane was engaged on special work for the L. M. S. during the first half of the year. He is at present in England engaged in strengthening the home side of our organization.

In the latter part of the year, with the consent of the Executive Committee, the duties of the head of the College were divided between the Principal of the College and the Dean of the Faculty. The Dean will relieve the Principal of the control of the class-room work—preparation of the syllabus of lectures, examinations and the oversight of the attendance of students and the work of the teachers. Dr. Stuckey was appointed Principal, and Dr. Cormack, Dean.

During the year we have had help in the lecture work from two of our graduates. Dr. Hsie has taken classes in Anatomy and English, and Dr. Hsu has helped us with the Histology and Bacteriology. Drs. Wu, Shih, Wang, and Liu have acted as House-surgeons during the year in the hospitals.

**The Students.**

The numbers in attendance fluctuated a little owing to the varying size of the preparatory class. The roll was as follows:

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<thead>
<tr>
<th>Class</th>
<th>Roll</th>
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<tr>
<td>Senior class</td>
<td>17</td>
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<td>Fourth year</td>
<td>10</td>
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<td>Third year</td>
<td>16</td>
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<td>Second year</td>
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<td>First year</td>
<td>20</td>
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The preparatory class had enrolled 29 boys, but several of these dropped out during the year. The largeness of this class has been a good feature of this year's work. It enables us to insure that more of the entering class are up to the required standard especially in English, Physics, and Chemistry, and gives us the opportunity of watching for one year the prospective student, and thus of forming a very good idea whether he is likely to prove satisfactory.

THE SENIOR CLASS.

This class had completed most of its work when lectures ceased. The course of lectures prescribed in the syllabus has been followed as usual.

Clinical work has been done at the North Hospital and in the medical ward of the South Hospital. Regular clinics on Diseases of the Eye, and of the Ear, Nose, and Throat, and on selected medical cases were given at the out-patient department.

In the autumn a clinic was held on Diseases of the Skin, on which Dr. Young reports as follows:—"Last year the instruction was given by lectures only, but early in the course it was realized that the students could gain but little by this method alone. This term lectures 3 times and clinics twice a week have been held. In the clinics most of the common diseases of the autumn season have been seen and a few rare cases were met. Most notable was the large proportion of patients with Herpes Zoster." Dr. Hill reports:—"The students in the medical wards have all been shown how to conduct the common examinations and tests and have practised them on their own cases. I have demonstrated to them some of the more elaborate tests, and have discussed with them the significance of the results in relation to diagnosis and prognosis . . . . It is important that they get more time for medical clinical work. Peking is a specially difficult place to study medicine, as one gets temperate and tropical and local diseases all together and no P. M. to help.

THE FOURTH YEAR CLASS.

In addition to the usual lecture work, this class received clinical instruction in the surgical wards of the South Hospital. They also attended the medical clinic at the out-patient department.

The reports of the teachers show that this is by no means the brightest class in the school.

Dr. Wheeler reports:—"Each man is made responsible for taking the notes of 2 or 3 patients. This part of the work is quite new
to them, and it is difficult to get them to make anything like accurate or useful notes."

THE THIRD YEAR CLASS.

This class has done good work in the lecture-room, and also in daily attendance at the out-patient clinic, where they received instruction in Dispensing, Minor Surgery, and Dressing, and elements of Clinical Diagnosis. There is evidently room for improvement in the use to be made of the clinical material of the out-patient department. More attention should be given to maintaining a proper technique in surgical dressing, even though most of the cases are already septic. Prescription-writing is another branch that deserves cultivation.

THE SECOND YEAR CLASS.

This class was rather crowded with lectures in Anatomy, with the object of completing the course by the end of the second year. This year the students have had the advantage of the new Anatomical Atlas and the translation of Heath's Anatomy. These have been a real boon and a marked advance on the cyclostyled notes formerly used.

The teachers all report on this class as being one of the best in the College. As one remarks: "It is encouraging to see that, taking them as a whole, we are getting a better class of boys year by year."

THE FIRST YEAR CLASS.

This class has made a good beginning in their College work. Some of them, in addition to their regular lecture work, have had to make up those subjects in which they were deficient at entrance. They have covered a larger part of the Anatomy course than usual, and have given time to copying the large anatomical drawings which are one of our chief means of illustrating the lectures.

The English classes have made steady progress under the teaching of six of the regular teaching staff. The work is probably the least inspiring to the teachers of all our classes, but the results obtained have amply justified the expenditure of time and effort.

SUGGESTIONS FOR THE FUTURE.

The teachers were asked, when writing their reports, to offer criticism on the present working of the school and suggestions for improvement in the future.

There is a consensus of opinion that more time must be given to practical work, even if this means that our already over-full schedule of lecture recitations is curtailed.
The teachers in Medicine all urge the great need of more practical work in diagnostic methods, analysis of urines and stomach contents, blood counting, examination for parasites, and bacteriological work. This will necessitate further equipment of the clinical laboratory and the supervision by a House Physician of the routine work.

The teachers of Anatomy deplore the present restrictions on the dissection of the human subject, and hope that one of the results of the present change of conditions in China may be liberty to conduct post-mortem examinations and anatomical dissections. In the meantime it is suggested that a room should be provided where dogs, rabbits, and such-like animals could be dissected. One urges also the advantage of reserving the Anatomy room for that subject alone, so that students could go there to study at their leisure.

Dr. Hopkins suggests that the class in Chemical Physiology should be carried on in connection with General Physiology and not as a special subject. It would be simpler to deal with this subject when studying foods, digestion, excretion, and the blood, than to treat it as a special course.

Mr. Biggin asks for a set of prepared microscope specimens of Hydra and Amphioxus.

The building of a bacteriological laboratory and the rebuilding of the out-patient department with proper equipment for the various special branches are also long-felt needs, and only await the requisite funds.

DISCIPLINE AND HEALTH.

The discipline of the College this year has been very good; only once has it been necessary to report a student to the Faculty for misbehaviour and the Principal’s duties have been correspondingly lighter.

This happy result was due, we believe, to the firm treatment of breaches of discipline last year. All the students who were rusticated last year have returned and are doing good work.

The health of the students has been good. One student contracted typhus fever when on Red Cross service, but the attack was a very mild one. The heavy curriculum inseparable from a full course in Medicine is a severe strain on those who are not physically very robust, and we watch rather anxiously for the appearance of tuberculosis—that scourge of Chinese students.

Special precautions against plague were taken at the beginning of the year. All students were inoculated with plague vaccine, and were examined night and morning until the incubation period was past.
Tennis was the favourite form of exercise. Football was rather neglected, probably owing to a falling off of interest in the game on the part of the teachers.

TRANSLATION DEPARTMENT.

Our teachers have taken some share this year in the preparation of medical literature and we hope that in the future each one will make this a part of his contribution to the needs of China medically.

Dr. Ingram’s text-book has been thoroughly revised by him. He has also completed the translation of "Refraction and how to Refract" by J. Thorington.

Dr. Stuckey has revised a small text-book on Medical Jurisprudence and Toxicology, which is now in the press.

Dr. E. J. Peill revised the translation of the section of Rose and Carless’ text-book on Surgery allotted to him; Dr. E. T. Hsieh also translated about 100 pages of the same book. Dr. Cormack, who has been acting as general editor of the whole book, has had the pleasure of seeing the last chapter sent off to the printer at the close of the year.

Dr. Cormack has also translated a large part of Hutchison and Rainy’s Clinical Methods, and a few more months’ work on this should see it ready for the press.

Dr. T. M. Hsu has been doing some helpful work in going over Dr. Mary Niles’ draft copy of Obstetrics.

Dr. E. T. Hsieh has also made a good beginning on a translation of Waring’s Operative Surgery.

Dr. Hopkins hopes to have the translation of Landois and Sterling’s Physiology ready for the press soon. Contract has been made for the plates in Japan, and the book will be profusely illustrated.

A special class in translation was formed of 7 of our students who are fairly well up in English, under the charge of Dr. Cormack. The object of this class is to train them to read English text-books of medicine, and also to prepare them for translating such books into Chinese. Some of the men attempted translations of chapters in various text-books, while others tried their hands on articles from medical journals. Our first attempt at this work has been very encouraging, and as some of these students are in the early years of their student work, we fully expect that they will be competent translators by the time they graduate.

MUSEUM, ETC.

A number of pathological specimens have been mounted this year by Dr. Gibb and Dr. Hsu, but materials for this department are scanty.
The X-ray apparatus has been installed this year and is giving very satisfactory results.

**CHRISTIAN WORK.**

The Y. M. C. A. continues its useful work, but, like similar institutions at home, it has to meet the old student argument "No time." The Bible-classes were good, but there is room for better organization.

A dozen or more of the students attended the Summer Conference held in connection with the Peking Y. M. C. A. at the Western Hills. Dr. Cormack was there the first three days and addressed the Conference. The Principal was able to get out for the last three days. Others of the teachers were out for one day. The meetings were very successful and proved very inspiring, especially those led by Mr. Sherwood Eddy. The teachers felt that these meetings brought us much nearer to our students. A suggestion came from the students that we should form a Volunteer Band in our College. The matter was discussed in the autumn term, and the constitution was being prepared when work was interrupted by the revolution.

During the first half of the year Mr. D. W. Edwards of the Y. M. C. A. had charge of the preparation of Bible-class leaders. After the summer, Mr. Edwards having gone on furlough, the Principal took charge of this class.

Our hearts were gladdened in the autumn by the baptism of five of our students, who had entered the College heathen. Drs. Peill and Wenham afterwards held a class for these men with the purpose of instructing them further in the doctrines of Christianity. Another class was in process of formation for those who had expressed a desire for instruction with a view to entering the Church, when the school was dismissed.

Daily prayers were held morning and evening in the College, conducted by the staff, the College evangelist, and students in turn. The Scripture Union reading cards were introduced for use at the morning prayers.

