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EGGS OF HUMAN PARASITES
(Magnified two hundred and fifty diameters)

HENRY P. WARD  
(REFERENCE HANDBOOK OF THE MEDICAL SCIENCES)

Common objects found under the microscope in the examination of the tissues. (R. V. Jaksch.)


Various forms of plant cells, k. Triple phosphate crystals. The black dots represent various forms of micro-organisms.


Eggs by reduced transmitted light.

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Original Communications.

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A SUMMARY OF RECENT INVESTIGATIONS ON DISEASES OF CHILDREN.

By Edward H. Hume, B.A., M.D.

The literature on Diseases of Children during the past year has not shown a strong drift in any particular direction. The feature of the year has been the discovery and successful use of a serum for epidemic cerebro-spinal meningitis. A great crusade has also been undertaken, looking towards the prevention of disease in early life. In the following review, special attention will be given to disorders of nutrition and to infectious diseases.

DISORDERS OF NUTRITION.

The cause of this nutritive class of disease is almost entirely an ignoring of physiological teaching and consequent errors in feeding. Not only do people fail to adapt the food of an infant to the period of development of its digestive organs, but too great attention is paid to the age of the child and too little to its individual stage of development. Although such diseases of nutrition cause many deaths in the first two years of life, their danger lies chiefly in making the individual vulnerable to other diseases, which, according to their greater or less virulence, may lead to irreparable crippling and even death. Less attention to drugs and more to enlightened methods of feeding should be the program of the physician, whose prime duty it ought to be to educate. Not only among the Chinese do we need to urge more rational feeding procedures. Within four weeks I have seen and corrected the dietary of four foreign children, all of them in homes.

* Read at a meeting of the Kuling Branch, C. M. A., on August 25th, 1908.
where the mothers took special pains with the food of the child, but where trouble arose because of a lack of enlightened training about feeding. Several factors claim our attention: the kind of milk, the proportion of fat in it, the use of cereals for diluents, and the use of other foods. (I refer now to the diet of infants.)

1. The kind of milk.—Wentworth* has shown that milk is a very highly specific food, that each species has its own characteristic milk, and that on this milk the young of the species thrive best. Cows' milk is adapted to the calf and not to human infants. Owing to their adaptability to abnormal conditions, average infants can adjust themselves to cows' milk if given a favorable chance. When, in spite of precautions, an infant cannot so adjust itself, it becomes atrophic. The following hypothesis has been laid down to account for such atrophy: "The digestive functions of the very young infant are not activated because it does not receive the only food capable of properly activating them, namely, human milk. This leads the stomach to secrete an inadequate gastric juice. The absence of adequate gastric juice, in turn, does not stimulate the duodenum to form normal secretion. This defective secretion insufficiently stimulates the pancreatic secretion and leads probably to as yet unstudied disturbances in the function of the gut lower down." Wentworth hopes to be able to say in the near future whether it is hitherto overlooked specific substances or chemical composition that renders each kind of milk specific. In older children, malnutrition is due to two factors—defective nutrition due to ignorance of food values, and excessive expenditure of energy with inadequate rest. Kerley† insists that in order to attain the best physical development, the child, up to the eighth year, should sleep twelve hours out of the twenty-four. Late hours, entertainments, frequent children's parties, etc., are to be deprecated and deserve part of the blame sometimes put upon overwork at school.

2. The proportion of fat.—Emphasis needs to be laid upon the fact that many cases of intestinal indigestion are due, not to trouble with proteids, but to an excess of fats in the milk. Care should be taken to differentiate, while examining the stools, between undigested curd of casein and undigested masses of fat. With our present knowledge of modifying milk, it is a comparatively easy matter to reduce either the percentage or the amount of fat in the milk formula for any given child. Many children, especially during the second year, need to be taken off

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† Kerley: *Medical Record*, 1907, July 27.
an ordinary milk formula and given skimmed milk, with beef juice, to avoid disturbances due to excessive fats. Lamb* has recently reported several cases of acute intoxication by fat, and asserts that the appearance of fat in the stool of normal children is often the first sign of approaching illness.

3. The use of cereals for diluents.—While the question of the digestibility of starch by very young infants has been fairly well settled through the work of recent investigators, who show that the saliva of infants has a definite diastatic action on starch, the divergent results are largely due, as Ladd† points out, to the most inaccurate methods employed by those who prescribe starch decoctions. For instance, on analyzing the decoctions prepared according to the formulae given by six different writers, he found the starch percentage of these to vary from 0.64 to 6.00 per cent. After careful study, he found that in properly prepared cereal decoctions, made with prepared barley flour (the two having practically the same composition), the percentage of fat and the percentage of proteid added to any mixture by the cereal is very small. He recommends the use of a stock solution or stock cereal decoction, prepared by using $2^{1/2}$ ounces of either barley or oat flour to 32 ounces of water, cooking for thirty minutes, and adding sufficient water to bring the amount up to 32 ounces; the starch percentage therein being 3.50. This solution is as thick as can conveniently be strained. Any percentage of starch can thus be obtained in a modified milk by using the following formula.

\[
\text{No. of ounces of cereal decoction needed} = \frac{\text{Starch percentage desired} \times \text{total no. ounces of milk mixture}}{3.50}
\]

The rational method would be to commence the administration of starch in low percentage, e.g., 0.25 per cent., working gradually up to 1.25 per cent. A practical point is that an ounce of flour by measure is practically the same as by weight, and therefore the same graduate can be used for the flour as for the milk.

4. The use of substitutes for milk during disease.—It is a fact which we all recognize that during acute gastro-intestinal disorders, milk is often a real poison to young infants. I want to emphasize the fact that in chronic intestinal indigestion this is also true, unless the milk be peptonized to a greater or less degree. Let it be fully realized that a child of one or two years, who is peevish, restless and sleepless, losing in weight, and passing foul-smelling, curdy or fatty, white

* Lamb: Archives of Pediatrics, 1908, June, page 424.
† Ladd: Archives of Pediatrics, 1908, April, page 257.
stools, needs a sudden and radical change in his diet. His milk should be peptonized thoroughly, and above all, he should be given a daily feeding of scraped rare beef or beef juice, or both. In addition, he may be allowed the fresh juice of either grapes or oranges. When neither of the latter is available, the bottled unfermented juice of the grape is an excellent substitute. His feedings should be at long intervals, and he should be given nothing to eat except the limited diet described until improvement sets in, after which he may be given zwieback to nibble on. Return to full diet should be very gradual. I have had a case under my care not long since, where it was nine months before the child was back on regular diet.

Recently Lamb* has drawn attention to the calorimetric standard as a check upon methods of feeding. Knowing the amount of energy that a given child needs in twenty-four hours, as well as the energy equivalent for fat, carbohydrate, and proteid, it is easy to determine the number of the calories in any given milk mixture. The energy equivalent of 1 gram of fat is 9.1 calories; of 1 gram of carbohydrate, 4.1 calories; of 1 gram of proteid, 4.1 calories. The amount of energy necessary in twenty-four hours is, for each pound of body weight, 45 calories in the first three months of life; 40 to 45 calories in the second three months, gradually decreasing to 32 to 35 calories per pound at twelve months. Thus, a child weighing 10 pounds, three months old, would require 450 calories in twenty-four hours. It has been found that too close adherence to the percentage system of modifying milk, may lead to overfeeding. Infants that ought to be receiving 45 calories per pound have been found getting 55 to 135 calories. The result—intestinal indigestion, atrophy, acute inflammation, etc.

In the treatment of intestinal fermentation in infancy, a practical application has been made by Tissier† of the observation that in intestinal disease a bacterial transformation takes place. The normal bacteria disappear and abnormal bacteria take their place; one in particular, the Bacillus perfringens causing necrosis of tissues. Tissier shows that the indications for treatment are to remove the fermenting intestinal contents by purgation and water diet, and to cause a reappearance of the normal intestinal flora. The latter object can be furthered by diminishing the proteid and increasing the carbohydrate in the food, and can be more specifically obtained by introducing into the intestine an organism tending to inhibit the growth of abnormal forms and to overcome them and cause their disappearance. He found that both B.
bifidus and B. acidi lactici stopped the development of the B. perfringens, and selected the latter because it is more easily handled. In cases of fermental diarrhoea, Tissier gives his patients pure cultures of the lactic acid bacillus, and under this treatment notes a rapid transformation of the stools, subsidence of the symptoms and gain in weight. Dunn*, continuing the studies, selected buttermilk as a convenient vehicle for the giving of lactic acid bacilli. In 9 out of 35 cases the bacilli produced no effect, but these were all cases of irritative disease. Of the fermental type, 23 were successfully treated with the bacilli; only 2 failing. Buttermilk was shown to have some specific action, for in 14 cases where it was given in pasteurized form, there was failure to improve. But when the pasteurization was stopped, no other change being made, there was immediate improvement.

INFECTIOUS DISEASES.

1. Gonorrhea.—The intensity of the effect on a newborn child of gonorrhoeal infection in the mother is forcefully brought out by Lobeustine and Harrar,† who found the gonococcus present in the genital tract of 50 out of 250 mothers examined. In these cases their findings were as follows:—(1.) The average birth weight of babies of gonorrheal mothers is less than that of babies of normal mothers. (2.) The average initial loss is more pronounced in the gonorrheal babies—5.82 per cent. as against 4.74 per cent. (3.) The amount of loss regained on the tenth day is only 10.9 per cent. in the gonorrheal babies as against 49.3 per cent. in the normal babies. (4.) The gonorrheal babies show both more temperature disturbance and more intestinal disturbance than normal babies.

2. Cerebrospinal Meningitis.—What gives promise of being a remarkable advance in managing this distressing disease is the serum treatment inaugurated some months ago by Dr. Flexner, of the Rockefeller Institute for Medical Research.‡ At the recent annual meeting of the American Pediatric Society, Dr. Flexner gave a résumé of the results obtained in about 300 cases of the disease in which the serum had been used. Briefly the report showed the following: (1.) The serum has never been followed by any injurious consequences. (2.) There has been a decided reduction in the mortality of the disease. Taking all the cases together without selection, the mortality of the cases treated by serum was under 30 per cent. This is in marked

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* Dunn: Archives of Pediatrics, 1907, April.
‡ Archives of Pediatrics, 1908, June, page 450.
contrast to the general mortality of the cases treated by the usual methods, for in the New York epidemic of 1904, there was 2,350 cases with a mortality of 75 per cent. Of infants under 1 year old, practically every one died. In Belfast, during the present epidemic, the general mortality outside the hospital has been from 75 to 80 per cent. In the hospital where the new serum treatment has been used, the mortality has been 26 per cent. In Akron, Ohio, there were 9 cases treated without serum with 1 recovery, and 12 cases treated with serum with 9 recoveries. Of 14 infants under 1 year treated by serum, 9 recovered. More striking than the reduction in mortality is the amelioration of the symptoms following the use of the serum. The temperature curve is markedly influenced; there being either a rapid drop or crisis in the temperature within 48 hours, or there has been a lysis of the fever in seven or eight days. In addition there is cessation of the pain and hyperaesthesia, a clearing of the mental state, resumption of interest in surroundings, and ability to take food. The opisthotonos and Kernig's sign were the last of the symptoms to be influenced; often persisting for days after the patient was otherwise well. The whole course of the disease has been very much shortened—to a week or ten days in many instances, which is in marked contrast to the length of the illness in former cases of recovery. Of 350 cases that recovered in the New York epidemic of 1904, the disease lasted for five weeks or longer in 175 cases. Lastly, the effect of the serum can be tested objectively under the microscope, for there are important changes that take place in the cerebro-spinal fluid after the use of the serum. After the first injection there is observed a lessening of the meningococci in the fluid outside of the cells. After successive injections, there is observed a lessening in the number of those in the cells; the organisms become swollen and indistinct, and moreover fail to grow in cultures. Finally they disappear altogether, and the amount of the cerebro-spinal fluid becomes rapidly less. The technique of treatment is very simple. Under stringent aseptic precautions, the excess of fluid is drawn off from the cerebro-spinal canal by lumbar puncture. Then, without removing the needle, from 20 to 30 c.c. of the warm serum are injected slowly into the spinal canal. The procedure is to be repeated daily or every second day until the temperature falls and the general symptoms have improved, (The serum can be obtained from the Rockefeller Institute for Medical Research, New York City).

3. Acute Poliomyelitis.—During the summer of 1907 an epidemic of infantile paralysis occurred in New York City and vicinity. There
Diseases of Children.

were probably over 2,000 cases, and their severity was so intense and deaths so frequent that a great deal of study has been elicited; records of 44 distinct epidemics being now available. Holt and Bartlett,* reporting 35 of these, conclude as follows: "The occurrence of epidemics and the relation of certain groups of cases to one another in these epidemics place beyond question the statement that acute poliomyelitis is an infectious disease. Whether we can go farther and state that the disease is communicable is an open question.

After carefully considering all the evidence brought together, we cannot resist the conclusion that the disease is communicable, although only to a very slight degree; one of the most striking facts being the second cases within ten days after possible exposure. Positive statements, however, must be deferred until the discovery of the infectious agent. Starr,† reporting biological studies in twenty cases, concludes that the few bacteria found were probably contaminations. He feels that while it is a matter of uncertainty whether the causative agent is a micrococcus or a toxin, the weight of evidence is in favor of the latter hypothesis.

4. Typhoid Fever.—While typhoid is relatively uncommon in infants, its occurrence among them is being more and more often observed. Griffith ‡ states that in the spring of 1907, in the infants' ward of the Children's Hospital, containing but ten beds, there were five cases of typhoid fever at one time; in subjects none of whom had passed the age of two years. He goes on to report in detail three cases in children under one year of age. One occurred in an infant of five months, who was brought to the hospital with his mother, who herself had typhoid. The child died of hemorrhage. The other two cases, each nine months old, recovered. It is to be noted that in general children do not show the steplike rise of temperature during the first few days of the disease; the chart often more nearly resembling that of a case of pneumonia. Many of the cases reported could be definitely traced to infection through contaminated bath water. In the treatment of typhoid, mention must be made of the constant tendency to avoid the use of milk as a diet. Seibert, Strong, and Kemp§ report several hundred cases, in all of which milk was excluded, and instead, there was given, on the first day, nothing but cold water; then strained rice, oatmeal or barley soup, with extract of meat and egg yolk spiced.

† Starr: Journal of the A M. A., 1908, July 11, page 112.
‡ Griffith: Archives of Pediatrics, 1908, January, page 1.
§ Seibert, etc.: Medical Record, 1908, June 20.
Other broths, and in cases of great hunger, zwieback, were next given. Before each meal, from 15 to 25 drops of hydrochloric acid were given in half an ounce of water. Seibert's mortality in 338 cases was only 3.1 per cent.

5. Acute Articular Rheumatism.—Dunn* re-emphasizes the difference in the clinical picture of rheumatism in children and adults. Reporting 300 cases, he divides them as follows: (1.) With arthritis on admission, 102 cases (2.) With endocarditis only on admission, 140 cases. (3.) With pericarditis on admission, 58 cases. Joint symptoms were usually very mild, redness, heat, swelling and pain being exceptional. Further, they were very transient; one day or less in 64 cases, and a week or more in but two cases. 85 of the 300 showed signs of valvular endocarditis, and only 17 children left the hospital with apparently normal hearts. Of those who showed heart signs, a comparatively large percentage also had symptoms referable to the heart, a fact which is in marked contrast to the rheumatic fever of adults, where endocarditis is apt to develop insidiously. Only 27 out of the 300 were free from heart symptoms. In not a few cases the cardiac symptoms preceded the articular. Further, out of the 300 cases, 86 or 29 per cent. gave a history of chorea, while of 121 cases of chorea admitted during the same period, 57 per cent. gave a history of rheumatism. The practical lesson urged is this: Rheumatism in childhood, though it may only involve a couple of joints for a day or two, and consist of nothing but pain in the joints, is not to be regarded as a trivial thing, and even when careful examination reveals no change in the heart, the child is to be cared for as if endocarditis were present and kept quiet in bed for weeks.

Pathological studies are leading physicians to avoid the time-honored statement that a child must have measles, mumps, chicken-pox, etc., at some time, and that "he might just as well have them while young and be done with them." The German observers in particular have been showing of recent years that in many cases—from one-half to sixteen years of age—the walls of the arteries become diseased in the course of infectious diseases like measles, scarlet fever, diphtheria, influenza, and typhoid. Typhoid endarteritis is even more common than typhoid endocarditis. Sudden death in infectious disease is occasionally caused not so much by a diseased heart muscle as by disease of the blood vessels. In typhoid fever death is believed to be due to simultaneous paralysis of the heart and vasomotors. There-

fore the indications for the use of cardiac stimulants are mainly empirical. The individual, not the disease, is treated, and only general indications can be given for the use of stimulants in pediatric practice. Sara Welt-Kakels* urges that some of our stimulants can be given in far larger doses than we realize to be possible. For instance, she quotes Jacobi as urging "six ounces of whiskey daily to a child when one or two fail, and ten or twelve when six fail," and another pediatrist who gave to a child of 14 months, ill with diphtheria, 4 ounces of brandy in twenty-four hours without producing signs of intoxication. To combat cardiac irregularity, strychnin, gr. 1/200, may be given to a child of one year, three times daily, and if the condition grows serious, may be pushed hypodermically till slight twitching of the muscles of the face and the backs of the hands appears. Camphor is also urged as a drug of great value in strengthening the heart. It should be used in 10 or 20 per cent. solution in ether or olive oil.

In conclusion, let me commend a strong article on Hydrotherapy in Childhood, by Grosse,† which appeared recently in the Archives of Pediatrics. After criticizing Hecht's bath at 68° F. for a child as extreme, he says that a child's bath should be 10° and often 15° F. warmer than in a corresponding condition of an adult. "Nothing illustrates the triumph of hydrotherapy so obviously," he continues, "in commenting on the gradual bearing of fruit of the long struggle of the hydrotherapeutists," as the fact that nearly all authors are conscious of the doctrine that not the reduction of temperature itself, the antipyresis, is the goal of our proceeding, but the effect upon the whole economy to help it to overcome the disease. He shows (1) that the nervous system is stimulated directly; (2) that the urotoxic co-efficient of urine during a bathing period is higher than without bathing during the disease and lower during convalescence, while in the unbathed it is the reverse; (3) that sweat produced by bathing contains more toxic substances than that produced by drugs; (4) that bathing causes a leucocytosis and an increased loss of water by the skin; (5) that blood alkalinity is augmented. No drug can produce equal results. Four methods are available—the rub, the bath, the wet pack, and cold compresses. The procedure most recommended is the half bath, i.e., one that covers only about one-half the body, thus allowing of proper friction. A temperature of 86° to 80° will suffice in most cases; more baths being better than a lower temperature. Emphasis is also laid on the hot full bath at 107°. During the first year, three minutes are enough; later on, four to six

† Grosse: Archives of Pediatrics, 1908, May, page 358.
CONGENITAL ABSENCE OF THE RECTUM.

By W. H. Jeffersy, A.M., M.D., Shanghai.

Patient. Chinese baby, male, born in Pootung, January 25th, 1909; brought to St. Luke's, February 17th, twenty-four days after birth, having had no stool.

Appearance. Large male child, well-developed bones, skin dry and loose, and other signs of emaciation; mouth exceedingly dry, tongue coated, respiration shallow, anxious pained expression; abdomen globular, hard, about twenty-one inches in circumference, thin-walled, blood-vessels showing through the thin skin. One ulcerated point, as from pressure, to the right and above the umbilicus. The abdomen was sensitive to palpation, but large boggy masses could be felt almost throughout.

The mother gave a history of an easy labour, of having nursed the child, as well as fed it upon sweetened rice powder. The child was still able to nurse, though its appetite was small. It had not vomited at all, nor passed any fecal matter. Urine was passed normally, was dark in colour and heavy-looking as if the kidneys were doing extra work. Examination of the buttocks showed wrinkling in the position of the anus, but no normal perforation. A little to one side was a small opening, through which a probe could be passed and which, it was hoped, might prove a guide to the bowel. But when sounded it bled slightly and was acknowledged by the mother to have been an attempt by a Chinese doctor to open the rectum. He had cut about half an inch deep, and then developed rigor pedes (in himself, not in the baby).

The condition of the child was poor, but feeling the necessity of doing something, operation was at once undertaken. No anaesthetic was used, and a median incision was made from the anal site towards the coccyx and in the middle plane of the body, extended upwards, keeping close to the sacrum. No bulging or other hopeful sign was noted until about two inches* from the skin surface bogginess appeared in the tissues. This was punctured and a haemostat passed in. As it was withdrawn fecal matter followed, and with the help of

* Quite the length of the rectum at birth.
PEACE

WAR.
a salt douche a very large amount of fecal matter was withdrawn. There seemed to be considerable power in the abdominal muscles, so that continuous streams of fecal matter, several feet long, were passed. There was no evidence of typical meconium; the motions being distinctly fecal from start to finish. There was very little hemorrhage and no complications of any kind ensued. The abdomen collapsed, and within a few days looked fairly normal. There seemed to be some power of retention, and when the child left hospital a week later it was having one or two regular motions a day.

No attempt was made to bring down the bowel to the skin margin; this owing to the extreme debility of the child. It might be expected that stricture, more or less complete, should occur in the future, but this need not necessarily take place. At any rate the parents live near by, and upon an older child in better health the secondary operation can easily be performed.

The points of interest about this case do not lie in the condition itself, which is extremely common in China, but appear to me as follows:

1. The twenty-four days which elapsed from birth to the first movement of the bowels after operation.

Literature on the subject does not cover the point, since babies in civilized countries would never be left so long as a week, under any circumstances, without some operative attempt being made. I am told by Dr. Garner, of the Margaret Williamson Hospital, Shanghai, that they have many of these cases, but that unless treated before, they usually succumb about the eighth day. Every possible precaution was taken to avoid error about the matter of this baby's birth, and I am convinced that the baby was twenty-four days old before I saw it. I find no report of any case in which the delay was enough to be even interesting as compared with this which I now report. That a baby could live twenty-four days without having its bowels moved, undergo an operation without anaesthetic, recover, and begin to gain weight, is interesting, to say the least.

2. What happened to the meconium?

Did it become mixed with true fecal matter, or was it changed by fermentation, or was there none there originally? I am inclined to think the first and second are the correct solutions.

3. The absence of fecal vomiting.

Babies vomit and regurgitate easily and that an infant should have had intestinal obstruction for twenty-four days without vomiting, mean-
while continuing to pack fecal matter into its little abdomen until it looked like a small football, presents another remarkable feature of the case.

4. Finally, the retained expulsive power after so much pressure and thinning of the abdominal wall.

From the operative standpoint I think the following points worth noting:—

1. The imperative necessity of unwavering adherence to the median plane of the body and of following the curve of the sacrum; and, I think, the rule of one inch leeway might be considered safe. It should not be forgotten that the baby’s pelvis is small and undeveloped, as compared with the head, for example, and that the bladder sometimes holds considerable fluid. I once assisted in an operation where the surgeon passed his knife into the posterior wall of the bladder, causing urine to flow through the opening—a most unfortunate complication, though not necessarily a fatal one.

2. I should like to state my conviction that the primary operation of lumbar or inguinal colostomy is not justifiable under any conditions that I can think of for imperforate anus or absence of rectum. For the following reasons:—

(1.) The mortality is about a hundred per cent, and the result in the remaining minute proportion of successes unsatisfactory from the patient’s standpoint. "Infancy and Childhood," Holt, p. 116. "Although life may be prolonged by the formation of an artificial anus, the ultimate result is almost invariably fatal; death usually resulting from marasmus during the early weeks of life."

