ON OPERATION IN APPENDICITIS.

By J. PRESTON MAXWELL, M.B., B.S., F.R.C.S.

The question of operation in cases of appendicitis is one which has always been a matter of difficulty to those concerned.

But when one finds a man like Osler using the following terms about his cases one cannot but rejoice from a surgeon’s standpoint that the times have changed, for the operative treatment of general septic peritonitis is still a forlorn hope.

Here* is what he says: “So impressed am I by the fact that we physicians lose lives by temporizing with certain cases of appendicitis, that I prefer, in hospital work, to have the suspected cases admitted directly to the surgical side.”

I myself can look back to the days when operation was deferred until the patient’s chances had well nigh vanished, or there was an immense abscess, whose cavity, after opening, took months to heal. And even now-a-days here lurks a secret tendency in many minds towards what is called “expectant treatment.” And it is with the view of aiding others to make up their minds on the subject that I have penned these lines.

There is a class of cases where the pain is slight and lasts but a few hours, which may be deemed outside the province of the surgeon. But at any time these slight attacks may be followed by one which is more severe, and in my opinion any case which lasts over a few hours, or in which the pain is at all severe, should be regarded as a possible operation case.

Granted this point, what indications should lead us to take up the knife?

Broadly speaking a progressive or non-resoloving lesion.

* Osler. Practice of Medicine, 1895, pp. 442.
If possible it is not good practice to operate before the fifth day of the disease, for the reason that nature has her own means of localizing the trouble by means of adhesions, which are of distinct advantage in surgical operations on the great bulk of cases that come to the operating table, viz., the supplicative ones.

The exceptions to this rule are two in number:—

(a) The first exception is when the attack is acute from the outset and the patient shows signs of commencing acute peritonitis.

I have seen such a case, where within the space of twelve hours the patient was suffering from acute general peritonitis and where death, in spite of operative interference, took place in less than thirty hours from the first symptoms of the disease. The appendix in this case was in a gangrenous condition.

(b) The second exception is the occurrence of a casualty which may happen not only within the first five days but at any time in the course of the disease, viz., the perforation of an abscess into the general peritoneal cavity. In the absence of opium the symptoms of this occurrence are clear and certain in at least 99% of the cases.

A patient who may or may not be getting on well, is suddenly seized with acute pain and collapse. The pain may be referred to the umbilicus or the appendix region. This may pass on into general peritonitis without a remission, or the patient may actually die of the shock, but as a rule the symptoms pass away, to be followed a few hours later by the commencement of an acute general peritonitis, and this remission may easily mislead the doctor in charge, as in the following case:—

A young man was getting well of an ordinary attack of appendicitis and was sitting up in bed laughing and talking, when he was suddenly seized with intense pain in the abdomen and extreme collapse. He rallied in a short time; the symptoms passed off, and the gravity of the case was not realized. The acute general peritonitis began, and twenty-four hours later, when his abdomen was opened, the intestines were covered with lymph and the patient died shortly after the operation was completed.

In these two classes of cases the aim of the surgeon is not to deal with the result, except as a secondary matter. His primary purpose is to eradicate the focus of disease, as far as lies in his power, and to this end the operation for removal of the appendix should be at once carried out. In most cases it also involves the cleansing of the peritoneal cavity wholly or in part.

But we will suppose that we have arrived at the fifth day without either of these untoward occurrences, and our patient is either doing badly or standing still. It may be that the mass or resistance which can now be felt in the region of the appendix is increasing in size and the pulse rate is rising.

The temperature by the way is a very fallacious guide, and cannot be depended upon, but a rising pulse is a sure sign of progressive mischief.
In any case it is highly probably that there is a collection of pus or inflammatory material there and either at once or within the week an operation should be performed for its relief.

Fluctuation or superficial oedema are very late signs, and ones that must on no account be waited for, and although the selection of the right day is a matter which must be left to the discretion of the surgeon in charge, it may be borne in mind that for every case that is operated upon too early, five or six are operated upon too late, as regards the rapid clearing up of the trouble. And pent up pus is always a source of danger to the patient, as it may at any time either burst into the peritoneal cavity or form a focus for an attack of pyemia.

As to the operation to be performed in these cases, it may be remembered that the surgeon's aim is to evacuate and deal with the result rather than reach the primary cause.

The incision I prefer, in dealing with these cases, is one about three-fourths of an inch away from and parallel to the upper portion of Poupart's ligament. In many cases the reaching of the purulent collection is easy, in some it is extremely difficult. In the last case I operated upon the man entered the Chang-poo hospital in an almost dying condition, having been ill a month and being thin and wasted. It took me upwards of twenty minutes to find the collection, which was deep down on the surface of the psoas. After evacuation the man made a fairly rapid recovery.

In operating on these cases it is of great importance that the surgeon should remember that in at least nine out of ten cases he will have to enter the peritoneal cavity, but his aim is to enter that portion which has been shut off by adhesions.

The abscess opened what is to be done with it. My own strong opinion is nothing. The man who gropes for the appendix is running a grave risk of opening up the general peritoneal cavity, or setting up a fecal fistula, and the same objection applies to irrigation. I simply insert a large drainage tube, and twelve hours later, when adhesions have more thoroughly formed, wash the cavity out gently with some antiseptic. It is quite unnecessary in the majority of cases to make a counter incision in the loin for drainage. Theoretically one may urge that a wound cannot drain uphill; practically it drains very well as far as my experience goes. And the same objection applies to counter incisions, viz., that the general peritoneal cavity may be opened up in the necessary manipulation. In the after treatment one point may be noted: the drainage tube may be lessened in size, but must not be shortened until the cavity has stopped discharging. In one of my cases this was done by the house surgeon in my absence, and twenty-four hours later I had the greatest difficulty in finding my way into the contracted abscess cavity where pus, as I surmised, was beginning to re-collect. In many cases
after the tube is out and the wound healed, there still remains a considerable mass in the appendix region, with some flexion of the thigh. Providing the abscess has been allowed to dry up, but little anxiety need be felt about these signs, as they will gradually disappear.

In two cases that have come under my care lately, the patients left hospital with thickening still present and some flexion of the thigh; four months later in both cases these signs had quite vanished and the patients were in excellent health. In others of these cases a fecal fistula forms. In my experience the greater number of these fecal fistula close spontaneously under ordinary treatment. They generally occur in cases that have been left too long, and in a few cases are said to prove very intractable.

In considering the whole question it should be borne in mind that appendicitis may be due to tubercle or to actinomycosis, and the abscess, after being opened, may absolutely refuse to heal or heal only after a long time.

Supposing a patient to present himself saying that he has (and producing good evidence in support of the statement) passed pus either by bowel or in the urine, what is the prognosis?

As regards the former, in many cases the passing of the pus per rectum is the end of the trouble, and no operative measure should be taken—at all events for a time. The same applies to the passage of pus in the urine, which is a much rarer complication. And before passing to the question of operation in the recurrent cases let me remind my readers that when the sinus leading to an old appendicitis abscess refuses to close, it is quite possible that there are one or more fecal concretions in the cavity which may have to be removed before it will finally close up.

So much for the suppurative lesions, now let us pass to the patients who are suffering from recurrent appendicitis.

The operation of removal of the appendix in a quiescent interval in an ordinary case is such a successful one that I would advise removal in any case which has more than two undoubted attacks. At any time such an one may be attacked with a seizure, perhaps in a locality where he is out of reach of skilled medical assistance.

But at the same time I am aware that there are many who do not agree with me on this point. Where many attacks, especially if increasing in severity, have occurred, all are agreed about the advisability of operation. As to the technique let me illustrate by a case on whom I recently performed this operation.

A young man, aged twenty-seven, had had upwards of twenty attacks before he came to the east, and on his way had a severe attack and a subsequent relapse. He was not operated upon, and after two more attacks the abscess burst into the bowel. For six months he remained well, and probably
would have done so indefinitely but for his devotion to violent athletic exercise. After six months attacks of pain recommenced, and in the interval after the third attack I operated.

A slightly curved incision about three inches long was made across the line from ant. iliac spine to umbilicus, along the outer edge of the rectus. The sheath of this muscle was opened, the muscle drawn slightly inwards and the abdomen opened a little to the inner side of the skin incision.

The appendix was found enlarged, bent on itself, and in the concavity lying on the mesentery of the appendix was the remains of the old abscess cavity.

The whole mass was bound down to the psoas by adhesions. These I separated with my finger and brought the mass to the surface. Separating the adhesions which bound the appendix to ileum and cecum, I transfixed and tied off the mesentery, managing to do this beyond the area touched by the remains of the old abscess, which had apparently opened into the cecum near the base of the appendix. Then the latter was tied off in the usual way, a little cuff of muscle and peritoneum turned back near the base, the mucous membrane tube ligatured with fine silk, and the appendix cut off. A small drop of pure carbolic acid was placed on the end of the mucous membrane tube and the cuff drawn over it and sewn in position with a couple of stitches of fine silk. As I had not opened any inflammatory focus I did not drain the peritoneal cavity, but closed it with sutures, passed in the following way: first through the skin edge, next deeply into the musculature and then emerging on the inside close to the peritoneal edge and passing in the reverse way on the other side of the wound. By this means the muscle is brought well together and at the same time the advantage of single interrupted sutures is obtained.

The usual dressing was applied, the stitches were removed on the tenth day, the wound healed by first intention and the patient was allowed to be up and about at the end of three weeks, but with strict orders not to do any athletics or lift heavy weights, etc.

In many cases the operation is much easier than this, but on the other hand, adhesions may be so dense that it is impossible to find the appendix.

In operating on these cases great care must be exercised in opening the abdomen, as bowel or omentum are frequently adherent. If omentum is found adherent to the mass, it should be tied off and the adherent portion cut away.

Another point to note is that occasionally a small abscess may be opened. In these cases it is safer to drain the site with a small rubber tube carried out at the lower angle of the wound. This may be removed as soon as the discharge ceases.

In conclusion, let me mention two points of importance in all cases. The bowels must be emptied by enemata and kept open. In acute septic
cases it is well to give a saline purge after the case has been operated upon. Enemata should be used before operation rather than purges. For the first few days fluid diet should be enforced, but in all my operative cases I am now allowing a return to ordinary diet sooner than before and with the best results as regards the rapid convalescence of the patient. Of course this point has to be decided separately in each case.

Secondly. In the matter of opium I hold very strong views. There is a tendency among a certain section of medical men, chiefly those who have little experience of abdominal operations, to speak of the prejudice of the surgeon against a most useful drug. I am quite sure that after severe abdominal operations opium is a poison, and that certain cases are lost, not from the operation but from the effects of the drug given afterwards. I never, if I can possibly help it, give opium after an abdominal operation.

And a still more potent objection can be adduced against its use in the early stages of appendicitis. It completely masks the true progress of the disease. Better, far better, I say, to let the patient suffer a little pain for a few hours than deceive both himself and yourself, as I have seen done, as to the true state of affairs. Severe persistent pain is not an indication for opium, but for operation, and although the patient's friends may implore you to give sedatives it is better to be frank with them and give your reasons than that later on you should have to tell them that the case is hopeless or at least that operation is a forlorn hope. It is not my purpose here to enter into the methods which may be safely used for alleviating pain, and although I am conscious that there are many points which I have left untouched, I hope the paper may be the means of aiding some who are in doubt to make up their minds as to the advisability of operating, or the reverse, in cases of appendicitis.

*English Presbyterian Mission, Chang-poo.*

---

**AN OBSCURE CASE OF APPENDICITIS.**

By Dr. J. G. Wall, of H.M.S. *Esk,* and Geo. F. Stooke, L.R.C.P. and S.E.

I. **What we diagnosed.**—We diagnosed tropical abscess of the liver accompanied with its usual antecedent—dysentery. There were things both for and against this view, and these will probably be most clearly appreciated by our giving a brief résumé of the patient's history. He was a marine on H.M.S. *Esk,* stationed at this port, and had only been out from home some two months; never having been abroad before. He suffered from a persistent colic and diarrhoea, which resisted all treatment and gained gradually in severity. The abdomen was tender generally, but acutely so over the site of
An Obscure Case of Appendicitis.

the pylorus, and he could not bear the gentlest pressure over this spot. The temperature never rose above 103°, and was usually very near normal. On the sixth day of his illness more than a pint of blood and clots were passed with a quantity of yellowish green pus from the rectum (not the typical chocolate-coloured pus of tropical liver abscess). At this occurrence the pyritic pain increased greatly in severity, becoming really agonizing, and the patient soon became very collapsed. It was thought that the liver abscess had opened into the colon, causing the haemorrhage and the passage of pus, and peritonitis was feared. He rallied from this collapse, however, and was then removed to the mission hospital, and the case was watched there. In a few days the gradually enlarging liver began to fill the epigastrum, quite leaving out the previous prophetic diagnosis of an abscess there. Just before operation we noticed that the skin over the tumour had become edematous. We operated and opened an abscess cavity some seven inches in diameter, evacuating over two pints of laudable pus. There was no fecal odor apparent, so we began to question our diagnosis that the abscess had opened into the bowel. The discharge of pus per rectum had to be explained, however, and all we could say was that there was probably a valvular opening into the colon. We took scrapings from the abscess wall, but could find no amoeba coli. The day after operation (the twelfth day of his illness) a new symptom made its appearance—a stitching pain in the right iliæ region over the cæcum, and this grew worse every day. We thought this pain due to a dysenteric ulcer in a head of the cæcum, and the constant passage of blood clots in the motions confirmed this. Under this double weakening agency, however, the patient gradually sank till he died six days after operation.

II. What we found.—Being a foreigner we were of course allowed a post-mortem—a luxury in China. We found our operation wound and its surroundings quite healthy, but the liver was very much enlarged and was riddled throughout with multiple abscesses. There was no connection with the colon at all, though the viscus had become adherent to the lesser curvature of the stomach and to the diaphragm behind. The cæcum was very badly ulcerated, and no appendix was to be found. A perforation had occurred there and had given rise to a peritonitis chiefly limited to the pelvis. All the abdominal glands were hard and enlarged. And now our case was explained. The liver abscess was not tropical but pyemic. The ulcerated cæcum had given rise to a portal pyemia which had become stationary in the liver, not infecting the systemic circulation. The yellow-green pus passed in the motions had come from the cæcum, not from the liver.

III. The excuses we make.—We said tropical abscess chiefly because of the temperature. It was so low and even, and there was no rise and fall so characteristic of a septic fever, but it is evident that a pyemia limited to the portal-system may not give rise to much constitutional disturbance. We
had a form of dysentery we felt sure, for blood was being passed daily in the stools, though there was no sign of rectal ulceration. When the cecal pain appeared we put it down naturally to a dysenteric ulceration. Against tropical abscess was of course his very short sojourn abroad, which should almost have been final to us, but we hoped our case might prove a remarkable exception to the written rule. We did not dream of an appendicitis, for the liver absorbed all the symptoms and all our attention. Why did not a sign of that affection show itself till the fifteenth day of the illness? At the outset of the illness the appendix region had been carefully examined, but there was an entire absence of pain and tenderness. It is rather depressing thus to make public a mistaken diagnosis, but we have not shrunk from doing so, because one certainly does gain more useful knowledge from their own and other men's failures than from the brilliant successes of the faultless.

Scotch Mission, Ichang.

SELF-SUPPORT IN MISSION HOSPITALS.*

By O. L. Kilborn, M.D.

In the first stage of medical mission work, a few tens of years ago, missionary societies did not feel called upon to spend more funds upon the doctor than they did upon the minister. They gave him an allowance for a building, but for his supply of drugs and instruments, he was often obliged to depend upon friends and acquaintances in the home lands to whom he made known his needs by private correspondence.

Now-a-days, happily, the medical missionary is generously provided by his society with every needed drug and appliance; and this not only at the beginning of his work, but annually his order for drugs and instruments is promptly and cheerfully filled and forwarded. All current expenses incurred upon the field are also liberally provided for.

I trust we are approaching a third stage, when our home Boards shall be relieved of all but the initial outlay for buildings and equipment.

When is self-support possible? Certainly not at the beginning. When medical work is first opened, the twenty cash fee should be sufficient for all comers, but in the course of a year or two, as the name and fame of the hospital become established, the physician may begin to ask for fees and aim to increase his income slowly but steadily till in the course of a few years time his institution should become partly or wholly self-supporting.

For convenience sake let me speak of the sources of income as four—out-patients, in-patients, patients visited in their homes, and lastly subscriptions from foreigners and natives.

* A paper read before the Shanghai Medical Missionary Association, January, 1901.
Out-patients should be required to pay a fee of at least twenty cash for first visit only; subsequent visits should be free, as an inducement to take continued treatment. Exceptions to this twenty cash rule may be made at long intervals, in the case of beggars, and of patients already objects of charity to their neighbors. I have had many a case brought for treatment for whom his neighbors had contributed not only the fee of twenty cash, but his chair hire as well. In my experience very few, possibly one per cent, will apply to have the twenty cash fee remitted in their favor.

The vast majority of out-patients, after the payment of twenty cash registration fee, should not be asked for anything further, even though they come for a month or more, for the simple reason that they are too poor to pay. The minority who should pay, are officials and the rich or well-to-do merchants, and all patients with venereal diseases. Poor patients with venereal diseases should be made to pay something, more than the twenty cash, even if only 100 cash a month. Every little helps to swell the hospital income, and the fact of having to pay something will emphasize the doctor's timely warning to avoid such evils in the future. And furthermore it is usually easy to get them to pay, because we are often able to obtain remarkably satisfactory results by appropriate treatment in such cases, as for example the effects of potassium iodide and mercury in syphilitic lesions. Rich patients with venereal diseases should be made to pay well for services rendered.

Many patients come during dispensaries hours, but do not wish to wait their turn to be seen. See them at once and charge them 100 cash. Others again come on non-dispensary days, or out of hours on dispensary days. Charge them 300 cash.

For operations in the out-patient department, either with or without an anaesthetic, a fee is usually easy to obtain. He is a very poor man indeed who cannot pay 100 cash for an operation requiring time, skill, and the use of expensive drugs and instruments. And many a man in very moderate circumstances will readily agree to pay 1,000 cash for some of the more striking operations, as, e. g., the removal of a subcutaneous cyst under cocaine.

In my experience half of the in-patients in the general wards will pay the cost of their food, say 1,500 cash a month, or fifty cash a day. Another percentage will pay something towards the cost of their food, while not more than twenty-five to thirty-five per cent. cannot pay anything. I took a youth into the ward for a month's treatment of his leg ulcer. I asked him if he could pay me 1,500 cash for his board? He declared it was impossible. I believed him. After some conversation, he agreed to bring me 100 cash. He did so, and I gave him treatment, with board and lodging in the usual way, for a
month or more. He was profuse in his gratitude, much more so I think than if he had been treated entirely without charge. He was able better to appreciate the fact that we were under constant expense in feeding and caring for so many patients, and therefore also he appreciated the kindness shown in his particular case. In a hospital where everything is free, patients are apt to get the impression that we are abundantly supplied with funds, probably by government, and they therefore do not ask for favors, but are apt rather to demand their rights in the shape of free board and lodging and free treatment. They may become very independent in their demeanor, and under the circumstances see no particular cause for gratitude.

On the other hand, it is sometimes surprising how readily Chinese patients, who are evidently in very moderate circumstances, will agree to pay at least the cost of their food. They are always impressed by the reasonableness of the demand. Of course one meets with dead-beats, and not infrequently gets taken in, but by suitable precautions the number may be kept within bounds.

In the above remarks I have had reference to the large general wards only. Every hospital should have a number of private or single bed wards. Chinese appreciate them and will pay for them. The charge may be 3,000 to 5,000 cash a month. Especially if these wards are a little better fitted up than the general ward, a goodly number of patients will take advantage of them. The biggest fees of all will come from well-to-do in-patients, upon whom a major operation has to be performed. Not that it is necessary to get a big fee, or even any fee at all from major operation cases. Many of them cannot pay a fee, and some not even cost of food, but after the hospital has been running successfully for two or three years, if I get a wealthy patient for major operation, he pays a good round fee, or I do not touch the case. I am firmly of opinion that such a course of procedure will increase the respect of the patients for Western medicine and surgery and for the foreigners themselves. Such a course tends to an enlightened understanding of the position of the foreign doctor; he is not so likely to be regarded as under foreign imperial pay, for some mysterious, and therefore sinister purpose.

From one class of in-patients I believe it right to demand and receive in every case a fixed fee which shall be large enough to cover cost of food and leave a margin for medicine. I refer to those who come to break off the opium habit. My charge has been 2,000 cash, to be paid in advance, no portion of which shall under any circumstances be returned to the patient.

3. Patients Visited in Their Homes.

This form of work is very unsatisfactory from the professional point of view, because in so very few instances are we allowed to see the patient more than once or twice. Moreover, these visits are usually to the Yamêns or houses of the wealthy. Therefore I believe we should have a fee for
every visit. My practice has been to demand a fee of $00 cash; this is made, however, to cover chair hire. After a few experiences of being called to find patients already dead or moribund, or when one is unable to give a favorable prognosis, and then finding it difficult to get even one's chair hire, my rule latterly has been to get the $00 cash in advance. Exceptions are few, chiefly opium suicides, where the necessity for haste is obvious. My fee for opium suicides, by the way, was 1,000 cash, instead of 800.

4. Subscriptions.

Subscriptions from foreigners do not require effort on the part of the doctor, other than a manifest willingness to accommodate people by accepting and receiving their subscriptions when proffered; but I am thinking only of an interior city, where all foreigners are missionaries. Probably different conditions require some action in the open ports.

As to asking or receiving subscriptions from natives, I have personally very little experience, but I believe that this might be with tact made a productive source of income, and therefore it is our duty, for the sake of the givers as well as for our hospital's sake, to put the opportunity before the officials and other rich people of the community.

Objections Answered.

1. The self-support plan is apt to convey the impression of a mercenary spirit.—I have never found this a difficulty or a danger, because the great majority of out-patients will still continue to pay twenty cash only, and they themselves readily acknowledge that this small sum cannot be sufficient to pay for all they receive, even in one visit. The majority of in-patients pay for cost of food only, or they get it free. In addition they have clean beds, bedding, and clothing provided; attendants to wait on them, besides medical and surgical treatment and nursing. While therefore the great majority of our patients readily confess that ours is a work of charity, surely this objection need not weigh with us.

2. The self-support plan is contrary to the spirit of the gospel we preach!—Many are carried away with the fine sounding phrase, "All the services of the medical missionary in China should be as free as is salvation through Jesus Christ." The fallacy lies in this, that while salvation is free, the proclamation of it is not free. Somebody must pay to bring both ministers and doctors across the sea and keep on paying in order to support us and our churches and hospitals after we get here. And everybody agrees that the church in China cannot attain to the highest spiritual development until it is self-supporting and self-propagating. Neither will patients, who are able to pay, receive the greatest good from the ministrations of the medical missionary until they are led to pay, to the extent at least of the complete support of the hospital.
3. **Self-support is a hindrance to evangelistic work in the hospital.**—This is directly contrary to my experience. The great benefit derived from our medical work is the removal of prejudice and the softening of the hearts of the people by what we do for them. When they have become grateful for such kindesses, the way is prepared for the entrance of the gospel message. Now I have found that the patient who pays even a good-sized fee, is not by any means the least grateful. And moreover, he is not tempted to fawn upon us, or to be hypocritical in his gratitude. He can look us fairly in the face and thank us, and he is grateful, often more so than the man who has never paid a cash. Therefore I claim that the spiritual work of the hospital is not hindered, but rather helped by the self-support plan.

**Advisability and Practicability.**

I believe self-support then to be advisable for the two chief reasons: First, economy of funds; second, the good effect upon the patients; they are not pauperized, that is, they keep their self-respect, and besides they take a healthier interest in the foreigner and his hospital, and therefore also in the gospel he preaches.

I believe self-support to be practicable, because the Chinese are accustomed to pay their own doctors, and often their fees are exhorbitant, even from the foreign point of view. Such experiences as the following have had their effect, I must confess, in influencing me towards the self-support plan.