Five of the staff have gone regularly on Sunday to different centres for preaching and dispensary work. They have been accompanied by students who have done good work, especially in teaching the Sunday-schools. Four of the teachers in turn have had charge of the street-preaching chapel on Sunday evenings, here also having three of the students to help with the preaching. In these ways a number of the students are engaged in evangelistic work.
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THE NEW HOSPITAL.

We have constantly lamented the fact that the accommodation in the hospitals associated with the College is so limited. The highly-developed power of memorizing makes the acquisition of book learning a comparatively easy task to a Chinese student. His great weakness lies in the application of this knowledge to the diagnosis and treatment of the cases he meets in the dispensary and hospital. Therefore this most important department of medical education becomes trebly important in China.

It has been our desire for many years to build a new hospital fully equipped on the most modern plan. With great difficulty a suitable site was obtained near the College. From various sources in England over £7,000 has been raised. We are now building the administrative block, one complete hospital block, which will include the operating theatre. We hope that ultimately there will be four complete hospital blocks. Each block is two stories high. Each large ward is complete with verandah, bath-room, lavatories, nurses' room, dressing room, clinical room, and store-room.

An artesian well has been sunk, and the water will be pumped up to tanks on the eastern towers, and thence reticulated to all parts of the building. The hospital will be heated throughout by steam.

Private wards for better-class patients, and accommodation for a few foreign patients are being provided.

Good progress has been made with the building, and we hope to be able to occupy it in the autumn.

RED CROSS WORK.

Three corps were formed in connection with the College. One corps included Dr. Lowry, Dr. Mullowney, Dr. IJu, and 12 students. Another, under the charge of Dr. Wenham, included Dr. and Mrs. Aspland, Dr. Wheeler, and 12 students. Dr. Stenhouse had charge of a corps of 8 students, and was assisted for short periods by Drs. Cormack and Young.

These corps gave service in Siaokan, Wuchang, Honanfu, Taiyuanfu, Paotingfu, and Hsiichowfu, as well as in Peking.

The organization of the work was in the hands of Dr. Gibb as Director of the U. M. C. Red Cross Society, in which work he was ably assisted by Dr. E. T. Hsieh.

OUR GRADUATES.

All but one of our graduates, (who is in practice in Peking), are at present engaged in Mission hospitals in the north. Three of these
are practically in charge of hospitals without foreign supervision, and all are doing good work.

THE FUTURE.

It is impossible to forecast what further unfolding of the dramatic events of the last three months may hold for our College. But we cannot but believe that it will open to us yet wider spheres of influence and usefulness. We must aim at the highest standards in our work, and the best advertisement we can have will be the graduation of a succession of Christian gentlemen with a good understanding of the science and spirit of the healing art, which have given the doctor so honoured a position in our home lands.

We hope to reassemble our scattered students some time towards the end of March, and to complete the unfinished work of the year before the summer vacation; at which time we expect to graduate our senior class.

The faculty is asking the consent of the Board of Managers to make this a permanent arrangement. It is more natural to have the long vacation after the close of the year’s work, and it will insure that the academic year is always the same length, whatever calendar we may follow. Moreover, we have to invite officials of the Board of Education and of the Board of Home Affairs to our examinations, and a number of officials are pleased to be present at our Graduation Ceremony; but the end of the 12th moon and the 1st moon are not times when it is easy to get the attendance of Chinese officials or get business through any of the yamêns. So we feel that the present is a favourable opportunity to make the change which has already been considered by the Board, as possibly a better arrangement for our Union Colleges.

The very serious difficulties of the early years of the College have been fairly well overcome, and most of the members of the teaching staff have mastered sufficient of the language to secure a medium for communication of their particular part of the curriculum. But each will do well to take up some definite piece of translation work, that there may be a constant advance in our knowledge of the terminology.

Most of the teachers have given their course of lectures, at least once, and their work is to that extent lightened. But they need to beware of any slackness in preparation and of a too slavish following of the text-books translated for us. Rather let there be a wider reading from other sources and an endeavour in each lecture to introduce
freshness by adding some additional information, or illustrative examples. Hampered as we are in many directions by difficulties of practical demonstration, the teachers can find scope for all their ingenuity to illustrate suitably their subject. A tennis-ball appropriately marked makes a very good model of an eye, especially if the cover be loose enough to play the part of bulbar conjunctiva.

In looking over the work of the year from the point of view of a missionary enterprise, there is room to doubt whether we are reaping a full harvest of spiritual results. Is each teacher making use of the great influence he gains over his students in the class room, to bring these men into vital relationship with the Master who drew us to this land? It would be a happy thing if each teacher lived near enough to the College to come into close contact with his students out of school hours.

But above all, for this work we all need to keep our own spiritual lives warm and keen, that the opportunities as they come may be used. The Faculty has decided if possible to begin the year with a few days' "Retreat" for mutual help and encouragement in spiritual things, and thus from the start to put first things first.

Respectfully submitted on behalf of the Faculty,

E. J. Stuckey,
Principal.

Opening of the New Dispensary Building of the Philadelphia Polyclinic and School for Graduates in Medicine.

The opening of the new dispensary building of the Philadelphia Polyclinic and College for Graduates in Medicine, at 18th and Lombard Streets, was celebrated on the afternoon of February 5th, 1912, by a formal reception tendered by the President of the Board of Trustees, Mr. Herbert L. Clark, to the Board, the incorporators of the Hospital, and the members of the Medical Staff.

This institution was organized in the year 1882, for the purpose of meeting a long-felt demand for post-graduate teaching in the City of Philadelphia. It was the first institution to devote its labors to this work in Philadelphia, and it continues to be the only institution of this character. In the various years of its existence, it has extended instruction to many students from all parts of this country, as well as from all parts of the world.

Aside from this very important line of work, it has rendered especial service to the City of Philadelphia in that it has conducted one
of its largest charitable medical services. From the time of its organ-
ization, up to the present, there has been an increasing number of
patients treated from year to year, until at the close of the present year,
the official records of the institution show that in the year 1911, in the
out-patient service, 17,769 new patients have been treated, with a total
number of 78,386 visits; that in its accident emergency ward 8,706
new patients have been treated, with a total of 9,104 visits; and that in
the wards of the hospital there have been treated 1,746; and that 1,167
operations under ether have been performed. This enormous service
began to overtax the capacity of the institution several years ago. Its
Board of Trustees, appreciating this fact, in 1907, undertook construc-
tion of the building which was formally opened February 5th.

This building is constructed especially to accommodate the patients
who visit the dispensaries and accident wards. Incidentally, however,
it makes available to the institution much needed space in the original
building for the increase of its beds for in-patient service, making
available space for more satisfactory and complete operating room for
private patients, more comfortable accommodation of its students, a
better housing of its executive force, and at the same time, separate
entirely the accident ward and out-patient service from the hospital.

The new building has been made possible only through the gen-
erous support of public-spirited citizens, the untiring efforts of its
Board of Trustees, and generous appropriations of the Legislature of
the State of Pennsylvania.

It is located on the property adjoining the older building, with the
entrance from Naudain street. This location is in a portion of the city
in which charitable work is greatly demanded, as evidenced by its
enormous dispensary service.

The building is constructed on the most approved fire-proof plan,
with the latest ventilating devices, with especial view of obtaining the
maximum amount of light and air space. The construction is absolute-
ly hygienic, with all the plumbing exposed, all floors made of concrete,
all corners and angles rounded, the elimination of all dust-collecting
surfaces, with walls and woodwork finished with glazed surfaces.

The furnishings and equipment of the institution are new in their
entirety, and have been selected with a special view to ease of cleanli-
ness. Each of the various dispensaries will be equipped with the most
approved modern appliances for the treatment of disease of every
character, and to each dispensary will be attached a laboratory equip-
ment to aid in the study and diagnosis of disease. The accident
emergency suite will be one of the most completely equipped and up-to-
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date in the City of Philadelphia. An arrangement has been made for the separation of the sexes, and modern bath-room appliances have been provided.

The waiting rooms for the patients are not only commodious, but splendidly ventilated, and so constructed as to admit of rapid and complete cleansing at the end of each day. An up-to-date operating room is provided in this building for the accommodation of such cases as are ordinarily operated upon in hospital out-patient services. This operating suite is completely equipped, and has attached to it a ward to be utilized by patients who are convalescing from the minor operations which will be done here.

The equipment of the institution, therefore, makes it one of the most up-to-date of its kind in the City of Philadelphia, and fits it to properly handle its large number of cases, and render increasingly satisfactory service to its students.

Philadelphia shares the distinction, with three other cities—New York, Chicago, and New Orleans—in possessing this institution, the Polyclinic Hospital and School for graduates in medicine, conducted solely in the interest of graduate physicians. As such it occupies a field of its own, competing with no other teaching institution in the city, and is the only institution of its kind in Pennsylvania, receiving students from every state in the Union, Canada, and elsewhere.

It is just such institutions which have given to Philadelphia its present foremost position in the medical world, as the acknowledged center of the medical thought, and the home of some of the most progressive and largest medical schools in America.

The International Opium Convention.

We are now in a position to state the results obtained by the International Opium Conference, which has been sitting at The Hague during the last two months.

The Conference arose out of the International Opium Commission which was held at Shanghai in February, 1909. That Commission adopted certain resolutions having for their object the gradual suppression of opium smoking in the Far East, the restriction of the use of opium and its derivatives to legitimate purposes, and for this purpose to regulate, by international arrangements, the production and distribution of such drugs, with a view to prevent their illicit transport or consumption.
At the request of the Government of the United States, and with the approval of the Government of the Netherlands, it was agreed by the twelve Powers which took part in the Shanghai Commission of 1909 that a conference should assemble at The Hague in December, 1911, to conventionalize the resolutions passed at Shanghai. The step was regarded as somewhat premature by His Majesty's Government, especially in view of the new arrangements which had been made between Great Britain and China with a view to the restriction and extinction of the Indo-Chinese opium traffic; but, on the understanding that the conference would deal with the growing evil of the illicit use of morphine and cocaine, and that certain reserved questions should not be included in the programme, Great Britain sent four plenipotentiaries to The Hague to take part in preparing the Convention. These were Sir Cecil Clementi Smith, Sir William Collins, Sir William Meyer, and Mr. Max Müller.

