Wounded Soldier being conveyed to Hospital.
NOTES OF RED CROSS HOSPITAL WORK IN NEWCHWANG.

By Dugald Christie.

Soon after the war between China and Japan began it became evident to Europeans, in various northern ports of China, that some steps should be taken to relieve the inevitable sufferings of the Chinese wounded. I can only speak from personal experience of what was done in Newchwang and in Moukden. In the latter city a large mission hospital was already in operation, but in Newchwang, which was much nearer to the scene of conflict, we had to make use of such premises as could be rented, native inns being the most suitable for our purpose. These houses were dark and dilapidated, with crevices in their mud walls through which wind and snow found a ready entrance. Indeed, their sanitary condition could not have been worse. Owing to the exigencies of war there were eight medical men in the port that winter, which was fortunate, as during December and January 236 and in February over 700 cases were admitted to the Red Cross Hospital. In all over a thousand wounded were treated. Among these were many cases of interest, some of which are recorded in the following notes. The success of the work is largely due to the efforts of Dr. Daly, the resident medical officer of Newchwang.

Brain.—Five cases were trephined for fracture of the skull, three of whom recovered. In one of these the bullet only grazed the surface of the bone, causing but slight injury to the external table, but soon after admission symptoms of compression developed, and on removing a piece of bone it was found that the inner table was fractured. There was a good deal of extravasation and splinters of the bone caused some laceration of brain structure. The patient made a good recovery.
In one of the fatal cases the patient was deeply comatose when admitted, and examination revealed fracture of the right parietal bone with extensive fissuring. On trephining a large clot was found beneath the dura mater and on its removal severe hæmorrhage took place from the anterior branch of the middle meningeal artery. More bone had to be removed before the bleeding points could be secured; both ends of the vessel were ligatured and antiseptic dressings were carefully applied, but the patient did not recover consciousness; he died about eight hours after the operation. In the fifth case the operation was quite satisfactory, but the patient ultimately died with symptoms of localised suppuration.

Wounds of the Face and Neck.—A good many were treated for wounds of these parts, some of whom made remarkable recoveries. In one case (Figs. 1 and 2) the bullet entered at the external angle of the right supra orbital arch, passed downwards, inwards and backwards, emerging half an inch behind the left angle of the lower jaw. It again entered a little behind the middle of the clavicle and passed out through the left posterior axillary fold. The right eye was completely destroyed, but otherwise the patient made a good recovery.

Another case (Figs. 3 and 4) had the wound of entrance over the right condyloid process of the inferior maxillary bone. The bullet passed in almost a direct line to the opposite side, emerging at a point about half an inch higher. The bone in both sides was splintered and the soft tissues were seriously damaged. Pieces of bone had to be removed and for a considerable time the patient was fed through a tube passed into the stomach. He ultimately recovered with good movement of the lower jaw.

In a third case (Fig. 5) the bullet entered over the right malar bone and, passing backwards, emerged through the mastoid portion of the temporal, one inch behind the right auricle. The larger blood vessels escaped and there was but little hæmorrhage. The bones were only slightly splintered and the wound healed rapidly.

Lungs.—Of thirty cases treated for penetrating wound of the lung four died. In the majority the ribs were not injured and the wounds, being clean, healed rapidly; but in all the fatal cases infective agents, such as pieces of wadded clothing, were carried by the bullet, causing inflammation to spread from the track of the wound and leading to septic suppuration in the lungs and pleure. In one case there was considerable effusion into the pleural cavity and the removal of a piece of rib gave free exit to a large quantity of thin serous pus mixed with extravasated blood. The following day the pleuritis assumed a septic form, accompanied by hectic fever, and the patient gradually sank.

There was only one instance (Fig. 6) of injury of both lungs. The wound of entrance was situated half an inch to the inside of the left nipple,
Fig. 1. Entrance Wound.

Fig. 2. Exit Wounds.
Fig. 3. Entrance Wound.
Fig. 4. Wound of Exit.
Case of penetrating Wound of Lung.
Notes of Red Cross Hospital Work in Newchwang.

and that of exit one inch above the right nipple. When admitted the patient was in a very weak condition, with severe haemoptysis and great difficulty in breathing. The lower end of the sternum was fractured and splinters from its posterior surface were driven into the lung tissue. These were all carefully removed and, although convalescence was slow, the patient made a good recovery.

**Abdomen.**—There were seven penetrating wounds of the abdomen, five of which proved fatal, from shock or cold, within a few hours of admission. This is not to be wondered at, for the temperature on the battle-field was ten degrees below zero. A case of wound of the colon recovered without operative interference. Several were treated for wounds of the abdominal wall, all of whom rapidly recovered.

**Upper Extremity.**—Wounds of this region were very numerous and, although many of them involved joints with fractures of bones, the mortality was not more than two per cent. Two died after excision of the shoulder joint for fracture of the neck of the humerus and splintering of the head of the scapula. In one case resection of the shaft of the humerus was performed for extensive fracture. Three and a half inches were removed and the ends of the bone were wired, but the patient, who was very weak, died ultimately of pneumonia. In another case three quarters of the shaft of the ulna was removed for severe shell-wound and, although the soft tissues were seriously lacerated, the wound healed rapidly, leaving a useful arm.

In only one case was amputation performed at the shoulder joint. The patient did not come under observation until several days after the injury, having in the meantime been treated after native methods, which rendered his condition much worse. The humerus was shattered at its upper third and violent phlegmonous inflammation affected the whole limb from the wrist to the shoulder. The patient would not submit to amputation till his condition was almost hopeless and he died the following day. The forearm had to be amputated in four cases, all of whom made satisfactory recoveries.

**Lower Extremity.**—The most serious wounds we had to deal with were those of the leg and thigh, involving the joints, and our difficulties were greatly increased by the reluctance of the Chinaman to part with a limb as long as any hope of life remained. Not a few of the patients, when the only means of saving life was laid before them, calmly but firmly decided to die. Even those whose lives were saved by amputation did not submit to the operation until symptoms of septic absorption were beginning to develop.

The knee was the articulation most frequently implicated and, in the great majority of cases, the wounds being infected suppuration had set in before admission. Conservative methods of treatment after septic changes had taken place in the knee joint we found very unsatisfactory. Efficient drainage by free incisions, the removal of all foreign bodies and loose frag-
ments of oone, and thorough antiseptic washing were carefully attended to, but the end in almost every instance was death, caused by absorption of the products of putrefaction.* Two cases, however, recovered without operative interference, with fairly movable joints.

Fourteen amputations were performed at the lower third or middle of the thigh. In all of these cases the knee joint was completely disorganized, with profuse septic discharge, and in most the pus had burrowed underneath the muscles of the thigh. Eight recovered. There were four cases of amputation below the knee and four at the ankle (Syme), all of whom did well.

**Missiles.**—The rifle which the Japanese used in Manchuria was a single-loader of 11 mm. calibre (45 in). The bullet is of soft lead, weighing 420 grs. Forty entire bullets and fragments of eight were extracted, nearly all of which carried pieces of clothing. Many of them were flattened and distorted by contact with bone.

In about fifty of the cases treated in Newchwang the wounds were caused by shrapnel balls, of which eight were recovered, one of them being split in two on striking the crest of the tibia. Three pieces of shells and a piece of cast iron were also extracted from various parts of the body. It was observed that shrapnel wounds were very seldom injected. One man received seven of them. The right femur and left tibia were fractured; the lower end of the left humerus was also broken, with fissures extending to the joint. A fourth bullet had passed through the left hand, and a fifth had scored the frontal bone. The other two were flesh wounds of the left leg, which healed rapidly. The patient, though a heavy opium-smoker, made a satisfactory recovery.

It is to be regretted that this campaign did not afford much opportunity for observing the character of the wounds produced by the modern weapon of small calibre. At the beginning of the war the Japanese had only a limited supply of their new Murata rifle, which was used by the army operating in Corea. In the Moukden mission hospital sixteen cases came under my observation and treatment, wounded by this small bullet at the battle of Ping-yang. An article comparing these wounds with those caused by the large bullet has already been published in the *British Medical Journal* of April 13th, 1895.

Later on, after the Japanese had taken possession of Newchwang, I visited their field hospital there, and saw a few cases wounded by the Mannlicher rifle, which was used by the Chinese. Its calibre is 8 mm. (315 in.); the bullet, which has a nickel-plated steel jacket, is 1.25 in. long, .322 in. in diameter, 244 grs. in weight, and the initial velocity is 2,034 feet per second.

In one case the bullet entered at the middle of the calf and, passing through the knee joint, emerged at the superior border of the patella. The

[Continuous antiseptic irrigation, in similar cases, has proved very successful in the London hospitals.—Ed.]
Illustrating Distortion of Bullet after penetrating Bone.
HISTORY OF THE MEDICAL MISSIONARY SOCIETY'S HOSPITAL.

(Continued.)

When Dr. Parker was appointed United States Minister to China the hospital was suspended for a short period until, in 1855, it was placed under the care of Dr. J. G. Kerr, of the Presbyterian Mission, who had arrived in Canton the previous year. One of Dr. Parker's assistants, Dr. Kwan To, was retained and continued to be associated with Dr Kerr for a number of years. Religious services were conducted every Monday by Dr. S. Wells Williams, until the outbreak of hostilities in 1856 closed the hospital.

During the war the building in San-tau-lau street, which had been given free of rent, was destroyed; in 1858 the hospital was re-opened by Dr. Kerr in a Chinese building in Tsang-sha street in the southern suburbs, where it remained during a period of eight years. At that time the Rev. C. F. Preston had charge of the religious services and retained his connexion with the hospital in this capacity until his death in 1877.

In the progress of time the accommodation of the hospital became too limited for the increasing number of patients, so in 1865 the present site was purchased and the next year the hospital was removed to the new location. The first building, erected in 1865, contained eight wards, two of which were temporarily occupied as physician's residence, and one
as chapel. As soon the funds admitted other buildings were erected but no
debt was ever contracted.

The hospital lot is 500 feet deep by 82 feet wide and there are now
seven principal buildings; these consist of residences for physicians, next to
which is the building for women, which contains also offices and a room for
the class. In the third building are reception, prescribing, drug and instru-
ment rooms and, on the second floor, a chapel, which will seat 500. The
fourth is a two-story building with eight large wards for male patients. The
fifth and sixth buildings are divided into eighteen smaller rooms for private
patients, who pay rent, or they are used for any class of patients which
require to be kept separate from the others. The seventh building is oc-
cupied by helpers and students.

The ground plan shows the arrangement of the buildings which are se-
parate from each other as far as space would allow.

In January, 1885, Mary W. Niles, M.D., was appointed physician to the
hospital in charge of the wards for women and of the practice in families,
which has become a very important part of the work since her connexion
with the hospital. In January, 1895, Dr. R. Bliss was appointed to be as-
associated with Dr. Niles in the women's department.

The Kam-li-fau hospital of the London Mission was an independent
hospital, located in the western suburbs, but was finally amalgamated with
the Medical Missionary Society's hospital. It was established by Dr. Benja-
min Hobson in 1848 and conducted with great success by him until the out-
break of the war in 1856. Much attention was given to evangelistic work,
and Leung A-fah, the first Chinese preacher, was in charge of the religious
services until his death.

After the war in 1858 the Kam-li-fau hospital was re-opened by Dr. Wang
Fung, who continued in charge until November, 1860. It was then in the hands
successively of Drs. Happer, Carmichael and Dods; in 1865 it was trans-
ferred to the Medical Missionary Society and came under charge of Dr. Kerr.
It was kept up until 1870, when the sale of the building rendered it necessary
to close it. Since that time the Society's hospital has been the only one in
Canton.

The translation of medical books into Chinese was begun by Dr. Hobson
and the first of his series of five books was published while he was in charge
of the Kam-li-fau hospital. These books were a clear and concise outline of
Western practice of medicine and surgery, were widely circulated and were
re-published in Japan; doubtless they were one of the first influences that
gave an impulse in that land in favour of western science and medicine.
These books are still in demand in China. The work of translation was con-
tinued by Dr. Kerr and the publication of the medical books translated under
the auspices of the Medical Missionary Society is an important part of the
work carried on in connexion with the hospital. Dr. Wan Tün-mo, an educated physician and English scholar, continues the translation of medical books under the auspices of the Society.

The training of medical students was an object that has been steadily kept in view. Dr. Parker had under his instruction two young men, one of whom, Dr. Kwan To, served for many years as medical assistant in the hospital and was the first practitioner of western medicine and surgery among his countrymen. He acquired a lucrative practice and, on one occasion, was sent for by the Viceroy of Sz-chuen to operate on his eyes for cataract.

When the hospital was re-opened after the war of 1856-1858 the number of students gradually increased and not less than 150 young men have been received as students. The class now consists of thirty members, seven of whom are young women, with the prospect that the number seeking a medical education will increase rapidly in the future.

Female students were received as early as 1879 and the schools for women, in connexion with the various missions, furnish students well prepared for medical studies.

During the absence of Dr. Kerr on several occasions the hospital has been in charge of other physicians.

In 1868 Dr. Wang Fung had charge for nine months.

In 1876-78 Dr. F. Carrow had charge, but in October 1878, left it to take private practice, so that until Dr. Kerr's return (January, 1879) it was practically closed.

In 1882-84 Rev. J. C. Thomson conducted the hospital and, during the disturbances of the French war, showed such courage and tact in meeting a mob that he was instrumental in saving the hospital and mission buildings from destruction.

Dr. J. M. Swan was appointed medical assistant in February 1888, and during 1893-94 was in charge of the male department. Dr. D. Beattie was appointed his substitute in 1894, but soon after Dr. Kerr's return sickness in his family required him to return home.

The evangelistic work has been regarded as the chief object for which the hospital was established. When first opened in 1835 public preaching had not been attempted in any chapel; missionary work was then restricted to conversation with private individuals, the instruction of servants and the distribution of the few books then prepared. During a period of two years before the war the residence of foreigners in Canton was under many restrictions, even Dr. Parker having to leave his hospital for a time in 1838. Block-cutters of Christian books had been arrested and the printing and distribution of books was suspended. After the war the hospital was reopened in 1842, and it is stated (see Newcomb's Cyclopaedia of Missions, p. 272) that there were such disturbances in Canton that trade as well as missionary work was
brought to a standstill. After the war, "on the return of missionaries to Canton (in 1842), a strong prejudice against foreign teachers was found to exist, but in the hospital there was an encouraging field of labor, where the word might be sometimes addressed to 100 souls."* This seems to have been the first public preaching and the statement that Dr. Parker opened China to the Gospel at the point of the lancet is literally true as far as public preaching is concerned.

The public services on prescribing and Sabbath days have been regularly kept up. Since the war of 1856 the Rev. C. F. Preston and the Rev. B. C. Henry, assisted by native helpers, have had charge of these services. Within the last two decades our medical helpers and many of those doing the common work of the hospital have been Christians.

In 1886 hospital schools were established for teaching attendants of patients and such patients as could leave the wards. These schools have been a very efficient aid in the instruction of patients and hundreds have committed to memory simple tracts or portions of Scripture, carrying home with them the essential truths of Christianity.

The hospital has, during the entire period of its existence, been supported by funds collected on the ground; it has never been a tax on the mission Board at home, except for the salaries of the physicians who were in charge. For a number of years, in the beginning, the funds were contributed by resident merchants of all nationalities. Soon the building owned by one of the wealthy hong merchants was given free of rent. After the hospital became better known contributions were given by Chinese officials and merchants. Patients make donations and the income from the rent of private rooms now forms quite an item in our assets. At the present time the larger part of the funds comes in one way or another from the Chinese.

* Newcomb's Cyclopædia, p. 272.

EXCISION OF THE HEAD OF THE HUMERUS FOR OLD DISLOCATION OF THE SHOULDER.

By H. W. Boone, M.D.,

Surgeon to St. Luke's Hospital, Shanghai, China.

19th June 1888.—Fong Ming-dah, male, 22, wheelbarrow-man, sustained a luxation of the shoulder, sub-coracoid, 40 days ago. The elbow is directed backward and away from the side. It is prominent beneath the coracoid and he has severe pain; cannot move his arm at all and is quite incapacitated from earning his living. A Dr. Schofield, from England, was visiting the hospital and he kindly assisted me. Chloroform was given and reduction
attempted by the method of Kocher; this failed traction with the knee in
the axilla was tried, but Dr. Schofield, a very powerful man, could not move
it in the least. I then tried extension with the heel in the axilla, and finally
extension of the limb; the scapula being pressed downward by an assistant.
I rotated the head of the bone again to break up any adhesions, and then
tried again. All efforts proved quite useless, and I was struck by the extreme
rigidity of the parts which would not yield to any effort. The patient was
sent to bed and allowed to remain there until the third of July, when my
colleagues, Dr. R. A. Jamieson and Dr. Duncan Reid, were invited to
examine the case with me. We gave the man chloroform and made prolonged
and repeated efforts to reduce the dislocation. We carefully and methodically
tried one method after another, but after a long trial found that we had not
moved the head of the bone in the least degree. It was the unanimous
opinion of all present that the neck of the bone must be grasped in a rent
in the capsule. The patient was sent to bed and kept quiet for a few days.

Jul 7th.—Drs. Jamieson and Reid assisting. Chloroform was given to
the man, and with the patient lying on his back and the shoulder raised on
a cushion I made an incision through the deltoid muscle to the capsule and
periosteum, drew aside the margins of the wound with retractors and opened
into the joint. There were firm adhesions, and the operation was more than
ordinarily difficult; the head of the bone remaining fixed, even when freed
from the ligaments and muscular insertions. The head of the bone was
thrust out of the wound and removed at the anatomical neck by a narrow
back saw passed behind it. There was now no difficulty in getting the bone
in place. A drainage tube was inserted, iodoform dressings applied and
the arm retained upon a triangular cushion. The wound was sutured with
fine catgut.

July 9th.—Slight stain on dressing, pink serum. Redressed. His re-
cover was uninterrupted; scarcely any rise of temperature.

July 17th.—Remove second dressing, wound healed, except a small track
of the drain tube.

July 23rd.—Remove third dressing, wound is entirely healed up. Passive
motion.

July 17th.—He now has free motion of the shoulder in every direction.
Can put his hand on his head. When this man was admitted just four weeks
ago he could not move his arm in the least, and he was suffering pain from
nerve pressure. He now earns his living, and has no difficulty whatsoever
with his arm. Some two or three months after this man had left the
hospital the admirable article by Sir J. Lister, giving his results in cases of
old irreducible dislocations of the shoulder, came to hand. I cannot find it
just now, but remember that he made a free incision in each case and, after
freeing the bone from its adhesions, returned it to the glenoid cavity without
excision of the head of the bone. Whenever this can be accomplished it
should be done, for it is good surgery to remove nothing, or, just as little as
possible in all surgical operations, unless the final result of the case will be
bettered by the removal of any portion which prevents the proper apposition
describes the case of a man, aged 48, who was suffering from an unreduced sub-
coracoid dislocation of the shoulder of eleven weeks' duration. Attempts to
reduce the dislocation failed; the head of the humerus was excised, the saw
traversed the anatomical neck. The patient so far gained the use of the limb
that he returned to his employment, that of a waiter at a large hotel. Mr.
Shield concludes his paper thus: "The operations designed and performed for
the relief of old dislocations would seem to fall under the following headings:—

1. Cutting down upon the bone and dividing those structures, muscular
or ligamentous, which prevent the return of the head of the bone to its
normal position.

2. Subcutaneous division of resistant structures.

3. Excision of the head of the bone.

Fracture may almost be placed out of consideration as a deliberate
method to be advised or practiced.

As regards the first of these methods, though doubtless it would be possi-
ble to restore the head of the bone to position by a sufficiently free use of the
knife, the operation would be an extensive one, not devoid of risk; and should
it succeed in design it is questionable whether the displacement would not
return, or a useful limb result. So far as subcutaneous division of resistant
structures is concerned many of the same objections apply. In these cases,
from various causes, the anatomical structures in the axilla may be altered in
position, and, indeed, may be incorporated by inflammation with the very
structures that need division.

Should firm bony ankylosis have ensued the operation of subcutaneous
section of the bone, devised by Adams, may prove advantageous.

The operation of excision of the head of the bone would thus be reserved
for those cases of old dislocation where moderate efforts at reduction failed in
accomplishing their object, and symptoms of pressure on the nerve trunks and
main vessels were present, or where great fixity and loss of movement existed."

The head of the humerus was removed by Fenger in a case of old luxation
with benefit to the patient; the previously-existing paralyis being relieved.

Knapp reviews reported cases of operative reduction of shoulder disloca-
tions and two of his own, and comes to the conclusion that, except in recent
cases, resection of the head of the humerus is to be preferred.

J. G. Morton operated upon a sub-coracoid dislocation 3½ months in a
man of twenty-four years. He made "a vertical incision through the deltoid
down to the head and found it so firmly attached in the abnormal posi-
Excision of the Head of the Humerus, etc.

...tion that it was not possible, without the greatest risk, to attempt to dislodge it. He then carried a chain saw around the bone at the anatomical neck and sectioned the shaft obliquely from below, upward, and then readily placed the divided end in the glenoid cavity." The wound healed promptly, and the prospect of having a useful limb was good.

Excisions for disease of the head of the humerus following reduction of an old luxation with recovery of excellent motion is reported by Bellamy.

Old irreducible dislocations of the shoulder. A. Pearce Gould (Med. Cir., February 22nd, 1892) showed a case of fourteen months' standing. An anterior incision was made, and, with much difficulty, due partly to filling up of glenoid cavity and partly to general shortening of parts round joint, he turned the head back into the socket. The man could perform all the usual movements of the shoulder, but the hand was still damaged, owing to long pressure on ulnar nerve.

W. W. Cheyne showed a case of four months' standing, in which he, like Gould, had to divide muscles like the coraco-brachialis and the pectoralis major freely. Result less satisfactory than in Gould's case, but the man could work as a French polisher.

Sir W. MacCormac (Sem. Med., 1893, p. 150). In a recent case MacCormac, failing to reduce the head, would excise it at once rather than wait for union, where there was fracture of humerus high up. Pollosson, of Lyons, referred to five cases of dislocation, one six months' old, the rest three to six weeks. He used Ollier's cut parallel to the pectoro-deltoid interval. In the first three cases he reduced easily and obtained very good results; in the 4th and 5th cases the retracted soft parts and turned in capsule opposed reduction. Pollosson would thus treat all cases irreducible by traction, and failing to reduce by operation would resect the head.

Frank H. Hamilton in his work on Fractures and Dislocations, p. 657, says: "In a case in which the head of the humerus, long dislocated, pressed upon the brachial plexus, causing great suffering, Dr. Edward Warren, of Baltimore, practised resection in 1869, giving immediate and permanent relief."

In a system of surgery by F. Treves, A. Marmaduke Shield, F.R.C.S., says, speaking of the treatment of old dislocations of the shoulder, p. 979, vol. 1: "The necessary force that is used in some of these cases" (attempts at reduction) "may result in the following lamentable complications: 1. Rupture of the vessels, diffuse axillary aneurysm. 2. Extensive effusion of blood from laceration of the tissues, with subsequent diffuse suppuration. 3. Laceration of the skin, with erysipelasous inflammation. 4. Injury of the nerves. 5. Fractures of the shaft of the humerus, or of the ribs. 6. In old and feeble persons, death from shock, or cerebral symptoms, suggestive of thrombosis or embolism.
Lastly, after prolonged and exhaustive efforts the surgeon may quite fail in his endeavor to restore the head of the bone to its place, though he has exposed his patient to one or more of the above dangers, and this, in my experience, is the common result of attempts to reduce old dislocations of the shoulder.

The resources of modern asceptic surgery have rendered open arthro-tomy very advantageous in some of these cases. The short muscles and all resistant structures are freely divided, the vessels and nerves peeled from the capsule with a rugin and the head of the bone restored to its place. The results of this proceeding have been excellent. The operation may be most difficult, and it is astonishing how the head of the humerus remains fixed, even when the ligaments and short muscles are extensively divided. No surgeon should lightly undertake it. Excision of the head of the bone is easier, attended with less operative interference, and gives admirable results. Great care should be taken not to divide the circumflex artery too close to the main trunk, or it may be impossible to arrest the bleeding without ligature of the axillary vessel or amputation. The special indication for open operations on old dislocations of the shoulder is nerve pressure from the head of the bone with atrophy and weakness of the limb. Here great care must be exercised to discriminate between the symptom of nerve pressure and nerve rupture."

Stimson, an American Text-book of Surgery, p. 428, says: "If the dislocation cannot be reduced by the usual methods after freely breaking the adhesions by forcible rotation and traction the surgeon has his choice between reduction by open arthro-tomy and excision of the head of the humerus. The former has furnished a few good results, but it has more often proved impossible to make reduction or the usefulness of the limb has not been increased. Excision of the head through an anterior incision or through one in the axilla relieves pressure and gives a movable joint; if the division of the bone is made below the tuberosities active rotation is lost."

The above quotations are sufficient to show that if a dislocation of the shoulder cannot be reduced by a well-planned effort the surgeon is fully justified in making his choice between reduction by open arthro-tomy and excision of the head of the humerus. Reduction by open arthro-tomy may be most difficult; sometimes it is not possible. Excision of the head of the bone is easier, is attended with less operative interference, and it gives admirable results. The cautions given by Mr. Shield should be borne in mind, and it is a good rule to remove only the head of the bone and then see if reduction cannot be effected, for if it is needed another slice of the bone can be taken off. This is better than making the first section below the tuberosities, for in that case active rotation is lost. The accompanying wood cuts, taken from the photographs of the case, will serve to illustrate the results of the operation.
EPIDEMIC CEREBRO-SPINAL MENINGITIS.

Early in March an outbreak of cerebro-spinal fever occurred in this city in a district near the T'sao-hu-men. Four cases were seen, but altogether I was told there were over a dozen cases in the immediate neighbourhood. The following are brief notes of the cases I attended:—

I. T'sen, age 1½ years.—This illness began with fever. An eruption appeared on his body, which the child's parents told me was measles. On the 4th of March, when I was first called to see the child, I found him lying in his cot with his head thrown back, eyes fixed and staring. Convulsions came on on the 6th, and he died on the 7th.

II. Lung, age 6 months.—Illness commenced on the 1st of March with fever, twitching of muscles and later on convulsions. I saw this little patient on the 8th of March. He was lying in the characteristic attitude with the head thrown back. There was still some twitching of the facial muscles, but he seemed to be improving. This child recovered.

III. Lung, age 5 years.—Illness began with convulsions on the 4th of March. Saw her on the 8th. Characteristic attitude and convulsions. Died the same evening.

IV. Lung, age 8 years.—Illness began on the 1st of March (same day as case II) with fever, twitching of the muscles and oscillation of the eyes, but no marked convulsions. Characteristic attitude. This child recovered.

Cases II, III and IV all occurred in one family.

Wuchang.

A. M. Mackay.*

* [Just as we go to press comes the news of the death of Dr. Mackay from cholera. This is a sad and terrible loss to the work in Wuchang. We hope to publish a short account of his work in our next issue.—Ed.]

THE EDUCATION AND EMPLOYMENT OF CHINESE MEDICAL EVANGELISTS BY THE MISSION.

By H. T. Whitney, Foochow.

The Foochow Missionary Union appointed a committee to prepare a report on the above subject. The report was accepted, and the writer was asked to prepare a paper on the same subject for a subsequent meeting; and subsequently he was requested to send it to our journal for publication.

Hence what follows contains the substance of the committee's report and of the paper afterwards written; but I will first give the opinions of two other members of the committee according to the original arrangement.
Dr. Kate C. Woodhall stated, in effect, that those whom we train would be able to make a living by setting up in practice for themselves and would thus be centres of light and Christian influence, in addition to the good they would do by their medical work; that the best of those trained would consider this the most desirable way of working; that they might need to be helped somewhat at first and afterwards be looked after and encouraged; that a limited number would find places as assistants in the hospitals and aid in training other students; and that others, perhaps, could be used in touring.

