SOME IMPRESSIONS OF GENERAL SURGERY AT THE Peking Union Medical College Hospital.

BY CAPTAIN D. ETTLES.
Royal Army Medical Corps.

Situated in the heart of the ancient capital of China, the Peking Union Medical College Hospital occupies a unique position. Built and equipped on a lavish scale by Rockefeller in 1919, it presents the picture of one of the most modern and up-to-date hospitals in the world, surrounded by conditions of sanitation and housing which may be described as little more than primitive. Approximately 350 beds are available. I was privileged to visit the surgical service daily for two months and venture to give some impressions of the surgical work carried out in this great hospital. I make no claim to originality, but merely give, under a series of headings, what struck me as new, or unusual, in the teaching and treatment of surgery on the latest American lines as applied in China.

Team Work.

The senior Chinese house staff remain in residence for several years, so that an excellent standard of team work is possible. All assistance at operations is given by the house staff, and the general theatre technique is...
of a very high standard, although the students do not appear to get any experience of actually assisting at operations.

**Anaesthesia.**

Spinals and locals are used in the great majority of cases, nerve blocks also being popular. It is rare to see a general anaesthetic given, except to supplement local or spinal anaesthesia when gas and oxygen are used. Having been taught in the conservative school of medicine, the wholesale use of spinal anaesthesia for abdominal surgery was interesting. The relaxation of the abdominal wall obtained by four cubic centimetres of six per cent novocain intrathecally was a joy to appreciate, and all amputations were carried out under spinals or nerve block. The anaesthesia was not a success in every case. One hernia case vomited so persistently that the abdominal wall had to be repaired three times in one sitting before the defect in the inguinal canal had been closed. A case of appendicectomy vomited just as the appendix was being removed; some anxious moments were spent as attempts were made to invaginate the stump of the acutely inflamed organ. Several patients complained of pain throughout the operation, but it is only fair to point out that such cases were far more common among the sensitive Russians than among the more philosophical and stoical Chinese. Indeed, the Chinese seem to have a much greater ability to withstand pain than the white races, once they have made up
their minds that an operation is unavoidable. On the whole, the post-operative course of most cases seemed remarkably smooth.

**Preparation of the Skin.**

Mercurochrome is used for routine sterilization of the skin. It is claimed that reactions and rashes do not occur, but the mercurochrome is difficult to remove and has to wear away. The red colour takes some time to disappear and makes rather a mess of theatre towels. Its advantage is its absolute non-toxicity.

**Skin-Grafting.**

Many cases of chronic varicose ulcer are seen. Some of these ulcers also occur on the abdominal wall and form a special group of a painful, necrotic, spreading lesion, associated with morphinism, which is widespread.

The surgical block. The walls are of grey stone and the roofs of green tiles.

These cases are treated as out-patients until they are moderately clean, when they are admitted for skin-grafting by Reverdin’s method. Until recently I was under the impression that the use of Reverdin grafts was limited to replies in examination papers, but the results of pinch-grafting these ulcers are most satisfactory. The grafts are taken from the front of the thigh and sewn on the surface of the clean ulcer. The majority of the grafts take, and the rapid growth of each little epithelializing colony is striking.

After radical excision of the breast for carcinoma, should there be any difficulty in approximating the skin edges, no effort is made to do so by
tension. The edges of the wound are sewn down to the chest wall all round and Tiersch grafts applied to the remaining raw surface.

Chest Surgery.

(1) Empyema.—Meta-pneumonic empyemata are treated by open drainage, a very large flanged tube being used. This tube is much larger than that usually employed, and is of sufficient calibre to admit the tip of the index finger. In dealing with children such a large tube may require the removal of portions of at least two ribs. The use of the large tube has so far been justified by the high percentage of primary closures obtained. In China, secondary infection is so common and persistent that primary healing is of paramount importance.

Chronic empyemata are commonly seen in north China, where the dust-laden air causes a huge number of secondary infections. Thoracoplasty on the lines of the Sauerbruch paravertebral technique is employed for some cases, paravertebral nerve-block anaesthesia being employed. At present the technique employed is on the basis of the old unroofing operation of Schede, attempts being made to sanerize the cavity so as to leave no pockets. The final result seems to be a little better with the Schede technique, although the cavity remaining after the operation may be relatively huge. The cavity is packed with vaseline gauze.

(2) Tuberculosis.—Many cases of chronic pulmonary tuberculosis are seen which are ideal for phrenic avulsion, or thoracoplasty, but the necessary after-treatment in sanatoria is at present unknown in China.

The treatment of cold abscess of the ribs is unusual, this common lesion being treated on the lines of a benign tumour. The incision is made wide of the swelling, and the dissection carried out so that the abscess cavity is not opened but removed, with the diseased portion of the rib, in one piece. Great care is taken that all tracks are identified, followed up, and freely opened. The resultant cavity is again a formidable affair and is packed with vaseline gauze.