The Convention, which was duly signed by the representatives of Great Britain, America, Germany, France, Russia, Italy, Portugal, the Netherlands, China, Japan, Persia, and Siam, recites that the High Contracting Powers, being desirous of taking a further step in the direction marked out by the Shanghai Commission of 1909, and resolved to pursue the suppression of the abuse of opium, morphine, cocaine, and other drugs liable to similar abuse, recognize the need for international understanding, and are convinced that their humanitarian efforts will secure the unanimous support of all the nations interested.

The Convention then deals in three successive chapters with the case of "Raw Opium," "Prepared Opium," "Medicinal Opium," and certain alkaloids. Raw opium is defined as "the spontaneously coagulated juice obtained from the capsules of the *Papaver somniferum*, and which has only been submitted to processes necessary for packing and transfer." The participating nations resolve to enact laws to control the production and distribution of such opium, to limit the places to and from which such opium may be imported and exported, to forbid such export to places prohibiting its entry, and to control such export to places regulating its import. All packages of such opium weighing more than 5 kilograms are to bear a distinctive mark, and all import and export of raw opium are to be exclusively in the hands of duly authorized persons. Chapter II defines "prepared opium" as "the product of raw opium obtained by a series of special processes, such as solution, boiling, roasting, or fermentation, having for their object its transformation into an extract suitable for consumption, including within the term 'dross' and all other residues of smoked opium." The
Contracting Powers undertake in respect of such opium gradually to suppress its use or sale and either at once to prohibit its export or, failing prohibition, to regulate its traffic to certain places and persons, marking its package, but in no case to export it to any country prohibiting its import.

Medicinal opium is defined in Chapter III as "raw opium" which has been heated to 60° C., powdered and granulated, mixed or not with neutral substances, and containing not less than 10 per cent. of morphine. Morphine, cocaine, and heroin are also dealt with in this chapter. Here the influence of the British delegates has evidently been brought to bear, and Article 9 is highly important and far-reaching. It declares that the Contracting Powers will enact pharmacy laws and regulations so as to limit the manufacture, sale, and use of morphine, cocaine, and their respective salts to medical and legitimate uses only, unless such laws or regulations already exist. They will cooperate with one another in order to prevent the use of these drugs for any other purpose.

Then follows a series of articles indicating the mode in which the Contracting Powers will seek to enforce the control of the manufacture, import, sale, distribution, or export of these drugs, by limitation, licensing, inspection, etc., of the premises and persons where such business is carried on. Article 14, again, is of great importance; it recites that the Powers will apply the laws and regulations for the manufacture, import, sale, or export of morphine, cocaine, and their respective salts, to the case of medicinal opium, to all preparations (official and non-official, including the so-called anti-opium remedies) containing more than 0.2 per cent. of morphine or more than 0.1 per cent. of cocaine; to heroin, its salts and preparations containing more than 0.1 per cent. of heroin; and to every new derivative of morphine, cocaine, or their respective salts; or to any other alkaloid of opium which may be generally regarded on scientific investigation as liable to similar abuse.

The rest of the Convention deals mainly with the bringing into force and ratification of the foregoing.
Interesting Case of Attempted Suicide in the Canton Hospital.

Patient named Li Lin-wong, 32 years of age, a native of Sanwai, resident in Canton, and a broom-maker by trade, failed in business. He tried to enlist in the Republican Army, but was not accepted. Just before Chinese New Year, the fiscal end of the year, he decided to commit suicide with the aid of a razor. There is no doubt about the sincerity of his efforts, or the keenness of his razor.

He was taken to a Chinese Hospital, but the native physicians in charge sent him on to us.

Upon arrival at the hospital at noon, he was immediately placed upon the operating table. He was recovering from shock—pulse rapid and wiry, skin moist and cold—and was conscious, though complaining of severe pain.

Uncovering the abdomen, my eyes rested upon yards of small and large intestine, stomach, omentum, and most of the liver, completely eviscerated, mixed with a great deal of blood, rubbing against his dirty winter clothing, which had probably not been changed for some time. It occurred to me that it would make an unusual photograph, but I decided to give him every possible chance of recovery, by losing no time. Across his abdomen were eight gashes. Two of the wounds measuring each twelve inches in length, completely opened up his abdomen from side to side. The upper one severed the lower costal cartilages, the abdominal muscles, the peritoneum, and made four long and deep cuts into the substance of the liver. There were also several wounds in the stomach, down to the mucous membrane, but fortunately not through. The lower cut severed muscles and peritoneum, but did not injure the adjacent abdominal organs. Stomach and bowels were distended with gas.

The patient's body, with the exception of the site of operation, was warmed with blankets and hot water bottles. Chloroform was administered by one of our resident physicians, Dr. Lo, and another one, Dr. Kwok, assisted in the operation. All of the abdomen accessible was thoroughly washed with Synol liquid soap and water, then with carbolic acid solution ($1$—$100$), and finally thoroughly rinsed with sterile salt solution. The eviscerated organs were carefully washed with weak carbolic acid solution to remove the dirt, and then thoroughly rinsed with hot normal saline. The wounds in the liver and stomach were then sutured. The air was manually expressed from the stomach,
escaping by way of the oesophagus, and the difficult task of restoring
the organs to their proper places was commenced. The intestines
extruded through the lower wound were first replaced, and that part of
the abdomen closed with through-and-through silk sutures, at consider­
able intervals, in order to expedite the operation, an opening being left
at the side for drainage. To replace the contents of the upper part of
the abdomen was no easy task. We finally succeeded in doing this,
and I pulled down the omentum, covering the other organs. While
my assistant kept the abdominal contents in their place, through-and-
through sutures of silk were inserted at intervals of an inch, and clamped
with artery forceps; then the assistant trying to approximate the edges
of the wound by traction with forceps, and at the same time attempting
to maintain control of the unruly distended bowels, I tied the sutures.
It was absolutely impossible, however, to bring the margins of the
wound together, an interval of about an inch and a half being left,
showing the omentum. This gap was covered with gauze and gauze
drainage inserted. The operation was completed with all possible
haste, and the patient, though on the charity list, put into a private
room, given strychnine and a rectal saline.

In the early afternoon I saw the patient again and he was doing
well, having come out of the anaesthetic easily.

At five o'clock, going into the hospital again to see another patient,
I was met by one of the orderlies who informed me that the suicide
case had just cut his throat. The attendant having left the room for a
few minutes, he had broken a drinking glass, which was on the table,
and with a piece of it made a deep gash through the middle of the
neck, about an inch and a half wide perforating the crico-thyroid
membrane. When I saw him he was breathing through both nose and
the self-made tracheotomy wound. Fortunately he had not made this
wound as extensive as the abdominal ones, and thus saved injury to
the carotid vessels. In cleansing the wound a few drops of solution
entered the trachea, but were coughed up.

February eleventh—second day—Temperature, morning 99, evening
given at night.

Third Day—Morning, outside dressings changed. Temp. 99.4.
Pulse 140. Afternoon, one quart of hot normal saline solution given
intravenously, the left median basilic vein being the one opened.
Evening, pulse 112.

Fourth Day—Dose of salts given. Fluid diet. Patient taken
to operating room and given a few whiffs of chloroform while all
drainage was changed and the wound in the neck freshened and sutured. Temp. 99.4. Pulse 120.


**Sixth Day**—Dressings changed. Some discharge. While attendant was out of the room patient got out of bed, walked to the door and sat on a bench outside, without any coverings except his white hospital pajama suit. Pulse 90. Temp. 99.3.

**Seventh Day**—Taken to operating room and all drainage changed, without anaesthetic, though patient complained of the pain. Some pus in the lower wound. Both large wounds irrigated. Smaller wounds healing by first intention. Upon return to bed dose of salts and rectal saline given. Temp. 99.1. Pulse 140, coming down later. At evening visit found patient lying upon cold tile floor, on a blanket, with knees drawn up, groaning, refusing to be returned to his bed.

**Eighth Day**—Dressings changed morning and evening. Considerable pus in both wounds, which were irrigated. Omentum inflamed. Microscopical examination of pus showed staphylococci in abundance. Urine normal. All sutures which had not sloughed out removed. Lower wound healed except about two inches at right side, where drainage had been inserted. Upper wound open, ten inches long by two and a half wide showing the omentum, covering the stomach, moving up and down with respiration. The wound granulating. Cough developed with a great deal of expectoration. Expectorant mixture given Q4H.


**Eleventh Day**—Bowels kept moving daily.

**Twelfth Day**—Saline intravenous given in left internal saphenous vein, above the knee. Change of locality of each intravenous due to bad healing of the wounds. Pulse slowing and becoming more regular.

**Fourteenth Day**—Given beef juice, one ounce t.i.d. Got out of bed and walked to the corner of the room to urinate.

**Sixteenth Day**—Evening dressings discontinued. Appetite improving.

Thirtieth Day—Practically convalescent.

J. OSCAR THOMSON.

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Annual Report of the Medical Officer of Health to the Kiukiang Municipal Council, for the year 1911.

General Conditions.—The health of the Foreign Community residing within the limits of the Concession has been good during the year 1911. There has also been an absence of those epidemic diseases amongst the Chinese which usually characterizes some period of the twelve months, so that there are no epidemics of cholera or dysentery to report.