Dr. B. Von Someren Taylor's opinion was that, by means of such men, the church became provided with useful and well trained men, who would have many opportunities for reaching their fellow-countrymen, not merely by words but also by actions; that such opportunities would be more than a catechist would have and also be of a more telling nature. He knew no objections to such a policy that might not be equally urged against a catechist. As to safe-guarding such a policy he submitted the "Regulations" passed by the Foochow Sub-conference of the Church Missionary Society respecting those they receive, educate and employ. These "Regulations" are as follows:

1. Application to become a student must be made through the Foochow Sub-conference.

2. Students must be fitted for mission work and give proof of a good education.

3. Minimum age must be twenty in Chinese.

4. Before entering each student must enter into a bond, with satisfactory security of $100.00, to remain five years, which may be terminated by mutual consent. In case of breach of the bond the money to be recovered according to Chinese law, if it cannot otherwise be obtained.

5. That the students receive no salary during the five years, but that each student be allowed wood and oil free.

6. That two scholarships, of $8.00 and $4.00 respectively, be given, as the result of examination, either to the first and second students of one class, or to the two first students of two classes, i.e., the student of highest standing in each of two classes.

7. That the salary of a trained certificated student, whether married or unmarried, be $8.00 per month.

8. That an increase of $1.00 per month be given at the end of every five years up to $10.00 per month, i.e., $8.00 per month for the first five years, $9.00 per month for the second five years and $10.00 per month ever after.

9. Students while under training to remain unmarried, unless with express permission of Conference.
I regard these as a very good set of rules, though for wider application I would suggest a modification of Nos. 5 and 7, i.e., as many of our best students are poor a graded allowance might be given to such, besides light and fuel, of $1.00 per month the first year up to $5.00 per month the fifth year.

Then, on leaving the hospital six or seven dollars per month would be a more equitable allowance for the first year and a gradual increase, according to location and other circumstances; more than that would be out of proportion to what is ordinarily allowed our preachers, and would tend to excite envy and ill-feeling. Moreover, their actual needs would not require a large salary at first.

I think there is use for a limited number of this class of workers, and that the policy of each mission should be such as to allow of their employment wherever there is a proper opening and the right kind of persons can be found; it seems wise to me, also, that such help should not be admitted by any mission except on some such conditions as above. But the policy that looks toward the use of such an agency requires a preparation anticipating such employment, or the proper help cannot be had when wanted. It is to be conceded, also, that the right kind of material for medical evangelists is hard to be found, as much so as for good preachers.

Second grade Chinese can be used in hospitals and dispensaries when they are under the care and supervision of a medical missionary, but there are comparatively few that a mission could employ and trust in the position of medical evangelists with all that that implies.

The principal objection to this policy has been the feeling that the Chinese could not be trusted in financial matters, a complaint that is made of Christians from heathenism in all heathen lands.

But a mission ought to be able to safeguard itself so that it could use to advantage such a valuable agency in the prosecution of its work.

One of the principal difficulties met with in training medical students is the temptation to dispose of drugs privately and exact private fees in order to increase their income. But this temptation arises, largely, from not having sufficient means of support while prosecuting their studies. So that a mission in educating such helpers should see that they have a sufficient support while studying and a reasonable salary when employed, in order to remove, as far as possible, the temptation to dishonesty.

As a further safeguard the bond and $100.00 penalty should be continued, only a moderate outfit allowed and monthly accounts taken. They should not be stationed where they cannot be seen at least once a month by the medical missionary and in the interval be under the oversight of a missionary or reliable helper. When such help is employed by a mission it should be definitely understood, by both parties, that any trace of
dishonesty at any time would forfeit their position and require the payment of the penalty. This would act as a strong restraint upon a Chinese. It is true if any one was disposed to be dishonest there would be some opportunity with drugs, instruments and fees, but it would involve a good deal of danger; the fear also of being discovered, disgraced, losing a good position and of having to pay a money penalty, would help them to resist a pretty strong temptation to dishonesty.

Then, too, the temptations would be very much lessened from the fact that they would need only a small stock of drugs, very few instruments, and that no opium or morphine would be allowed, except a small quantity in combination with other drugs for treatment of special diseases.

It is true the mission would have to take some risks, as it has to in the employment of other agencies. The preachers, teachers and colporteurs have various opportunities for practising dishonesty, and no doubt some of them avail themselves of them at times. But still we trust them, because we believe that in the main they render fair service and are pretty honest, judged by the usual standard. Moreover, to refuse to employ native agents, because of the liability of a dishonest few, would lead to the abandonment of a large part of mission work. Native medical help, particularly in China, can be made a most valuable auxiliary to mission work, and it is, therefore, our duty to make the best possible use of it.

Whether this can be best accomplished through hospital assistants, and aiding Christian Chinese in practice for themselves, or by the mission educating and employing them as special agents, is a question which each mission ought to candidly consider and settle for itself.

P. S. The Church Missionary Society in Foochow have adopted this policy now for several years and, as far as I know, is quite well pleased with the results. The other two missions are a little timid, and are holding off, but I hope the time is not distant when they will favour the policy at least and utilize this valuable agency to the greatest possible extent.

Pagoda Anchorage.
The general principle involved in Dr. Kerr's suggestion, that the answers to the questions issued by the Opium Committee should be postponed for some years, is a good one and one to which we heartily subscribe. The question as to how long a time should elapse before those answers are called in is another matter, and involves so many considerations that the Committee could hardly decide off hand as to the best course to take. We invite the Association to express its opinion on the subject in the columns of this journal, so that the members of the Committee may have the general feeling of the Society before them ere they take further action. For our own part we feel that there is no need for hurry in the matter. The general public have, for the present, put the opium question aside and accepted the Report of the Royal Commission as final. That it is not, and cannot be so, we firmly believe; but it seems to us that the wisest course, for the present, is for us to be preparing for the further opening of the question which is bound to come in the future. Meantime the various anti-opium societies at home will keep the matter before the general public, and much good may be done by examining the details of the Report in some such manner as the Rev. A. Foster has done in the very able and valuable paper which we published in our last issue. There are many facts and statistics about the opium habit which only time and painstaking observation can supply: we medical missionaries are the ones (in many cases the only ones) who can best supply this information as far as China is concerned, and although our testimony is sure to be sneered at and discounted in certain quarters, just because we are medical missionaries, yet truth must and will prevail in the end. Be it ours in this matter, with untiring perseverance, through ill-report and opposition, to seek and boldly bear testimony to that truth!
In the July number of Medical Missions at Home and Abroad, just to hand, is published an article which merits more than a passing notice. It is entitled "Malarial Continued Fever," and we are told it is a chapter from a booklet published by Dr. A. Sims, of Leopoldville, who "is probably the most experienced living authority on the fevers of the Congo." Though we do not live on the Congo we live in a highly malarious country, and everything bearing on the question of the diagnosis and treatment of malarial fever is of the greatest interest to us. We must confess to a feeling of great disappointment on reading this article, not unmixed with something more than a doubt as to the nature of the fever dealt with. We are told that "the French physicians describe it as typhoid fever without diarrhea spots," and that "it is eminently the fever of the newly-arrived and the unacclimatized." We should not be surprised if, after all, the French physicians be nearer the truth than Dr. Sims.

We note: "It lasts twenty-five days in typical cases;" it is liable to relapse, but "never seems to recur." "Baths, antipyrin, antifebrin and quinine administered in any way have no effect on it." "The evening temperature is always higher than the morning one," and there is "a rising temperature always higher than the day before." Now, although malarial fever does frequently simulate typhoid fever very closely, we venture to affirm that the statements we have quoted, taken together, do not prima facie give a clinical picture of malarial continued fever, and in the absence of any statement as to the microscopical examination of the blood we must decline to accept it as such. The time is past when we can write thus of malarial continued fever: the history of the past has taught us how many are the pit falls awaiting the clinical investigator of malarial fever. Knowing, as we do now, from the researches of Golgi, Marchiafava, Laveran, Bignami and many others, with some approach to completeness, the life history of the malarial parasite it is, in our opinion, Major General Laurie notwithstanding, highly dangerous to fill the minds of young medical men going to the Congo, or elsewhere, with the teaching that the above picture is that of a malarial continued fever. We do not say that the above picture, though certainly an incomplete and scientifically inaccurate picture, might not be that of a pernicious malarial fever, for it might; it is also true that some cases of pernicious fever may result in death, or persistent relapses, notwithstanding the abundant subcutaneous injection of quinine. But this only occurs occasionally, and it
would not be true to say of pernicious malarial fevers, as a class, as Dr. Sims does of this Congo fever, that "quinine administered in any way has no effect" on them. It is not in accord with clinical experience checked by microscopical research, in other parts of the world, that a malarial continued fever "never seems to recur;" the very opposite is the truth, especially in the fevers due to the second group of parasites (including the pigmented quotidian parasite, the unpigmented parasite and the malignant tertian parasite) which all form crescents, for the crescents are absolutely proof against the action of quinine, and in all probability (though this is not absolutely established) develop spores, either directly from themselves or from the spherical bodies of their series. We have drawn attention to this article with a double purpose: first to point out the absolute necessity of a careful microscopical examination of the blood before pronouncing an assemblage of such equivocal symptoms as the above to be due to malaria; and, secondly, to urge upon our members the positive duty devolving upon them to contribute their mite to our increasing knowledge of these protean fevers. Now that the view is generally accepted "that different types of fever require different hæmatazoa," as against Laveran's view that they are all due to "a very polymorphous but single organism," a wide field of investigation is opened out; further, there are many questions related to the crescentic bodies which need elucidation, especially their relation to the well-known clinical fact that an attack of ague or malarial fever may follow a surgical operation without any obvious fresh infection having taken place (see Paget's Clinical Lectures). We have no doubt that many of our readers are quite familiar with the most recent researches on this subject, and we trust that we shall all do our best to confirm, correct, or extend, as far as lies in our power, what is already known upon this great subject. How much can be done with even limited apparatus Laveran's example proclaims, but as we are not all a Laveran a good microscope, with a sub-stage, an Abbe's condenser and a \( \frac{1}{4} \) in. oil immersion, should be part of the equipment of every mission hospital.

We wish to call especial notice to the announcement of proposed changes in the Constitution and By-Laws of the Society made in this No. of the Journal. According to rule notice of motion is given now; the motions, themselves, will be submitted for voting on in the December No. Anybody can move an amendment in writing to any one of the amendments now proposed, which amendment will be submitted to the
Society for voting on in the December No. Time will be saved if members will forward any amendments they may have to make direct to the Editor, not later than November 15. As this is a very important matter we trust that everybody will carefully study and, in due time, vote on the proposed changes.
CALCIUM CHLORIDE.

The value of chloride of calcium as a hemostatic forms the subject of a recent communication by Prof. Saundby to the Birmingham Medical Review. He records one case of severe bleeding from the rectum, probably due to piles, in which the drug, administered in small doses every four hours, caused the bleeding to stop in five days.

In another case of Purpura Hæmorrhagica, where there was bleeding from the gums and slight Hæmaturia, in which ergot, gallic acid and acid infusion of roses had been used in vain, small doses of the calcium chloride checked the bleeding in five days.

There is a very important point respecting the dose of this drug. When too large a dose is given the coagulability of the blood is diminished instead of increased, so that the best results may be looked for from comparatively small doses. In the author's cases the drug was administered in the form of the liquor calcii chloridi of the new British Pharmacopoeia, which is of the strength of 1 to 5, and the dose employed never exceeded 30 minims, or 6 grains, though in the case of purpura this quantity was given every two hours during the day for some days.

THE COMPARATIVE VALUES OF TRIONAL CHLORALOSE AND SOMNAL.

(La Presse Médicale, March 23rd, 1895, Paris.)—In patients not the subject of psychical trouble 1 to 2 grammes (in weakly women 1 gramme) produces a dreamless sleep, but has the same disadvantages on administration and awakening as sulphonol; over that drug it has one great advantage, that its use can be continued for a year without producing circulatory, respiratory, or digestive troubles. It acts most beneficially in the insomnia, with restlessness, of chronic mania and in alcoholic delirium, in which large doses may be given with good effect; but its depressing action is harmful in melancholia and especially cerebral neurasthenia in which it increases the depression. It should be prescribed at intervals of two days, to avoid cumulative action. Chloralose has one great disadvantage, that it produces symptoms of intoxication, shown by an increased reflex excitability of the cord and even convulsions, especially if the dose, which is uncertain for the individual, exceed 60 centigrammes and less in the case of debilitated, hysterical or alcoholic subjects. The convulsions rapidly disappear after awakening, without any ulterior effect. The investigations were conducted chiefly among the insane as a hypnotic with beneficial results. Somnal is most beneficial in procuring sleep in acute melancholia; in other subjects it usually produces first of all slight intoxication, then sleep with pleasant dreams. After doses up to 3 grammes sleep, with interruptions, comes on in about half an hour and after 5 grammes profound sleep. On awakening there are no disagreeable after-effects; this is its great advantage over other hypnotics. It has none of the motor troubles of chloralose. It is contra-indicated in dyspepsia and a tendency to diarrhoea. In their relative actions trional acts more slowly than chloralose, the after-effect is more prolonged and awakening is painful; chloralose before producing sleep induces an intoxication, but the awakening is fresh and agreeable. The intoxication of chloralose is without danger, which is not the case in that rare occurrence with trional when se-
vere symptoms, which are not without danger, appear; trional, however, has the advantage of being more uniform in its action, and its minimum useful dose is more easily found. Fatal results have been recorded after the administration of from 20 to 25 centigrammes of chloralose, although over sixty have been given without serious symptoms being produced. Marie maintains that with chloralose the best results are obtained by beginning with 10 centigrammes, gradually increasing the dose to fifteen or twenty.

STERILE PUS IN ABSCESS OF THE LIVER.

(La Stérilité dans le pus des abécès du foie.)—L. Longuet (La Presse Médicale, Mar. 16th, 1895.)—A most interesting case is here recorded of a patient, aged forty-one, who suffered from a slowly developed abscess of the liver, which recurred twice after it had been first opened and needed three laparotomies for its cure. On the last occasion 41.2 litres of pus were evacuated of a somewhat thick consistency and of a chocolate colour, mixed with yellowish-white curds. The cavity, which was not limited by any definite pyogenic membrane, was washed out and drained with an iodoform gauze tampon. A perfect recovery followed the last operation in the course of six or eight weeks. Several points of interest are commented on, the most important being as follows:—the abscess arose without any assignable cause; there was no history of diarrhoea, dysentery, piles, or traumatism. The condition relapsed twice in spite of apparently successful operations, a most unusual occurrence in hepatic suppuration. The volume of the abscess was very great. Dutronleau and Rendu estimate the size of a large hepatic abscess as containing 400 or 500 grammes of pus. There are not many cases on record in which a larger amount of pus was found than in the above. Lastly, the pus was absolutely sterile, no organisms being found on microscopic examination and no growth taking place on test tube cultivations.

The sterility of the pus in certain abscesses of the liver is now well recognised. It was first pointed out by Bokai in 1881 and since that time M. Longuet has collected thirty-eight observations of a similar nature. Such is more likely to occur in those abscesses which arise spontaneously than in those secondary to ulceration of the bowel. The absence of organisms is an important element from the standpoint of prognosis, since it suggests the possibility of rupture of the abscess into the peritoneal cavity without fatal results; indeed, cases have occurred where it has been sufficient merely to wash out the pus in order to ensure a cure. The explanation of these facts is then discussed. One suggestion that has been made is that the organisms have been killed by the action of the bile. This, however, is a mistake, since it has since been shown that the bile is an excellent medium for the cultivation of certain forms of bacteria. Again, it has been supposed that hepatic suppuration is due to germs which cannot be demonstrated by any of the ordinary methods of examination; the existence of such organisms is, however, entirely hypothetical. Others have thought that the active elements consisted of anaerob or other low forms of life connected with the primary dysenteric symptoms. But by far the most likely theory is that the sterility is developed secondarily by the gradual disappearance of the microbes, owing to some chemical action of the liver cells, of which we understand nothing at present. This explains in measure the observations that have been made in which staphylococci were discovered microscopically; but the results of cultivation experiments were entirely negative, the organisms, though present, apparently not retaining sufficient vitality to develop in nutrient media. This, too, agrees with
the fact that in all but one of the cases in which sterile pus was found in an hepatic abscess the onset of the symptoms was gradual and not acute; even in this exception there is no knowing when the suppuration actually commenced. In conclusion, it is pointed out that, although so many of these abscesses are sterile, the surgeon must not presume to neglect any antiseptic precaution, since cases are on record in which bad results have followed operative interference, even in these favourable conditions.

NASAL TABLOIDS.

Seiler's Formula (Messrs. Burroughs and Wellcome).—Many gurgles and spray solutions, if kept any time (and frequently they are only required occasionally), are apt to decompose from the formation of fungi in them; they are bulky; and as they should be used warm calculation has to be made for dilution with warm water before prescribing them. All these objections are overcome by using these tabloids, which are alkaline, cleansing and antiseptic without being irritating. Dissolved in a wineglass of warm water a solution can be prepared instantly which is most useful in nasal or pharyngeal catarrh, and which might, with advantage, be employed systematically as a mouth-wash or nose-lotion in all acute or zymotic diseases. They contain no cocaine, and so cannot be abused by patients.

THE PROPER WAY TO STERILISE MILK.

There has been so much recent discussion on the subject of milk as a circulator of disease that the following directions will be of interest:—

The milk to be sterilised for the use of children should be placed in a clean bottle, which is put inside any convenient metal vessel into which cold water should be poured until it reaches the level of the milk in the bottle. The mouth of the bottle should be closed with a plug of clean white cotton wool. It will be found more convenient in practice to raise the bottle containing the milk about half an inch from the bottom of the outer vessel by any convenient means, as this facilitates the circulation of the hot water round the bottle. The outer vessel should then be placed on a stove and slowly heated until the temperature of the water reaches the boiling point. The vessel should then be taken from the fire and covered over closely with a piece of woollen cloth. It should remain covered for half an hour, at the expiration of which time the bottle should be taken out and put in a cool place.

HOW TO PREPARE MALTED MILK.

The following method is recommended by the editor of Modern Medicine:—To a pint of milk add one tablespoonful of malt. The milk may be heated to a temperature of 60°. After that it should be brought to a boiling-point and boiled for twenty or thirty minutes. This will check the further action of the malt. Milk thus treated does not form large, hard, curds in the stomach, and agrees perfectly with many persons who cannot digest milk in its ordinary form. This method of peptonising milk is much preferable to the old way, in which various preparations of pancreatin were employed; these animal substances not unfrequently gave to milk a very unpleasant flavour and odour and sometimes imparted to it poisonous substances.

IN CHOLERA INFANTUM.

During the first twenty-four to forty-eight hours, no food should be allowed. Give the child all the hot water it will take, preferably from a nursing-bottle. Copious enemas of hot water
containing sulphite of soda or some other safe antiseptic, should be slowly administered. In severe cases, especially where there is much vomiting, stomach washing by means of a Nélaton’s catheter will be found valuable. At the beginning of treatment an aperient in the form of calomel, rhusbarb, or castor oil is almost universally employed. Opiates should never be used until after thorough evacuation and cleansing of the bowels, then only with extreme caution. If there is much fever tepid spongebaths will reduce the temperature and relieve the thirst.

In ordinary cases of infantile diarrhea, due to indigestion and bad hygiene, a proper observance of general rules will usually be sufficient to effect a cure. Some cases, however, may require the aid of medicines. Use such remedies as promote digestion and destroy fermentations and putrefactions; the diarrhea will then take care of itself. For the first purpose pepsin combined with muriatic acid stands, in my opinion, pre-eminently at the head of the list. Many physicians fail to get any benefit from pepsin, because their doses are too small; many more fail, because they ignore the physiological maxim that pepsin is inert except in the presence of an acid.

Nux vomica and small doses of arsenic are valuable adjuncts, since they promote the secretion of gastric juice and serve as excellent nerve and muscular tonics. The following is a reliable mixture which I have often used and I can conscientiously say it has never yet disappointed me.

[B. Pepsin, 2 dr.]  
Bismuth Subnit. ii.-iv. dr.  
Liq. Potassii Arsenit. m. xv.-xx.  
Tr. Nucis Vom. m. xxx.-xl.  
Acidi Muriatici Dil. m. xxx.-xl.  
Aqua Cinnamomi, q. s. ad. oz. iv.

"M. Sig.: Teaspoonful three or four times a day after feeding for child six to twelve months old."—Dr. N. J. Phenix, Medical Record, 29th June, 1895.

**The Technique of the Buried Tendon Suture.**

**By Henry O. Marcy, M.D., Boston.**

The constant receipt of letters from all parts of the country, containing inquiries concerning the method for the safe use of the buried animal suture, prompts the writing of this brief contribution. At the risk of seeming dogmatism I venture to assert that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon sutures and hermetically sealed with iodoform collodion.

To accomplish this the surgeon must be master of the technique of aseptic surgery. Without it the buried animal suture should never be used. Under aseptic conditions this suture may be safely applied, with the assurance that the collodion seal is a guarantee of subsequent non-infection. Other suture material may be employed—as, for example, silk, silkworm gut, silver wire, etc.—with the certitude it is non-infective when properly applied and that it will maintain the structures in coaptation for an indefinite period.

I need, however, only refer to the general consensus of opinion that these materials are objectionable, because of their non-absorbability, that too often such sutures become a source of subsequent irritation and discomfort and that not seldom they are eliminated as foreign bodies. To avoid these results the animal suture has received wide adoption. This was found ready at hand, seemingly well adapted to the purpose, in the catgut of commerce. Smooth, even, strong, in varying sizes, what could be more satisfactory? It was soon discovered, however, that it was difficult of sterilization, and, as usually prepared, did not remain sufficiently long intact in the structures. Hence has arisen a great variety of methods of preparation. The defect, however, is inherent in the structure itself.
It must be remembered that catgut is the connective-tissue sheath of the small intestine of the sheep. In order to separate it from the other intestinal coats the intestine must be subjected for a considerable period to the decomposing processes of putrefaction. This is accomplished by the bacterial growths which develope in its maceration, which attack the connective-tissue sheath last as the most resistant. When, this process being held in abeyance and the fibrous coat of the intestine has been cleansed it is found to consist of a thin layer of connective-tissue bundles which interlace obliquely in order to permit the physiological foreshortening and expansion of the intestine. The cement substance which holds the cells together has been more or less injured by the process of maceration and the entire structure is everywhere replete with bacterial growths.

Longitudinal division leaves flat bands of this tissue, which are twisted into strings of varying thickness, the catgut of commerce. When dry this is very strong and tolerably inelastic; but when wet, as for example when buried in the tissues of the body, it speedily becomes a soft, flattened, band of elastic structure, a condition which easily explains the unsatisfactory use of catgut in surgery, almost regardless of the processes of preparation to which it has been subjected.

In the tendons of animals the connective-tissue cells are disposed in an entirely different manner and for quite another physiological purpose in the animal economy. Here the fibrils are placed in parallel bundles, held together by the cement substance for almost the sole purpose of strength. When they are of any considerable size a few lateral fibres are interspersed for the purpose of holding the bundles together in a single mass. It is on this account that a tendon is weakened by subdivision and, when it is too minutely divided, it may become worthless for the purposes of strength because of the fraying out of these lateral fibres. Tendons subjected to maceration, like catgut, become speedily damaged, because of the softening of the cement substance which holds together the connective-tissue cells and, under these conditions, like catgut, the tendon is easily ruined.

Carefully selected tendons are to be preferred for buried sutures, since primarily their anatomical construction makes them stronger, more compact, and, as a consequence, more resistant to the softening processes which must ensue when buried in the living structures.

Secondly, when properly preserved they have never been subjected to bacterial decomposition and, hence, they can be sterilized without detriment to their ultimate elements. Such tendons serve a very good purpose as sutures when taken directly from the freshly killed animal. This, however, is very rarely convenient and therefore some process of preservation must be resorted to. If they are quickly sun-dried and kept dry they can be preserved for a long period, since bacteria cannot develop without moisture. This has been the custom indefinitely among the Indians in the preservation of their tendon suture material, which has been the thread of the savage since the beginning of history.

Although many surgeons use them preserved in a dry state, soaking them when ready for application until supply in some antiseptic, the sutures, even if aseptic, soften too quickly in the tissues.

Time does not permit a review of the various processes which have been recommended for the preservation and preparation of the animal suture. Perhaps the more common method has been to preserve it in alcohol alone or combined with other substances. When subjected to dry heat, to boiling repeatedly in alcohol, or under pressure, the connective-tissue structures are rendered sterile, but they are seriously damaged in their inherent composition, both in the connective-tissue cells and in the ce-
ment substance which holds them together.

Profiting by the experience of the ages in the manufacturing of skins into leather, astringents in combination with oils have been experimented with and in many ways most satisfactorily. This is largely the advantage obtained in the use of chromic acid, which, by a kind of hardening process, tans the tendon, that is, fixes the cement substance holding the cells in more permanent apposition and renders it far more resistant to the macerating effects of fluids. Hence chromicized catgut or tendon undergoes change much more slowly when buried in the living tissues.

The difference in structure of the two substances already referred to is easily shown by the simple immersion of catgut and tendon, similarly prepared, for half an hour in a warm fluid as, for example, in a 1 to 1,000 solution of bichloride of mercury. The catgut becomes swollen, slippery, can be threaded with difficulty and, when tied, the knot holds very imperfectly. On the contrary, the tendon is supple, firm, inelastic, does not kink, and is manipulated with an ease and satisfaction unknown to one who has used only silk or catgut. When tendon has been chromicized it is best preserved in a sterilized oily fluid. Experience has shown that by far the best preserving fluid is linseed oil sterilized by heat, to which carbolic acid has been added. Tendon improves with age, so much so indeed that I rarely use it until it has been thus kept in the oil from three to six months.

A method far too common has been to preserve chromicized catgut and tendon in absolute alcohol, boiled under pressure. There is no question but that such material is absolutely sterile, but the important factor has been singularly overlooked that by this process the chromic acid is dissolved out of the tendon, thereby leaving it really less valuable than if chromic acid had not been used.

There remains the vital question to be answered, How may the surgeon be assured that the tendon suture in itself is not a source of infection? Primarily, that it has been taken from a freshly killed animal, that the said tendon has been quickly sun-dried and kept dry until ready for preparation. This consists, first, in soaking the tendon in a solution of 1 to 1,000 bichloride of mercury until supple. Then, carefully separate each tendon individually and dry separately between sterilized towels. They are then assorted into small bundles and chromicized with the greatest care in a 1 to 20 watery solution of carbolic acid to which has been added one four-thousandth part of purified chromic acid. The tendon must be immersed in the solution immediately upon the preparation of the fluid, since otherwise in a short period the chromic acid is thrown down as a sedimentary deposit. The process of chromicization goes on more or less rapidly [dependent upon heat, exposure to sunlight, the quantity of material manipulated] and requires careful watching, since if too rapidly effected, or permitted to remain too long in the solution, the tendon may be easily ruined. When properly chromicized the tendon should be of a dark golden colour. When taken from the chromicizing fluid the tendon is best dried in the sunshine between sterilized towels and should be immediately put up in carbolic oil, the whole process carefully conducted under aseptic conditions, the bottles securely corked and sealed. When wanted for use the tendon is carefully taken from the bottle, soaked in a mercuric solution until supple, and then arranged in parallel strands, wrapped in a folded towel saturated with a 1 to 1,000 mercuric solution, the ends of the tendons exposed so that they may be withdrawn one at a time as selected.

If more convenient they can remain immersed in a dish of bichloride solution during the operation and selected therefrom as required. The amount of the bichloride contained in the suture does no harm to the structures in which it is buried. I have often thought it an advantage rather than otherwise.
The aseptic suture, buried in wounds which have been made and maintained aseptic, approaches nearer to the ideal than any other material yet in use. By it all wounds in healthy tissues, no matter how large, even the major amputations, should be closed securely, like structures joined without recesses or pockets, thus doing away with drainage in any form. This prevents the need of expensive absorbent antiseptic dressings and permits of a germ-proof seal of iodoform collodion. Subsequent infection is then impossible.