A shoemaker brought me his little daughter with a tubercular abscess. After a month or more of treatment, she was pronounced healed, and the father came to express his thanks. "Why," said he, "I shall always come to you after this. The last time this child had a sore like that, I had Mr. Blank (naming a Chinese doctor of some reputation,) and it cost me over 4,000 cash and three pairs of satin shoes, and besides he took two or three times as long as you did, to cure her!" My treatment cost him just 200 cash.

Another case occurred in Dr. Gifford Kilborn's experience. A teacher, who had been in foreign employ for several years, called her in great haste to go to see his wife who, he said, had been in labor for three days. All preparations were quickly made for the relief—if it were not already too late—of the poor sufferer. On arrival, it required no serious expenditure of time or skill to diagnose a case of ordinary colic! The woman was not even pregnant! Needless to say, the family were perfectly disgusted at such an exhibition of foreign stupidity. They solaced themselves in the usual way. A famous Chinese doctor was called at once, who pleased everybody by his clever diagnosis. He found the woman to be pregnant, and confidently predicted the birth of a son in four months' time! His fee of 5,000 cash was
cheerfully paid. Dr. Gifford Kilborn had received no fee, and had paid her own chair hire. The lesson of this incident is not affected by the fact that at the end of four months' time the teacher rather ruefully acknowledged that "it had all been a mistake!"

*Canadian Methodist Mission, Chen-tn.*

---

**HOSPITAL CONSTRUCTION.**

*By James Butchart, M.D.*

We have all had our day dreams of the hospital we would like to have—neat, convenient, and withal clean. We are apt to form our ideas from the palatial halls of brick and marble that we have seen at home.

We must not forget that the supply of money to be put into a building is limited, nor is a display in excess of the actual working needs conducive to a good effect on the minds of the people that we seek to influence, for before all it is Christian influence for which the hospital work is carried on. We must not forget that in the interior at least that we are building for the Chinese whose feelings are often the opposite to our own. If in the construction of a hospital we can plan it to be convenient and clean and yet provide those things that they consider as comfort, we conduce to the number of cures and success with a good impression made on the minds of those that we meet.

Every variety of building, Chinese and foreign, dirty and clean, have had their measure of good influence, and after all it is largely the personality of the doctor himself that in a great measure determines the success or not of the work.

**Style and Plan of Building.**

Two circumstances control the style of the building—the amount of funds and the size of the site. On a small piece of ground one must necessarily build two stories. The two-story building has the advantage of more air and light in the upper story and a less cost owing to the roof covering two rooms in place of one. Estimating the cost of an iron roof to be one-fourth of the whole, this will be a saving of one-eighth for a given size of floor space, over the one story.

The plan of the building must vary according to the methods of the worker. If he sees the patients largely in a short time more space must be given to the room where treatment is given, than if his assistant sees them at any hour. My preference is for a chapel where patients may gather and listen to the preaching; behind this the room where the treatment is given,

* Read before the Shanghai Medical Missionary Association, January, 1901.
and connected with this, separated only by a glass screen that may be removed, the room where the drugs are dispensed, so that the doctor may have some oversight of what the assistant is doing in the drug room unless he has a foreigner in charge. Ranged around this room should be a dark room for eyework, and a room for private examination or dressing, a drug storage room, and, if possible, a little room for a laboratory where the microscope and stains, and the urinary analysis set, with reagents, may be always ready and handy. There may be a table, in another room, devoted to this use alone, but it is better to have it separate.

An operating room should be where good light can be gotten from two sides and the sun does not shine in at the time of day that you want to operate.

WARDS.

Wards should as far as possible be in separate buildings, but arranged so as to be of convenient access. In other words, in the pavilion style.

Where the building is two-story and verandahs are used it is a saving of space to have the stairway on the verandah; it may be at one end and enclosed or not. Hallways are places for the accumulation of dirt, and, unless special care is taken, it is hard to plan so that they shall not be dark, unless they are in the end of the building.

There are two classes of cases; one set that are poor and come perhaps with no friend. These like to be in the large ward, where they are not so much afraid of the magic of the foreigner. Others are used at home to retirement, and fret at being with the common herd. Private wards should be arranged for these, and are much appreciated and may be a good source of revenue to the hospital, as they are willingly paid for.

CONTRACT AND SPECIFICATIONS.

We will suppose that a two-story building is chosen. Unless you know the contractor to be a very reliable man, plans and specifications cannot be drawn with too much care. The plans and an elevation of the building drawn to a scale are a help if the man is used to them. The specifications should be full and put carefully into Chinese, revised till you are sure that you fully understand them yourself and that there are no mistakes.

An easy way, and perhaps the most successful way in the interior to get the work properly done, is to specify that certain parts of the work shall be done like that of some other building to which both yourself and the contractor can easily go for reference.

The foundation should go down to the yellow earth and be two to two and a half feet wide, made of broken brick and mortar-pounded down nearly up to the level of the ground. The foundation brick should be started wider than wall and above ground gradually contracted. It is well to have one course put in with gas tar to prevent the capillary soaking of water into the walls.
If the floor is of wood there should be two and a half or three feet of air space below it. All partition wall foundations and supports for the floor should go down to the clay and be built up solidly. If any earth is filled in, piling should be used under the foundation.

There are two styles of wall—the solid brick of the foreign way and the hollow or teu-tsiang of the Chinese made with foreign-sized brick. The latter may be used where there is only one story or where cheapness is desirable. In this style the roof and floors are entirely supported by a timber frame work and the walls filled in. The hollow between the bricks can be filled, Chinese fashion, with broken brick and mud plaster, which makes it a solid wall and prevents any danger of a brick being driven in by a blow as one sometimes sees done for mischief in compound walls where this precaution has been neglected. The mud should be put in in the wet condition.

No walls should be allowed to be built when there is danger of freezing weather before they can be reasonably set. Bricks of red color should be soaked in water to see that they are not imperfect before using, as these bricks differ from the grey in not having the water poured on the kiln after burning, by which they are tempered.

Sometimes masons in the interior need watching to see that they are careful to have the walls plumb. If once built it means much language, sometimes not of the mildest sort, before they will be changed unless they should fortunately fall or show serious defect immediately.

**Roofs.**

The best roof by far is the corrugated iron, either No. 20 guage, or, better, No. 24, with board sheathing underneath to protect the iron from bending and breaking when it is walked on by workmen. Each screw should have a washer on it set in white lead. Screws should be at least partly driven with the screw driver and not with a hammer as the Chinese are so fond of doing. Care is often necessary to see that the iron is given the proper lap of one and a half corrugations and five inches at the end.

If tile is used it needs heavier timber to support the roof and care to see that the tile is laid thick enough. If the building is one story without a ceiling either board sheathing must be used or else flat tile with plaster in any room that you intend to keep at all clean. In windy weather great quantities of dirt will blow through the tile in those parts of the country that are dusty.

The roof should project eighteen inches at the eaves to protect the wall from the weather, and never run into an eave trough set on the top of the wall.

**Flooring.**

The best flooring is the oregon pine, or the portland cement that was recommended by Dr. Boone at a late meeting. If cement is used it must absolutely be put down in sections of freshly mixed cement. The ground
underneath, needless to say, should be pounded down. Then broken brick on a layer two inches thick of cement, one part to four or five of coarse sand. On this immediately is put an inch or so of cement one part to two parts of fine sand, the proper amount for one section being mixed at a time and immediately put in, the level being kept by a straight-edge board and line. Water should be thrown on it after a day or two for some time. Chinese workmen invariably want to put in the whole floor at one time and never succeed in getting the stone-like solidity of the pavements at home.

On a wood floor, Ningpo varnish can be put on over oil, but not the reverse. The warm, damp days of spring are the best time to apply Ningpo. If used in the cold, dry weather of winter there is sometimes trouble in getting it to properly dry.

If round timber is used it is impossible to get so rigid a floor as with the flat-sawed foreign timber, specially if this be braced between the joists, herring bone fashion. This might help the round timber.

Insist on seeing that none of the floor timbers are run into the chimney and beneath the fire place, but at that point are separately supported. Even good contractors are careless here, and fires are a consequence. Perhaps a good plan is to have the chimney built entirely outside the wall like the southern cabin, in which case it may be used to strengthen the wall and even be made ornamental.

**MINOR DETAILS.**

The lime for the plastering should be slacked and left in a pile for some time before using, and this will prevent the bursting of lumps in the wall afterwards so often seen. Lathing should be narrow enough to hold the plaster easily. A friend of mine in Japan insisted that it should be quite broad with the result that the plastering had to be all done over. The smooth trowelled, hard finish is best. It can afterwards be washed or painted as chosen. All corners should be rounded, as well as the wash board at the bottom, so that there is no favorable place to collect dirt.

Plenty of good ventilation should be provided, either by Dr. Boone's plan of perforated zinc in the transoms, or in the ceiling by pipes that lead to the outside. One hint here, if pipes are used have them closed by wire to keep out English sparrows.

The noise of a floor above can be prevented by a false bottom of thin wood with a filling of sawdust or chaff between this and the floor.

It is a good plan to have flues above all lamps, as the Chinese are so apt to have them smoke.

There are certain conveniences that are almost indispensable to a hospital; among these are closets for clothing and blankets. This needs only to be mentioned; but I should like to recommend a form of bath room, and only one. This is the shower bath, which is the form adopted in all public
institutions at home now. In some convenient spot in the story above place two "kangs" or two cans made of galvanized iron. These may be put in a wooden box and packed around with saw-dust or straw to keep the heat of water put in them. These lead to two tubes in the bath room, from each of which a tube for hot and a tube for the cold water runs to each sprinkler head, so that the water may be regulated to any temperature by opening or shutting the taps of each. These sprinkler heads may be made of galvanized iron, or the brass ones used in Japan by the barbers for shampooing are excellent.

The floor of the room should be of cement, and sloping, so that all water runs quickly into a drain. The room may be heated by a small stove to the degree necessary. Another small room in which they can sit and drink tea and cool off before going out will be a benefit and suit the Chinaman's ideas. A bath of this kind is extremely economical. It is clean, carrying no infection. It is entirely feasible The amount of water needed and used by this form of a bath is much less than of any other kind. A school of over thirty boys were regularly bathed for less than ten cents of total cost each time, including the cost of hot water and charcoal for heating the room.

If there is a room connected with the operating room for the storage of instruments and appliances the room itself need not be large. Twelve by fifteen or so, or even twelve by twelve. A cement floor is to be recommended, or an oregon pine one with the oil put on boiling hot.

A great need in an operating room is a supply of sterile cold water. This can be had with the Berkfelt filter, and in place of a force pump for pressure I am informed by Dr. Boone that nineteen feet of gas pipe connected with a small reservoir above will give pressure enough for all needs.

Electric bells and speaking tubes cost but little and are a great saving to oneself and assistants. I noticed when I called my boy by voice that he often claimed that he did not hear. With the bell the tone was the same at all times, and it was his business to be where he could hear it.

Wires and tubes can best be put in when the building is being built.

One hint as to batteries. In this damp climate the salts of the cell often "creep" and the cover of the cell gets moist and conducts electricity and in a short time the cell is ruined. Smear the top of the cell and the lid well with vaseline. This will prevent much of the trouble. I think I have seen it recommended to cover the fluid with a layer of thick oil, or melted paraffine.

In a two-story building the dumb waiter, so useful in the New York flat, might save much walking up and down stairs, especially in case of women.

The Chinese have a proverb that "under every doctor's sign there are spirits," meaning that every doctor will have deaths. A very useful room to provide is a morgue, where a body can be locked up in a secure way, so that it cannot by any possibility be mutilated and hence spread an evil report.
It should be placed so that the body can easily be removed through a back gate in as quiet a manner as possible. In most places the Chinese have a great prejudice to its being removed by the front way.

Where one is liable to meet typhus fever and contagious cases an isolation ward can easily be made, large enough to hold one patient, on the plan used in the separate pavilions in the women's hospital in New York. There are four corner posts, with a floor, and the sides and roof are made of corrugated iron fastened to frames so as to be rigid and yet to be easily entirely removed, exposing everything to the sun and air. The walls are of the height at the eaves of one sheet of iron or a trifle over seven feet. The roof on each side may be the length of one sheet. Ventilation will be free under the corrugations of the roof. The aim being to protect only from rain and storm.

The clean water closet in a Chinese hospital is next to the impossible. My idea of the best is one having the floor elevated three or four feet above the ground level. This floor to be made of cement with a drain for a urinal at one side and with oblong apertures opening into Chinese "kangs" or galvanized iron cans below. The Chinese can then adopt the natural squatting posture which they prefer. The floor having nothing on it, can be easily flushed with water and the kangs removed at the back and cleaned.

Foreign Christian Missionary Society, Lu-cheo-fu.

---

CHINESE BABIES.*

By B. Gifford Kilborn, M.D.

This subject on the surface is a very simple one; but for any one who has to treat Chinese babies, it is most complex, and requires all one's patience and ingenuity. One's success will depend largely upon one's personality and power to deal with children. Their mothers need a great deal of careful management as well. The Chinese mother when she brings her infant to you, understands fully all its troubles, the necessary treatment, and how it should be carried out; notwithstanding the fact that she and the Chinese doctor have both failed to cure the child, and she has brought it to the foreigner only as a last resort.

A Chinese baby comes into the world amidst dirt and discomfort. If the weather is cold, the room is cold also. It is as a rule not washed for three days, but is wrapped in some rags, then tied up in its little quilt. Sometimes oil is rubbed over the body before it is wrapped up. The arms and legs must be secured perfectly straight inside the quilt, otherwise they are liable

* A paper read before the Shanghai Medical Missionary Association, February 1st, 1901.
to grow crooked. The child is trussed up in this way from one to three months, depending on the weather. The infant's food consists of the mother's milk, together with rice, vermicelli, and sometimes a little of whatever comes on the table for the family. As a result we have gastro-intestinal troubles without end. The wonder is that any children survive. I have in mind the case of a Chinese wet-nurse, upon whom all advice as to the proper methods of artificial feeding for her own child of eight months, was quite lost. She would persist in feeding rice and vegetables at will. My remonstrances brought out the astonishing statement that "Chinese children were made different from foreign children!"

In the province of Szchuan a great many women sell their milk. They engage as wet-nurses, or they sell their milk to the aged at so much a cup. Human milk is considered to be easy of digestion, and most nourishing for old people, who on account of disease cannot eat, or whose appetites have been destroyed by the use of opium. While the wet-nurse is feeding the foster-child, another woman is given a few cash to feed the wet-nurse's own child; or the infant is being fed rice-flour, bean-flour, or more often the food eaten by other members of the family. In Chen-tu and Chungking old-fashioned nursing-bottles with the long rubber and glass tube inside, can be purchased on the street. But a native nursing-bottle consists of a triangular bag of blue cotton, with a very small opening in the end. This bag is filled with a soft pap, made of rice-flour, and given to the child to suck.

The first thing a Chinese baby does on coming into the dispensary is to howl. And what is there that can make more noise? If one try to amuse it, it howls the louder. So I make it a practice to attend to an older patient first, and so give the child time to become accustomed to its surroundings. When I do attend to it I don't put up with any nonsense. A Chinese child is so unaccustomed to control, that when one talks to and handles it kindly but firmly, it will often keep quiet from sheer surprise. I first learn from the mother all I can regarding the infant's condition, and then if an examination of the child is necessary I proceed to make it. After I make my diagnosis, and the medicine is ready, I either give it a dose at once, or direct an assistant to do so. If the child is very ill, or the mother very ignorant, let her have only two days' medicine, and direct her to bring the child back when this is finished. By having the child come frequently, and giving a dose each visit, one is certain that the patient gets at least so much medicine. This appears to entail a great deal of extra work; it does mean a very little more for oneself, and considerably more for an assistant. But one has the satisfaction of seeing more of one's cases recover. In addition to this frequent visiting and personal dosing, the mother must be strongly impressed with the importance of carrying out one's instructions as to feeding and dosing at home.
When we consider the terrible mortality among infants in China, their many diseases, acute and chronic, and the lack of intelligent care on the part of parents; when we think of the neglect and even cruelty with which the helpless little ones are often treated, surely our warm sympathies and our best endeavors are due to Chinese babies.

If the mother can be induced to withhold everything from the infant except its natural food I have found that Chinese babies with gastrointestinal disease recover rapidly. The simplest medicinal treatment is all that is necessary. In obstinate cases persuade the mother to bring her child into the hospital for a few days. Here she can be watched, and perhaps prevented from feeding too much rice and vegetables, with the happiest results for the child.

PREVALENT DISEASES.

What a frequent and familiar picture is that of the poor little mite of a few months, or over a year, who is brought to us with eyes tight closed, lids swollen, their edges excoriated by the abundant discharges, and the whole body much reduced, it may be, by disease and unfavorable conditions generally. An ear-splitting protest is promptly elicited on attempting an examination. But a drop or two of cocaine solution wonderfully simplifies matters, and the next time the retractors work more easily. Alas! in too many cases we find that irreparable mischief has already been done. How indifferently, how heartlessly the parent receives the news that her child is blind for life. But presently we understand that it is not so much indifference as ignorance and unbelief. She does not comprehend what we are trying to tell her; or if she does understand she does not believe us. Because we cannot cure her child is no reason why some more famous (Chinese) doctor should not be able to. But in many more cases, by prompt and energetic treatment, we can do much to restore the child to health and to save sight.

A very large percentage of the infants brought to us have diseases of the skin. In very young infants eczema and scabies are most common. In older children, almost every form of skin disease is met with. As a rule both the eczema and the scabies yield fairly readily to treatment if constitutional as well as local remedies are used. Almost every Chinese child over six months has worms. I make it a routine practice to give one or two powders of santonine as preliminary treatment. The results are sometimes as astonishing as they are satisfactory.

Another class of cases is very familiar to us all, namely, the many forms of hereditary syphilis. The parents' sin is all too plainly written in the features of the child. The little one is emaciated, and looks like an old person. We have the flattened nose, peg teeth, fissures at the corners of the mouth,
Chinese Babies.

and not infrequently the steamy appearance of interstitial keratitis, but it is not necessary to give further details. We must be constantly on the lookout for these specific cases. Mercurials and cod liver oil work wonders for them.

Small-pox and measles we are not often called upon to treat. In Chen-tu Chinese children are nearly all either inoculated or vaccinated while they are small. For inoculation a "small-pox specialist" is called, who blows the virus into the right nostrils of girls and the left of boys. As soon as the eruption appears he is again called in to treat the case. According to Chinese belief inoculation should never be done during the first one hundred days of the child's life. Nor should it be done in the third, sixth, or ninth years, because of the danger of "noxious influences!" For most the operation is performed during the first or second year. Nowadays, even in far Western Szchuan, vaccination has become very common. The Chinese do really fear what they call the "wild small-pox," evidently a virulent form, from which many die and many more are badly scarred. While we are not often called upon to treat the disease itself we are often called to treat complications or sequelæ.

Frequently we are called to the home to treat cases of convulsions. Usually it is too late; the little one is beyond help. I remember one case I was called to see. The child had been ill for some time, and had already had several convulsions. It was in a convulsion when I arrived. I called for hot water, but was informed that hot water was not at all necessary. They had a fire and needles heated ready for me to use. Perhaps they thought I wanted to boil the child, and that hot needles were more suitable than boiling for this particular case! They refused to allow a bath, and after acceding to their urgent requests for a little medicine the case was reluctantly given up. As usual nothing more was ever heard of it. A doctor who refused to use hot needles, was not to be trusted with the treatment of that child.

Tubercular abscesses and tubercular joints are amongst the most common diseases met with. Plaster of Paris bandages and jackets are always available, and give the usual good results so long as they can be kept on. But the making of proper splints for orthopedic work is a real difficulty. Chinese iron is of poor quality, and work turned out from a Chinese blacksmith shop, is crude and coarse at the best. When one tries without the aid of a pattern to teach a Chinese blacksmith to make a complicated splint, and has to have it taken apart and made over two or three times, one begins to realize some of the disadvantages of living in a half-civilized country like this.

Diphtheria and scarlet fever may be common enough, but in the west we are called very seldom to see them.
The China Medical Missionary Journal.

The difficulties are great and the discouragements many in this line of practice. But the medical missionary who loves the little ones, and is quick to take advantage of every opportunity to win their love and inspire confidence in the parents, is sure to meet with a large measure of success.

Canadian Methodist Mission, Chen-tu.

THE OPERATION FOR EXTRACTION OF CATARACT.*

By William McClure, M.D.

In my experience the treatment of cataract has given more pleasure and satisfaction than probably all the rest of my professional work put together. The subjects of this disease are so manifestly disabled from following the usual pursuits of life that they either take to callings of questionable character to earn a living, or become a burden upon their friends. The sense of sight is a most precious gift, and the loss of it is a calamity indeed. Some of our Saviour's most wonderful miracles were for the restoration of this faculty. Blindness is also used by Him to symbolize the deplorable condition of unregenerate human nature. After years of blindness the restoration of sight by an operation, almost painless and in a few minutes' time, must seem to many almost miraculous and cannot fail to be gratifying alike to patient, friends, and operator.

Our mission field, viz., Honan province, north of the Yellow River, with Southern Chihli and South-west Shantung, is bounded on the west by the mountain ranges which separate Honan from Shansi, but is itself for the most part quite level and continuous with the great plains of Chihli and Western Shantung. If we may judge by hospital statistics cataract would seem unusually prevalent in this region. Why this is so, I cannot say.

In 1896 at Chu-wang hospital eight-six cases of cataract were operated on; on April 30th of that year six cases were operated on in one forenoon, and four days later four more cases; about that time, too, over twenty cases were under treatment at once.

I feel that I owe an explanation and an apology for presuming to write this paper from memory. The medical work at my station, Chu-wang, has been perhaps peculiar. For nearly two and a half years it was most discouragingly small, then in 1893 it took a sudden jump upwards, but this was interrupted in 1894 by the absence of the physician. Again in 1896 the number of patients increased to an amazing extent, so that our dirty, little, musty 14 x 17 feet dispensary, consulting and operating room, all in one, was more

* Read before the Chefoo Medical Society, January, 1901.
The Operation for Extraction of Cataract.

than taxed to the utmost, and so was the strength of physician and assistants, and there was neither energy, time, nor inclination left for case recording. On account of the lack of careful notes in preparing this paper I feel that it must lose a great deal of its value. I trust, however, that this recital of some of my experiences and some of the difficulties met with may be of some help.

Preliminary Examination.

Before deciding to operate it is important to test the state of the patient's vision. By shading the eye with the hand and withdrawing suddenly, the pupil will be observed to alternately expand and contract, but sometimes this movement is so limited as to leave one in doubt. A better test of the patient's perception of light is to find out whether he can readily follow a lighted candle as it is moved about before his eyes. Should these tests fail, it should be seen whether pressure on the eyeball excites sensations of light within the eye. If all these tests fail to elicit a response there is most likely disease of the fundus, and operation would be futile.

Oblique illumination with a lens, ought never to be omitted in these cases. This will quickly reveal any opacities of the cornea likely to interfere with vision subsequent to operation. I have operated very frequently where there were very considerable opacities of the cornea. Of course whenever the lens is visible through the opaque cornea the patient ought to be able to see through the same cornea when the lens is removed. Even vision enough to enable the patient to get about without being led, is a great boon to these unfortunates; there may not be much glory gained by operating on some of these cases, but there will be the sense of having done the best for them. Oblique illumination will also show any irregularity of the pupil due to adhesions of the iris to the capsule. At the same time note the state of maturity of the cataractous lens. If the iris casts a deep, dark shadow the lens is still immature. So far I have no experience in the operation for extraction of immature cataracts, but the important advantages that might be gained by early operation make the question worthy of study.

The state of the lids ought to be examined. Occasionally cases are complicated by that commonest of eye affections in this country—entropion. If there is considerable irritation from the rubbing of the lashes and the transparency of the cornea is endangered, it will be best to correct the entropion before extracting. On the other hand, there are many cases in which there is not much irritation and the transparency of the cornea is not interfered with; in such cases it is not necessary to first do the entropion operation. There are many of our patients who cannot afford to stay over for two operations, and there are others who might misunderstand

* Suggested by Dr. J. R. Gillespie during the discussion on this paper.
the object of the lid operation, and leave disappointed before the main operation was done.

A purulent inflammation of the lids would of course bar operation.