Malaria has been very rife owing to the flooded conditions of the surrounding country. The difficulty of dealing with the large areas of flood-water in and about the Concession resulted in a plague of mosquitoes. The Council used kerosene freely in the drains and collections of water over which they had control; the majority of residents used kerosene when they remembered to, and the Chinese living in the Concession did not use it at all. It was noted that the mosquitoes did not breed much in the drains or in the deeper collections of flood-water, but their favourite breeding grounds were under the houses and in the water-kongs. As most of the houses had water under the ground-floors, there were many places where mosquitoes could breed. A simple method of preventing mosquitoes from gaining access to water in the basements of houses is to protect the ventilation holes, usually found in the walls near the ground, with screens of iron mosquito-netting. If these screens are put in in the spring, before the mosquitoes appear, those which are hibernating in dark corners under the houses will not be able to get out, and those from the outside will not be able to get in to lay their eggs in any collection of water which may be under the house. The cost would be trifling and would result in more comfortable houses in the summer time. The advantage of having windows and doors fitted with mosquito netting is obvious, and the doors have the double advantage in that they keep out flies.
as well as mosquitoes; and no kitchen should be without them, as it is in the kitchens that flies have most opportunity to contaminate food.

The little striped mosquito, which is such a pest in the daytime, breeds in very small collections of water, such as empty tins, vases, pots containing water-plants, collections of water in eave-troughs, etc. A small quantity of water left in a vase for a week will be found full of the larvae of this variety. The common brown mosquito, which bites after sunset, breeds in kongs and larger collections of water than does the striped kind, while the mosquito with the spotted wings and straight body, which appears to stand on its head when it bites, is generally of the fever-bearing variety and is a country dweller, breeding in swampy ground where the water is clear, and in slowly running streams. Borrow pits along railway embankments are common breeding grounds for this variety. The types found principally in the Concession are the striped and the brown. The spotted-winged one is also found, but is not very numerous and probably comes from across the creek, where the railway borrow pits are, but it is getting more numerous in the Concession every year. As this type of mosquito gets more abundant so does a corresponding increase occur in the number of cases of malaria fever treated during the year in the Concession, as the following table shows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Foreign</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>1909</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1910</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1911</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Other cases of malaria were treated during the above years, but these figures apply to persons actually residing within the limits of the Concession. Malignant malaria occurred three times in Chinese living in the Concession in 1911. The reason for this increase in malaria is certainly to be found in the reclamation works which have gone on for the past two years in connection with the railway and the Kuling road, because these undertakings have brought in several hundred coolies from other and malarious districts, and these persons have brought the infective germ with them in their blood. As the construction of the road and railway has caused the formation of borrow pits, which afterwards became breeding grounds for the fever-bearing mosquito, we have here a chain of circumstances which has resulted, as I foreshadowed in my last annual report, in a great increase in the number of cases of malaria amongst the residents of the Concession. Every one should endeavour to keep mosquitoes out of his house if he wishes to remain free from malaria. But it is the duty of every resident to try to protect his neighbours as well as himself. And this
he can do by keeping his water-kongs well covered and kerosened regularly once a week, and by destroying larvæ in puddles of water and in the eave-troughs with kerosene. A person who allows his property to become a breeding ground for mosquitoes is as guilty of creating an insanitary nuisance as he who has defective drains or latrines. Buildings, also, by reason of being in a decayed and unused condition can be as much a menace to public safety as are those which threaten to collapse into a public thoroughfare. They are dangerous because they harbour rats which may become infected with plague and cause an epidemic: and their damp and neglected surroundings make good breeding-grounds for mosquitoes and flies, both of which pests carry all manner of preventable diseases. It is quite within the province of the Health Officer to protest against the presence in the Concession of neglected, insanitary dwellings, of which there are not a few which should be either demolished or repaired in the interests of the health of the community.

Sanitary Measures Undertaken during 1911.

(1) The raising and sub-soil-draining of King's Gardens.—This work was commenced early in the year and was completed in time for an opening ceremony to be held on Coronation Day. The improvements consisted in raising the whole level of the ground from one to one-and-one-half feet, and sub-soil draining the entire area by a system suggested by Mr. Godfrey, one of the Shanghai Municipal Engineers, who came up on purpose to give the Council his advice on this matter. The result has been most successful, and the gardens are now dry, and healthy for children to play in: and it is quite possible that the comparatively few cases of bronchitis which have occurred so far among the children this winter may be due to the dry and unexposed condition of the renovated gardens. Probably the sanitary conditions of the grounds would be still more improved if the south wall were raised several feet.

(2) The Establishment of a Municipal Butcher Shop.—The Municipal Council built a small shop outside the east Concession gate and rented it to a native butcher. Things went fairly satisfactorily for a time, but eventually the tenant had to be turned out for continually breaking the regulations laid down by the Council for conducting the shop. The shop remained empty during the summer, but has recently been reopened under the management of Mr. Duff, who has erected on his premises near the Loong Kai Ho Creek, a sanitary slaughter house in which the animals are killed. The other native
butcher has made his shop sanitary, but has not yet come under Municipal inspection. A great deal of assistance could be rendered by His Majesty's Navy in this endeavour on the part of the Council to secure a good meat supply. As things at present stand, ships of the British Navy do not obtain their supplies from shops under the control of the Council, and thereby a good deal of custom is lost to the lessee of the Municipal shops, and a very great inducement to desirable tenants to take the shops is removed. It is hoped that those in charge of the victualling of the ships of the British Navy in Chinese waters will eventually see their way clear to accept no meats from shops which are not inspected by the Health Officer.

The question of the pureness of the sources of the food supply of the Concession is one which is engaging the attention of the Council. Already arrangements have been made with a milkman, named Heu Chee, to supply milk in sealed bottles. But the Council is desirous of going a step further and of being able to more carefully control the food supply by obtaining the power to prevent the sale in the Concession of milk and food-stuffs which are dangerous to health, or which have their origin in insanitary shops, stalls, or farms.

In order to more conveniently carry out certain sanitary measures and reforms, the Health Officer, with the approval of the Municipal Council, has drawn up a revised set of Sanitary By-laws (copies of which have been circulated among the Land-renters), which will come up for discussion at a special meeting to be held on February 12th. Several of these amended by-laws are similar to those recently passed by the Land-renters of Chinkiang, others are new ones dealing with special conditions in Kiukiang. The main object of them all is to increase the healthiness of the Concession in every way possible, and the Health Officer takes this opportunity of asking all Land and House Renters to give the by-laws their careful consideration between this and the date of the special meeting.

Summary of the Health of the Concession during 1911.

Births.—Two occurred in the Foreign Community, both being male children. There is no means of ascertaining the number of Chinese births.

Deaths.—Two deaths occurred amongst the Foreign Community during the year, one from locomotor ataxia and one from peritonitis. A death from hydrophobia occurred amongst the Chinese Municipal Police. The man had been slightly bitten twelve months previously, and the wound had been cauterised. There is no means at present of
ascertaining the occurrence of deaths amongst the Chinese dwellers in the Concession. The lack of knowledge in this direction leaves the Concession liable to epidemics of infectious disease, and such state of affairs should not be allowed to continue. Compulsory notification of deaths and suspicious cases of infectious disease should be enforced.

*Diseases Treated in the Concession during 1911.*

1. *Infectious diseases.*—These were less numerous than in former years as there were no cases of dysentery or cholera.

   (a) *Typhoid Fever.*—A small epidemic broke out in one of the Mission schools in the Native City. Two cases from this source were treated at St. Vincent's Hospital. Two cases, which presumably caught the disease in Shanghai, were also under treatment at the same hospital. The cases were all of moderate severity.

   (2) *Typhus Fever.*—One case was treated in the Hospital. The patient was a foreigner who had arrived in the district a few days previously from Hankow, and had apparently contracted the disease on a journey into the interior, as there had been no epidemic of typhus in the vicinity of Kiukiang. For the past three years no case of serious infectious disease has occurred amongst the foreigners of the Concession, with the exception of a case of cholera in 1909. But during that period some twenty cases of infectious diseases have been treated at the hospital, and of these several have been foreigners. The majority of the cases has been comprised of cholera and dysentery landed from steamers; in addition there have been several cases of typhoid and one of typhus. It is unfortunate that there is no building in the hospital in which such cases can be properly isolated.

   It is hoped that this year the Sisters with the assistance of the Municipal Council will be able to build two isolation wards for such cases. There is also a need for a small Mortuary, which might very well be erected within the Church compound, in which bodies discovered by the Police, or under other circumstances awaiting burial, might be decently taken care of. At the present time there is no place which can be used for such a purpose, except one of the police-cells.

   The Foreign Hospital under the charge of the Sisters of St. Vincent de Paul has been of service to several members of the Community during the year, and to strangers who have been landed here for treatment. A new operating room has been built and fitted up, and the first and second-class wards are comfortably furnished. Four foreign patients can be accommodated in each class. One Sister has
sole charge of the foreign patients, and has under her a sufficient Chinese staff.

(3) Cholera.—No cases.

(4) Dysentery.—No cases amongst foreigners. Very few amongst the Chinese.

(5) Plague.—No cases. Measures were taken to insure the prompt isolation of any cases which might occur. Leaflets (in Chinese) were distributed amongst the Chinese, notifying them of the dangers of dirty houses and the presence of rats under the floors, etc. The Council supplied rat-traps at a low figure to those desiring them. There is still much to be said as to the insanitary condition of many of the compounds in the Concession. The Council undertakes to remove nightsoil, rubbish, and kitchen-water from the compounds, but in order to do this with dispatch it is absolutely necessary that some uniformity be established as regards the manner of conserving the rubbish, etc., until it is removed by the scavengers.

To secure this uniformity will be the object of one of the new by-laws before mentioned. The majority of residents will doubtless see the advantage of a uniform system of buckets, kongs, and dust-bins, which shall be both sanitary and convenient.

(6) Small-pox.—No cases.

(7) Chicken-pox.—A few mild cases amongst the children during the spring months.

(8) Measles, Diphtheria, Whooping-cough, and other infectious diseases of similar nature.—None.

(9) Hydrophobia.—One case occurred. The victim was a native constable in the Municipal Police, who had, exactly twelve months previously, been slightly bitten on the hand by a native dog, which he was endeavouring to catch. The dog was not supposed to be mad. This case shows the extreme danger of allowing even a slight bite from any variety of native or cross-breed dog to go untreated by the Pasteur method. The length of time which elapsed between the receipt of the bite and the onset of the symptoms is unusual, but there was no evidence to show that the man had been again bitten in the meantime, and even longer periods of incubation are not unknown.