(2.) It is never necessary except in cases of complete absence of the sigmoid flexure, which gives a very small percentage—perhaps less than five per cent. of all cases, and in those few as likely as not there is complete absence of the colon, and the operation therefore hopeless any way. (A patient need not be expected to live without a lower bowel.)

(3.) Hunting in the dark for the rectum, that is, by the anal route, is not as difficult as it sounds. One does not try to follow a track which doesn’t exist. What one does is to cut in the median line in a certain direction, confidently expecting to get there. If the bowel comes down as far as the sigmoid, and all the more so if below it, as it fills with fecal matter it will occupy the lowest point in the pelvis and therefore be the first thing reached by the operator, unless his luck is exceptionally bad. In such cases as that reported, or those of much shorter duration even, the presenting dome of bowel filled with fecal matter seemed to fill the brim of the pelvis and could not have been missed by any careful operator. Undoubtedly the bowel should have been drawn down and stitched into the anal margin, as should always be done, except in the case of simple imperforate anus. Suppose that one does find oneself in the peritoneal cavity without having encountered the lower intestine, one then has but to hunt for the sigmoid or any other available part of the lower gut, draw it into the wound, stitch it and open at one’s convenience. In other words, if one does get into the gut, one is where one wishes to be. If one does not get in, one has a clean wound and all the chances of success that lumbar or inguinal operations have, with better drainage and a rectum in the place where it ought to be at the end of the day’s work.
MODERN TREATMENT OF COMPOUND FRACTURES.*

By Cecil J. Davenport, F.R.C.S., L.R.C.P.

This title immediately calls up visions of what one saw in the leading hospitals, and under the best surgeons, twenty or twenty-five years ago. Asepsis was unknown, antiseptics were used, but not intelligently.

We were taught to wash the wounds with a strong antiseptic. The limb was put up well and rigidly on a splint. Lint soaked in 1-20 carbolic oil was applied, and as a rule changed daily. Chance largely determined whether or not septic infection followed. How many cases has one seen where fever followed day by day, with suppurcation tracking up the connective tissue or muscular planes, general brawny oedematous swelling of the whole limb, frequent counteropenings under an anaesthetic, continuous septic absorption with hectic fever, sweats, dry tongue, sweet breath, etc. ! Then followed a consultation, then an amputation—often a death. This briefly represents the course of events when I worked in the wards in London in the ordinary compound fractures. That was bad enough, but antiseptics were in use. What must it have been before ! Many in the pre-antiseptic days were treated by amputations right away. Even then the mortality was tabulated at 50-70 per cent.

What a marvellous change has been brought about by knowledge of facts. In no department of surgery has aseptic treatment wrought greater changes. It is estimated now that 90 per cent, regain sound limbs, 5½ per cent. recover after amputation and 3½ per cent. die.

During the past year my own statistics have worked out as follows:

<table>
<thead>
<tr>
<th>Fracture</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound fracture of thigh</td>
<td>4</td>
</tr>
<tr>
<td>&quot; leg</td>
<td>24</td>
</tr>
<tr>
<td>&quot; arm</td>
<td>2</td>
</tr>
<tr>
<td>&quot; forearm</td>
<td>5</td>
</tr>
<tr>
<td>&quot; toes and fingers</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
</tr>
</tbody>
</table>

No deaths.

Skull | 18 | 5 deaths.

One can approach a compound fracture now with much assurance and great hope. Of course the future of the case largely depends on its condition and treatment. Provided there is no bad infection one can practically count for certain on a good result. Even if the primary condition be bad we are largely able to remedy it. The more

*Read before the Shanghai Branch of the C. M. M. A.
experience one has the more one learns that the state of the soft tissues is the important element in determining success or failure. A heavy, serious, crushing accident is infinitely worse than an obliquely fractured bone thrust through flesh and skin. Here we have to deal with bruised tissues, damaged or ruptured vessels and nerves, extravasated blood, etc. The amount of extravasated blood is a most important factor in affecting the life of the parts below. Experience alone can teach one when to conserve, and when to amputate, the damaged limb. It often is a difficult moment. The patient's age, state of the soft parts, comminution of the bone or injury of a neighbouring joint,—all have to be born in mind. Fortunately we don't have to deal with a nation soaked in beer, and we live in the days when, even if we make a misjudgment, aseptic treatment comes to our aid and helps us to redeem our mistake by secondary amputation under favourable conditions. On more than one occasion I have incised severe extravasations about the leg and foot, turning out the blood and clot and putting in a light packing with, I believe, the result of saving the foot which was already blue and cold.

My own experience has led me to the opinion that in almost every case of compound fracture it is best to administer chloroform and thoroughly cleanse the wound and if necessary the cavity. I don't hesitate to enlarge the skin wound pretty freely, either for the sake of replacing the bone, or for relieving tension, or for securing good drainage. The thing is to render the parts aseptic and secure good drainage. With our modern methods of perfectly aseptic and secure good drainage. With our modern methods of perfectly aseptic dressings, large skin wounds, or counter openings, are of little moment.

It is necessary to cleanse the cavity when there is a cavity, when the soft parts have been stripped from the bone, or the skin from the soft parts, when the external wound is large and there is no doubt that the bone has protruded externally but has been replaced again, or when dirt and foreign substances have found entrance into the limb. The same method of cleansing may be used for the cavity as for the skin; care being taken that no lotions, etc., are forced up along the planes of fascia or muscles. If sharp irregular spicules of bone are present, it may be necessary and well to snip them off with bone cutters.

Seldom does one meet with serious hæmorrhage. As a rule the elevated position and light pressure are sufficient to stop it. Care must be taken not to shut the hæmorrhage in, so that it occurs along the planes of muscles and is not able to find exit by the wound.

My own custom is to scrub the wound and surroundings with turpentine and then remove the turpentine with spirit or an emulsion
Modern Treatment of Compound Fractures.

of soft soap and lysol. The large antiseptic dressing applied, acts more or less as a splint. If a cavity be drained, the drain should be removed after 36-48 hours and then probably the part will not need touching again for a week. Trouble is saved, dressings are saved, suffering is saved and the limb is kept at rest and maintained in a good position through attaining asepsis. Loose, detached, small fragments of bone should be removed. Larger fragments, even if detached, may be kept in warm saline solution and replaced after the wound is cleansed. It may be well to wire or peg them into position, and if possible recover them with the periosteum which has been stripped off.

By some it is recommended to wire, or peg together all compound fractures. Certainly! it may fix them nicely and so make fixation more easy. But to my mind it adds a very formidable and difficult element to the treatment, involving in most cases much enlargement of the wound.

Others again advocate the slicing up into chips of the bone removed, e.g., in trephining the skull, maintaining its vitality in warm saline solution, and eventually filling up the breach in the bone by these "chips," which finally become once more part of the bony structure. If any here have been successful in this way I should much like to know.

Another important advance in the treatment of fractures is by the use of massage. Much swelling, stiffness and matting together of tissues are undoubtedly saved by the systematic but intelligent use of massage. With care, it should be begun from the very early days to get rid of the cedema and extravasated blood. Later on, the joints should be carefully flexed, the tendons "worked," the muscles rubbed and squeezed. By these means adhesions are prevented, effete matter is expelled, the blood supply of the part is increased and the general tone of muscles and nerves preserved. That a little movement of the two ends of the bone occurs is doubtless true, but this, to my mind, is somewhat advantageous. It stimulates the formation of callus which, within limits, is desirable.

These, as far as I am aware, are the marked features of the modern treatment of compound fractures. And most important they are for the good of the patient. I hope some present will be able to point out other and newer methods and means which will prove a help to us all.

The following cases illustrate various points in this paper:—

Case I.—Li Hsii-hsin, aged 34, had his right leg and knee crushed between two steam launches. Foot and lower leg cold and blue; no pulse
to be felt at ankle. Leg and calf considerably swollen and bruised. Femur fractured just above the knee joint; a lacerated wound being situated on the inner side of thigh and another in the popliteal space.

Patient put on operation table and the parts thoroughly cleaned. On digital examination, the bone was found to be transversely fractured just above the condyles; a few loose small fragments lying in the cavity between the bone and the stripped off soft tissues. The popliteal artery was felt pulsating in the upper part of the cavity, but it ceased to pulsate at the spot opposite the line of fracture. Taking into consideration the severe crushing the limb had received, the injury to the main vessels, the proximity to the joint and the general laceration and damage to the muscles, we decided to amputate the thigh above the seat of injury.

On examining the popliteal vessels after removal they were found to be flattened and bruised and occluded for the space of more than one inch. The knee joint was not destroyed. Undoubtedly the right course was pursued. Gangrene must have followed with the main vessels plugged and the severe bruising and laceration of the soft tissues.

CASE II.—Fung Tan-fu, aged 38. Left arm crushed in machinery on board ship at junction of lower and middle third. Clean transverse fracture with ragged wound on outer side, much stripping off of skin from muscles, much crushing of soft tissues and a good deal of venous hæmorrhage into the large cavity which existed. Hand numb and somewhat congested, but radial pulse just perceptible and colour fairly good. Under chloroform thoroughly cleaned and drained from inner side.

After two days dressings removed and reapplied. A good deal of swelling of hand and forearm. Sensation practically nil. Some redness and swelling about the inner side of the arm. Daily dressings were then made.

On the fourth day the finger nails looked very blue; on the fifth day the thumb, index and middle fingers turned black; on the sixth day the gangrene had spread to the whole hand and half way up the arm on the radial aspect. The arm was removed just below the shoulder joint and the patient has done well. In this case we gave the patient the benefit of the doubt, with undoubtedly a little more risk to his life, but yet with equally good result.

CASE III.—Mrs. Nieh, aged 32. Fell to the ground with the platform on which she was drying clothes. Sustained double com-
PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.
A Case of Pseudo Hypertrophic Muscular Paralysis.

A CASE OF PSEUDO HYPERTROPHIC MUSCULAR PARALYSIS.

By J. Preston Maxwell, M.B., F.R.C.S.

The distribution of disease is always a matter of interest and the neuropathies and myopathies of China are still a largely unworked field. It is as a contribution to this subject that the following case is presented.

Pseudohypertrophic muscular paralysis is a rare disease, but the writer knows of two cases in this region: one under the care of another medical man and the one whose portrait and history is given in this paper.

K., a male, aged 11, 3 feet 11 inches high and weighing 52½ lbs., came under the writer's notice in June, 1908. The disease, which began about the age of 5, had slowly progressed, till at the age of 11 he was almost unable to rise from the ground. In the beginning it was noticed that there was some weakness about the child's movements.

His calf muscles were large and prominent, but as at the time he was seen wasting had commenced; this point is not so noticeable in the photograph, though the large infraspinati muscles are well marked. The antero posterior curve of the spine was very distinct. Hand and forearm muscles were unaffected and the intelligence of the boy was good. His attempts to rise from the ground were typical of his disease. Once in the vertical position he could move about slowly and clumsily.

His relatives stated that the disease was slowly getting worse. No family history could be obtained of the existence of a like trouble in any other of its members, but a full investigation under this head was impossible, as the lad had come from a somewhat remote part of the province.
NOTES ON A CASE WHERE AN ATTEMPT WAS MADE TO REMOVE THE GASSERIAN GANGLION.

By E. R. Wheeler, M.B., B.S. (Lond.), Peking.

The patient, a Lama priest from Mongolia, aged 46, was admitted to the Union Medical College Hospital, Peking, suffering from severe right-sided facial neuralgia of epileptiform type. On admission he was put on full doses of chloral hydrate and potassium bromide, and although he had slightly improved after a fortnight of this treatment, he was still having more than one hundred and twenty attacks per day.

The slightest touch, draught, or contact with hot or cold food brought on an attack. Each paroxysm appeared to start in the region of the inferior dental branch of the fifth nerve on the right side and was accompanied by violent twitching of the muscles of the face and neck on that side; the platysma myoides standing out well. During each attack he grasped the side of his face with both hands, rubbing it violently, at the same time performing a kind of sucking action with his mouth. Lachrymation was not marked, and as the poor man had been afraid to wash his face for some considerable time and was also a Lama, it was not easy to detect the amount of hyperaemia which occurred. All the teeth in the upper jaw on the right side were missing; he stated they had dropped out; the corresponding ones in the lower jaw being in a bad way six of them were removed. It was thought that nothing short of the removal of the gasserian ganglion was worth attempting; the severity of the operation was fully explained to him, and he said he was willing to undergo anything which would give him the slightest chance of being relieved from his pain. At this time he had one or two small boils on his face and head, which his continual rubbing had no doubt helped to disseminate; he was therefore told no operation could be undertaken till these were well, and at his own request he was allowed to return to the Lama temple for a time. In a fortnight he returned with the boils practically well and most anxious for the operation.

May 29th, 1908, the operation was performed; ½ grain of morphia and ¼ grain of atropine having been administered hypodermically one hour previously with a view to preventing shock and diminishing the amount of chloroform required. The right eye and ear having been stitched up, the Hartley-Krause omega skin flap was cut and turned down over the zygoma; the temporal muscle and fascia was next
-turned up and the skull exposed just above the zygoma. A ¾ inch trephine hole was made in the squamous portion of the temporal bone just above the posterior extremity of the zygoma; this was enlarged with Hoffman's rongeur forceps in every direction extending upwards well above the temporal crest and anteriorly to just beyond the line of the anterior branch of the middle meningeal artery which was seen entering its bony canal on the anterior inferior angle of the parietal bone and avoided. The dura-mater with the temporosphenoidal lobe was then lifted up from the floor of the middle fossa and the second division of the nerve found as it left the skull by the foramen rotundum. The main trunk of the middle meningeal artery was next exposed at the foramen spinosum and the third division of the nerve brought into view just anteriorly and internally. It was found impossible to bring the ganglion into view on account of the difficulty experienced in retracting the brain away, although a finger could be placed upon it and the surrounding structures easily detected. The next step consisted in cutting the second and third divisions at their respective foramina and tucking the peripheral ends out of the skull; the central ends were then traced up to their point of junction after having divided their sheaths of dura-mater; this, on account of the difficulty mentioned above, was not easy, and the ganglion had to be removed piecemeal. The wound was stitched up; a small drainage tube being inserted in the anterior extremity. The anaesthetic used was chloroform and was administered entirely by one of the students in the college; the whole period of anaesthesia being nearly four hours. The next morning the patient seemed very well; had entirely lost his pain and was pleased with the result.

May 31st, the wound was dressed and the tube left out.

June 3rd, the eye was unstitched and looked quite healthy.

Eight days after the operation the stitches were removed; the wound having quite healed.

The patient made a first rate recovery; was very pleased and grateful for what had been done, and on June 10th, walked up to the Lama temple and back (two miles each way) to tell his friends to expect him the next day.

June 11th, he left the hospital at his own request.

Of course it is too soon at present to say whether he will get a recurrence or not, but the immediate result is most satisfactory.

I should be very glad of any suggestions as to what ought to have been done to facilitate a better exposure of the ganglion; removal of the zygoma would not, I think, have helped matters at all, as we were
able to get quite low enough down, and it seems as though the only thing to have done would have been to remove more bone superiorly in order that the temporo-sphenoidal lobe could have been more easily lifted out of the way.

PRACTICAL AND ACCURATE METHODS FOR THE RAPID QUANTITATIVE ANALYSIS OF PATHOLOGICAL URINES.

By Dr. Richard Weiss, F. C. S., Engl.

There is absolutely no doubt in the minds of the majority of the medical profession that in accurate diagnosis lies the nucleus of the successful practice of medicine. The examination of the blood in the anæmias, the sputum in pulmonary diseases, the urine in kidney or bladder affections and the gastric contents in obstinate dyspepsias are procedures that to the progressive physician are absolutely imperative. Clinical examinations are now carried out in almost all institutions and by many private practitioners, but owing to the serious nature of many of the processes and the large amount of time consumed in the performance of the work, many practitioners have to omit it wholly or in part in private practice. This refers especially to the missionary doctor who lives isolated in the remoter districts and experiences greatest trouble in obtaining or keeping the rarer test solutions stocked in the hospital laboratory generally. Again the methods in vogue in the larger laboratories are not suited to the man who works alone. It is quite a different matter for a laboratory assistant to make a quantitative estimation of several specimens at the time and for a lone man to do the same work with one solitary specimen, the examination of which might be the one thing needed to assist him in arriving at the proper conclusions.

The later and well tried methods serve to make "scientific medicine" possible to any physician, no matter whether he may live in the remoter districts and no matter how meagre his facilities for such work may be. The methods and apparatus I will describe herewith may be regarded as means by which these quantitative estimations may be accurately, rapidly and easily carried out in the consulting room with as few reagents as possible, as the management is simplicity itself, and the calculations are reduced to a minimum.

Let us first take the case of albumen in the urine. I wonder were a census on the point to be taken, how many general practitioners
would be found to possess the ordinary albuminometer of Esbach, and, even possessing the instrument, how many use it with anything approaching habit. Until quite recently, with the exception of the Purdy tube, this was practically the only piece of apparatus by means of which the amount of albumen present in any sample of urine might be determined with reasonable facility. Doubtless much useful work has been done with Esbach's tube, but it is quite certain that a test which is only accurate for values at or above one-half pro mille, and which besides takes twenty-four hours to complete, falls very far short of the ideal. A much more efficient instrument has lately appeared, and is described by its inventor, Dr. H. R. Harrower, in the Journal of the American Medical Association (Vol. 51, No. 7). It consists of a graduated tube and a reagent (phosphotungstic acid, 1.5 grm.; concentrated hydrochloric acid, 5 grms.; 95 per cent. alcohol, 100 c.c.). One c. c. of urine is diluted with 9 c. c. of distilled water, and this is added drop by drop to the reagent, shaking after each addition until the appearance of a faint white cloud is noted. This denotes the completion of the reaction, and the level of the fluid in the tube is read off. It corresponds to the amount of diluted urine which contains one-tenth of a milligram (0.0001 grm.) of albumen. The percentage is easily reduced, but a table is supplied with the instrument to assist the calculation.* This is, without doubt, a far more practical instrument for both hospital assistant and home worker than the Esbach or Purdy tubes, and some idea of the accuracy of the test may be gathered from the fact that it is sensitive to one-tenth of a milligram!

In the matter of the estimation of sugar, also, much has been done in the later instruments to simplify and facilitate the test without impairment of accuracy. While Fehling's solution is undoubtedly one of the best reagents for qualitative work, its application to quantitative analysis in the hands of the inexperienced, is fraught with serious jeopardy to accurate work. When one remembers with what apparatus and under what conditions of light, etc., these estimations are often made in the surgery of the general practitioner, one can but dimly speculate upon the possibility of anything in the shape of a reliable result being forthcoming. Moreover, apart from the possibility of experimental error, there are actual fallacies attendant upon the use of Fehling's solution. These are due to the fact that other substances in the urine can reduce cupric oxide. The chief of these are uric acid, creatinine, hippuric acid, lactose, glycuronic and glycosuric acids and

* This "Quantitest Albuminometer" and all other apparatus described in this paper can be obtained singly or in one set ("The Quantitest case") from the ordinary purveyors of surgical instruments and the London Missionary Society.
certain drugs. There is only one absolutely certain test for glucose, i.e., the fermentation test; glucose being the only fermentable substance ever found in urine. Much attention has lately been paid to the improvement of the various forms of saccharometers, i.e., instruments for estimating the amount of sugar by the fermentation method. The latest instrument of this kind, which will be found to fulfill every requirement in practice, is the quantitative saccharometer, a graduated tube in which the evolution of CO₂ by fermentation causes displacement of a column of mercury. It is possible to register the sugar contents in twentieths per cent. up to 1.5 per cent. and thence in halves per cent. to 10 per cent. The instrument is cheap, simple and effective, and will doubtless supersede all other forms of saccharometer, and is used as follows:—The stopcock is first opened and mercury poured from above through the graduated tube into the apparatus until its height corresponds to about the mark o on the scale. By means of a special pipette, 0.5 c. c. of the specimen is introduced into the bulb and allowed to run on to the mercury. About 5 drops of fresh yeast solution (1 gr. to 5 c. c. of water) are then added; and, by inclining the apparatus, the top of the mercury column is made to stand exactly at o. The stopcock is then carefully closed and the apparatus set aside at the ordinary room temperature. The carbonic acid gas evolved will drive the mercury up the graduated tube, and when fermentation is complete the percentage of sugar may be read directly from the scale. Fermentation is usually complete in from 4 to 6 hours, but with a warmer temperature (up to 35° C) only 2 or 3 hours are necessary. The apparatus should be cooled to about 20° C before reading the result, as the scale is adjusted to this temperature. After use, the contents may be poured into a beaker and the fluid portion blotted off with a filter paper. The apparatus and pipette can be easily rinsed with water. The stopcock should be slightly greased after being dried. In order to obtain the number of grains of sugar per ounce of urine, the percentage must be multiplied by 4.375.

For the estimation of urea no better piece of apparatus yet has been devised than that of Doremus. The improved form of this excellent instrument renders possible the urea determination in 1 c. c. of urine within the space of a few minutes. The only reagents required to be kept at hand are a 40 per cent. solution of sodium hydrate and measured quantities of bromine contained in bulbs.

The estimation of these three—albumen, sugar, and urea—represents the extent to which urine is chemically examined for clinical...
purpose by anyone not in possession of a clinical laboratory. It has hitherto been impracticable, for instance, for the average practitioner to determine the contents in a given specimen of urine of so important a constituent as uric acid. He takes up his text-book in search of an available method and finds himself duly instructed in the details of such procedures as that of Hopkins. What he is not told is that, ready to hand at a minute notice, is a reliable instrument, such as that of Buhenamu, by means of which the uric acid mystery may be solved within the space of half an hour or less. I do not think this method is very generally known in this country; its importance certainly entitles it to some description here. The principle involved is the liberation of free iodine by uric acid. The "uricometer" consists of a graduated tube and two reagents: (1) an iodide solution resembling Gram's solution in composition, and (2) bisulphide of carbon. The latter is poured into the tube up to the mark indicated; the iodine solution is added to further mark. Diluted urine is then slowly added until the bisulphide of carbon, which from a deep violet hue acquired on the first addition of urine, passes through various depths of pink and finally becomes snow white. This denotes the completion of the reaction, and the level of the mixture in the tube is read off on a graduated scale provided and indicates in values pro mille the amount of uric acid present in the diluted urine. The possibilities of this simple test in private practice are too important to be overlooked. The apparatus is quite inexpensive and its utility will well repay the outlay.

Another simple quantitative test is that for phosphates. This is done by a reliable little instrument called a "phosphatometer." It consists of a graduated tube and one reagent. The tube is so graduated that all that is necessary is to add the reagent to a given quantity of urine and read off the level of the resultant precipitated phosphates on the scale provided. The reagent in this case consists of an ammonio-magnesium mixture composed as follows:—Magnesium chloride, 5 grms.; ammonium chloride, 7 grms.; liquor ammon. fort., 35 grms.; distilled water, 5 grms. The phosphates are precipitated by this mixture in the form of the ammonio-magnesium variety. A table is provided with the instrument for calculating percentages.

The Quantitative Estimation of Indican.—Fill the quantitest indicanometer with commercial chloroform to the mark C, add urine to the mark U and then Obermayer's reagent (2 pro mille solution of ferric chloride in Conc. HCl) to the mark R. Close the end of the tube with the thumb and shake vigorously for 15 or 20 seconds. If indican be present, indigo-blue will be liberated and dissolved in the
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chloroform. Allow the chloroform to settle and read off the amount of indican present as 0, trace, +, and ++ according to the intensity of the blue color. This is a very good substitute for the long, tedious quantitative estimation at present used, and will be found to give perfectly satisfactory comparative results.