In this country, people almost continually expose their eyes to smoke, dust, and bright sunlight, and many in consequence suffer more or less from chronic redness and thickening of the conjunctiva, with excess of secretion. In such cases the ideal plan would be, of course, to treat the lids first, but the restoration of these to a perfectly healthy condition might prove very tedious both to your patient and yourself, and I believe, without waiting for this, if the eye be first very carefully cleansed, the operation may be proceeded with.

In one case, after a successful extraction, I was considerably mortified to find that the old man had such an amount of ptosis as to render the result almost useless. A more careful preliminary examination would have revealed this condition.

**AGE LIMIT, ETC.**

As regards the age limit for this operation I think I have never rejected a patient on account of old age alone. One very stout old gentleman, a literary graduate, of eighty-six years had both eyes operated on successively with good results. At the same time the state of health of the patient is by no means to be neglected. In the case of the debilitated and ill-nourished the operation had better be, at least, postponed. Should pan-ophthalmitis, which unfortunately is not rare enough, occur, the consequences in such cases might be very serious. One of my cases, an old man, developed diarrhoea or dysentery and died while under treatment for cataract.

When pan-ophthalmitis supervenes, of course, the best plan would be to enucleate at once, but unfortunately owing to the superstitious and malicious stories about foreigners using eyes for medicine we are not always quite free to do what is best.

**INSTRUMENTS.**

As regards instruments it will only be necessary to specify a few points. The speculum ought to be curved so as to lie close to the cheek out of the way of hand and knife. It should also be capable of being easily and quickly removed. I have found a fenestrated scoop or vectis a most useful instrument for extracting the lens, and it is always among the instruments prepared for every operation. It is important that it should be very delicately made and of pliable metal, so it can be bent to any desired curve.

The instruments are always boiled in distilled water. For this purpose I have found the Swedish patent "Primus" stove most useful. The nails of operator and assistant should of course be cut short and hands scrubbed and all precautions taken to ensure absolute cleanliness.
The Operation for Extraction of Cataract.

Preparation of Eye.

Cocaine having been previously dropped into the eye, it is now washed out. An assistant directs a stream of plain water on to the eye, and the operator himself should manipulate the lids so as to wash out thoroughly every part of the conjunctival sac. Once I discovered a very small but quite lively worm in the sac. After washing out thoroughly, again drop in a few drops of cocaine and give your hands a final scrubbing. I have never used atropine previous to operation.

If the patient is nervous or stupid it might be well before operation to drill him by having him look in any desired direction. In one case when the time came to express the lens the patient could not be induced to look down sufficiently to allow the lens to clear the upper lid, and it was finally necessary to deliver with the vectis.

The Operation.

In a few cases the palpebral opening is very small, or the eye deeply set, so that there is much difficulty in making the incision. The difficulty is rather increased than diminished by opening the speculum very wide.

In making the puncture and counter-puncture I aim to do so in the sclero-corneal margin just a trifle on the scleral side and continue the incision upwards in that line, turning the knife slightly outwards at the end of the incision, so as to have the cut at right angles to the substance of the cornea. If the knife be not in very good order, it may tend to strip off the conjunctiva at the upper part of the incision if the cut be rather far in the sclera; it would be better in such case to complete the cut with scissors.

If the incision be made too slowly the iris may get in front of the knife when the aqueous has escaped. In such a case, the best way is to go ahead as if no iris were there; the only ill-effect will be to possibly make a rather irregular iridectomy, with perhaps bleeding into the anterior chamber. Blood in the anterior chamber usually comes away clean with the lens. It is true its presence may perhaps oblige you to cut the capsule more or less in the dark, but this does not usually involve much risk if one can judge distances tolerably well. At my first operation I had the misfortune to have the patient move his head and tear the iris just as I was about to do the iridectomy, and of course the whole anterior chamber was at once filled with blood; not knowing the situation of the pupil, the iris having been torn, and having no one with whom to consult, I deemed discretion the better part of valour and gave up the operation. My first two operations, mostly through "funk," were failures.

The iridectomy should be a small one; the tendency is to remove too much iris.

Many of the cases of cataract we get are of long standing, and the outer part of the lens substance has become fluid; on cutting the capsule this
fluid rushes out, carrying with it flaky particles; there might be a tendency then to withdraw the cystotome too hurriedly, but this should never be done. If the lens is not over-ripe the sensation in cutting it will be like that of cutting green cheese, and the lens, when released from the capsule, may be seen to rise towards the anterior chamber. I have occasionally found the lens substance partly fluid and the capsule apparently thickened, and on attempting to cut it the whole thing would roll away from under the cystotome; possibly scissors may be used in such cases. In one such case the lens was ejected in the capsule and rolled on to the table like a little globule of water, but on touching it lightly with the finger it collapsed.

I have employed two methods in expressing the lens. Sometimes when one fails the other succeeds. In the first a spoon or spatula is used to make pressure on the eye-ball below the lens, while counter-pressure is made with another above the wound. Pressure, of course, must be very gentle and even. The position of the spatulas and the direction of pressure may be varied, and we may, as it were, coax the lens to present at the wound. In the other method the spatulas are discarded, the speculum removed, and the edge of upper lid being nipped between the finger and thumb counter-pressure is made with it above the wound, while the thumb of the other hand exerts pressure on the eyeball through the lower lid and the lens forced out much in the same way as the contents of a boil would be pressed out.

If, as sometimes happens, both these plans fail, there remains the vectis. This instrument must be introduced very gently, of course, to avoid pushing it into the vitreous. At first it is directed towards the centre of the eyeball, but as it passes the edge of the lens the handle is brought nearer to the forehead and the instrument is allowed to slide down behind the lens almost by its own weight; then it is lifted forward so as to bring the lens into contact with the cornea, thus preventing it slipping off the vectis as the latter is gently withdrawn. If done very carefully the vitreous will not be disturbed.

When vitreous escapes after the lens is extracted, the speculum should be at once gently removed in order to ease all pressure from the eye-ball. In closing the eye the upper lid had better be lifted over the wound so as to avoid the danger of folding the flop over on itself. It would be vain to try to co-apt the edges of the wound in the relaxed state of the eye-ball, and I must say the last view one gets of the eye as the lids close over a black, gaping wound is not encouraging, and the operator will probably not enjoy his dinner that day. But I have unfortunately seen this complication a good many times, and experience shows that these cases are by no means so hopeless as one might suppose. Provided the eye has been thoroughly cleansed, the majority, and I think I am safe in saying the large majority, of them do fairly well. In one case, due to the patient straining his eye after the lens was
extracted, the vitreous was squirted out until it ran down to his car, and yet he recovered with useful vision. Of course in these cases prolapse of the iris may be expected to occur with greater frequency owing to failure to approximate the edges of the wound from the first.

Should vitreous escape before the lens is delivered then it seems to me the only hope of extracting the lens is with the vectis, and if the vitreous is thin, as it is in many of our cases, there is little hope even in this way of saving the eye.

After extraction the edges of the wound sometimes do not approximate exactly; this may perhaps be due to small pieces of lens matter being retained under the edges of the wound and especially if there is a well-marked arcus senilis they may not be easily recognized, but when they are pressed out the edges ought to come together accurately. In rarer cases the edges fail to co-apt owing to flabbiness of the coats of the eye-ball—the cornea sometimes being actually wrinkled until the anterior chamber becomes refilled.

Only once have I extracted by the simple method without an iridectomy, and that case was most satisfactory, but it was not tried again, because in many of our cases pieces of lens matter are apt to get rubbed off the body of the lens and lag behind, and I feared it would be more difficult or impossible to remove them where the iris was whole.

DRESSING.

I dress with a piece of dry lint next the eye, with a small pad of absorbent cotton over it, and the whole kept in place by a strip or two of adhesive plaster. I used to bandage all the cases, but the bandage was very frequently rubbed off. Never use a moist dressing in this or any other eye case. Some dressing more absorbent than ordinary lint would be desirable.

The patient is never allowed to walk to his room; always carried.

Unless there is pain the dressing is not changed until the second day, and where vitreous has escaped not till the third day after operation. On removing the bandage the condition of the lid will reveal very plainly the state of the eye; if the lid is neither red nor swollen the case will be found to be doing all right. On gently separating the lids a little the conjunctiva ought to show whitish; if it appears red there is something wrong, either prolapse of the iris or septic trouble in the wound, and in my experience, if a case is doing well at this first dressing, it is extremely rare for it to go bad later; if trouble does arise afterwards, the chances are the patient or his attendant is to blame; it may be a case of getting angry (生 氣).

Cough I have seldom found a serious danger, although I sometimes put the patient under a few days' preliminary treatment if his cough is bad and give him sedative cough medicine after operation.
I endeavour to keep a supply of glasses on hand for these patients. Round lenses, which may be got either in Japan or America, are of course more to the Chinese mind. The frames should be strong, and I have not yet got a frame that is satisfactory in this respect. 10D and 12D are the lenses usually required, although a wider range ought to be kept in hand. One of my cases had previously had a pretty high degree of myopia which was exactly corrected by the operation for cataract. The lenses and frames should be got separately and put together by the physician as required. A little advice to the patient on keeping his glasses clean with a clean piece of old soft cotton cloth might, if needed, add much to the usefulness of the result.

Canadian Presbyterian Mission, Chefoo.

WOMEN'S MEDICAL WORK.*

By Margaret H. Polk, M.D.

I have been asked to present a paper on the phases of mission work that are distinctly represented by the woman physician.

As it was said that there are so many points of difficulty that present themselves to the woman physician about which the men know nothing, I have in the paper spoken of the difficulties rather in a comparative than in a positive way. Many of these difficulties are met by the men, but encountered in a more intensified form by the women, whose resources are more limited. I do not mean to say that the obstacles are insurmountable—simply that they retard and harass—nor do I mean to say that I have not seen exceptions to every statement made in this paper.

Among the first of these difficulties are the restrictions that come to her just because she is a woman. She dare not take the initiative in anything, since by doing so she "loses her womanliness," whatever that may mean. When she lands on the foreign field she often finds some man in charge of the men's department, who, with the best intentions in the world, patronizes her, metaphorically patting her on the head and telling her in many ways that she is an unusually precocious child. In the beginning she rebels, at this, but is in danger of finding it useless and submitting, thus finally losing her power to assume responsibilities, and either sinks into the position of head nurse, or, thinking that it is nice to have some one else bear the burdens, she marries, and is lost to the profession. In short, the undignified position of claiming and maintaining her dignity of position is one of the difficulties that women physicians on the mission field have to meet about which the

* Read before the Shanghai Medical Missionary Association, January, 1901.
brethren know nothing. If she lands in the foreign field and finds no kindly brother to open the way, when she begins to prepare for her work she finds herself crippled at the outset, because she cannot go out and mix with the people, and is thus prevented from knowing the thoughts, the customs, the superstitions, and the emotions that dominate the people for whom she would work. Realizing, as we all do, how great an influence external affairs wield over the inner workings of the body we feel that a man or woman should know something of the people that she or he would treat, and when we remember that the missionary physician carries in his own personality—or should carry—all the inventive, incentive, and inspiring power that must lift men from mental, moral, and physical depths to heights of morals, thought, and health that will regenerate the world, we fully realize that the physician should know the people whom he or she would serve.

**Confined Life of Women.**

The woman physician, being largely restricted to her own home, must depend on her native helpers to give her all her information, and counsel with her in all of her plans. The native helpers must of necessity be native women. If the Western woman finds herself crippled in intellectual power because of the long years of ignorance forced on her ancestors, until she now is not quite certain how to use the advantages of her hard-earned freedom, how much more is the native woman, who is yet a slave, and the conditions of whose life isolate her from all association with the world's progress and thought, incapacitated for giving any intelligent insight into the hearts and lives of the people?

The richer and supposedly more intelligent class of women are behind closed doors, and hence the majority of them never know that the doctor has come to their country; and those who know do, do not realize that her peculiar abilities are to meet the demands of their peculiar wants and needs. Of course I would not imply that our mission is to the rich, but that we have not a larger following among the richer class is one of our drawbacks, since a hospital is an expensive affair, even to run along usual ruts, and much more expensive if any doctor would equip for up-to-date work, or extend his researches into finding out the diseases peculiar to his locality and the circumstances that modify them. The hospital for the men is generally better equipped than for the women, because the man physician has access to the men of China and hence to the intelligence and the purse.

At the men's hospital where I live a simple course of treatment for eyes got a fee of two thousand dollars. At the woman's hospital the largest fee that I have known was twenty-five dollars.

As I said above, the native assistant, who is usually raised in a mission boarding-school, and knows nothing of life, and whose inheritance is usually from the poorer class, hence is unacceptable to the better class, must stand
between the physician and her work—so the doors of the better class
are apt to be closed to her.

Good fortune may favor and an entrance be gotten to the person of the
woman of the family, but she will often be surrounded by people whose
unreason will prevent her yielding herself to treatment. It is not infrequent
that the doctor has to turn away from a case that she could relieve, a case
that is begging to be relieved, after trying to reason with the father-in-law, the
mother-in-law, two or three of the older sisters-in-law, the woman's own
family, and last but not least in a Chinese family, the servants. This is more
marked in the out-work which is unsatisfactory from every standpoint, except
that it is a source of income for the hospital.

If the women are persuaded to come into the hospital they usually bring
two or three servants, which not only complicates the relations with the
patient but complicates the housekeeping arrangements.

**Difficulties in Hospital Work.**

There are women of well-to-do families who would tarry in the hospital,
but the fear hangs over them all the while that their husbands will bring in
wife number two, or twelve, as the case may be, if they tarry long from home.
There are wives of officials who want to come, but according to the many
customs of official life the wife is more restricted than ordinary wives;
there are young wives that would come and be treated, but a young wife must
not go out at all; there are wives of business men who would stay, but they
must go home to assist in business affairs; and the wives of the poorer class
must go home to make the family living, so the only patients that can tarry
long enough in the wards to be cured, or to be touched by the truths of the
gospel, are the children.

When it is remembered that these children are largely girls, and that
even well girls are not very precious, it will be known that even they do not
tarry long. One small girl was brought to our hospital in a condition of
general anasarca. She stayed a week and was getting better when her mother
came back leading the future mother-in-law, who demanded that she be taken
home. This was largely because she did not want the girl to get well, and
since the pledges of betrothal are inviolable, I could but sympathize with the
mother-in-law. The child not being wanted, the sickness was a convenient
means of solving the problem, and having proven to her world that she had
exhausted her resources in her efforts to save, she took her home to die. One
rich mother came to the hospital bringing her daughter who was unable to
walk and whose legs were in a spastic condition because of pressure on the
spinal cord, due to acute curvature. She was treated by suspension and the
removal of the weight of her head from the spinal column, so she began to
walk. The mother had said when putting her in that if we could not cure
her, she would have to help her to die, for she was no use. Soon after she
began to walk she was taken away, and we heard in a few months that she was dead. There was another little girl of a rich family who had gangrene of one foot because of binding, and gangrene of the cheek and soft palate. The servant informed us that it was hoped at home that she would not get well, for she had never been loved, and was only brought because of some outside pressure. That pressure was removed and the child was taken home.

So it may be seen that when admittance to them has been gained, or they have been persuaded to come to the foreign hospital, their family relations, customs, and superstitions stand between them and the best work of the physician. Their lives being so shut in they believe every idle story of the servants, and so they fear every movement of the physician.

If even a comparatively simple operation is desirable, the husband, the son, and the mother-in-law must be consulted, as well as the opinions of the neighbors and friends. One woman came with a trouble for which I thought she needed an operation. She must consult the "big wife." The "big wife" was a friend of the hospital, so she said she would be willing to trust the foreign physician for herself, but she could not for this young woman, because if any serious trouble came up and the woman should die the friends would all say that she had gotten the foreigner to kill the small wife, so it were better for the small wife to run the risks of a natural death than that she run any risk that would implicate her.

Of course all these restrictions make difficulties from the evangelistic stand-point. Many of the women that come to the hospital are deeply impressed with the truths of the gospel, but all their surroundings prevent these truths taking deep root in their hearts and from becoming strong enough to dominate their lives. So the church's fruits, gathered by the hospitals for women, have been small indeed and have been gathered largely from the poorer and freer classes. The poor women of China are the rich women.

Training of Hospital Assistants.

One of the problems that face all missionaries, and the solving of which presents ever increasing difficulties when viewed from the stand-point of the woman physician, is the problem of assistance in hospital work.

If girls are taken young enough to train well, they are a source of constant care and anxiety, for they must be shielded and guarded and restricted. This prevents their being of much assistance outside the hospital walls. After years of thought and care and training, they get married and are gone. If the physician concludes, in view of these facts, that she will only train widows, she meets the difficulty of finding widows who are young enough and who are Christians. If they are young, they have to be guarded; if they are not young, they cannot be trained satisfactorily; if they are not Christians, their influence is to be feared about the hospital, and soon their
sons assume control; if the physician would employ married women, aside from the interruptions that come from the conditions of wife and mother, the husband is often an opium smoker and a rascal, and gives endless trouble.

Because of all the disappointments, restrictions, and difficulties, the women physicians of China have not generally considered it expedient to try a medical education for women. The hospital in Soochow is trying the experiment. The education of helpers has been fully discussed from the men's point of view, but this paper would not be complete without some words on the subject from the woman's stand-point. During the four years that I have spent in China I have met three women physicians—not midwives and not from foreign institutions. One was the wife of an old physician who had taught her the secrets of her profession. Their son was a bright young physician, whom I met quite often. I was first called to their home to see the little boy of this young physician, and there met his father and mother.

The little boy died, but they became my friends, and I went back again and again to see the eyes of the young mother who had almost ruined them in her grief for her boy. They lived elegantly and made most of their own medicines. They showed me their pharmacy and how they made extracts, fluid extracts, and pills. To my regret, my ears were so little opened to Chinese sounds that I did not understand them, but I did understand when they showed me a sedan chair with a doctor's card on the back and told me that it was the old mother's chair and that she got rather large fees for her visits, but that she treated more now by advice and prescriptions, as she was so old. Another woman physician came to the hospital from one of the larger villages outside Soochow. She was also old. She had a pair of obstetric forceps and said that she had at home a speculum for local application to the vagina.

The third one I met in the family of one of the officials that lives in the yamên. She was a dignified young woman about thirty-five years old, beautifully dressed. When I went in she was sitting at the table writing. She did not look up, but quietly finished her prescription, closed a very neat and compact tin medicine case, gave a few final directions, and left the room with as much of professional dignity as the best among you could assume. I admired her, and the family treated her with marked respect.

I give these few examples from my own experience to show that there is no foundation for the belief that the education of Chinese women in medicine is an innovation, or for the oft repeated statement that China is not ready for women physicians. The country is flooded with midwives, and if I have seen these three in my limited experience, there must be a considerable number of women in China who are practicing medicine. Shall we give them better?
Women’s Medical Work.

The difficulties in the way are almost insurmountable, but the thing to decide is—is it best? Then our faith may plant the mountains in the midst of the sea, and the work moves on as though the land had always been level.

The work of training will be drudgery, and the results unsatisfactory from every point until the curriculum of our schools is extended.

To take a girl up who has been in a boarding-school all her life, who has only been taught the Christian books in Chinese, who knows nothing of the first principles of physics, of chemistry, or of mathematics, who never knew a word of English, whose mind has never been taught to think and try to instill into her brain the faintest conception of all the beautiful mysteries of biology, physiology, histology, or pathology—in short all the known mysteries of life and death—would be a preposterous idea, but by patient and long drilling in the more apparent facts of all these branches, and the more important facts of hygiene and therapeutics, we are able to fit these lives for usefulness in the spheres to which God has given them rightful entrance, and what more need any life demand? English should by all means be the medium of their thought, because it is as easy to learn as the deeper “vung-li” of their own language and because the foreign physician can in that way do her own teaching. The average number of working years that the woman physician has given to her has been very small, so that if she must teach in Chinese she has very little chance to teach. If the church should decide to have a medical class, then the schools should be so planned that the girls who feel that they want to give their lives to this work, can have the advantage of a preliminary education, and the class could come in on an entrance examination.

However a thing is never done till it is begun, and most of things that succeed have a small beginning. The schools of the church for which I work have not heretofore paid any special attention to educating boys for the medical class, but I think that Dr. Park has the right to feel that his slow, unsatisfactory, unsatisfying drudgery has been amply rewarded in the useful lives that have gone from his class. So I hope that it will be in the years to come with the girls.

It is true that the first graduates of the Western world could not compare with the graduates of to-day, but they met the demands of the day in which they lived and paved the way to better and higher things.

The education of the girls must be a little more expensive than that of the boys, because of all the safeguards that must be put about the girls and the fact that girls must be more neatly and nicely housed than the boys. This latter fact also increases the running expenses of the hospital, as the women’s wards that I have seen all furnish bedding and clothing, while I have known very successful men’s wards which furnished nothing but the house, not even having charge of the cooking.
Just a few words about the character of the diseases that I have found most prevalent. As in the men's wards, of course all the various manifestations of syphilis and venereal diseases are met with, modified more or less by the difference in constitution. The various phases of tuberculosis that present themselves are common and distressing.

The complications in obstetrics come not so often, but bring immense mental and moral strain to the physician and are usually unsatisfactory, as the doctor is called in too late to remedy—so has to leave with more the feeling of a butcher than of a surgeon. The diseases that follow ill-managed or difficult labors are usually endured by the women and no relief sought. I have seen numbers of cases that were distressing beyond measure, but were usually hopeless because of the inability to gain consent to operative procedures. One of the most distressing, or rather hopeless things that comes to notice is hysteria. This is usually connected with their modes of life and the lack of diverting occupations. I have found numerous cases of hysteria in young married women, who for the first year were not allowed out of their rooms except to pay their respects each morning to the mother-in-law. Added to the lack of exercise, and mental diversions, are the reproaches and disappointment of the family that she gives no promise of the hoped for son, and what can medicine do? I induced one such case to be brought to the hospital, where in a few weeks she was fat and well, and laughed and talked, and learned to crochet and play croquet; in fact seemed well and happy. She went back to her secluded life, and in a few weeks returned to the clinic a wreck.

The rheumatism, kidney troubles, and various other forms of troubles that arise from occupations, especially farmers who work in water, are not distinctly woman's diseases. But there is one thing that has impressed me very much as probably being more common among the women—valvular heart lesions. I have grown to be suspicious of the heart whenever a woman comes in with a tired air, complaining of numb hands and feet, of a feeling of weakness, or difficult breathing, or a cough with bloody sputum, or of having had a hemorrhage without any manifestation of phthisis, or of scanty urine with aching limbs and sleepless nights, if she dates the beginning of her bad feelings back to some season of anger or distress, or to grieving over the death of some member of the family for whom her affection or public opinion demand that she grieve violently and long. No medicine can cure the injured heart, or even help it much, when the woman must go back to conditions that demand again and again repetitions of the original cause of the trouble. No medicines can effect a cure in the cases of hysteria so long as the women have to follow their monotonous lives. So that the medical work of the woman physician, except in the hopeless cases, differs little from that of the men, and
CASE No. 1.

[We regret that the engraver has left off the top of the photograph, showing the shoulder, and that date of issue precludes having full engraving made.]
Two Cases of Snake-bite and their Results.

their distinctive work, it seems to me, lies principally in the influence that they can succeed in sending out, through their work and their workers, into the homes and lives of the native women, to act as the leaven that is to reform the whole tenor of the women's lives. Slowly but surely and constantly must the spirit of truth concerning all lines of life be given them, and when that spirit possesses them, it will work, as it has in all ages, toward making men and women free, and they shall be free indeed.

Methodist Episcopal Mission (South), Soochow.

TWO CASES OF SNAKE-BITE AND THEIR RESULTS.

By H. N. Kinnear, M.D.

The first half of 1899 brought to Po-na-sang Hospital (Foochow) two unusually interesting cases.