(10) Schistosomiasis or Wading Fever.—A complaint which is not infectious in the sense of being directly communicable from the sufferer to others, but which is a somewhat serious matter for the person infected with it, is the disease known as Schistosomiasis, or Wading Fever.

This fever, the effects of which it is very difficult to entirely eradicate from the system, is caused by the entrance into the body of
the larvae or embryos of a worm, which, after they have penetrated the skin, work their way into the blood-vessels of the liver and bowels, and there set about producing enormous quantities of eggs. These eggs pass out through the walls of the bowels and produce symptoms like chronic dysentery. There is at present no known cure for this complaint. It is contracted by wading, without proper protection to the body, or by actually bathing, in ponds, rivers, flood-waters, and other collections of water near the Yangtsze, and also probably by bathing and wading in the water near the banks of the Yangtsze itself. No one need contract this disease if he remembers to wear thick putties and boots, and strong cloth or drill trousers or breeches when he goes out shooting, and if he refrains from bathing in any of the ponds, rivers, or streams in the neighbourhood of the Yangtsze. Failure to take these precautions may quite likely result in an attack of this variety of fever, with its unpleasant consequences.

Likewise it is advisable that all bathwater should be heated to nearly boiling point before it is used, and allowed to cool to the required temperature. This complaint can be contracted at any season of the year.

(11) Malaria.—This fever has been mentioned before as being on the increase in the Concession. It behoves everyone to see that all kongs of water for garden purposes are kept constantly treated with kerosene, and those containing water for household purposes kept well covered. By every way possible all flies and mosquitos should be destroyed, and there is no surer way of doing this than removing their breeding grounds.

ALEXANDER C. LAMBERT,
Health Officer.

IN MEMORIAM.

DR. LUCY A. GAYNOR.

Nanking,—Dr. Lucy A. Gaynor, who had been suffering from typhus fever for three weeks, passed away Sunday morning, April 21st. This fever was contracted while working in the Manchur city in connection with the temporary hospital that she had been conducting during the last three months for the poor and destitute in that part of the city, much of the funds for which was contributed by the Cloth Merchants' Guild.
Dr. Gaynor was born in Ireland, March 24, 1861, but was taken to America by her parents when a child, living in Chicago, Illinois. After a hard struggle to secure an education she entered the Northwestern University, Woman's Medical College, where she graduated in 1891 and was given a special certificate of honor for excellency in work, and was appointed to an internship in the Illinois Charitable Eye and Ear Infirmary 1891-92. She took postgraduate work in Philadelphia in 1898.

Her heart was early set upon medical mission work and in 1892 her desire was gratified and she was appointed to Nanking under the Friends' Missionary Society, though herself a member of the Methodist Episcopal Church. She gave herself at once to the learning of the language though immediately it became necessary for her to take up a certain amount of medical work. Her present hospital building was opened in 1896.

Having felt the need for many years of adequately trained nurses for the many cases in well-to-do Chinese families as well as among foreigners, she was able to see one of the fondest ambitions of her life fulfilled in 1909, when the present Union Nurses' Training School was organized and a modest building erected by the Friends' Mission. This Nurses' School, during the three years it has been in operation, has abundantly proved its effectiveness and value to the whole community, Chinese and foreign. At present there are eighteen nurses under instruction.

Through these twenty years of loving and devoted service in Nanking, Dr. Gaynor has established a name and reputation such as is given to few to achieve. She has been an exceedingly hard worker, for being endowed with unusual physical vigor combined with a strong will and great resourcefulness, she was able to bring things to pass which often to others seemed hopeless. All were constantly inspired by her buoyancy, her optimism, her comradeship. No amount of hard work, no crushing disappointment could daunt her, and she was never so happy as when she was working out some plan to help others. In her earlier days in China it was her greatest delight when, after caring for the sick in the wards and the patients in the dispensary, she could mount her donkey and ride out ten to fifteen miles into the country to preach the Gospel and to dispense medicine in the country villages.

She was very tactful and successful in dealing with both Chinese and foreigners, able to call out the best from every one, and to inspire all with a desire to work together for any good cause. Her conspicuous ability to accomplish things, her overflowing faith, her great love for all—but especially for the poor—and her utter disregard for place or
personal preferment all combined to give her a place of unique power and influence in Nanking.

The funeral service was held in the Quakerage Chapel at 9.30 Monday morning, and, in spite of inclement weather, many had to be turned away, and a large procession followed the remains to the cemetery nearly two miles away. We extend to her bereaved Mission our deepest sympathy and each one in the whole community has a very deep sense of personal loss.

DR. PAUL C. FREER.

Among the many who have lived and labored for the advancement of Medical Science in the Far East, none has been more zealous than Dr. Paul C. Freer, Director of the Bureau of Science in Manila and Dean of the College of Medicine and Surgery of the University of the Philippines.

It is with sincere regret that we record his sudden death which occurred in Manila about May 1st.

By his colleagues in the Philippines, and by many others who knew him only by name and reputation, Dr. Freer will be mourned as an able and conscientious worker in a field where "the harvest truly is plenteous, but the laborers are few."

C. S. F. L.
The China Medical Journal.

Vol. XXVI. MAY, 1912. No. 3.

The yearly subscription to the China Medical Missionary Association is $1 Mex., payable in January of each year. This includes the JOURNAL and postage on the same, whether local or foreign.

All changes of address, departures on and arrivals from furlough should be notified to the Secretary and to the Presbyterian Press. Members are requested to invite new comers to join the Association.

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

Editorial.

THE TRIENNIAL MEETING.

TO BE HELD IN PEKIN, JANUARY, 1913.

The Executive Committee hopes, with the assistance of the Pekin Committee, to be able to publish the program for the meetings, at least a tentative one, in either the September or November issue of the Journal.

There is a good deal of business to be transacted by the Association which will probably take from one and a half to two days to finish, and there ought to be sufficient material forthcoming for professional discussion to take up three or four days more.

There are a number of questions important and vital to the growth and welfare of the Association that ought to be settled: among them these: How is our publication work to be done in the future? For some years Dr. Cousland's services have been given to the Association through the generosity of the English Presbyterian Mission Board and his own personal liberality. While the Mission Board and the Doctor might be glad to continue the arrangement they are unable to do so. Is the Association prepared to assume the responsibility for the whole or a part of his salary?

Another very important matter is the election of a new editor—one who can give a larger part of his time to the Journal and to the Association; or shall we elect a man, and pay him a salary, who will conduct the business of the Association as its Secretary and Treasurer and edit the Journal with his office in Shanghai or elsewhere? The Secretary, the Editor of the Journal, and probably many members of the Association are convinced that the growing interests of
the Association and the work involved demand some such arrangement. The Wellcome Publication Fund has been of immense service; but it has been felt in some quarters that some per cent. of the fund should be available to cover secretarial and office expenses of its own work. On this account the Trust Deed still remains unsigned, and the Association will be asked to deal with the question.

Our relations with our fellow practitioners, Chinese and foreign, need to be more general and less circumscribed. There are doubtless other subjects that will come up for discussion at the meeting that will need to be decided.

Think these things over and send your comments, criticisms, and ideas to the Secretary, Dr. C. J. Davenport, 4 Shantung Road, Shanghai, as soon as possible.

MEDICAL JOURNAL IN CHINESE.

There appears to be a possibility that a Medical Journal in Chinese will be published shortly, both from Pekin and Canton.

We shall all hail their appearance with thankfulness, and hope that at the coming Conference a permanent and united Journal, financed and managed by the Association, will be established, which will supply the needs of our Chinese colleagues and helpers as our own China Medical Journal does ours.

Copies of the new Journal will doubtless reach the members shortly, or with the next issue of the China Medical Journal.

C. J. D.

Contributors to the Journal will confer a great favour on the Editor, when they wish more than the usual number of reprints, by making a note of the same at the head of the article (50 reprints). That will save extra notice from the Editor to the Press and any misunderstanding in case the said notice be lost or destroyed.

The Editor would also remind the members of the Association that he can not possibly keep up with their changes of address.

In case the Journal is not received, the person in question should write directly to the Subscription Department of the Presbyterian Mission Press, 18 Pekin Road, Shanghai, stating where he wants the Journal sent and for how long. Then such letters as, "I returned home last year and have not received my copy of the Journal since. Please send to my present address," will be impossible.
The Report of the International Plague Conference held at Mukden, April, 1911. 500 pages, 15 half tones, 3 colored plates. 1912. On sale by the Bureau of Science, Manila.

The resolutions passed by the International Plague Conference, and interesting communications from Dr. Aspland, its Secretary, have already appeared in the China Medical Journal, so that our readers have been given the gist of the proceedings. Nevertheless, the official report just published under the editorship of Dr. Strong, one of the American delegates, is indispensable to all who may be called on to take part in combating the dreadful scourge—should it ever reappear—which last year swept over an area of three thousand miles, and doomed to destruction nearly fifty thousand people. For the report not only contains all the discussions and findings of the Conference, including the full report to the Chinese Government, it also contains much valuable supplementary matter, which summarises the knowledge gained from the study of the epidemic. Dr. Petrie writes an instructive review from the epidemiological point of view, Dr. Arthur Stanley examines the measures employed to combat the epidemic, and its effect on trade. Dr. E. Signorelli reports some experiments in the agglutination of the organism of pneumonic plague, and Dr. Strong describes the clinical features of pneumonic plague as observed in the Manchurian epidemic, and gives an account of its pathology and bacteriology, based mainly on experiments of himself and colleagues, performed since the termination of the Conference, to settle various points concerning which no certain conclusions were reached. It is this new matter throwing additional light on plague problems which will now be reviewed, but more for our own edification than by way of criticism.