The Quantitative Estimation of the Acidity of the Urine.—Fill the quantitest uracidimeter to the mark U with a thoroughly mixed 24-hour specimen. Add two drops of phenolphthalein indicator. Add slowly drop by drop an empirical NaOH solution, 1 c. c. of which has been made to represent 10 mg. of phosphoric acid. Invert the tube between each addition. As soon as a permanent red color appears, the amount of acid present in grammes per 1600 c. c. may be read at the level of the fluid in the tube.

Quantitative Analysis of Gastric Juice.—An instrument is now to be had whereby may be made three important quantitative tests: estimation of free hydrochloric acid, total acidity, and combined hydrochloric acid. These results are all obtained by the use of a graduated tube devised by Gunzberg, and, together with a few physical tests very easily performed, give all the information which is required on the subject. The instrument, termed an ‘acidimeter,’ is a simple graduated tube, and in using it two reagents are required: (1) decinormal solution of sodium hydrate, and (2) an indicator consisting of phenolphthalein and dimethyl-amido-azobenzol (one gram of each) and 70 per cent. alcohol 100 cubic centimetres. Gastric juice is obtained by means of a syphon tube after a test meal and filtered through ordinary filter paper. This is poured into the tube to a given mark and the addition of two drops of the indicator solution gives a bright cherry-red colour. The decinormal soda is now added drop by drop until the colour of the fluid has changed from red to a distinct canary-yellow. The level is then read off on a scale (marked red) which indicates without any calculation the percentage of free hydrochloric acid present. This being noted down, the test is continued with the same solution by dropping in more sodium hydrate until the fluid has become permanently red. The level as indicated by another scale (marked yellow) gives the total acidity. Should there be no free hydrochloric acid present, a dirty yellow colour will result on adding the indicator. To find the amount of combined hydrochloric acid, all that is necessary is to repeat the previous test, using as an indicator a one per cent. aqueous solution of sodium alizarin-sulphonic acid. The decinormal soda is added drop by drop as before until a deep violet colour appears. The yellow figures subtracted from
the previously determined total acidity furnish the required result, for the total hydrochloric acid is equal to the sum of the free and combined acid.

Thus it will be seen that information of the utmost importance from a diagnostic point of view may be gained in a comparatively short space of time and much experimental therapy done away with. Moreover, the assistance rendered by instruments such as these goes far towards placing the medicine of the general practitioner upon the same firm basis of that of the hospital or clinic to which, too often, he is compelled to refer his more complex cases.

A similar new set of apparatus for bacteriological work, the bacteriotest, contains a very complete and eminently practical collection of stains, reagents and apparatus for performing most of the commoner operations of clinical bacteriology, such as can be undertaken by the general practitioner. Special features of this set are the inclusion of several tubes of different kinds of culture media (agar-agar, gelatine, blood serum and broth), a set of apparatus for the rapid diagnosis of typhoid fever by the Widal (microscopic) test, and also a complete outfit for opsonin work, including emulsions of three of the more commonly-occurring bacteria. The case has been designed and is issued under the supervision of an English clinical pathologist, and, in view of the important nature of the results to be obtained, forms a valuable adjunct to the consulting room.

WHAT GAUZE SHALL I USE TO SCREEN MY HOUSE?

By JAMES L. MAXWELL, M.D.

At the present time, when the question of malaria prevention by the exclusion of infected mosquitoes from the houses is coming more and more to the front in China, it becomes a matter of great importance that a correct answer be given to this question. If a material be employed which quickly rusts and is destroyed by damp, a considerable waste of money will occur, general disappointment in the method will be felt and much needed progress will be hindered.

I have, therefore, since returning on furlough, attempted to make some enquiries as to the durability of various gaubes on the market.

Through the kindness of Sir P. Manson, who procured for me the papers and then permission to quote from them, I am enabled to publish the substance of a report to the Colonial Secretary on the durability of various materials used in the manufacture of gauze.
I shall divide my remarks in this paper under three headings:—Size of mesh, durability of gauze, price.

Size of Mesh.—For our purpose of mosquito screening three sizes of gauze are on the market, viz., 12 meshes to the inch, 16 meshes to the inch, 20 meshes to the inch. I have, for a period of about six years, used 12 mesh to the inch gauze, and am so well satisfied with it that unless it be conclusively shown that this affords insufficient protection I shall continue to use this mesh.

At the same time I must acknowledge that there are weighty opinions in favour of the finer kinds of gauze. The Crown Agents for the Colonies writing to Sir P. Manson (13th January, 1909) say:—“Our standard gauze is made with 30 B. W. S. wire and has either 16 or 20 meshes to the inch. Some colonies consider the 16 mesh sufficiently fine, but others use the 20 mesh.” Further, in a report to the Colonial Secretary, the Crown Agents for the Colonies refer to the 16 mesh and 20 mesh gauze as the most effective in excluding mosquitoes. How far these opinions are founded on experimental evidence I do not know; it would be interesting to carry out a series of investigations into the question of the truth of these propositions and we shall hope to do this ourselves at a later date. It must be remembered that the mosquito is a long-legged animal not given to squeezing or burrowing through small holes.
Durability of Gauze.—For this division of the subject I am indebted almost entirely to a report to the Crown Agents for the Colonies by Shelford & Son, consulting engineers. Their report runs as follows:

(a) In order to ascertain the quality of gauze to resist rust, we constructed a small apparatus, by means of which samples could be introduced and exposed to a jet of steam. There are various chemical methods of rusting metals, but we consider the next best thing to actual exposure in tropical climates was to make an experiment whereby the hot damp climate could be reproduced on a small scale.

This steaming process was carried each day over a period of about three months; the total amount of time during which apparatus was under steam being about 300 hours. During each night the specimens were exposed to the air, and during the latter part of the experiment they were additionally tested by being moistened by the steam and then dried.

(b) The results of the experiments can now be given:

Painted Iron, Steel and Tinned Steel.—These gauzes were tested for 150 hours spread over 45 days. The result is that the steel specimen is almost entirely blocked up with rust, whilst the other specimens of painted iron and tinned steel are nearly in the same state.

This convinces us that any type of gauze consisting of steel or iron, though well painted or galvanized, is unsuitable for use in damp hot climates.

Copper.—This specimen has been tested for over 300 hours during 3 months, and there are, as might be expected, no signs of its having been affected, except slight discolouration. This gauze might be used, but it has the disadvantages of being poisonous and more costly than other suitable gauzes.

Brass.—This material has also been tested for the same length of time as the copper, viz., 300 hours, and shows no sign of decay. It is not so expensive as copper, and we think will be found one of the most suitable for tropical climates.

Nickel Steel.—(After describing the experiments, the report goes on): From the above remarks it is evident that the durability of nickel steel gauze depends upon the proportion of its constituents, and elaborate and prolonged experiments are necessary to determine the best composition of nickel steel which will possess climate-resisting properties. Since, however, we tested this gauze, we have obtained from the makers its price if ordered in large quantities, and regret that the price quoted, viz., 8½d. per square foot, prohibits its adoption.

Enamelled Steel and Enamelled Galvanized Steel.—These specimens were supplied by Messrs. Burroughs & Co., of Portland, U. S. A., and is, we are informed, the type of gauze used in protecting houses from mosquitoes in the Southern States of America. Both specimens have been experimented upon for about 170 hours, with the result that the enamelled steel has quite rusted away. The enamelled galvanized steel has stood the test better, but for all that we think that any type of gauze of this material is quite unsuitable for tropical climates.

Cop-bronze.—This specimen is also made by the Burroughs Co., U. S. A., and although of a rather light weight is, we think, a very suitable material. It has been tested for 170 hours and shows no sign of decay. We think that this gauze is probably one of the most suitable for use in the tropics.

(c) All the gauzes mentioned above have also tested in a lesser degree by being exposed continuously on the grass in a meadow in the suburbs of London during the wet weather from February to May.
Specimens of painted iron, steel, tinned steel, copper, brass and nickel steel were exposed in this manner for three months, and specimens of the American gauze, viz., enamelled steel, enamelled galvanized steel, and cop-bronze were exposed for 1½ months.

These specimens have been affected by the rust in the same way as described above, but in a lesser degree.

**Conclusion.**—It appears that the selection of the most suitable material lies between brass and cop-bronze, as copper and nickel steel, at present prices, are too expensive.

The only comment we would add ourselves to this altogether admirable report is the remark that after all rust is not the only enemy of gauze and that when considering the durability of gauze screens for windows and doors it is quite possible that in the end a cheaper gauze, which can be replaced at intervals, may prove more desirable than a more expensive gauze which we cannot afford to replace. Gauze screened doors and windows have a way of suffering at the hands of native servants that suggests that even with gauze that never rusts they would hardly last for ever.

Our own experience, lasting over some six years, is confined to the use of twelve mesh galvanized wire supplied by Montgomery, Ward & Co., of Chicago, and to cheap locally bought Japanese material of a much lighter nature. The latter can be dismissed in a word—useless.

It has only been bought to fill gaps left in a small supply of the American gauze and has completely rusted through in a year or so. With regard to the galvanized wire gauze from America, a much better report can be given. Its life in the most exposed situations has been at least five years. In outside positions, but less exposed, it would last for from eight to ten years. While if under cover the gauze would probably be little the worse for wear in fifteen or twenty years. It is therefore a serious question whether, except in exposed situations, there is any great advantage in paying for brass gauze double what is needed for galvanized gauze. This is one of the questions that only a long extended practical experience can determine. To me it seems that the best solution would be the use of brass gauze for outside screens and galvanized wire gauze for anywhere under cover.

**Price.**—In discussing prices I shall change the money in all cases into Mexican dollars and cents as making a common standard by which to judge the cost.

The best quotations I can get in England are as follows, but it must be understood that the actual price varies somewhat from time to time:
16 mesh, brass gauze, per square foot .... 9 cents.
12 ,, ,, (stouter) per square foot 11 ,, For quantities of not
16 ,, copper gauze, ,, ,, 12 ,, less than 100 yards.
16 ,, bronze ,, ,, ,, 13 ,,

These are all to be obtained from V. & R. Blakemore, Charlotte Street, Birmingham.

I have had these quotations from Messrs. Blakemore myself. I understand from the letter of the Crown Agents that

In England, tinned steel wire gauze, 16 mesh, costs per square foot, 6½ cents.
From Burroughs & Co., Portland, Maine, U. S. A. cop-bronze gauze, 14 or 18 mesh, costs 16 cents.

The gauze I have always used was known as "bright wire cloth" from Montgomery, Ward & Co., Chicago.—12 mesh, 4½ cents per square foot, in rolls of 100 linear feet.

I have, myself, neither the time or opportunity to investigate more thoroughly the American prices, but would appeal to some of our brethren from the States to look into the matter and let us have a note in the Journal of different materials and their prices from America.

As far as I have been able to find out, brass wire gauze is best bought from the Birmingham firm mentioned above and galvanized steel gauze from Chicago. I understand, however, that Montgomery, Ward & Co. quote for 12 mesh gauze only.

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**PLAGUE PREVENTION.—INDIVIDUAL MEASURES.**

By ARTHUR STANLEY, M.D., B.S., Lond. D.P.H., Health Officer of Shanghai.

The following report by the Health Officer (Shanghai, February 2nd, 1909) is issued with the object of informing the public of the present position of the settlement regarding plague, and of the means which he recommends be adopted by individuals to prevent the spread of the disease.

**GENERAL PREVALENCE OF PLAGUE.**

Since 1894 when plague first appeared in Hongkong it has become pandemic. 1894 may be considered the date of the modern plague revival. Until 1898 it remained confined to Asia, but in that year spread to Africa and a year later made its appearance in Europe and America.

Although modern knowledge of plague and the methods of preventing its spread, when once introduced into a community, have enabled the authorities of some countries to hold it within reasonable bounds and prevent widespread mortality, it still remains in Hongkong
after fifteen years and in Bombay after twelve years prevalence, notwithstanding the most strenuous attempts to get rid of it. In India, where plague appeared in 1896, the extent of territory invaded has gradually increased, and in 1907 it caused 1,200,000 deaths. In the Far East since 1894 it has been epidemic in Amoy, Canton, Chaotchoo, Foochow, Fuceu, Hainau Island, Honan, Hongkong, Kaiping, Kuangtecnwan territory, Macao, Mongolia, Newchwang, Pakhoo, Pinhow, Kuangtung province generally, Swatow, Tongshan, Tscheklung, Tungkun, Yueukiang; in Chinese Turkistan at Pameer; in French Indo-China at Hanoi and Saigon; in Japan at Hiogo, Kobe, Osaka, Nagasaki, Shikoku Island, Shizuoka prefecture, Tokio, Yokohama and in Formosa; in the Straits Settlements at Penang and Singapore; in Siam at Bangkok, Solang Island and Tongkak and in the Philippine Islands.

While in 1894 one country only was infected with plague, at the present time fifty-one countries have been infected. It is evident that the greatest care is now demanded to prevent the introduction of plague and if introduced to adopt measures to prevent its spread.

PLAGUE AMONG RATS IN SHANGHAI.

As regards Shanghai, cases of plague have been found on board the following ships at the Customs Sanitary Station at Woosung, namely: str. Glenturret, 1898; str. Gaelic, 1899; str. Ballarat, 1902; and str. Australien, in 1904. Little is known as to infection among rats on ships coming to Shanghai.

A case of plague, confirmed by examination in the Laboratory, occurred at Hankow on November 30th, 1908, on board a river boat, under conditions which pointed to the disease having been contracted in Shanghai. No human case having been, prior to this, either reported or suspected in the settlement, an examination of rats found dead in the streets and alleys was made in the Laboratory. On December 8th, the first plague rats were discovered, and since then they have been found almost daily. These rats have mostly been found in the neighbourhood of the wharves in the Eastern district. Plague has therefore been introduced into Shanghai by means of rats. Regarding the channel of introduction, there would appear to be little doubt that it has been brought by ships carrying plague-infected rats.

GENERAL FEATURES OF PLAGUE.

Plague is an infective disease, caused by the plague bacillus, which may produce severe illness accompanied by painful swelling of the lymphatic glands (bubo), pneumonia or blood poisoning.
Rats are easily infected and spread the disease to other rats and to man by means of fleas. Prior to epidemics in man the disease prevails extensively among rats.

Infection from man to man is rare except in pneumonic cases, where infection is spread by the spit from the lungs during coughing and speaking. The greatest danger of infection is from the rat through its fleas. This is the reason why plague mostly occurs among the unclean classes. There is much less danger of persons in contact with cases of plague catching the disease than with measles or scarlet fever.

**Forms of Plague.**—Mild plagues, where people, after a few days of fever, have bubo and may not be ill enough to seek medical advice. These cases are often found at the beginning and the end of epidemics.

Bubonic plague is the form in 80 per cent. of cases, and in half of these the glands in the groins are affected.

Septicaemic plague is due to general blood poisoning by the plague bacillus. Nearly all the cases die in three or four days, before buboes appear.

Pneumonic plague chiefly affects the lungs. Nearly all the cases are rapidly fatal. This form is contagious through the spit which is infected with plague bacilli.

**Course of Plague.**—If left to run its course the number of rats found dead of plague in the streets and alleys would probably increase slightly until April, when a great increase might be expected reaching its maximum early in June, decreasing to a minimum in October. Plague may be expected to become epidemic in man shortly after its increase among rats in April and prevail in like proportion except that though plague among rats may continue through the winter, human cases may not occur for some months during the minimum period.

Preventive measures will therefore have the greatest chance of success during the next three months, when it is hoped plague may be limited to rats. The success of the preventive measures will be indicated by a diminishing mortality among rats from plague and by cases not appearing in man.

**PREVENTIVE MEASURES.**

Plague has therefore been introduced into Shanghai, and it becomes necessary to take measures to prevent its spread. The following are individual measures in contradistinction to public measures. The experience of many previous outbreaks in different parts of the world has clearly shown that, as a rule, plague first appears among rats and, when cases occur among human beings, it is usually gotten from rats.
infected with plague; the carrier of infection being the flea. When a rat dies, the fleas leave the body when cold and attach themselves to a living rat, as the rat flea is a variety usually found only on rats, but, a rat not being available, another animal, such as man, may become the host. The flea from the rat dead of plague may be infected and may then by its bite infect the person on whom it settles. Thus plague usually spreads and thus is explained the marked incidence on those classes which are prone to vermin and dirt. Plague rarely attacks white people in the Orient. In hospitals, where there are no rats and no fleas, plague rarely spreads to other cases or to the nurses and doctors, except in the pneumonic form which is infective through the spit.

For all practical purposes plague among rats forms the chief objective against which anti-plague measures are directed. Infection from human cases is comparatively rare and unimportant for preventive purposes. The rat is the essential cause of epidemics; the flea being the carrier of the infection from rat to rat and from rat to man. The dictum 'No Rats No Plague' furnishes a good working basis. A house that is rat proof is for all practical purposes plague proof. Plague preventive measures are therefore directed chiefly against the rat. The most successful measure would be the extermination of the rat. So far this has been found impossible. Large sums of money have been expended in attempts to rid places infected with plague of rats by trapping, poisoning and by rat virus, which is supposed to spread a fatal infections disease peculiar to rats. None of these have, however, proved effectual in reducing the rat population. The relatively great fecundity of the rat enables it to easily fill any gaps thus made. Reproduction keeps pace with destruction. The rat population appears to be limited only by the supply of food available, so that measures having for their object the limitation of their food supply, such as careful collection of garbage, keeping house refuse in properly covered receptacles, keeping food supplies in rat-proof places both in the house and stable, and general cleanliness about the house, alley and street, would be more likely to have good result. Trapping and poisoning is applicable in individual households and to plague-infected areas as a special measure under skilled direction.

As a general measure all these artificial methods such as trapping and poisoning are laborious and expensive and at the same time comparatively inefficient. It is better therefore to adopt one of nature's own methods of exterminating the rat and the most efficacious probably is the cat, the natural enemy of the rat.
Plague Prevention.—Individual Measures.

Cats as Exterminators of Plague.

Although thousands of rats may be killed by traps and poison, no appreciable diminution in the rat population is effected. Nevertheless the rat is the chief agent in the diffusion of plague. It is necessary, therefore, to look to nature for some more effectual method of demurization. The cat is well known as the natural enemy of the rat. The utilization of the cat is probably the best means of accomplishing rat destruction as a measure against plague. Every house, according to size, should possess one or more cats, which should not be too well fed, so as to encourage them to hunt rats and mice. Every place frequented by rats should be accessible to cats, especially the roof space. Kittens should on no account be destroyed, but should, when they are able to live apart from the mother, be given to those not possessing cats or be sent to the Health Officer, who will make arrangements for their distribution where most required. Cat shows might be held and prizes given for animals of approved ability as raters.

How to Catch Rats.

Rats are chiefly to be found where food is available. In godowns where piece-goods and hardware are stored there will be few. Rats like house refuse, so that it is especially necessary to have a proper covered receptacle, which must be kept covered, particularly at night. If rats are deprived of their usual food they are more likely to be trapped or poisoned. As the rat most commonly found in Shanghai is the black rat, which usually lives in hollow ceilings, a good position for placing traps and poison is in the roof space. This place has also the advantage of being away from children and domestic pets.

Traps.—The large wire cage trap gives good results where rats are plentiful. Before setting, the lever should be tested to see that it works properly. Place the trap where rats usually go for food or in a run. Disturb the surroundings as little as possible. It is sometimes well to place the trap near dripping water, as the rats may go there to drink. If the trap be set in straw or wood, it should be covered with the same material. When this is not possible, it should be covered with a piece of sacking, or placed in a dark corner or beneath the floors or in the roof space. When trapping in a neighbourhood where rats are known to exist, the traps should not be moved for three or four days unless they have rats in them, as it is well for the rats to become accustomed to seeing the traps and thus careless about entering them.
Snap or spring traps are best for use in houses and shops and may be placed in the runs and on beams and shelves. They should be kept out of the way of small children. The trap may be disguised by covering it with a little sawdust or dirt. The trap should be placed in a corner or close to the wall on a flat surface. In food godowns and food shops large numbers of rats may be frequently trapped by using a barrel or garbage tin having a carefully balanced metal top. A large piece of strong cheese is placed in the middle of the cover and a plank laid from the floor to the edge of the barrel. The rat runs up the plank and on the smooth lid which tips sending the rat into the barrel, which contains sufficient water for drowning.

**Baits.**—The rat is an epicure. The bait should be frequently changed. The bait should be such as the rat cannot usually procure. When meat is obtainable vegetables are the best bait, while where vegetables are plentiful, fresh liver or fish heads or a little grain is best. The following are suitable baits: fish, fish heads, raw meat, cheese, smoked fish, fresh liver, cooked corned beef, fried bacon, carrots, and tallow. The bait should be fastened to the inner side of the top of the large wire trap with a piece of fine wire. A few grains of barley should be scattered near the entrance of the trap and a small piece of cheese or meat fastened to the pan with a bit of wire. It is often well to touch the pan with a feather which has been dipped in oil of anise.

**Cleaning of Traps.**—When it is found that a trap does not catch rats where they are known to exist, poison may be tried, but, very frequently, rats fight shy of a trap which smells of human hands or of dead rats. It is therefore necessary to smoke traps frequently with a piece of burning paper to take away this smell. The trap should not be handled after burning it out. Clean gloves may be used in handling the traps. Expert rat catchers are always careful to wear gloves. The traps are better stained an inconspicuous colour. About once a week traps should be thoroughly boiled in soda, which not only prevents the spring from rusting but effectually removes smells which may keep rats away.

**Poisons, etc.**—As rats soon get to know the danger of traps other methods of destruction should be alternated, such as poisons or bird lime. A bird lime board is prepared by smearing a circle of bird lime round a piece of cheese or other attractive bait on a piece of board about a foot square. The rat gets entangled in the bird lime. A good poison is phosphorus paste (2 per cent. of yellow phosphorus with a basis of sugar syrup and flour or tallow flavoured with oil of anise...
or rhodium) thickly spread on bread and dusted with flour. Small pieces of this poisoned bait may be placed overnight in or near rat holes or in the roof space. Cats or dogs will not eat it, but it should be kept beyond the reach of children.

RAT PROOFING OF HOUSES.

As important as those for the destruction of rats are measures for making houses rat proof. A rat-proof house is as proof against plague as a mosquito-proof house is proof against malaria. A house that is rat proof is for all practical purposes plague proof. In order to make a house rat proof it is necessary to provide no space where rats can settle down and breed. For a rat to breed it is necessary to have a food supply available and a secluded spot for its nest. The food supply of the rat is cut off by general measures of cleanliness, by always keeping house refuse in properly covered receptacles and by keeping ordinary foodstuffs in places inaccessible to rats. In order to eliminate places where rats may find seclusion it is necessary to do away with all hollow spaces that cannot be easily got at, such as lath and plaster partitions, hollow spaces below the floor and roof spaces. The ventilated space usually provided below the ground floor should either be filled in solid with tar macadam or other suitable material or the gratings should be such as will keep out rats and be properly cemented in. When these hollow spaces cannot be done away with, special care should be taken to examine the house frequently and carefully from top to bottom and plaster or cement up any rat hole. Rats are most persistent animals and, if they find food anywhere about a house, will attempt over and over again to make an entrance into the roof space or below the floors or into lath and plaster partitions so as to make a home for themselves. Plastering up the holes they make in lath and plaster partitions and setting traps and poison can generally be relied on to keep the house free of rats, if carried out with perseverance. In old houses, however, it frequently happens that the floors and roof space are riddled with rat runs, and in these cases it becomes a much more difficult matter. After a thorough use of trapping and poisoning in all the hollow spaces, cats should be introduced, an opening being made for them into the roof space and, if possible, below the floors. It is, however, not a difficult matter to take up floors and fill in the hollow space with such a light material as sawdust and lime mortar, which will keep out rats. In foreign houses the roof space provides a permanent home for rats, and it so happens that the rat which is most prevalent in Shanghai, the black rat, makes its home usually in the
roof. The cat is perhaps the best available rat proofer of this part of the house. In making Chinese houses rat proof the following points should be considered:—All places which serve as homes or runs for rats should be done away with, such as defective drains, open spaces below the ground floor, especially when imperfectly closed to rats, ceilings, stair linings, walls not built solid and especially loose bricks and open spaces along the wooden poles and framework. It is very necessary to move the furniture from time to time so as to prevent rats making nests and to frequently and carefully inspect every corner of the house so as to ensure that the plaster work is intact and, when rat holes are found, to set traps and poison and have them properly plastered up.