One busy morning after a run of cases of dyspepsia, rheumatism, ulcers, and itch, a boy came into the dispensary accompanied by his anxious-looking father, and took a seat with a degree of slowness for which there was no apparent reason, and which suggested that he was entirely oblivious to the number of other patients waiting for attention. The boy's left arm was not in his sleeve, and when the father had unbuttoned his clothing and thrown it back we had presented to our view the most distorted looking hand and arm that any of us had ever seen, and which fully accounted for the patient's slow motions. The shoulder was normal in shape and appearance, presenting no contrast with that of the well side. At the point of insertion of the deltoid the arm was surrounded several times with a narrow cloth bandage tightly adjusted, to prevent the swelling and disease from extending to other parts of the body, as the father informed us. When the bandage had been removed we found the arm at this point but little more than an inch in diameter. The bone seemed normal in size, but the overlying tissues were hard and cicatricial in character, as the result of the long continued irritation of the bandage.

From this point downwards the diameter of the arm rapidly increased and all of its normal outlines were lost. The elbow was about two and one half inches in diameter, as was the remainder of the forearm, and it, as well as the wrist and the joints of the fingers, was immovable. The hand was more distorted than the arm. It was about twice as wide as the well, and rather small, hard, and about two inches thick at the center of the palm. Like the arm, it was hard with semi-organized tissue, and not edematous. The fingers looked like pieces of mud put on by an unskillful modeller; were shortened by the encroachment of the swelling of the hand, and the finger-
tips were gangrenous. From sinuses, especially numerous on the hand, large quantities of pus were pouring, and the amount of dried pus which had accumulated easily persuaded one that washing the hand had been no part of the treatment given up to that time.

The history was quickly told. The boy, now sixteen years old, was pulling grass or weeds about nine months previously, when a snake bit him between the thumb and first finger. When asked about the snake he admitted that he had not seen it, and while some doubt must always attach to the history as a result, it seems very probable that the Chinese were correct in believing that it was a snake, possibly a poisonous one.

Immediately after receiving the bite the hand became greatly swollen and painful, and native doctors prescribed various poultices of pounded herbs to relieve this state of things. Some of the applications were very acrid, and no doubt added to the already existing irritation. An abscess soon formed and broke, and, instead of giving the pus a free exit, the usual Chinese treatment, that of applying strong plaster over the opening, was adopted with the usual results. Other openings soon formed and the tendon sheaths became infected. As the swelling extended up the arm it was bandaged to keep the disease from spreading beyond. If it was successful in doing this it was also successful in interfering with the circulation and nutrition of the hand and arm, which soon lost all their functions and became a heavy and useless club, through which the abundant discharge was exhausting the boy’s strength.

The radical nature of the treatment necessary was explained, and both the boy and his father expressed their willingness to have it carried out, but as is was shortly before the Chinese new year holidays they decided to wait until early in the new year. We predicted that they would not return, but were mistaken, for about the first of March they were on hand with everything required for a stay in the hospital.

The patient came from the county of Everlasting Happiness, where the only thing that really seems to be everlasting is the malarial germ. As patients coming from there are almost sure to have fever after an accident or operation, whether they have previously had ague or not, and because there was pronounced anemia present, the boy was put upon anti-malarial tonics, from which only disappointing results were obtained.

**Operation.**

As there was no good tissue below the level of the axilla, only disarticulation at the shoulder-joint could be considered, so after enveloping the shoulder in a soap poultice for thirty-six hours the arm was removed April 14th, with aseptic precautions. After giving a small dose of morphine hypodermatically and two doses of brandy the patient was chloroformed without accident. By
Two Cases of Snake-bite and their Results.

throwing a loop of Esmarch tourniquet through the axilla and crossing it over the shoulder, the ends being held by an assistant over the opposite shoulder, hemorrhage was controlled so effectually that only a very small amount of blood was lost, spite of the fact that the tourniquet broke just as the arm was off, and had to be applied again.

The amputation was performed by making an incision to the joint at the middle of the deltoid and continuing down to its insertion, or as near as we could get without encroaching upon the diseased tissue, the muscles dissected off of the head of the humerus, the ligaments severed, and lastly the muscles cut with a long knife from above downward. Catgut, sterilized by boiling in absolute alcohol, was used for both ligatures and sutures; the wound was dressed with dry aseptic gauze, covered with rubber tissue to keep out the visible (!) as well as microscopic bacilli and a bandage firmly applied.

The boy rallied fairly well from the immediate effects of the operation, but before night was in a serious condition, which did not entirely pass off for three or four days. The usual restoratives, including a good quantity of milk, were given with good results. Some temperature developed the second day, but though it persisted several days, the highest point was only about 101°; but, on account of it and slight pain, it was thought best to change the dressing at the end of seven days. The wound was found in good condition, with the exception of a slight infection of some of the sutures, which probably accounted for the temperature. The wound was cleansed with peroxide of hydrogen and dressed a few times, but healing was uneventful. He was soon eating ravenously, walking about the hospital, and later running away every day to see the sights of the great city of which he had hitherto seen so little, and left us with a fat face that made him look like another boy.

In March, 1900, he was seen by a missionary who was touring in the Ing-hok field. He was well and happy, and showed with great pride his well-healed wound.

Case Number Two.

Before the above case had left the hospital another case of snake-bite applied for admission. He came from the town of Iu-ca, several days' journey from Foochow, up the River Min. He was also accompanied by his father, who vouchéd for the almost incredible statement of the boy that he was nineteen years old, although he appeared to be only about thirteen; his growth having been retarded by the drain upon his constitution, which brought him to the hospital. He was not weighed, but we estimated that he weighed little if any more than seventy pounds; his body was markedly emaciated and his face wore an anxious, prematurely old look.

When numerous layers of cotton from an old Chinese bed-cover, and brown paper dripping with pus, had been removed we had before us a stump that was not less repulsive than the hand of the first case. The right hand and
half of the forearm were gone, the stump was greatly enlarged, being about three and one-half inches in diameter, and presented an ulcerating surface bathed in unhealthy pus, to a point just above the location of the elbow joint, while a band of cicatrizial skin extended up the arm from the ulcerated surface to the junction of the middle and lower thirds of the humerus. The entire arm and shoulder were enlarged and the surface covered with large, tortuous veins. The entire humerus was three times as large as that of the opposite side and the periosteum tender when pressed at all. The glands of the axilla were enlarged and tender. The amount of pus being formed was phenomenal, a large drop falling into the jar every few seconds and leading one to wonder, not that the boy was emaciated, but that he was alive at all. At night he had slept with the stump extended over the edge of the bed and a dish under it to catch the discharge. This had made the old cotton bed he was using for dressing last longer and had kept his bed cleaner.

When asked the history of this state of things the boy said that *seven years previously*, when he was only twelve years old, he was catching birds in the crevices of the walls of his home, when he was bitten between the thumb and first finger by a "rat snake," presumably a snake that catches rats. The snake being caught later was found to be about three feet long and to have a flat head.

Swelling and severe pain commenced at once, and the native doctors applied various poultices without success, either in preventing the swelling or in mitigating the pain. The swelling soon extended up the arm, and it was then recommended that a ligature of some strong vegetable fibre be put tightly around the arm above the swollen area. This was done so effectively that the hand became gangrenous, the tissues under the ligature sloughed away, leaving the bones of the forearm exposed at that point at the end of sixty days, and after four weeks longer the dead hand fell off. The unhealthy stump left had only grown worse during the six years that had intervened before he came to us.

The patient had an abnormally vigorous appetite, but the drain of the discharging stump evidently necessitated the taking of large quantities of food to keep the body even as well nourished as it was, for all attempts to put the boy or the stump in better condition failed dismally.

**Operation.**

On May 24th the boy was given a bath with liquid soap and brushes; the shoulder and arm being done up in cotton saturated with lysol solution. The following day found the dressing of the stump so saturated with pus that it had to be changed before proceeding. When this was done the shoulder was thoroughly cleansed, the patient given chloroform after the usual precautions, and the Esmarch tourniquet applied as in the preceding case. We had
some doubt about the probability of being successful in controlling the hemorrhage in this way in this case, on account of the thickening and
density of the tissues encircled, but it was quite as successful as in the pre-
vious case; almost no blood being lost. The incision through the deltoid found
the periosteum loosely adherent to the diseased humerus; the head of the bone
was freed and brought out at the incision, and the muscular tissues cut as
high as they could be and still leave a proper covering for the wound. The
axillary glands were enlarged, and two or three that were exposed were
snipped out, but it was not thought that the condition of the patient would
justify the extensive dissection that would be necessary in order to remove all
the diseased tissue. The arteries were ligated, the tourniquet removed and
the venous oozing controlled by the application of gauze pads wrung out of
very hot two per cent lysisol solution. The wound was closed with three deep
and a line of skin sutures of catgut, and dressed with plain gauze.

The boy rallied from the operation surprisingly well, and progressed
better than the first case, which had seemed, on the whole, more promising.
The pulse reached 92 once or twice during the week following the operation,
while the temperature never went above 99.6°. The dressings were removed
for the first time on the tenth day, the wound found nearly healed, and
progress to complete recovery was uneventful.

As the forces of nutrition were directed into proper channels the boy
rapidly improved in health and appearance, and left us to begin a second
and happier boyhood. Nothing has been heard from him since he left us, but
it is not difficult to imagine that living must seem like a new revelation to
him after carrying the burden and enduring the drain of that stump so many
years. The interest of the first boy operated upon in this second case was
very deep and his attention unremitting. The two boys came from widely
separated parts of the province, and knew nothing about each other before
they met at the hospital, so it was remarkable that they came at the
same time.

Both of the boys and their fathers attended prayers when they were able,
and the evangelist had frequent talks with them, but while we know that
they were deeply moved by the truth they heard under such favorable con-
ditions they had not declared themselves believers when they left. However,
to relieve two such cases gives enough satisfaction to compensate for the
drudgery of much routine work.

American Board Mission, Foochow.
THROMBOSIS AND RIGORS COMPLICATING TYPHOID FEVER.

By Fred. H. Judd, M.D., etc.

During the past few months the following cases of interest have come under my notice and seem worth recording. Out of six cases of typhoid fever—all in adults between thirty and forty-five years of age—three presented nothing noteworthy, but the other three developed thrombosis in one or more limbs.

Case I.

Case I. had had typhoid in Britain four years ago, and during recovery had developed thrombosis and phlebitis in the left leg with pain and oedema of such severity that he felt the effects of it for over a year.

Last October, after a week of malaise and headache, he took to his bed, and after a mild course, during which the temperature never exceeded 103° F., the fever abated. From the 19th to the 30th day nothing of note occurred; the patient humorously lamenting that his case was so lacking in medical interest. The temperature was, however, constantly about .5° or 1° F. above normal, and during the last four days there was general indefinite uneasiness in the legs, especially the left, but no severe pain. On the 30th day the temperature rose to 100.6°, and next day I found the long saphenous veins in both legs thrombosed from the ankle to Scarpa's triangle. The day following discomfort in the arms made me examine them, and the anterior ulnar and basilic veins in the right arm and the median and median-basilic veins in the left were found to be in a similar condition. The evening temperature kept over 100° during these four days and then gradually fell, but it was a fortnight before it was really normal. Coldness was felt in the extremities, especially the legs, but there was very little tenderness, even along the veins and no oedema, except in the fingers. On the 39th day Dr. Edwards (formerly of Tai-yuen-fu) saw the case. The left arm had cleared up by then, but he confirmed the diagnosis with regard to the other limbs, though the vein in the right leg was somewhat smaller. The thrombus in the right arm had vanished by the 55th day and the legs were clear a week or so later.

The circulation in this case was conducive to thrombosis, for during the second week of fever the pulse rate was under 90, and during the third and following weeks was between 60 and 65. It was not small, but very compressible. A mixture of ammonia and nux vomica raised the pulse to 80, but caused perspiring, which was very uncomfortable in the motionless condition he had to remain in, and so was not continued long.

Case II.

Case II. had been suffering for some weeks, before the onset of the typhoid fever, from chronic enteritis resulting from exposure and bad food while crossing hostile Honan. The fever was fairly severe from the com-
Thrombosis and Rigors Complicating Typhoid Fever. 125

mencement, the temperature only varying between 103° and 104.8° for several days, and by the middle of the fourth week it only fell to 100° in the morning remissions, while in the evenings it was frequently 103°. During this time he was taking about fifteen grains each of quinine and salol. Anti-kamnia, given occasionally in five or ten grain doses, gave him considerable relief when the skin was hot and dry. Though there was not much abdominal distension his greatest discomfort arose from fluctulence, from which sal volatile, cajuput oil, carbolic acid, and charcoal lozenges relieved him, especially the last.

On the 26th day a new complication arose. About 4 p.m., while the temperature was over 102°, he had a sharp rigor, like a short attack of ague, attended with much distress and vomiting. The shivering lasted half an hour, and at the end, as soon as a thermometer could be trusted between his teeth, the temperature was 150.6°. Then followed profuse perspiration. An hour later the whole attack was repeated. These were the first of a series of similar rigors occurring on the 29th day (4 a.m.), 30th (9 p.m.), 31st (2 p.m.), 34th (noon), 36th (noon), 37th (2 a.m.), and 39th (3 a.m.). Of these the later ones were less severe, and the shivering stage only lasted about ten minutes. The temperature at the height of the rigor varied in the different attacks between 103° and 106.2°, and usually fell to below what it was before the shivering began. The average temperature was meanwhile steadily falling, and after the last rigor, during which it rose to 104.6, it dropped to normal for one day. It then rose gradually and went through a course like a short mild attack of typhoid, reaching normal again on the 52nd day. On the 28th I was called before breakfast to what was thought to be perforation. There was much pain in the left inguinal region and Scarpa’s triangle. I could detect no further evidence of perforation, and fomentations followed by the application of glycerine of belladonna gave such relief that nothing more was thought of it after the next day. Six days later (the 34th day) Dr. Milles, who came to see the case with me, suggested that the rigors might be due to thrombosis, and on looking there we found a firm cord as thick as a pencil along the course of the left femoral vein. There was, however, no edema and little tenderness. Thinking that this thrombosis caused the rigors we diminished the quinine from thirty grains to ten grains per diem, but when they continued to recur I pushed it again up to forty grains a day, and they at once ceased, perhaps, however, only coincidently. The long saphenous vein was also palpably thrombosed, but unfortunately I made no examination of the short saphenous vein. This condition gradually cleared up, though there was temporary and unaccountable edema of the left foot on the 44th day, disappearing after the 45th. Next day a small inflamed and tender spot, the size of a ten-cent piece, was noticed in the right axilla, but no signs of thrombosis. This, with application of
glycerine of belladonna, cleared up in a few days, and so did a similar but more extensive and deeper patch over the inner side of the right elbow which developed on the 59th day.

On the 54th and 55th days the temperature rose from subnormal to 101.4°, and there was deep pain with tenderness on the outer side of both thighs, though nothing abnormal could be detected.

Two days later the temperature was normal again, but pain was complained of in the left popliteal space extending down the back of the calf, and the short saphenous vein was found solid, firm, and tender. This thrombosed vein was palpable for a fortnight longer, and though the patient in other respects was well enough to get up and walk about, edema of the left foot and ankle came on whenever he attempted to do so. By the 90th day, however, he was able to walk about a little, and went home on furlough.

Beside the thrombosis and rigors the patient suffered from delusions and hallucinations very similar to those of general paralysis of the insane. These came on during the second month, and were distinct from and quite unlike the fever delirium which he had during the first month. They were fixed delusions, in accordance with which he tried to act and expected others to act.

He "had been knighted," "was a millionaire," which "excited the jealousy of some who were seeking his life," but from whom he defended himself with wonderful "electrical apparatus," his "food was drugged," but the "Queen's own physician attended him," and unfortunately countermanded some of my orders, etc., etc. Though these lasted several weeks and seemed to become more fixed, in the end they cleared up rapidly in a few days; and though the patient has vivid recollections of the delusions he has completely recovered from them—we believe very largely in answer to prayer.

**Case III.**

**Case III** was much more severe from the commencement and throughout the illness which lasted over four months. The temperature frequently reached 103° and did not get near normal till the 41st day. There was a good deal of pneumonia, especially in the right lung, which had been previously affected with pleurisy, leaving the pleura much thickened. No marked enlargement of the spleen was noted till the 7th week, but during the 5th week there was much pain and tenderness in the hepatic region, and the liver enlarged downwards till it was fully three fingers breadth below the costal margin and in the midline to within an inch of the umbilicus. There were no rigors, however, no signs of abscess, and no history of dysentery. Fomentations gave relief, but the enlargement did not begin to diminish till the 12th week.

The patient had barely rallied from this severe attack, from which she was scarcely expected to recover, when the temperature began to rise on the
Thrombosis and Rigors Complicating Typhoid Fever.

42nd day, and by steady typical steps reached 105.8° on the 5th day of the second attack.

The stools became typical again, and a few days later all involuntary, and with the exception of the rash the second attack was as typical and severe as the first. The temperature fell fairly steadily from the 5th to the 25th day (66th day of illness) and remained normal for a week.

On the 73rd day we suggested a little addition to the diet (peptonised milk and chicken broth), but are glad we did not make any change, for next day the temperature began to rise typically and patient started on a third attack. Fortunately this was much milder, and only lasted three weeks.

At the end of this the 95th day the temperature rose a degree, accompanied by undefined aches in the back of neck, legs, and arms, but especially the right fore arm. Two days later the temperature fell to nearly normal and remained there a week, after which it rose to 100.4°, and on examination the right brachial vein was found thrombosed up to the axilla. A week later the left arm began to ache, and next day, the 112th, the left brachial vein was found to be in a similar condition. On the 129th day, though the thrombosed veins were still palpable, the arms having been free from pain for some days the patient was lifted on to a couch for the first time. She is now convalescent and gradually regaining strength.

These three cases present several points of interest. In none of them was there any acute pain, marked tenderness, or any inflammation or redness along the course of the veins. The superficial veins were the ones chiefly involved as far as could be detected. A sense of stiffness and aching was felt in the middle of some of the limbs, but the mildness of the oedema, and coldness, seemed to indicate that few if any of the deeper veins could have been blocked. In Case III. the aching was most severe during the evening and night, and often most marked in the palms. The condition seems to have been one of primary thrombosis subsequently exciting slight phebitis, and due more to exhaustion and poverty of the blood than to any changes in the vein-walls. In Case I. the slow circulation (pulse 60 to 65) was conducive to thrombosis, but in Case II. it was over 90 and in the third over 110, though small and soft. In this last case, about three weeks after the thrombosis had set in and before it had cleared up, the slowness of the circulation in the veins on the back of the hand could be easily demonstrated. By drawing one's finger along the veins (against the current) the latter could be emptied between two valves, and on suddenly releasing it the blood would be seen to flow along the emptied vein, distending it as it went. In my own hand the distension along the length (say one inch) was almost instantaneous, but in the patient's hand could be watched gradually creeping along at a rate which must have been less than an inch a second.
It seems a disputable question whether the rigors in Case II. were due to the thrombosis. Against that may be said that compared with the mildness of the symptoms and signs of the thrombosis—little pain, no edema, etc.—the occurrence of eight or nine distinct rigors distributed over fourteen days, seems out of proportion. They began two days before the attack of acute pain, which seemed to usher in the clotting and continued long after the acute symptoms had subsided. They may have been independent attacks of ague (though there was no malarial history) and similar to a case mentioned in Patrick Manson's "Tropical Diseases," p. 198.

As regards the causation of three such cases occurring in six typhoid patients, nothing definite can be found. All three were fed alike, and took quinine, but besides that had no similarities of treatment. The first case needed no medication. The second was chiefly on salol resorcin and intestinal carminatives; while the severe symptoms in Case III. called for large quantities of cardiac and respiratory tonics, of which strychnine, digitalis, and brandy did most good. She also took listerine, which had a beneficial effect on the character of the stools.

The intervals from first diagnosis to when the veins were clear and normal varied from one to five weeks, but for many weeks after that much walking or standing about brought on edema and discomfort. The thrombi in the arms seemed to soften and become "absorbed," but those in the legs of Case I. became smaller and firmer as though the clots were becoming organized while the circulation through the vein became re-established.

No signs or symptoms of embolism, or of thrombosis in the cerebral sinuses were noticed; nor were any phleboliths found, though the saphena veins were somewhat varicose.

_China Inland Mission, Shanghai._
TETANUS, LARGE DOSES OF ANTITOXIN IN.

Most physicians practising in China from time to time run across cases of tetanus, and the great majority have to report that in spite of all treatment the patients have died. Of course in China there are many things that combat successful treatment of cases medical and surgical. A common complaint heard on all sides is that the doctor is not sent for, or the patient brought, until the last moment. Early treatment is important in all cases, and in none more particularly than in an acute poisoning such as tetanus. Of late years with the introduction of serum-therapeutics some hope has been introduced into a hitherto almost hopeless sphere. According to the more or less generally accepted view as regards the pathology of tetanus, the poison, manufactured at the seat of inoculation, has a selective affinity for the cells of the nervous system; this affinity being greater for the spinal cord than for the brain. The poison becomes "fixed" in the nerve cells. The cells of the nervous system have a much greater affinity for the "toxin" than for the "antitoxin." The latter, it is held, will confer an immunity if exhibited before the disease has developed, but it has little or no power of combating the disease when once the symptoms have appeared. This may be considered the "rationale" of the intracerebral treatment of the disease.

Writing in the B. M. J. of November 24th, Dr. S. H. Long says: "Having carefully watched the records of cases of acute tetanus treated with antitoxin published during the last few years, I have been struck by the comparative smallness of the dose that has been given in nearly all cases, and I have rightly or wrongly concluded that herein lay part of the cause of the continued high mortality of the disease." He then goes on to say that as he had never seen any evil result from the administration of considerably larger doses, he determined at the next opportunity to give the antitetanic serum a fair trial subcutaneously before resorting to the intracerebral method of administration. He then reports a case of which there could be no doubt that the diagnosis was acute tetanus. The method of treatment was as follows: "The first dose of 10 c.cm. was given subcutaneously in the loin at 1:00 p.m. The prick of the needle caused another general spasm, on which account the succeeding injections were given under chloroform, which generally although not always prevented further general spasms from this cause. Doses of 10 c.cm. were injected hypodermically, uninterrupted every four hours for twelve more doses. Afterwards the injections were continued four-hourly for six more days, but were now given "per rectum," which did not cause any more general spasms. They were then given eight-hourly for three more days. In all thirteen injections were given hypodermically and fifty-five "per rectum," making a total of 680 c.cm. of serum used." It is interesting to note the relation of the number of spasms to the injections.

The maximum daily number of spasms occurred on the fourth day after the serum treatment was commenced, after which there was a gradual decline in their severity and number to the zero line five days after. It is also interesting to note that in this case the "toxin" had had seven clear days to produce its effect before serum treatment was begun. We may learn from this case that cases of acute tetanus
can be successfully treated with anti-
tetanic serum if it is given in suffi-
ciently large doses and frequently
repeated, and in the second place,
it suggests that it is not probably
necessary to resort to the intracerebral
method, provided the serum can be got
in sufficient quantity. Thirdly it
emphasises the fact that the chances
of ill-effects from overdosage are
remote. There is one drawback to
the use of such immense doses, even if
we could get the quantity out here in
China, and that is the cost. The
total cost in the above case was
$120. There are not many mission
hospitals which can afford such a sum. A
much cheaper method of treatment,
and one which can be prepared at a
moment's notice, is that introduced by
Bacelli. He advocates the use of a
2% aqueous solution of carbolic acid,
2 c.c.m. of which are injected into the
muscles every four hours. Ascoli in a
manuscript states that in thirty-three
cases there was only one death, and in
this the treatment was less energetic.
Morphia is used during the first few
days to allay insomnia and hyper-
esthesia. This method of treatment is
rational, as of all the antisepsics none
act more effectually on the bacilli of
tetanus than does carbolic acid. In
addition it has the advantages men-
tioned above of being cheaper, and at the
same time within reach of even the
most remote hospital or mission station
in China.

---

APOMORPHINE AS A HYPNOTIC.