First, as to the common origin of the different forms of plague. During the epidemic, the idea became rather general that the organism of pneumonic plague differed in some respects from the bacillus pestis of bubonic plague. Apart from cultural variations, some physicians believed that while the bacillus of bubonic plague on inoculation into guinea-pigs gave rise to buboes, the bacillus of this epidemic on injection into these animals did not cause the bubonic form, but the pneumonic or septicaemic forms only. It was also claimed that the virulence of the organism of pneumonic plague was much greater than
that of the bacillus of bubonic plague. A careful series of experiments by Dr. Strong and his colleagues proves that the morphology, the cultural characteristics, and the agglutinative reactions of the germs of pneumonic plague, differ in no respect from other strains of *bacillus pestis*; which have been isolated during many epidemics of bubonic plague. Further, cutaneous or subcutaneous inoculation of the pneumonic strain into guinea-pigs, in doses small enough not to be quickly fatal, gave rise to the typical lesions observed in the same animals after inoculation with virulent bubonic strains.

Another point not quite settled by the conference, was the part taken by tarbagans in propagating the disease. In accordance with modern views of the etiology of human plague, it is necessary to seek for the primary source of infection in some animal. All were agreed that rats played little or no part in the spread of pneumonic plague. On the other hand, an epizootic disease had existed for a long while among the tarbagans in the district where the epidemic started; with symptoms corresponding very closely to those of bubonic plague. But the Conference decided that the evidence was insufficient to establish indisputably that the epizootic was plague. Professor Zalothy had sought for years to find the bacteriological proof without success, and among the four companies of men engaged in the fur trade near the station of Manchouli, where there were many cases of pneumonic plague, not one was affected during the epidemic. While the report was in the press, however, the professor wrote to the editor stating that he had at last found complete evidence of plague in a tarbagan, as he was able to identify the bacillus at the autopsy both microscopically and culturally. Is this one clear case of plague sufficient to establish beyond all cavil, the nature of the epizootic? Assuming that it is, and that it was bubonic plague only from which the tarbagans suffered, the question arises: What is the connection between bubonic plague in the tarbagan, and pneumonic plague in man? It has been already noted that strains of pneumonic plague injected into animals produce the typical lesions of bubonic plague. Does the converse hold true, that strains of bubonic plague when inhaled produce pneumonic plague? There is evidence that it does, as the statement is made that in monkeys, after infection by inhalation with either strain, bubonic or pneumonic, there results primary pneumonic infection of the lung with secondary septicaemia. It all seems to depend on the portal of entry. Of two tarbagans infected with plague by spraying them with the same plague organisms suspended in salt solution, the first, which lacerated its mouth by biting at the sharp nozzle of the atomiser, died of prim-
ary lymphatic infection and secondary septicæmia; whereas the second, which only inhaled the germs, died of primary plague pneumonia. All this lends support to the suggestion that perhaps bubonic or septicæmic plague in man, originating from a plague tarbagan, if a secondary, pneumonia supervenes and the patient expectorates freely on the bed, floors, and walls of the room, as he would be apt to do in his delirium, may give rise in another human being to primary pneumonic plague, and thereafter the infection "breeds true," producing only pneumonic cases, and becoming in this way a man to man infection. It is evident that the data bearing on the broad question of the relation of plague in animals to pneumonic plague in man, are still somewhat scanty and inconclusive.

Towards the close of the epidemic, involution forms of the plague bacillus were often observed in the sputum and blood of infected cases, and were regarded as evidence that the germs were losing their virulence. But swollen, degenerate, poorly-staining forms of the plague bacillus are frequently found in cases of most acute and virulent infection. It is the opinion of Dr. Strong, that involution forms are simply those plague organisms which have failed to hold their own in their struggle with the serum of the host, but their degeneracy does not lessen the virulence of the germs which hold, and more than hold, their own. In every infection a number of bacteria always become degenerated, show plasmolysis, or are killed in the attempt of the serum and cells to overcome the infection. The presence of these degenerate forms, therefore, is of little or no significance as an indication of the virulence of the infection, and this may be proved by inoculation experiments.

Concerning the direct mode of infection, it will be remembered that one of the conclusions of the Conference was to the effect that in the majority of cases, the disease was contracted by the inhalation of plague bacilli contained in droplets of sputum from a plague patient, and as experiments show that during normal and dyspnoëc respiration plague bacilli are not usually expelled in the expired air, it seemed permissible to infer that if there were no visible droplets, the danger of infection was not very great. But it has been proved that when a plague patient coughs, even when sputum visible to the naked eye is not expelled, plague bacilli in enormous numbers may be widely disseminated in the surrounding air, at a distance varying with the strength of the cough, the amount of mucus in the throat, and the currents of air in circulation. It follows that the wearing of masks and goggles, and the proper covering of abrasions of the skin, are
very important prophylactic measures to be adopted by all in attendance on plague cases.

As to the kind of mask that should be worn, Dr. Stanley states that after extensive trial of many kinds, the Conference decided unanimously in favor of a mask consisting of a cotton-wool pad broadly folded in plain gauze, ending on each side like a three-tailed bandage, one tail tied below the ear, one above, and the middle tail tied above the head like a jaw bandage to keep the pad from slipping down; and a cotton wool plug placed within the upper margin of the pad on either side of the nose, to fill up the open angles. The use of antiseptic gauzes, or of antiseptics on the cotton-wool was not deemed necessary. It is a pity that our confidence in this simple and inexpensive mask has been somewhat undermined by Dr. Strong's experiments. He finds that when *bacillus prodigiosus* suspended in salt solution is sprayed in the neighborhood of a person wearing this type of mask, if the spray is fine, the organisms pass through or around the edges of the mask, and may be recovered from the saliva of the individual wearing it. Therefore, the bacilli of plague if suspended in fine vapor may penetrate in the same way. It is a question which may well be asked, however, if the danger zone surrounding a plague patient resembles at all closely the forced and continuous bombardment with germs of the experiment.

The prognosis and treatment are disposed of with gloomy brevity.

"No cases in which the bacteriological diagnosis was complete have been known to have recovered during the epidemic. No method of treatment seems in any way to have been successful. Treatment with serum seems, in a few instances, to have prolonged the duration of the illness."

There are many other interesting questions well worth noticing, to which allusion cannot be made for want of space. Those interested in plague are sure to give the report careful reading. One last word. In these days of revolution, when so much is said in condemnation of the Manchu Government and so little in its praise, let it be remembered that in the last year of its existence, it summoned this Conference in presence of a great national emergency, gave intelligent and practical support to its recommendations, and otherwise did all in its power to check the ravages of a most virulent epidemic which threatened to extend over the whole empire; and that the combined labors of Government and Conference were marvellously successful.

E. M. M.
Medical Service in Campaign, Straub. Published by P. Blakiston's Son & Co., Philadelphia, Penn., U. S. A.

This is an exceedingly well written handbook covering the Subjects of Military Medicine, Hygiene, and Tactics applicable to Field Service. No detail is omitted, and under the headings of organization, administration, transportation, battle dispositions, dressing stations, field hospitals, communications, etc., will be found data of a medical nature, that compares with the information and instructions contained in the Field Service Regulations of the United States Army. All are treated in an able, concise manner, and there is a marked freedom from unnecessary or confusing technicalities, rendering the work valuable not only to the Medical Officers of the regular army and auxiliary forces, but to the line officers as well. The chapters on Map Reading and Weapons will prove most interesting and instructive to Medical Officers, by whom these important subjects are not usually too well understood.

The work contains a profusion of tables, plates, and maps illustrating the text. The paper used is excellent, and the type clear and distinct, and readable without fatigue. The binding is substantial, and the dimensions of the book are such that it may readily be carried in the pocket.

The work is official, having been prepared under the direction of the Surgeon General of the United States Army, and holds the interest of the reader, from cover to cover.

S. A. Ransom, M.D.
Medical Officer American Consulate General.
Captain S. V. C., Commanding American Company, Shanghai Volunteer Corps.

March 29th, 1912.

Medical Progress.

Dr. Frank Van Allen, the American Board Missionary doctor in Madura, India, recently gave a lecture to the students and Faculty of the Medical Missionary College in Battle Creek, Mich. The following is a summary of it:

Epidemics differ in intensity and in virulence. In an epidemic of cholera almost all of those who are first attacked die, and almost all of those who are attacked toward the last, get well, showing that the virulence of the disease exhausts itself. Something can be done to help nature, and we are often rewarded by it, but we who have to deal with it feel very depressed at the beginning of an epidemic of cholera, and we feel very pleased at the end of it.

Attention might be called to the rapidity of the disease. It comes on very quickly, and the victim is down in collapse in a very short time, and presents a most fearful picture with sunken eyes and cheeks. His voice is husky, and he is fearfully thirsty and is crying for water, and the picture is a terrible one to remember. An epidemic of cholera begins absolutely without warning, not particularly during the rainy season, or the sunny season, or at any particular season of the year. We can never tell when it is going to appear. The first we know of it, is when a messenger comes and says he wants medicine for somebody who is ill with cholera. He is not much more than gone before somebody else comes and wants medicine for cholera. Then you know you are in for a siege of cholera, and that you are going to have an awful time.

Treatment:—I have lived in India for some years and have had a good deal of experience and have gone through all the vicissitudes of the changing treatment for cholera, trying this treatment and that treatment, trying everything on earth that anybody can think of, but for some years I have settled down to the following treatment as being the most available and promising. When I go to a case of cholera, the things I take are about one hundred calomel tablets, one-tenth grain each. The second thing is a two-ounce bottle of mustard and about twenty ounces of common turpentine. There is not much use of waiting for diagnosis. The case is very plain. And without waiting a minute, because the disease is so quick in its action, I do not stop to pull out the cork of the bottle of mustard, but hit the neck and break it off, get a piece of cloth, pour the mustard on to it, add cold water to it, make it into a mustard plaster and put it on to the man's abdomen, and tie it on with a good wide bandage of cloth. The reason for tying it on is that the man will begin to roll by and by, and the mustard plaster will not stay on very long unless it is tied on. You will do well to keep it on twenty minutes.