As the rat is the chief agent in the spread of plague and as a house that is rat proof is for all practical purposes plague proof it follows that, if all houses in the settlement could be made rat proof, the settlement could be guaranteed proof against an epidemic of plague. And in this connexion it should be remembered that this settlement is unfortunately surrounded by insanitary districts over which there is no proper municipal control. There are about 3,000 foreign houses and 50,000 Chinese houses in the settlement. A rough estimate of Tls. 250 each for rat proofing 3,000 foreign houses would amount to Tls. 750,000, and Tls. 25 for each Chinese house would amount to Tls. 1,250,000. This would be approximately the cost of insurance against plague. Two million taels as a capital charge works out less than fire insurance and the risk of plague is far greater. Plague means annual epidemics with a big death roll, partial depopulation of the settlement and diminished trade. House-owners would therefore be well advised to make their houses, as far as possible, rat proof so as to ensure against loss of rent by houses plague-stricken through rats and to protect the best interests of the settlement as a commercial centre.

PERSONAL PROPHYLAXIS.

Apart from general measures of cleanliness about the person and house, deprivation of rats of their food, the rat proofing of houses and the keeping of cats, there is another method, of the nature of vaccination, which is always available in Shanghai. Plague vaccine has been prepared in the Shanghai Municipal Laboratory and has been kept ready for some years to meet the demand when plague came. This vaccine consists of a suspension of dead plague bacilli in water. The injection of a small quantity of this in the beginning of each year would, even if no other measures were taken, secure
adequate protection against plague in a community which universally adopted it.

Plague vaccination is a thoroughly safe and efficient measure. It reduces the liability to attack to less than one-third of what it is in the unvaccinated. And in the one-third of cases which still occur the recovery rate is at least double that in the unvaccinated attacked; and further, that in a vaccinated European an attack of plague, if it subsequently occurs, has so far ended in recovery. Plague vaccination is therefore a method of preventing plague which can be recommended. The vaccine is made in the Municipal Laboratory and will be available free of charge to any resident, foreign or Chinese. If no other method was taken to prevent plague, an injection of plague vaccine before the beginning of the plague season, say in January each year, would be effective in preventing epidemic.

Plague vaccination is done by injecting, with a hypodermic syringe, a small quantity of the prophylactic into the upper arm where smallpox vaccination is done. It results in some local pain and swelling and a little fever for a day or two, but the discomfort is considerable less than that which follows ordinary vaccination. As a rule it does not necessitate remaining away from the office.

When a case of plague has already occurred in a household it would be preferable to inject all those not sick with plague serum, which produces immediate though fleeting immunity, and follow it up by plague vaccination.

WHAT TO DO WHEN PLAGUE BREAKS OUT IN ANY HOUSEHOLD.

If a case of sickness suspected of being plague should occur in any household, a doctor should be sent for immediately. The procedure will then be the same as for other infectious disease, e.g., notification to the Health Officer, who will make inquiry as to origin, etc., isolation either at home or preferably at the Isolation Hospital and subsequently disinfection by the Health Office staff, which will also take measures for the destruction of rats and rat proofing the house. The use of anti-plague serum has been shown to be of benefit, if injected intravenously sufficiently early in the disease and in sufficiently large doses. A supply of this anti-plague serum is kept at the Municipal Laboratory and will be supplied at cost price.

Any rats found dead in or about a house should be sent to the Health Officer for examination for plague after dipping them in strong Jeyes' fluid and water. Rats trapped, poisoned or dead of obvious injury need not be sent but should be burnt.
RATS ON SHIPS.

Not only do rats cause great damage to certain cargoes, but ships carrying plague-infected rats are the usual means of conveying plague from place to place. It is doubly necessary, therefore, to free ships from rats. Cats are most suitable for this purpose, and ten to thirty or more may be carried with advantage. Trapping and poisoning may also be carried out. Rats should be deprived of food as far as possible. The installation of an apparatus for generation of sulphur dioxide gas, such as the Clayton apparatus for destroying vermin, disinfecting and fire extinguishing, may be recommended. The best time to deal with rats is when the ship is empty.

In order to protect the ship when in a port infected with plague and to protect the port when a ship comes to it from a plague-infected port, the ship should not, if possible, come alongside the wharves, but moor at least a quarter of a mile away. Where vessels, under such conditions, have to lie alongside wharves they should be breasted or fended off for a distance of at least 6 feet; all lines connecting the vessel with the wharves should be provided with rat funnels, and for a distance of at least 2 feet between the shore and the opening of the funnels the line should be copiously tarred, gangways connecting vessels with the wharf should be guarded during the day and at night should be removed or well raised from the decking of the wharf.

SUMMARY OF INDIVIDUAL MEASURES FOR PREVENTING PLAGUE.

No rats. No plague! A house that is rat proof is plague proof. Keep cats. Rid your house from rats also by trapping and poisoning. Make your house as rat proof as possible.

Provide no food for rats. Keep all food in places inaccessible to rats. Grain and such like food for ponies, fowls, etc., should be kept in covered galvanized iron receptacles. See that your servants keep their rice bags where rats cannot get. Keep house refuse in properly covered galvanized iron receptacles and see that they are covered, especially at night. Keep the kitchen and its surroundings very clean; let no refuse lie about.

See that all openings into covered drains are kept in good repair to prevent egress of sewer rats. Carefully inspect all corners of the house from top to bottom once weekly, moving furniture where necessary. Do the same in the stable, fowl house and other outhouses. Arrange for the plastering up of rat holes or any place that may afford ingress to rats and mice.
Plague Prevention.—Individual Measures.

These Drawings shew the Hollow Spaces which may be frequented by Rats, under Floors, Roofs, etc., of the average Dwelling-house.
See that the gratings into the space below the ground floor keep out rats and that the brick work of the basement is impervious to rats.

All rats trapped or poisoned, should be burnt; other rats found dead in or about the house should not be touched with the hands, but should be picked up with tongs, put into Jeyes' fluid and water (1 in 20) and sent to the Health Officer for examination for plague.

Get vaccinated against plague in January in each year that plague threatens.

If you have any difficulty in carrying out the above measures communicate with the Health Officer in writing.

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THE RHENISH MISSION HOSPITAL, TUNGKUN.

By Dr. G. Olpp.

The medical mission in Tungkun city, province of Canton, was started twenty years ago by Dr. J. E. Kühne in connection with the Rhenish Missionary Society. When he first appeared upon the streets he was pelted with stones and mud, but only a few years later he became known throughout the whole city as "the good man who heals people." As the work grew, a second doctor joined him, in 1898, and in 1901 a male nurse was added to the hospital staff, Mr. J. Baumann. The hospital compound was formerly within the city wall, surrounded on all sides by Chinese dwellings. In 1903-6 the whole was transplanted to a more open space outside the city, on the bank of the East River, so that cases coming a long distance can be brought by boat directly to the hospital doors.

The new building is in the form of a crescent, facing the southeast breeze. In the right wing are the women's wards; the centre is the main building, with the men's hospital, dispensary, and a small clock-tower; and on the left is the doctors' residence and accommodation for sick foreigners. The main building is 220 ft. on the river front, with "liegerhallen" entirely surrounded by verandahs. The wards are all on the first floor, which stands high and is well ventilated below. Only the chapel is in the second floor, with quarters for the doctor and male nurse in charge. The accommodation is for a hundred patients, and the whole was built by Chinese workmen, without an architect, at a cost of $36,372.00 gold. The land, about forty mow, was bought for $4,388.00 gold. The money was largely collected in
Männerkrankenhaus.

Frauenkrankenhaus.

Missionsärztliche Station Lungfou (Borderei)
the East by European friends, and a considerable part was subscribed by Chinese officials and patients.

The bedsteads are made of angle iron, provided with wooden planks in Chinese fashion. Mats, pillows, blankets and clothing are provided by the hospital. In-patients pay a registration fee of 50 cents, except the very poor; out-patients pay two cash. Dispensary is held three days in the week. In 1907, from April to December, 13,458 consultations and 595 in-patients were registered.

In 1906 Dr. G. Eich, and in 1907 Miss Elizabeth Eiselen as nurse, joined the staff. There is also a well-trained native staff of workers. The Rev. H. Ricks has charge of the evangelistic work, and he has a Chinese assistant. The latter lives on the compound and takes morning and evening prayers. On dispensary days both chaplains address the out-patients as well as the in-patients, giving comfort, telling Bible stories, and selling books and tracts.

Since January, 1908, Dr. Küline has devoted himself to leper work, organizing a large asylum for 150 lepers, and Dr. Eich is in charge of the hospital; the writer being at present on furlough.

MEDICAL ITINERATION IN SOUTHERN HUNAN.

By STEPHEN C. LEWIS, M.D., CHENCHOW, HUNAN.

I have just returned from an itinerating tour, extending over a period of three weeks' time. Some of my experiences may be of interest to my fellow-practitioners. We come to know of many new conditions and needs of this people by country touring in the more interior places. My colleague, a clerical man, accompanied me. Our first day's journey was a distance of seventy li, to Kweiyangchow, a good-sized chow city, where we opened work about two years ago. In the morning, before resuming our journey, I saw thirty patients, mostly leg ulcers, eye and skin cases, but found the people very shy of the foreign doctor.

Our second stopping-place was at Kiaho, a small hsien city, a two days' journey south from Kweiyangchow. We have had work here for over fifteen years. It was opened from our Lienchow station in Kwangtung and visited two or three times yearly by both foreign pastor and physician. You are soon able to tell where a foreign physician has gone, because our work is much more appreciated, and there is little or no fear of the foreign doctor. In the two days here I
dispensed to over a hundred and sixty patients. This district knows
the value of santonin, and uses more than all my other districts com‐
bined. There are two native Christian doctors here who learned the
value of this and several other foreign drugs at Lienchow, and as a
result I sell them about twenty dollars' worth of santonin yearly.
From what I hear they dispense it carefully and with excellent results.
They also use considerable quantities of quinine, magnesium sulphate,
boric acid eye-wash, and a cough mixture. These are the chief
remedies they have learned the value of, and they use them to good
advantage.

Another day's journey brings us to a small hsien city, Laushan
(Blue Mountain), where we have had work for about four years.
Here some forty patients were seen; among them many with bad leg
ulcers, mostly of the syphilitic and varicose varieties. There were
also a number of cases of inflammatory eye disease; little of course
could be done for these in one or two treatments, but some bought
ointments to continue the treatment.

One of the most interesting parts of my journey from a medical
standpoint was the finding of a real focus of goitre. I was making the
journey over the mountain from Laushan to Lienchow, a two and a
half days' trip. Nearly at the top of the mountain is a village of con‐
siderable size, and as I sat in the rest-house and passed through the
village I counted thirteen persons with greatly enlarged thyroids. I had
seen nothing of the kind along the way and am sorry that I did not
make a longer stay and find out more of the history of this phenom‐
enon. Two or three of the villagers informed me that nearly all of
the grown persons of the village had it, that some had dyspnœa, but
that most of them had little or no distress from it and had it for years.
They all drink from the same mountain spring, which they did not
believe had anything to do with it since thousands of carriers drink
from it and do not develop goitre. However, it must contain that
which changes or influences the thyroid gland so as to produce a great
enlargement. From my superficial observation I should say that of
those I saw there were about three women to one man, and I should
judge that few if any were under thirty years of age.

Our next and last stopping place was a good-sized hsien, Linwu,
which has the honor of having the first church organized in Hunan.
It dates from 1894, and has a flourishing congregation of over a
hundred and fifty members. I saw over sixty patients here. One was
a boy, about twelve years of age, who had been operated upon by a
native doctor for stone of the bladder about a month before my visit.
OSTEO-SARCOMA OF THE ANTRUM.
I was told that they have two surgeons in the city; one very good, but high in his charges; the other not so good, and hence more reasonable in his prices. It was the latter who performed a median lithotomy on this boy, and our evangelist, who had seen the stone, said it was as large as a small hen egg and rough. He of course used no anaesthetic, and the boy was held by three or four men. About one week after, because the boy's father could not afford to pay over twenty dollars, the doctor refused further application of medicine or treatment of any kind which, while very aggravating to the family, may have been the best possible treatment for the lad. His wound, when I saw it, was almost healed, and he seemed on the way to complete recovery.

On our way home, as we were passing through a large village about a hundred li from Chenchow, we heard an old lady calling after us and coming running towards us. Who should it be but the mother of one of my former patients, from whom I had removed an osteosarcoma of the antrum some six months before. I have never felt quite so thankful for being in China as I did after that little incident. The old lady, with tears in her eyes, rehearsed all that we had done for her son, how we had saved his life and how sorry she was that she was not able to thank us in some substantial way. She insisted that we go back and drink tea at her house, but our time was limited, and we declined with thanks. She said her son was well and able to work every day. I was sorry that he was away and that we were unable to see him, for I feared a regrowth of the tumor. The removal of this tumor required the excision of the entire half of the upper jaw.

On this tour I saw thirteen or fourteen blind children from one to ten years old, besides a number of grown up blind beggars; was called to see five persons in the last stages of consumption, dispensed medicines to over three hundred patients, dressed one broken arm, opened a dozen abscesses, saw many most pitiable cases of poverty and sorrow, but best of all had the privilege of telling the story of our Saviour's love to many scores of people and of influencing some to come to our hospital, where they could be better cared for. This is one of the most interesting and profitable experiences of my seven years in China, and I consider that medical itineration is one of the most needed and helpful branches of missionary work.
HEALTH OFFICER'S REPORT. SHANGHAI, 1908.

The condition of the public health during the past year may be summarised as satisfactory. There has been no exceptional incidence of any preventable disease.

The great increase in vaccination, as done at the stations operated by the Health Office, should soon markedly reduce the prevalence of small-pox among the Chinese population, and this benefit will be reflected on the foreign population by reduction in the mass of infective material available.

The group of bowel diseases—typhoid fever, cholera, dysentery, sprue, etc.—which are the characteristic feature of life in the Far East as regards the health of the non-Asiatic resident and which are avoided by the use of sterilised food, have been less prevalent. The degree of prevalence of this group of maladies is perhaps the best index of sanitary education as acquired locally.

The prevalence of tuberculosis is none the less marked, because it is always great and kills more than any other disease; the tendency is, by reason of its commonness, to consider it one of the necessary evils. Although preventable, it is far more to be dreaded than plague and small-pox combined. The measures taken by the Health Office to prevent tuberculosis among the Chinese have been chiefly educational through circulation of information giving directions for avoiding infection, but much more might be done by providing dispensaries for the treatment and education in preventing the spread of consumption, a sanatorium for curable cases and a hospital for advanced cases. Considering that more than a thousand Chinese die of this disease every year in Shanghai there is a great scope for preventive work, and the question arises, whether further provision should be made at the public cost or whether it should be left for the Chinese residents to take the initiative and provide the very considerable funds necessary. Foreign cases are, to a large extent, contracted from Chinese cases. Every consumptive is a potential source of the disease. Tuberculosis is essentially a disease of indoor life. Overcrowding within the settlement and the filthy habit of indiscriminate spitting among the Chinese is largely responsible for the high tubercular death-rate. Whatever may be done as regards tuberculosis among the Chinese, something must be done soon for the foreign consumptive in poor circumstances, of whom there are an increasing number. The man of means, who contracts the disease, is nearly always sent to the sanatoria of Europe.
and America and often comes back cured, but for him that has to stay in Shanghai there is no proper provision, as it is not advisable, on account of the danger of infection, to receive these cases into hospitals along with general medical and surgical cases. It is recommended that special provision be made for these cases as a part of the scheme for the completion of the isolation hospital and, although thrown out of the programme of expenditure for 1909, it is hoped that provision will be made in the near future, combined, if possible, with some sort of sanatorium treatment for tuberculosis in connection with the Municipal sanatorium at Mokanshan.

The most important event to be recorded during the year is the detection of plague among rats within the settlement. The location of these rats, chiefly in the neighbourhood of the wharves in the eastern district, indicates introduction by ships carrying rats from plague-infected ports. The circumstance which led to the detection of these plague-infected rats was the occurrence of a case of plague at Hankow, confirmed by examination in the laboratory, which indicated a source of infection somewhere in the Yangtsze Valley. Prior to finding rats dead of plague no human case had either been reported or suspected, neither have any such arisen by the end of the year. The grave import of the finding of plague-infected rats is due to the fact which is now proved by a large number of observations made in different parts of the world where plague has occurred, that the rat is the essential cause of epidemics of plague in man. The measures taken to stamp out plague among rats and to prevent the disease from spreading to man, have been directed towards localising plague among rats by examination in the laboratory of those found dead, the systematic destruction of rats in infected areas, the rat-proofing and pulicidal disinfection of houses and the education of the public, both foreign and Chinese, in the methods of rat-proofing houses and of rat destruction. In fighting plague the absence is felt of the finer organisation which would have resulted had the proposed new Land Regulation dealing with public health been put through when first recommended. Panic measures are usually extravagant and comparatively inefficient. It is necessary therefore by careful and progressive organisation to make the best of the limited means at the disposal of the sanitary staff. As regards the chances of ultimate success it is impossible to give any definite opinion. The crucial period will be during May and June, when plague may be expected to become epidemic. There are reasons for believing that the work of the Health Office has the confidence of the Chinese public, and, as their co-operation is an important factor in
plague prevention, a less unfavourable prognosis as to ultimate success may be made.

The hygienic anomalies which beset the milk supply are especially evident in Shanghai. From cow to consumer the history of milk is a series of dangerous pollutions. Every health officer knows that administrative supervision usually fails to secure anything approaching a hygienic supply. He urges boiling as a measure against the iniquities of milk, being conscious that the machinery at his disposal fails to secure milk sanitarily pure. The officers of the public health service cannot be ubiquitous. They have many duties to perform other than supervising the milk supply. When the dairyman becomes possessed of a conscience sensitive to the dangers of microscopic dirt, as well as gross filth, then only can there be any hope of a general milk supply above suspicion. The only plan for effectively removing these dangerous anomalies is to treat the milk supply as the water supply has been treated. With an organised control, inspired from within by the ideals of the sanitarian, there would result an improvement in purity and quality of what, after all, is usually considered to be more a prime necessity of life than either gas or electricity. The bugbear of cattle plague, which works such repeated devastation, would be met by the same intelligent direction. As a preliminary measure towards securing this ideal milk supply, a sterilising and bottling station under public control may be recommended, where all the milk produced for the settlement could be brought, tested, bottled and issued to the public. This would mean milk of uniformly good quality, guaranteed free from infection, at a somewhat increased price in addition to the cost of establishment and running expenses of the sterilising station. The question arises, whether, being in possession of so simple a method of eliminating danger from milk as plain boiling affords, such an establishment is, under local conditions, worth the money.

The urgent danger of plague, the vaccination campaign, and the fight against tuberculosis are reasons, among others, which emphasise the need for local centres for practical sanitary work. With such an immense alien population, whose ways are obfuscated with prejudice, it is necessary for the sanitary staff to get in touch with them by studying carefully their habits and mode of thought. The settlement is divided into four sanitary districts corresponding with the general division of the settlement into Eastern, Northern, Central and Western districts, with a resident inspector in charge of each. These sanitary districts are divided into sub-districts with an assistant inspector in charge of each sub-district. These officers should also be resident in
their several sub-districts, but without official quarters this is practically impossible in some localities. These local centres for practical sanitary work, or health stations as they may be called, should therefore provide quarters for the assistant inspector and his special staff of disinfectors, etc., a dépôt for the storage of house refuse barrows and ordure buckets, which are at present of necessity left lying about the streets and alleys, and for the storage of other sanitary and disinfecting apparatus and materials: and in addition there should be a room for vaccination and lectures on sanitary subjects in Chinese, and an office for the registration of native deaths. Such a sub-district dépôt would probably cost for land and buildings from Tls. 10,000 to Tls. 30,000, according to the locality, or a total cost of some Tls. 200,000 for the whole Settlement. As such a measure would result in greatly increased efficiency of work and is, in fact, necessary for the proper working of the department under local conditions, it is recommended that the scheme be carried through as soon as circumstances permit, so as to allow of the further organisation of sanitary work along progressive lines.

PUBLIC HEALTH MEASURES NEEDED.

Extension of the health office and laboratory building.
Completion of the isolation hospital to include isolated accommodation for cases of tuberculosis among foreigners.
Health stations in each sanitary sub-district.
A separate residence for Municipal nurses.
Dispensaries for Chinese consumptives (in connection with proposed health stations). A hospital for advanced cases and a sanatorium for curable cases of consumption.
A new land regulation dealing with public health measures generally.
A Municipal milk sterilising station.
A vaccination league among the Chinese.
Amendment of the Chinese building rules so as to secure as far as possible rat-proof houses.
Amendment of the foreign building rules so as to secure proper kitchen arrangements and, as far as possible, rat-proof houses.

The following public health notices, for foreigners and Chinese respectively, have been published during the year:

PUBLIC HEALTH NOTICE FOR FOREIGNERS.

The following measures are recommended for the purpose of preventing those diseases which by means of individual careful living and by public sanitation are preventable, such as typhoid fever, cholera, dysentery, diarrhoea and other bowel disorders, small-pox, scarlet fever, diphtheria, tuberculosis, plague and Malaria,
Public Measures.

Sanitary inspection of houses will be carried out free of charge by the Health Department on application to the Health Officer.

Nuisances dangerous to health should be reported to the Health Officer.

Disinfection of premises after infectious disease will be carried out free of charge on application to the Health Officer.

Isolation of cases of infectious disease is provided at the Isolation Hospital, Range Road. The fee for the wards is Tls. 2 a day and for private rooms Tls. 6 a day. Free beds are available for poor people.

Individual Measures.

Kitchen supervision should be thorough because the preventable diseases specially prevalent in Shanghai are mostly caused by infected food. Every house should, if possible, have a separate larder (place for storing uncooked food), kitchen and serving-room. The serving-room should contain the Berkefeld filter, ice-chest, table utensils, washing sink, boiled milk, drinks, bread, butter, fruit and other cooked or prepared foods. Cooking or boiling destroys infection.

Vegetable and fruit grown near the ground, are specially liable to be infected with the germs of typhoid fever, cholera, dysentery and other bowel diseases, and should be kept out of the serving-room and from contact with cooked or prepared food.

Milk should be thoroughly boiled immediately it is received and placed in the serving-room.

Water for drinking purposes should either be boiled or filtered through a Berkefeld filter.

Mosquitoes and flies carry disease, hence fly-covers should be used over cooked food. As mosquito bites may carry malaria, the mosquito net should not be neglected, especially up country.

Refuse should not be allowed to accumulate, and a proper easily-lifted galvanised iron receptacle should be provided. Nightsoil buckets should be kept securely closed, including those in the servants' latrines. Proper receptacles for these purposes may be obtained at the Health Office.