The method of the application of the suture is of some importance. It should be continuous, since less material is required in the wound, knots are avoided, and the tension upon the structures is equalized. This last is very important. Coaptation, retention and rest are the factors. Undue constriction of the tissues devitalizes the parts and is to be carefully guarded against. If much strain is likely to ensue upon the coapted parts I usually use the double continuous suture, which I commenced to the profession many years since, applying it by means of a needle with eye near the point, so that the suture passes in opposite directions through one opening or puncture in the same manner that the shoemaker carries his bristled thread. It is, however, important to remember we are only to coapt and not to constrict the structures by such powerful measures. The Hagedorn full-curved needle is very convenient, since it serves as both needle and handle and can consequently be best used without a needle holder.

The end of the suture fastened by a slip knot, the needle is deeply buried in the structures to be coapted from side to side, each stitch entering directly opposite the emergence of the preceding stitch; when the suture is drawn upon the tendon crosses the wound at right angles and leaves its lips in secure coaptation with no foreign substance intervening. This is impossible in the application of the buried interrupted suture. The skin is closed by a fine tendon suture, taken in a similar way, puncturing only the deeper layer (subcuticular suture). This I devised and have used it almost daily for the last ten years designed to avoid stitch abscesses, long before it was known that our most dangerous enemy was a micrococcus ever present in the dying epithelium of the skin.

The larger vessels are better ligatured with fine tendon, not too tightly, however, always remembering simple constriction to prevent bleeding is sought, not necrosis of the inclosed vessel. A wound thus coapted does not bleed. The serous exudate is at once followed by cell proliferation and the repair processes supervene with a rapidity understood only by those familiar with the histology of aseptic wounds placed at rest. The suture thus buried in healthy tissues is first surrounded by leucocytes, then slowly invaded by them. Little by little these are changed into connective-tissue corpuscles and the tendon is finally replaced by a living band of connective tissue, a re-enforcement of vital importance in many wounds, e.g., hernia, laparotomy, suturing of tendons, muscles, etc. The iodoform collodion seal has many advantages. If the structures below have been aseptically joined there is no subsequent possible infection. It holds the cutaneous surfaces in fixation, retention and at rest. The repair processes which ensue beneath the seal are so minimized that the scar is in large measure avoided; a result in itself comparatively a minor matter, not to be overlooked since a tender cicatrix is a source of discomfort and generally unsightly. The subsequent bandaging is also minimized, often omitted altogether. In this there is a manifest gain in comfort to the patient, saving of expense in material and care, and, most of all, the doing away with the still too common custom of making pressure upon the wounded structures for the purpose of securing coaptation and con-
trolling the escape of blood and serous exudation. Compressed tissues are more or less deprived of the free circulation of the blood upon which their nutrition depends and without which repair is impossible.

The coaptation of sundered aseptic structures by the use of the buried aseptic tendon sutures, and their fixation, retention and rest under an aseptic seal without compression, is the corollary to antiseptic surgery and should be adopted by every competent operator.

In the long series of my experimental studies upon animals in which, under varying conditions, sutures have been buried, I was at first led to believe that the connective-tissue cells of the buried material were, in a measure, revivified, as in a graft, so accurately did the living band of connective tissue replace the implanted suture. More careful studies, however, show that the foreign material is at first incapacitated by cell proliferation which, little by little, invades it, causing its disappearance precisely in the same way as necrotic tissue disappears after injury, where the surrounding parts are maintained aseptic.

In over two hundred laparotomies, where the abdominal wound has been closed with buried tendon sutures applied in separate layers, but two cases of subsequent hernia have been noted: one the result of infective sloughing, the other after the removal of a large fibroid tumor, where, rather than a hernia proper, the whole abdominal wall was left relaxed and bulging.

In over three hundred cases of operation for radical cure of hernia, where by means of buried tendon sutures the posterior wall of the inguinal canal has been re-enforced and strengthened and its obliquity restored, more than ninety per cent. have remained permanently cured.

The infection of wounds may never be absolutely prevented, but the experience of surgeons teaches us daily to what a marvelous extent it can be minimized and reduced in aseptic wounds; I confidently believe, even in hospital practice, to less than five per cent. Indeed, not long ago I examined my own personal experience, reviewing six hundred operations upon aseptic structures with only two per cent. of septic cases—evidence, I think, ample, to show the safety of the coaptation of wounds by the buried animal suture. I am confident that at an early period the use of the buried tendon suture in aseptic wounds will become indispensable.

ULCERS OF THE LEG; ALL CAN BE CURED.

This paper was read by Dr. Carter S. Cole, of New York. Whatever constitutional conditions obtained that favoured morbid states, or that retarded a return to a healthy state, he said, such a diathesis should receive its proper treatment, whether ulcers existed or not. For systematic purposes, ulcers of the leg were designated by the author according to their appearance as healthy, irritable, indolent, etc. In intractable cases he was inclined to place foremost thorough washing with soap and water and good scrubbing with a stiff-bristle hairbrush. If the ulcer was inflamed, irritable, or painful, anesthesis might be required for this and subsequent steps. The next step was a thorough cleaning out of all soft granulations and the base of the ulcer with a sharp curette. The edges of the ulcer were scraped away and, in many cases, with a curved sharp bistoury he nicked the circumference at intervals of about a quarter of an inch. If much haemorrhage followed a pad of gauze wrung out of a two-per-cent. solution of carbolic acid was placed over the wound and a firm compression bandage applied from the toes to the knee, the wound having been previously cleansed with the carabolic-acid solution. The dressing, when used, was allowed to remain for twenty-four or forty-eight hours, after which he considered the ulcer to have become a
simple one and amenable to treatment as follows:—No further lotion was used; the wound was wiped off with dry cotton and over it, and completely covering it, he placed strips of diachylon plaster to protect the ulcer. Over the surgeon's plaster he applied a pad of sterilized gauze, held in place by strips of rubber adhesive plaster, or often simply by a bandage. He then used a firm muslin bandage from the toes to the knee, making equal compression. The bandaging should be carefully done. Sometimes he used two bandages three inches wide and eight yards long. This bandage was not removed unless the discharge came through, or the leg became painful, or the bandage got loose. When he redressed the ulcer he again used simply dry absorbent cotton to cleanse the wound and proceeded as before. Often after two or three dressings the bandage might remain from five to seven days without being disturbed. In some cases a thin scum forms on the ulcer, which must be removed by going over the surface lightly with a curette. With this treatment, in ordinary cases, about three weeks would suffice for an ulcer of even a dozen years' standing. In extraordinary cases as much as six weeks might be necessary.

**STRONTIUM SALTS IN THE TREATMENT OF ALBUMINURIA.**

The *Journal des Praticiens* for January 4th contains an article on this subject in which the writer remarks that strontium salts induce a notable and often rapid diminution of albumin in the urine. They are, besides, indirectly useful in aiding digestion, especially in cases of Bright's disease where the patient suffers from an excess of hydrochloric acid in the stomach. Strontium lactate is a good intestinal antiseptic.

According to Constantin Paul, says the writer, strontium is useful only in the parenchymatous form of nephritis. It has no action whatever in the interstitial forms, in tuberculosis, or in renal syphilis. Gaucher and Gallois observed that strontium acted more readily on albuminuria than on the various other symptoms of Bright's disease. When the employment of the drug was suspended the amount of albumin increased until it reached its original proportion. It appears, then, says the writer, that, in cases of excessive albuminuria, where it is well to moderate the loss of albuminoids, strontium is especially indicated. Gaucher and Gallois recommend the following formula:

- Strontium lactate.......750 grains;
- Water........................175 ounces.

It is essential that the drug should be pure and free from barium oxide.

**PICRIC ACID IN THE TREATMENT OF BURNS.**

The *Lyon Médical* for December 29th contains an abstract of an article published in the *Chronique Médicale* for November 15, 1895, in which the writer states that picric acid has been successfully employed in the treatment of burns. M. Thierry, he says, has made use of it for several years and observed immediate relief. The solution was in the proportion of from ten to fifteen in a thousand. All pain, it seems, says the writer, is immediately suppressed after the affected parts are bathed with this solution; the wound heals, no blisters form, and complete recovery is a question of a few days only. The employment of this acid presents only one inconvenience, that of leaving a yellow stain on the skin, which, however, will disappear after the application of a boric-acid solution. Picric acid has no odor, and is not caustic, irritant, or toxic in its action.

**THE TREATMENT OF THE STUMP OF THE UMBILICAL CORD.**

In his new book on the *Therapeutics of Infancy and Childhood*, Dr. A. Jacobi says:

"In wrapping up the end of the cord no oil must be used. Warmth and dryness
favor mummification; moisture and exclusion of air, gangrene. This holds good also for the cord when it is separated from the living baby by an additional ligature, and in the dead. Thus, the former forensic axiom that a dry cord proved life, which prevailed for decades after Meckel had demonstrated its fallacy as early as 1853, is absolutely worthless. Thus, fatty substances and moisture of any kind must be avoided as much as possible. Powdered subnitrate of bismuth, or oxide of zinc, or iodoform, or salicylic acid, one part with ten parts of starch, may be dusted round the insertion of the cord and over the stump daily. The latter application is not necessarily useless (from the point of view of antisepsis), for the separation of the cord is a gradual one, and not uniform through the whole thickness of the amnion and the three blood vessels.

"The size of the sore stump and the rapidity or slowness of cicatrization depend upon the thickness of the cord, the intensity of the line of demarcation and the reactive inflammation. The latter are most marked in vigorous infants. As a rule the surface is dry a few days after the falling of the cord, and cicatrization complete within twelve or fifteen days after birth. This normal process is, however; disturbed by careless handling, local irritation and infectious influences. In these cases there is a serous or purulent secretion, and cicatrization may be deferred for many weeks. Under these circumstances local treatment is required. Carbolic acid ought to be avoided, for the newly-born and the infant are easily influenced by its poisonous properties. Solutions of lead, zinc, or alum answer quite well. As before, however, I recommend the powders of zinc oxide, bismuth subnitrate, alum with starch, and salicylic acid with starch, or iodoform. Such measures will always prove helpful; to omit them in times of erysipelas or diphtheria is unpardonable. Perchloride of iron, or subsulphate of iron, must not be used. Under the hard coagulation formed by its application over the whole wound secretions will accumulate, cannot escape, are absorbed, and produce sepsia. I have seen babies die from applications of iron to the umbilical stump, as I know of women dying for the same reason when the hemorrhages from their uteri or from the lacerated vaginae were maltreated in the same manner."

[Our own experience, after trying many things, is that powdered oxide of zinc is the most rapid and cleanly of all treatments for the umbilical cord.—Ed. M. M. J.]

SERUM THERAPY IN LEPROSY.

Dr. Carcasquilas of Bogota, Republic of Columbia, reported to the National Academy of Medicine the result of the use of the serum in 15 cases of leprosy where the diagnosis was positively assured. He used the serum both in the nervous type and in the tubercular type, and obtained most surprising results. He was the first to make and to use serum for this disease in this country. The following modifications were obtained:—

1st. It re-establishes the sensibility more or less rapidly, according to the extent and gravity of the lesions of the peripheral nervous system.

2nd. It causes a discoloration of pigmented spots, without entirely removing them. An abundant desquamation occurs in them.

3rd. The oedemas disappear, rapidly in some cases, slowly in others. When the oedema has vanished the skin is restored to its normal physiological condition.

4th. The tubercules become flat and soft, and disappear, sometimes by absorption, sometimes by desquamation, sometimes by suppuration, leaving scars.

5th. The ulcerations, after suppurating abundantly, become cicatrized with astonishing rapidity and leave, finally, a healthy skin.
6th. The scars of old lepromas that have formerly suppurated become pale, and tend to return to the level of the surrounding skin.

7th. Ulcerated mucous surfaces begin to heal, become paler, sensibility returns, and the tubercules disappear.

8th. The face, as the edema and the tubercules disappear, and the pigmentation vanishes, becomes thin and loses entirely the "aspect leonine."

9th. Appetite and sleep return. Hope and contentment succeed to profound discouragement and depression.

10th. From the very first injection of serum that is given to the patient the morbid action of the bacillus of leprosy ceases, because from that day no new manifestation of the disease appears. I have treated so far fifteen cases, and in all without exception I have noted this fact, which I consider as fundamental and decisive, because it shows that the serum acts directly upon the cause of the disease. This is proved by the restoration of sensibility. The peripheral nervous system is that which is principally affected in this disease. The lesions observed depend on the disorders of nervous action. This re-established, the disease gradually disappears.—Pacific Medical Journal.

SIGNIFICANCE OF VAGINAL DISCHARGES.

A leucorrhœa inodorous or of mild odor, persisting during the climacteric, accompanied by increasing hæmorrhage, is suspicious, and demands investigation.

A leucorrhœa profuse, of peculiarly fetid odor, granulous, excoriating, appearing early or late during the climacteric with profuse hæmorrhage, is reasonable evidence of cancer of the cervix.

A leucorrhœa moderate in amount, ill-smelling (the peculiarly fetid odor of cancer of the cervix being absent), accompanied by hæmorrhage, suggests cancer of the corpus uteri.

A leucorrhœal discharge with hæmorrhage, containing material like the washings of meat, is said to indicate sarcoma.

A watery discharge, as a rule, occurring during menstruation, odorless or of little odor, persisting, accompanied by profuse hæmorrhage, indicates fibroids; with little or no hæmorrhage, polypi.

Profuse bloody discharges coming on gradually with declining menstruation, ceasing usually with the menstrual flow, point to fibroids.

Persistent profuse discharges of blood occurring spontaneously, arising from sudden exercise or coition, occurring, as a rule, after the menopause, indicate cancer.—Mish, Pacific Medical Journal, November, 1895.

ULCERS.

Chauffard has, for five or six years, employed powdered sugar in dressing leg-ulcers, dusting the wound with it and covering with oiled silk, renewing the dressing every two or three days. Cicatrization takes place rapidly and aseptically. (Bulletin Méd., December 1, 1895.)

A. Schirman applies commercial kerosene—from 33 to 50 per cent.—with alcohol, with a small camel's hair brush or gauze. Valuable for atonic or indolent ulcers. (New York Medical Journal, December 7, 1895.)

THE THERAPEUTIC ABUSE OF OPium.

Dr. G. Walter Barr, of Keokuk, Iowa, contributes an article to the Journal of the American Medical Association for January 25th, in which he remarks that, while our knowledge of pathology and physiological action has long since passed the point of the treatment of symptoms, yet we still cling to one drug which does most of its work in relieving symptoms only. A drug, he says, which has the dynamic energy of opium must always be an equally potent agent for therapeutic good.
Chemically and physiologically opium is perhaps the most complex drug in the pharmacopoeia. It contains a large number of active principles which have been isolated, and a number more that are probably present in the crude drug, although it is maintained that they are merely products of chemical manipulation. It may also contain some that have not yet been identified as chemical entities by laboratory research. It seems a little strange, says Dr. Barr, that, with the present tendency to prescribe the use of drugs uncombined with others, so many active principles should be so often prescribed at once under the title of opium. That the combination of so many principles has, by virtue of the correlation of physiological forces, a dynamic action of its own, is obvious; that this action, he says, cannot be prognosticated with much certainty is proved by the large number of cases of alleged idiosyncrasy. That opium is of great therapeutic value is maintained at the outset; that it is overrated is also contended.

When the natural polypharmacy of opium itself is avoided, says the author, its most active constituent, morphine, is nearly always resorted to. The effects of morphine upon the secretions, upon metamorphosis, and upon the disposal of waste products are exactly what is not desired in most cases of disease. Yet morphine is usually chosen to produce certain effects upon the nervous system without regard to its energetic action in other directions.

Codeine, says Dr. Barr, is being substituted for morphine to a gratifying extent, although it is not yet fully appreciated. He states that he is thoroughly satisfied that it does not produce bad habits, even in highly sensitive neurotics, and that it acts with little energy upon the digestive tract and the heart. As a somnifacient, he says, morphine has been nearly driven out of use by the products of the modern chemist, and it should be discarded also in other fields. As a cardiac stimulant, morphine acts quickly and energetically, but the after-depression which always comes after its use may be avoided by using strychnine, nitroglycerin, caffeine, digitalis, or even atropine, in the proper dose. To use opium or morphine for a condition of nervous excitation and exalted reflexes is, in many cases, like stunning a refractory patient with a club. Valerian, hyoscyamus, and the bromides will generally give better therapeutic results of greater permanence, and with less risk.

It is in those diseases of the digestive tract which are commonest in summer, says Dr. Barr, that opium is the medium of the most harm. Close observation, he says, must drive the physician to the conclusion that very rarely indeed is opium indicated in the treatment of diarrhoea. This affection usually needs some drug which increases the excretory functions, and thus drives out of the body something which, by its presence, is producing the flux from the bowel. Opium temporarily relieves the chief symptom at once, and when its influence has subsided and the disease still persists the condition is called a relapse or a new attack.

It is certainly true, says the author, that opium has a real value therapeutically in certain inflammations, in great pain, in rare forms of diarrhoea, as a splint for the intestines, and in some other directions.—

New York Medical Record.

LIGATION OF THE UMBILICAL CORD.

M. Pierre Budin contributes an article on this subject to the Obsetetrique for January 15th, in which he describes a method of ligating the umbilical cord. Physicians, he says, know the danger that the existence of a voluminous cord brings to the new-born. As Wharton's gelatin becomes dry under the action of the bodily temperature the umbilical blood-vessels very soon cease to be compressed when the cord has been tied with a linen or silk thread. If
the child then makes any effort, if it cries, or if it is too tightly bandaged, a serious hemorrhage supervenes, which is sometimes fatal.

With regard to the procedures which may prevent this hemorrhage, says the author, the following may be mentioned: Two or three ligatures may be applied to the cord, leaving a small space between them. This method is scarcely successful, for, as the drying of Wharton’s gelatin affects various parts of the cord, all the ligatures become useless at once.

Cutting of the amniotic covering at several points has been advised, pressing out a certain quantity of Wharton’s gelatin, and afterward practising ligation. It has also been recommended to isolate the three umbilical blood-vessels at the free extremity, cut the cord, and tie each one separately. These two methods, says M. Budin, are good, but, as Wharton’s gelatin is viscous and glutinous, they are not very easy to put into practice. M. Tarnier and others, he says, have urged the employment of a rubber thread for a ligature, as it gives excellent results. There are, however, says M. Budin, some objections to its employment. If it is not well chosen it slips on the amnion and fails to do what is required; it also undergoes some changes after being kept for a certain length of time, and it will crack when it is being used.

For several years the author has employed the following procedure: 1. With a single or double linen thread, about twenty-five or thirty centimetres in length, which has been soaked in a solution of corrosive sublimate, he makes a tight circular ligature at a distance of from two to three centimetres from the umbilicus. He then cuts the cord a centimetre above the ligature. 2. The surface of the section of the cord is held upright and the two ends of the thread are separated and one of them is placed in the groove made by the ligature and carried around the cord until it is exactly opposite the spot where the thread is tied. Then the two ends are brought up and crossed over the surface of the section, tightly drawn and tied. This second ligature separates the blood-vessels of the umbilical cord; the vein and one artery are on one side and the second artery is on the other side. 3. Each half of the cord is then ligated in the following manner: The two ends of the thread are passed to the right and to the left, one around each half of the cord, and are crossed, tightened and knotted. 4. If the knot has been placed at one of the angles of reunion of the first and second ligatures, one of the ends is again passed around the median groove, that is, the groove of separation; the other end is passed around the cord in the outer groove, and the two ends are then crossed, tightened, and knotted.

M. Budin states that he has employed this method of ligating the umbilical cord for several years, and that he has never observed a single hemorrhage.—N. Y. Med Rec.

AIROL, A NEW SUBSTITUTE FOR IODOFORM.

Haegler (Beitr. zur klin. Chir., xv., 1; Ostbl. f. Chir., January 18, 1896) thus enumerates the qualities that a substitute for iodoform should possess: 1. It should be less poisonous than iodoform. 2. It should be inodorous. 3. It should not irritate the skin. 4. It should contain enough iodine, or an equally efficient constituent, and give it up under the same conditions that iodoform does.

Airol is an iodine substitution compound of dermatol (basic bismuth gallate). The author has made comparative trials of airol, dermatol, and iodoform and has satisfied himself that airol fulfills the first of these requirements. Moreover, it is free from odor and does not irritate the sound skin.

Two points of its superiority to iodoform are its property of parting with a portion of its iodine in the presence of the warm fluids of the body and the fact that,
by reason of the bismuth contained in it, it is in a high degree desiccative. It is applied for the most part with a powder-blower; it is used also in the form of a ten-or twenty per-cent, gauze, in that of a ten-per-cent, solution in collodion, and, for tuberculous affections, in that of a ten-per-cent, emulsion in a mixture of equal parts of glycerin and water.

In the course of a year the author has used airoil in about two thousand cases, and has observed its decided effect on the tuberculous process, but no untoward action. In a word, he regards it as a really useful substitute for iodoform.—N. Y. M. Rec.

THE TREATMENT OF FURUNCLES OF THE EYELID.

Lanvole and Gygax, according to the Therapeutische Wochenschrift for November 24, 1885, recommend systematic bathing of the lid with one of the following mixtures:

1. Salicylic acid. 5 parts; Borax. 3 parts; Distilled water 300 parts.

2. Precipitated sulphur. 3 parts; Ammonium chloride 1 part; Rose water 50 parts; Spirit of camphor 20 parts.

In obstinate cases they recommend the daily application of the wash, not only on the lid, but also among the lashes:

Spirit of camphor, each 5 parts; Precipitated sulphur, each 5 parts; Lime water, each 50 parts; Rose water, each 1 part.

N. Y. M. Rec.

DIGITALIS POISONING IN CHILDREN.

By Henry Koplik, M.D.

There are some children who are peculiarly susceptible to the effects of a dose of any preparation of digitalis. There is no drug of greater utility in the realm of pediatric therapy, yet not one more abused than digitalis. Physicians seem to forget that the most gratifying effects are obtained from small doses of digitalis rather than the larger quantities. There are children, however, who react in a peculiar way. Some preparations of digitalis have absolutely no effect on these children in small doses, yet when the larger dose is given, or a substitution made, as, for example, the powder replaced by the fluid extract, we have striking digitalis effects shown by the action of the heart. Our administration of the drug must be suspended. These children should never receive digitalis in any form. The drug is a direct cardiac poison to these subjects. The writer has had occasion to verify this, but will describe the effects in the cases of two children in one of which cases there was every reason to believe that the administration of the drug was intelligent; that is, the dose administered and causing the digitalis effects had been preceded by a tentative smaller dose.

Case I.—A boy, aged three years, under treatment in my hospital service for scarlatinal nephritis. The child had not responded to the infusion of digitalis (U. S. P.) made from the leaves. The infusion made from the fluid extract of equivalent strength was substituted for the leaves after several unsuccessful attempts to increase diuresis infusion with the ordinary.

After the dose had been carefully increased, the child, whose pulse had been 118 to 122, suddenly began to exhibit the following peculiar pulse record:

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<tr>
<th>Pulse</th>
<th>Respiration</th>
<th>Temperature</th>
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<tbody>
<tr>
<td>July 21: 3 p.m...</td>
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<td>36</td>
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<td>6 &quot; , , ,</td>
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<td>36</td>
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<td>9 &quot; , , ,</td>
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<td>22: 1 a.m...</td>
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<td>2 p.m...</td>
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<td>8 &quot; , , ,</td>
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<td>9 &quot; , , ,</td>
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<tr>
<td>11 &quot; , , ,</td>
<td>72</td>
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</tbody>
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The China Medical Missionary Journal.
It will be seen that in this case the great variations in the pulse were also accompanied by a distinct drop in the number of respirations and also in the temperature, which is a rectal one. The temperature dropped fully two degrees in twenty-four hours. In this case there was no immediate appreciable increase in the amount of urine; in fact, toward 5 p.m., July 22nd, the urine became distinctly less in quantity, and necessitated other crude means subsequently, when the child had recovered from the digitalis effect. With these symptoms the use of digitalis was suspended and remedies to be mentioned hereafter were administered. The child made an excellent recovery from its nephritis without further doses of digitalis.

Case II.—This case I saw in consultation, and if it is studied I think it will be conceded that the initial dose (two drops of the fluid extract) was rather large, as the result showed.

A girl, aged six years, was suffering from an acute broncho-pneumonia in the middle lobe of the left lung. Through a prescription error of the physician in charge the child had received as an initial dose two drops of the fluid extract of digitalis four times daily, instead of two drops of the tincture.

On the fourth day of the illness, the pulse being 150 and somewhat irregular, two drops of the fluid extract of digitalis were administered every three hours.

Pulse, fifth day, 130 and more regular.
Pulse, sixth day, 120, regular.
Pulse, seventh day, a.m., 112, regular; p.m., 60, very irregular.
Pulse would show six or seven beats fairly regular, and then a pause and ten to twelve beats very irregular, then a beat or two and a pause. Use of digitalis discontinued.

Eighth day, a.m., 80, irregular and almost imperceptible at wrist; 12 m., 46; p.m., 60, irregular and markedly dicrotic.
The physician records the heart sounds tumultuous and the diastole prolonged.

Ninth day, pulse still dicrotic; had reached 100 morning and evening.

Tenth day, pulse 120 and regular.

This was a case of pneumonia, and in these cases we must consider digitalis as one of our most useful drugs. But it must be administered in exceedingly moderate doses, and then only in the form of the tincture—a mild preparation as compared with the fluid extract.

In this case the heart was irregular, beating 150 to start with, and under digitalis became regular, and then was not only irregular but actually at times tumultuous in its action. A constant feeling of nausea and also occasional vomiting were permanent symptoms; the pulse was irregular and dicrotic to the touch, showing a reduction rather in tension. It was irregular, 60 to 80 beats, when the digitalis effects began to wear off under treatment.

In this paper the writer desires to adhere strictly to clinical narrative and not enter into pharmacological ground; yet it will be noticed in Case II that, though digitalis was administered for three days in quite liberal doses, the heart continued regular and was reduced to what appeared its normal action, and only on the evening of the third day of its administration did the heart become irregular and markedly reduced in action.

After the third day the use of digitalis was discontinued by the attending physician, whose suspicions had become aroused, and in spite of this fact the heart did not return to the normal in its action, even with the aid of remedies, for fully three days, when we find a record of 120 beats, which were regular.

In Case I we find also the administration of digitalis to have had no effect until on a change of preparation the effects were shown suddenly and markedly without previous warning. The heart also took fully two days, after a suspension of the use of digitalis, to return to its normal condition.
These facts in these two cases of the sudden appearance of untoward cardiac phenomena, and their persistence for days even after the digitalis was withdrawn, seem to the writer almost incontrovertible evidence of the persisting effects of digitalis on the heart, such as is seen in the action of no other drug. The sudden onset of symptoms where none had been present for fully three days in Case II, and the substitution of the very irregular for the regular cardiac action, are strong arguments in favor of the effect on the heart corresponding much to what experimental pharmacologists call "cumulative," but which many deny as specific to digitalis. In fact, no less an authority than Horatio C. Wood, in his address before the Tenth International Medical Congress upon anesthesia, says, speaking of digitalis and its action on the heart already compromised by chloroform: "The influence of injections of digitalis has been, in a number of experiments, very pronounced in producing a persistent gradual rise of arterial pressure with an increase in the size of the individual pulse rate. In several instances death was apparently averted by its injection, and I saw in one or two cases where large amounts of digitalis had been employed sudden systolic cardiac arrest, indicating that digitalis in sufficient amount is able to victoriously assert itself in opposition to chloroform. . . . I believe that in all cases of weak heart in man a full dose of digitalis before the administration of chloroform would greatly lessen the danger of cardiac collapse."

We have thus in the foregoing evidence of direct belief in a sustained action of the drug digitalis on the heart and its ganglia, and in our cases we have also clinical evidence of a regulating action of digitalis on the heart up to a certain point, beyond which irregularity and weakness result with lowered instead of high arterial tension. The reason for this action it seems might be sought in an overstimulation of the cardiac ganglia, which, responsive at first, are subsequently paralyzed by digitalis. The return to the normal takes several days in spite of remedial measures.