There is hardly a hypnotic that
one can name to which there is not
some great objection, which is only
tolerated on account of the other
important qualities. Bromides are
depressing. Chloral can only be given
in certain conditions of the heart.
Sulphonal takes a tremendous time to
act. Trional is not as satisfactory as
reports lead one to believe. The use of
morphine as a hypnotic, pure and
simple, is not to my mind justifiable,
considering the great danger of the
formation of the morphine habit, even
if it produces no effect on the heart.
Hence when one reads of the discov-
er of a new drug, which can be
given in small doses, which acts
rapidly, and which produces no dis-
agreeable after-effects, which has no
cumulative effects, which does not
produce a craving, and even if it did,
the effects of a large dose would be
sufficient to deter even the bravest or
one most desirous of satisfying the
craving; one cannot but hopefully test
its efficacy and trust it may be success-
ful. Douglas in Merck's Archives,
June, 1900, points out the fact hitherto
little known to physicians, that apop-
morphine acts as a prompt and effec-
tive hypnotic if injected subcutane-
owously in doses of about 1/30th of a
grain, more or less. The dose should
be adjusted as to be large enough to
produce sleep, and at the same time
not large enough to produce nausea,
and this being about one-third of the
ordinary dose it is quite harmless. In
mild insomnia, and in furious delirium
it has been found to produce sleep in
twenty-five minutes. The sleep is
refreshing and restful, and no dis-
agreeable after-effects follow. If a
delirious patient refuses to go to bed,
apomorphine will cause him voluntarily
to lie down, and sleep will follow in a
few minutes. There is no possibility of
a drug habit being formed, as it
becomes a vigorous emetic if the dose
be increased. There are no cumulative
effects. The small hypnotic dose
accelerates the heart slightly.

It was accidentally discovered that
a saturated solution of boracic acid
renders the drug inert in both its
hypnotic and its emetic effects.
During four years apomorphine was
given to 300 patients, and the hypnotic
effect failed or was slight in two or
three cases only. In such rare and
exceptional cases it was also found that
the emetic effect did not follow even
large doses. Note the dose. One-
thirtieth of a grain. Dr. Adams in B.
M. J., November 10th, mentions giv-
ing a fifteenth of a grain.
TETANUS—TREATMENT.

Having introduced the subject of tetanus into this number's contribution, I cannot do better than refer to an exceedingly able and interesting article in the October number of the Annals of Surgery, written by Dr. Alexis V. Moschcowitz of New York. In this article he reviews some 338 cases of tetanus treated by the intracerebral method of injecting the antitetanic serum. It would take too much space to give his article "in extenso," however, I shall try and give the gist of it, in the hope that it may lead to the perusal of the article itself. He points out that early treatment is essential. Some say that unless treatment is commenced within the first thirty-six hours it is of no use. From a study of his cases and those of others taken from all the recent literature on the subject, he shows that the shorter the incubation period the more severe is the case, and the more probable a fatal termination. Then follows a classification into 'very grave,' 'grave,' 'medium grave,' 'mild,' and 'very mild' according to the length of the incubation period. He then passes on to the "rationale" of the treatment and shows that the points to be aimed at are: (1) to destroy the bacteria at the seat of infection, (2) to eliminate the toxins already absorbed into the system, (3) to neutralize and render innocuous the toxins already absorbed, (4) to immunise the body after local infection, (5) to overcome the symptoms induced by the action of the toxins.

I. The first of these, destroying the bacteria at the seat of infection, is brought about by surgical means. It has been found in the case of tetanus, just as in the case of diphtheria, that the bacilli remain at the seat of infection; the toxins formed being carried to all parts of the system. The seat of infection is to be thoroughly cleansed. All foreign bodies are to be removed; in fact it is best to cut out the entire place. It is then to be treated with powerful antiseptics, so as not merely to remove the tetanus bacilli and the spores, but also to remove all saprophytic and pyogenic microorganisms. This latter precaution is very essential, as it has been shown that there is nothing better suited to the growth of the tetanus bacillus than the presence of other microorganisms. Various antiseptics are recommended: (1) Corrosive sublimate in solution 1:1000, to which has been added 5% tartaric acid or 0.5% hydrochloric acid. (2) 2% solution of carabolic acid. (3) 2% solution of kresol. (4) Highly tinctured iodine. In place of using these the author suggests that the entire wound should be thoroughly cauterized. At other times it is a question if amputation in case of a limb should not be performed; this is of course only where the wounds are large, and it is utterly impossible to render them antiseptic.

II. The second indication for treatment, to eliminate the toxins already absorbed into the system, is met by diuresis, catharsis, diaphoresis. In addition the author suggests that venasection should be done and a certain quantity of blood removed, taking care, however, to inject an equal quantity of normal saline solution.

III. The third indication, viz., to neutralize and render innocuous the toxins already absorbed, is met by the introduction of serum of animals rendered immune to the disease. The experiments of Behring, Tizzoni, Cattani, and Kitasato, have shown that it is possible not only to immunise animals against infections which are to follow immunization, but also to avert a fatal termination in cases of infection, provided the attempt is made within reasonable time. Hence serum of immunized animals has not merely an immunizing power but also a CURATIVE power. How does this serum act? There are three theories on this question: (1) Behring, Kitasato, and Seli, say it acts chemically. They have shown that toxins mixed in test tubes with the proportionately required amount of antitoxin, and then this mixture injected into an animal, produced no
tetanus. Therefore Behring concludes that theoretically all cases of tetanus are curable if a sufficient quantity of antitoxin in sufficient concentration is introduced. (This conclusion is borne out by the case referred to above.)

(2) Buchner on the other hand, says the cells already infected cannot be freed from the inherent poison, but regards the curative action of the antitoxin (which he does not deny) merely as an immunizing action on such cell territories as up to the introduction of the antitoxin into the body have not been affected by the poison.

(3) Ehrlich's "Side-chain," or Seitenketten Theory. No matter what theory is adopted we can conclude (a) it is possible to immunize animals by injection of attenuated toxins or attenuated bacteria, (b) blood serum of such immune animals will prevent an outbreak of tetanus in animals to be infected, (c) blood serum of these immunized animals can cure already infected animals, provided only it is used sufficiently early and in sufficient amount and concentration. This is done in experimental tetanus why not in the human being? Moschowitz then says: "The principal cause of failure lies in the defective powers to diagnosticate tetanus sufficiently early. Usually, as Marchand tersely puts it, 'The patient with tetanus symptoms is not beginning to have tetanus, but is beginning to die of tetanus.'"

Hence in treatment we must aim at three things: (a) neutralize toxins already in the body. This is done by the timely and proper administration of antitoxin. (b) Prevent toxic affect in hitherto unaffected part. If Buchner's theory is correct we can also fulfil this. (c) Withdraw toxins from affected cell territories. This is more difficult since the parts affected are the brain cells, and more especially those of the spinal cord. Hence to meet this two methods have been introduced—The "intracerebral" method of Roux and Berrel, and the "subdural" of Blumenthal and Jacob. But these latter conclude after a number of cases and experiments that their method is ineffectual, and they also warn against too hopeful a reception of Roux and Berrel's method.

With regard to the risk of damage to the brain by the injections, Moschowitz says: "This much has been brought out with definite certainty, that the intracerebral injection is practically devoid of danger, provided it is carried out with regard to rigid asepsis and provided that the process of injection is not done with undue haste."

IV. The fourth indication for treatment was to immunize the body after local infection. This on Buchner's theory is narrowed down to the immunization of unaffected cell territories. However, broadly speaking, it involves the injection of the antitoxin as a prophylactic when we have reason to suspect the subsequent possibility of tetanus developing.

V. The fifth indication was to overcome the symptoms induced by the toxins. The patient should be isolated and kept free from all unnecessary noises and jars. Then reduce the reflex irritability by the use of suitable drugs, e.g., morphine, chloral, bromides, hyoscyamine, paraldehyde, and physostigmin have been mentioned.

Since the introduction of the serum treatment of tetanus the mortality has been reduced from 90% to 40%.

The article concludes by mentioning, for the sake of completeness, two other methods of treatment: 1. Krokwitz, which consists in the injection of an emulsion of brain substance. 2. Baccelli's method mentioned above.

TREATMENT OF SCIATICA.

The treatment of sciatica has at times taxed the skill and ingenuity of most medical men, by the obstinate way in which the disease resists almost every known method. The patient has been heated up with Corrigan's button, or the actual cautery, or has been cooled down by the application of ice. Hypodermic needles without
drugs, as a means of acupuncture or with drugs, e.g., morphine, osmic acid, etc., have all been tried and have often proved ineffectual. Hence it is with pleasure and a certain feeling of hope that we hail the advent of new means of curing this often obstinate affection. To most of us methylene blue is known merely as a staining reagent, although recently we have seen it recommended as a drug in various affections. In the B. M. J. for November 10th, there is an interesting cutting from a continental journal. It refers to the use of methylene blue as an analgesic in twenty-seven cases of sciatica. In eight cases it failed entirely, in six cases the pains marvellously disappeared in five days, in the remaining thirteen the sciatica resisted the treatment for several weeks, but the pains were less frequent, and the patients were enabled to sleep at night. Three to six capsules were given daily. Each capsule contained 0.45 grain (about 7 grains). Slight gastric disturbance occurred, but there was no serious inconvenience; and any slight pain during micturition was easily met by adding a little nutmeg to each dose.

Certain precautions in the administration must be taken. The patient must be warned of the change in the color of the urine, also that there may be some vesical spasm and dysuria. The drug must be given absolutely pure, or otherwise gastric, toxic, and diarrheic troubles will follow.

The action of the drug causes first a numbness, passing gradually into analgesia. Its action is rapid, but not of long duration, hence the use of the blue must be continued as long as any pain exists. It has also been suggested that the drug might be exhibited hypodermically, but up to the present no reports are at hand.

Salophen is another drug which has been used in the treatment of obstinate sciatica. This drug is administered intramuscularly; each injection containing one gram of salophen in 10 c. cm. of water. In two cases this dose was injected into the gluteal muscles every other day. After the 6th injection the pain was greatly lessened, and after the 11th it had completely gone. The patients were kept in bed until after the 15th injection. Thirty injections were given in all, and then the patients left the hospital well. Fourteen months later they were seen again and were quite free from pain, and had been so since treatment. Salophen is supposed to split up into salicylic acid (of which it contains 51%) and acetoparamidophenol, when taken into the body.

Whilst talking of the treatment of this complaint it is interesting to note a paragraph in the Medical Review for November. A woman aged forty-five had suffered from sciatica for over five years. Sedatives, counter irritants, and alteratives were without effect. Whilst walking she was bitten by a small snake just above the left ext. malleolus. There was extreme pain and a swelling of a firm character which involved the entire limb. Coffee and alcohol were given freely, and in a few days dangerous symptoms ceased. The limb had at first a livid appearance, and then assumed a jaundiced hue. In three weeks she had entirely recovered from both the snake bite and the sciatica.

CACODYLATE OF SODIUM.

In treatment of disease with arsenic it is sometimes necessary to increase the dose up to a quantity which is dangerous to life and yet which scarcely produces the desired effect. For example in the treatment of chorea large doses of arsenic are alone of any use. Murray of Newcastle in his "Rough Notes on Treatment" refers to this, and mentions that his usual line of treatment is to push the arsenic in doses of fifteen minims for seven or ten days. Whether the case is cured or not the drug has to be stopped, or else poisonous symptoms supervene. Means of giving large doses of his valuable drug, without producing the
evil effects have been long wanting. During the last two years French physicians have been introducing a new drug which fulfils these requirements. Cacodylate of sodium is the subject of an interesting article by Dr. Wm Ewart, reviewed in the Medical Review for November, 1900. Cacodylate of sodium is an arsenical organic compound. It contains 48% of arsenic, and is relatively free from irritating and poisonous properties. From arseniated hydrogen, as H₃, by the substitution of methyl for H is obtained a dimethyl arsenide, cacodyl, which is highly poisonous and has a offensive smell. By oxidation, oxide of cacodyl is obtained, by further oxidation the metal passes into the pentad condition and becomes cacodylic acid. In cacodylate of sodium the odour and the virulence are lost. It forms a tasteless, soluble, and deliquescent solid. It may be administered by the mouth three or four times a day in one-half grain doses, which may be increased. If given in pills they must be specially prepared, owing to the deliquescence of the salt. It is also administered by the rectum, and by this way is avoided the garlicy odor which sometimes follows the administration by the mouth. The most scientific, and in many ways the most effective, is by hypodermic injection. One-third of a grain-dissolved in ten minims of water, is a fair initial dose, which may be increased up to one grain or more. The maximum dose is not yet known. The drug may be given for long periods. This drug has been given in pernicious anemia, chorea, malaria, and Graves' disease. Continental authorities say that in phthisis it has given better results than any that have been obtained by other methods. In the same number of the Medical Review there is an interesting article on a case of multiple sarcoma treated by hypodermic injections of cacodylate of sodium. Before treatment one of the tumors was partially excised and examined microscopically, and proved to be embryonic sarcoma containing vessels of new formation. Cacodylate of sodium was injected daily into the buttocks. Five centigrammes (½ gr.) was injected first and gradually raised to 12 cg. (1½ gr.). Improvement was slow, but after fifty injections the tumor almost disappeared and the injections were suspended for ten days. Afterwards thirteen and twenty cg. (3 gr.) were given daily. Mere spots marked the site of the cutaneous tumors. The cure has been maintained for six weeks (August 7) and the patient continue, to take an arsenical mineral water. In the same article is mentioned a case of multiple non-melanotic sarcoma treated by arseniate of sodium injections. It is interesting to note that although it produced a considerable effect yet after a time further growths occurred, which were unaffected by the simple arseniate of sodium. It seems as if the more complete arsenical treatment possible by the use of cacodylate of sodium instead of arseniate of sodium effected a more permanent improvement.

Whilst on the subject of administration of this drug, it is important to learn the disadvantages as well as the advantages of its use. M. Breton in the Gaz. des Hop., June 19th, 1900, calls attention to a scarlatiniform rash following the injections of this drug. As a general rule tolerance of this drug is shown whether it be administered by the mouth or hypodermically. M. Breton quotes a case of a man who was being treated for commencing tuberculosis of the right apex. An attack of erythema followed each injection. During the night following the injection, which was given in the evening, a burning sensation came in the skin, and a general pruritus prevented sleep. Twelve to fourteen hours after the injection erythema appeared on the regions of pressure, the back, shoulders, and buttocks. No rise of temperature or other symptoms followed. Cases of exfoliative dermatitis have also been reported as following the administration of cacodylate of sodium.
PERMANGANATE OF POTASSIUM
AND OPIUM POISONING.

The treatment of opium poisoning is a subject which is not merely interesting, but of great importance to every missionary, medical and otherwise, in China. Methods differ according to the men. Our custom has been for some time back to treat with permanganate of potassium. In connection with this let me quote some points from a monograph by Dr. W. O. Moor of New York. He says:

(1) "One grain of the antidote (potassium permanganate) in one ounce of water, per os, for each grain of morphine.

(2) "One grain of permanganate in 1 oz. of water for each ten grains of opium.

(3) "One grain of the antidote for each drachm of laudanum.

(4) "If the quantity of poison ingested cannot be ascertained, eight or ten grains of the antidote dissolved in an ordinary glassful of water should be given at once, and this dose repeated once or twice, at intervals of thirty minutes.

(5) "A weak permanganate solution, about one grain in a tumblerful or half a tumblerful of water, should be administered every thirty minutes during the entire stage of opium narcosis, and even for some time afterwards at intervals of one hour.

(6) "One grain of potassium permanganate dissolved in a teaspoonful of water should be injected hypodermically every thirty minutes, with simultaneous gentle massage near the site of the injection."

The above points are interesting and useful. However when opium suicides are brought to our hospitals, or when we are sent for to go to a case, it is usually impossible to find out how much opium has been ingested. Our custom has been to wash out the stomach with a solution of potassium permanganate, using the siphon stomach-tube. After washing out repeatedly until the solution flows out unoxidised, a small quantity is left in the stomach to be absorbed into the system. This method has the advantage that any opium remaining unabsorbed in the stomach is washed out. The patient’s heart is carefully looked after and necessary drugs are administered hypodermically or rectally or both.

POTASSIUM PERMANGANATE AS ANTIDOTE
TO NUX VOMICA POISON, ETC.

In connection with the use of potassium permanganate as an antidote for opium, it is well to note that half a grain to a litre of water will convert nux vomica, taken in poisonous dose, into a harmless compound. The stomach should be washed out with solutions 1 to 1000.

THE MOUTH AS A CAUSE OF STOMACH
AFFECTION.

There has been and is still a tendency to underrate the connection between the mouth and the stomach in discussing the causation of disease in the latter organ. By many the mouth has been looked upon as a kind of indicator of the condition obtaining in the stomach, and scarcely any attention has been paid to the fact that in very many cases the causation of the gastric trouble is to be found in the mouth.

In even the most recent publications on the subject of gastric disease, in articles written by men in the front rank of the medical profession, the mouth is referred to as an indicator of stomachic trouble rather than as a cause; and even when some passing reference is made, the subject is quickly dismissed and no importance attached to it.

One of the most recent, and at the same time one of the most up-to-date publications is the System of Medicine, edited by Clifford Allbutt. In the article on "Dyspepsia," written by no less an authority than Sir Lauder
Brunton the only relationship mentioned between the teeth and the digestive process is that of effectiveness of mastication or the reverse. Vol. 3, page 395. Again in the same article when mentioning the action of microbes in the causation of disease, he says: “Imperfectly cleansed dental plates or carious teeth may form a breeding ground for microbes which are carried down to the stomach.” This would seem as if he intended to suggest that these microbes gave rise to dyspepsia; but lest we should hastily come to that conclusion, he goes on to say: “Frequent swallowing of saliva certainly seems to give rise to dyspepsia occasionally, and possibly the dyspepsia which has been observed along with dental plates may really have been due to profuse salivary secretion caused by the irritation they produce.” He seems to think that the constant swallowing of microbes is a trivial and unimportant matter. He then says: “I have seen at least one case of dyspepsia in which everything had failed to give relief, until a pharyngeal catarrh, from which the patient suffered, and which gave rise to swallowing of mucus, was treated by removal of some adenoids; after the operation the dyspepsia disappeared.” He seems here to lay stress on the swallowing of mucus, an important factor, no doubt, but he lays no stress on the probable microbes that were present in the pus.

During the past few years, however, attention has been drawn to the interrelationship between the mouth and the stomach, and considerable light has been thrown on the subject. In the Practitioner for December, 1900, Wm. Hunter, M.D., F.R.C.P., has an exceedingly interesting article on “Oral Sepsis” and its connection with various disorders, viz., septic gastritis, toxic neuritis, and other septic conditions. It is the points connected with oral sepsis and gastric disease that we would call attention to. He shows that oral sepsis is a common condition, a fact that most of us will agree to form our experiences both at home and here in China. There is no one diseased condition which is the cause of oral sepsis. The causative conditions include a whole series of local inflammatory and suppurative states, met with in the mouth and adjacent parts.

In the mouth.—Dental necrosis in all cases, gingivitis and stomatitis of every degree of intensity—inflammatory, pustular, ulcerative, sloughing, and gangrenous; periostitis; suppuration around decayed teeth; pyorrhcea alveolaris; deposition of tartar.

In the jaws.—Periostitis, alveolar abscess, osteitis, osteomyelitis necroses, maxillary abscess.

In parts adjacent to the mouth.—Tonsillitis, pharyngitis, otitis, glandular enlargements, cellulitis, post-pharyngeal abscesses, etc. In all these conditions there is one common factor, i. e., the presence of pus organisms. The sepsis connected with diseased teeth is of a particularly virulent character, much more so than that due to pus derived from soft tissues. It is really connected with diseased bone, and from experiments, it has been shown that there is no more virulent pus than that derived from such a source. Bacteriologically the organisms found were as follow:—

“Bacillus gangrense pulae, which possesses the power of producing gangrene of the pulp and of effecting softening of a tooth, even in an alkaline medium. Its frequency as compared with other organisms was 95.3%.

Staphylococcus pyogenes aureus 34.0%
Streptococcus pyogenes ... 25.2%
Staphylococcus pyogenes albus 18.8%
Bacillus pyocyaneus ... 9.3%
Staphylococcus pyogenes citrus 4.8%

with nine other organisms, mostly harmless, in varying frequency.”

The presence of these organisms does not constitute disease. It is a question of dose and resistance.

He then shows the effects of oral sepsis.

1. Gastric and intestinal.
2. Remote, *e.g.*, acute osteomyelitis, empyema, etc.

3. Toxic.

It is to the gastric effects that we wish to call attention.

These are those commonly associated with and usually ascribed to gastric catarrh, and do not need enumerating, so well are they known to all.

These are not necessarily due to a pyorrhea alveolaris, but are produced by any form of oral trouble due to septic infection from a diseased tooth, especially when that infection is aided by such potent adjuncts as ill-fitting neglected tooth plates, bridges, caps, or metallic stopping. There being a continuous source of infective generation going on around those teeth one may have infection occurring lower down in the gastric mucosa and this condition he calls septic gastritis, the term septic accurately describing the nature and the cause of the catarrh.

He then draws attention to the two generally received theories of the relation between dental disease and indigestion.

1. Mechanical.

2. Bad teeth denote bad nutrition, and bad health, i.e., they are the result rather than the cause.

He then advances a third theory. Dental disease as a cause of indigestion, in consequence of being a continual source of septic infection and septic gastric infection. The relationship is shown by the following:

(1). There is a limit to the capacity of the stomach to resist indefinitely for periods of years, the continuous presence of pyogenic and other organisms derived from necrotic conditions of the teeth.

(2). Its powers of destroying such organisms, although great, are never complete even in health, and are due solely to the presence of free HCl.

(3). These powers become progressively weakened when from any cause an increased and continuous supply of organisms is associated with a diminished and continually lessening acidity of the gastric juice.

(4). These two conditions are those produced by chronic cario-necrosis of the teeth.

(5). In time the catarrh of the stomach, so common a sequel of imperfect dentition—possibly of a simple irritant nature to begin with, the result of fermentation—becomes septic in character, becomes really a septic gastritis.

(6). Eventually it may lead to deeper seated changes which always result from chronic catarrh, viz., atrophy of secreting structures, with increase of fibrous tissues.

The continuous swallowing of pus organisms is not tolerated indefinitely by the mucosa of the stomach. Only a proportion, about two-thirds, is destroyed by the gastric juice, and that only for an hour or two immediately after food.

Thus we get diminished resistance on the part of the stomach and increase of dose owing to the continuance of the dental trouble. In addition to the resulting indigestion and dyspepsia, Hunter goes on to point out that an actual infection of the mucosa with pathogenic organisms may occur. A septic catarrh is set up, which is sustained by constant influx of fresh material, and if this is continued long enough, it leads to usual effects of a glandular catarrh, viz., glandular atrophy and increase of interstitial tissue around.

He proceeds to quote a number of cases and shows that he has demonstrated the septic nature of the gastric trouble, the catarrhal exudation vomiting being loaded with pus organisms.

Having thus dealt with the gastric effects produced as a result of oral sepsis, Hunter proceeds to refer to the toxic effects which may ultimately supervene, a form of peripheral neuritis, and quotes cases to show their connection with the toxin and the connection of this latter with the septic condition of the mouth.
We have simply wished to emphasise the fact that in looking on the mouth merely as an indicator of the condition existing in the stomach we are overlooking the more important fact that the state of the mouth in many cases the source, the cause, of the disease and not the result.

Dyspepsia and stomach diseases are exceedingly common in China. There are many causes to which we may refer as the source of the trouble. The large quantity of food taken at a time, the superabundance of one kind of food, large quantity of tea consumed, the character of wine usually drunk (almost pure alcohol), and so on. On looking at the mouth we find another cause in the chronically inflamed throat (due to hot drinks in many cases) in which pus organisms are plentifully cultivated, and thence find their way into the stomach.

The line of treatment to be pursued is evident.

**IMMUNITY.**

In the Editorial Notes of the *Medical Review* for September, 1900, the nature of immunity from the standpoint of Ehrlich's hypothesis is ably summed up. This theory explains as no other has done, some questions which have perplexed the scientific world for some time. What was the explanation of the difference between active and passive immunity, i.e., between the immunity produced by repeated injections of toxins or of bacteria, and that produced by the injection of serum containing anti-bodies already formed? Ehrlich's theory comes to our help here. According to this hypothesis a molecule of toxin is composed of two distinct atom groups, the one unsatisfied—the "haptaphore" group—is constant, stable, and capable of combining in constant proportion with *antitoxin*; the other—"toxophore"—unstable, readily deteriorates, and on it the injurious effect of the toxin depends. The combining power of the "haptaphore" allows it to unite with the cell protoplasm and so allows the "toxophore" to act. The "haptaphore" acts as an anchor for the "toxophore." If this anchor is destroyed, i.e., if the unsatisfied atom is satisfied, its combining power is destroyed, and so the toxin is rendered harmless.