Yards and drains can be best disinfected by keeping them in a good state of repair and flushing freely with water.

Vaccination should be repeated every three years.

PUBLIC HEALTH NOTICE FOR CHINESE.

[Translation.]

The following measures are recommended for the purpose of preventing those diseases which by means of individual careful living and by public sanitation, are preventable, such as small-pox, cholera, diarrhoea, diphtheria, scarlet fever, measles, consumption, plague and malaria.

Public Measures.

Sanitary inspection of houses will be carried out free of charge by the Health Department on application to the Health Officer, 1 Honan Road.

Nuisances dangerous to health should be reported to the Health Officer.

Isolation of cases of infectious disease is provided at the Isolation Hospital, Range Road. The wards are free, but for private rooms a small charge is made.

Disinfection of premises after infectious disease will be carried out free of charge on application to the Health Officer.

Individual Measures.

Food should be thoroughly cooked. No cooked food should be kept overnight from June 1 to October 31.

Vegetables and fruit grown near the ground, being liable to infection with cholera and other diseases of the guts, should be separated from the rest of the food before cooking. Cooking destroys the infective material.

Water should not be drunk unless it has been boiled. Acrated waters and such cold drinks are often dangerous to health. Tea is the best drink for both hot and cold weather.

Mosquitoes and flies carry disease, hence fly-covers should be used over cooked food. As mosquito bites carry malaria the mosquito net should be used, especially up country. Paraffin oil will prevent the development of mosquitoes in stagnant water, but no stagnant water should be allowed to collect.

Refuse should not be allowed to accumulate, and a proper easily-lifted galvanised iron receptacle should be provided. Nightsoil buckets should be kept securely closed, including those in the servants’ latrines. Proper receptacles for these purposes may be obtained at the Health Office.

Yards and drains can be best disinfected by keeping them in a good state of repair and flushing freely with water.

Vaccination should be repeated every three years.
In Consultation.

Soochow, February 13th, 1909.

DEAR DOCTOR:—On my last visit to Kashing Dr. Wu, Dr. Venable's assistant, who is running his hospital during his absence, showed me a rather interesting case.

A farmer while smoking his pipe fell; the glass mouth piece of the pipe being driven through the soft palate. He broke off the pipe stem, leaving this mouth piece, about two inches long and constricted in the middle, suspended in the soft palate. When the man came to Dr. Wu a month after the accident, there was considerable swelling of the parts, and the mouth piece could not be seen. He finally had to use chloroform, and with a large pair of forceps extracted the piece which he showed me. The patient of course is getting well.

Yours sincerely,

R. T. SHIELDS.

Yungchun, February 4th, 1909.

DEAR DOCTOR:—The mistake is due to Messrs. Montgomery, Ward having omitted the article from No. 77 catalogue. It can still be obtained from them:—

The bright wire cloth .......................... $6.75 per roll of 100 linear feet, thirty-six inches wide.
The green wire cloth .......................... $4.50 for a roll of the same size.

The bright wire cloth is the best and intercepts least light. Its price is $6.75 per roll of 100 linear feet, thirty-six inches wide. It can be got in smaller widths also. The green wire cloth is quite sufficient for hospital use, except where the rain constantly beats on it. Its price is $4.50 for a roll of the same size.

The mesh of this wire cloth is large, but I can state that mosquitoes, whether in theory they could slip through or not, do not manage to get through.

It is what I use for my mosquito breeding cages, and even the young mosquitoes do not manage to escape.

The bright wire cloth needs no painting; weathers extremely well and is very satisfactory. I send you samples of both materials. Although frequently wet, the wire cloth on my verandah is as good as the day it was put up four years ago.

With kind regards, I am,

Yours sincerely,

J. PRESTON MAXWELL.

* 12 to the inch.—Ed.
SHAOHsing, March 18th, 1909.

Dear Doctor: Correspondence in the January Journal regarding wire cloth for mosquito screens, leads me to say that in response to an inquiry Colonel Gorgas, Chief Sanitary Officer on the Panama Canal, told me they use eighteen wires to the inch, but he thinks sixteen wires would be sufficient to protect against anopheles. Their experience is that it is cheapest to buy the best copper wire. What they put up of that three years ago is still in use, whereas the cheaper wire has to be renewed every six months. He recommends as reliable manufacturers: The New Freedom Wire and Screening Co., New Freedom, Pa., U. S. A.

Hope to have further notes on Fas Buski vel Rathouisi soon.

Sincerely yours,
F. W. Goddard.

Book Reviews.


These publications show the advance of the bacteriological and physiological study of the disorders affecting both man and beast in the tropics, and also afford valuable information on the pioneer work of research which is the basis of the industrial development of a country newly opened to civilisation.

First Report, published in 1904. 87 pages of text, printed on fine art paper, 5 coloured plates, 6 reproductions of black and white drawings, 50 reproductions of photographs, and 5 maps and plans.—A reprint is now published, price 12s. 6d. net.

Second Report, published in 1906. 255 pages of text, printed on fine art paper, 16 coloured plates, 51 reproductions of black and white drawings, 75 reproductions of photographs, and 7 maps and plans.—A reprint is now published, price 17s. 6d. net.

Third Report, 1908. 477 pages of text, including 27 pages of index, 28 coloured plates, 51 reproductions of black and white drawings, 263 reproductions of photographs and 13 maps and plans. The paper is specially prepared from linen rag, selected to give the finest and most permanent results.—Price 21s. net.

The latest work of the laboratories is shown in the Third Report, which includes papers showing the continuance of the work detailed in the First and Second Reports, and, in addition, introduces several new features.
In the first place, there will be found papers by medical officials who, though not actually members of the staff, have carried on researches in the laboratories. Secondly, the sciences of ethnology, ethnography, and anthropology have received considerable attention, and the papers on these subjects form a most complete addendum to the subject of tropical medicine.

The third change is the introduction of a chapter under the heading "Sanitary Notes." The author, as a medical officer of health, has been much impressed by the useful lessons to be learned from a study of the problems in connection with the carrying out of a sanitary policy for a new town in the tropics.

SUMMARY OF CONTENTS.

Owing to the large number of papers, it is impossible to give more than a very brief indication of the contents of this volume.


SUPPLEMENT TO THIRD REPORT.—"REVIEW OF SOME OF THE MORE RECENT ADVANCES IN TROPICAL MEDICINE, ETC." By A. Balfour and R. G. Archibald, 1908. 251 pages of text, including 13 pages of index.—Price 10s. 6d. net.

This review is intended to serve as a guide to new books and papers in that rapidly growing science, tropical medicine, and to present in a small compass the more important recent discoveries on the subjects indicated. Full references are given to sound practical papers, which are likely to be helpful to those who wish to go more fully into any special subject, but the scientific aspect of certain questions has not been neglected.

This book will stimulate research and lead to the acquisition of useful information in directions where knowledge as regards tropical and veterinary medicine, bacteriology and hygiene, is still deficient.

SUMMARY OF CONTENTS.


This is a book of real missionary interest. Though Dr. Arthur Peill had but ten years of missionary experience before being summoned to the higher service, he put as much into those few years as many a man would have done in double the time. He was not only a man of devoted missionary spirit, and of great skill as a physician and surgeon, but he was a writer with true literary instincts, who could sketch the incident of his daily life in a way that could not fail to interest even those not hitherto interested in missionary life and work. He loved the Chinese with an intense and whole-hearted love. He could see the humorous side of things, but his humour was never ridicule. He felt keenly the dense darkness of cruelty and ignorance, the effects of which were but too manifold among his hospital patients, but he rejoiced in the signs of the dawning of a new day.

"He was privileged to build and rebuild, after the Boxer troubles, a hospital in memory of Dr. Roberts, of Tientsin, and himself was not unlike Roberts in his devotion to the highest interest of Christ's kingdom.

"His ideal was a high one, as a single extract may show:

Gradually the conviction comes home to me that 'medical missionary' and 'medical man' are far from synonymous terms. In some real sense every man one meets is a 'patient.' Each one of the uncounted thousands with whom one is brought into some sort of contact during the year is better, or worse, for the glimpse so gained of a professed representative of the Master. And to each of those burdened, sin-stricken hearts there ought to have come some haunting, sweet suggestion of the presence of that Master Himself to set him athirst for more. That word 'missionary' implies all this, and our 'patients,' reckon thus, are beyond the utmost reach of mere statistics.

"As one reads towards the close of the book Dr. Peill's impressions of the great 'revival' he was privileged to see and to record before his death, one feels almost as if one stood on 'holy ground.' The whole book is worthy of careful study, and can be heartily commended to all friends of missions."
The yearly subscription to the China Medical Missionary Association is 4 Mex., payable in January of each year. This includes the Journal and postage on 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.

Editorials.

It is proposed to devote a near-future issue of the Journal to medical education in China, that of September next. Will all who are interested in this subject please take note and contribute to the same, either in the way of general papers on methods, aims, results, and so on; or accounts of institutions with photographs, illustrating methods of instruction, laboratory work, and so on. Or again, matter bearing on medical literature, translation and publication work. The air is full of whisperings, and there is more interest in medical education to-day than there has ever been before in China. Let us share what we are thinking and doing with those who are working along the difficult lines of our own progression.

We note with interest a prospectus of the Hill Remedy Company, Limited, marked in red ink: “This prospectus is issued for private circulation only and for the information of those to whom it is addressed.” The Company is to be incorporated under the Companies’ Ordinances of Hongkong, and the general sale managers are Messrs. Dunning & Company, Limited, of Shanghai. The object of the Company is the introduction and sale of certain medicinal remedies throughout China and the Far East. An estimate of revenue is ventured in these words:

“The sale of patent medicines has proved a source of great profit of recent years. In the United States of America many of the large fortunes have had their foundation in this source and the shares of some of the patent medicine companies can now be obtained only at an
enormous premium. The great population of China, the scarcity of meritorious remedies [italics are ours.—Editor] and the eagerness of the people to obtain foreign medicines are all indications of the favourable and promising position of this Company. A careful estimate shows that with only limited sales the profits should prove sufficient to make possible a most gratifying dividend for the shareholders."

The shares are $10.00 apiece, and there are to be five thousand of them.

Think of it! members of the China Medical Missionary Association!! A prospect for each of us and a fair chance of future affluence. A nation thirsting for your help and a chance to become millionaires in giving it! Let no member of the Association who has already sold his honour fail to get the full price for it. And you poor people of China, God help you!

A PURE DRUG SUPPLY.

MORE ANSWERS.

LIST OF CHEMISTS.

*British Drug Co., London.
*E. Merck, Darmstadt.
*Burgoyne, Barbridges & Co., London.
*C. J. Hewlett & Son, London.
*The Shanghai Dispensary.
*Parke, Davis & Co., Detroit.
*Ferris & Co., Bristol.
†Burroughs Wellcome & Co., London.
*Johnson & Johnson, New Brunswick, N. J.
Charles Varrow & Co., London.

Knoll & Co., Ludwigshafen.
Dakin Brothers, Ltd., London.
Keher Komiki, Osaka.
*C. Berthei, Shanghai.
Davis & Laurence, New York.
*Frederick Stearns, Detroit.
Allen & Hanburys, London.
Fred Bayer Cie., Elberfeld, Germany.

* Answered.
† Letter marked "Private."

QUESTIONS.

1. Do you publish unqualifiedly the full and accurate formula of every product of your manufacture?
2. Do you believe in product patents and make use of the same?
3. Are your laboratories open to inspection by both the medical and pharmaceutical professions?

We should be glad also to have your answer to the question:—

4. Is it your practice to manufacture what is commonly known as "patent medicine" to be sold either under your own name or under that of other firms?

The following answers to our letter have been received since our last issue:—
Editorial.

London, February 8th, 1909.

Editor THE CHINA MEDICAL JOURNAL.

Dear Sir: We are in receipt of yours of the 1st of January, and in reply beg to say that we manufacture a large number of proprietary preparations. These do not come under the denomination of patent medicines, which in most cases are secret preparations offered direct to the public. All our specialities bear the formula on the label. “Chlorobrom” for instance, our proprietary hypnotic, states on the label that each fluid ounce contains 30 grains of bromide of potassium and 30 grains of chloralamid combined with suitable aromatics. The medical man therefore in prescribing it knows exactly what dose of the ingredients he is giving. Question one therefore is replied to, the second is rather a difficult one to answer; we presume you mean do we believe in “patent medicines.” Happily the members of our firm are blessed with robust health, and therefore have not had practical experience of the great number of these advertised specialities, we can therefore only answer in the same strain as the curate did to his Bishop on the egg question, “Parts of it are excellent my Lord.” Some patents are good and some say on the label that they are excellent. We of course supply patent medicines to our clients who order them.

In reply to your 3rd question, our new laboratories and works, which are perhaps the largest and most modernly equipped in the United Kingdom, are always open to inspection, and we are only too pleased and may say proud to show our clients over our works. We are sending you a copy of the latest Chemist and Druggist, on page 9 of which you will see a report of our new chemical works and on page 165 an article, “Linking the Centuries,” by the editor, who personally went over them.

In reply to question 4. We manufacture chemists’ own specialities, which are sold under their own names and according to their own formulae; it often not being possible for these to be made economically and with up-to-date machinery abroad.

At all times at your service,

With compliments we remain,

Yours faithfully,

Burgoyne, Burbidges & Co.

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Editor THE CHINA MEDICAL JOURNAL.

Dear Sir: Replying to yours of January 1st. In view of the conditions as explained by you regarding various medicinal preparations which are being exploited upon the Chinese market, it seems to us that you, as editor of a missionary medical journal, as well as the other members of the Missionary Association, are perfectly justified in demanding from the manufacturers of such preparations some assurance that their goods are made from the formulas that they purport to be. As for ourselves, we can answer this general statement in the most emphatic manner, Yes.
We are manufacturers of a very complete line of pharmaceutical products, as is evidenced by our pharmaceutical catalogue, a copy of which we are sending you by this mail. This embraces a complete line of fluidextracts, elixirs, pills, etc., etc. As to the quality of these, perhaps we cannot do better than quote a few words from the opening paragraph of our catalogue: "The most carefully selected drugs are used for all our fluidextracts. All of these drugs are standardized before they are allowed to enter the manufacturing department. The standards of all official fluid extracts are those used in the U. S. P. VIII. The fluidextracts of such drugs as respond to physiological tests are most carefully standardized by suitable methods."

In common with other reputable manufacturing pharmacists, we offer to the medical profession a number of special preparations, which are fully described in part three of this catalogue. These embrace such preparations as:

Adrenphrin Solution, our trade name for the solution of the superarenal gland.
Alphapzone, our trade name for a new chemical compound (succinic peroxide), the most powerful non-poisonous germicide.
Stearns' Wine of Cod Liver Extract, a solution in wine or a specially prepared concentrated extract of fresh cod livers.
Kasagra, our trade name for the original palatable, full-strength fluidextract of Cascara Sagrada, which we placed upon the market some twenty years ago.

We are sending you some brochures descriptive of these scientific preparations, also the labels that are used upon the goods, both of which give accurate descriptions of their composition.

That we are thoroughly in sympathy with the nature of your query, we might state that we are the originators of non-secrecy in medicine; this is a bold statement to make, but nevertheless true. In proof of it we would say that more than thirty years ago we placed upon the market a line of simple household remedies under the title of "Non-Secret Preparations," which are made from approved formulas and which are described in a separate catalogue that we are sending you, where you will find the formulas from which these goods are actually prepared clearly stated, as indeed are they also on the labels which surround the goods themselves. Indeed it may not be too great a stretch of the imagination to say that the non-secret idea as exploited by us about a third of a century ago was, in a measure, the forerunner of our present Pure Food Law.

We have pleasure in replying to your questions as follows:—

(No. 1.) Do you publish unqualifiedly the full and accurate formula of every product of your manufacture? Answer.—Emphatically yes. The labels and wrappers of practically all of our goods bear the complete and full formula, in addition to which they are stated in our catalogues.

(No. 2.) Do you believe in product patents and make use of the same? If, as we understand this to mean, do we seek protection of the titles of special preparations that we offer, yes, and for the reason that in many and indeed most cases such preparations represent large outlays of time and money spent in investigation, and our only protection is in the coined title.

(No. 3.) Are your laboratories open to inspection by the medical and pharmaceutical profession? Answer.—Decidedly so and with pleasure. It is customary for the graduating classes from our medical and pharmaceutical schools to be shown through in a body; besides, there is scarcely a day passes that we have not the pleasure of showing some of our visiting medical friends over the plant.
Is it your practice to manufacture what are commonly known as patent medicines, to be sold either under your own name or that of your firm? Answer.—No. While as explained before, we manufacture many proprietary preparations, yet these are the direct opposite of the so-called "patent nostrums," in that there is no secrecy whatever about them and they are made from good and approved formulae.

We are pleased to thus reply to your queries and to guarantee to you that our preparations are not only made strictly in accordance with our published formulae, but from the best materials obtainable and by skilful operators.

Very truly yours,

FREDERICK STEARNS & CO.

By THOS. BENNETT, Secretary.

Editorial.

(No. 4.)


Editor, The China Medical Journal.

Dear Sir: Answering your circular letter of January 1st would say that our position in all of these matters has been so fully explained in our literature, including our publications Red Cross Notes and Red Cross Messenger, that it seems hardly worth while to discuss the various propositions which you have enumerated. Nevertheless we will answer your direct questions as follows:

1. Yes.
2. We have no product patents.
3. Yes, under regulations and restrictions.
4. We manufacture to a limited extent the articles enumerated; it being the custom in this country for manufacturers in our line to do so; nevertheless, for many years past we have discouraged this practice, and at the present time it is very limited so far as we are concerned.

The intent of our answer is to the effect that we have publicly and privately endorsed and followed the lines of the American Medical Association, the National Association of Retail Druggists, the American Pharmaceutical Association and other bodies in the present movement, which is known as the "Propaganda."

Trusting that the above will fulfill your requirement, we remain,

Very truly yours,

JOHNSON & JOHNSON.

By J. B. KILMER.

[* The editor thinks it is "a whole lot" worth while to discuss these matters.]

New York, February 11th, 1909.

Editor, The China Medical Journal.

Dear Sir: Replying to your letter dated January 1st, 1909, we beg to say that we do publish unqualifiedly a full and accurate formula of all of the medical products that we manufacture and put on the market. We do believe in product patents and make use of them.
We have always shown our laboratories to the pharmacists and physicians who have desired to see them, and will be glad to show them to any representative whom you should designate. It is not our practice to manufacture what is commonly known as patent medicines. We do not sell any under our own name. We have occasionally made up a special order of pills or elixirs for doctors or retailers, who may sell them over their own name, or give special names to them, but we have refused to manufacture products which might prove habit forming or might be sold for illegitimate or immoral purposes.

Most of the specialities we manufacture have been submitted to the Council of the American Medical Association and have been admitted to their list of new and non-official remedies. We are sending you a copy of our laboratory price list, which will show the class of goods we manufacture.

We have long thought that the medical missions could wisely have a central purchasing agency, and as the officers of our corporation are directly interested in missionary work, we will be glad to give any suggestions as to the form in which bids should be submitted and the character of the houses to which they ought to be sent.

Yours very truly,

SCHIEFFELIN & CO.

WM. JAY SCHIEFFELIN, President.

LONDON, 12th February, 1909.

Editor, The China Medical Journal.

Dear Sir: We are in due receipt of your favour of 1st January, and note with interest all you write.

Our price list fully discloses the whole system of our business, and you will see the various guarantees on the printed page marked with a red cross.

We have much pleasure in replying to your enquiries as under:

(1.) All our drugs and chemicals are guaranteed according to British Pharmacopæia, or other recognised formulae.

(2.) We do not produce patents. All we do is to buy them for any clients against their order.

(3.) The laboratories or works in which our goods are made, are under the superintendence of British government inspectors.

(4.) We do not manufacture patent medicines.

Trusting these replies contain the information you wish, and awaiting your further good news, we are, Dear Sir,

Yours faithfully,

(For the) BRITISH DRUG CO.

J. T. CRAIG & CO., Agents.
Detroit, Mich., February 8th, 1909.

Dear Sir: We beg leave to acknowledge receipt of your circular letter of the 1st ultimo and to return you the direct and unequivocal answers which you request to your various questions.

1. We do publish, unqualifiedly, the full, accurate, and true formula of every product we manufacture.

2. We do not believe in the abuse of product patents. We do not believe in utilizing product patents to wring extortionate prices out of purchasers, but we are equally convinced that without the protection afforded by product patents it is utterly impossible to maintain, as we maintain, large, well-equipped and costly research laboratories for original experimentation and the elaboration of new products. In our entire list of nearly eight thousand preparations we have three or four which are protected by product patents granted the inventor. We know that the medical profession of the United States does not take serious exception to product patents, nor does it begrudge a fair reward to the inventor of a meritorious medicinal agent. The American physician freely admits that if the originator of a novel broom handle is entitled to a monopoly of his invention, the scientist who discovers a means of curing tuberculosis should not be meanly cheated of his reward.

3. Our laboratories are open to inspection by both the medical and the pharmaceutical professions. Our work is done openly, not behind closed doors. Thousands of physicians and druggists visit and inspect our various departments every year.

4. In addition to our regular list of preparations we maintain a private-formula department for the convenience of the dispensing physician who wishes large bulk quantities of his pet prescriptions made up for him. We also manufacture extensively the druggist's own specialities. You can readily see specimens of the hand work of our private-formula department if you will go to the German pharmacy in Shanghai. We assume no responsibility for the methods by which the products of our private-formula department are distributed or advertised or sold by their owners. When we have manufactured these articles, with the utmost fidelity to formula, with as keen a regard for quality as for the products that go out on the market under the label of Parke, Davis & Co., we feel that we have discharged our whole duty and that we cannot be held accountable for the advertising or business methods of the exploiter. Of course we draw the line sharply at all medicinal agents which are clearly designed for immoral or illegal use. With such unsavory business we have nothing whatever to do.

In conclusion we wish to declare very emphatically that our publication of all medicinal formulae was in no way hastened or influenced by the federal pure-food-and-drug law; we have been publishing our formulae for forty years; we never did anything else, and our practice in this respect has been in no way affected by recent legislation beyond our taking steps to fulfill the requirement of the federal act by publishing on our labels the percentage of alcohol present in each product. That, by the way, is a perfectly ridiculous requirement. While it has put us to a whole lot of clerical trouble, it serves no useful purpose. What sense is there in compelling pharmaceutical houses to publish on the label the amount of alcohol used as a menstruum in the manufacture of fluidextracts and medicinal elixirs? But now that all the bother and detail are over, we don't care a fig about the alcohol clause; if the government wishes the amount of alcohol printed on the label, well and good; we have no objection.

Very truly yours,

Frank G. Ryan.

Parke, Davis & Company.
The China Medical Journal.

HOLLOWAY, LONDON, N., March 5th, 1909.

The Editor CHINA MEDICAL JOURNAL.

DEAR SIR: We are in receipt of your circular letter dated January 1st, and in reply we have pleasure in giving you the following particulars of VIBRONA, by which you will note that its composition and standard strength are guaranteed by the independent analysis of Dr. B. H. Paul, who is, as you are doubtless aware, recognised as the principal authority in this country on cinchona. Dr. Paul's Report does not rest, as in the case of so many analysts, on an isolated analysis to which the product analyzed may or may not subsequently conform. Dr. Paul will not allow his name to be associated with any product unless he has authority to obtain specimens of the preparation from time to time as he may think fit, not from the manufacturers direct, but through the ordinary sources of distribution, and if at any time the preparation analyzed does not correspond with the original sample, he will at once withdraw his certificate.