Treatment.—I have studied the treatment of these cases of digitalis poisoning and am convinced that most efficacious has been the immediate removal of the drug, with absolute rest in bed. It is very difficult in the face of a very tumultuous and irregular heart to stand by and do nothing, so in Case I I used strychnine. In Case II the only efficient remedy seemed to be rectal injections of black coffee. Vomiting and constant nausea being present, the administration of champagne, caffeine, or sparteine by the stomach was not practicable. Both patients made a good recovery, and in future I should rely principally on perfect rest and subcutaneous injections of strychnine, and in aggravated cases rectal injections of coffee.—New York Med. Rec.

A NOTE ON THE USE OF PERMANGANATE OF POTASSIUM IN DISEASES OF THE SKIN.

Dr. L. Duncan Bulkley, of New York, said that he had first learned from a patient concerning the value of permanganate of potassium as a remedy for itching in various skin diseases. The mode of using it was to paint over the affected surface a one or two-per-cent solution of the salt, and allow it to dry. Sometimes it was advisable to follow this with a lotion of calamine and zinc. The permanganate, of course, left a brown stain and by its oxidizing action reduced thickened patches of skin.

THE CRESCENTS IN MALARIAL FEVERS.

BY GEO. W. BURLEIGH, M.D.,

Battle Creek (Michigan) Sanitarium.

The following record of microscopical examinations of the blood of a severe case of malaria will confirm the observations of investigators as to the origin of the much-disputed crescent.
1-10. Structural detail of tertian parasites as seen in "Jungle Fever" Case.
11, 12, 13, 14, and 16. Segmenting bodies.
15 and 25. Clumps of free pigment.
17, 18. In 17 pigment observed to be in constant dancing movement for two minutes, when movement stopped; in one minute more four spore-like bodies appeared, while pigment arranged itself into three bunches.
26. Ripe body with rod-shaped pigment.
27. Mononucleated Eosinophile cell.
Twenty-five permanent stained preparations, in addition to a large number of fresh ones, have been studied. The result of the study of this case throws much light upon the origin and mode of development of the crescent. Much credit is due to Dr. Dock, Professor of Internal Medicine and Pathology of the University of Michigan, for his valuable assistance in the study of this case.

**History of Case.**

Mr. —, aged twenty; home Battle Creek, Michigan; subject to malaria in childhood. Last summer, while on an excursion along the Chicago canal, south of Chicago, the patient was taken with severe diarrhea, from which he suffered for three weeks. On reaching home he was still unwell.

Sept. 25, 1894.—Chilly before noon, followed by rise of temperature.

September 27, 9 a.m.—Temperature elevated; 11 a.m., chill, followed by high temperature, profuse sweating, and severe headache.

September 28.—Temperature normal; patient up, but confined to house.

September 29, 11 a.m.—Chill, followed by sweating and headache.

**Physical Examination.**

Palpation.—Extreme tenderness all over abdomen. Spleen easily palpable.

Percussion.—Spleenic dullness from eighth rib to edge of costal cartilage. Liver area not enlarged.

September 1.—A study of dried preparations showed many small, endogloabular pigmented, hyaline bodies, 9 a.m., temperature 99.80 F., patient complained of chilly sensations. These lasted about thirty minutes, but no true chill. After this, patient very hot and thirsty. 10 a.m. stained preparations showed small signet-ring shaped, endogloabular, hyaline bodies (Fig. 2). Ripe bodies with pigment bunched in center were also observed.

**Diagnosis of Malaria.**

October 2.—Patient admitted to the sanitarium fever ward. 10 a.m., temperature 96.80 F., cold hands and feet, severe headache, bowels constipated, pronounced tenderness over entire abdomen. 11.45 a.m., temperature 100.60 F. Blood examination showed a large endogloabular, ameboid body with pigment in motion. The pigment was in the pseudopodia (Fig. 7). 2.00 p.m., temperature 106.20 F., stools black, food passed undigested. Bleeding at nose in evening. Constant pain in bowels and back. Patient had anxious look. Cheeks flushed, Sputa tenacious and of a rusty color. A constant hacking cough, with pain in region of heart.

October 4.—Spleen one finger's breadth below costal margin, and tender. Pulse full. Tongue furred in centre, red at tip, and tremulous. Dejections watery, dark color, contained particles of undigested food. Mucous membranes pale.

October 5.—Patient had cachectic look, complained of constant pain in left side under the ribs.

October 7.—For first time crescents were found in stained preparations. There were from five to twenty in each specimen in different degrees of development (Figs. 13-17). From this time till the 25th, crescents were seen in every examination, and pigmented white corpuscles in stained and unstained preparations. The number of mononuclear cells (large epithelial cells, or large lymphocytes) was much increased. Pigment granules were in several large lymphocytes (Fig. 20). Some free pigment inside or lying upon red blood cells was observed in one preparation (Fig. 21).

October 7-11.—Temperature very irregular (see Temperature Chart).

October 12-15.—A regular curve is observed. October 12 a megaloblast was noticed (Fig. 19). Oct 15, as the temperature fell, 20 gr. quinine sulphate were admi-
mistered. Patient objected to quinine previously. Had taken no quinine previous to admittance.

October 16-20.—Crescents in each examination at different intervals.

October 19.—Patient out of bed, good appetite.

October 24.—Large number of free bodies, a typical flagellated body seen (Fig. 18).

October 25.—Many small, endoglobular, non-pigmented, ameboid, hyaline bodies were present, also crescents.

October 26.—Patient left fever ward. Still a small number of pigmented endoglobular bodies and crescents.

October 27.—The patient was found at home in a critical condition; bowels badly constipated, and symptoms of pneumonia. Patient unable to lie down, due to severe pain in splenic region. Respiration short and rapid. As temperature fell, 20 gr. quinine sulphate given.

October 29.—Patient still unable to lie down. Feet and legs showed pronounced edema. Heart displaced to right, apex-beat heard most distinctly one inch to right of left nipple in the fifth interspace. Pulse weak but not rapid, patient unable to speak above a whisper. Abdomen tense, splenic region very tender, and bulging of ribs on right side. Spleen hard, two finger breadth below ribs.

Examination of blood showed 2980 red blood corpuscles to the cm.

Hemoglobin showed percentage to be 10 (Henocque).

Endoglobular, pigmented forms; few flagellated bodies; 20 gr. quinine given.

October 30.—Patient improving, able to lie down, slept well, appetite improving, edema disappearing. Heart returning to normal position, abdomen becoming less tense; 20 gr. quinine given.

November 1.—Splenic region less tender, spleen receding.

November 2.—Patient complains of pain in splenic region; 20 gr. quinine given.

November 3.—Palpation of spleen shows it to be tender and still hard; 20 gr. quinine given.

November 4.—Appetite improving, still severe pain in left side.

November 5.—Examination of blood showed that, notwithstanding the large amount of quinine given, there were still many free bodies in each field, with active movements, a rapid, rotary, progressive, and zigzag course. Eight to ten small free bodies were seen in some fields. A few endoglobular forms still present.

November 6.—Several ripe bodies present; 20 gr. quinine given.

November 7-11.—Patient still has pain in side, but improving rapidly.

November 13-26.—Blood examination showed but few endoglobular forms; 20 gr. quinine given on 13th, 20th, and 26th.

November 26.—Patient improving rapidly, and left off treatment.

November 30.—Patient in robust health, hemoglobin normal. Color good, gained twenty pounds in three weeks.

October, 1895.—Patient has been in excellent health up to present time; no return of fever.

The notes of this case are given in full for their clinical value. Attention is now called to the much-disputed crescents.

Thayer and Hewetson of Baltimore, in their work on malarial fevers,* have given a full account of the different views held in regard to the nature and significance of the crescents. The whole is summed up as follows:—

"Many observers believe that the double outline of the crescent is due to the presence of a membrane. Antolisi suggests that this is rather a condensation of the external part of the body, and not a true membrane. Laveran believes that the crea—

cents represent an encysted form of the parasite; that they are active, indeed, usually virulent parasites, resisting more than the others the action of quinine; that while their mode of reproduction is not known, their presence in the blood is always a menace of a relapse; that frequently, without the presence of other forms, they may cause acute febrile symptoms."

"Canalis, Antolisei, Angelini, and Golgi believe that these represent a more resistant form of the aestivo-autumual organism, a form which has a cycle of development longer than that of the smaller variety, from which, however, they are directly derived. They believe that sporulation occurs in a manner similar to that in the case of the quaran parasite; that, in the blood containing this form of organism alone, the paroxysms occur at long intervals,—ten, twelve, fourteen days, and even longer. Grassi, Feletti, and Sacharoff believe that the crescent represents a separate and distinct type of the parasite which they call Laverania. The former assert, also, that they have observed segmenting forms. Bignani, Bastianelli, Marchiafava, and Celli believe that they are degenerate forms of the parasite.

"Mannaberg believes that they are encysted forms following a pseudo-conjugation of two individuals; that they can again segment into two bodies similar to the original. He does not believe that they are degenerate forms, though he has been unable to follow out their further development. Manson believes that the crescents are forms 'intended to carry on the life of the species outside the human body.'

"Coronado believes that the crescentic bodies are empty cysts from which flagella have escaped. All agree that the crescents do not appear at the beginning of the infection. Bastiaulelli, Bignani, Antolisei and Angelini, who have more carefully followed out their development, have shown clearly that they appear generally in the spleen from the fifth to the eighth day, and in the blood from the seventh day on.

"We have noted as well as the other observers that in the fresh specimen the crescent has a somewhat refractive protoplasm, while the border shows a greater refraction, similar to that which, as Antolisei states, one observes about the border of the red corpuscle. Whether this has the significance of an actual membrane, or whether it is simply the indication of a slight cuticular thickening of the outer part of the body, we do not feel clear, though we incline rather to the latter view.

"We have never noted that this more refractive border or double outline showed the color of hemoglobin, though, during a considerable part of its existence, the body is probably surrounded by some corpuscular substance. In stained specimens we have never seen any tendency on the part of this outer border to take up eosin or acid colouring matters, as is the wont of bodies containing hemoglobin.

"We have not, however, carried out studies of stained specimens with regard to the finer structure of the parasite, with sufficient system to speak positively concerning Mannaberg's observations. We can only say, from what we have seen, that the idea that the crescent is formed as a result of conjugation appears to us to lack confirmation. From a considerable experience in the study of fresh specimens, we can say that while the presence of two parasites in one corpuscle is occasionally seen, it is a rather rare occurrence; that while we have seen two parasites lying side by side, such cases have been extremely rare.

"On the other hand, we have been able, again and again, to trace every step in the formation of crescents from the bodies with pigment gathered in the center, such as one occasionally sees at the time of the paroxysm, and we feel that there can be little doubt that the crescent develops from these bodies.'"

The significance of the double outline is, as yet, only a matter of conjecture by all,
except a few, who have written on the subject. Antolisei and Angelini (1890) speak of it as a membrane similar to that observed around the red blood corpuscle. Dock, in the Medical News of June 6, 1895, in speaking of the development of crescents, says:

"The supposed developing crescents were found in considerable number. These were oval or thick, spindle-shaped bodies, with pigments in short rods scattered through them; usually they were in the middle of the affected corpuscles, with ends reaching the opposite sides, but in some cases they were on one side, and then showed a curved slope, corresponding to that of the corpuscle."

Korolko (1892) believes that the double outline is a part of the remaining red blood corpuscle, and states that it may be stained with eosin.

After a careful study of the crescents, having made over fifty drawings from stained preparations, I find that the outer border as well as the double contour line in well-prepared specimens, take up eosin, or acid coloring matter (see Fig. 22). I would call special attention to this undeveloped crescent, which shows beyond a doubt the origin of the crescent. It is hard to see how any one can call them "nothing more or less than degenerate red blood corpuscles."

In no case have I found the crescent lying upon the red blood corpuscles, with overlapping horns, as pictured by Lavaran. In studying the crescents, I have seen nothing which would tend to confirm the position held by Mannaberg as to the origin of the crescent, nor have the segmentations of the crescents been observed in this case.

Conclusions.

1. Large lymphocytes are phagocytes as well as the polymnucleated cells, seeing that these take up pigment, etc.

2. The origin of the crescent is the same as other ripe plasmodia, beginning as small hyaline bodies, and continuing to grow at the expense of the red blood cell, and then being set free.

3. The double outline is stained by eosin or acid coloring matter, as are bodies containing hemoglobin.

CLEANING RUSTY INSTRUMENTS.

Brodie gives the following as an effective method of cleaning rusty instruments: Immerse in a solution of chloride of tin in distilled water, allowing to remain over night, then rub dry with chamois after rinsing with running water. They will be of a silvery brightness.—British Journal of Dental Science.

STRYCHNINE POISONING.

When strychnine has been taken by mistake, or purposely, its effects may be counteracted by teaspoonful doses of tincture of Cannabis Indica, given every five to ten minutes until six or eight doses have been taken.—Prescription.

CHLORINE IN TYPHOID FEVER.

Wilcox concludes an article on this subject in the American Journal of the Medical Sciences for September, 1895, as follows:

The cases above cited are average ones and illustrate very well the effect of the administration of chlorine.

In the treatment of typhoid fever:

Chlorine can be safely administered until complete disinfection of the alimentary canal is obtained.

Under its use the tongue becomes cleaner, the appetite and digestion better, fever lower, and the stools devoid of odor.

The general strength, the intellectual processes, and the nervous conditions improve.

The disease is shortened in duration, and usually proceeds to rapid and complete recovery.
THE EFFICACY OF TOUCHING INFECTED CORNEAL ULCERS WITH THE TINCTURE OF IODINE.

Van den Bergh (La Presse Méd. Belg., August 11, 1895) wishes to add his testimony to the efficiency of this method, and reports a case in which, after eight days of treatment, a large ulcer was completely cicatrized, and one month later only a slight trace of the ulcer could be seen, which tended to disappear. The vision was good. The treatment consisted in touching the ulcer twice daily with tincture of iodine by means of a little cotton on the smooth end of a Bowman's probe. The touching was done carefully over the entire surface of the ulcer to extreme limits. This was followed by atropine and a compressive bandage, with quinine and morphine internally for the headache.

In these cases the author believes that this treatment is the most simple and certain, and is safe in the hands of all practitioners, even those who are not specialists; it is easy of application and perfectly safe and harmless. If by chance the iodine gets beyond the limits of the ulcer, there is a slight desquamation of the epithelium, which heals, leaving no trace behind. If the cotton is too wet, and some of the iodine passes into the conjunctival cul-de-sac, the patient experiences a sharp pain, which disappears after a washing with water and the instillation of cocaine. The author generally avoids the use of cocaine in those cases where the cornea is involved, on account of its well-known destructive action upon the keratidium epithelium.

A SIMPLE METHOD TO INSURE NORMAL INVOLUTION AFTER LABOR OR ABORTION, AND TO PREVENT CHRONIC ENDOMETRITIS, RELAXATION OF LIGAMENTS, AND DISPLACEMENTS.

Gill Wylie, in the New York Medical Record for September 4, 1895, writes in an interesting manner on this topic.

Many years ago he discovered that if boroglyceride (not glycerite or a simple mixture of boracic acid and glycerin) was combined with pure glycerin in solution ten to twenty per cent., we could saturate cotton pledgets with it and apply in the vagina with the best possible results, that there would be no ferment of the glycerin and secretions to cause irritation, etc., and that it would excite an immense amount of secretion from the uterine and vaginal glands when left in for twenty-four hours. The author advocated the use of these pledgets twice or three times a week in the vagina in all cases where it was desired to improve the pelvic circulation, and thus reduce the size of the uterus and relieve the over-congested tissues in all parts of the pelvis. He has had especially good results in all cases of subinvolution, after curettage and draining the uterine cavity; and found that this treatment was much more rapid and certain than the prevailing plan then in use and now so much practised, of rest in bed, hot vaginal douches, etc. Besides, by making the roll of absorbent cotton firm, and from one and three-quarters to two and a half inches long and from one to one and a half inches in diameter, that a sagging and retroverted uterus could be readily held up in a more natural and better manner than by a hard pessary. The active circulation caused by the boroglyceride and glycerin mixture contracted the vaginal tissues so that the cotton pledgets remained in place, and this contracted and firm condition of the tissues would continue for a day or so in most cases, thus enabling the patient to go about without trouble for twenty-four to forty-eight hours after removal of the cotton, and give time to cleanse away the coagulated mucus, etc., from the vagina.

For fully fifteen years the writer has practised and taught the use of this simple treatment in all cases after abortions, especially when there was any kind of inflammation or hardening of the uterus.
complicating the abortion, and in all cases after labor where one desires to insure a return of the uterus to its normal size and position in the pelvis. In many cases among the well-to-do class, in our cities at least, there is a marked tendency in women to have more or less trouble after labor. The general health is not good or the uterus is not well developed and the cervix is torn, and on account of the relaxed and bad general health or disease of the cervix, it fails to heal, and subinvolution, chronic endometritis and displacements follow.

Many years ago the author discovered that many cases of melancholia and extreme nervousness and sterility are due to chronic subinvolution or enlargement of the uterus, and that when we cured the subinvolution or the local disease or condition the melancholia in many cases would disappear as if by magic. Some of these cases were classed as insane and were considered incurable, but were entirely relieved of all actual symptoms by reducing the uterus to its normal size and curing any existing local disease. I do not mean to say that melancholia or tendency to disturbed mental balance is eradicated, but that enlargement of the uterus and associated local disease will in some women—not all—cause or excite melancholia, and that a cure of the local disease will cure the abnormal mental disturbance called melancholia. This experience led him to use the boroglyceride cotton pledges to prevent subinvolution, especially in very nervous women who had had melancholia or other forms of mental disturbance before pregnancy. About the tenth day after labor he examines the woman locally. If the uterus is large and crowded down in the pelvis, or if the secretions are still bloody or abnormal, or if he has any good reasons from previous knowledge of the case to believe that relaxation, subinvolution, displacements, etc., are liable to follow, he puts the patient in Sims' position on her left side, pushes the uterus well up out of the pelvis, and applies a suitable-sized and soft, but firm enough to keep in shape, boroglyceride cotton pledge in the vagina. It is so placed under the cervix uteri that the uterus cannot sink down in the pelvis nor fall backward. This is left in place twenty-four hours, then removed by the linen string tied to the proximal end. A vaginal douche of solution of boric acid is given. Two days later the same treatment is applied, and repeated twice a week till the uterus is normal in size and position, which usually takes six weeks. At the end of two months after labor, if there is any laceration of the cervix, complicated by follicular disease, the diseased tissue is cut away and the cervix sewed up or amputated, with healthy mucous membrane. When amputation is done the flaps to line the canal are made from the anterior and posterior parts of the cervix. If the perineum is torn, especially the inner portion that supports the lower end of the rectum, it is sewed up also. By the simple application of the boroglyceride the patient is able to get out at the end of two weeks without injury, and is dismissed perfectly cured at the end of six or eight weeks.

RESECTION OF THE PENILE URETHRA.

Poussan (Annales des Maladies des Organs Génito-Urinaire, August, 1895) has twice resected strictures of the penile urethra, and has collected in all eight cases of this operation. He advises controlling hemorrhage by an elastic ligature placed at the base of the penis. This ligature should be removed before the skin is saturated, that no bleeding vessel may cause extravasation and interfere with healing. The penis is incised in the middle line of the spongy body. Resection of the urethra should be complete and circumferential. The resection, of course, shortens the urethra; un-
doubtedly for the first few months there will be some incurvation, but the natural elasticity of this tube is so great that this shortly disappears. More than an inch has been resected. The entire cicatricial node should be removed by careful dissection. After resection of the imbibition of the short segments are united by catgut sutures introduced by fine curved needles. These sutures should not penetrate the mucous coat, since thus their incorporation with the urinary salts is avoided, as is also infection of the wound by imbibition of the urine. Three or four sutures are sufficient to assure the contact of the divided urethral segment. After operation a permanent catheter is placed, and this is the means of treatment which should always be adopted. A soft red rubber catheter is the best. It should be of calibre No. 16 to 18, and is used only for the purpose of draining the bladder and keeping the line of sutures dry. This catheter should be left in place four or five days. Union is prompt. As to the ultimate results there is no recurrence. There was evidently contraction in some of the cases thus operated on. In one case of Guyon's, examined two years after intervention, a full-sized sound could be passed and no induration could be felt. Complete erections were ultimately obtained. The indications for this treatment are, of course, found in those strictures not amenable to dilatation or cutting.

CHRONIC PHARYNGITIS.

Iodine, 6 grains.
Potassium iodide, 12 grains.
Menthol, 1 drachm.
Glycerin, 1 drachm.

Apply with a camel-hair brush twice or thrice daily.—Clinical Record.

BOILING WATER TREATMENT OF SURGICAL TUBERCULOSIS.

The treatment of tubercular diseases by the above method was first announced by Jeanne in 1883. Since then he has had occasion to apply this method in a series of cases of surgical tubercular diseases, comprising ulcerations and abscess of soft parts, as well as lesions of the joints. This method is as follows: The tubercular focus and the fistulous canals are opened, and in tubercular affection of the joints, typical resection is first performed. All caseous products and granulations are carefully removed with the curette, the cavity is sponged out and the blood completely staunched. Salt water has been kept boiling in a can provided with a long spout to which is adapted a long rubber tube with a pointed stop-cock at its free end. The tubercular cavity is then filled with boiling water. The cavity is then sponged dry to be refilled repeatedly until the surface has been sufficiently cauterized. The advantages claimed for this method over dry cauterization are rapid cauterization, absence of suppuration, and that it softens, disintegrates and sterilizes to a greater depth and more thoroughly than the dry cautery.

CHLOROFORM DANGEROUS TO MEAT-EATERS.

The geographical distribution of accidental deaths from chloroform is peculiar, according to Dr. Lauder Brunton, as reported by The British Medical Journal for July 7th. Practitioners favor chloroform in the southern United States, in Egypt and in India, while in London and the northern United States they dislike it. There has been a marked increase in the deaths under chloroform administered during the last few years in Great Britain. During these years the feeding of the population has been changed to an enormous extent by the increase in meat-eating due to the importation of low-priced refrigerated meats. Edinburgh has been an exception to the rule that the physicians of the colder cities do not prefer chloroform, but latterly the deaths from its use in that city have
been more frequent, and gout has become less rare, both of which results may be due to the much increased use of butcher's meat. A Russian observer has found that if the urine contains alkaloidal trouble may be expected from the administration of chloroform. This may explain why the cases which give the most trouble usually occur in strong, healthy men, who have been on a full diet and are thus likely to have stored in their tissues a quantity of such alkaloidal products as result from meat eating. These substances, accumulating in the blood during anæsthesia, may act as a poison to cause heart failure, while chloroform, administered in the ordinary manner, tends to paralyze the respiratory centre before the heart is weakened.—N. Y. Medical Journal.

LEPROSY, ITS DIAGNOSIS AND TREATMENT.

Dr. Prince A. Morrow, the well-known authority on diseases of the skin, in a recent address, summarizes his conclusions on leprosy, as follows:

1. From the standpoint of scientific therapeutics a clear conception of the pathogenesis and pathological anatomy of leprosy is an essential condition in formulating the principles of rational treatment.

2. It is now generally conceded that Hansen’s bacillus is the active, efficient cause of leprosy, and that the presence of the bacilli in the tissues sets up either directly, or indirectly through their toxins, the vast array of organic changes and functional disorders peculiar to the disease.

3. There is no substance known to science which, introduced into the body, is capable of destroying the bacilli without destroying the living cells which contain them.

4. Furthermore, from the nature of the pathological changes and the position of the bacilli in the deeper tissues it is evident that no germicidal agent can be brought into direct contact with the pathogenetic organisms, and hence all treatment which has for its object the destruction of the bacilli is impossible of application.

5. The treatment of leprosy by injections of tuberculin has been disappointing in its results. Experiment has shown that the action of tuberculin is positively pernicious in setting free the bacilli in the tissues and determining the development of new foci of the disease.

6. The treatment of leprosy is essentially empirical; whether, as has been claimed, certain remedies act by virtue of sterilizing properties upon the living tissues, rendering them unsuitable to the growth and multiplication of the bacilli, cannot be determined.

7. The more or less rapid development of leprosy depends upon the resistance of the tissues to the inroads of the bacilli. In exceptional but well authenticated cases this capacity of resistance is sufficient to dominate and destroy the pathogenetic microbes, as shown by the observation of abortive cases in which indubitable signs of the disease definitely disappear and never recur.

8. This capacity of resistance may be strengthened by change of climate, improved habits of living, and measures calculated to build up and maintain the general health at the highest standard.

9. Observation shows that the removal of a leper from an infected district to a more favored climate exerts a marked modification on the course of the disease; there is, for a time, at least, an arrest or retrogression of the symptoms. This lull in the manifestations is, as a rule, disappointing in its duration. Of the one hundred and sixty Norwegian lepers who have emigrated to this country there is no record of a single definite cure.

10. A dry, moderately cool, mountain atmosphere is most favorable in its influence upon the disease. A hot moist climate, or a damp cold climate, are both unfavorable.
11. A nutritious diet of fresh meat and vegetables, warm clothing, exercise in the open air, freedom from exposure to damp and cold, are important elements in the hygienic course of treatment.

12. The care of the skin by frequent hot baths, massage, with inunctions of oil, etc., should receive as much attention as the constitutional treatment.

13. The special remedies which clinical experience would indicate to be of the most value are chaulmoogra oil, gurjun oil, arsenic and certain agents of the strychnos family; all are, however, more or less disappointing in their results.

14. All observers agree that in advanced cases, where general dissemination of the bacilli has taken place, curative treatment is absolutely futile. The most favorable conditions are that treatment be instituted early, and that it be prosecuted actively and energetically during a prolonged period.

15. The surgical treatment of leprous sores, necrosed bones, perforating ulcers, the excision of tubercles, amputation of the members, tracheotomy, various delicate operations about the eyes, nerve-stretching for the relief of pain, the removal of threatening complications are of the most signal benefit.

16. Finally, we may conclude that while medical science holds out no definite promise of cure to the leper its resources are sufficient to arrest or retard progress of his disease, to promote his comfort, and to prolong his life.

OINTMENT FOR CRUSHED LIMB.

When a limb is crushed and surgical treatment has for some reason to be deferred, the following ointment is recommended for "embalming" the injured part. It should be spread on aseptic gauze and covered with cotton-wool:

R Salol, dr. iii;
Resorcin, dr. iii;
Antipyrin, dr. iii;
Acid. boric., dr. v;
Iodoform, gr. xv;
Vaselin., ad oz. vi.


MORNING DIARRHEA.

In the Medical Record of May 11, 1895, Deasfield states that he treats this condition as follows:

If the disease occurs in women, before beginning any medical treatment it is important to have cured any lacerations of the perineum or the cervix, displacements of the uterus, or disease of the Fallopian tubes which may exist. The methods of treatment which are ordinarily employed are:

1. Change of Climate.—The effects of this are often very satisfactory, and in the milder cases very prompt. A person who has a morning diarrhea for months may leave New York in the afternoon and return without symptoms. Unfortunately a return to the city may be followed by a return of the diarrhoea. In the more severe cases a prolonged residence in a dry inland climate may effect a cure.

2. Diet.—The plans of diet usually followed are: (a) an exclusive diet of milk; (b) an exclusive diet of beef and hot water; (c) a diet composed of milk and meat alone; (d) a diet from which only the sugars and starches are excluded.

As regards the effects of treatment by diet we find that some patients are cured, some are benefited for a time, in some there is no effect at all, some get worse.

3. In a small number of cases the diarrhoea can be cured by daily lavage of the stomach.

4. Drugs.—As a rule the number of the passages can be checked for a moderate length of time by the preparations of opium. The improvement only lasts while the opium is taken, and it is evident that the
use of this drug ought not to be continued for any length of time. The subnitrate of bismuth, the subgallate of bismuth, and β-naphtol bismuth are said to give good results. The writer has not been very fortunate with them. Salol and naphtalin answer well in some cases, but have absolutely no effect in others.Arsenic, quinine, ipecac, belladonna and cannabis are all very useful drugs. The drug which has given him the best results is castor oil, in doses of from 5 to 10 drops.