The next thing after getting the plaster on is to begin with calomel. I have found it to be good to give one-tenth grain every ten minutes until ten grains have been taken. That is a pretty round dose, and the man may feel so much better after you have given the ten grains that you do not have to go further. We have had to build fires around people in some cases to keep them warm, and we have tried everything on earth you can think of, and there is nothing I have found...
to be so good in my mind as calomel. Calomel acts on the liver, the liver secretes bile, and bile is one of the natural disinfectants of the intestine. And I think the success of calomel is due to that reason. The way of giving the calomel is important. I usually take a teaspoon about half full of water, put a tablet of calomel in it, carry it to the patient's lips, and he takes that water with the greatest pleasure. We can not give him all the water he wants, because it would cause vomiting, and I have observed that vomiting brings out perspiration, brings down the pulse and reduces the vital and resisting power far worse than the ordinary ejections. The most important consideration of all is to stop the vomiting, and the effect of mustard is to stop it.

Then the turpentine. I usually get four people to rub the patient with the turpentine. I began with rubbing the body all over, but after having treated people for a good long time that way, I have found that it gives them more relief to rub the palms of the hands and the soles of the feet than anywhere else, and when cramps in the legs come on, as they will sooner or later, and then cramps in the abdomen, which are very agonizing and cause the patient to shriek with pain, vigorous rubbing on the bottoms of the feet relieves the cramps quicker than anything else. Turpentine is antiseptic, and every person in the room is likely to get cholera himself, because he will almost surely get some of the infection on his hands. The effect of the turpentine is to make the hands aseptic, and that is not a small consideration.

When I get hold of a case of cholera I tell the people to get four coolies. Labor is so very cheap in the tropics, I usually give them a rupee each, and that is about four times what they would ordinarily get for a day's labor. I do not hesitate because they are poor people, for in that case I pay for this labor myself. So I tell them to get four coolies as quickly as they can, and in the meantime I have some members of the family rubbing, and I usually get down and rub too, and thus disinfect my own hands. Turpentine is a safe thing to have around in case of cholera, because of its disinfectant qualities. After having rubbed the patient for three or four hours these four men are tired out. It is practically massage. They have to go off and lie down, and we get another four. So I usually reckon that a case of cholera is going to cost somebody about eight rupees for rubbing. This is the best treatment for cholera that I have found.

One warning: do not use opium for cholera. There are very many mixtures for cholera. Chlorodyne is one of the common remedies. In India every family has a bottle of chlorodyne. It contains opium, and is one of the worst things one can give for cholera, and yet one of the things people always fly to in an attack of cholera. There are two reasons why opium should not be used. One is it stops the action of the liver and prevents the secretion of bile and the germs have a good time multiplying and disporting themselves, and the opium helps them to do it. It is true that opium stops peristalsis, and in that way it helps, but in other respects it is a very bad thing. Perhaps in an epidemic of cholera there is not a house anywhere but somebody is down with the disease, and people are just as afraid of cholera as of death; and some friend will happen in to see how the patient is getting on, and he gives him a dose of chlorodyne and goes away. Some other friend
comes in and repeats the dose, and the man dies of opium poisoning instead of cholera.

Kate C. Woodhull (M.D.)

Acetyl-salicylic Acid.

In an important article in the B. M. J., January 20th, 1912, by Dr. Graham Chambers of Toronto on acetyl-salicylic acid he controverts the theory that the actions of this drug and of salicylic acid are the same. He holds that their actions after absorption are different, and that acetyl-salicylic acid is absorbed, at least in part, before decomposition in the alkaline intestinal juices occurs. The difference in action is probably due to the radicle acetyl which as a rule augments the analgesic and antipyretic actions of compounds; e.g., acetanilide and phenacetine.

As an analgesic it is useful, in addition to the relief of the milder forms of pain, in relieving the pain of diseases of the bone and joints and of malignant disease.

As an antipyretic, its action is due to the effect on the heat-regulating apparatus (sweat glands, heat centres, etc.), and this property is present to a much greater extent than in the case of salicylic acid.

The following observations afford evidence that acetyl-salicylic acid is a more potent antipyretic than salicylic acid:

"To ten patients with typhoid fever of moderate severity we gave six grains of sodium salicylate every four hours, and carefully observed the course of the temperature, etc. The skin did not become moist, and we were unable to detect any result from the administration of the drug. After five days the salicylate was replaced by acetyl-salicylic acid exhibited in 3-grain doses every four hours. The result of the change was almost immediately apparent. The skin became moist, and the temperature was lowered; the degree of sweating was variable. In some cases it was very slight, while in others it was profuse. In cases in which there was little sign of action the dose was increased to four or five grains.

Acetyl-salicylic Acid in Typhoid Fever.

In the prognosis of typhoid fever the course of the fever is an important consideration. A very high temperature, say above 104° F. every evening, maintained for one or two weeks, and unaccompanied by considerable morning remissions, should be considered a danger signal. On the other hand, a low or comparatively low course suggests a favourable outcome. Indeed, in my experience, the mortality in the latter cases has been practically nil. Again, most physicians agree that in the treatment of typhoid fever it is essential to keep the fever under control, because high fever in itself, irrespective of its cause, is harmful. The question whether cold baths or cold spongings are superior to antipyretic drugs, etc., cannot be discussed here, but in private practice, and sometimes in a hospital, either from want of proper facilities or insufficient aid in nursing, it not infrequently happens that hydrotherapeutic measures prove insufficient to control the fever. The question then arises whether it is better to allow the fever to run its high course or call to use antipyretic drugs. Two years ago I decided in favour of the latter view, because it was found that the exhibition of acetyl-salicylic acid in small doses, three to five grains every four hours, combined with tepid or hot sponging, was generally an effective means of
lowering the temperature. The exhibition of the drug in this dosage to typhoid patients does not alter the blood pressure or produce any appreciable ill effects. The skin remains moist, and in some cases there is profuse sweating. The greatest effect on the temperature is obtained by sponging the patient about half an hour after the administration of a dose of the drug, in this way combining the antipyretic actions of the medicinal and hydrotherapeutic agents. It is probable that other beneficial effects are derived from the exhibition of acetyl-salicylic acid. The increase in the amount of perspiration should diminish the toxæmia, although it is very difficult to estimate how much endotoxin is excreted with the sweat. As a clinical observation I may mention that the patients were all of the opinion that they felt better during a moderate degree of perspiration, and to me they seemed clearer mentally, and more willing to carry out other parts of the treatment, such as the drinking of water, etc.

I have been especially impressed with the marked diaphoretic and antipyretic actions of the drug. Three grains every four hours had frequently considerable effect, and in most cases five grains at the same periods produced profuse diaphoresis. In only one case were we compelled to increase the dose above five grains. In two cases—one treated during September, 1909, and the other during October, 1910—five grains every four hours appeared almost too active, as the temperature charts show a fall in temperature of 9° and 10° respectively during the exhibition of the drug; there was no untoward effect during the fall of the temperature, but in the case of antipyretics which act as acetyl-salicylic acid does, one does not like to see such precipitous action. In giving acetyl-salicylic acid to typhoid patients, it is desirable, therefore, to commence with a dosage of three grains every four hours; if this should not be sufficient, the quantity should be gradually increased until the desired effect has been obtained. The reason why acetyl-salicylic acid is more effective as an antipyretic in typhoid fever than in most other fevers is, probably, that the fever of typhoid fever is frequently labile in character. This theory also affords an explanation of the undoubted value of hydrotherapy in the treatment of the disease, because it is found that the more readily the temperature can be reduced by a bath or sponge the better the prognosis.

The Mode of Administration.

When a drug is given dissolved in water, its action is usually quickly manifest, because it almost immediately passes into the intestine and is absorbed. This principle is of special importance to the exhibition of acetyl-salicylic acid, because the shorter the stay in the gastro-intestinal tract the less the decomposition of the drug. The drug should therefore never be administered in tablet form, but in solution. It is only slightly soluble in cold water; it is freely soluble in water containing sodium bicarbonate; the application of heat to a solution in water tends to decompose the drug.
General

In submitting this seventy-third annual report of the Medical Missionary Society's work it is with gratitude to God that we show a year of uninterrupted service. In the midst of political turmoil and social unrest, with the peace of the city and surrounding country seriously disturbed, the hospital doors have been open day and night for the reception of patients, and many poor sufferers have here found the relief and sympathy of which they were in such need.

At times it seemed probable that we would have a similar experience to that of half a century ago when the Society's medical work was continued while shot and shell were flying overhead and the city of Canton was being bombarded. The fixed and benevolent purpose of the Medical Missionary Society is shown by the fact that in all the changes during these past decades, and during times when, as this past year, government, society, and institutions were shaken to their very foundations, this work has continued without interruption, the doors of the Hospital never having been closed to the relief of suffering humanity.

While the general character of the hospital work has been the same as in former years, numerous cases of gunshot and accident injuries have been a feature, and these have taxed the time and energy of the physicians. This emergency work has required some one of the physicians to be in constant attendance. Without any notice whatever cases of severe injury are brought in which require immediate attention. One Sunday afternoon eighteen cases of injury were brought in together. At another time, twenty-four. For several weeks during the latter part of the year, cases of this nature were received almost every day.

The indications up to November 1st were for a record year in attendance, but the disturbed state of the country during November and December hindered patients traveling, and the attendance during this time was less than usual.

The members of the Hospital Staff have enjoyed good health, few changes having taken place, the only important one being the resignation of Mrs. Ings who was at the head of the nursing department. This was rendered necessary by the continued ill-health of Mrs. Ings' mother, requiring the former to return to her home in Scotland. Dr. Nye Sik Pang who for many years has filled the position of house physician was obliged, on account of outside work, to resign, though he still renders us valuable service when extra help is needed. The positions of native house-physicians have been efficiently filled in the men's department by Dr. Kwok and Dr. Lo, and in the women's department by Dr. Lam. Dr. Kwok and Dr. Lo were first and second prize men in the medical college class of 1910.