As you will note from the original report of Dr. Paul in 1895 (a facsimile copy of which we enclose) the composition of VIBRONA is fully detailed, and since that time Dr. Paul has periodically examined specimens of VIBRONA down to the present year. You will find one of his recent reports on page 31 of Medical Appreciations sent under separate cover.

In prescribing VIBRONA the physician has therefore the same assurance that his patient will receive a preparation of uniform strength as if he were prescribing a preparation of the British Pharmacopoeia.

We believe there are few, if any, proprietary articles which can lay claim to a similar guarantee, and on this account alone we feel sure that VIBRONA will commend itself to your favourable opinion.

We take the opportunity of sending you under separate cover some literature relating to VIBRONA, which we trust you will find of interest.

With compliments, yours faithfully,

FLETCHER, FLETCHER & CO., LTD.

J. W. FLETCHER, Governing Director.

[No charge will be made for this free ad. for Vibrona, but we do not find that it answers our questions.—EDITOR.]

DARMSTADT, February 13th, 1909.

Editor THE CHINA MEDICAL JOURNAL.

DEAR SIR: I beg to acknowledge receipt of your circular letter dated January 1st, and I must confess that I am rather surprised at the contents. I gather that you are unacquainted with the traditions, principles and extent of my Works, and I seize this opportunity to mail you at the same time a collection of views of my establishment, in which you will also find a short historical sketch of its growth. I would point out to you that mine is a purely chemical factory (to which there is a bacteriological department attached), and the exact chemical formula of every preparation produced is naturally published,
as you will find on consulting any of the works that emanate from my scientific department, such as Merck's Index, Merck's Annual Reports, etc., as well as any publications respecting the medicinal properties of any preparations that are compiled for the information of members of the medical profession.

I do not manufacture any secret remedies or any form of compounded products whatever; my scope of manufacture being strictly limited to the production of chemical bodies of definite composition. Merck's Works are, in accordance to the provisions of the German law, under constant government inspection, besides being frequently visited by leading men of the scientific world, physicians, chemists, pharmacists and others. I readily grant permission to view my Works, providing of course that I have no reason to assume that the visitor will turn his observations to account for competition purposes.

I trust that from the above you will be able to conclude that my Works are in no way connected with the manufacture to those preparations to which your circular letter refers.

Believe me, yours faithfully,

E. MERCK.

[Bravo, Merck!—EDITOR.]

BRISTOL, 19th February, 1909.

Editor THE CHINA MEDICAL JOURNAL.

DEAR SIR: We beg to acknowledge receipt of your circular letter of the 1st January, the contents of which have been duly noted.

The subjects you refer to shall be brought before our Board of Directors at their next meeting, and we will reply to your questions as early as possible afterwards.

We are, Dear Sir, yours faithfully,

FERRIS & CO. LTD.

H. H. TOWNSEND, Director.

LONDON, February 20th, 1909.

Editor CHINA MEDICAL JOURNAL.

DEAR SIR: We beg to acknowledge receipt of your esteemed favour of the 1st instant, and note remarks contained therein.

With regard to the questions which you placed before us we are pleased to be able to reply in the affirmative to all of them. It has always been our rule to give the formulas of our preparations, which have been on the market for many years, and although publishing the formulas has been the means of several of our competitors making spurious imitations, we are pleased to say they still hold a world-wide reputation.

We would mention that we do not supply them direct to the public, but only to chemists, for dispensing prescriptions, and members of the medical profession.
As regards inspecting our works, we are at all times pleased to welcome medical men and show them our premises.

Trusting the information contained here will be of service to you, and with compliments, we are, Dear Sir,

Yours faithfully,

For C. J. Hewlett & Son, Ltd.,
E. J. Millard, Managing Director.

Philadelphia, March 10th, 1909.

Editor The China Medical Journal,

Dear Doctor: We are aware of the condition of affairs outlined in your letter of January first. Owing to the passage of the Pure Food and Drugs Act of June, 1906, the practice of the pharmacologic arts in the United States has been greatly advanced. Before the passage of the Act, competition was of such nature that it was considered legitimate to resort to secret formulas to protect commercial interests by throwing competitors off the track. This was due in large measure to the misunderstanding of the objects of the patent, copyright, and trade-mark laws by the medical profession. It was not realized by the profession that it is just as ethical for manufacturers of materia medica products to protect their brands by patents on processes, and specifying work-marks, as it is for publishers of medical books to protect their publications by copyright. Consequently manufacturers resorted to secrecy to obtain that protection which should have been accorded them under the patent and trade-mark laws.

The object of the patent law is to promote progress in science and useful arts, that of the trade-mark law to protect the public from the fraudulent substitution of one brand of materia medica products for another. Properly applied to medicine, these laws should promote progress in medical science and in the pharmacologic arts and protect the public from fraudulent substitution.

These objects are in harmony with the professional ideal of the medical profession. The professional ideal includes the donation of the experience in the practice of the pharmacologic arts to the profession of pharmacy. It also includes cooperation between physicians and pharmacists in promoting progress in the science of pharmacology by original investigation and the publication of the results for the use of the medical and pharmaceutical professions in conducting their respective vocations.

The practice of medicine in all its branches, including pharmacy, should be confined to licensed practitioners duly qualified by education and experience. Most, if not all, the states of this Union have enactments forbidding and making penal the practice of medicine or pharmacy by persons who have not gone through a course of appropriate study and obtained a license from a board of examiners.

But a peculiar anomalous condition exists in this country which defeats the salutary provisions of the medical and pharmacal laws in the fact that so-called proprietary medicines are excepted from the provisions of the laws, and the manufacturers of these products are permitted to place on the market and widely advertise medicines of
Editorial.

secret and semi-secret composition, ascribing to them marvelous virtues as therapeutic agents. These so-called proprietary medicines are advertised to the medical profession to fool the doctors and to the public to fool the people, and a demand thus created for nostrums.

In this way, so-called proprietary medicine manufacturers, under the guise of manufacturing pharmacists and chemists, are able to defy the medical and pharmacal laws and foist their nostrums on the market thereby forcing the graduate pharmacists to become agents for the nostrum business.

Much has been done by legitimate manufacturers to create an interest in this subject with the medical profession. Nothing of importance was accomplished, however, until the passage of the Pure Food and Drugs Act of June, 1906, affecting interstate commerce.

Since this legislation an active movement has swept over the country, and state after state has passed pure food and drug laws similar to the national law. In this reform the medical and pharmaceutical professions and the medical press and pharmaceutical press should lead.

As stated, pharmacy, or the art of preparing medicines to meet the requirements of physicians, is part of the practice of medicine. Therefore the medical profession is co-responsible with the pharmacist to the public for the identity, character, quality, and strength of every drug and preparation used by physicians in treating the sick.

When it is considered that the nostrum business has obtained such a hold on the medical profession, that if any pharmacist should throw out his stock of nostrums to-day, he would be forced to renew his stock to-morrow for the purpose of meeting the demand of the medical profession, it is evident that the reform of pharmacologic practice should have its beginning in the medical profession itself.

It is therefore gratifying to receive a letter you have sent out to the manufacturing houses in your capacity of editor of the China Medical Journal, and also of membership of the Medical Missionary Association of China. We are intensely interested in the subject and glad to co-operate with you and with the medical profession in raising the practice of pharmacy to its proper place as a branch of medical science. In using the term "medical profession" in this connection, we intend to include pharmacy, as the art of preparing medicines is an important medical art which should be practiced under the auspices of the medical profession.

Now to answer your questions:

1. Answer.—We publish unqualifiedly the name and exact amount of every medicinal drug and chemical entering our preparations. We do not publish the methods whereby our compounds are manufactured, nor the flavors employed in mixtures. However, this information is freely offered to the Revision Committee of the United States Pharmacopoeia, so that, if it is the wish of the committee at any time to make any product in our list official, the opportunity is afforded.

2. Answer.—We do not believe in product patents and we do not make use of the same. Product patents create unfair monopolies and hinder progress in science. Furthermore, agencies employed for the relief of suffering and the healing of the sick should not be monopolized. The monopoly of materia medica products by product patents, and the extension of the commercial control by registering the names of products as trade-marks thus creating a system of perpetual patents, was in vogue, without protest, until terminated by the decision of the United States Supreme Court in the Singer Sewing Machine Case in 1895. In spite of this decision, attempts are still being made to withhold the names of free products from public use by manufacturers, on the ground that they are trade-marks. The so-called proprietary system is but another phase of the same
objectionable scheme. By this system non-inventors protect monopolies of medicinal preparations and defeat the object of the patent laws.

The protection of brands by process patents and the use of brand-names gives ample protection without creating monopolies. The products themselves are free to science and commerce and open to impartial discussion in the medical journals, while the brands are protected from unfair competition and may be advertised in the columns of the medical journals without creating the impression that the journals are controlled by the manufacturing houses.

3. Answer.—Our laboratories are always open to the inspection of physicians and pharmacists.

4. Answer.—The name “patent” medicines is a misnomer, as the so-called patent medicines are, as a rule, mechanical mixtures of old and well-known drugs offered under coined names registered as trade-marks in the Patent Office and advertised to the public as specifics or cures for disease. They are not patentable inventions. As stated by the Board of Examiners-in-Chief, and appellate tribunal of the Patent Office, stated in the case of Caffall M. S., Vol. 18, p. 322: “It was never intended that any new composition of matter or mixture of simples should be the subject of monopoly. If rhubarb and senna, or calomel and jalap, were for the first time put together, he who should do it, whether regular practitioner or quack, would not be an inventor or discoverer under the law. If done by a doctor, it would only be the exercise of ordinary professional skill; if by another, it would be but an ignorant jumble of things having supposed virtues and obtained by the union of known simples.” The remedy for this state of affairs is clear. Each medicinal preparation on the market must necessarily have a name by which it may be manufactured and dealt in. That name, no matter whether it is a coined name or not, becomes by use the proper or descriptive name of the article and part of the common language. Any person having the right to manufacture and sell the article has an equal right to deal in it under its descriptive name. This name cannot be a trade-mark because it cannot perform the function of a trade-mark, which is to point out the origin or ownership of the brand. This almost self-evident fact should be clearly defined by the courts.

It is evident that a secret medicine cannot be manufactured by any person not possessing the knowledge necessary to its production. Until the secret has been divulged, the article is monopolized by the original manufacturer, and all other articles purporting to be the same thing are fraudulent imitations. When the secret is divulged, others have the right to manufacture the article and deal in it under its proper or descriptive name, all claims of the so-called proprietary medicine manufacturers to the contrary notwithstanding.

To protect the public and the professions from dishonest exploitation, we not only print true formulas on the labels of the products of our laboratories, but we insist that purchasers of our products desiring to market them under their own labels shall do likewise. Moreover we insist that the literature and advertisements relating to our products shall not contain unwarranted or misleading statements, whether marketed under the labels of the H. K. Mulford Company or under the labels of purchasers aforesaid. We do not permit the products of our laboratories to be offered as specifics or cures, on labels, in circulars, or in advertisements. Therapeutic information must conform with what is known or believed to be true in regard to the therapeutic value of such products by the medical profession. As quacks and advertising doctors will not accept the rules which govern the output of our laboratories, it is evident that we are not dealing in the class of products known as “patent” medicines, either under our own labels, or indirectly under the labels of “patent medicine” dealers.

Q. 5. What methods do you take for introducing new materia medica products to science and brands of the same to commerce? (This question is one of our own asking and we would suggest that it be added to your list, for it is of great importance to all concerned.)

5. Answer.—The introduction of new materia medica products to science requires co-operative investigations of experts representing the medical and pharmaceutical professions, and includes investigations of the products by chemists, physiologists, biologists, botanists, pharmacists, and clinicians.

The introduction of brands to commerce requires the use of legitimate methods of advertising and conducting the business on ethical lines, i.e., on a strictly honest basis. Protection should be given not only to science but to commerce in materia medica products. Further protection should be secured by
means of the proper application of patent and trade-mark laws. Patents should be limited to processes, leaving products free so that they may be introduced to science through regular educational channels. Each brand should be so labeled that purchasers may know the source of manufacture and that responsibility may be fixed where it belongs.

For the purpose of specifying brands, two methods may be employed, namely, the name of the product is written on orders or in prescriptions, and the brand specified by appending the name of the manufacturer to the title of the product. For convenience, word-marks or code-marks may be employed, provided, of course, the article is open to composition and is provided with a name under which all have a right to manufacture.

The granting of patents or medicinal inventions to unqualified persons, permitting them to carry on a commercial business in drugs and medicines in competition with the professions of medicine and pharmacy, and by the use of commercial methods which create an abnormal demand for poisons and habit-forming drugs, is a hindrance to progress and a menace to public health. This fact is realized in the countries excluding medicines from patent protection. In most foreign countries medicines are excepted from patent protection. In most countries, excluding medicines from patent protection, patents are permitted on processes and apparatus for manufacturing, and it has been advocated that the United States shall limit privileges affecting the materia medica in a similar manner. This is strenuously objected to by the manufacturers of patented chemicals on the ground that the burden of proof in cases of infringement is thrown upon the patentee, while in monarchial countries the government reserves the right to inspect the laboratories of the manufacturers to ascertain whether or not they are infringing upon patents in case of complaint to that effect. This objection, however, does not seem to be valid, for there is apparently no reason why the United States Patent Laws should not contain the same provision as that of Germany.

In Germany are, first, inventions, the application of which is contrary to the laws or public morals; second, inventions relating to articles of foods, whether for nourishment or for enjoyment, and medicines, as also substances prepared by chemical process in so far as the inventions do not relate to a definite process for the preparation thereof. Section 35 of the German Patent Law provides that, if the invention relates to a process for the production of a new substance, all substances of like nature are considered as having been made by the patented process until proof to the contrary is given.

Reference to Section 35 plainly shows that the German Patent Law does not provide that the laboratories of manufacturers shall be invaded by inspectors for the purpose of establishing the validity of complaints against alleged infringement of patents, but places the burden of proof upon the defendants.

It may be to the personal interest of German manufacturers to maintain the status of the United States Patent Laws, as they are at present administered, for it enables them to carry on their business in harmony with professional and scientific requirements, and secure the co-operation of physicians, pharmacologists, and chemists, the aid of the laboratories of the universities the resources of the hospitals and clinics in working and developing their inventions and utilize the prestige so acquired for advertising their products in the United States under the protection of product patents granted in this country but not granted in Germany.

In this way, they exploit the medical and pharmaceutical professions and the public in the United States and build up their industries in Germany.

Reference to the literature sent out by the agencies of the German houses in this country to the medical profession will show that the German medical press freely admit articles relating to chemical products used as therapeutic agents to the reading columns, and the professional standing of the writers of these articles is sufficient to guarantee the honesty and integrity of the authors.

Reference to the medical journals of this country will show that these products are not generally admitted to discussion in reputable medical journals, and the authors of papers relating to controlled products are generally regarded with suspicion by the medical profession and their reputation injured by such contributions.

Q. 6. Do you conform to the requirements of the United States Pharmacopoeia? (Another question of our suggesting.)

6. Answer.—We conform to the requirements of the United States Pharmacopoeia in manufacturing, and anticipate the requirements of the Pharmacopoeia in our work of original research and standardization.
In selecting our material for manufacturing purposes we find it necessary to have all supplies critically examined by experts to determine the identity, quality and strength of the crude material employed in preparing our products. Finished products are standardized when practicable. For that purpose chemical assay and physiological testing are employed. The U. S. P. requires the standardization of 50 vegetable drugs and preparations. The H. K. Mulford Company standardizes 177. The U. S. P. does not require the physiological testing of drugs. The H. K. Mulford Company physiologically tests 50 pharmaceutical and biological preparations. In addition to this, we make a bacteriological or clinical test of 38 of our preparations. We standardize 121 more vegetable drugs and preparations than is required by the United States Pharmacopoeia.

This work necessitates the employment of a large staff of competent chemists, pharmacists, physiologists, and bacteriologists. Our scientific department includes twelve chemists and seven physicians of high professional standing; several of them being lecturers in Philadelphia medical and pharmaceutical institutions and authors of text-books. The members of our scientific department represent us in the medical and pharmaceutical societies and contribute extensively to their proceedings. Our lecture room and library is used for educational purposes and post-graduates in our laboratories receive university credit for post-graduate work. Our literature on bacterial products, antitoxins, and vaccines is issued in the form of Working Bulletins, which are used by the medical and pharmaceutical colleges for distribution to the students on account of their educational character. These Bulletins are compilations of the latest publications relating to the several subjects treated, derived from the medical press throughout the world, and represent the latest investigations of scientists distinguished for their researches.

The conclusion of the whole matter is this: The medical profession from the times of Hippocrates has been standing for non-proprietorship in medicine and the free discussion of all agencies recommended in the treatment of the sick. This is essential to progress in medical science and arts. It is the keystone to the arch. When this altruistic principle was taken away from the practice of pharmacy, and the proprietary principle substituted in its place, pharmacy fell into ruins. Pharmacy cannot be restored to its proper place as a branch of medical practice until co-operation is secured between physicians, pharmacists, and manufacturers having as its objects the impartial discussion, classification, and standardization of materia medica products, thus providing a place for them in the Pharmacopoeia and in scientific literature.

The practice of pharmacy, in the sense of "every retail druggist being his own manufacturer," is departing never to return, and the practice of the pharmacologic arts as conducted in the laboratories of the great manufacturing houses, is taking its place. It is therefore of the greatest importance to the medical profession and to the public, as well as to retail druggists, that the methods of the manufacturing houses should be submitted to the closest scrutiny. If the manufacturing houses prove faithful to the trust which is being imposed upon them, this transition will prove a blessing to all concerned. If, on the contrary, the manufacturers betray their trust and use their great influence for "exploiting the sick room for gain," it will be incumbent upon the medical profession as guardians of the public health to take measures for the protection of the people.

From the above, it is evident that before the medical profession can cast out nostrums from the manufacturing houses and retail drug stores, it must first cast out nostrums from medical practice, and the first move in that direction should come from the medical press; the move to consist in an exhaustive study of the subject of copy-right, patents and trade-marks, and their relation to medical science and the
practice of the pharmacologic arts, namely, the arts of pharmacognosy, pharmacy, pharmacodynamics, and therapy-dynamics.

Progress in that branch of medical science, described as pharmacology by the National Syllabus Committee, representing the colleges and boards of pharmacy of the United States, is dependent upon the practice of these arts in a professional manner. This includes investigation of materia medica products on the market, their classification in the forms of science, their protection by changeless nomenclature, the establishment of standards for determining their identity, character, quality and strength, the improvement of the pharmacopoeia by the addition of those products found to be of value as therapeutic agents, and the teaching of the knowledge thus evolved in the medical and pharmaceutical colleges by means of lectures, text-books, and demonstrations.

Very truly yours,
F. E. Stewart, Ph.S., M.D.,
Director of Scientific Department.

Approved:
Milton Campbell,
President of H. K. Mulford Company.

CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY.

Shanghai Museum, 6th April, 1909.

Dear Doctor:

I am working up the subject of the snakes of China, and it has appeared to me that no one would be in a better position for collecting specimens than the medical missionaries stationed in various parts of China. Would it be possible or desirable to have a note such as the following inserted in the next issue of the Journal?

SNARKES OF CHINA.

The Honorary Curator of the Shanghai Museum is making a collection for the museum, and would be greatly obliged if members of the Association would send him specimens of snakes (and other natural history specimens). Snakes may be sent carefully coiled up in round flat tins or bottles containing strong alcohol and addressed to Dr. Stanley, Municipal Laboratory, Shanghai.

I should like to add that any expenses connected with the preparation or transmission would be reimbursed, but I have a feeling of delicacy about suggesting this.

Yours very truly,
Arthur Stanley.

[The Editors take the greatest pleasure in seconding this request and feel certain that every such scientific effort will appeal to the interest and fraternal spirit of the Association.]
ASSOCIATION NOTES

BRANCHES OF THE C. M. M. A.

Central China Branch:—Dr. J. G. Cormack, Hankow, Secretary.

Kuling Branch:—Dr. C. W. Somerville, Wuchang, Secretary.

Manchurian Branch:—Dr. W. Phillips, Newchwang, Secretary.

Korean Branch:—Dr. H. H. Weir, Chemulpo, Korea, Secretary.

Mokanshan Branch:—Dr. A. W. Tucker, St. Luke's Hospital, Secretary.

West River Branch:—Dr. Ida M. Scott, Taching, Secretary.

Han Valley Branch:—Dr. R. Anderson, Faucheng, Secretary.

Peking Branch:—Dr. F. E. Dille, Peking, Secretary.

Canton Branch:—Dr. J. Allen Hofmann, Secretary.

NEW MEMBERS OF THE C. M. M. A.

Joined through the China Medical Journal:—


J. C. P. BEATTY, M.B., B Ch., Dublin, C. M. S., Hangchow.


T. H. COOKE, M.D., North Western Medical, M. E., Kucheng.

EDWIN CHARLES CORT, M.D., Johns Hopkins, American Presbyterian, Lakawon, Siam.

Zenas Sanford Loftus, M.D., Ph. C., Vanderbilt, F. C. M. S., Jiaotang, West China.

CHARLES F. MACKENZIE, M.D., Vanderbilt University, A. B. M. U., Kinaifu.

JOHN V. MULLOWNAY, M.D., Univ, Penna., M. E., Peking.


MABEL POULTER, M.B., C.M., Glasgow, C. M. S., Hongkong.

Joined through the Canton Branch:—


Letters on Association business should be addressed simply, Secretary, C. M. M. A., 2 Shantung Road, Shanghai.

Those who have not paid their dues ($4) for 1909 should send them at once to the Presbyterian Press, 18 Peking Road, Shanghai.

We are glad to notice that a hospital for foreigners is to be opened at Kuling about the First of May. This should prove a great boon. Inquiries may be addressed to Dr. Barrie, Kuling, Kiukiang.

We have also received the Prospectus of the Union Medical College in Tsinan, being the Medical Department of the Shantung Christian University. The college is being built in the south suburb of Tsinan, and it is confidently expected it will be ready for occupancy by the first of March, 1910. A modern equipped hospital will give facilities for the practical instruction of the medical students in clinical medicine and surgery.

The whole plant of the college and hospital is being provided by the Baptist Missionary Society of London from grants made by the trustees of the Arthington Fund, but while the buildings belong to that mission the college is a union institution, under the joint control at present of the English Baptist and American Presbyterian Missions.

The curriculum consists of a six years' course, and is divided into one year of scientific study in the Union College of Arts and Science at Weihsiens; the subjects being physics, chemistry, biology, and botany, and five years of purely professional work in the Union Medical College at Tsinan. All teaching will be in Chinese. Correspondence in regard to the college may be addressed to Dr. J. B. Neal, Tsinan, Shantung.
Dr. Neal is to be warmly congratulated on the progress made towards establishing this medical school. The prospectus indicates a capital medical course on an economical basis and under the best auspices. Would that the organisation of the Chinese union medical schools for East, West and South China were as far advanced.

The dedication services at the Millar-Wilson Memorial Hospital at Pingyungfu, Shansi, took place at the end of January. This hospital has been in contemplation ever since the massacres of 1900, and when completed will, under the able direction of Dr. J. C. Carr of the China Inland Mission, be an immense boon to the southern half of Shansi, where no similar institution exists, nor indeed are the benefits of medical science known on the borders of the adjoining provinces within a radius of several hundred li.