**DISASTROUS RESULTS FOLLOWING WHITEHEAD'S OPERATION FOR PILES.**

Andrews (Columbus Medical Journal, Vol. xv., No. 3, 1895) has secured the opinion of a large number of surgeons, both in this country and Europe, in regard to the disastrous results that are apt to follow Whitehead's operation. The replies include two hundred cases, of which the following is a summary:—

Loss of the special sense by which the patient should be warned of a coming evacuation and enabled to prepare for it, eight cases; incontinence of flatus and faces, twenty-three cases; paralysis of the sphincter, four cases; chronic inflammation of the rectum, one case; failure of union of the wound by first intention, with retraction of the edges of the wound forming a contracting tubular ulcer with stricture, nine cases; other ulcers, two cases; irritable and painful anus, twelve cases; eversion of the mucous membrane, four cases; neuralgia of the pelvis and inferior extremities, two cases; general neurasthenia, one case; fatal peritonitis, one case; non-fatal septic results, five cases; fistula in ano, one case; reported as having bad results without accurate description, one hundred and twenty-seven cases; total, two hundred.

**THE EFFECT OF PERMANGANATE OF POTASSIUM IN OPium-POISONING.**

By Leedom Sharp, LL.B., M.D.

The difference of opinion held by the medical profession regarding the value of permanganate of potassium in opium poisoning, together with a review of the cases reported, have led me to undertake a series of experiments, with the object of throwing some further light on the subject.

Clinical Data.—The observations of Dr. William Moor† brought prominently before the profession the question whether or not permanganate of potassium is an antidote in cases of opium-poisoning, by claiming that there are certain properties in the permanganate that are chemically antitodal.

He performed a series of experiments with the permanganate of potassium, morphine, and egg albumin, and from the results obtained concluded that one grain of the permanganate will destroy one grain of morphine, even in the presence of other organic matter. He therefore inferred that there was such an affinity between the two drugs that, if the permanganate is brought into contact with organic matter containing morphine, it will act on the morphine first.

He was, therefore, induced to resort to self-experimentation, believing that the oxidizing power‡ of the permanganate would decompose the morphine in the stomach, and thus render the poison inert. He consequently took three grains of morphine by the mouth, and followed it immediately by four grains of the permanganate, with no unpleasant results. The result of his work seems to have established in the minds of many the fact that permanganate is an antidote to opium if given by the stomach.

* A thesis receiving honorable mention at the commencement of the graduating class of 1893 at the University of Pennsylvania.

† New York Medical Record, 1894, Vol. i., pp. 200, 442, 642.

‡ See the effect of the oxidizing power of peroxide of hydrogen.
As morphine, when brought in direct contact with the permanganate, was found to be inert, the question arose as to how far, if at all, the permanganate would act if exhibited in a distant part of the body from that in which the poison was administered.

Schlagdenhauffen and Reeb, as a result of their experiments on frogs, claimed prior to Moor's studies,* when investigating with another drug, that if permanganate was injected separately it would modify the action.

Dr. Moor was of the opinion that the permanganate was of value, even after the poison had been absorbed, if given by the stomach. He based his opinion on the investigation of Professor Hitz of Halle, who maintained that a part of the opium absorbed returns to and is eliminated in the stomach, where it would be acted upon by the permanganate.

If this be true, and it seems to have the corroboration of Marne,† Alt,‡ Trauber,§ and others, it suggests itself to me that traces of the morphine might be found in the faeces by the proper tests. This of itself would be of value in cases of suspected morphine habit, which inquity the patients are so apt to deny.

Again, if the morphine is excreted by the cells of the stomach, it must be a continuous action, and therefore a frequent washing out of the stomach must of itself be an advisable treatment in opium-poisoning. The occasional washing out of the stomach may account for the improvement in some of the cases reported.

Dr. Moor and also some physicians in St. Louis about this time made some experiments on dogs and rabbits, and gave them, by the mouth, doses as large as ten grains of morphine, administering permanganate, in varying strengths of solution, as an antidote. The results were the complete recovery of the animals. This is not strange, when it is considered that in no instance was there a fatal dose exhibited.

Dr. Rector followed their steps* by conducting some experiments on dogs with morphine and permanganate with the same happy results, in no case having given a fatal dose.

Dr. Andrews,† however, in a course of investigations showed beyond a doubt that in all the test cases of Dr. Moor and the others (on dogs and rabbits with morphine) the dose given could not have been fatal in any case. This was later demonstrated to be the case by Professor Wood in his experiments.‡

Mr. Harding followed these investigations with a paper,§ in which he brings to bear chemical facts to prove that the behavior of permanganate when brought in contact with organic matter is such that it is unreasonable to believe that it could have any antidotal properties.

Thus the opinions stood before the reports of the practical use of the drug appeared. Since then there have been quite a number of cases described, from which the following are taken to illustrate the uses, effects and results of the drug when administered as an antidote.

Cases.—Dr. H. D. Walker reports a case of a woman, an habitué to the morphine habit, but reformed, who was accustomed but a few months previous to take thirty grains of morphine per diem. She took a dose of 45 grains, and was subjected to the approved routine treatment, and some hours after taking the poison showed improvement on the exhibition of 15 grains of the permanganate.

It is a question whether in this case, the patient being an old habitué to morphine, she would not have recovered under the

* Journal de Pharmacie, October, 1893.
† Deutsche Med. Wochenschr., 1883, No. 4.

* New York Medical Record, 1894, vol. i., p. 460.
† Ibid., vol. i., p. 816.
‡ University Magazine, vol. vi., p. 747 (Philadelphia.)
¶ Medical News, vol. i., p. 360 (Philadelphia.)
old treatment. Certainly no extraordinary antidotal qualities can be claimed here, yet there seems to have been some beneficial effect following the administration of the permanganate.

Drs. Moreland and Grigg report a case* of a man who took 2 1/2 ounces of laudanum of unknown strength, at 7.30 p.m., and was treated by another physician until sent to the hospital at 10 p.m. His condition was as follows: respirations four per minute; pulse weak; reflexes gone; pin-point pupils; bladder distended; profound coma.† The treatment he received was, besides that by the previous physician, artificial respiration, atropine, flagellation and 12 drachms of a one-half saturated solution of permanganate (estimated) hypodermically. Recovery resulted in six hours and forty-five minutes.

This is one of the best of the reported cases, yet the previous treatment by another physician is wholly omitted. The number of respirations, the pulse and the temperature are wholly ignored from the time of his admission until almost complete recovery.

The permanganate seems to have been followed by a marked improvement after its injection; but when we consider the vigorous treatment received in addition to the permanganate, it can scarcely be claimed that the drug evidenced any remarkable properties; the same improvement frequently results as conspicuously under the old treatment.

Two other cases are reported by them, which, owing to the lack of detail, are not germane to this paper.

Dr. Pyle reports a series of cases,‡ none of which seems in any way to prove the alleged antidotal properties of the permanganate.

In the first case routine treatment was given in addition to the permanganate. Here the drug surely had an opportunity to show its value, the patient being under treatment and alive for seven hours, yet death resulted.

The second case (where the dose was unknown, had the stomach washed out thirty minutes after taking the narcotic, atropine being administered at the same time) received, together with a solution of permanganate, the most vigorous and approved treatment; recovery of reflexes and consciousness followed in one hour and twelve minutes, and the patient was discharged the next day.

The recovery was so rapid, the treatment so vigorous, and the report so meagre regarding pulse, respirations, temperature, and the effect following the administration of the permanganate, that it is impossible to determine whether the permanganate was of value or not.

The third case (the dose being 1 ounce of laudanum) was under treatment within one hour after receiving the drug. The treatment was the approved routine methods, together with a solution of permanganate per the stomach and hypodermically. Recovery in fifteen minutes.

The recovery was so extremely rapid, the fatal dose so small, the respirations never below eight per minute, the reflexes never lost, and the report so insufficient that there is no value to be attached to the case.

Regarding the fourth case, the dose being but two drachms of laudanum, the report was so unsatisfactory and the treatment so slight that it would have been quite as well not to have reported it.

Dr. J. C. Crossland's patient,* by whom two ounces of laudanum are supposed to have been invested, was found in a comatose condition with symptoms of opium-poisoning. Treatment began at 8.30 p.m., about one hour after the dose was supposed to have been taken. There were given atropine, electricity and permanganate by the stomach; the respirations

† Description supplemented in University Magazine, vol. vi., p. 107.

and pulse improved and the pupils dilated. At 9.30 p.m. atropine was again administered; the respirations and pulse were slightly better and the pupils normal. At 10.30 (no permanganate having been given since 9.10) the condition became alarming, and nitro-glycerin, atropine and electricity were given. At eleven o'clock the patient regained consciousness and gradually recovered.

In this case it is impossible to say with certainty whether or not the permanganate was of value.

The doctor mentions another case in which four grains of permanganate had no effect after the ingestion of an ounce of laudanum.

Dr. J. S. Carpenter reports a case* of peculiar idiosyncrasy, where the patient exhibited symptoms of morphine-poisoning, following an injection of morphine and atropine, given in treatment. An hour and a quarter after the administration of the drug the doctor arrived, and immediately adopted the "established treatment," giving atropine freely in doses as high as ¼ grain; artificial respiration was employed continuously, and there were given 37 drops of a saturated solution of permanganate in three doses hypodermically (about 3 grains.) Some improvement in respirations followed the second dose. Recovery in two hours and fifty-five minutes.

Dr. C. Even Johnson's case† where permanganate was given, together with the old treatment, simply states that "decided improvement" followed each injection without showing what that improvement was, whether number or depth of respirations, pulse, reflexes, or pupils, and therefore can carry no weight as to the value of the drug. It is a fair sample of the disappointment experienced in reviewing many of these cases, and reliance in the physician's report must be shaken by the carelessness of the observations.

Dr. C. H. Callender's report of his case* is by far the most satisfactory review- ed.† It shows that following the first injection of the permanganate and the subsequent injections there was a decided improvement in respirations, increasing in number from 8 to 12, to 16 and 18 and in the pulse from 46 to 64, 68, and to normal. In this case 2 ounces of laudanum had been taken.

This is a unique case, as it reports no other treatment but that of walking the patient. In order to satisfy myself that no other treatment was given I communicated with Dr. Callender on the subject; and I have received a reply assuring me that owing to an accident to his carriage, in which his medicine case was left, he had neither atropine, strychnine, nor caffeine, or he should have used them; and that the only other drug used in the case was the permanganate, and the only other treatment given was that of walking the patient, and prior to his arrival the rubbing of the patient with whiskey.

This, then, is the only case I have found where permanganate alone was relied upon in a case of opium-poisoning, and is of value as to the action of the drug.

Dr. J. I. Darby reports a case,‡ with considerable detail, of a man who took 12 grains of morphine about 12.30 a.m., he having a few times before taken ¼ grain of morphine for insomnia. At six o'clock, when the doctor arrived, he was aroused sufficiently to take a cupful of strong hot coffee and a 3-grain solution of permanganate, with no apparent effect. General and vigorous routine treatment followed, including atropine, electricity, and so forth. After 2 p.m., the condition being very grave, he was given a 2-grain solution of permanganate, which was followed by improvement in respiration.

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† Here the question arises as to where the laudanum was obtained, as that kept by many country drug-stores is not very poisonous; at times inert.
‡ Atlanta Medical and Surgical Journal, vol. xxvi., p. 363.
Gradual improvement followed, with recovery in nineteen hours.

This is an interesting case, and I regret that Dr. Darby did not use the permanganate more frequently and earlier in the treatment. It shows, however, that there was no evidence of improvement from the larger dose given by the stomach, while there was a decided and marked improvement following the hypodermic injection.

Dr. C. M. McGuire offers a case* to the profession to show that permanganate is not only worthless but a dangerous drug to use. In this case, four hours after the ingestion of the poison and after the patient was well on towards recovery, he gave some 3 or 4 grains of permanganate to the patient. Sudden collapse followed; this he attributes to the permanganate. Shortly after this the patient recovered after persistent routine treatment.

This case acted similarly to the case of Dr. Crossland, in which the patient became suddenly worse an hour and a half after the administration of the permanganate; and can possibly be explained as one of the peculiar or erratic results of opium-poisoning, or by some peculiar idiosyncrasy on the part of the patient for the permanganate, or some condition not observed, as a dose of 4 grains of permanganate is but an ordinary therapeutic one, not infrequently given.

In this case it will be observed that there is no mention of the reflexes, and that the pulse and respirations received but a passing mention. The conditions immediately preceding and following the giving of the permanganate are not noted; consequently there is little value in the report.

The lack of detail and of careful observations recorded in most of the cases render them of little value in the study of permanganate.

After a careful review of the cases, one is loath to believe that the permanganate, save in the case of Dr. Callender,* saved the life of the patient, in view of the associated treatment.

* The question as to the quality of the laudanum, however, suggests that even here its effect may be overestimated.

Apropos to the above cases, the case of Dr. Percy Pope † is an instance of what may be and has been accomplished with persistent and intelligent routine treatment. Here a young girl of nineteen, who never before had taken opium to her knowledge, took 12 grains of morphia hypodermically, and recovered in thirty-six hours under his constant and persistent treatment.

While this is an extreme case, it nevertheless goes to show from what enormous doses it is possible to rescue your patient by the old style treatment.

With this case in mind, together with the other cases reviewed, it must be admitted that the question of the true antidotal properties of permanganate is far from being established.

This conclusion being reached, and with the hope of finding something definite concerning the action of the drug, I have undertaken a few experiments on animals.

In considering these experiments it must be borne in mind that the lower animals, relatively to man, are peculiarly insusceptible to the action of morphine, and that the minimum fatal dose for rabbits was found by Falck to be 72 grammes per kilogramme of weight. It must also be remembered that rabbits vary somewhat in their susceptibility to the drug; and further that there is a considerable variation in their respirations and pulse, and that the latter is so sensitive to outside influences, such as alarm, noise, touch, the presence of dogs, and so forth, that it is not wise, in these experiments, to here attribute the noted changes in the pulse-rate to the effect of the drug being experimented with. For this reason I have not taken observations of the pulse in the following experiments.

† London Lancet, March 17, 1894.
It is claimed by the friends of the permanganate theory that one grain of permanganate is sufficient to decompose one grain of the morphine.

Professor Wormlay, in his experiments with the two drugs,* in which he dissolved two hundred and fifty milligrammes of morphine sulphate in twenty-five cubic centimetres of water containing five hundred milligrammes of the permanganate, found traces of morphine present. In my experiment 12, in which I dissolved equal parts of the drug and mixed them together, and then filtered, there was found morphine present in both the filtrate and precipitate amounting to some six per cent.†

These experiments would, therefore show that, even when brought together in the proportion of morphine one and permanganate two, all of the morphine is not destroyed.

Experimental Data.—In my control experiments numbered 1, 2 and 3, it will be seen that comparatively small amounts of the permanganate produced death in the rabbits, which would seem to be out of all proportion to the lethal dose of morphine. It is therefore impossible to make satisfactory experiments applicable to man, and it must follow that to save the rabbit from death from morphine-poisoning it must be killed with the permanganate, unless it could be saved by giving an amount of the permanganate only sufficient to neutralize enough of the morphine to reduce it to less than a fatal dose. This failed in experiments numbered 7, 8 and 10.

As the fatal dose of morphine in man is usually so small and the toxic effect of permanganate so insignificant, the same objection cannot be raised.

In the endeavor to ascertain if the dose of Falck was given by the stomach or hypodermically, I gave a rabbit eighty gramme per kilogramme of weight by the stomach, through a No. 11 rubber catheter, by which all exhibitions by the stomach were made, without it being visibly effectued, except a certain drowsiness or stupor. I therefore thought that if the stomach were washed out and morphine administered, I could produce death with Falck's dose of morphine. In this I was unsuccessful. I consequently concluded that the dose was a hypodermic one and so considered it, giving all the morphine hypodermically.

Has Permanganate any Antidotal Properties?—From the cases cited and from my experiments I think there is evidence to show that permanganate exerts an influence that combats to some extent the effect of morphine. While there is but one case reported that can be said to have recovered from the poisoning by the administration of the permanganate, there is scarcely one reported that could not have recovered under persistent and judicial treatment had the permanganate not been given; yet I am convinced that in a few of the cases there is evidence of a decided effect produced by the use of the drug. I am confirmed in this belief by the results of my experiments, which show not only that there was a marked increase in the number of respirations and an apparent effect on the circulation, but that in each case where morphine had been given the lives of the animals were materially prolonged beyond the time at which death occurred in the control experiments with morphine, when permanganate was exhibited to combat the poison.

Is this Action Chemical or Physiological?—There can be no doubt that morphine is rendered largely inert by permanganate, when the two are brought together in direct contact. The illustration given by Dr. Moor, together with the experiments of Professor Wood and my experiment numbered 12, leave no room to doubt that when permanganate is taken immediately after the administration of a toxic dose of morphine or when given together, the poisonous effects are destroyed.
The China Medical Missionary Journal.

To satisfy myself of this I performed the following experiments, first having ascertained the toxic dose on rabbits in the control experiments numbered 4 and 5.*

I treated ten cubic centimetres of an eight-per-cent. solution of morphine with five cubic centimetres of a two-and-a-half-per-cent. solution of the permanganate, getting a thick, brownish-gray mixture, in which were scattered dark-brown specks. This I filtered five minutes later, getting eleven cubic centimetres of a rich sherry-colored liquid tinged with green. The permanganate should have acted on a sufficient quantity, weight for weight, of the morphine, so as to reduce the amount unacted upon below Falck's minimum fatal dose.

Experiment II.—Rabbit; weight, .86 kilos.

<table>
<thead>
<tr>
<th>Time</th>
<th>Mixture Subcutaneously</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.07 a.m.</td>
<td>11 c.c.</td>
<td>12.34, death; opisthotonus in 3 hours 27 minutes.</td>
</tr>
</tbody>
</table>

As the death of this rabbit may be accounted for by its age, estimating it by its size, I made another test. I made a mixture of morphine and permanganate, weight for weight, and heated it at 80° C. for ten minutes. A thick, turbid, dark chocolate-colored substance resulted; this I filtered, and got a rich, sherry-colored fluid, similar in appearance to Lougal's solution.

Experiment 12.—Rabbit; weight, 1.50½ kilos.

<table>
<thead>
<tr>
<th>Time</th>
<th>Mixture Subcutaneously</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30-35</td>
<td>31 c.c.</td>
<td>Complete recovery.</td>
</tr>
</tbody>
</table>

I made an analysis of the filtrate and of the precipitate. Both analyses showed the morphine not to have been entirely destroyed.

* See Appendix.
† Made by heating.

This experiment indicates the chemical action of the drugs when brought together in direct contact, and also shows the morphine to have been rendered practically inert outside the body.*

In order to test the value of the permanganate as a chemical antidote on the morphine claimed to be eliminated in the stomach I performed the following experiment: —†

Experiment 10.—Rabbit; weight, 1.72 kilos.

<table>
<thead>
<tr>
<th>Time</th>
<th>Morphine.</th>
<th>Permanganate.</th>
<th>Result.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.37</td>
<td>18 c.c.</td>
<td>1-per-cent. hypodermic solution, 18 c.c.</td>
<td>Death in 57 minutes.</td>
</tr>
<tr>
<td>5.01</td>
<td></td>
<td>5-per-cent. solution, per stomach, 36 c.c.</td>
<td></td>
</tr>
<tr>
<td>5.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Here it will be seen that the rabbit received weight for weight of morphine and permanganate. The injection of the permanganate, which was given in identically the same place as the morphine, was sufficient to act chemically on enough of the morphine to reduce the dose to the minimum fatal one.

Giving the morphine time (supposedly) to be eliminated by the cells of the stomach I gave in twenty-four minutes by the stomach .36 grammes of permanganate, a sufficient amount to act on the morphine and reduce the dose much below a fatal one, did it act chemically; yet the rabbit failed so rapidly that I was obliged to try and revive it by another and much larger dose. The animal survived but fourteen minutes, and would have died earlier but for artificial respiration.

From this experiment it would seem that there was little or no effect produced by the first injection of the permanganate; that the dose of morphine was so great that no physiological effect was apparent from the first two doses of the permanganate; that if the morphine was returned to the stomach and was there acted upon by the per-

* See also Professor Wood's experiments on pigeons.
† See Appendix.
manganate, it must have been after it had produced the systemic toxic effect, and therefore incapable of doing further harm had the permanganate not been administered; or that it was not returned to the stomach at all; or if it was so returned, it remained unacted upon by the permanganate.

It will be noted that there was a marked increase in the number of respirations following the last and stronger dose of the permanganate.

From Experiments numbered 7 and 8 it will be seen that there was enough permanganate given by the stomach in each case to have rendered sufficient of the morphine inert had it been acted on chemically, so as to have reduced the dose far below a fatal one, yet both rabbits died.

It would seem, therefore, that there is no evidence to show that after the morphine is absorbed the permanganate acts chemically upon it; but that if the permanganate proves of any antidotal value, it is due to its physiological properties, and is therefore a physiological antidote.

*Is the Action, therefore, Physiological?—*

From a review of the cases and from the results of my experiments, I can but believe that it is in this manner that the permanganate may be of value.

Binz and Sydney Ringer claim, from self-experimentation with permanganate, to have experienced a marked action on the respirations.*

While placing little reliance in the permanganate as having saved the lives of patients in the cases cited, I can but admit, after a study of them and the observations in my experiments, that the permanganate acts in what seems to be a physiological manner.

The conclusions of Professor Wood, † drawn from his two experiments on rabbits, seem scarcely just when you consider the difference in the susceptibility of rabbits and the difference in the weight of the animals. Both were given the same dose of morphine. The larger took less than the fatal dose of Falcé, while the smaller one took more than a fatal dose, together with the permanganate. It therefore seems to me unfair to attribute the earlier death of the smaller rabbit to the permanganate.

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**Epitome of Experiments on Rabbits.**

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<tbody>
<tr>
<td>1</td>
<td>1.61</td>
<td>Permanganate.</td>
<td>By stomach.</td>
<td>2.95</td>
<td>2½ days +</td>
<td>Rose from 30 to 220; fell to 50.</td>
</tr>
<tr>
<td>2</td>
<td>0.98</td>
<td>Permanganate.</td>
<td>Subcutaneously</td>
<td>1.00</td>
<td>21 hours.</td>
<td>Rose from 54 to 120.</td>
</tr>
<tr>
<td>3</td>
<td>1.18</td>
<td>Permanganate.</td>
<td>Intravenously.</td>
<td>0.17</td>
<td>50 minutes.</td>
<td>Rose from — to 145; fell to 78.</td>
</tr>
<tr>
<td>4</td>
<td>2.36</td>
<td>Morphine.</td>
<td>Hypodermically</td>
<td>1.92</td>
<td>18 minutes.</td>
<td>Decreased from 90 to 78.</td>
</tr>
<tr>
<td>5</td>
<td>1.61</td>
<td>Morphine.</td>
<td>Hypodermically</td>
<td>1.36</td>
<td>25 minutes.</td>
<td>Decreased from 48 to 30.</td>
</tr>
<tr>
<td>6</td>
<td>1.18</td>
<td>Morphine and permanganate.</td>
<td>Subcutaneously</td>
<td>M. 1.08</td>
<td>1 hour 52 minutes.</td>
<td>Rose from 61 to 105; fell to 42.</td>
</tr>
<tr>
<td>7</td>
<td>1.39</td>
<td>Morphine and permanganate.</td>
<td>By stomach.</td>
<td>P. 1.15</td>
<td>2 hours 17 minutes.</td>
<td>Rose from — to 200; fell to 100.</td>
</tr>
<tr>
<td>8</td>
<td>1.18</td>
<td>Morphine and permanganate.</td>
<td>By stomach.</td>
<td>P. 1.00</td>
<td>2 hours 22 minutes.</td>
<td>Decreased to 52; rose to 105.</td>
</tr>
<tr>
<td>9</td>
<td>1.93</td>
<td>Morphine and permanganate.</td>
<td>Intravenously.</td>
<td>M. 1.56</td>
<td>56 minutes.</td>
<td>Rose from 30 to 166; fell to 100.</td>
</tr>
<tr>
<td>10</td>
<td>1.72</td>
<td>Morphine and permanganate.</td>
<td>By stomach and subcutaneously.</td>
<td>1.44</td>
<td>57 minutes.</td>
<td>Decreased from 38 to 21; rose to 105.</td>
</tr>
<tr>
<td>11</td>
<td>0.86</td>
<td>Morphone, 10 c.c. Permanganate, 5 c.c. filtrate.</td>
<td>Subcutaneously.</td>
<td>11 c.c.</td>
<td>2 hours 27 minutes.</td>
<td>Rose from — to 105.</td>
</tr>
<tr>
<td>12</td>
<td>1.50</td>
<td>Morphone. Permanganate. filtrate.</td>
<td>Subcutaneously.</td>
<td>31 c.c.</td>
<td>Recovery.</td>
<td>Rose from — to 125; fell to normal.</td>
</tr>
</tbody>
</table>

Experiments with Peroxide of Hydrogen.

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<td>13</td>
<td>1.184</td>
<td>Morphine.</td>
<td>Hypodermically.</td>
<td>12.9/12.9</td>
<td>44 minutes.</td>
<td>Decrease from 60 to 18; rose to 150.</td>
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<td>Peroxide, 4 strength.</td>
<td>Hypodermically.</td>
<td>10.0/10.0</td>
<td>11 minutes.</td>
<td>Decrease from 75 to 21 later (?).</td>
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<td>14</td>
<td>1.392</td>
<td>Morphine (warm).</td>
<td>Hypodermically.</td>
<td>35.0/35.0</td>
<td>6 minutes.</td>
<td>Impossible to get after injection (40%).</td>
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<td>Peroxide, full strength.</td>
<td>Hypodermically.</td>
<td>18.0/18.0</td>
<td>3 minutes.</td>
<td>Impossible to get after injection (48%).</td>
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<td>15</td>
<td>.754</td>
<td>Morphine, 30 c.c.</td>
<td>Hypodermically.</td>
<td>20.0/20.0</td>
<td>60 minutes.</td>
<td>Decrease from 81 to 33; rose to 27.</td>
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<td>16</td>
<td>.944</td>
<td>Morphine.</td>
<td>Hypodermically.</td>
<td>6.5/6.5</td>
<td>3 minutes.</td>
<td>Increase from 14 to 15.</td>
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<td>17</td>
<td>.964</td>
<td>Morphine.</td>
<td>Hypodermically.</td>
<td>28.0/28.0</td>
<td>28 minutes.</td>
<td>Increase from 14 to 15.</td>
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My first experiments, as before mentioned, were to ascertain which method Falek used in administering his fatal dose, and concluded that it was hypodermically. My next experiments were for control; to ascertain the amounts of permanganate and of morphine that would kill. In the experiments with morphine for control and those following I gave in each case the morphine in the proportion of 80 grammes per kilogramme; it will, therefore, be necessary to bear this in mind.

From the foregoing epitome the following will be noted:—

1. That the control experiments establish fatal doses for morphine and permanganate.
2. That when the permanganate was given after the exhibition of the fatal dose of morphine, the life of the rabbit was prolonged beyond the time at which death resulted from the morphine control experiments.
3. That the number of respirations was increased in each instance following the administration of the permanganate.
4. That the amount of the permanganate given by the stomach and subcutaneously after the dose of morphine was sufficient to destroy enough of the poison to reduce the amount exhibited far below a fatal one did it act chemically, yet each case proved fatal.

It is particularly interesting to note that with the administration of permanganate there was a marked rise in the number of respirations, showing it to influence in some manner physiologically, directly or indirectly, the respiratory mechanism; this may be by acting as a stimulant or by acting as an irritant; and, further, it will be seen, by reference to the cases in detail in the Appendix, that there is evidently some influence produced on the vasomotor system by the marked dilatation of the vessels of the ears.