It should be remembered that the Medical Missionary Society's work is unique in being probably the only organization of its kind conducted on a basis of local self-support, practically no funds coming from abroad except those contributed by visitors. The Society
supports its entire staff, both foreign and Chinese, and pays all current expenses. Enlargement and better equipment are needed and we trust the friends of this work will contribute the funds necessary to meet the expense along this line.

The continued efficient management of the boarding department has been of great value. In addition to the payment of all current expenditure in this department, a cash surplus of fifteen hundred dollars has been paid to the hospital current account. The installation of the steam plant for hot water, sterilizing, and cooking purposes promises to effect a considerable saving in our fuel bill which is always an important item of expense.

Evangelistic

The religious aspect of the hospital work continues to occupy an important place. Daily services and regular evangelistic work in the wards have been conducted with gratifying success.

A marked interest in and a greater willingness to listen to and study Christian truth is more in evidence of late. Not a few Chinese have the idea recently expressed by a leading business man that Canton was going to turn out all the idols and worship the foreigners' god. Let us hope that seekers of truth may seek in the right way and avoid such fanaticism as was recently shown by the large mob which attacked and utterly destroyed everything in one of the oldest and most celebrated temples in this city, simply for the purpose, as they declared, of getting rid of the idols.

We have tried to care for the sowing of the seed of Gospel truth, realizing that there are often great after-results, though they may not be known to us in detail.

Medical

In addition to the usual classes of surgical cases, we have had an unusual number of gunshot wounds and severe lacerations caused by the use of high explosives. As a result of the bomb explosion which killed the Tartar General, Fu Chi, twenty-four cases of injury were at once sent to the hospital. Two succumbed to their injuries which were necessarily fatal. Three required major amputations, several were only slightly injured, while the majority were obliged to spend weeks in the hospital before recovery was complete.

The unexpected recovery of cases severely injured demonstrates the remarkable vitality of the Chinese. Among these were two cases of severe gunshot wound involving lung tissue, accompanied by marked emphysema. Recovery was apparently complete though in each case the missile remained in the chest. Of seven severe penetrating wounds of the abdomen complicated with hernia of intestine or omentum, two were complicated with pronounced hemorrhage, two involved fracture of ribs, and one a perforation of the small intestine. These all recovered. One case, infected previous to entering the hospital, succumbed, death being due to acute general peritonitis. An unusual form of gunshot wound was that of an adult who had received a bullet, evidently of considerable size, on the left side of the abdomen, the missile passing directly across, just below the umbilicus, severing all the soft tissues down to the peritoneum, leaving that membrane quite exposed for about five inches, but uninjured. Some unskilled hand had attempted "first aid" by introducing about forty very fine stitches barely through the integument, leaving
arteries and the retracted severed muscles to care for themselves. After clearing the wound and bringing the severed muscles well together, the wound—some eight inches in length—was closed and recovery took place without any complicating peritonitis.

In the majority of cases requiring amputation the patients submitted to the operation, one exception being that of a compound comminuted fracture involving the upper third of the left humerus, the bone having been shattered by a bullet. The patient and his friends positively refused to allow amputation of the limb, which was clearly indicated. During a tedious convalescence of about three months' duration, the patient comforted himself with the thought that he knew more than the doctors, and would go out of the hospital without a coffin in place of within one, the latter alternative having been impressed upon him if he refused amputation which was urged. While his life has been spared the arm is of little use as the median nerve had evidently been destroyed at the time the injury was received.

The remarkable force of a bomb explosion was demonstrated in one case by a piece of ordinary pine wood two inches long, a little over an inch in width and one fourth inch thick, having been forced directly into the center of the cancellous head of tibia, considerable difficulty being experienced in extracting it. The patient made a good recovery. Our X ray outfit has been specially valuable in many cases of injury this past year.

The somewhat smaller number of lithotomy operations (fifty-three) is accounted for by the diminished attendance of country patients during the last two months of the year. A tabular statement of ten hundred and thirteen cases requiring lithotomy during twenty years previous to 1911, is being issued under separate cover, and with it an article on the subject of Stone, dealing more particularly with the etiology and treatment of this painful affection. Few hospitals exist which can produce such a record as this hospital holds.

Dr. Thomson, though busily engaged in the study of the Chinese language, has been regularly engaged in operating room work throughout the year, and in other ways has been of great service.

The usual tables of statistics, list of operations, statement of accounts, etc., for both Hospital and College are appended herewith.

For convenience, the following summary of hospital statistics is made up from table number one.

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<th>Out-patients</th>
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<th>Surgical Operations</th>
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<td>Women</td>
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Correspondence.

To the Editor of
"The China Medical Journal."

Dear Sir: I have just received a letter from Prof. G. H. F. Nuttall, F. R. S. of Cambridge, asking for information regarding the existence of Piroplasmosis among horses in China. As I believe the Medical Journal is the best means available for this purpose, I herewith enclose a copy of Prof. Nuttall's letter, with the hope that you will be good enough to insert it in the next number of the Journal.

I shall be glad to forward any films or information to Cambridge, should your readers not desire to do so direct.

Yours faithfully,
Wu Lien-teh, M.D., (Cantab).
Army Medical College,
Tientsin, April 10th, 1912.

I desire especially to know if Piroplasmosis occurs in horses in any part of China.

If you do not yourself know about the matter, will you kindly pass this letter on to anybody you think may be able to give me the information desired. Or if you know of anybody who may have specimens, I should be very much indebted to you if you will let me have their names and addresses so that I can write to them on the subject. Any help which you may be able to give will be greatly appreciated and duly acknowledged. If I can be of any help to you in return, please let me know.

Yours very faithfully,
(Sgd.) G. H. F. Nuttall.

To the Editor of
"The China Medical Journal."

Dear Mr. Editor: An insatiable thirst for knowledge and my great admiration of the Rights of Man lead me to read almost everything contained in it. On the principle, "Homo sum: humani nihil a me alienum puto," I even scan the personal items, although my acquaintances in China are not very numerous. Accordingly I read the announcements of the births in the March number with my usual interest, but this time also with wonder, for all the new arrivals were daughters! Of course one ought not to make sweeping assertions on insufficient data, still figures are figures, and judging by these announcements, one hundred per cent. of the children born to medical missionaries in China are daughters.
With fear and trembling, Mr. Editor, I ask what is the meaning of this? We know that the Chinese vastly prefer boys to girls, and this overwhelming preponderance of foreign girls may be intended as a rebuke to them for their partiality; or perhaps it is an encouragement to them to revise their notions in this respect, while they are making so many other revolutionary changes. That is barely possible. Or it may be a hopeful sign that all the conditions in this country favor anabolism rather than katabolism, though in certain districts it cannot be denied that the conditions are far more katabolic than the majority desire. If I could feel sure that either of these hypotheses led the way to the correct solution I would be in peace. But there is a haunting suspicion in my mind that perhaps the Suffragette Movement has something to do with this disturbance of the normal equilibrium of births, and being a sensible man, I am very much prejudiced against the suffragettes. It is bad enough that the movement is making such headway in the homelands, and that even the girls of China are becoming Amazons and suffragettes, but if medical missionaries are going to join the movement, and the so-called gentle sex is to be numerically reinforced at this alarming rate, with a corresponding diminution of our unfortunate sex, the outlook is very serious indeed. We may as well capitulate at once, or we shall soon be as extinct as the dodo. There is just one gleam of hope. Even that poor bird the dodo (दुङ्ग) has recently come to life again in China, and is held in great honor. But I shall remain full of gloomy forebodings, until a satisfactory explanation is forthcoming.

Yours dejectedly,
MISOGYNIST.

To the Editor of
"THE CHINA MEDICAL JOURNAL."

DEAR DOCTOR: You may be interested to know that the Canton Government in now employing six foreign-trained Chinese physicians, one a graduate of Edinburgh University. Smallpox vaccines are already being made, and they soon start work on serums. Post mortems are also being done. They now require death certificates. There are plans for the commencement of a Government Hospital and strong possibility of a Government Medical School also. And then a foreign physician arrives shortly to join our staff. Our training school for men and women nurses is now in full swing. In the first year class we have ten. We also have one of Dr. Niles’ blind masseuses in the hospital.

Very sincerely yours,
J. OSCAR THOMSON.

March 21st, 1912.
Personal Record.

BIRTHS.

At Shanghai, March 23rd, to Dr. and Mrs. J. R. Cox, Canadian Methodist Mission, a daughter, (Lois Elinor.)

At Weihwei fu, Honan, April 6th, to Dr. and Mrs. S. O. McMurtry, C. P. M., a son.

In Dublin, Ireland, April 25th, to Dr. and Mrs. Arthur F. Cole of the C. M. S. Hospital, Ningpo, a daughter.

DEATHS.

At Yiyang, Hunan, March 3rd, Deaconess Dorothea Guldbrandsen, Norwegian Missionary Society, from heart paralysis, aged 54 years.

At Nanking, April 21st, Dr. Lucy A. Gaynor, Am. F. Mission, of typhus fever.

ARRIVALS.

At Moukden, February 5th, Dr. T. C. Borthwick, Church of Scotland M.

At Shanghai, February 11th, Dr. P. K. Hill, and Dr. and Mrs. W. A. Tatchell and child, Wes. M. Soc.

At Shanghai, April 24th, Dr. and Mrs. R. W. Dunlap, A. P. M.

DEPARTURES.

February 5th, Dr. A. J. Henry, Can. M. E. M., for Canada.

February 17th, Dr. and Mrs. R. T. Booth and family and Miss Booth, Tr. N. Wes. M. Soc., for England.

March 28th, Dr. L. M. Grandin, Un. Meth. M., for England.

March 29th, Dr. and Mrs. W. J. Scott and child, Can. P. M., for Canada.

March 31st, Dr. J. E. Skinner, M. E. M., for America.

April 12th, Dr. and Mrs. T. W. Avvers and family, So. Bapt. Mission, for America.

April 23rd, Dr. C. P. Johnson, A. P. M., for America.
WANT DEPARTMENT.

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

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