Mr. S. B. Neill, F.I.A., F.S.S., actuary of the China Mutual Life Insurance Company, reported on the effect of opium on mortality to the International Opium Commission during its recent meeting at Shanghai. As the result of his investigations Mr. Neill arrived at the following conclusions: (1.) That the mortality experienced by opium smokers is heavier than that experienced by non-opium smokers. (2.) That opium smoking is more injurious in tropical than in sub-tropical or temperate climates. (3.) That though it would be difficult to trace any particular death to opium smoking, yet it is probable that the digestive organs are primarily affected by the habit, and the smokers become emaciated and lose weight.

In the report of the Shantung Road Hospital for 1908 Dr. Paterson writes: A man who evidently had some friends with a wide "foreign" knowledge was greatly troubled with a most irritating disease—scabies—all over his body. Advised by these wise men, he purchased some Jeyes' Fluid, and with their help painted the whole of the irritated parts with the undiluted fluid. He then took their advice a second time, and perhaps more sensibly, and came into hospital, for the skin was simply burnt off in patches. It cured the scabies!

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**Publication Committee.**

**Subscriptions.**

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Reports of Local Branches.

CANTON BRANCH.

At a meeting called by Dr. John Kirk on February 26th, 1909, at his home in Fong-tsuen, Canton, the following ladies and gentlemen met to discuss the formation of a Canton branch of the China Medical Missionary Association: Mrs. J. J. Boggs, M.D., Drs. Mary Fulton, John M. Swan, Chas. C. Selden, E. C. Machle, Paul J. Todd, A. W. Hooker, Josiah C. McCracken, Frank Oldt, J. Allen Hofmann. Dr. Kirk, who was asked to occupy the chair, opened the meeting with prayer, after which he read the articles of the constitution relating to membership and the formation of local branches. He reported that letters had been received from Drs. J. A. McDonald and Jessie MacBean, of Kongmun; Dr. H. W. Boyd, of Canton, and Dr. Webb Anderson, of Fatshan, expressing their cordial approval of the formation of the branch. The chairman then invited an expression of opinion.

After some deliberation, Dr. Swan presented the following resolution: “Resolved, First, that the Canton Medical Missionary Association which, so far as we are aware, was the first medical missionary association in China, be reorganized as a branch of the China Medical Missionary Association. Second, that the constitution and by-laws of the China Medical Missionary Association be adopted as a basis upon which to form the local branch.” This resolution was seconded by Dr. McCracken and unanimously adopted.

The following gentlemen were elected office bearers: Dr. John Kirk, President, Dr. Josiah C. McCracken, Vice-President; and Dr. J. Allen Hofmann, Secretary and Treasurer. Dr. Hooker, who had not yet joined the central association, was then elected a member of the branch. The president was asked to notify all medical missionaries in the Canton district inviting them to join the branch.

It was decided to name the branch the Canton Branch of the China Medical Missionary Association, and to hold meetings quarterly. The date of the next meeting was left in the hands of the president, and he was asked to give a presidential address on any subject he chooses. It was decided that since the West River Branch of the association could not be expected to join the Canton Branch, it be invited to hold a joint meeting with the Canton Branch annually.

Dr. Oldt moved that at the last meeting of each year an assessment should be made sufficient to meet the expenses of the year past. Carried.

Conference adjourned; Dr. Selden closing with prayer.

JOHN KIRK, President.

J. ALLEN HOFMANN, Secretary.

WEST RIVER BRANCH.

The second annual conference opened on January 29th at Wu-chow.

The members present at part or all of these sessions were as follows: Drs. J. G. Meadows, Dorcas F. Meadows, Chas. A. Hayes, Alice J. Hayes, J. M. Wright, Philip Rees, Kate McBurney, Wong Shek-ue, and Ida M. Scott.
Officers were elected for the ensuing term as follows:

President, J. M. Wright.
Vice-President, Dr. Philip Rees.
Secretary and Treasurer, Dr. Ida M. Scott.

A report from the Committee on Medical Education and Nursing was next called for, as it had not been possible to hold a full meeting of this committee. Dr. Meadows gave an interesting verbal report of such items as he had been able to gather from interviews with different members as he had opportunity. General discussion then followed, in which the following points were emphasized:

1. The need of giving medical training to Chinese students.
2. The absence of efficiently equipped medical schools in South China.
3. The improbability of securing such without the co-operation of the medical profession in South China.
4. The desirability of a thorough didactic and technical training in a central institution, with a term of internship in a hospital required before diplomas are granted.
5. The desirability of doing thoroughly whatever is undertaken in the line of medical education.

On motion of Dr. C. A. Hayes a committee of three was appointed to report on the feasibility of sending out an appeal to the doctors of South China to meet to organize a South China Medical Association some time soon and also to consider the plan of establishing a Union Medical School.

On motion, a committee of three was appointed by the chair to consider the advisability of co-operating in our drug orders.

The name of Mrs. Rees—nurse—was proposed for membership. She was elected with such privileges as are granted by the Central Association.

Regular program was taken up. First paper, "Open Wounds and Bruises," read by Dr. Meadows, was followed by general discussion. Next was a discussion on the Care and Feeding of Infants, by Mrs. Meadows. Next paper, "Obstetrics," was read by Dr. Rees. It was an interesting paper and was followed by a lively discussion.

An invitation, extended by President Wright to the Association to hold its next annual meeting at Takling, was accepted.

The next subject for discussion was "General Medicine" opened by Dr. Chas. A. Hayes. An extended discussion followed.

President Wright opened the discussion on "Operations on the Eye," which also became general. Dr. Wright also gave an interesting talk on the Opsonic Index.

The religious phase of medical work was the next subject opened by Dr. K. W. McBurney.

It was decided that the program for the next meeting should be arranged by the Executive Committee; this committee was also to arrange time and place of meeting of the summer session.

The last subject for discussion was the "Prevention of Communicable Diseases," opened by Mrs. Hayes. This interesting discussion was prematurely brought to a close because of the lateness of the hour.

An informal report of the Committee on South China Medical Association was heard, and out of it grew the following plan.

Motion—That a committee of three be appointed to carry on preliminary correspondence with reference to the formation of a South China Branch of the China Medical Missionary Association and the establishment of a Union Medical School.

Committee.—Drs. Wright, Rees, and Meadows.

On motion, Dr. C. A. Hayes was appointed to represent the West River Medical Missionary Association in making inquiry while in London concerning the advisability of uniting in making our drug orders.
Manila Medical Society.

Abstract of the Annual Report of the Secretary-Treasurer, for 1908.

The regular monthly meetings have been held with an average attendance of 23.2. The average attendance for 1906 and 1907 was 15.4 and 22 respectively. A total of forty papers, cases and specimens have been presented before the society during the year.

Published Proceedings.—The proceedings of eight meetings, with abstracts of papers presented, have been sent to the membership, to the surgeon-generals of the Army, Navy and the P. H. and M. H. S., and to three American and foreign medical journals. One of the foreign journals has re-published the proceedings in full and sent complimentary copies to the society. The cost of publishing these proceedings has been between pesos 70 and pesos 75 for the year, an increase of about pesos 30 above the cost (pesos 45 to pesos 50) of the printed postals formerly used.

It is recommended that the publication of the proceedings of the monthly meetings be not only continued, but that it be gradually further developed, on the ground that (1) it informs distant members of what of medical interest is occurring in the society (1/2 of the membership is situated), (2) it provides a permanent record of the scientific programs of the society, (3) it brings the society and its work directly to the attention of American and foreign medical organizations and journals, (4) it provides a convenient means for the prompt preliminary publication of the results of medical research.

Membership.—During the year 22 members have left the Islands and 43 new members have been received, a net gain of 21, making a present membership of 91, two of whom are associate. The number of active members upon the roll during the past seven years has been as follows: 1902, 14; 1903, 29; 1904, 46; 1905, 56; 1906, 59; 1907, 70; 1908, 89. It is recommended that during the coming year a special effort be made to bring into the society every eligible physician in the Islands, and that to this effect a membership board be appointed, representing the Army, Navy, Constabulary, Bureau of Health, Bureau of Science, and private practitioners.

Change of Presidents.—In July, President H. T. Marshall resigned on leaving the Islands and, under the constitution, Vice President James H. Phalen became president.

Resolutions.—At the special cholera meeting in October a resolution was passed, addressed to the governor-general, stating it to be the sense of the society that the proper disposal of human excreta was the greatest, single sanitary need of the Philippines and asking that a special commission be appointed to make a practical study of the problems connected therewith. Further than this, the society has not expressed itself upon questions of public medical interest.

Finance.—In treasury, January 1st, 1908, Pesos 726.18; dues collected during 1908, Pesos 573.00. Total, Pesos 1,299.18.

Proceedings of March Meeting.

Presentation of Pathological Specimens.—Dr. Phalen presented a specimen of spontaneous rupture of the heart. Dr. Kilbourn opened the discussion.

Abstract of Dr. Schiffbauer's paper on Beck's Paste:
Beck's Paste is a paste made by suspending bismuth subnitrate in vaselin, to which wax or paraffin may be added for the purpose of hardening the paste. 1 per cent. formalin may be added.

*Its composition:*—

**PASTE NO. 1.**

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Paste No. 1 is always used first.

**PASTE NO. 2.**

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<tr>
<td>Paraffin</td>
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Paste No. 2 is used after Paste No. 1 after the discharge has decreased.

The pastes are sterilized and injected with a long-nozzled metal barrel syringe, using considerable force, so as to reach the depth and every part of the infected area.

*Its Field of Use:*—In general it may be said that it can be used with success in cases of chronic sinusitis, suppurative fistulous tracts, and abscess cavities, except intracranial and biliary fistula. Its greatest value is in curing old tuberculous sinuses. Never use the paste in a sinus where a sequestrum is present or in very acute suppurative processes.

Miss Ashby, in an able paper, presented the results of her work, in the Meisic public school, on infant feeding. The discussion was led by Dr. Aron.

V. L. Andrews,  
Secretary.

First Biennial Meeting of the Far Eastern Association of Tropical Medicine.  
*Manila, P. I., March 6-14, 1910.*

Dear Sir: In accordance with the report of a permanent committee on programme, appointed at the sixth annual meeting of the Philippine Islands Medical Association for the first biennial meeting of the Far Eastern Association of Tropical Medicine, it is proposed that the first meeting of the Far Eastern Association of Tropical Medicine be held for a period of nine days, opening Sunday afternoon, March 6, 1910, and closing with a business session at Baguio, Benguet, the summer capital of the Philippines, on Monday, March 14, 1910. The following has been adopted as the outline of a programme:

**AT MANILA.**

*Sunday afternoon, March 6.*—Opening session.

*Monday, March 7.*—Protozoology, Helminthology.

*Tuesday, March 8.*—Cholera, Plague, and Leprosy.

*Wednesday, March 9.*—Surgery and Obstetrics, Diseases of Children.

*Thursday, March 10.*—Fever in the Tropics, including Malaria, Typhoid, etc.

*Friday, March 11.*—Dysenteries, Beriberi.

*Saturday, March 12.*—En route to Baguio.

**AT BAGUIO.**

*Sunday, March 13.*—Tuberculosis.


Return to Manila Monday night.

It is proposed that the daily sessions begin at 9:00 a.m. and continue until 5:00 p.m. with an intermission from 12 to 2 for luncheon. The sessions on Tuberculosis Climate, Hygiene, and Sanitation, and the business session, will be held at Baguio in the Benguet mountains. A suitable social programme will be arranged.

In order that the Committee on Arrangements may, at an early date, have at hand as much information as possible regarding the probable attendance and the material available for the final programme, it is requested that you fill out accompanying blank at your earliest convenience and forward it to Dr. E. R. Whitmore, Secretary-Treasurer of the Philippine Branch of the Far Eastern Association of Tropical Medicine. It is earnestly desired, also, that you furnish such ideas and criticisms concerning the proposed programme as may suggest themselves.

I am, very truly yours,

Paul C. Freer,  
President of the Far Eastern Association of Tropical Medicine.

[Blank accompanies circular.]
RAT LEPROSY.

Rats in San Francisco have been found to harbour the leprosy bacillus in the proportion of 1 to 614 rats examined. The skin, the subcutaneous tissues, the lymphatic glands, and, occasionally, internal organs, were found to be the seat of leprous lesions. Although the bacilli in the rat are indistinguishable from the bacilli met with in human leprosy, the geographical distribution of the disease seems to suggest that it is not identical with human leprosy, but that in the rat and man leprosy stands to each other as does bovine to human tuberculosis.—Journal of Tropical Medicine, 15th December, 1908.

AN INVESTIGATION INTO SOME ASPECTS OF THE ACTION OF ARSENIC.

To sum up, arsenic when added to blood in vitro, exercises a paralysing effect upon the leucocytes when given in strong solution as evidenced by the alteration in the phagocytic activity of the blood. This action of arsenic is a direct action on the leucocytes and can take place in the complete absence of serum. When arsenic is added to the blood in vitro in very dilute solution the reverse effect is obtained and an increased phagocytic activity is produced.

These experiments with arsenic seem to afford the means of demonstrating in part the action of an active chemical substance when given in poisonous and in therapeutic doses. It appears to me, apart from any general vasomotor or special local action, that if a recognized "tonic" substance be shown to render a protoplasmic cell twice as active in performing some of its functions as it was before the administration of the drug, one might expect the general result of a general increase in protoplasmic activity to be such as is commonly described as a "tonic" effect.

That such a substance as arsenic is thus found to exercise a recognizable influence when acting in such extreme dilution as 1 in 200,000 is a practical demonstration of the benefits which may result from the addition of the small quantity of a dilute drug to the considerable bulk of an individual. The increased activity produced in the phagocytes suggests also an explanation of the value of arsenic in cases of suppuration.—P. N. Panton. Proceedings of Royal Society of Medicine, Pathological Section, November, 1908.

PLAGUE BACILLI IN BUGS.

Jordansky and Kladnitsky (Ann. de l’Inst. Pasteur, May, 1908) find that bugs fed on the blood of plague infected mice do not appear to suffer any harm, but may be kept alive for as long as two and a half months after feeding. The plague bacillus remains alive and virulent in the body of the bug; up to the third day it does not.
appear to multiply in the digestive tube of the insect, since blood withdrawn from the bug at this period is not more rich in plague bacilli than the blood of the mouse which was bitten. But from the third to the sixth day the coco-bacilli become more numerous and the preparations resemble those taken from a freely-growing pure culture. Towards the eighth or the tenth day the bacilli show modifications and involution forms appear; fine filaments are seen which no longer take a polar staining, and at the same time cocci make their appearance. Later on it is impossible to demonstrate the presence of plague bacilli in the bug by means of smear preparations, though the persistence of the organism may be shown by resorting to culture. Emulsions made from the bodies of the bugs are found to be virulent, particularly those prepared from insects fed from six to eight days previously, that is, when the period has been reached for the maximum development of the bacteria within the digestive apparatus, the results of their experiments compel the authors to dissent from the statement, published by other observers, that plague bacilli perish rapidly in the body of the bug.

With regard to the question whether the bug can transmit the disease from one mouse to another, their experiments are less conclusive, but the authors point out that uncertainty on this point does not detract from the practical significance of the fact that the alimentary tube of the bug is capable of harbouring living and virulent plague bacilli. If an insect in this condition bit a person and was then promptly crushed in situ, there would be an appreciable danger that the injury caused by the bite might afford a portal of entry for the plague virus.

NOTES ON THE PREPARATION AND USES OF BACTERIAL VACCINES.

Bacterial vaccines have now become very generally recognised as valuable therapeutic agents in certain disease processes. By the term bacterial vaccine is meant a suspension of killed micro-organisms in some neutral liquid medium such as normal salt solution.

It is proposed in this and in a subsequent paper to deal as concisely as possible with the steps in the preparation of vaccines, the indications for their use, and the manner of using them. These short papers are written for the sake of those readers of the Journal who are either themselves desirous of preparing their own vaccines, or, whilst they do not possess the facilities for bacteriological work, yet seek to understand the facts underlying this mode of treatment of certain infective diseases.

With the various hypotheses associated with the operation of vaccines these notes will have no concern. They merely aim at a description of the practical everyday work connected with vaccine-therapy.

I. The Preparation of the Vaccine.

In preparing a vaccine of any micro-organism the object aimed at is so to treat that micro-organism that it may be obtained free from extra-cellular toxins, killed and suspended in a neutral medium for the purpose of subcutaneous injection. This suspension or emulsion, as it is usually called, is, to all intents and purposes, a preparation of the intracellular toxins of the micro-organism.

The steps in the preparation of a vaccine are as follows:

1. Isolation of the causal micro-organism of the disease in pure culture,
2. The preparation of an emulsion of that micro-organism,
4. Estimation of the strength of the emulsion (i.e., the number of micro-organisms present per cubic centimetre).
5. "Stocking" of the vaccine in appropriate doses.

(1). The isolation of the causal micro-organism of the disease in pure culture.—The method of doing this will depend upon whether the infection is local or general.

(a). If a local lesion is to be dealt with, a cultivation is made of the exudate, secretion, or tissues concerned, using culture media which are known to be suitable for the growth of the micro-organism suspected of being present. In most of the cases where vaccine treatment has proved of service, sloped agar tubes answer the purpose well. But if the pneumococcus, the gonococcus, meningococcus or influenza bacillus is suspected as the infective agent, agar tubes, smeared with a little blood, should be used.

(b). In the case of a patient suffering from a general blood infection without a local lesion a blood culture must first be made, care being taken that a sufficient quantity of blood is removed with appropriate technique. At the end of twenty-four hours, and again later if necessary, the cultures are examined.

In some cases, in both (a) and (b), pure cultures will be the result. In other cases a mixed growth is obtained and sub-cultures are necessary. Clear indications are usually present as to which micro-organism of a mixed growth bears the closest causal relationship to the disease.

In some cases the infection is obviously mixed, and a vaccine may then be prepared from both micro-organisms. In the last case it is desirable to separate the micro-organisms by sub-culture and to prepare each vaccine separately.

Obvious contaminations are of course to be eliminated. It is only from pure culture that vaccines should be prepared.

(2). The preparation of an emulsion of the micro-organism.—For this the following materials are necessary:

(a). A twenty-four hours growth in pure culture of the micro-organism on a solid and fairly dry medium.

(b). Some sterilised salt solution (o.8 per cent.).

(c). An ordinary platinum loop.

d). Sterilised test-tubes.

In the case of micro-organisms growing in colonies of considerable size, e.g., Staphylococci, Meningococci, B. coli, B. typhosus, etc., the growth is scraped up into a heap on the surface of the medium by means of the platinum loop, which has been sterilised. This collection is transferred to 5 c.c. of the salt solution in one of the test tubes. Enough of the growth is used to make a fairly strong emulsion; in most cases two or three loopsful will suffice. In the case of micro-organisms yielding smaller colonies, e.g., Streptococci, Pneumococci, Gonococci, B. influenzae, etc., the condensation fluid at the bottom of the culture tube is decanted off and 2 c.c. of the salt solution are poured on to the surface of the medium. The colonies are then scraped off into this fluid by means of the platinum wire, and the suspension thus obtained is added to the remaining 3 c.c. of salt solution in a test-tube. In some of these cases it may be necessary to use two or more tubes of growth in order to obtain a sufficiently strong emulsion.

It is advisable to break up any clumps of growth which may be found in the fluid by agitation or by means of the platinum wire to insure uniformity of the emulsion.
This desideratum is more effectually secured during the next stage in the preparation of the vaccine.

(3). Sterilisation of the emulsion.—The method most commonly used is to heat the emulsion for a certain time at a temperature which is lethal to the micro-organism. In the case of all the ordinary pyogenic micro-organisms a temperature of 65° C. for half an hour suffices for this purpose. Excessive or prolonged heating is to be avoided, as it is highly probable that either of these interferes with the potency of the vaccine. In actual practice the test-tube is heated in a water bath under the above conditions. During the process the tube is, of course, plugged with sterile cotton wool. If the above technique is properly carried out no fear need exist that the emulsion contains any living micro-organisms, but it is desirable for each worker to test his methods occasionally by cultivating the emulsion at this point to prove its sterility.

(4). Estimation of the strength of the emulsion.—Several methods have been devised for carrying out this important step in the preparation of vaccines.

Neither the method of using a standardised platinum loop, nor the method of counting the micro-organisms against the human red blood-corpuscles can be regarded as yielding results approaching accuracy.

The following method can be strongly recommended as being more free from fallacies. It consists in making an absolute count of the organism by the aid of a Thoma Zeiss pipette (1 in 10), as used in the estimation of the white blood-corpuscles and a special staining solution. The emulsion is drawn up to the 0.5 mark on the pipette and diluted to the 11 mark with the following solution:

<table>
<thead>
<tr>
<th>Geimsa staining solution</th>
<th>10 parts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formalin ... ... ...</td>
<td>2 &quot;</td>
</tr>
<tr>
<td>Salt solution (0.1 per cent.)</td>
<td>100 &quot; *</td>
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</tbody>
</table>

Several other stains are in use, but this one has the advantage that it admits of a more rapid settling of the micro-organisms. The pipette is then well rolled to distribute the micro-organisms evenly in the staining fluid, and then treated exactly as in making a blood count, using an ordinary Thoma Zeiss slide and cover-slip. The slide must be left for a full half hour to allow the micro-organisms to settle. With a No. 4 eye-piece and 1/2 objective, the number in forty squares is counted, and from this the number per cubic centimetre can be calculated.

Thus, if 200 micro-organisms are counted in the forty squares, the dilution being 1 in 20, the number present per cubic centimetre=

\[
\frac{200 \times 4000 \times 20 \times 1000}{40} = 400 \text{ million.}
\]

To test the accuracy of this method a larger number of squares can be counted, or different dilutions of the emulsion can be made and the counts compared.

Whilst this estimation is being made an opportunity is afforded of observing the uniformity of the emulsion. The ease with which the micro-organisms can be counted, is the best guide. If this is unsatisfactory, i.e., if clumps are present, or in the case of long chained streptococci, if disintegration has not occurred, the emulsion should be centrifugalised. If a further step seems necessary, the emulsion may be ground up by a pestle and mortar. In either case it must be re-sterilised.

Having now obtained a uniform emulsion of known strength, dilutions can be made with sterilised saline solution to any desired ex-
tent, e.g., if the emulsion contains 400 million killed micro-organisms, dilution with an equal amount of saline solution will give half that number, and so on.

(5). "Stocking" of the vaccine in appropriate doses.—Having diluted the emulsion so that each cubic centimetre contains the required number of dead micro-organisms, it is now transferred in appropriate amounts to a number of sterilised glass ampoules made for the purpose.

This is done by using a special glass pipette, which is quite easily made from an ordinary length of glass tubing as follows:

The piece of tubing used is of $\frac{3}{8}$ inch bore and is about 12 inches in length. This is bent at right angles at a point 3 inches from one end. The longer limb is now drawn out in the flame into a capillary tube small enough to enter the neck of an ampoule. This end is graduated so as to measure off 1 c.c. of fluid accurately. The graduation mark should come well above the drawn-out part of the tube. A large rubber teat with an air valve is fitted to the short limb. The use of the rubber teat obviates the drawing up of the emulsion by mouth-suction, a practice which should never, under any conditions, be resorted to, as it may result in the introduction of salivary micro-organisms. This glass tube and rubber teat are both carefully sterilised.

Having transferred 1 c.c. of the emulsion to the ampoule, the neck of the latter is hermetically sealed in the flame of a blow-pipe. When cool the ampoule is placed in the water-bath at 65° C. for ten minutes to ensure sterilisation after manipulation. One of the ampoules so treated is chosen and its contents are run on to the surface of a tube of agar or other medium suitable for the growth of the micro-organism and incubated. If at the end of twenty-four hours no growth has occurred the vaccine is ready for use. Should growth of the micro-organism occur, re-sterilisation and re-cultivation must be undertaken. Any contaminating micro-organism is, in all probability, derived from the air, and will nullify the whole process and necessitate a fresh preparation.