In the endeavor to ascertain if the administration of the permanganate has any effect on the blood-pressure, I performed Experiments 18 and 19 on dogs.* In Experiment 18 I gave the permanganate alone, while in Experiment 19 I gave the permanganate after the exhibition of morphine. In both instances there was a steady and perceptible fall in the pressure, save at the time of or immediately following the exhibition of the drug. This may be accounted for by the irritation caused by the permanganate.

In both experiments there was an early and persistent clotting which effectually prevented the taking of further tracings. In Experiment 18 the clotting commenced in thirty-six minutes; while in experiment 19, where opium had been exhibited and a much less quantity of the permanganate, the clotting began in one hour and ten minutes.

In Experiment 18 the dog survived but two days, after repeated injections of digi- 

* See Appendix for particulars.
of opium poisoning in less than two hours after its exhibition.

It would, therefore, seem that whatever effect the drug has on the circulatory system, as evidenced by the dilatation of the vessels in the ears of the rabbits, it cannot be ascribed to pressure, but might be due to some effect on the vaso-dilators or to vaso-constrictor paresis.*

It would also appear from the early clotting in both experiments that permanganate or some of its products has some action which produces a change in the character of the blood, showing that some chemical action takes place which throws something into the circulation to produce it.

This effect on the blood may account for the physiological action produced, and in small and therapeutic doses may also account for its beneficial action in the cases of poison by the morphine.

The permanganate seems to act antagonistically to morphine when introduced hypodermically, as it does when by the stomach. Schlagdenhauffen and Reeb, in their experiments, found that when the drug was so administered it had the effect of suspending the action of the poison they were investigating. The case of Moreland and Grigg would indicate a similar action.

In Carpenter's case the respirations seem to have improved, though the respiration-rate is not given. Callender's case certainly is of much importance as illustrative of this point.

Darby's case shows an improvement in the respirations after the hypodermic injection. My Experiment numbered 6 shows that while the respirations at first seemed to be influenced by the morphine, they were markedly increased after the injection over the spine.

By reference to Experiment 10 it will be seen that little effect was produced by the first two exhibitions of permanganate in the smaller doses, after the morphine had been taken up by the system, although the first was introduced through the same needle and into the same pocket with the morphine; yet when the larger and more powerful dose was given, after the morphine had probably done its work, there was a great change in the number of respirations.

It is interesting to note that in Experiments 7 and 8, where the permanganate was introduced by the stomach, as compared with Experiment 6, where it was given hypodermically, the rabbits lived much longer when it was given by the mouth; notwithstanding that when it was exhibited hypodermically it was given as nearly as possible in the same place that the morphine was injected and as soon after as practicable.

The amount of permanganate in each case was sufficient to reduce, chemically, the dose of the poison below the fatal limit, and being brought almost simultaneously into the same area as the morphine, the chance for its chemical action can hardly be questioned.

That these improvements in respiration and the effect produced by the permanganate can be attributed to its direct action on the morphine I think there is great reason to doubt. While it may not be the permanganate that is taken up by the system, it may be some of the products of the drug.*

Is Permanganate a Reliable Antidote?—From the self-experimentation of Dr. Moor, the experiments of Professor Wood, and my Experiment numbered 12, it would seem that the permanganate, when given with or immediately after the administration of the morphine, either by the stomach or as a filtrate hypodermically, acts as a reliable antidote.

The improvement following the exhibition of the permanganate in several of the cases quoted and the effect on the respiration I was able to observe in my experiments, warrant me in believing it to be a valuable adjunct to the old treatment, but not reliable per se.

* The vessels were found dilated, post mortem.
The enormous doses of the morphine necessary to destroy the lower animals render satisfactory experiments impossible, as the animals cannot survive both drugs; and as I do not think that there is sufficient evidence to be found in the cases to warrant the placing of any reliance on the permanganate solely as an antidote, I think its alleged properties are far from being established.

After a careful review and study of the cases, it is with great difficulty and hesitation that one can arrive at any definite or satisfactory conclusions. The large majority of the cases are found worthless, owing to the careless way in which they are reported or a lack of care in the observations made during the treatment of the case.*

Again, when it is found that the administration of the drug is always associated with the most vigorous and approved methods of treatment, together with the exhibition of drugs that are known to produce the general improvement usually noted after the use of the permanganate, it is with a feeling of greatest timidity and uncertainty that one attempts to draw conclusions. It can, however, be safely inferred that in no case, except, perhaps, that of Callender's, was the life of the patient saved by the use of the permanganate alone, and in no case was it principally relied on.

No direct influence of the permanganate, when given hypodermically or by the stomach, on the morphine absorbed into the system has been demonstrated or proved to exist. This has, however, been claimed, and it is said to be due to the ability of the permanganate to give up a portion of its oxygen in the presence of organic matter.

That this is true I am inclined to believe, because a person poisoned by opium dies as much from asphyxia resulting from CO₂ poison as he does from the opium, and it appears but reasonable to suppose that any additional oxygen put into circulation must act antidiotically to CO₂ poison, and thus prolong or save life.

That this is probable is evidenced by the case of Dr. W. C. Merry.* Here a man recovered who had taken 2 ounces of chlorodyne and was found in a completely cyanosed and collapsed condition, who failed to respond to the routine treatment of morphine-poisoning, and was given inhalations of pure oxygen for twenty minutes every half-hour.

In this case the oxygen acted as a forced artificial respiration and an antagonist to the CO₂ poisoning and, as such, seems to have been efficacious and must have shortened the time of treatment, if not actually saved the patient's life.

That free oxygen in the system exerts any direct influence adverse to the opium, when absorbed, I think, may be doubted from the following experiments made on rabbits with the peroxide of hydrogen; these investigations were suggested to me in the course of my work.

These experiments were certainly unsatisfactory; the peroxide was given of various strengths and in different manners; yet in no instance can the life be said to have been prolonged, except per-

* As an instance of how little evidence there is to show that permanganate exerts a beneficial effect, there is reported a case interesting as a literary and narrative effort, though of little value medically. The doctor was called, and arrived three-quarters of an hour after the patient had taken the contents of a vial of L. and L., afterwards estimated to contain some three drachms of landa-num, of unknown strength. During one hour and three-quarters this case received from the doctor, as treatment, according to his report, ½ grain of apomorphine. The temperature during this time was not taken, the reflexes never lost (note the effect of the hypodermic needle), the pupils contracted (did they respond to light?), the respirations slow, etc. After the lapses of the one hour and three-quarters spent with his patient, he used permanganate of potassium, with happy, and to him remarkable, results. This case is of interest in one way,—i.e., There was practically no other drug or mechanical treatment instituted; hence, provided the original amount of the drug, or that which was absorbed before the apomorp-hine exerted its effect, was lethal, recovery would necessarily depend upon the effect of permanganate. Such reports of cases, with their lack of detail and careful preparation, are of little value to the profession and do little towards gaining its confidence. Neither do they add "testimony to evidence." A case of mine will be found in the coming number of the Gazette which is of as little value. The similarity of the two will please be noted. (September 15, 1866.)
haps, in Experiment 13. This may have been due to the idiosyncrasy of the rabbit for the poison. There is no doubt that death was hastened in Experiments 14, 15, and 16; the last two, it would seem from the suddenness of their death, died from shock, while Experiment 17 may be said to be negative.

Post-mortem examination showed quantities of free gas infiltrating the subcutaneous tissue where the peroxide was given hypodermically, and showed the stomach and intestines distended with gas where it was exhibited by the mouth.

It is interesting to note in Experiment 15 that in bringing the two drugs—morphine and peroxide—together their active properties were not destroyed.

It might be added that, after the failure to get the desired effect by introducing the morphine by the stomach, and the ill-success experienced in washing out the stomach for the purpose of getting that effect, it suggested itself to me to try an experiment by the rectum, by introducing the morphine and following it by a solution of permanganate.

This, however, was abandoned when it was known how much liquid it would require.* It seemed that it would be impossible to keep the solution in the bowel, especially when followed by the addition of the permanganate.

This but illustrates the disadvantage one labors under in experimenting with this drug on the lower animals.

Pathological Conditions.—Preparations of sections of the kidneys, liver, lungs, and stomach of the rabbits of Experiments 1, 3, and 10 show the effect produced in those organs by the circulation and elimination of the permanganate or its products. The condition found (the animals being presumably normal prior to the experiments) tends strongly to show that conditions of congestion in all of the organs follow the use of the drug in large and concentrated doses (as those found necessary to counteract the lethal dose of morphine), and that instead of remaining inert after its exhibition, as commonly supposed, it produces a systemic effect of no little moment.

In all of the specimens there were found areas of congestion and irritation, and in several the vessels were found filled with blood.

These changes certainly indicate that permanganate, when administered by the mouth or otherwise, gets into the circulation in some form (either as permanganate or one of its products) and works some change in the character of the blood.

Conclusions.

The conclusions to be drawn from the foregoing investigations are:—

1. That the susceptibility of lower animals to the action of morphine renders experiments on them very unsatisfactory in arriving at any results referable to man.

2. That the dose of permanganate of potassium necessary to counteract the enormous lethal dose of morphine in the lower animals must of itself prove fatal.

3. That the exhibition of permanganate of potassium, by the stomach or hypodermically, has a marked influence in prolonging the life of rabbits poisoned by morphine.

4. That the action of permanganate of potassium, when given separately from and not immediately following the dose of morphine, is not chemical.

(a) Because there is no proof of a chemical action to be adduced from the cases or experiments.

(b) Because there is evidence that it does not act chemically.

5. That the action of permanganate of potassium is physiological.

(a) Because there is no proof that it acts chemically, except when brought in direct contact with the stomach.
(b) Because there is evidence that the exhibition of permanganate of potassium, by the stomach or hypodermically, increases the number of respirations.

(c) Because there is evidence that the exhibition of permanganate of potassium, by the stomach or hypodermically, has an appreciable effect on the circulatory system, as seen by the dilatation of the vessels of the ears and by the direct effect on the blood.

6. That permanganate of potassium is not a reliable antidote.
(a) Because there is no proof that when permanganate of potassium is given after the absorption of the morphine it is per se a reliable antidote.
(b) Because there is evidence that when the permanganate of potassium is given after the absorption of the morphine it is an unreliable antidote.
(c) Because there is proof that when permanganate of potassium is given after the absorption of the morphine it has no apparent effect.

7. That permanganate of potassium, like strychnine, caffeine, and atropine, has some valuable properties, useful in the treatment of morphine-poisoning, but as yet undetermined.*

Appendix.

Analysis of a Mixture of Permanganate of Potassium and Morphine.—The Filtrate.—

Fourteen cubic centimetres of the filtrate (seventy-six cubic centimetres in all) of a mixture consisting of forty cubic centimetres of an eight-per-cent. solution of morphine sulphate and fifty-five cubic centimetres of a saturated solution of permanganate of potassium was treated with twenty-five cubic centimetres of ammonium hydroxide to precipitate any morphine present.

Then sixty-five cubic centimetres of hot amyllic alcohol was added and well shaken up, so that it was thoroughly mixed; the ammonium mixture remaining at the bottom lost four cubic centimetres in bulk.

By means of a pipette the amyllic alcohol was drawn off, and the ammonium mixture again washed with more hot amyllic alcohol, which was drawn off as before.

The whole of the amyllic alcohol thus drawn off was evaporated on a water-bath to dryness. The residue gave the morphine reaction with sulpho-molybdic acid.*

The residue, being of a dark color, was dissolved with water to which a drop or two of acetic acid was added; the solution was again treated with amyllic alcohol, drawn off, and evaporated on the water-bath; the residue was of the same color as the original morphine solution, and gave a decided reaction for morphine.

The residue was then weighed and found to be .027 gramme, being the amount of pure morphine in fourteen cubic centimetres of the filtrate.

The Precipitate.—Dissolving the precipitate, together with the macerated filter-paper on which it was collected, in water, it was treated with ammonium hydroxide to eliminate the morphine present; this was then mixed with hot amyllic alcohol to extract the morphine, and this process repeated, as with the filtrate.

The amyllic alcohol was then evaporated on a water-bath to dryness; then dissolved in acetic acid and water and again treated with amyllic alcohol, and evaporated to dryness, as before. This resulted in a light-colored residue similar to the residue from the filtrate, and gave a decided reaction for morphine.

The residue was again dissolved and treated with ammonium hydroxide, which threw down a flocculent precipitate, which was collected on equipoised filter-paper and was found to weigh .047 gramme; this precipitate responded strongly to the morphine.

* The sulpho-molybdic acid is prepared by dissolving by gently heating three parts of molybdic acid in one hundred parts of sulphuric acid.
test, while the filtrate did not when brought in contact with the sulpho-molyb-
dic acid.

Conclusions.—From the above analysis it would seem :—
1. That from the morphine of the origi-
nal mixture there could have been recover-
ed from the whole filtrate .1465 gramme, 
figuring it from the amount recovered from 
the fourteen cubic centimetres; that, toge-
ther with the .047 gramme recovered from 
the precipitate, the total amount of the 
fifty cubic centimetres of morphine unde-
composed was .1935 gramme.
2. That in the thirty-one cubic centi-
metres of the filtrate given the rabbit in Ex-
periment 12 there must have been .0598 
gramme of pure morphine.
3. That the permanganate of potassium 
decomposed or destroyed only about ninety-
four per cent. of the morphine.

(Note.—From recent experiments with 
laudanum I am inclined to believe that per-
managanate has not the same “chemical 
antidotal” properties on the morphine con-
tained in the laudanum, and that much 
more morphine can be recovered after 
treating laudanum with permanganate. As 
my experiments so far are too few and not 
yet complete, I simply give this as a sug-
gestion. If this be so, the effect of the 
administration of the permanganate in 
cases of laudanum-poisoning would indicate 
that its influence is rather physiological 
than chemical.—July 1, 1895.)

Pressure Experiments.

Experiment 18.—Dog; weight, 9.46 kilos.
A.M.
11.00 Dog was etherized and canula intro-
duced into left carotid artery.
11.18 Tracing taken when coming out of 
ether shows a pressure of 128 mil-
limetres.
11.20 18 cubic centimetres of a two-per-
cent. solution of permanganate was 
introduced hypodermically into 
abdominal muscles.
11.21 Tracing shows a slight rise of pres-
sure of 4 millimetres. Pressure 
132 millimetres.
11.28 Tracing shows a fall of 20 millimetres. 
Pressure, 112 millimetres.
11.40 Gave 12 cubic centimetres of a two-
per-cent. solution of permanganate 
into thigh muscles. Pressure, 102 
millimetres.
11.42 Tracing shows a slight rise of pres-
sure of 7 millimetres. Pressure, 
109 millimetres.
11.51 Tracing shows a fall of 5 millimetres. 
Pressure, 104.
11.57 Obliged to discontinue tracing on 
account of continuous clotting, al-
though several unsuccessful at-
tempts were made to clear canula.

(Note.—Dog died two days later, having 
refused to eat, but drank frequently of 
water.)

Experiment 19.—Dog; weight, 7-74 kilos.
P.M.
1.40 Dog was etherized to introduce ca-
num into left carotid. Pressure, 
110 millimetres.
2.05 Gave 40 cubic centimetres of an eight-
per-cent. solution of morphine, 
which was followed by an imme-
diate lowering of the pressure. 
Tracing shows a pressure of 78 
millimetres.
2.15 Gave 40 cubic centimetres of a one-
per-cent. solution of permanga-
nate by stomach, with no apparent 
effect on pressure.
2.17 Tracing shows a pressure of 54 mil-
limetres.
2.32 Gave 20 cubic centimetres of a two-
per-cent. solution of permanga-
nate hypodermically.
2.37 Tracing shows a pressure of 48 mil-
limetres.
2.56 Pressure falling so rapidly, gave by 
stomach 50 cubic centimetres of a 
two-per-cent. solution of permanga-
nate. Tracing shows a pressure 
of 42 millimetres.
2.59 Tracing shows a further fall. Pressure, 41.
3.15 Obliged to stop tracing on account of clotting.

(Note.—Dog died shortly after release, at 3:20 p.m., from effect of the morphine.)

PERMANGANATE OF POTASSIUM IN OPIUM-POISONING.

In the correspondence columns of the Therapeutic Gazette of the August issue there appeared a brief note regarding a case of morphine poisoning, in which the patient is supposed to have ingested 30 grains of the sulphate of morphine, and in which recovery took place under a method of treatment in which the permanganate of potassium was largely administered hypodermically. And in this issue we publish the exhaustive research of Dr. Sharp on this topic. Notwithstanding these arrays of facts, our opinion in regard to the question remains unchanged and may be expressed as follows:

We think that there is little doubt that this substance, when given by the mouth during the time that morphine still remains in the stomach, possesses distinct antidotal influence, since by its powerful oxidizing properties it speedily destroys the alkaloid of opium. Even here, however, it should be remembered that the action of the permanganate in the human stomach must be far less efficacious, so far as oxidizing morphine is concerned, than it is when placed in a test-tube, since the presence of other contents of the stomach, of mucus, or the mucous membrane itself, to a certain extent helps to impair the full effect of the antidote. When it comes to the administration of the permanganate of potassium hypodermically for the purpose of acting as a chemical antidote in morphine-poisoning, we think that we have reached a reductio ad absurdim, for two reasons. In the first place, the permanganate of potassium possesses no power which would enable it to act as a physiological antagonist to the influences of morphine, and the only way in which it can do good in poisoning by this drug rests upon its ability to oxidize the alkaloid. As a matter of fact, a solution of permanganate of potassium injected into the subcutaneous tissues is at once oxidized and changed into a different substance and, therefore, can no longer act as the permanganate; and further, even if this chemical change did not take place, its hypodermic administration would be futile, since long before it could be absorbed and act upon the morphine, which is widely distributed in various portions of the body, it would have oxidized other substances which it might have met with in the blood or other tissues of the body. We are well aware of the fact that quite a number of cases of morphine-poisoning with recovery after hypodermic injections of permanganate have been reported within the last few months, but we have yet to see one in which strict scientific evidence was adduced that the recovery depended upon this method of treatment.

We doubt not that the hypodermic injections frequently administered have some influence in keeping the patient awake, or, in other words, of preventing him from forgetting to breathe, by reason of the pain which these hypodermic injections adduce. In other words, the recovery in these cases, if due to this method of treatment, rests upon the peripheral irritation which is caused, and not upon any action of the permanganate of potassium.

In the case which was reported by Dr. Suker in our correspondence columns, it will be noticed that the patient received no less than nineteen hypodermic injections on an average every ten or fifteen minutes, which caused more or less swelling and discoloration of her arm, and that in addition she received that most powerful of stimulants, ¹⁄₅ grain of nitro-glycerin hypo-
A FEW OTOLOGICAL AND RHINOLOGICAL DON'TS; OR, WHAT NOT TO DO IN EAR AND NOSE CONDITIONS.

Roberts contributes the following brief notes to the Medical Record for June 1, 1895:—

Don't advise or permit a patient with profuse otorrhoea to constantly wear cotton in the ear; it causes retention of discharge, and operates against that diligent attention to cleansing and other treatment which would otherwise be given.

Don't use the galvano-cautery in the auditory canal; it is liable to be followed by such consequences as necrosis, ulceration, otitis externa, or stenosis.

Don't blow insoluble powders into the ear, where there is a purulent discharge through a small perforation; it may appear to stop the discharge, but it does so usually by occluding the perforation, and may be followed by worse conditions.

Don't neglect to look for ear complications in all eruptive fevers, typhoid fever, diphtheria, and low types of pneumonia.

Don't Politzerize through nares in which there is stored up foul catarrhal mucus.

Don't Politzerize with much force in sensitive patients or those having a thin, translucent drum-membrane.

Don't neglect to keep watch of the mastoid prominence in all cases of purulent otitis, and if tenderness, heat, and swelling are found, to take measures to subdue a probable incipient mastoiditis.

Don't overlook, in chronic ear-disease, constitutional conditions, such as lithiasis, scrobatus, tuberculosis, and syphilis. This precaution applies likewise to diseases of the nose and throat.

In seeking to enlarge the capacity of the nasal passages, don't forget that in patients of middle age the tendency is towards atrophy, and don't think it necessary to secure an absolutely normal capacity on both sides at the expense of an entire turbinate body.

Don't spray the nose with powerful solutions, or only exceptionally with such as give pain.

Don't think that atrophic rhinitis or fetid catarrh can be helped by any medicinal applications until all inspissated crusts and dried mucus have been removed.

Don't use a douche arranged on the plan of the fountain syringe; it is pretty certain at some time to cause middle-ear inflammation.

Don't cauterize a turbinate body near a point lying in juxtaposition to the septum, or operate upon the turbinate and septum at one time. The result will probably be an adhesion, and the final state of that person will be worse than the first. In the case named the snare may be used, or a cautery may be applied to the central interior portion of the growth by the pointed electrode or by injection of a few drops of dilute carbolic acid or pure iodine tincture.

Don't neglect to give especial attention to the posterior nares and vault of the pharynx; aside from operative measures, it is in these regions that local treatment will prove effectual.

Don't make strong applications to the vault of the pharynx without guarding against the surplus fluid dropping into the larynx, and thus setting up an alarming attack of laryngeal spasm. This can best be avoided by pressing out the excess of fluid from the application and directing the patient to take a swallow of water immediately after the application is made; a very good plan also is to wind an extra wad of cotton around the shank of the applicator at about its head, which will catch and hold any surplus fluid which may be pressed out by the palatal contraction.

Don't, under any circumstances, cauterize the pharynx above the level of the soft palate. As yet no one has succeeded in

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curing adhesions between the palate and wall of the pharynx.

Don't cauterize the septum; it will result in troublesome ulceration, or not unlikely in proliferation of tissue, producing exostosis or epichondrosis, according as it is either bony or cartilaginous tissue that has been offended.

Don't remove packing from the nose after an operation in less than thirty-six hours, or leave it in longer than sixty; the former action delays the progress of the case by causing irritation and renewed hemorrhage; the latter is needless and may result in some septic infection.

Don't use any but antiseptic dressings, of which the best is iodoform gauze.

Don't prescribe cocaine preparations for coryza and tell your patient what you are giving; equally good results may be obtained by the use of hydrastinin nitrate in two- to four-per-cent solutions or powders, and with more enduring effect, as well as without reaction.

Don't employ tannin or iron styptics, thereby producing tardy coagulation, difficult of removal; if anything short of plugging will suffice, it may be found in antipyrin forty-grain solution, or the; pure drug, or in peroxide of hydrogen of about two-per-cent volume.

SILK VERSUS CATGUT.

Kocher (Universal Medical Journal, June, 1895) states that in his operations for goitre primary union was obtained in only thirty-five per cent. of cases when sterilized catgut was used, but in 85.7 per cent. when sterilized silk was used. He has now completely abandoned aseptic sutures, and only employs silk made antiseptic by solution of bichloride of mercury. Since adopting this method he has obtained primary union in every case.
Evangelistic.

WORK IN MANCHURIA.

We extract the following from the report of a speech made by Dr. Westwater of Manchuria and reported in the Edinburgh Medical Missionary Society's Quarterly Paper. Dr. Westwater was in 1887 transferred from China to Manchuria and appointed to commence medical mission work in the capital of that province. His first attempt to obtain a house was unsuccessful, but he secured one some forty miles away and there he dispensed medicines. The native magistrates, however, displayed much hostility. "One of the members, a silversmith, brought an action against a defaulting partner; when he appeared in court the magistrate, on being informed that he was a Christian, at once replied, "Take the thing outside and give him three blows on the face with the bamboo." After this action of the magistrates assaults on the Christians and attacks on the chapel and dispensary became common, ending on the last occasion with the death of Mr. Wylie. "This was the condition of things when the wife of the magistrate, who was suffering from a surgical affection for which the native doctors could do nothing, came to him. An operation afforded immediate relief. Other members of the family, including a son, also came under his care and in a short time that hostile magistrate and his whole household became their best friends. The change that took place in that household took place in the homes of many other persons in the city. They had recourse to him for medical assistance and that, giving opportunity for more intimate acquaintance, led them to discover that he was not the foreign devil they had anticipated: soon departing from the ranks of his enemies, they joined the rapidly increasing numbers of his friends. The following autumn, joined by Mr. Wylie, he took up his permanent residence in the city. During that year many people were admitted to the membership of the Church and, a suitable site having been secured, he was able to erect a hospital. The site of the hospital was the glebe of an ancient Buddhist temple. The owner was a priest, gambler and opium smoker. Meeting him (Dr. Westwater) one day, he said, "Now you have got the ground, you had better take the temple too;" he did so for a small sum. The temple was in a ruinous condition and there was a large bell belonging to it in the possession of the late owner. Meeting the latter one day Dr. Westwater said to him, "Now we have got the temple, you had better present us with the bell;" one day he found that the bell had been brought to his door. Thus their hospital stood on the site of the Buddhist temple and above the door of the hospital is now the old bell which formerly had crowned the
dealing

With

special

affords

have

we

other

triumph

ignorant.

What

years

back,

on

resolved

reproach.

dispensary.

When

medical

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M'Laren,

of

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obtained

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happened

to

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the

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of

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mission

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hand

lukewarm.

grew

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one

disuse

and

superiority

by

accompanied

The

temple.

The

following

year

their

new

premises

were

opened

by

Mr. Duncan

McLaren,

of

Edinburgh,

Chairman

of

the

United

Presbyterian

Board,

who

happened

to

be

in

Manchuria;

that

hospital

added

greatly

to

the

scope

of

their

medical

work

there.

Through

their

work

they

got

acquainted

with

the

most

influential

men

in

the

city,

who

constantly

came

to

the

hospital

and

dispensary.

When

these

men

came

they

were

keenly

observant

of

the

methods

of

the

missionaries

and

of

their

endeavours

to

heal

the

sick

and

to

teach

the

ignorant.

What

they

saw

condemned

their

own

indifference

to

the

moral

well-being

of

their

fellow-men

and,

as

staunch

Confucians,

they

felt

the

reproach.

As

a

result,

a

Committee

was

formed

of

the

citizens

and

they

resolved

to

erect

a

hall,

after

the

model

of

the

Christian

chapel,

to

expose

the

sixteen

moral

maxims

of

Confucius

which

had

been

ordered

to

be

expounded

on

the

1st

and

15th

of

the

month.

That

practice

had

fallen

into

disuse

and

this

Committee

resolved

that

that

should

be

done

in

future.

They

obtained

a

house

in

one

of

the

principal

streets,

fitted

it

up,

and

made

it

suitable

for

their

purpose.

They

endeavoured

to

obtain

assistance

and

help

from

one

of

the

hospital

assistants,

whom

they

desired

to

appoint

lecturer

to

this

Confucian

Home

Mission.

Failing

to

get

this

assistance

their

purpose

didn't

succeed;

some

of

the

members

of

Committee

resigned

and

others

grew

lukewarm.

Meeting

some

of

the

promoters

day,

he—Dr.

Westwater

—said,

"You

don't

seem

to

be

able

to

manage

this

thing

well;

you

had

better

hand

the

hall

over

to

me."

He

was

not

a

little

surprised,

however,

when

a

deputation

appeared

at

the

dispensary

with

a

properly

drawn

up

deed

of

gift

handing

over

all

the

buildings

to

him.

A

few

days

afterwards,

accompanied

by

Mr.

Wylie

and

their

entire

staff,

he

opened

the

place

as

a

teaching

mission

in

connection

with

their

mission.

He

felt

that

that

day

another

triumph

had

been

recorded

for

Christ's

cause

and

that

that

great

scheme,

which

was

to

counteract

the

influence

of

Christianity

and

to

prove

the

superiority

of

the

teaching

of

China's

greatest

sage,

had

openly

retired

in

favour

of

the

Gospel.

As

he

stood

in

the

hall

and

thought

of

only

a

few

years

back,

when

he

had

travelled

day

by

day,

trying

in

vain

to

get

a

footing

in

the

city

and

to

help

the

cause

there,

he

could

only

exclaim,

"how

has

Christ

conquered!"

PAKHOI MEDICAL MISSION.

In

an

account

of

the

work

of

the

above

mission,

written

by

Dr.

Horder,

we

have

set

before

us

one

of

the

reasons

why

the

work

of

medical

hospitals

affords

special

opportunity

for

evangelistic

work.