We shall first see how this applies to the formation of *antitoxins*. Ehrlich considers the living protoplasmic molecule as consisting of two distinct parts. A central atom group—"leistungskern"—comparable to the Benzene ring and certain lateral atoms or side chains—"seitenketten"—which having unsatisfied affinities, can fix other unsatisfied atom groups and so bring them into relation with the central group. The side chains fix atom groups from food molecules and help in the economy of the cell. In the same way toxins are brought into relation with the cell protoplasm. The haptaphore, i.e., the unsatisfied atom of the toxin molecule, unites with such side chains as have corresponding affinities; these then become useless, and more and more are rendered so, so far as the cell economy is concerned. New ones are regenerated, and the ones with the toxins attached, are thrown off and pass free into the tissue fluids. This regeneration is in excess of those thrown off, hence there are more than are necessary for the cell economy, and so the ones in excess are detached and circulate freely in the tissue plasma. They still have affinity for toxins and form *antitoxin*. *Antitoxin* therefore is the side-chains of cell protoplasm regenerated in excess. Note well that this is a regenerative process. Behring says: "The same substance which when situated in the cell is the necessary condition for poisoning, becomes the basis of cure when it passes into the blood."

With regard to antibacterial substances the question is a little more complex. It has been shown that immunised serum formed by the successive injections of some bacterium, for instance cholera or typhoid, contains some substance which produces
either disintegration (lysogenesis) of the particular bacterium "in vivo" (Pfeiffer), "in vitro" (Bordet), or else causes agglutination. Analogous phenomena have been shown in the case of blood. It has been further shown that this action depends not on a single substance corresponding to antitoxin, but on two. For example, heat such a serum to 58° C. it loses its specific power; now add a small quantity of normal serum, and it regains it. If, however, this normal serum has been previously heated to 58° C. no effect is produced. It would therefore appear that the process of lysogenesis depends on the presence in normal serum of some enzyme-like body, which is destroyed at 58° C., plus some substance specially developed in the process of immunisation and analogous to antitoxin. This latter body has been called the immune body by Ehrlich. Further it has been shown that in haemolysis this substance unites with the red blood corpuscles, e.g., haemolytic serum was heated to 58° C., and then was allowed to act on red blood corpuscles for a considerable time at a suitable temperature. On centrifugalising the mixture, it was found that the immune body was no longer in the serum, but in the red blood corpuscles. So much for lysogenesis. In the case of agglutination it was found that this power is retained, even after heating to 58° C., hence it has been suggested that the agglutinin and the immune body of Ehrlich are the same substance.

Now if we compare the effects of toxins and bacteria, we have in each case the formation in excess of a substance which is specific in the fact that it has special combining affinities for the substance (toxin or bacterial protoplasms) used in the injection. The mode of action, however, is different. Antitoxin combines directly with the toxins. On the other hand, the antibacterial or immune bodies act through a ferment-like substance present in normal serum, which by their combining power they are able to fix.

Such briefly are the outlines of Ehrlich's side chain theory of immunity. Although many points still require elucidation and confirmation, it is none the less a valuable working hypothesis.

---

**Surgical.**

Under the charge of Sydney R. Hodge, M.R.S.G., L.R.C.P.

A number of articles have appeared lately on the subject of surgical anaesthesia by spinal cocainisation. Tuffier "has performed sixty-three operations on the lower extremities—perineum, rectum, and urogenital organs under spinal cocainisation absolutely painlessly. Though the after effects were sometimes unpleasant not a single serious complication ensued." This is only broadly true, for Ramovice-nau had two fatal cases in renal disease, though the report does not definitely say that the puncture was the cause of death. It is well known, though, that death has occurred, sometimes quite suddenly, where simple lumbar puncture for diagnosis has been employed, no less than fifteen having been reported. In nearly all these reported cases a cerebral tumour was present, and the cause of death seems always to have been an interruption of the normal communication between the cerebral and spinal fluids, so that on withdrawal of the spinal fluid the hydrostatic equilibrium was disturbed and the respiratory center injured. As the various systems supposed to follow the injection of cocaine into the sub-arachnoid space are not the symptoms of cocaine poisoning by subcutaneous injection, and also follow spinal puncture when no injections are made, it is probable that the drug itself has little or nothing to do with them and can be left out of the count in considering the risks.
INJECTIONS OF OTHERS.

In cases where it is advisable to avoid a scar, as when the face or in cases where the surgeon is responsible, the method should not be practised.

The method is contraindicated when the cyst is situated on the forehead, in the temple, or in the scalp.

The method is contraindicated in cases of cysts situated on the forehead, in the temple, or in the scalp.

The method is contraindicated when the cyst is situated on the forehead, in the temple, or in the scalp.
a probe inserted between its wall and the surrounding tissues, caught with forceps, and extracted. It is important, for the non-production of a scar, that all injections and subsequent manipulations be carried on through the same orifice as the first injection was made through, and this is readily distinguished by a little ring of redness.

**FRACTURE OF METACARPAL BONES.**

Dr. Carl Beck in the *New York Medical Journal* of August 4th has a useful article on the treatment of displacement of the metacarpal bones after fracture. The chief difficulty is with lateral displacement, a dorsal one being easily kept in place with ordinary splints. His suggestion is a very simple one. Two rubber drainage tubes, placed one on each side of the fractured bone, are lightly pressed into the adjoining interosseous spaces, so as to partly fill them up; they are then kept in position by strips of adhesive plaster. The whole is then immobilised in some dressing; the author preferring moss "a material which, after being dipped in cold water, adapts itself to the contour of the hand like a plaster-of-paris splint, over which it possesses the great advantages of being absorbent and much lighter."

---

**HYPODERMIC INJECTION OF GELATINE IN SECONDARY HEMORRHAGE.**

Anything which will enable us to deal more satisfactorily with some grave cases of severe hemorrhage from various parts of the body, especially those due to causes which are not amenable to surgical treatment, is a welcome help. The hypodermic injection of gelatine has been used in aneurism, hemophilic hemorrhage, and metrorrhagia, hemorrhagic nephritis, etc., etc. In nearly every instance the hemorrhage has been promptly controlled, but in some the after effects have been so serious as to make one hesitate to ever use the remedy. One certain and one probable death from uræmia have been reported after the treatment, whilst the formation of thrombi in dangerous situations, increase of albumin in the urine, and intense hematuria and hemoglobinuria are amongst some of the dire after effects. In view of the fact that this treatment has been successful when nothing else availed and in many many cases has had no bad consequence, it would seem justifiable to use it when all other measures have failed. The directions are as follows: "The sterilised gelatine solution consists of 10 gm. of white gelatine in 500 c.c. of a 0.7 per cent sodium chloride solution, and 200 c.c. of this, warmed to 100° F., are injected by a Dieulafoy's syringe under the skin of the thigh or chest."

---

**SUTURE OF ARTERIES.**

An interesting case of successful suture of a wounded common carotid artery is reported by Dr. Rudolph Seggel and abstracted in the *Medical Review*. A man cut his throat with a razor and bled profusely for an hour. When he was seen, he was found to be suffering from an oblique longitudinal wound in the artery, which was plugged by a clot. "The slit was closed by three interrupted sutures of fine silk, which passed through the adventitia and media, but not the intima. On removing the forceps blood oozed out between the first and second sutures, and three additional sutures were introduced through the adventitia alone." The whole arterial wound was covered with a flap of connective tissue, which was taken from near the sheath of the vessels and fixed to the tissue behind the carotid artery and vagus nerve. . . . . The skin incision was left open. The special interest of the case is that although the wound was an oblique one, and such always gape, yet the man did not die from sudden hemorrhage. It is only quite recently that the successful suture of wounded arteries
has been considered practicable. Silk sutures are preferable to catgut, but it is uncertain whether interrupted or continuous sutures are the best. Some include the intima and others do not. On the whole it seems preferable to do so, as the suture is more secure, and it has been shown experimentally that if sutures, which include the intima, cut their way out they always do so externally and do not cause thrombosis. "According to Murphy and Doerfler the suture of oblique or semilunar wounds is not justifiable if they involve more than half the circumference of the artery. For such wounds and for complete transverse division of arteries Murphy's method is applicable. This consists in invaginating the central end of the divided artery into the lumen of the peripheral portion, which, if necessary, is enlarged by slitting it longitudinally for a short distance. The central end is first provided with three sutures which involve the adventitia and media alone; these are then passed through the peripheral end from within outwards and tied. The margin of the invaginans, or peripheral end, is finally fixed to the adventitia and media of the invaginatum, or central end, and the sheath of the vessel is sutured over all."

Hygiene.

By Katharine C. Woodhull, M.D.

In a recent work on hygiene we find the following: "It is the individual and personal culture of health which not only must precede, but which also forms the foundation of public sanitation. The expression, "culture of health," we thought very suggestive. At present much time and money is being expended on the culture of germ disease. This has already done much to stamp out or mitigate some diseases which have long defiantly pursued their deadly course, and many more discoveries will be made in this way which will check the ravages of disease.

But would not the "culture" of health, if pursued with equal zeal and as lavish an expenditure of money and time, result in greatly increasing the sum of human happiness?

Hygiene has also been named preventative medicine, and considering it in this light, it deserves to stand by the side of curative medicine as of as great if not greater importance.

The chemist is bringing his work to a high degree of perfection in providing pure and refined drugs, and they are a great boon to the physician in the work of relieving human suffering. An old lady once told us of a long illness from which she suffered in her younger days, when her physician had her buy her medicine by the pound. The broken down nervous system from which she suffered the remainder of her life, showed that the work of medication had been rather undone. But the physician of to-day carries his medicament in smaller, choicer packages, and in acute disease is able easily and safely to assist nature, when sometimes she is bewildered in her effort to bring order out of confusion. But in chronic disease drugs seldom give such brilliant results. Chronic disease has come about as the result of long continued disobedience to nature's laws, and can seldom be cured by a few doses of medicine. It is here, we think, that hygienic treatment has a wider application than is generally taught. The morbid action has been going on for a long time, and we should be satisfied if we can slowly, if surely, bring about a cure.

Perhaps it would make the subject of this article more practical if we put it thus: "Is hygiene important for the individual physician himself?" If physicians were never sick and obliged to leave their work, if we had
all learned to maintain that buoyant state of health that makes work a joy, the question might be dismissed without consideration. Do we not need to ask ourselves if there is not much more we might learn that would help us attain that precious thing called good health? Have our habits in regard to the management of our bodies been adopted as the result of a careful and intelligent consideration of our physical needs?

Is not our manner of living very often just a following of prevailing customs without inquiring whether they are healthful or hurtful?

Some great man has said: "He who is regardless of his physical comfort, will soon find the quality of his work deteriorating."

It will certainly be a rich reward for giving new attention to the study of hygiene if it helps us to become better, happier workers.

**Gynecology and Obstetrics.**

Under the charge of R. Gifford Kilborn, M.D.

**MEDULLARY NARCOSIS DURING LABOR.**

A number of articles have recently appeared dealing with the subject of intraspinal injections of *cocaine* as an anaesthetic in operations on the lower part of the body. The New York Medical Record of December 6th, 1900, has an interesting and instructive article by S. Marx, M.D., on this subject as it may be used in labor. He says this form of narcosis is not a new method, for as far back as 1885, Dr. J. Leonard Corning not only suggested, but carried to a practical termination this method.

Dr. Marx has used this form of anaesthesia in fully thirty cases, and has never seen any symptoms which would cause apprehension of either immediate or remote danger. His patients all made ideal convalescences, and all the children, alive before delivery, were all born alive and well, although difficult labors were encountered.

The technique or the operation is as follows: Place the patient in an exaggerated position (the scorching bicycle position). When so placed, there is a distinct curve in the lumbar region, with the convexity downward. The patient's back from the middle of the dorsal vertebra, is by the usual methods, made absolutely sterile, and the parts surrounded by sterilized towels. A solid metal hypodermic syringe, with a finely tempered needle, ten centimetres long, is employed. This must first be sterilized.

With the patient in position, the thumb of the left hand is placed on the spinous process of the fifth lumbar vertebra. This point may be found by drawing a line between the highest points of the crests of the ilium. This will pass over the centre of the fourth lumbar vertebra and will prove a reliable guide. The needle is inserted at about an angle of 165°, immediately in front of and just outside the edge of the thumb. The needle must be directed slightly from below upward and from without inward. If the point strike the lamina, move it gently up or down till the space between the vertebrae is felt. Push the point slowly and gently in a downward direction till the clear limpid spinal fluid runs out. Immediately fluid runs out, screw on the barrel of the syringe and inject the *cocaine*. From ten to fifteen minims of a two per cent solution of *cocaine* is used, which is equal to about one-fifth to one-fourth of a grain of the salt. In from two to fifteen minutes, anaesthesia is ushered in. If the desired result is not obtained by the end of fifteen minutes, repeat the injection, or if there is not complete anaesthesia, or if pain returns, the dose may be repeated. Dr.
Marx has injected three quarters of a grain in one hour in an obstinate case with no bad results. The area of anaesthesia varies considerably. In all cases the patient has no sensation from the umbilicus down.

The anaesthesia lasts from one to five hours. Dr. Marx in his experience has had no serious complications, and what there were lasted from eight to twenty-four hours, and were controlled by one one-hundredth grain of nitro-glycerine, alone or combined with small doses of morphia. He recommends one two-hundredth grain of hydrobromate of hyoscyine as soon as symptoms of disturbance arise.

Uterine contractions go on regularly as if no narcotic had been used, and the patient feels no pain. He did explorations, versions, extractions, and placental removals with not quite as much ease as under chloroform, but much more easily than in a non-narcotized woman and never noted more than the ordinary tendency to bleed. He has carried a woman through an eight-hour labor by repeated injections with practically no pain. In multipara inject when the os is three-fourths dilated, and in primipara, when fully dilated. Dr. Marx declares that it is a method ideally suited to mitigate or absolutely allay the dreadful pains of labor, with no danger to mother or child, either immediate or remote.

Dr. Marx believes that there are two possible dangers—collapse from cocaine and sepsis from puncture—but from the cocaine he has had no untoward symptoms. He says the symptoms which follow the injection are not due to the cocaine, as the same symptoms occur after the injection of a saline solution. He further says in regard to sepsis, there is no denying the fact that in unclean hands, and with unclean instruments, this operation can and will produce a severe if not fatal sepsis. Therefore we must use every possible safeguard, as much care being used as if the abdominal cavity were to be opened.

A leading article in a therapeutic gazette of December 15th, 1900, declares that a much larger experience will have to be accumulated before the writer will be willing to resort to this method. No one yet knows the effects that may be produced after a time, and it seems incredible that there can be no danger of setting up myelitis, spinal meningitis, or hemorrhagic effusion by the action of the needle.

**PLACENTA PREVIA TREATED BY CESARIAN SECTION.**

In the *Boston Medical Journal* of December 6th, 1900, appears a report of the Suffolk District Medical Society, section for obstetrics and diseases of women. At this meeting a paper was read by Dr. F. D. Donoghue on the above subject. Another paper on the same subject appears in the *New York Medical Journal* of November 3rd, 1900. Dr. Donoghue after outlining the various methods of treatment practised for placenta previa, and the terrible death rate, gives the indications for this operation as follows: (1) Cases of complete previa. (2) Cases of previa in primipara, when signs of foetal or maternal exhaustion are evident. (3) When a condition of rigid os is present. (4) Where there is a previous operative delivery. (5) In transverse positions, and in cases of prolapsed cord, where the cord is not easily returnable.

He maintains that Cesarian section is the easiest of laparotomies and is an extremely safe operation, not only for the mother, but for the child; and he thinks that section may safely be done where the performance of any clean obstetrical operation is possible. If the uterine wall has been properly sutured after operation, there will be no thinning when thoroughly healed, and the abdominal wall, if closed by terraced sutures, shows no tendency to rupture.
Dr. Donoghue reports a case, the outline of which is as follows: Patient, age 40; one previous pregnancy. Diagnosis of placenta previa was not made till woman was in labor. The case was allowed to go on till patient was in a state of collapse; temperature 99.4° and pulse 140. Dr. D. saw patient six or eight hours after diagnosis had been made. Operation was advised and consented to at once. The house, an ordinary one-story country house. The operating table, the kitchen table. All antiseptic precautions were taken. Incision was made at point corresponding to the middle of rectus, beginning opposite umbilicus and extending well down to pubes. The first incision opened the peritoneal cavity for about one inch. The incision enlarged with scissors till uterus could be pulled through. Intestines held back by packing gauze into abdominal cavity. Rubber tube passed around broad ligament to control hemorrhage. Uterus opened by vertical incision in median line. Membranes were then ruptured and head presenting it was delivered. The cord was pulsating freely, so was clamped and cut. Baby soon cried lustily with usual treatment. Rubber tube then relaxed and contraction of uterus followed. As patient was in good condition with no hemorrhage going on, placenta was allowed to separate in the normal way, and after ten minutes was delivered through incision in uterus. Hemorrhage from the placental site was so slight that it did not wet one gauze sponge. Mucosa closed by continuous suture of number one chromicized catgut. Uterine muscle was brought together by eight interrupted sutures, and a continuous suture of catgut closed peritoneal wound. The gauze packing removed and peritoneum closed by a continuous catgut suture, the rectus muscle caught together by same material and fascia of rectus closed by continuous suture. A continuous silk-worm gut suture closed the skin incision. Sterilized dressing was applied, and patient returned to bed. Patient sat up in bed on the twelfth day, and left her bed on the twenty-first day. Patient and baby both alive and well at the time article was written.

Dr. Donoghue in his paper urges the importance of an early diagnosis. He believes that with skillful diagnosis and surgical treatment placenta previa may be no more dangerous to the pregnant woman than many other conditions now considered of minor importance. We must thoroughly appreciate the fact that any pregnancy may be a pathological one from the first, and we must devote the same careful study and attention to it that we would to any other pathological condition.

PUERPERAL ECLAMPSIA AND ITS TREATMENT BY MORPHINE.


As cases of this disease are of comparative rarity in private practice, and its results usually so disastrous, this report of several cases which have come under my observation may be of interest:—

"In 1895, in consultation with Dr. Saunders, I saw Mrs. Q., aged 28, primipara; she had had one fit, and her urine was loaded with albumen, being almost solid on boiling. As we decided to induce labour, chloroform was administered and the os was dilated; the fits at this stage coming on at frequent intervals till a dead child was born. She remained in a dazed condition for six days, and then died.

"The next case I saw two months after, again in consultation with Dr. Saunders, his partner, and Dr. Greathead; Mrs. T., aged 25, primipara, eighth month, whose urine was found to be loaded with albumen. We agreed that no operative measures should be adopted unless fits should come on. The same night she had
numerous severe fits, and we all agreed that labour should be induced. Chloroform was given without any effect upon the fits; the child was born dead, and the mother, going from one fit to another, died the next day.

"The next case I saw one month after this was that of Mrs. S., aged 21, in the eighth month, who had had one fit. Her face was puffed, she had severe headache, and the urine on boiling was almost solid. I ordered lig. ammon. acet. two drachms ter die. The albumen greatly decreased, while the urine increased, and she was safely delivered of a baby three weeks after without any return of the fit. The albumen disappeared from the urine one month later.

"On June 5th, 1890, I was called in to see Mrs. S., primipara, aged 29. I found that she had one slight fit, from which, however, she had recovered when I saw her. She had oedema of the eyelids and legs, and her urine, on being boiled, was solid with albumen. Soon after she had two more fits, and my partner (Dr. Bays) and I saw her in a third one of a most severe character, from which we thought it unlikely that she would recover; however she slowly improved. Dr. Greathead saw her in consultation, and pulv. jalapae co. and elaterium having been given, dry cupping was tried. A hypodermic injection of gr. ½ of pilocarpin, beyond making her perspire freely, had no effect. The fits continuing severely and the labour progressing, though slowly, at 3 p.m. I injected hypodermically gr. ¼ morphine, gr. $\frac{1}{15}$ atrop. sulphi. From that time she had no more fits. At 11 p.m. I repeated the injection; she was then breathing sterterously and was unconscious, taking no nourishment and passing no water. The next morning I again injected gr. ½ morphine, and at 1 p.m. the child was born naturally; the mother being conscious, though somewhat dazed. For two days I gave morphine, gr. ½, night and morning, and also put her on lig. ammon. acet. The albumen rapidly decreased in amount, and a fortnight afterwards only a trace remained, and the patient was practically well. A point of great interest was that the child, a male, when born was quite black, and after taking two or three breaths had a severe fit; he was put into a warm bath and given castor oil. For four days he took no food, his lips being moistened with milk and water. During this time he had thirty-nine fits in all; on the fifth day the fits ceased, and he is now perfectly healthy.

"Eight days later my partner, Dr. Bays, saw A. L., a primipara, aged 33, who was said to be a few days over her time, and to have had six fits during the night. At 7 a.m. she was in a somewhat dazed state, had bitten her tongue, and was in the early part of the first stage of labour. Four grs. of calomel, two ozs. of mist. senvene co., and a mixture of lig. ammon. acet. and morphine were ordered. Three hours after he was summoned to see her, and was told that she was dying; the fits had come on much more severely, and she was then in one which had lasted over an hour. Morphine, gr. ½, with atrop. sulphi., gr. $\frac{1}{100}$, was injected, soon after which the fits ceased. As the apertient had not acted, enemata were administered without effect. She remained free from fits till the evening, when they again returned with great severity; the os was then slowly dilating, and the pains coming on regularly, but with little force. Another injection of morphine, gr. ¼, caused a cessation of the fits, which did not return. On the succeeding morning morphine, gr. ¼, was injected, and the labour was found to be progressing slowly. During these two days she remained in a semi-conscious condition, not recognising anyone, though capable of feeling pain. On the evening of the second day, as the os was well dilated, and there was uterine inertia, chloroform was administered, and a dead child was delivered with forceps. The
mother was in a restless and sleepless condition for four days afterwards; this was relieved by injections of mor-
phine, gr. ¼. The urine, which in the early stage of the illness contained one-eighth albumen, was free from it
on the fifth day. The bowels were at last moved by repeated doses of mist.

These cases suggest the conclusion that to induce labour, however severe the fits, is a great mistake; the two
cases so treated terminating fatally, whereas those in which no operative procedures were carried out with a
view to remove a cause of the fits, recovered perfectly. In both cases the fits were almost at once checked
by the administration of morphine, and did not return so long as the patient was under its influence. An-
other advantage is that morphine is free from the depressing effect upon the heart exerted by chloroform or
chloral. The old idea that it exercised a bad effect in cases of renal trouble would appear to have no
foundation in fact.—British Medical Journal, November 24th, 1900.

THE DIAGNOSIS OF ECTOPIC PREGNANCY BEFORE RUPTURE.

At the meeting of the American Association of Obstetricians and Gyne-
cologists, held recently at Louisville, Dr. James F. Baldwin, of
Columbus, Ohio, gave his views based upon the observation of eleven cases.
He said that while there were no pathognomonic symptoms of tubal
pregnancy, the following points would usually be found in these cases: The
patient gave a history of several years of sterility (many exceptions); she
had missed a menstrual period, perhaps two of them (numerous exceptions);
she had noticed some unusual pains in the pelvis, which she would probably
describe as boring, griping, or colicky in character, these pains being situat-
ed usually in the region of an ovary. She had, perhaps, within a few days of
the time of consulting her physician, had a more or less irregular hæmorr-
hage; perhaps, had discharged pieces of membrane which she supposed indi-
cated an abortion, and consulted her physician with the idea that such was
the case, owing to the hæmorrhage, pain, and the suspicion of an existing
pregnancy. Possibly, however, there had been no suspicion of pregnancy,
as the woman had accepted her sterility as incurable and had dismissed
from her mind such a possibility.