One c.c. of the emulsion is chosen as being a convenient amount to use as a hypodermic injection (1 c.c. = mxvii).

The greatest care must be exercised throughout this process of preparing a vaccine, to observe the common principles of asepsis combined with accuracy. Without these not only may a large amount of time and labour be lost but actual danger may ensue to the patient.—T. J. HORDER, M.D., F.R.C.P., and W. GIRLING BALL, F.R.C.S., in St. Bartholomew's Hospital Journal, February, 1909.

Tropical Diseases.

Under the charge of J. Preston Maxwell, M.B., F.R.C.S.

The mass of material now being published on the subject of tropical diseases makes it an increasingly difficult task to give anything like a fair or adequate view of the progress of our knowledge in this section. The annual reports of the British and American Societies of Tropical Medicine for the year 1908 are now published and merit careful reading.

Taking the British report first, one notices two discussions on the rôle of filaria in the production of
Medical and Surgical Progress.—Tropical Diseases.

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disease. Although these discus-
sions did not bring forward much
in the way of fresh facts, they
served to bring to the front once
more the unsolved question of the
causation of elephantiasis. Whilst
the upholders of the filarial theory
of elephantiasis are by no means
few, there is yet a large body of
those who assert that filarial in-
fection, if it occurs in these cases,
is a mere accident, so to speak, and
not the real and effective cause.

Trypanosomiasis formed the sub-
ject of several papers both from
the pathological and clinical point
of view, and various remedies were
discussed for the same. A paper
was read on tropical trichomy-
tosis, which added to the knowledge
already existing of these affections.

In the American report a new
round worm parasite from the
ankle of a negress was described;
several papers were read on ma-
larial fever and its treatment and
two on the prevention and treat-
ment of tropical abscess of the
liver. There is also to be found in
this report an instructive review of
recent work on the spirillar fevers,
a subject which of late years is be-
coming one of great importance.

There are also in both reports
papers of importance which cannot
be noted in detail here.

A NEW INTESTINAL TREMATODE
OF MAN.

Garrison (Philippine Journal of
Science, November, 1908) has re-
cently described a new trematode
to which the name of Fascioletta
Ilocana has been given.

The ova were found in the stools
of a prisoner at Bilibid Prison,
Manila, P. I. These are "about
100 microns long, oval in form,
with one end more sharply rounded,
shell light brown in colour and of
medium thickness, with an opercu-

larly refractile, colourless
and composed of a moss of yolk cells,
among which the germ cell could
in some cases be distinguished."

After administration of male fern
21 small trematodes were found
about 5 millimetres long by 1
millimetre broad and 5 millimetres
thick. Cuticle smooth, semi-transparent red gray colour. The ova
developed ciliated miracidia in
about ten days, which raised the
operculum and swam about free
in the water. Five infections with
this parasite were found in 5,000 ex-
aminations of the stools of natives.

Nothing is as yet definitely
known as to whether the parasite
gives rise to any symptoms which
can be attributed to its presence.

THE PRESENCE OF AMOEBAE IN
THE FAECES.

Hoyt (Philippine Journal of
Science, November, 1908) gives
the results of the examination of
300 stools of white officers and
men, with the result that motile
amoebae were found in 32.15 per
cent., and of 35 cases positive for
motile amœbae no less than 71.4
per cent. gave a positive occult
blood test. A very small proportion
of these patients suffered from
dysentery, and the longer the men
had been on the Eastern station
the greater the proportion of the
infected.

BLASTOMYCOSIS OF THE SKIN.

Phalen and Nichols (Philippine
Journal of Science, November, 1908)
draw attention to a blastomycotic
affection of the skin which is com-
mon in the Philippine Islands.
Sometimes it is wrongly diagnosed
as ring worm or dhobie itch, and in
the severer forms as tuberculosis
or syphilis. The milder types
yield to local antiseptics, the more
chronic and severe to potassium
iodide given internally. As it has been stated that sprue may be due to these parasites, the subject is one needing further investigation. Descriptions of the forms and methods of diagnosis and culture with illustrations of the same accompany the paper.

**Are “Seven-Day Fever” and “Three-Day Fever” Forms of Dengue?**

Megau (Indian Medical Journal, January, 1909) has a long article on this subject. His conclusions are denied by Rogers, who differentiated the “seven-day fever.”

Megau urges that both types are found in epidemics of dengue, that there is no essential difference between the diseases and that the temperature charts show such a close resemblance that there is probably no new disease but only a modification of dengue in question. He suggests that dengue exists in many parts of the tropics as an endemic fever assuming a great variety of forms.

**Gynaecological Notes.**

Under the charge of **Kate C. Woodhill, M.D.**

**Study of Broad Ligament Plication for Uterine Retroversion.**

There are many methods employed for the correction of uterine retroversion. The design of all operators is to so correct the deformity of this organ as to place it in its normal position and permit it to functionate normally. Any improvement upon any certain technique held this in view. And thus we have seventy different methods, each varying from the other. This difference of opinion is basically: What constitute the true supports of the uterus? Here is a diversity of opinion as to what are the supports of the uterus. Is it the pelvic floor, and are the transverse fibres of the levator ani muscle the factors claimed? Is the anterior vaginal wall all important, or is the utero-sacral ligament at fault?

Dr. R. C. Coffey, with an originality characteristic of him, began numerous experimental operations on the lower animals in order to test the functions of the peritoneum. He has thus proved the wonderful strength and adaptability of this structure in establishing artificial supports where nature had been derelict. Thus he formulated a law that the morphological relation of the peritoneum to the various abdominal viscera (and according to its embryonic development) is the suspensive power of them and hence the uterus as well.

Whether or not this law is fundamental and universally applicable in uterine retroversion has to be proven clinically. Employing the Coffey method in sixty-four out of seventy-nine operations for grave displacements of this organ, I have obtained results as hereafter detailed.

The cause of uterine retroversion, whenever determinable, has been one of the guides as to the selection of any certain method. Likewise the age of the patient as well as the occupation. Women beyond the menopause were subjected to Kelley’s most excellent methods, the suspension and fixation operation; while those of the child-bearing age were operated on either by the Gilliam-Peterson, Webster, and sixty-four by the plication method.
I have had three cases of suspension repositiors in child-bearing women, which became fixations, in two of which I do not know the cause. In one case fixation was caused at the point where the tenaculum grasped the uterus, proven by a secondary operation. The two cases that became fixations, although suspensions were done, have given me great trouble in their respective confinements. These troubles were: (1) pain in the back; (2) the cervix retracted so high in the pelvis posteriorly that I could not reach it digitally, but had to draw it down with a tenaculum and use a Bossi dilator. 

One woman, pregnancy lasted 309 days beyond doubt. When labor developed uterine contractions were weak and futile, necessitating forcible dilation (Bossi) and instrumental delivery, which was promptly followed by post-partum hemorrhage and continuous reforming of intrauterine blood clots during a slow and tedious period of subinvolution. The child is a confirmed epileptic; while physically strong and overdeveloped, he is mentally a dwarf. He is now two years old and has been under treatment by some of our best internists.

Contrary to authorities the anterior and not the posterior part of the uterus became so thin that I thought of the possibility of a ruptured uterus before the cervix could be brought down and dilated mechanically. One woman suffered from nausea and vomiting for the whole nine months.

Having had the above in quick succession, one naturally will select any method devoid of such complications. The Peterson transrecti round ligament advancement seems to be ideal. Yet here we use a muscle—a continuation of the uterine non-striated musculature.

Any abdominal organ suspended by and from its peritoneal moorings normally does not require any great degree of strength to maintain its position, provided all organs are well balanced.

In cases of general ptosis of the viscera the broad ligament ligation has been a failure of correction in two cases. The uterus would remain too low in the pelvis regardless of the tenseness of the plication. Although the organ would maintain the slightly anteflexed position, yet owing to this profound tissue relaxation, the cervix would drag low in the vagina and backache as well as nervous symptoms continued.

The plication operation, if I may so style it, is well adapted in all cases save those in which there is:

1. A relaxed pelvic floor.
2. In cases of general pelvic ptosis.
3. In very heavy uterus.

It is superior to any I have tried.

1. It prevents in the child-bearing woman any gestation and parturition complications. 2. It assists (more than any other) the normally functioning of this organ.

3. The broad ligament plication cures the continuous backache associated with retroversion as well as other pelvic disorders due, I think, to the non-attachment or fixation of any organ intended to act unrestrainedly.

While the plication method has many advantages over other well-known methods which require the opening of the abdominal cavity it is very superior to many in the ability to correct complications.

There is little risk of opening the abdomen in this day of asepsis and perfected technique, particularly when for a plication operation \textit{per se}. Should, however, other pathological conditions exist, they can be remedied at one operation.

In the cases of plication of broad ligament, there were four non-successful and one fatal case. Of
the non-successful cases the causes were such as have been already given. The fatal case was a woman who had Bright's disease, and had given birth to a very large fleshy child, delivered with instruments and badly torn. The injury was repaired, but did not heal, and the parts became matted together. (A detailed account of the operation and post-mortem is given, but we omit it.—Ed.)

Of the successful cases two were in the second month of pregnancy. These women submitted to the operation with a full knowledge of their condition, in the hope of preventing habitual abortions, which occurred usually at the third month. Both women had a successful gestation and parturition, and I hereby exhibit the photographs of these children.

That the round ligament assumes its natural position after a plication operation, I was able to demonstrate in two cases. One (Miss G. H.) six months after her operation had to submit to a second for cystic ovary. Both round ligaments were in their normal place.

In the second case, operation for acute appendicitis, both round ligaments were in their accustomed positions. If Sobotta is correct that the round ligaments are the continuation of the uterine musculature, such muscle action will liberate the ligament and restore it to its normal function. At the first some of my patients complained of a drawing sensation in both sides, due to an undue tention of the plication. A perfection of technique eliminated further inconvenience on this point.

I conclude that the plication method comes near a perfect method in all cases of uterine retroversion in that it restores the organ to its normal moorings; it permits it to functionate normally by permitting unimpaired gestation and parturition and adding its iota to frustrate a diminished birth-rate which nowadays is all too prevalent.

Likewise, I may state that, in those cases of general ptosis, it is no doubt as unavailing as any other method.

The basic principle of the plication operation lies in the peritoneal structures. It thus can be applied with safety and success in child-bearing women. It meets all the requirements of any other method where the abdominal cavity is opened; other pathological conditions to be remedied simultaneously. The round ligament assumes its natural position and function as proven by subsequent operations.—C. N. Suttner, Wallawalla, in Surgery, Gynecology, and Obstetrics. October, 1908.

DELIVERY OF FETAL HEAD AFTER DECAPITATION.

Those who have had occasion to deliver the head of the foetus after decapitation must often have had difficulty in the extraction in those cases where the pelvis is contracted to such an extent, or the head so large or so ossified, that delivery cannot be effected without the aid of forceps, or even in more extreme cases by perforation and the application of the cephalotribe. In these cases the head is apt to slip about the uterine cavity and to cause considerable delay before a firm grip can be obtained of it. Various methods of fixation have been suggested, but none appeared to me to be entirely satisfactory when put to the test of practice. The method which I adopted during the time I was resident surgeon to the Eden Hospital for Women, Calcutta, and which I was able to put to practical test, was to fix the
Correspondence.

The Editors do not hold themselves responsible for the opinions or assertions of correspondents.

Dr. Geo. A. Stuart,
President, C. M. M. Association.

Dear Sir: I have seen your letter published in the March issue of the CHINA MEDICAL JOURNAL, in which you criticise my firm. I beg to request you to be kind enough to publish the following letter, which gives a full account of the position of my firm regarding so-called patent medicines.

1. It is true that from time to time I send out circulars with the object to promote my trade with medical missionaries. Such circulars are only and exclusively sent to missionaries and no outside people. Considering that now almost 90 per cent. of all my business is done with missionaries, I think you will find it only just that I mention such a fact in my circulars which only go to missionaries.

2. I beg to state that I manufacture no secret preparations since preparations, the prescriptions of which are liberally communicated to missionary physicians on request, cannot be called "secret."

3. I beg to say that no protest of the Executive Committee of the Association has come to my knowledge.

4. Seeing that your Association does not approve of ready-made medicines in any shape whatever, I shall stop in future sending circulars concerning patent preparations to medical missionaries.

5. I am in a position to produce to you letters and correspondence of prominent missionary physicians in China who consented to buy and sell my patent preparations on the condition that the prescription be made known to them.

6. I beg to say that I do not think that I have disregarded professional etiquette and that I have stated in my circulars nothing that I could not prove to be the truth.

7. I concede that there may be defects in my business, but allow me to state that it is an extremely difficult task to keep a business like mine self-supporting, which requires so heavy a stock as mine. My concern almost entirely depends and foots on the demand of the medical missionaries. Being the largest drug house in China, I have not only to face the competition of some smaller chemists in Shanghai, but also that of the European drug houses.
8. I beg to append to this letter a list of 33 letters of missionary physicians expressing their satisfaction with goods supplied by my firm.

9. The well-known lowness of my prices shows that the aims of my concern are not exploitation. Regarding quality allow me to state that it will always be my earnest desire to gain the satisfaction of my customers and that I am steadily working on improvements in my business, so as to bring it up to the highest possible standard.

10. I further think it would only be just to discriminate between patent medicines and patent medicines. There are patent preparations which are prepared for one certain disease only, and may do really good for this disease, and there are patent preparations which pretend to cure several dozens of diseases sometimes, and are put on the market by quacking. The latter doubtless are to be condemned, but the former may do good in the absence of Western physicians or hospitals.

I am, Dear Sir, yours respectfully,

C. BERTHEL.

SUGGESTED TOPICS FOR PAPERS AT THE HANKOW CONFERENCE, 1910.


2. Papers on Fevers.—(a) Studies of unnamed fevers of the tropics, with reports of blood cultures wherever obtainable. (See article on the 7-day fever of Indian ports, "Journ. Trop. Med., June 15th, 1908, also article by Stocke in July issue of our own C. M. J.) There should be fecal reports if possible in addition to blood counts and cultures. The papers would be welcome even if only clinical studies. (b) Malarial prophylaxis in schools. See article by Montgomery, C. M. J., July issue, 1908. (c) Fevers with enlarged spleen, kala-azar, etc.

3. Tuberculosis.—(a) The general results of home treatment and propagation of hygienic notions. (b) The results of the tuberculin tests as applied either to the eye or to the skin. (c) Results of either medication or the use of the suction mask method of treatment. (d) The problem of sanatoria in China. Progress reports.

4. Studies in Blood.—(a) Trypanosomata in China. (b) Leishman-Donovan bodies. Their relation to fevers and other conditions. (c) Bacteriological reports. (d) Filariat studies.

5. Physiological Studies.—(a) Measurements of average students compared with those of students abroad. (b) Standards of physical examinations, including suggestions for charts for record of progress in schools.

It may be possible that we should include in this list of desired topics papers on eye-diseases, such as "The end-results in the treatment of trachoma by various methods, Knapp’s roller method," etc. There ought to be discussions on the toxicity of ascaries, etc.

E. H. HUME.

BUREAU OF SCIENCE, MANILA, March 23rd, 1909.

Editor, CHINA MEDICAL JOURNAL.

My Dear Sir: I enclose herewith a copy of the preliminary circular announcing the meeting of the Far Eastern Association of Tropical Medicine, to be held in Manila from March 6th to March 14th, 1910.

We sincerely hope that a number of the medical men in Chinese territory will take the opportunity of attending this congress. The various governments in the Far East have all signified their interest in the matter, and unquestionably a large number of delegates will be present. The papers will presumably be of a high order, and the first of the meetings of the Far Eastern Association of Tropical Medicine should mark a great step in the amalgamation of the medical profession in the Far East.

Would you have the kindness to give this circular some notice in the valued columns of your jour-
Correspondence.

nal, so that the meeting may be brought to the attention of all who may be interested?

Thanking you in advance for your courtesy, I am,

Very truly, yours,

P. A. M. C. Freer,
President of the Far Eastern Association of Tropical Medicine.

Kuling Hospital,
Kuling, April 1st, 1909.

DEAR DOCTOR: The announcement of the opening of a hospital at Kuling, on or about May 1st, is addressed to the profession with the sincere desire that it may prove of service to anyone who from time to time deem it wise to send a patient to that popular resort.

While planned on a modest scale it will seek from the beginning to meet any reasonable demand which may be made of an undertaking which must learn from actual experience the requirements of an untried medical situation. Should practice prove its prophesied usefulness to be after all somewhat fictitious, the wisdom of discontinuing it would be obvious.

It is a private hospital, but in the enclosed folder I have suggested a working policy for the guidance of any practitioner who may wish to avail himself of it, and while this is admittedly far from being a perfect arrangement, in a scheme which has in view the general interests of the foreign community, I trust it will prove a fairly satisfactory plan for the present, as the hospital support depends upon the income of the patients.

I shall need all the co-operation I can get, and much will depend upon the reception given the present undertaking by physicians in the ports and elsewhere.

I shall be glad to hear from you at any time of any prospective patient.

I am, very truly yours,

H. G. Barrie.

Changsha, Hunan,
28th April, 1909.

DEAR DOCTOR: I enclose two papers that show the dangers to which even a far inland place is exposed from the patent medicine evil. One is a letter received to-day from one of my colleagues asking as to the usefulness of certain well-advertised pills. And the other is an advertisement of the same pills cut out of to-day's issue of the local daily paper.

This is only one illustration of the evil which is growing worse every day. I propose to do all I can through the same daily paper, the editor of which is a friend of mine and a man who has been very helpful in printing anything that was along the line of public or private hygiene. Have you discovered any more vigorous method of attack?

What I think we can do is to severely criticize firms that try to secure the patronage of medical missionaries like . . . and . . . and at the same time let it be known, as in the enclosed advertisement, that they will handle such medicines.

*DEAR DOCTOR: Would you be kind enough to let me know whether the Dr. Williams' Pink Pill is surely suitable for the benefit of health? As many of my friends want to have it purchased.

Thanking you in advance,

Yours faithfully,

27th April, 1909.
Here in Changsha it is not only those firms that sell patent medicines. Even one of the most prominent British druggist firms in China does a large business without showing its English name on the outside of the shop. The Chinese characters are, however, too well known to allow themselves to be hidden. You can buy nothing in their shop but made-up stuff, what can be fairly classed with patent medicine, and this is vended by mere clerks.

With very hearty good wishes,
Yours sincerely,
Edward H. Hume.

Death of Dr. Paulun.

The news of the death of Dr. E. H. Paulun will be learnt with extreme regret. Dr. Paulun was taken to the General Hospital, suffering from typhoid fever. Kidney complications set in, and he died on the 4th, from uraemia.

Dr. Paulun was born at Pasewalk in 1862, and died the day after his 47th birthday. He lost both parents at an early age. Educated first at the grammar school at Wolfenbüttel, he proceeded to the Friedrich Wilhelm University at Berlin, an Army Medical Institution. Having graduated as a doctor, he served, from 1880 to 1890 on S. M. S. Wolf and Ilfis in Asiatic waters. He left the navy with the rank of surgeon, major, and from 1895-6 was assistant to Dr. Zedelius in Shanghai. Then he went down to Hongkong to practise, but returned to Shanghai after the death of Dr. Zedelius in January, 1899, and became his successor. A year later, while on furlough in Germany, he married Dr. Zedelius' eldest daughter. Dr. Paulun leaves five young children—three daughters and two sons—and his wife also survives him.

Dr. Paulun was one of the best known Germans in Shanghai, not only to his fellow-countrymen, but throughout the entire community. Before he had been here long his practice increased to such an extent that he had to procure a partner, and at the time of his death his firm consisted of three surgeons and three assistant surgeons, as well as an X-ray expert. He founded a charitable hospital for Chinese some years ago, the natural corollary to which was the German medical school for Chinese in Burkill Road. He was a governor of the General Hospital, a member of the Committee of the German School, in the management of which he took a prominent part—and a member of the committee of the Club Concordia—in which capacity he rendered invaluable service with his suggestions regarding hygiene in the new building.

To all Shanghai, however, he was first and foremost a surgeon. The nickname by which he was familiarly known was a compliment alike to his skill and nerve. Many persons owe their lives to his promptness and decision. In good or bad weather, at any hour of the day or night, he was always at the disposal of his patients, and he treated those from whom he knew he could receive no fee with the same consideration as the wealthy. Many of his poor patients can tell of kindly acts, of money unostentatiously given them for a much needed holiday, of his care and patience during their illnesses. Only a short time before his death
Dr. Paulun said that he would have liked to live for another twenty years to carry on the profession of which he was so devoted an exponent. Though honours fell thick upon him during his career the most lasting monument of his work will be the tender regard in which his memory will be held by many who had every reason to appreciate his services.

When the last sad rites are over, it will be time enough to consider what monument shall be erected to his memory, certainly some scheme will be devised which will meet with the support of the Doctor's many admirers amongst all classes and all nationalities of this community.

I am, etc.,

J. P. D. GRIFFIN.

N.-C. Daily News, March 6th.

The Tung Chee Hospital.

The Tung Chee hospital, which it is proposed to purchase and rename the Paulun Hospital, is situated in Burkill Road. It was founded by Drs. Paulun and von Schab in 1900, and at first consisted only of a few corrugated iron buildings purchased from the German military authorities. In 1901 the brick building in front of the hospital was erected by funds contributed by German and Chinese residents. This building now forms the main portion of the hospital. On the ground floor there are a dispensary, store-rooms, out-patients' rooms, instrument rooms and operating theatres. The main operating theatre has three tables and is equipped with sterilizers, instrument cases, wash-basins, and in fact with every requisite for modern aseptic surgery. A well-stocked instrument-room opens out of this theatre, and beyond is a small chamber fitted with a Sanitas electric light bath for rheumatic patients, and other electrical apparatus. The main dispensary, at the other end of the building, connects with the out-patients' room, where the German doctors see between fifty and seventy charity patients every evening.

Upstairs are twelve rooms for Chinese paying patients—six for men and the same number for women.

The charity in-patients are accommodated in the row of corrugated iron buildings at the rear of the hospital. A lady X-ray expert assists at the hospital, but the Röntgen apparatus is in the building of the German Medical School.

So unostentatiously have Drs. Paulun, von Schab, and their associates carried on their work, that comparatively few foreign residents—except German—know even of the existence of the hospital, but it has become well-known to the Chinese, many of whom have every reason to be grateful to the skill of the firm of German doctors, and no more fitting memorial could be found to the name of one who gave up so much for others than to establish the institute for ever as the Paulun Hospital.—N.-C. Daily News of April 2nd.
Personal Record.

BIRTH.

STUCKEY.—On the 19th April, at London Mission, Siaochang, Chihli, the wife of E. J. STUCKEY, B.Sc., M.B., of a daughter (Helen Mann).

MARRIAGES.

January 7th, at St. George's Church, Edinburgh, GEORGE DUNCAN WHYTE, M.B., Ch.B., D.T.M., of the Eng. Pres. M., Swatow, to MARGARET MARION MORFRIES.

February 6th, at Kiating, Sze., the Rev. H. P. RUDD, Suifu, and Miss ANNA CORLIES, M.D., Yachow.

DEPARTURES.

March 20th, Dr. ARNOLD DAVIS, Dr. and Mrs. PLUMMER and family.

March 30th, Drs. KATE and J. MCBURNEY.

ARRIVALS.

March 12th, Dr. J. A. SNELL and wife, to join M. E. Mission, S. Soochow.