"The

hospital

gives

the

missionaries

many

opportunities

of

personal

dealing

with

men

and

women

whom

they

cannot

get

at

on

the

streets

or

even

in
the houses. On the street the Gospel is preached to crowds, the missionary trusting God's Word will not return void. It is seed scattered broadcast in prayer and faith and hope, with much patience and joy, and it may be many months and even years before he sees or hears of any fruit of his labours. In the houses personal dealing is not always possible or practicable, owing to the crowds of friends who step in to see the foreigner and hear the Western doctrine. But in the wards the patient is away, "far away" it may be "from kith and kin" and quietly resting in a comfortable bed, and soon learns he is surrounded by real friends who seek his highest good both for body and soul.

"Morning and evening he hears the Gospel preached and explained by those who are attending his sick body. If the patient be a reading man he begins to peruse the Bible and tracts distributed in the wards and by God's Spirit he is led into the truth.

"To illustrate the above we will give a short account of some cases recently patients in the male wards. A man came from some distance with an incurable disease of his eyes. Day after day he listened to the Gospel stories and became intensely interested. Eagerly did he drink in all that was told him. On the next bed lay a man who had been operated upon for double cataract. When this patient could see, our blind friend asked his neighbour to read to him portions of the Bible and hymn-book; in this way he was able to learn by heart much of the Bible, prayer and hymn-books. As the man who had received his sight read, the blind man explained the meaning and urged his conversion to God. All the patients in the male wards came to hear this poor fellow preach the Gospel, resulting in the blind man and two others asking for baptism. The patient, who is incurably blind, is a most earnest evangelist and seeker for souls. He may be seen every morning in the midst of the out-patients, explaining the Gospel truths in no uncertain sounds. He knows he has passed from death unto life and rejoices, on being told nothing can be done for his sightless eyes, in saying he has spiritual sight, which is far more important.

"Several other instances could be given where patients have been true Andrews, speaking at once to others in the wards of their recently-found Saviour."
"It is I, be not afraid."

'Peace,' saith my God, and who is there shall let it!
Peace, as thou walk'st this rough, uncertain Sea;
The night is dark and winds howl fierce around thee,
Yet peace, my child,—thy hand—thou walk'st with Me.

Thy friends, thy old-time trusted, are not near thee,
Counsellors fail, they fear thy guide to be,
Yet lo! A way I now have cleared before thee,
Fear not, I've called thy name, follow thou Me.

And so I would, my Master, elsewhere whither?
Make Thy way plain, lead on, e'en by Thy Rod;
The lone, dark desert's bright with heavenly splendour
If there I mark the footsteps of my God.

Thy path is in great waters. Who can tread it?
And yet this one request I make of Thee,
According to Thy Word:—'Here and hereafter,
Where Thou art let Thy servant also be.'

M. A. P.
NAME FOR HOSPITAL AND DISPENSARY.

醫局 here is the native term, and really means a dispensary, as there are no native institutions admitting in-patients. Let 醫局 therefore stand for dispensary.

A hospital being a foreign idea (I am open to correction on this point) the term used to designate it will have to be coined. 院 as including the idea of residence would seem to be most appropriate. Let 院 therefore stand for hospital.

Are there any better terms?

If not it would be a good thing if we could have uniformity.

This is one of the series of books lately published by Mr. Saunders, by whose enterprise and energy the medical profession have been greatly benefitted. "An American Text-book of Surgery," "An American Text-book of the Theory and Practice of Medicine," "An American Text-book of Gynecology," have appeared, and each one of these books has met a want and has supplied a working text-book for physicians and students. They have been up to date, and the teaching has been clear and reliable.

After a careful examination of this new book upon the diseases of children we find that it is an interesting work, and the names of the contributors, where among many well-known writers we find articles from the pens of W. S. Christopher, Albert R. Leeds, W. P. Northrup, William Osler, William Pepper, F. C. Shattuck, J. Lewis, Smith, Henry W. Wharton and J. William White, are in themselves a guarantee for the reliability of their work. One marked innovation is the large number of authors, nearly every article being contributed by a specialist in the line on which he writes. The opening chapter on "The Clinical Investigation of Disease and the General Management of Children," is by the editor, Louis Starr, M.D. In this he systematically discusses the questioning of the attendants, inspecting the child, physical examination, and notes the most important points to be elicited. Fairly full statistics are given with regard to the normal sounds, temperatures, pulse, body weight, condition of skin and other important matters. The article "on feeding" is carefully written, and is abreast of the times. The reasons for special feeding and the direction for the different foods advised are fully and carefully given. The diet schemes are clear and explicit. His closing words will bear quoting, "In conclusion, it must be remembered that children do not often require energetic treatment with drugs. Proper feeding and hygiene are of most importance in the management of disease in early life."

The chapter on "The Chemistry of Milk and of Artificial Foods for Children," by Albert R. Leeds, Ph.D., though concise, is full of instructive remarks. It is well illustrated by tables of analysis. Part II. The Diathetic Diseases, begins with an article by Osler on Tuberculosis. He states that "the appreciation of the widespread prevalence of tuberculosis in the early periods of life is due to recent observations," "In the creche of the Hôpital Turon of Paris, in the year 1890, it is stated that more than 21 per cent. of the babies died of tuberculosis." Instructions are given for a ready method for demonstrating the bacilli in sputum, and a good colored plate is given to show: 1, Section of a small fresh tubercle; 2, Section of tuberculous pleura; and 3, Tubercle bacilli in sputum. The modes of transmission are considered and the conditions influencing infection. The various forms of tuberculosis as it attacks different organs and parts of the body are described and the symptoms and diagnosis given. The treatment
is carefully considered. He speaks quite hopefully and says, "Fortunately a very large proportion of all cases of tuberculosis recover." Typhoid fever Earle says, "It is particularly noticeable that epidemics take place which principally affect children." He prescribes absolute rest in bed, a restriction to fluid diet, reduction of temperature by baths, or by placing cold towels over the child when it declines the bath. Attention to intestinal antisepsis. He thinks but little of the treatment of every symptom as it occurs, but believes in the giving a general nutritive tonic.

The article on Cholera Asiatica, by E. O. Shakespeare, is illustrated by photo-micrographs of comma bacilli. He states "that in young children who consume habitually large quantities of milk the offending material ingested may already contain, before swallowing, a sufficient quantity of the specific chemical poison of cholera to produce an attack of the disease." After giving some formulas for administration by the mouth he says, speaking of the treatment of the period of severe diarrhoea or systemic intoxication, "Unfortunately in this stage of cholera medication by way of the stomach is always impeded, very often rendered almost useless, sometimes quite impossible of effecting an impression by reason of the vomiting and the failure of absorption in the intestines. What other resources has the physician left to him? There are still three which used judiciously and skilfully, are powerful to restore marvelously—at least for a time, sometimes permanently—the suspended functions. I refer to hypodermatic and to intravenous irrigation. Enteroclysis, hypodermoclysis and intravenous injections are fully described and commended.

The article on Diphtheria, by Dillon Brown, is very well written, and gives good directions for treatment, although when it was written the antitoxine treatment was only just coming into notice. Great stress is laid on keeping up the strength and nutrition of the patient. Transfer patient from his room to fresh thoroughly aired one frequently, avoid internal medication, unless clearly indicated. Chlorate of potassium is dangerous. "Remove broken-down membrane pus and other debris by irrigation of the diseased surface with fifteen volume sol. of peroxide of hydrogen diluted with lime water."

Destroy bacilli by a sol. of bichloride of mercury 1:1000 by irrigation or spray. If spray or irrigation cannot be used best substitute is inhalation of fumes obtained by subliming calomel.

The special articles on Surgical Subjects are by Henry W. Wharton, M. D.—Tracheotomy, Intubation, Diseases of the Anus and Rectum and Congenital Intestinal Malformations; Phimosis, Adherent Prepuce, Paraphimosis.

The articles on Vesical Calculus and on Gonorrhoea and Vulvo Vaginitis are by that accomplished surgeon, J. William White, and they are replete with interest.

In the article on Malarial Fever, by W. S. Thayer, M. D., special prominence is given to its parasitic origin. The parasites are figured. The organisms of the aestivo-autumnal fevers are described also and figured. The pathological anatomy is given. Pernicious malarial fever. Affections of viscera, sometimes associated with malarial fevers, are studied. Methods of examination of the blood are described, and the treatment is given.

W. E. Casselberry, M. D., furnishes a good article on Diseases of the Pharynx and Naso Pharynx, with directions and illustrations for the operations needed.

Diarrhoeal Diseases, by Victor C. Vaughn, M. D., as might be expected from this writer's name, much attention is given to the subject of milk infection. Acute milk infection and sub-acute milk infection. The treatment of the different forms of diarrhoea is carefully given.

Samuel S. Adams M. D., treat of catarr-
hal dysentery, amoebic dysentery and diphtheritic dysentery. After giving the usual directions as to the hygiene, the dietetic and the medicinal treatment, he lays great stress on intestinal irrigation as the most rational treatment of dysentery, and gives very full and careful directions for the proper carrying out of this plan of treatment.

Diseases of the Cæcum, and appendix, by John Ashhurst, Jr., M.D., and intussusception by the same author are valuable articles. More than 200 pages are given to diseases of the brain and nervous system, and only a want of space prevents us from giving some idea of the interesting work under this heading.

Diseases of the nose are specially considered by W. E. Cassellberry, M.D.

The important subjects of broncho-pneumonia and croupous pneumonia are taken up by William Pepper, M.D., and as might be expected are among the best papers in the volume.

Bronchitis is often a serious affair with young children, and the article on this disease by Walter S. Christopher, M.D., is well considered and reliable.

The important subject of diseases of the genito-urinary system is treated by six different contributors.

J. N. Danforth, M.D., has a good article on Acute and Chronic Nephritis and Amyloid Disease of the Kidney. Much space is given to the consideration of diseases of the skin, which is illustrated by full page colored plates and photo-lithographs. The article written by W. A. Hardaway, M.D., is clear and practical.

B. Alexander, Randall, A.M., M.D., writes the article on Diseases of the Ear, and G. E. de Schweinitz, M.D., closes the volume with a good description of Diseases of the Eye.

Of course where so many have contributed the articles vary somewhat in their standard of excellence, and they lack the charm of individuality which we feel when reading a volume fresh from the pen of one of the great masters of the science of medicine. In the place of this we have a work which is up to the times; much attention has been given to the consideration of the latest accepted teaching upon the etiology, symptoms, pathology, diagnosis and treatment of the disorders of childhood; many special formulas and therapeutic procedures are introduced. The book is well illustrated by many wood cuts, half-tone plates and colored illustrations.

The writer sent for the book and received a copy of it last autumn; he has had time to read it and to make free use of it in his practice. As he has during that time been in charge of a children's ward in the hospital, an orphanage for very small children and the schools for boys and for girls at St. John's College, besides his private patients, he has had plenty of opportunities for testing the value of this work. It is a valuable work coming from men in active practice and fully acquainted with the needs of their professional brethren. As a good all round book on the diseases of infancy and childhood it has no superiors.

H. W. Boone, M. D.
Hospital Reports.

In previous years it has been the custom to review the reports of the various medical missions in China as those reports have come to hand. This year we have waited until all the reports that we are likely to receive have reached us; we propose in this review to deal with them all, classifying the information which they give under certain main headings.

1. Statistics.

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<th>Inpatients</th>
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<th>Outpatients</th>
<th>New. Old.</th>
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<td>1595</td>
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<td>Tientsin Hospital, do.</td>
<td>464</td>
<td>6613*</td>
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<td>Po-na-sang Hospital, Foochow</td>
<td>205</td>
<td>208</td>
<td>4629</td>
<td>9780</td>
</tr>
</tbody>
</table>

2. Changes in Staff.

The Hangchow Hospital rejoices in the arrival of Dr. Kamber.

Once again the Tientsin Hospital has had to pass through the trial of faith. "In the spring, Dr. J. H. Bennett came out from home to join me in this work. He at once began studying the language, giving his whole time to it, and hoping ere many months passed to take his share in the work to which he had given his life and to which he was so much drawn; but God willed it otherwise. Mrs. Bennett became seriously ill and Dr. Bennett was obliged to return to England with her. He is an able doctor and devoted missionary; we had learned to love him and felt his loss a great disappointment."


The buildings of the Hiao-kan Lepor Home were opened on Sunday, April 7th, 1895, "when the Rev. Griffith John, D.D., conducted a largely-attended service in the sitting room of the Home. On the very next day no less than ten poor lepers applied for admission, most of whom were taken in, and nearly all have remained in the Home ever since.

"The Home consists of 13 rooms built round 3 sides of a quadrangle; of these rooms 6 are bedrooms, containing in all 16 beds, all of which have been occupied for some months. There is a large, airy sitting room, where services are held and where the patients can have their meals, a kitchen, bath-room, dispensary and store-room, and two rooms for attendants. At the back of the buildings there is a large garden, where the inmates can grow their own vegetables, and in front a deep pond of which we are part owners."

The report of the Hangchow Hospital mentions what we think is a new departure in connexion with medical missions in China. Land has been secured in a lovely spot on the Needle Pagoda Hill for the erection of a convalescent home for weak patients and weary workers.
The Mission has sufficient funds to enable it to commence building operations.

4. Instruction of Native Students.

The Medical Missionary Association in China report "that the instruction of the medical class has been continued without interruption. There have been in attendance 21 young men and 7 young women. Instruction has been given by recitations in the various branches by Dr. Leung Kin-cho and special instruction in several departments by Dr. Kerr, Dr. Niles, Dr. Fulton and Dr. Wan Tün-mo. Two examinations are held during the year and certificates are given at the end of the course to those who pass the required examinations. Six young men received certificates at the last examination."

At the Chi-chow Hospital a medical school has been started. "There was no lack of applicants. Three only were selected as an experiment. One has been my helper for several years and is well up in the practical part of the work, but lacks a systematic training. The other two are quite new to the mysteries of foreign practice, one Mr. Li, having taken his degree of B. A."

The course of study will extend over a period of three years. By that time we hope to have taken up anatomy, physiology, surgery, medicine, pharmacy and therapeutics, together with as much practical work as can be seen at the daily clinics and operations. The object in view is to turn out thoroughly practical men, filled with the love of God towards China's perishing millions, to take charge of branch dispensaries in connexion with our far-off out-stations. We have this year been through Gray's Anatomy, translated into Chinese by Dr. Osgood; also Ringer's Therapeutics and a portion of Dr. Porter's Physiology. The students are bright, intelligent, enjoy their work and there is every hope that the present experiment will turn out a success."

At the Alice Memorial Hospital "eleven students of the College of Medicine for Chinese are going through a sort of apprenticeship to the two hospitals, the apprenticeship in each case being for a period of five years, running parallel with the minimum curriculum of five years of medical study required by the College. They live in the hospitals and among them share the dressing, clerking, dispensing, minor duties at operations, &c., each student holding every minor post in the hospitals in rotation for periods of three months at a time. They also accompany the house-surgeons to the obstetric cases frequently attended from the hospitals, these being usually of the most serious character. While their technical instruction as yet falls behind that required by examining boards in England, they have a larger clinical experience on all sides of their professional work than most students in the home lands.

In the female wards Mrs. Stevens has, in addition to a Chinese nurse, two young Chinese women in training as nurses. They are both intelligent girls, themselves heartily interested in the life-work they have voluntarily adopted and promise well as nurses. The need of the creation of a race of native nurses, able to bring trained assistance not only to their own country women but also to the many European ladies in Hongkong who at present suffer from the lack of such, makes this new effort not the least important part of the many-sided work which has its centre in the Alice Memorial and Nethersole Hospitals."

In connexion with the An-ting Hospital a course of clinical lectures was delivered to the students of the T'ung Wen Kan.

At the Chungking Hospital "the instruction of the medical students has been one of the most delightful and interesting parts of our work. Five young men have been under instruction during the year and we are adding two more at the beginning of new year. Three of these five will have come up for their final examination before
the close of 1896. The work done by the three senior students has been of the highest order, they have made frequent itinerating visits into the country and have dispensed the healing from the Word of God to hundreds of people as well as healing to their bodies."

At the Hangchow Hospital "the number of students under instruction is eight. This work consumes a great deal of my time and binds me very much to the city. It is no use trying to teach students at odd times and by fits and starts, systematic teaching is all important if satisfactory results are to be obtained. Being convinced of the urgent necessity in China of a thoroughly qualified Medical Mission Native Agency we consider no labour lost in trying to produce it . . . . The success that has followed those who have passed through our hands abundantly justifies the amount of money and time spent in educating them. One or two of our men have been led away by the desire to make money and that as quickly as possible, but most of them are doing mission work and working hard at a salary very much below their market value. Their worth is well-known and more than once tempting salaries have been offered them, at least double the amount they receive from us, and it speaks well for their Christianity that they continue with us in the work. They render us invaluable help, without which our work would have to be reduced by one-half. In fact for the successful management of a work like ours efficient native helpers are a sine qua non. We are publishing a free translation of Whitla's Dictionary of Treatment, which we have gone through with our students, and which we hope will be of some use to our native assistants and those who know something of foreign medical treatment."

In connexion with the Po-na-sang Hospital, "with the commencement of the last Chinese year two new students were taken on trial, making a total of seven under training until January 1st, 1896. At that time it seemed necessary to discharge four of them, retaining the three most promising and most useful men for the necessary work. The chief reason for discharging the men was their lack of solid Christian character, without which students soon yield to the temptation to exact fees for attention to patients, to treat those who are too poor to give them fees in an uncourteous manner, to slight their duties, or to dispense hospital medicines to their friends outside of clinic hours. The idea of treating exactly the same, rich and poor, learned and unlearned, Christians and unbelievers, natives of Foochow and those from distant parts of the empire, those whose cases are agreeable to treat and those which are not, as we aim to do, is one that is passing difficult to teach the students to act upon."

5. Itineration.

The staff of the Chi-chou Hospital have made six medical trips for a period extending over a week each. From the I-chow Fu Dispensary a like number of itinerating trips have been made. All the out-stations of the American Baptist Mission at Ningpo have been visited by the doctor in charge of their hospital. The war, with the subsequent unsettling of the country, prevented some hospitals from doing this work in 1895.


The Tang-kun Hospital devotes much space in its report to an account of the Bubonic Plague there. "The epidemic of plague broke out in December, grew in intensity till it was at its worst in April and terminated in May. In December we heard of many people dying after a brief illness of a disease unknown to the native doctors and which proved to be Bubonic Plague; a fact which seems to show that it had not hitherto been epidemic here. At the same time in the part of the town in which we are located a complete disappearance of rats was noted and on our own pre-
mises several were found dead or staggering about. As a matter of fact, it was not until October that even mice began to be seen again. The disappearance of the rats was recognised as a warning of the Plague. The gentry hastened to summon eminent doctors from Canton and to placard the streets with a description of the disease and recommendations as to its treatment. Some streets were so badly affected that people did not dare to pass through them, and patients from the country who happened at the time to be in hospital were prevented by their friends from returning, for fear of their carrying infection with them."

The three regions most usually affected were the left axilla, the inguinal and the cervical glands. The inhabitants, "finding their own deities unable to render them any assistance, decided to call in the aid of a well known idol, named Chan Sin-yung. This represents a deceased gentleman of the San-ning district, whose image is said to have stopped a dreadful epidemic in Peking in the time of the Emperor Ch'ien Lung. Last year the same good service was said to have been rendered by him in Canton, so that the Tungkunese were full of hope. A special boat was sent to meet him and he was solemnly received by the gentry. The large "Tungkun Virtuous Hall" was made ready for his reception and there, seated in a golden chair, with a red face and a black beard, he was worshipped by thousands, a low wooden gallery being erected to allow of people of the better class kneeling before him without having their devotions interrupted by the crowd. The relatives of the deceased gentleman, who had already been heavily paid for the privilege of having his idol in Tungkun, carried on in addition a lucrative sale of yellow papers bearing the seal of the god, and also of charms and holy water. Yet after all this the Plague still prevailed and another expedition had to be adopted. On the first day of the fourth moon they celebrated the new year.

Cards of congratulation were exchanged, the gods thanked for the blessings of the past year and the usual New Year's Day rejoicings gone through. The idea was to deceive the malevolent spirits who were causing the Plague, who might be led to think that the year was ended, that their fatal activity had lasted long enough and that now it was time to go away home to their friends. Finally they secured the services of the Buddhist priests to pray to the gods of the "Superior Heavens." A large matshed was erected, with a gorgeously decorated place at one end of it, and there for seven days the priests performed their ceremonies. The upper classes, the so-called Confucianists, have been the leaders and organizers of these superstitious practices, so that their own faith in time of need is but a broken reed. It is interesting to note that, while throughout the Plague Epidemic in Hongkong during the previous year evil rumours directed against the hospital and our work were widespread all over the city, last year so far as we know no word was spoken against us."

7. Evangelistic.

The Schofield Memorial Hospital reports that around the medical work there have grown up several other Christian agencies. "The chapel, which is an adjunct of the hospital, is capable of seating some three hundred people and the average attendance on Sundays is one hundred and fifty, rather more than half perhaps being women. In our Sunday-school we have five classes for women and girls and four for men and boys. A boarding-school for girls has become a necessity as we have practically adopted four little girls. Three of these were formerly slaves. Two of them were so cruelly treated by their owners that they have each lost one foot and all the toes of the remaining foot. Four boys have also been stranded at our doors. One is blind; the second is crippled through rheumatism; the third has only
one leg, as we had to amputate the other for disease, and the fourth is an orphan whose father and mother died in the hospital. These boys form the nucleus of a boys' school, the average attendance at which, during 1895, was thirteen. Through the medical work the ladies now have access to many homes in the city and, as a rule, meet with ready welcome."

The spiritual work in the L. M. S. Leper Home has been very encouraging. Five of the inmates "have already been received into the church and five others are on probation for membership, while there is hardly one who has not signified his desire to become a Christian. One of them, a man named Shii, from the neighbouring county of Yun-mung, led his aged mother into the truth and she was baptized in her own home only a few hours before she was called away to eternal glory. Other members of the same family are deeply interested in the Gospel."

From the report of the Tientsin Hospital we take the following account of what we think is somewhat of a new departure in the work of the Christian church in China:—

"As we write this, we are having quite a time of blessing in the hospital. Following the week of prayer: Mr. Pyke, of the A. M. E. Mission, has again been holding a series of evangelistic meetings and our patients and assistants have attended night after night. Dear old Fan was specially in his element. One evening three of our patients were kneeling at the altar, whether any anxious ones were invited to come, and it was a touching sight to see some of these rough men weeping over their sins. One man confided to Mr. Murray that if he went home he would lose his head. They are never tired now of testifying of the blessing they got there. One of these is a poor fellow, half blind with ophthalmia, who had a great struggle to get into the Light. One morning at prayers he said, "At one of these meetings I confessed my sins, I cannot tell whether it is God in my heart, but of one thing I am certain, that ever since that night when I confessed my sins I feel very happy:" and he looks it too. Another time he said, "I never thought that God would forgive my sins; but now I know that he has forgiven me."

Another man, Li, brought his little boy to the hospital to have a diseased ankle joint seen to and he had to undergo an operation for removal of the necrosed bone. He has been here for some time and always being an attentive listener had got to know much of the truth, but he never seemed to be able to come to the point of decision for Christ. He was very miserable for a time and we found out that it was the fear of some relatives which was keeping him back. On the evening when Mr. Pyke spoke on the text: "God so loved the world that He gave His only begotten Son, that whosoever believeth on him should not perish but have eternal life," this man was deeply touched; there and then he surrendered. He is now rejoicing in his new found hope and all fear of his three uncles has gone.

"Exactly the same point comes out in evangelistic work amongst the Chinese as amongst our own countrymen; it is amongst those who have been taught the truths of the Gospel that the reaping comes. The assistants also got a lift through these meetings, especially Mr. Yang Min, to whose earnestness so much of the fruit-bearing of our religious work in the hospital has been due, during these past years. It is most noticeable that when he is warmed up then the work goes forward. It seems to us of vital importance to do all in our power to influence our native assistants; in them and in their work and testimony amongst the patients lies the successful issue of the work. Mr. Yang has expressed a wish to be allowed to devote all his time to evangelistic work in the country, and with this in view he has been appointed to visit the many former converts who were baptised in connexion
with the hospital. They all know him and have felt his influence here, and it is hoped that great blessings will result from this appointment."

In connexion with the Ningpo Hospital over twenty patients have confessed their faith in Christ. Two patients who were visited in their own homes have also decided for Christ. Both were cases in which the doctor, unable to give anything to cure the body, devoted his time to teaching the dying patients of the love of Jesus. One case is noteworthy in that after two visits and the gift of some tracts the doctor did not see the patient for two months, at the end of which period he found that the man and the Master had met without further human teaching and the Master's love had won the man's heart.

8. General.

In the report of the Schofield Memorial Hospital there are several instances given of the cruelties inflicted on slave girls by their mistresses. We have not space to quote these, but we do quote two cases given in illustration of the principle of responsibility as recognised by the Chinese. "During a street quarrel, a soldier stabbed a civilian who happened to be a Roman Catholic. The officer over the camp to which the soldier belonged was held responsible for what had been done and, fearing a lawsuit and the possible loss of his position, had the injured man brought to the hospital and came himself to ask us to do all we could to ensure his recovery. During the patient's stay in the hospital two soldiers were told off to wait upon him and all expenses were paid by the officer. The injured man made a good recovery and on his discharge the officer presented us with an honorary tablet on which is inscribed "(He) succours the world and gives life to men."

"Not long after, a soldier from the same camp came in a most pitiable condition. For some breach of discipline the officer, who had been so solicitous for the welfare of a civilian lest he should lose his position, ordered one of his own soldiers to receive one thousand blows and himself helped to administer the punishment. After receiving the blows the poor fellow was made to undergo five days' punishment-drill and then was allowed to get to us as best he could. In this case the officer took no interest in the patient whatever, for even had the man died he would not have been held responsible. The man recovered, but we received no recognition whatever of our services."

The I-chow Fu Dispensary is to be congratulated on the hold that it has upon the hearts of its staff. "Our assistant, Mr. Yü Tsai-yü, a graduate of the medical class, has been with us now a year and a half and has done good work, both in the dispensary and in visiting patients in their homes. He has established so good a reputation for himself that not long since a wealthy man living in a large market town, some sixty miles south-west of the city, offered to start him in a practice of his own. He offered to furnish him a capital of $500 Mex., a house large enough for a dwelling and office, and to pay him a salary of $100 a year and board. As he only receives $72 a year in his present position and boards himself this was a very tempting offer. In view, however, of the fact that we had been depending on him to assist in teaching a class of students this coming year, and also that he had only had a year and a half's experience since his graduation, he declined the offer and agreed to stay with us another year. What makes the above offer all the more remarkable is that it came from a man whose wife had been treated for Bright's disease, both by Mr. Yü and the foreign physicians, but had subsequently died; her death apparently making no difference in his confidence in foreign medicine."

Why, may we ask in passing, do the staff of this dispensary omit to give their own names in any part of their report?
The following incident from the Chung-king Hospital Report, although it has appeared in some of the daily papers, is worth a more permanent record: "Soon after the excitement occasioned by the riots had subsided, we were called to attend Li Taotai, the governor of Eastern Sz-chuan, whose name has been prominently before the world since the riots here, but not in the way many other officials have been. He proved himself the true friend of the foreigner and if it had not been for his untiring energy we most certainly would have suffered the same fate as our Chen-tu brethren. The worry and over-work occasioned by the riotous state of the city and surrounding country proved too much for his already over-worked and feeble constitution. His mind became unbalanced and for over a month he was watched for fear he would attempt to take his own life.

"After going on in this way for several weeks, I was called (by the advice of one of the foreign officials) and asked to take charge of the case. As long as he remained in the yamén as Taotai we could do nothing with him, on account of his attendants refusing to carry out our orders, and we gave up the case.

"As soon as the new Taotai reached here, he was removed to other quarters and again invited us to see what we could do with him. We refused to have anything to do with the case unless they would allow a foreign nurse to stay in the yamén and see that all directions were carried out. They readily consented to this and Messrs. Vardon and Williams went to live in the yamén. After the first two weeks he began to improve and within two months was so far recovered as to be able to return to his home in Kuei-chau."