On making a vaginal examination, the examiner would find upon one side
or the other of the uterus, or behind it, a fusiform, quite well-defined cystic
tumor about the size of a pullet's egg or a little larger. This tumor would
probably be quite tender on pressure, quite symmetrical in outline, and usual-
ly was distinctly pulsating. When such a tumor was found in a woman
in whom we had reasonable grounds to suspect a pregnancy; when the
uterus at the same time was found somewhat enlarged and giving to the
touch the sensation of pregnancy, a presumptive diagnosis of tubal preg-
nancy was warranted, and the matter of an operation should be carefully and
without delay considered. To render the early diagnosis of ectopic preg-
nancy possible, it was necessary for physicians to learn to suspect it and
to examine patients with that suspicion in mind.—New York Medical
Journal, November 24th, 1900.
PRESIDENT'S ADDRESS.

My Dear Fellow Workers:—

My first duty is to thank you very heartily for the honour you have done me in electing me your President. Our Association has now been in existence for about fifteen years and has justified its formation as well as established an honourable place for itself in the medical world. Our Magazine is known over a fairly wide area, and if it is not all that its most ardent supporters would desire, it is at least a periodical not to be ashamed of. Our constituency, though no late statistics are by me, must number into the second hundred. To be the President of a Society that has such a position is an honour that a man ought to appreciate.

It is with some misgiving that I realise that I am the first President of the New Century, a century which we all believe is pregnant with great, if unknown, results for China. As a body of medical missionaries we have this last year received our baptism of fire whilst the churches at home have learnt by a rude shock to forever dismiss from their vision the sentimental halo that has gathered round our work. The daily life of philanthropy which the medical missionary leads, whilst it may give him opportunities of service that none else get, and may engender true love in the few, will nevertheless never protect him from the insane hate of the crowd that he has spent his life in healing.

Medical mission effort has kept pace with the rapid stride of evangelistic work in this land until the small beginnings of Drs. Pearson and Colledge, at the opening of the century, have developed into the
large hospitals which are now to be found all over the land. Nearly every province has its hospitals or dispensaries or itinerant physicians, and the number of patients relieved every year runs into the hundreds of thousands. So far, we have already got in our benevolent work. What is to be the work of the Association these coming years? I can but briefly indicate some of the things that I think need doing and which can be done. The work of training Chinese medical men is one that as an Association we ought to forward by every means in our power. At the present moment a very important Committee on Nomenclature is sitting in Shanghai, and I heartily invite the members of the Association to give it their financial support, as well as aid its deliberations in every way. Whether we teach in English or Chinese ourselves the work that this Committee is doing is of immense value as a step, as the foundation step, of putting it in the power of our students to study our profession in their own mother tongue. I have long wished and worked for more unity in our methods, by which I mean the amalgamation of several small works into one large interdenominational one, and I still feel that this is not only an ideal but a possible ideal in many branches of mission work and especially in medical work. It seems, however, that this is not to be; still I hope that, as an Association, we shall try to take up a suggestion of our late President, Dr. Beebe, and unite in one Central Examination Board. The diplomas of such a board would have a real value from the first and serve to equalise the teaching results of all the various schools. A great work can be done and needs to be done in the way of preparing medical tracts in Chinese on public and private hygiene, on the prevention of contagious diseases, etc., and even in the preparation of posters for the walls of large cities and small hand-bills for gratuitous distribution. In this way a great deal of really useful information could be gradually inculcated in the people, which would be productive of much good. We need next to press upon the Home Boards the need of special hospitals and staff for special ailments. No one can walk through one of our large cities without feeling the present need of Homes for Incurables and the utter hopelessness of helping such cases without them. It is not merely that great suffering would be relieved, but I believe we should find, as it has been found in the case of leper homes, that such hospitals would be a fine field for evangelistic work. Other needs will suggest themselves to all who think. Our efforts in a word must be to educate the people to their needs and to train up those who can supply that need.

Sydney R. Hodge.
HANKOW BRANCH OF THE CHINA MEDICAL MISSIONARY ASSOCIATION.

The programme for the current year has just been handed in by the Secretary, and it speaks well for the activity and zeal of the medical missionaries in Central China.

Hankow, always a centre for business activity, and, since the opening as a Treaty Port, a centre for missionary work in Central China, has of late years become important for medical mission work, which is rapidly extending, not merely throughout the province of Hupeh, but also into the neighbouring province of Hunan. In the three cities—Hankow, Wuchang, and Hanyang—there are five hospitals for men and three for women, and in the near future it is hoped to have two more women's hospitals. The medical staff working these hospitals consists of five lady-doctors and six men. In the country there are three hospitals, each worked by one man, and in a few months it is hoped that work will be definitely started in Yo-chow (Hunan). Thus in the centre and immediate neighbourhood there are at present sixteen doctors.

The Report of last year's work shows that a varied programme was successfully carried through, and the programme for this year fulfils the promise of last. We find that a variety of interesting and important subjects are to be written on and discussed. Phthisis Pulmonalis has already been dealt with by the president, Dr. Hodge, and on April 3rd, the ex-president, Dr. Gillison, will give his experiences on "Rectal Surgery." The obstetric side of the work is ably represented by Dr. Gough, who will give a paper on "Obstetrical Work in Hankow." On May 15th, there will be a paper on "Opportunities for Orthopaedic Surgery in Central China." Two important and interesting subjects are to be dealt with in the latter half of the year. Dr. McCall will write on "Chronic Opium Poisoning," and the subject of "Hereditary Syphilis in China" will fall to Dr. Hodge.

Arrangements have been made by which the other side of medical mission work will be brought before the Society by Dr. Gillison in a paper on the "Spiritual Aspects of our Work." Dr. Peake, of Hunan, will give his experiences of "Pioneer Medical Missionary Work," and Dr. Huntley on November 27th will open a debate on "Out-patient Work."

Clinical meetings are held once in three meetings, at which cases are shown for the purposes of interest, diagnosis, and treatment.
We are glad to have had the opportunity of seeing this programme; and we congratulate this branch of our Society and wish it every success in its work during the year.

We feel that this is a fitting time to urge the example of the Hankow branch of our Society as a stimulus to our members in other important centres in this country. The new century has dawned; what it will bring forth for this land we cannot tell, but we believe that there is a great future for medical missions. It therefore behooves those of us who have seen the 19th century close in China, and are now in the infancy of the 20th, with the beginning of a grand future, to rise to the occasion and to fit ourselves and others that we may successfully cope with the difficulties that will face us and keep on a level with the advances in medical and surgical science. What is there to prevent the formation of branches throughout the various large centres where meetings can be held as often as possible to discuss matters of interest, surgical and medical, and so keep up to date with the advances made year by year?

Where there are no such societies, let them be formed. Where there are, let those that are weak become strong and those that are vigorous retain their vigor, and go on from strength to strength.

R. T. B.

WORK OF THE NOMENCLATURE COMMITTEE.

The Nomenclature Committee met in Shanghai the middle of January, and was in session until the second of March, something over six weeks. There were present the following members: Drs. Whitney, Consland, Stuart, and Neal. Dr. Kerr, the Chairman of the Committee, did not feel equal to the strain of the meetings, so did not come up from Canton. Dr. Porter, the remaining member of the Committee, was at home in America, so could not be present. The Committee was much helped in its anatomical work by suggestions from Dr. Morley. During the six weeks, sessions were held for five or six hours daily, and the following subjects were gone over pretty thoroughly and terms decided upon:—histology, anatomy, physiology, and pharmacology. It may be of interest to the members of the Association to give some idea of the principles which guided the Committee in its work, especially in regard to fundamental terms. The first subject which claimed attention was the names of the bones. It was thought most desirable that in the case of such a foundation matter there should be, if possible, only one character
for each bone, in order to facilitate the naming of arteries, veins, and nerves as well as muscles. After a long and exhaustive search through Williams, Giles, and Kang Hsi, for suitable characters, the following list was finally agreed upon on the principle that every long, or otherwise important, bone should have the bone radical at the side (except those of the head); the bones of the hand, should have the hand radical; and the bones of the foot, the foot radical. The bones of the head it was not thought necessary to specially indicate by the radical, though as a matter of fact most of the cranial bones have the head radical.

**Long or Otherwise Important Bones.**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Radical</th>
<th>Chinese</th>
<th>Pinyin</th>
<th>Other References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clavicle</td>
<td>骨 Yū.</td>
<td>See Giles 13,565, Williams page 1,120.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coccyx</td>
<td>骨 Ch’iang.</td>
<td>&quot; &quot; 1,274, &quot; &quot; 366.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td>骨 Ting.</td>
<td>&quot; &quot; 11,298, &quot; &quot; 907.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibula</td>
<td>骨 Fei.</td>
<td>A made-up character meaning the calf bone. (See 腓.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humerus</td>
<td>髱 Kung.</td>
<td>&quot; &quot; &quot; upper arm bone. (See 肱.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyoid</td>
<td>舌 Kua.</td>
<td>An adopted character from Kang Hsi.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilium</td>
<td>骨 Ch’ia.</td>
<td>See Giles 1,199, Williams page 354.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innominate</td>
<td>骨 K’ua.</td>
<td>&quot; &quot; 6,325, &quot; &quot; 468.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischium</td>
<td>骨 K’ao.</td>
<td>&quot; &quot; 5,962, &quot; &quot; 327.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patella</td>
<td>骨 Pin.</td>
<td>&quot; &quot; 9,244, &quot; &quot; 696.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pubes</td>
<td>顏 Chia.</td>
<td>A Kang Hsi character, meaning the lower part of abdomen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radius</td>
<td>顏 Fun.</td>
<td>A made-up character intended to mean “the turning bone.” (See 反.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rib</td>
<td>骨 P’ien.</td>
<td>A Kang Hsi character, meaning ribs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sacrum</td>
<td>背 Ti.</td>
<td>See Giles 10,913, Williams page 878.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scapula</td>
<td>髱 Po.</td>
<td>&quot; &quot; 9,377, &quot; &quot; 709.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sternum</td>
<td>背 Hsi.</td>
<td>Made-up from 背 by substituting the bone radical. (See 臍.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tibia</td>
<td>骨 Kan.</td>
<td>See Giles 5,824, Williams page 314.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulna</td>
<td>骨 Nao.</td>
<td>Made up from 腕 by substituting the bone radical. (See 臂.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bones of the Hand and Wrist.**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Radical</th>
<th>Chinese</th>
<th>Pinyin</th>
<th>Other References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpal</td>
<td>骨 Wan Ku.</td>
<td>See Giles 12,468, Williams page 1,038.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuneiform</td>
<td>骨 Fu.</td>
<td>&quot; Made up to mean “hatchet-shaped.” (See 斧.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metacarpal</td>
<td>骨 Chang.</td>
<td>See Giles 421, Williams page 23.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalanges</td>
<td>骨 Chih</td>
<td>&quot; &quot; 1,791, &quot; &quot; 57.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Pisiform 捺骨 Tou Ku A Kang Hsi character, adopted to mean "bean bone."

Scaphoid 抜 | Chou " Made up to mean "boat-shaped." (See 舟.)

Semilunar 捺 | Kung " A Kang Hsi character adopted to mean "bow-shaped."

Trapezium 摺 | I " Made up to mean "the peculiar bone." (See 差.)

Trapezoid 摺 | Po " A common character adopted to mean "splitting bone."

Unciform 拮 | Kou " Do. adopted to mean "hook bone."

Bones of the Foot and Ankle.

Astragulus 蹠骨 To Ku. See Giles 11,309, Williams page 914.

Calcaneum 蹠 | Chung Ku. See Giles 2,889, " " 107.

Cuboid 趾 | Fung " A Kang Hsi character adopted to mean "square bone."

Cuneiform, external 外踝骨 Made up to mean "hatchet-shaped." (See 斧.)

Metatarsal 踝骨 Chih Ku. See Giles 1,915, Williams page 70. "Sole of foot."

Phalanges 趾 | Chih " See " 1,843, Williams page 56.

Scaphoid 腕 | Chou " Made up to mean "boat-shaped." (See 舟.)

It will be observed that in following out this system it has been necessary in some cases to take old obsolete characters and affix to them the meaning intended, without much regard to the meaning given in Kang Hsi, while in other instances liberties have been taken in the way of adding a radical to a common character in order to make it conform to the rule. It is hoped that this system will greatly aid the memory of the student and teacher in remembering the position of the bones. Little change was made in the old names of the bones of the head and face.

Blood Circulatory System.

In naming the parts of the blood circulatory system it was decided that every character used should have the blood radical, and that each part should be represented by a single character. The following list shows the names agreed upon:—

Auricle 耳 Hsüeh. A Kang Hsi character adopted to mean "blood [cave."
The China Medical Missionary Journal.

Ventricle 頸 Pén. A made-up character, intended to mean "blood spirter."
Artery 鯉 Mo. See Giles 8,013, Williams page 584.
Vein 益 Huang. A Kang Hsi character meaning "blood going to heart."
Capillary 血 Wei. Made up to mean "minute blood vessels."

It was necessary in following out this rule to make two characters for ventricle and capillary respectively.

Nervous System.

The only radical change made in the naming of parts of the nervous system was in the adoption of the single character 系 Hsi (See Giles 4,061, Williams page 181) for nerve. This is a term suggested by Dr. Stuart some years ago in the Journal, and means, according to Williams: "Connection, link, or passage which joins things; in anatomy a nerve or connecting tube." It was thought most desirable that we should have one character to represent such a common and constantly recurring term as nerve, and the one adopted seemed to fill the need as well as any we could discover. The terms for ganglion, plexus, and for cerebrum and cerebellum, remain unchanged. The name of the pons was changed to 腦橋.

Eye Terms.

The most marked change made in the eye terms was in adopting the character 睛 for the middle coat of the eye, a character which has for some years been used not only for the conjunctiva but also for the ciliary region. All authorities, however, agree that this means the iris, and it was at first proposed to reserve it for this use, but after long consultation it was thought best to allow it to stand for the whole of the middle coat, making the choroid 睛 膜, the ciliary processes 睛 褶, and the iris 睛 筋, thus showing to students the continuous nature of the vascular coat of the eye.

For conjunctiva and for cornea the committee was much exercised as to the best terms to adopt; it seeming very desirable to have one character only for each of such important parts. The characters 睜 Tsui (see Giles 11,912, Williams page 828) for conjunctiva and 瞅 Liao (see Giles 7,051, Williams page 529) for cornea were finally settled upon, and it is hoped may be acceptable to the majority of the members of the Association.

For the vitreous humor the character 瞅 Chén was adopted, which, according to Kang Hsi, means "the essence of the eye."
For **eyelid** the name 臉 Chien was chosen, as the meaning in Kang Hsi is exactly suitable.

**General Terms.**

Coming now to some of the remaining general terms and taking them up in alphabetical order we have the following:—

**ALBUMIN.**—See below under “proteids.”

**CANAL AND DUCT.**—It was thought best to restrict the character 管 to the bony canals, at least for the most part, reserving 臏 for ducts and other fleshy canals.

**CELL.**—An entirely new and distinct character was adopted for this most important term; one made up of the flesh radical and the phonetic of the old term for cell 珠, making the character 珠 Chu. This seemed to all the members of the committee a distinct improvement over calling a cell a pearl, and also has the advantage of leaving the character 珠 free for use in naming bony tubercles.

**CHONDRI N, CREATIN, MUCIN, ETC.**—In naming these substances and others of their class, the term the Japanese use, 素 Su, was adopted to represent the “in” of the name and to express the idea of their being the pure part of the tissue from which they are derived.

**GLAND.**—In the case of this term, too, the Japanese name, which seemed to all most appropriate, was again followed; 腺 Ch‘uan meaning the flesh spring. This character, however, is used in these lists to mean only a secretory gland, the ductless glands, and the lymphatic nodes being indicated by the character 現 Hu the character 核 Ho being reserved for “nucleus of a cell.”

**LYMPH.**—The character 現 Chin was taken from Kang Hsi and adopted because of its seeming appropriateness in its make-up. The meaning is so indefinite it was thought it would not be hard to fix it to mean in our medical books the lymph. (See also “serum” below.)

**PANCREAS.**—This, too, was a term which greatly troubled the committee. Various suggestions were made, but it was finally concluded that the best we could do was to adopt the colloquial Chinese term 腺 I and call it 腺腺. Its uses are so numerous that to name it from any one of them would be misleading, and to include them all in one name would make the term too unwieldy.

**PROTEIDS.**—The character 蛋 Chi‘eng was adopted from Kang Hsi to represent the proteids as a class, while various modifying terms were added to designate the different kinds of proteid substances, e.g.,
albumin 粟程 Sui Ch'ing, or simply 粟 Sui alone; globulin 膆程 Ching Chêng, or simply $ alone.

SERUM OF BLOOD.—The character 盟 Ming was adopted from Kang Hsi on the same principles as the term 血 for lymph, as showing by its composition what was intended.

Tissue.—For this general term the made-up character 腑 Wang was adopted, as it was felt necessary to have a single word to use in combination.

Uterus.—箤 Kung. This character was made by combining the two characters formerly used for womb, so as to secure one single word for this organ.

The lists are sent out with the hope that members of the Association and others who are interested, will take the trouble to look them over carefully and after mature consideration will send in their criticisms. The committee, however, would deprecate hasty criticism. They would beg that they who find difficulties in the lists will carefully compare the different parts of the system and will endeavor to look at the whole subject as the committee was compelled to look at it. Criticisms should be sent to Dr. P. B. Cousland, Chao-chow-fu, Swatow, the secretary of the committee, before the end of the autumn, so that they may be considered at the next meeting of the committee.

CLEANLINESS.

It is a sad fact that the wards of too many of our mission hospitals too nearly approach the condition of the homes of the inmates. This should not be. Just now a number of medical missionaries have come to the field for the first time, and it is important to impress upon them the necessity of cleanliness in their hospital wards.

In the home lands, hospitals, old and new, large and small, are clean. The necessity for cleanliness is impressed upon both nurses and students. Many of the patients when brought to the hospital are from dirty homes, and are as filthy as the most filthy Chinaman. But before they enter the hospital ward, they must be bathed and made clean, and why cannot this be done here?

True there are many more difficulties in the way here, but they are not insurmountable. A short time ago an old hospital worker made the remark, “When my co-worker and I opened our hospital, we resolved that it should be clean, and we have succeeded in having it clean!” Those who have undertaken it, seem to have found little real
difficulty in persuading Chinese patients to take a bath and wear the hospital clothing. After a few days in the ward, they enjoy the order and cleanliness. A patient in a West Chino hospital said one day, "If heaven is like this, then I should like to go there." Certainly it is difficult to keep patients from expectorating on the floor and from storing food, articles of clothing, and tobacco and pipes in the bed. But if the attendants are properly trained, this difficulty is not much greater than at home.

Any one who has lived in China for any length of time, must be convinced that much of the disease and suffering here is due to dirt. Should we not set a good example by excluding dirt as far as possible from our wards? To be successful surgeons, we must use clean instruments and clean dressings. In our medical work, if we are going to attain the highest success possible, both spiritual and physical, we must place our patients amidst clean surroundings. We preach to our patients a gospel of purity and love. We strive to live lives of purity before them; then let us emphasize such teaching by clean wards and by cleanliness and order in all the hospital surroundings.

R. G. K.

The medical missionaries who have been in Shanghai during the winter owe a debt of gratitude to Dr. and Mrs. Boone, who threw open their house to them for a weekly meeting every Friday evening, at which subjects of mutual interest were discussed and some papers of unusual merit were read. Nearly a dozen meetings in all were held, and the universal verdict was that they were of great benefit to all who attended them. As will be seen from some of the papers in the present number such subjects as "Self-support in Mission Hospitals," "Chinese Babies," "Hospital Construction," and "Women's Medical Work," were discussed, as well as medical itinerating, antisepsis, etc. Three evenings in all were given to the consideration of the question of the establishment of a central medical school, and resolutions were adopted on the subject which will doubtless reach the members of the Association in due time. The papers relating to the object of medical teaching and a central medical school will appear in the July number of the JOURNAL.

The Secretary and Treasurer of the Association, Dr. Stuart, is preparing a blank to be sent out to the members asking for subscriptions to the fund for paying the expenses of the Committee on Nomenclature. It is hoped there will be a liberal response. Judging from the cost of
the meeting which has just been held, there will be needed about $1,000
to meet the expenses of this and the succeeding meeting, which it is
hoped is all that will be necessary, and to print the lists prepared by
the committee. This means on an average about five dollars from each
member of the Association, but as some are better able than others to
help in the work it is hoped that members will not confine themselves
to the above sum but will give as much as they feel able to. Each
member will receive a copy of the lists free as published. It seems
very desirable not to use the funds now in hand, which after all are
only limited in amount, as we ought to have some balance in hand to
meet emergencies and to keep the JOURNAL running in good shape. It
should be mentioned in justice to the committee that they are not ask-
ing others to do more than they are willing to do themselves, as they
have already subscribed over a hundred dollars toward meeting these
extra expenses, and they will no doubt contribute more at the time of
the next meeting a year hence. Subscriptions may be sent to Dr. Geo.
A. Stuart, Nanking.

With this number of the JOURNAL, bound in the back, will be found
a list of the members of the China Medical Missionary Association. It
is hoped that every one will carefully look this list over, and if they note
any corrections that should be made will send a note of the same to the
Secretary, Dr. Geo. A. Stuart, Nanking. It is also hoped that this list
may serve to stir up those who are members to note whether or not new-
comers whom they know have been invited to join the Association. All
that is necessary in proposing names for election to the Association is
for some one who is a member already to send the full name of the
person proposed, together with the medical qualification and name of
the institution where it was obtained, and the name of the Mission and
station to which the new comer belongs. No seconder is required. As
soon as elected, the name of the candidate will be entered on the mailing
lists of the JOURNAL, and all that is necessary thereafter is for the
individual to send three dollars a year to the Presbyterian Mission Press,
18 Peking Road, Shanghai. Copies of the Constitution and By-laws
may be obtained free of either the Secretary or the editor.

The editor is indebted to Dr. O. L. Kilborn for his help in getting
up the Personal Notes and News Items in the present issue. Will
it not be possible for members of the Association to send more frequent
notes of their doings or those of their acquaintances to the Journal? It seems very desirable to make this department as full as possible, especially during such a time of change as the present, but unless news is sent to the editor, it is impossible for him to make it what should be, as he cannot manufacture it from his own inner consciousness. Let us have more frequent letters from everybody.

The annual reports of the Canton Hospital, Tooker Memorial, Soochow, and the Chao-chow-fu Hospital for 1900 have been received, but owing to lack of time notice of their contents will have to be postponed until the July issue.
Evangelistic.

INTERESTING CASES AT WEIHSIEN, SHANTUNG.

By W. R. Faries, M.D.

"In the morning sow thy seed, and in the evening withhold not thine hand: for thou knowest not which shall prosper, whether this or that, or whether they both shall be alike good;" may certainly be said to the missionary physician. One would not think that old men with chronic cystitis and enlarged prostates and complete retention of urine, would furnish good hearts to receive the gospel message; but two such cases stand out in our recollection against the forgotten crowd.

In February, 1900, a man came with his bottle to Weihsien dispensary for more mixed treatment. Remembering he had taken care of his father in the hospital the year before while the father was being treated for a most distressing cystitis, and had to be catheterized regularly, I asked him about his father. He replied that he had gone to heaven. This was such a remarkable statement from a heathen that I enquired further. It seems the father, after partial relief, went home and died soon after. He exhorted his son and family to believe what was taught at the hospital, saying that there was no such teaching or such men elsewhere outside of Christianity. The son voluntarily apologized for having had a heathen funeral for his father.

The only serious case left in the hospital when I went away early in June, was a young man with caries of the ilium, awaiting operation. He had been converted through the medical work the year before. He had suffered severe persecution from his father and fellow-villagers. His father had beaten and abused him repeatedly till he fled from home. He was brought to the hospital and provided for and nursed by a Mr. Kwo till his father was persuaded to visit him and then to nurse him. The father is reported to have exclaimed, after being at the hospital for some time, "I did not know this was Christianity!" When the news came of the destruction of Weihsien, prayer was made for this young man. The first letters giving an account of the occurrences told that the mob had spared the hospital wards.