Conclusion.

The space at our disposal is more than exhausted. Our review of the reports has grown to large proportions. But we think that it will prove to every medical missionary a stimulus to renewed exertion in a field which these reports prove to be one of the most useful and spiritually fruitful of all the fields of missionary service. Should it fall into the hands of those who disbelieve in any form of missionary work other than evangelism, we think that they will find full reason why they should change their views.

G. A. C.
A Medical Journal in Chinese.

Dr. Neal's article in the June number of the Journal certainly merits the attention of those qualified to prepare the books so much needed. But the remark is often heard that a medical text-book five years old is out of date, and while this may not be so true here as in Western countries, where new methods and remedies are so rapidly introduced, still it has some force. Were it not for our weekly and monthly journals would we not quickly fall behind the medical thought of the times? The new methods and remedies introduced during the last five years are certainly remarkable and valuable, and the same will be true in the future. In order to prevent medical graduates into "degenerating into mere keeping of medicine shops" should there not be a medical journal issued, say quarterly, at a moderate price, besides the text-books suggested by Dr. Neal?

W. F. Seymour, M. D.
T'ang-chow Fu, July 13th, 1896.

Macao, July 18th, 1896.

DEAR DR. HODGE:

I send by this mail my answers to the "Questions on Opium."

I propose a few additional questions, which may or may not be approved.

I would suggest that some of the questions be submitted to the medical missionaries for a period of years (say ten), and that the facts collected in that time be sent to the editor of the journal. I refer particularly to questions 4, 6, 13, 16, 17, 19, 22, 24, all which require definite facts to make up the answers. Few of us have kept records of sufficient extent to furnish answers to these questions; but a systematic plan carried out for a period of years would furnish material from which answers could be given which could not be gainsaid. So much that is said on both sides of the opium question is merely opinion or guess work that statements carry but little weight. What is needed is an array of facts which are indisputable and not coloured by prejudice. To make up this array time and careful observation by a large number of individuals is required; if only a dozen men would set to work on this line five or ten years would give invaluable results. I hope you will urge this or some such course on all those who have the means of obtaining the facts.

Sincerely yours,

J. G. Kerr.

[We shall all be sorry to hear that Dr. Kerr has been very ill, and pray that the doctor may be soon restored to health. Dr. Kerr's extra questions are as follows:—

20. How many smokers have you met who had no desire to get rid of the habit?
21. If the desire exists what are the chief obstacles to giving up the habit?
22. What proportion of those who are cured of the habit, or who give it up, return to it again?
23. What restrictions, if any, are placed by the Chinese authorities on the sale of opium to consumers?
24. Have you met with women smokers, and if so how many?—Ed.]

Williams Hospital,
Pang-chuang, August 1st, 1896.

To the Editor of "The Medical Missionary Journal."

DEAR SIR:

As most of us have occasional need for the services of an optician, having to
Inscribe glasses for foreigners, if not for natives, it may be of service to speak of our friend, Dr. U. C. Whitney, of Tokyo.

He has recently returned to Japan and resigned his position, held for so many years, as interpreter at the American Legation, in order to devote his entire time to his ophthalmic practice and the Scripture Union Mission. This latter, if I remember rightly, was established for the benefit of the jinricksha coolies, largely through Dr. Whitney's efforts; thus, though not under any distinctively missionary board, he is, as always, a missionary in spirit and in fact.

We are all aware that the working opticians in Japan can do very good work, but there are difficulties in corresponding with them; they are also more liable to mistakes than our own grinders. Their prices are lower, and goods can be obtained in a much shorter time. I think therefore that our colleagues will be glad to know that Dr. Whitney will be pleased to take charge of any such orders and will test the curvatures before returning them. He has the apparatus and the skill to determine the refraction of any dioptric which may be ordered, and a note to this effect in the Journal will, I think, be of service to the profession here. I write without the knowledge of Dr. Whitney; if you think best to publish my note it will be well to add his address, which is: 47 Hasemura, Kamakura, Japan.*

Sincerely yours,

A. P. Peck.

*When in Japan I learnt that Dr. Whitney had just left Kamakura, and that the address most sure to find him is Akasaka Shikawacho, Akasaka Byouin, Tokyo—Es.]
Correspondence.

N.B.—By an oversight the following Correspondence was omitted from the last No. of the Journal.

McILVAINE HOSPITAL,
Chi-nan-fu, China, February 19th, 1896.

DEAR DR. HODGE,

I should like to announce through the columns of the Journal that I am engaged in the preparation of a text-book on Skin Diseases, in Chinese, and shall hope, if all goes well, to publish it within a couple of years. If any one else in China is at work at the same subject I should be glad to correspond with him or her in regard to the matter. I shall also welcome most heartily any suggestions in regard to nomenclature.

Very truly yours,

JAS. B. NEAL.

To the Editor of
"THE MEDICAL MISSIONARY JOURNAL."

DEAR DR. HODGE,

In accordance with your "Editorial" in the December No. of the Journal I wish to make a few suggestions and then present several motions.

I think most of us are quite agreed as to the need of making some amendments to the Constitution and Bye-Laws of the Association.

It occurs to me that probably a fair number of members can be got together at the time of the Triennial Meeting of the Educational Association of China, to be held in Shanghai, beginning the first Wednesday in May next. If circulars are at once sent out to the different members giving the two months' required notice of the changes it is desired to make we shall then be in a position to consider such changes at that time.

In order to facilitate such action I have prepared several motions covering the changes it seems to me desirable to make, and present them as follows:—

1st Motion: That in Article III. of the Constitution, in the sentence which reads, "They shall be proposed, in writing, at a regular meeting," the words "in writing, at a regular meeting," be struck out. And in the sentence following: "and may be elected by a two-thirds vote at the next regular meeting," the words "at the next regular meeting" be struck out and the words "of the members voting" be inserted in their place. Also in the sentence, "They shall be considered members when they shall have signed the Constitution," the words "or sent in their names to be added to," be inserted after "signed." The two full sentences thus changed to read as follows: "They shall be proposed by one member of the Association and elected by a two-thirds vote of those voting. They shall be considered members when they shall have signed or sent in their names to be added to the constitution, thereby agreeing to be bound by its provisions."

2nd Motion: That Article V. of the Constitution be amended so as to read, viz.: "Article V. The officers of the Association shall consist of a President, a Vice-President, a Secretary and Treasurer and an Editor, all of whom shall be elected biennially by a majority of the members voting. No member shall be eligible to the office of President for two successive terms. These officers shall have the power to elect Executive Committees from their own body, or from other active members of the Association."

3rd Motion: That the word "President" in Article IV. of the Bye-Laws be struck out and the word "Association" be inserted in its place.

4th Motion: That Article VI. of the Bye-Laws be amended so as to read, viz.: "Art,
VI. All motions shall be presented with the signature of the proposer, either directly to the Association, or through its Journal."

The above is designed only as a general notice to the president and members of the Association of the nature of the changes it seems desirable to make. It is not necessary to dilate here on the motions presented, as that will be in order when they are presented in a business meeting of the Association.

It is to be hoped that all who can will try and attend the Educational Association meeting in May, so that any necessary business may be transacted and changes be made in the Constitution and Bye-Laws, so as to enable us to do more of our business through our Journal.

H. T. WHITNEY.

_—_

_Kiungchow, Hainan, China,_

_December 18th, 1895._

Doctor S. R. HODGE,

DEAR SIR,

The following experience may have occurred to others, but in the ten years that I have been here it has not been mine before. Although I have had midwifery cases amongst the Chinese they have been, with two or three exceptions, those under foreign influence. So I was rather surprised to be called to a village to the north of the city, where the people have not been any too friendly.

When I arrived at the house a male child had been born forty-eight hours, but an examination showed the cord properly tied, the placenta firmly adherent and the uterine tumour very large. I made a diagnosis of "twins" and gave fifteen grains of quinine to start the uterus to work again.

At 9.30 p.m., or twelve hours after my first visit, I was called again and, as the city gates were shut, the five villagers with torches, the hospital coolie with medicines and I with lantern clambered down the outside of the city wall. As we approached the village everything was lighted up by the burning straw, which entirely surrounded the house and made it impossible for any devils to enter except the foreign one, who kicked away the straw burning in the doorway. This section of the house was used partly as a cow stable and partly as a kitchen; it was so full of smoke from the fires and torches that eyes and throat were very much affected.

Two women were holding the patient on the tub and three men were standing behind cutting the air with old swords; one of the men, holding the patient's hair in his fist, was making continual passes over her head at any unseen demons there. It took about twenty minutes' scolding and pushing to get the place under control. Then the coolie and I lifted the patient on to the trestle which was to serve as bed; as I did so I stopped on some rags and stooping down I found it to be No. 2 baby under the bed on the straw; it was born forty hours after its brother.

All my efforts could not dislodge the placenta, although the two cords were hanging in position.

As the smoke had abated somewhat I had the coolie give the chloroform (Report of British Medical Association on Chloroform notwithstanding) and the constriction at the cervix yielded; with left hand on the abdomen pressing from above and right hand in the uterus, after about five minutes' work with nails and fingers, the placenta was peeled off and, by massage outside and fingers inside, the uterus was cleared of clots and reduced to proper size. The two placentae were firmly attached to each other, although the two cords were separate. Both children were boys and alive; the second child had been a breach presentation.

The chloroform, etc., inspired the old midwife, so while her state of admiration continued I gave her about ten minutes' instruction in the use of hot water. If it
had not been for pretty plain talking the people would have put the patient right back on the tub, even after the uterus was clean.

By eleven p.m. the pulse had fallen to proper limits. When I left the house a procession of villagers with torches accompanied me as far as the city wall.

The natives consider it very unlucky to have twins and if one of them is a girl she is not likely to live. In this case both are boys; I hope that the mother will have milk and both children will be allowed to live. I am also told that in case of triplets none of the three are allowed to live; it is so very unlucky. I do not know positively that these assertions are true.

Very sincerely, etc.,

H. M. McCandliss, M.D.

Dear Doctor Hodge,

We have to thank you for last number—December—of Journal, which has just come to hand. Your remarks about the changes which should be made in the Constitution and By-laws are very much to the point.

It may interest you that a number of doctors have been recently "decorated" by the Emperor for their services in connexion with the Red Cross work.

Enclosed the list as given in the Edict.

Yours truly,

B. C. Atterbury.

March 12th, 1896.

Drs. DePasse | For services to Viceroy Li in Japan.
Drs. Scriba | |
Drs. Atterbury | Second of the Third Class.
Drs. Baizer | |
Drs. Smith | |
Drs. Hewston | |
Drs. Christy | |
Drs. Daly | |
Drs. Penney | |
Drs. Branden | |
Drs. Gray | |
Drs. Douthwaite | |

Kindly make correction in next Journal.

At Dr. Kin's request I enclose copy of what he wishes.

In the last number of the Journal Dr. Kin was put down as being connected with the Viceroy's Hospital. This is a mistake, as the doctor has been, and is still, connected with the Military College of Tientsin.
FOREIGN NURSES FOR CHINESE HOSPITALS.

Nursing is the weak point in most of our hospitals in China. In some it does not exist at all, the more serious cases among the natives being usually accompanied by friends who remain to act as caretakers. Christian ladies from our own country having a passion for nursing the sick would here find room and scope for the exercise of their talents and, in addition to engaging in the work themselves, might also train native Christian women for doing so. The very perfection to which the art is now carried at home is hardly, perhaps, the best preparation for heathen lands, where it would be impossible * to follow out minutely all that is considered essential in a British hospital. Still, the cleanly habits and gentle hands of an efficient but not too highly-trained nurse would be a constant object-lesson to the poor sick people; and a sweet, kindly, good-tempered, versatile Christian woman, willing to take things as she finds them, and do all in her power to ease the sufferings and promote the comfort of her patients, would be a boon and a blessing to every mission in which medical work has its proper place.

It would be trying work, at least at the outset. The Chinese as a people are not only ignorant but conceited and self-willed, and sickness does not render them more amenable to laws and regulations. The key to successful work amongst them lies in unfailing good-humour and inexhaustible patience. With these qualities, however, and the combined exercise of gentle firmness and persuasive love, such workers would soon feel at home

* [We must enter an emphatic protest against the word "impossible."—Ed.]

with their surroundings, and have confirmation of their mission in not only the gratitude but affection of those under their care. — Dr. P. Anderson of Formosa in the Edinburgh M. M. Society's Quarterly Paper.

CHINESE BARBARITY.

"A man came in one day and told me that two women in his household had quarrelled and had taken poison; one had died and he feared the other would also die. I gave him an emetic and the required antidote. Then he said, "There's one case more in my family." "What is it?" I asked. "My sister-in-law is in labour," he said, "and is very bad. One leg presented and the midwives, in trying to deliver the child, pulled that leg off, and the child receded. Can you give me any medicine for that?" I was horrified, and said: "No, there's no medicine for that; the only thing that can be done is for me to come with an assistant and chloroform the woman and deliver the child."

"What," he said, "take the child yourself?" I replied, "There's no other way." "That certainly can't be," he answered; "the woman can die, but that a man should treat her is impossible."—Dr. Randle of Ping-ru in the Medical Missionary Record.

"Let me but tread
The path my Saviour sanctified—the path
Which Brainerd, Mills and Obookiah trod—
The path of usefulness; then let me die
Or on the couch of lingering disease,
Or by the stake of painful martyrdom,
Or in some wilderness, with none to close
My eyes or watch my dying agony;
And let these weary bones find their repose
Or in some place of solitude and peace,
Or on the coral caves of ocean's bed,
Or let my ashes be the sport of winds;
Thus shall I strike with thee, lamented youth, 'The high-toned harp of heaven;' thus shall stand
Before that throne of glory, where the Lamb Beams happiness on all his followers."

LEONARD BACON.

THE RELATIVE VALUE OF LIFE AND LEARNING.

Few people appreciate what has been the cost of the scientific facts on which our civilization is based. It is only when one reads the history of the development of a science that he can realize the immense expenditure of labour and of life which it has required. Often even the statements which the ordinary reader passes over, as being too insignificant or too obvious to merit attention, have cost some one years of toil or, perhaps, his life. If the pages of a text-book were marked, like Alpine passes, with a cross at every point where some one has sacrificed his life, we could see how scientists have valued the knowledge which we, perhaps, do not care to learn. The martyrs of science are not less numerous than those of religion; nor are they less glorious since they died in the same cause—the pursuit or the promulgation of ideal truth. Rarely fortunate is either martyr if by his death he accomplishes his purpose. Usually his sacrifice marks a failure, not a triumph.

It must not be supposed that instances of self-immolation on the altar of science are rare; on the contrary, they are of daily occurrence. A biologist who wishes to study the life history of the tapeworm grows one in his own body; a physician ruins his health by experimenting on processes of digestion in his own stomach; a geographer risks his life to get a barometric reading; a bacteriologist inoculates himself only too successfully with a disease germ; a sanitarian, in order to test the effect of decomposed organic matter on the human system, drinks sewer water for a month; a chemist works for years on compounds so explosive that the careless touching of a few grains would kill him. Such are the common events in the scientific world. No investigation is given up because it is dangerous. There are scientists in almost all lines who work day after day, quietly and doggedly, in more danger of their lives than a soldier in war time. The outside world knows nothing of this; and, if it did, would laugh at them for madmen. It may safely be said that if it were known that an important scientific discovery, say one which would fill a few lines in some large manual, could be made, but only at the cost of the life of the investigator, there would be no lack of volunteers.—Prof. Slosson in the Independent.

CAPABILITIES OF THE CHINESE.

There is at the foundation of the Chinese civilization and of the Chinese national character a nucleus of moral worth and intellectual capabilities which may come to the front again. When the walls break down which separate China from the rest of the world, so as to give the Chinese a chance of learning from us all they can, it is very doubtful what the result of a free competition with the Chinese would be. Their imperturbable patience, their endurance, their steadfast character, their pious reverence, their respect for learning, should not be underrated. If these virtues are but turned in the right direction and tempered by that breadth of mind which is indispensable for progress, the Chinese will soon recover; and nothing is more apt to produce a national rebirth than hard times, trials, and humiliation. China is offered in her recent misfortunes the chance of a spiritual rebirth. Should she avail herself of this opportunity she would, with her four hundred millions of inhabitants and her untold virgin resources, at once take a prominent rank among the nations of the earth; and her civilization might become strong
enough to influence and modify our own.—Dr. Paul Carus in the Monist.

BRITISH MEDICAL MISSIONARIES.

The service of Christ by the medical profession of Great Britain and Ireland is represented this year—1895—on the foreign mission field by 187 men and 39 women. As there are over 30,000 men and 250 women who possess British qualifications, it cannot be said for the former that their representation is more than a slender beginning. The women present a striking contrast, and if they can keep up the present proportion they will have deserved well of the Church of Christ. It is true that the pressure for the medical education of women had an intimate relation in the minds of one portion of the public with the needs of the foreign mission field, but even so the contrast is still too glaring to be anything but complimentary to the zeal of the men. Of the 29 new names which appear in this year's list, 17 are those of men and 12 those of women. After deducting the losses for the year, the whole number stands at 216.—Medical Missions at Home and Abroad.

CHANGED ATTITUDE.

One result that was produced upon the minds of the commissioners sent by the American government to investigate the riots at Cheng-tu in the province of Sze chuen is thus stated by the late Colonel Cockerie, the correspondent of the New York Herald: "Commander Merrell, who has hitherto shared some of the antipathy naturally entertained in the United States Navy toward missionary workers, informed me to-day that the trip to Cheng-tu had caused him to modify his views materially. He had doubted the sincerity of many missionaries and had been inclined to believe that a number of them found better livings in China than could possibly have fallen to them at home. He saw no place in all his great journey where he could be induced to live for any length of time, no matter what the compensation. He saw something of the sacrifices made by the missionaries in remote China. He saw and noted their zeal, their earnestness, and their untiring industry. He envied no one of them. He realized that they earned the remuneration allotted them, over and over, and his sympathies went out to them. Upon this point I may say that the Commission is absolutely unanimous."

THANKSGIVING.

One thanks God that he knows not sorrow's touch;
One for the sure increase of honest gain;
One for life's sacred friendships, such—and such!
And one dares thank Him for the scourge of pain.

C. M. Packard in the Independent.

It is with great regret that we have to chronicle the death of Dr. Ernest Paul Turner, M.R.C.S., L.R.C.P. (London), of the London Mission, Hankow, whose name was only proposed in the last No. of this Journal as a member of the Society. Dr. Turner, the son of an old Hongkong L. M. S. missionary, was born in China, and lived there till he was 17, when he went to England. His medical education was gone through at St. Bartholomew's Hospital and after qualification he held, for some time, the post of House Surgeon to the Bethnal Green Hospital under Dr. Gauld. He arrived in Hankow last February, and at once got to work, taking over the L. M. S. hospital which had been left vacant by Dr. Gillison's return home last autumn. On Dr. Gillison's return in the early spring he gave himself more entirely to the study of the language, in which he was making good progress. Early in June both he and Dr. Gillison contracted typhus fever from a number of patients ill with that disease in their hospital; they both fell ill on the same day. At first his seemed the milder case of the two, and good hope was entertained that he would do well. But about the seventh
day a change for the worse appeared, violent delirium and hyperpyrexia; despite all that could be done he sank somewhat rapidly and died June.—During the short time he was in Hankow he had endeared himself to all by his gentleness, earnestness and unobtrusive goodness, and his memory will long be fragrant.

Dr. Gillison, we are glad to say, slowly recovered, but was left so weak that he had to leave for Japan at once, so as to avoid the hot Hankow summer. Our last reports of him were very favourable, and we hope soon to see his cheery face once more amongst us: the absence of Ji Yi-seen means much to the Chinese of Hankow and its neighbourhood, where he is widely known and deservedly loved. Our deepest sympathy is with Dr. and Mrs. Gillison in this fresh trial.

The many friends of Mr. J. D. Chang, of the Shanghai Dispensary, will be glad to know that the Viceroy Li Hung-chang, when passing through Shanghai on his way to Europe, presented him with a gold medal and a certificate: the gold medal bore the following four characters:

調 備 精 良

By the kindness of Dr. Lalcaca, of Shanghai, we are able to reproduce a literal translation of the great Viceroy’s testimonial. We congratulate Mr. Chang most heartily. We can testify, from personal knowledge, to Mr. Chang’s courtesy and ability, and can confidently recommend him to our many friends. The testimonial reads as follows:

In very ancient times the doctor and the medicine were both very important subjects.

Dr. Pay’s (Pay’s) first intention, and even principal idea in completing his medical work, was to have all the medicines arranged properly. Dr. Lee (Lee) in his books, stating the famous doctors, prescribes the medicine in various ways and says that, as the symptoms of disease vary by hundreds of forms, the medicine also is to be varied in a hundred ways.

Further on he says good medicine will save life and bad medicine will kill it.

Foreign chemists treating their medicines according to the laws of chemistry, take out efficacious alkaloids and substances for their preparations and throw away the useless parts. Thus the pharmacist often turns the very poisonous medicines into very safe ones, and very minute doses of the medicine will answer for all purposes, and therefore the preparing of the medicine is more important for the patient than the doctors are.

Mr. J. D. Chang, of Ningpo, employed by the Shanghai Dispensary as manager in their manufacturing department for a number of years, is a fine Chinese scholar, and possesses a very good knowledge of chemistry; and all the pharmaceutical preparations and specialities of that establishment made by him are excellent. They are well known all over China.

I think his enterprise is an eminent work. In February of 1896 I was passing through Shanghai on my way to Russia as special ambassador. I wrote this to certify Mr. Chang’s ability and his skillful knowledge of the healing art.

Signed and sealed,

Li Hung-chang.

BIRTH.

At Western Hills (Peking), on June 5th, 1896, the wife of Dr. J. H. Ingram, A. B. C. F. M., of a daughter.

DEATH.

At Chu-waug, Hsunan, August 5th, of meningitis, Margery Finley, infant daughter of Dr. and Mrs. McClure, of Canadian Presbyterian Mission, aged seven months.

DEPARTURE.

From Shanghai, 13th June, Dr. Kate Woodhull.
Third International Congress of Dermatology.

23, LOWER SEYMOUR STREET, PORTMAN SQUARE, London, W., May 20th, 1898.

Dear Sir,

I should be greatly obliged if you would kindly have the accompanying Programme of our Proceedings inserted in all the medical papers of your country as early as possible.

Please add—

1st. That it is specially requested that all medical men wishing to become members of our Congress should communicate at once, either directly with me as General Secretary, or with you as Secretary for China. It is extremely important from many points of view that the Executive Council should know as soon as possible how many visitors may be expected.

2nd. That the fee for membership (£1 sterling) may be paid in advance, either to you or to me, or may be paid at the date of the Congress in London.

3rd. That all particulars with regard to hotels, etc., and all other information respecting the Congress, can be obtained from me at the above address.

With kind regards, believe me,
Very sincerely yours,

J. J. PRINGLE,
Secretary-General.

THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY.
To be held in London, August 4th to 8th, 1898.

DERMATOLOGY.

PROGRAMME.

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Tuesday, August 4th.

11 a.m.—Preliminary Business.

12.0—Presidential Address.

3.0 p.m. Subject:—"Prurigo."

1.—Dr. Besnier (Paris). 2.—Prof. Kaposi (Vienna). 3.—Dr. J. C. White (Boston, U.S.A.) 4.—Dr. Payne (London).

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Wednesday, August 5th.

9.0 a.m.—Clinical Demonstration of Cases.

10.30 a.m. Subject:—"The Etiology and Varieties of Keratosis."

1.—Dr. Unna (Hamburg).

2.—Dr. H. Brooke (Manchester).

3.—Prof. V. Mibelli (Parma).

4.—Dr. W. Dubreuilh (Bordeaux).

10.30 a.m. Subject:—"Syphilitic Re-infection."

1.—Prof. Fournier (Paris).

2.—Prof. Lang (Vienna).

3.—Mr. Alfred Cooper (London).

4.—Dr. Fitzgibbon (Dublin).
T/8 The China Medical Missionary Journal.

2.0 p.m.—Clinical Demonstration of Cases.
3.0 p.m. Papers.

Thursday, August 6th.

9.0 a.m.—Clinical Demonstration of Cases.

10.30 a.m. Subject:—"The Connexion of Tuberculosis with Diseases of the Skin other than Lupus Vulgaris."
1. —Dr. J. Nevins Hyde (Chicago).
2. —Dr. Hallopeau (Paris).
3. —Dr. Radcliffe Crocker (London).
4. —Prof. G. Riehl (Leipzig).

10.30 a.m. Subject:—"The Duration of the Period of Contagion of Syphilis."
1. —Mr. Hutchinson (London).
2. —Prof. Campana (Rome).
3. —Prof. Lassar (Berlin).
4. —Dr. Feulard (Paris).

2.0 p.m. Subject:—"Ringworm and the Tricophytons."
1.—Dr. Sabouraud (Paris).
2.—Prof. Rosenbach (Göttingen).
3.—Mr. Malcolm Morris (London).
Contributions to this debate are promised by Dr. Unna, Dr. Colcott Fox, Leslie Roberts and many others.

Friday, August 7th.

9.0 a.m.—Clinical Demonstration of Cases.

10.30 a.m. Subject:—"The Nature and Relations of the Erythema Multiforme Group."
1. —Prof. de Amicis (Naples).
2. —Dr. T. H. Veiel (Stuttgart).
3. —Dr. Prince A. Morrow (New York).
4. —Dr. Stephen Mackenzie (London).

10.30 a.m. Subject:—"Malignant Syphilis."
1. —Prof. Haslund (Copenhagen).
2. —Prof. Neisser (Breslau).
3. —Prof. Tarnovsky (St. Petersburg).

2.0 p.m.—Clinical Demonstration of Cases.
8.0 p.m. Papers.
3.0 p.m. Papers.

Saturday, August 8th.

9.0 a.m.—Clinical Demonstration of Cases followed by Papers.
SPECIAL NOTICE.

Notice is hereby given, in accordance with the Constitution, that the following alterations in the Constitution will be proposed in the December No. of the Journal and submitted to the votes of the Association:

A. Dr. Whitney's three propositions (see letter in Correspondence).

The following amendments will be moved to Dr. Whitney's proposals (provided they find a seconder) by Dr. Hodge and seconded by Dr. Boone, viz:

(1). In Dr. Whitney's amended Article III. to alter the words "elected by a two-thirds vote of those voting" to "by a majority of those voting."

(2). In Dr. Whitney's amended Article V. to add, after the word "Treasurer," "an Editor and a Curator of the Museum;" to add, also, after the word "Association" in the last sentence "to fill up any vacancies (caused by death or otherwise) in the executive of the Association and to take initiative action in all matter affecting the welfare of the Association."

Dr. Whitney's 3rd and 4th motions will be seconded by Dr. Hodge.

B. Dr. Hodge will propose and Dr. Boone will second.

(1). To add a new article to the Constitution, viz:

Article VII. "That every President on retiring become an Honorary Vice-President of the Society for life."

(2). To amend rule 2 of the By-Laws by the addition of the words "in the absence of both President and Vice-President the meeting shall elect its own Chairman."

(3). To amend Rule 3 of the By-Laws by the insertion of the following words after the word "Constitution," viz., "notify in writing new members of their election, keep a roll of all three classes of members and publish a revised list annually in the Journal."
Official Notices.

The following ladies and gentlemen have been elected members of the Association:—H. L. Canright, M.D., University of Michigan, U.S.; David Rankine, M.A., M.B., C.M., Edinburgh University; Ethel M. Gough, L.S.A. (London); John M. Dalziel, M.B., C.M., Edinburgh University; Eleanor Chesnut, M.D., Women's Med. College, Chicago, Ill.

As some mistakes have crept into the Indices the Editor will be glad if any members who note such will forward him a memo of the same.

Attention is called to the election of officers for 1897-1899. A perforated voting paper is appended to the front of the present volume.

Dr. Macklin having resigned the Treasurership, Dr. Main has kindly consented to act.