The Mr. Kwo, mentioned above, and his father, were converted in the hospital last year. The father came with retention of urine and chronic cystitis, and is the other of the two cases mentioned in the first paragraph. He received benefit in the hospital and returned home, and died later in the year—after urging his family to believe the gospel and to follow the lead of the eldest son who had nursed him in the hospital. Mr. Kwo said that he and his father were much influenced by the Scripture reading and con-
versation of a Christian family and particularly the mother of the family, who had a room next to theirs at Weihsien. A man servant in the Kwo family was converted, but the daughter made his life so miserable that he had to leave. This daughter was married in the winter, and the memory of what she heard from her father seemed to have remained with her, for she became a secret disciple for fear of her husband's family. She also sent food to the young man with iliac disease when he was in hiding from his father.

Mr. Kwo's neighbors assaulted and broke in his barred gate and demanded that he give up Christianity. He replied they could beat him to death, but he would not give up his faith. They beat him till his tortures caused him to resist, and being a powerful fellow, they left him.

Here are what seem to be four conversions and two manifestations of Christian kindness and one exhibition of steadfastness, all through the faithful treatment of one discouraging case. The treatment was largely carried out and gospel preached by native assistants.

The following extracts from the report of Venerable Archdeacon Thompson, as Chaplain of St. Luke's Hospital in Shanghai, will prove of interest to many readers.

"The work in a hospital might be spoken of as unvaried and dull in many respects, yet with constant change. The general outlines are the same each day, only that every new case has some new interest, either in the exhibition of disease in some changed aspect or in the personality of the patient.

"There was an instance of this in the person of an elderly Cantonese gentleman, who was a peculiarly interesting person. His case was a very difficult one, requiring many operations of more or less serious nature. There was much pain and many weary days, and even months of suffering. He had one of those kind and gentle faces one sometimes sees. He was so patient under all the trial. He would smile, and seem so pleased to see us. It was difficult to communicate freely with him, as our dialects were so different. Still, with a little English, we got on quite well. We felt of him, as was said to another, 'Thou art not far from the kingdom of heaven.' He was finally restored to a fair measure of health and left for his home. He read quite well, and took, I believe, quite a number of our books with him. We can hope he will come to accept the salvation which is so freely offered him in Christ.

"It is so with much of our hospital work. It is as a school where they learn much; it must remain for them to put what they learn in practice after they leave and for the Holy Spirit to work upon their hearts with the knowledge which they have acquired. There have been, if anything, even more of the various kinds of accident cases, such as broken legs, crushed hands or feet, from the various machine shops, steamers, cotton factories, silk filatures, etc.
Mr. Wong, my helper, has written out in the large Chinese characters, such as are used on their ornamental scrolls in their temples and halls, some forty or fifty texts and passages from the Holy Scriptures. With these we have ornamented the walls of the various wards. These, with their varied colours, are quite a change from dreary stretches of bare wall.

"Every patient thus has before his eyes many of the wonderful words of Revelation giving to him or her new and strange thoughts, such as, "God is love," "God so loved the world that He gave His only begotten Son that whosoever believeth on Him should not perish but have eternal life," "Come unto me all ye that labour and are heavy laden and I will give you rest." The study and spelling out of the meaning of the written character seems always a pleasure and diversion to the Chinese.

"This was rather difficult work, and has been very satisfactorily done by Mr. Wong.

"There was also an interesting case of a bright young lad from Fookien who had all his scalp torn off. He could understand scarcely one word of the Shanghai dialect. After the first few days of dreadful pain and fever he brightened up and began to learn rapidly. He seemed to take hold of what is taught, and I am sure his stay in the hospital will be a life-long lesson to him. The restoration of the skin of his head by transplanting bits from other parts of his body was a most interesting case. Then again we have here one of the many instances of nuisance and danger of the wearing of the long queue. It is probable many thousands are injured and many killed every year from wearing this inconvenient and troublesome appendage.

"One of our attendants at the hospital services has been baptized, and another of the old patients is preparing for it."

Dr. Kinnear, in his report of the Po-na-sang hospital in Foochow, gives the following interesting notes:

"The heathen Sunday school still gathers a waiting room more than full of the neighborhood children and adults, and in-patients, every Sunday afternoon. No startling results have shown themselves during the year, but we cannot but believe that good will come. The material is not all very promising. For instance one of the older boys and two of the girls who attend most regularly are the children of a professional gambler, who is invited to the houses of well-to-do people on feast days, and some other times no doubt, to gamble with the people who wish to be entertained in that way. But the boy is one of the best readers, and memorizes as many Bible verses as any of the scholars, and he may be accepting more of the truth than we suppose. The children are showing more interest than ever in memorizing hymns, and enjoy the singing heartily. Many friends have sent picture cards for this work, and we hope that our constant need of them may be kept in mind by
those who are interested in the school. We are giving in this report a picture of a group of the scholars which give a good idea of their general appearance. They were bribed by a promise of oranges and cake to come on a week-day to have the picture taken, but many of them were afraid that the camera would extract one of their three spirits, or that we had some ulterior motive, so did not come. The group shown, though but a small proportion of the school, is, however, fairly characteristic.

"We have tried to have Mr. Horse, the evangelist, keep notes of the cases of conversions which have occurred during the year, especially of those who have united with our churches, but, while he is very faithful among the patients and is a useful evangelist, he can write but little, so finds it very burdensome and makes but a poor success of it. The majority of the patients find him one of their own sort, so that they feel quite at home with him, but the fact that he is not a literary man, which is something of an advantage in his intercourse with the patients, makes it impossible to get him to keep any kind of a record of the evangelistic work. He reports that two of our patients were received into the Po-na-sang church during the year, having been converted while in the hospital. One was a man from Ing-hok, who came with necrosis of the leg bone and was in the hospital a long time for operation and treatment. The other was a young man from north of the city who came for treatment of suppurating glands of the neck. From the first, the latter was an interested learner, and gave every evidence of having accepted Christ as his Savior when he was received into the church.

"A carpenter, about fifty years old, came with osteo-myelitis of the bones of the hand, resulting from a neglected injury which became progressively worse, until, in spite of amputating the hand, complicating pyæmia resulted in death. He had heard something of the gospel before coming to us, but had not accepted it. During his long illness he seemed to give himself fully to Christ, and Rev. G. H. Hubbard baptized him in the hospital a short time before his death. The funeral service, a Christian one, gave an opportunity for an impressive presentation of the gospel message to the patients and a group of outsiders who came in.

"Besides these who have been mentioned, there were others whom we believe were truly converted, some of whom we have no doubt have united with churches near their homes, while still others believe, but have not yet been received as members into any church."

---
Dr. Williams, C. I. M., is still in Shanghai.

Dr. Pruen, of Pao-ning, Szechuan, is still in Shanghai.

Drs. J. A. and Ross Anderson have returned to their station—Tai-chow.

Dr. and Mrs. Ewan, of the C. M. Mission, will also leave shortly for Chungking.

Dr. H. Parry, of Kia-ting, Szechuan, is still in Shanghai. He will probably start west soon.

Dr. McCartney and family have returned from the United States and have gone back to Chungking.

Dr. King, C. I. M., has returned to Chefoo, to resume work in a tentative way; his health not being yet fully restored.

Dr. Cattell has returned to her work in Soochow in connection with the Tooker Memorial Hospital. She was in Shanghai for some months.

Drs. Kember and Babington, of Hangchow, spent some time in Shanghai during the winter. The former has returned home to England.

Dr. Lyon, of the American Methodist Mission in Foochow, has lately returned from a trip home and has gone back to her work in the south.

Dr. Hare is still in the Intelligence Department of the British army in Shanghai. The Doctor rejoices in the addition to his family lately of a little son.

Dr. Gaynor, of the Friends' Mission in Nanking, arrived in Shanghai March 6th, and within a few days proceeded to her station to continue her medical work there.

Dr. F. H. Judd, C. I. M., is still in Shanghai, where he is acting as physician to the members of his Mission who are there. He has been filling this position for some months past.

Dr. McClure, who spent most of the winter in Chefoo, after a short trip to Shanghai, has gone to Tientsin to remain until the way opens up for him to return to his station in Honan.

We are glad to hear from Dr. James A. Greig, of the Irish Presbyterian Mission, that he is reopening his hospital in Kirin, Manchuria, this month. —N.-C. Daily News.

One of the newest members of the American Methodist Mission is Dr. Charles, who arrived in Shanghai in February, and who has gone to Wu-hu to work in connection with his mission there.

Drs. O. L. and R. G. Kilborn, of the Canadian Methodist Mission, left Shanghai March 7th for Chungking on their way to Chen-tu. They do not, however, expect to get beyond Chungking before autumn.

Dr. Macklin and Butchart, of Nanking and Lu-cheo Fu respectively, spent most of the winter in Shanghai. Late in February Dr. Macklin returned to his station, and Dr. Butchart followed some weeks later.

Dr. Lewis, of the American Presbyterian Mission, has resigned from Chi-nan-fu and has connected himself with the mission in Peking, where he still holds his position in connection with the American army.

Dr. Anna Henry, of the Canadian Methodist Mission, has returned to Shanghai, after six months' absence in Japan. By the time this number of
the Journal reaches its readers she will be on her way to Chungking.

Dr. Reifsnyder is back from her visit home and again hard at work at the Margaret Williamson Hospital in Shanghai, probably the finest Mission hospital in China. The Doctor's colleagues are Drs. Garner, Macgowan, and Kerr.

Dr. Mary L. Burnham, of the American Presbyterian Mission, who acted for some months as nurse at Wei-hai-wei, after a few weeks in Shanghai, went to Tsing-tau in February to remain until the way is open for her to return to her station—Chi-nan-fu.

Dr. Stuart kindly placed a room in his rented house in Shanghai at the disposal of the Nomenclature Committee, and during its sittings it met there every day. Dr. Stuart, immediately on the adjournment of the committee, returned to Nanking to his work in the Nanking University.

Dr. Whitney, of the American Board Mission at Pagoda Anchorage, arrived in Shanghai early in February from the United States, after an absence of three years, and after a month's work with the Committee on Nomenclature, went on to his station to resume work.

Dr. Cousland, after about two months in Shanghai in connection with the work of the Nomenclature Committee, of which he is the efficient secretary, went back to his work in Chao-chow-fu in March. Dr. Cousland is hoping soon to have a lady physician out from home to be associated with him in the work.

Dr. Doolittle, of the new mission being opened in Hunan by the American Presbyterians, has returned from Japan, and is going to Nanking to remain until the way is open to proceed to Hunan. Dr. Doolittle rejoices in having the money already in hand for the building of a women's hospital as soon as she can get located in her station—Siang-tan.

Dr. Machle, of Lien-chow, Kuang-tung, was in Shanghai for a few weeks late in February and early in March. He came up to attend the meeting of the Nomenclature Committee, but unfortunately arrived only a week before the committee adjourned. Dr. Machle has undertaken to assist the committee in its work by preparing one of the necessary lists for future consultation.

Dr. Wills, whose hospital it will be remembered was destroyed in June last, an account of the occurrence being published in the last number of the Journal, writes from his station near Hankow: "We are back at Tsao-shih again, and everything is oppressively peaceful. The compensation has been agreed to at Tls. 9,000, after three days of arguing and feasting. We were received publicly with all honor, and all seems very promising for the future. We hope for great blessing after all this. I expect to begin hospital work after the China New Year."

The medical missionaries in Shanghai, resident and refugee, have sought to improve the time by meeting in a series of weekly conferences extending from December to the end of February. Dr. and Mrs. Boone opened to us their hospitable home, evening after evening, until near the close, when a room at St. Luke's Hospital was very kindly placed at our disposal for the last two meetings. As many as eleven or twelve papers on subjects intimately related to medical mission work were read, in each case evoking much practical and helpful discussion. The attendance varied from twelve to nearly thirty. Dr. Boone by his kindly presence and helpful remarks, as also Dr. Barchet, of the American Consulate, added much to the pleasure and value of the meetings.
BIRTH.
On the 24th of February, 1901, the wife of Rev. C. R. Hager, M.D.,
D.D., American Board Mission at Hongkong, of a daughter.

ARRIVALS.
January 16th, Dr. A. Peck, for Peking; Dr. E. Bliss, for Foochow,
both of A. B. C. F. M.
23rd, Dr. M. Charles, M. E. Central China Mission.
February 6th, Dr. H. Whitney, A. B. C. F. M., for Foochow.
18th, Miss E. Lyon, M.D., M. E. M., for Foochow.
28th, Dr. J. McCartney, M. E. M., for Chungking.

DEPARTURE.
February 11th, Dr. A. T. Kember, C. M. S., for England.
List of Members of the China Medical Missionary Association.

Anderson, John A. M.D. Taichow, Ningpo.

Ayer, M. A., Miss M.D. Soochow, Soochow.

Barchet, S. P., Rev. M.D. Shanghai.

Beattie, D. A. M.D. Yuenkong, Nanking.
Beebe, Robt. C., Rev. M.D. Nanking, Foochow.
Bement, Lucy P., Miss M.D. Shaowu, Shanghai.

Bennett, J. H. M.R.C.S., L.R.C.P. Tientsin, 156 Fifth Ave., N. Y., U. S. A.

Bent, S. A., Mrs. M.D. Tsiningcheo, Hankow.
Bergin, G. F. M.B., M.R.C.S. Laohokeo, Canton.
Bigler, R. M. M.D. Canton, Canton.
Bliss, E. L. M.D. Shaowu, Foochow.

Boone, H. W. M.D. Shanghai, Shanghai.
Booth, R. T. M.D. Hankow, Wuchang.

Brander, T. L. M.B., C.M. Chinchowfu, Chinchowfu.
Brown, H. M. M.D. Fusan, Chichiang, Foochow.


Burnham, Mary L., Miss M.D. Luchefu, Wuhu.

Burthart, Jas. M.D. Taiwanfu, Wuhu.

Cairns, W. M. M.B. Taihuwei, Weihaiwei.
Campbell, R. M. M.D. Soochow.
Canright, H. L. M.D. Chentu, Canton.

Carlton, M. E., Miss M.D. Weihaiwei, Weihaiwei.
Case, J. W. M.D. Soochow.
Cattell, F. F., Miss M.D. Lienchow, Canton.

Chestnut, E., Miss M.D. L.R.C.P., L.R.C.S., Ed. Moukden, Newchwang.


Cochran, Samuel M.D. Hwaian, Nanking.
Coltman, R. J., Jr. M.D. Peking, Peking.
Cooper, Effie B., Miss M.D., Chefoo, Chefoo.


Cousins, Agnes L., Miss M.D., Hankow, Hankow.

Cousland, P. B., M.B., C.M., Chaochowfu, Swatow.

Cox, G. A., L.R.C.P. & S., Chinkiang, Chinkiang.

Crews, G. B., Rev. M.D., Peking,


Crowther, Faith P., M.B., Ch.B., Ed.,


Dalziel, J. M., M.B., C.M., Swatow, Swatow.


Deas, W. A., M.D., Wuchang,

Devol, Geo. F., M.D., Nanking, Nanking.

M. Isabella M.D.,

Dobson, W. H., M.D., Yuengkong, Canton.

Donahue, J. M., Miss M.D., Hinghwa,


Ewan, R. B., M.D., C.M., Chentu, Chentu.

Fahmy, A., M.B., C.M., Changchih, Amoy.

Faries, W. R., M.D., Weihien, Chefoo.

Flemming, Emma E. M.D., Ichowfu, Ichowfu.


Fulton, M. H., Miss M.D., Canton, Canton.

Gale, Mary, Miss M.D., Shanghai, Shanghai.

Gaynor, L. A., Miss M.D., Nanking, Nanking.


Glenton, M. V., Miss M.D., Wuchang, Wuchang.

Goddard, F. E., Mrs. M.D., Inghok, Foochow.


Grant, D., M.B., C.M., Chingchih, Chingchih.

" J. S. M.D., Ningpo, Ningpo.

Gray, D. C., M.B., C.M., Liaoyang, Newchwang.


Griffith, E. M. M.D., Shanghai,


Hagar, C. R., Rev. M.D., Canton, Canton.
Hall, Osman F. M.D. Chungking, Chungking.
*Hall, W. L. M.D. Chungking, liman, Shansi, Tientsin.
Halverson, S. L.
Hare, H. M. M.D. Chentu, Chungking.
Harris, Lucy E. M.B., LOND. Chungking, Chungking.
*Hart, E. H. M.D. Wuhu, {Watertown, N. Y., U. S. A.
†Haslep, Marie, Miss M.D. Shanghai, Ningpo.
Hickin, H. M.B., C.M. Chinkiang, Hankow.
Hoag, L. H., Miss m.D. Chentu, Chungking.
Hodge, S. R., Rev. R.C.S., L.R.C.P. Chinkiang, Wenchow.
Hogg, Alfred M.B. Hankow.
Hopkins, N. S., Rev. L.R.C.P. & S., ED. Pakhui, Tientsin.
Horder, E. G. L.R.C.P. & S., ED. Pakhui, Pakhui.
Huntley, Geo. A. M.D. Hanyang, Hankow.
Hu King-eng. M.D. Foochow, Foochow.
Jellison, E. R. M.D. Ichowfu, Shanghai.
Johnson, C. F. M.D. Ichowfu, Tientsin.
Kahn, Idia, Miss M.D. Kiukiang.
Kellar, Frank A. M.D. Chalingcheo, Hunan.
Kelly, William M.D. Changteh, Hankow.
Kerr, J. C. M.D. Canton, Canton.
*Ketring, Mary, Miss M.D. Chungking, Chungking.
Kilborn, M. A., Mrs. O. L. M.D. Chentu, Chentu.
"" King, Geo. E. J. M.B., B.CH., ED. Chefoo, Chefoo.
"" L. H., Mrs. M.D. Tientsin.
Kinnear, H. N. M.D. Foochow, Foochow.
*Kühne, J. E. M.B., C.M., M.D. Tungkun, Hongkong.
†Leitch, M. D., Mrs. M.D. Wusih, Newchwang.
*Learmouth, B. L. L. M.B., C.M. Kirin, Chefoo.
Lewis, Chas. M.D. Chinanfu, Shanghai.
Lincoln, C. S. F. M.D. Shanghai, Hankow.
*Logan, O. T. M.D. Changtehfu, Peking.
Lowry, G. D. M.D. Peking, Peking.
†Ludlow, W. L. M.D. Wuchang, Swatow.
Lyall, A. M.B., C.M. Swatow, Swatow.
* Lyon, E. M., Miss M.D. Foochow, Foochow.
MacDonald, R. J., Rev. M.D., C.M. Fatshan, Canton.
Machle, E. C. M.D. Lienchow, Canton.
Macklin, D. M. M. Miss M.D. Nanking, Nanking.
Macklin, W. E. M.D.
Massey, Ruth, Miss M.B., CH.B., ED. Wuchang, Wuchang.
Masters, L. M., Miss M.D. Foochow, Foochow.
†Mathews, Percy M.D., LL.D. Shanghai, "
McAll, P. Lonsdale M.B., CH.B., ED. Hankow, Hankow.
McCandliss, H. M. M.D. Hoihow, Hoihow, Hainan.
McCartney, J. H. M.D. Chungking, Chungking.
McCure, Wm. M.D. Chuwang, Tientsin.
McFarlane, S. S. L.R.C.P. & S., ED. Hsiaochang, "
McMordie, Sara, Miss (Mrs. Kiers) M.B. Chinchow, Newchwang.
†Merrins, E. M. M.D. Wuchang, {Cartagena, Columbia, S. A.} Paotingfu, {Clifton Springs, N. Y.}
Murdock, V. C., Miss M.D. Amoy, Amoy.
Myers, Angie M., Miss M.D. Chinanfu, Chefoo.
Neal, Jas. B. M.D. Canton, Canton.
Niles, M. W., Miss M.D. Paotingfu, Tientsin.
*Noble, W. C. M.D. Tungkun, Canton.
Olpp, Gotlieb F. A. M.D. Chucheo, Canton.
Osgood, Elliott J. M.D. Amoy, Nanking.
Otte, J. A. M.D. Amoy, Amoy.
Park, W. H. M.D. Soochow, Soochow.
Parks, Edna B. M.D. Weihien, Weihien.
Parrott, A. G. M.R.C.S., L.R.C.P. Laohokeo, Hankow.
Parry, Herbert M.R.C.S., L.R.C.P. Kiating, Chungking.
*Patterson, B.C., Mrs. M.D. Suchien, Chefoo.
List of Members of the China Medical Missionary Association. 171

*Patterson, T. C. m.b.            Tsouping,  
Peake, E. C. m.b., CH.B., ED. Yocheo,     Hankow.  
Peck, A. P. m.d.                  Pangchwang, Tientsin. 
Pell, Arthur Davis m.b., C.M.       Hsiaochang, Tientsin. 
Polk, M. H., Miss m.d.            Soochow, Soochow. 
Porter, H. D., Rev. m.d.           Pangchwang, Tientsin. 
*Pray, S. R., Miss m.d.           Foochow, Brooklyn, N. Y. 
Pritchard, E. T. m.b., C.M.       Peking, 
*Reed, C. E. m.d.                  Kanghan, Canton. 
Reifsnyder, E., Miss m.d.          Shanghai, Shanghai. 
Riddle, Wm., Rev. m.d.             Wukingfu, Swatow. 
*Rigg, J. m.b., C.M.               Nangwa, Foochow. 
Scott, A. K., Mrs. m.d.            Swatow, Swatow. 
Scranton, W. B., Rev. m.d.         Seoul, Seoul, Korea. 
*Seymour, W. F. m.d.              Tengchowfu, Chefoo.  
Shoemaker, H. K. m.d.             Canton, Canton. 
†Shrubshall, W. W. L.R.C.P. & S., E. Tangsan, 
Sinclair, M. E., Miss M.D. (Mrs. Headland) M.D. Peking,  
*Skinner, J. E. m.d.              Kucheng, Foochow. 
*Skinner, S. L., Mrs. m.d.         Kucheng, Foochow. 
Smith, G. P. M.B., C.M.           Tientsin, Tientsin. 
Smith, J. F., Rev. m.d.            Hsinchen, 
Smyth, R. m.b., B.C.H.            Ningpo, Ningpo. 
Squibbs, Walter m.d.               Anhien, Chungking. 
*Stevenson, D. W. m.d.            Chentu, Richmond, Ind. 
Stewart, J. C. m.d.                Tientsin, Kiukiang. 
Stone, Mary, Miss m.d.             Kiukiang, Ichang. 
Stuart, Geo. A., Rev. m.d.         Nanking, Amoy. 
Stumof, C. Otto m.d.               Sioke, Canton, Canton. 
Swan, J. M. m.d.                   Shanghai, Foochow. 
†Swinney, E. F., Miss m.d.         Hinghua, Hankow. 
Taylor, B. von S. M. B.            Chenchowfu, Hongkong. 
„, F. H. M.D.                      Hongkong, Bangkok, Siam. 
Thomson, J. C., Rev. m.d.          Bangkook, Amoy. 
Toy, W. B. m.d.                    Huian, Hoihow, Hainan. 
Tribe, E. N., Miss m.d.            Hoihow, {Hightstown, N. J., U. S. A. 
Vanderburgh, E. D. m.d.            Chiningchow, Chingchowfu, Chefoo. 
Watson, J. R. M.B., M.R.C.S. Chingchowfu, Chefoo.
*Webster, Jas. S. M.D. Kweiyangfu, Hankow.
*Wenyon, C., Rev. M.D., M.CH. Fatshan.
Whitney, H. T. M.D. Foochow, Pagoda Anchorage.
Wills, Edward F. M.B., C.M. Kinshan, Hankow.
Wittenberg, H. A. H. M.D. Kiayincheo, Swatow.
Woodhull, K. C., Miss M.D. Foochow, Foochow.
•Woods, E., Jr. M.D. Tsingkiangpu, Tsingkiangpu.
   † Woolsey, F. M. M.D. Chungking.
*Wyckoff, L. J., Miss M.D. Huchow.
†Young, T. M. M.B., C.M. Moukden.

* At home on furlough.
† Present address unknown to Secretary.