(3) Anaesthesia.—Intratracheal anaesthesia does not seem to be popular here. I never saw the method employed. Paravertebral block supplemented by ether is the method generally employed.

Gunshot Wounds.

A fair number of gunshot wounds are seen. The constant wars in China result in the steady influx of cases, mostly in a very bad state owing to lack of transport.

Amputations.

These are common. A huge number of chronic suppurating, tuberculous joints are seen which are beyond all hope of conservative treatment. The difficulties of after-treatment have already been mentioned. These cases are in conformity with the clinical picture of most surgical disease as
seen in China, where the gross lesion is seen a great deal more often than it is at home.

Cerebral Surgery.

Ventriculography is commonly used for diagnostic purposes. I saw one case of trigeminal neuralgia operated upon under local anaesthesia. The deep dissection exposing the middle meningeal artery in the foramen spinosum and the Gasserian ganglion in the cave of Retzius was greatly facilitated by the use of a light-carrying retractor.

Injection treatment for trigeminal neuralgia does not seem popular.

Abdominal Surgery.

(1) Anaesthesia.—All abdominal cases are operated on under local anaesthesia. Something has already been mentioned on this subject.

(2) Incisions.—Transverse incisions are not used.

(3) The Sucker.—Each operating theatre has a sucker attachment which can be used at any moment. I saw the sucker in use during abdominal, chest and cerebral surgery, and was most impressed by its value as a permanent fitting. The nozzle of the sucker is sterilized and ready on the instrument table for every case. This nozzle can be passed into the paracolic gutters and amongst coils of intestine with the minimum of disturbance. The action is far more gentle than that of the usual gauze roll. In one case of perforated gastric ulcer the free fluid in the peritoneal cavity was removed neatly and efficiently in a way which would have been quite impossible with a gauze pack. Further, it renders the insertion of large abdominal sponges into the abdominal cavity almost unnecessary. In a case of nephrectomy there was severe haemorrhage from the pedicle, owing to the premature removal of the clamp forceps when the ligature was tied. The sucker was of the greatest value in allowing a clear field in which to catch the bleeding vessel in a way which would have been impossible with the usual method of mopping out with large sponges.

Blood Transfusion.

Many cases of post-partum haemorrhage are brought in which require immediate transfusion and the technique which is employed is complicated. The veins of recipient and donor are exposed and needles tied in. The blood is transported from one to the other in a series of 50 c.c. syringes. These syringes are sterilized in citrate solution but are used dry. One nurse takes the blood and another transports it to the resident houseman, who introduces it. Should there be any delay, saline is gently run in to keep the lumen of the veins patent. I saw this system in use on several occasions, but I do not consider it has any advantage over the more simple citrate method usually employed. A syringe technique was tried out in Guy’s Hospital in 1927, but it was, I think, soon abandoned in favour of the old citrate method. About twenty syringes are employed, so that each
syringe is only used once and then removed from the theatre. Having had some experience of a similar technique in China and having seen it tried out again, I am convinced that the citrate technique is more simple and foolproof.

**Orthopaedics.**

The standard of plaster work is very high. Whitmans’ method is used for fractures of the neck of the femur, the Thompson modification being substituted when the former method cannot be retained. Cases of acute osteomyelitis are treated by the method of Winnett Orr. The results seem most encouraging. The plastering over of the exposed bony cavity is of great value in preventing secondary infection which is so prevalent in the dust-laden air of this country.

Local anaesthesia seemed of the greatest value in such cases as the division of adhesions in the fingers and hand as the result of burns. The co-operation of the patient in demonstrating the effect of division of the adhesions was most effective.

Transfixion pins are used extensively for fractures. There seems to be no doubt that extension by pin traction is the method of choice for most severe fractures of the long bones.

The treatment of certain diseases—cancrum oris, endarteritis obliterans, and haemophilia—will now be mentioned as being unusual, or contrary to the common textbook teaching.

**Cancrum Oris.**

This is quite a common infection. Its occurrence is almost pathognomonic of associated leishmaniasis (kala-azar). Treatment is carried out on the lines of multiple small transfusions. Very little is done locally. The old fuming acid treatment advocated in most textbooks has been discarded, as the results were universally fatal and the necrosis went on spreading rapidly. Treatment is constitutional rather than local.

**Endarteritis Obliterans.**

Cases of this disease are common, especially amongst the Russians. Treatment is carried out on the lines of prolonged rest in bed, weekly injections of T.A.B. on the theory of protein shock, and magnesium sulphate introduced intravenously to try to restore the elasticity of the vessel walls. The objection to these methods is the time factor, for the pain of the arterial spasm seems to be associated with insanity and something more radical has to be done to prevent such a change. Practically all cases come to amputation in the end, but many go on for several years with a useful limb when treated on conservative lines, although actual gangrene may have been present on admission. Leriches’ peri-arterial sympathectomy has been abandoned at the moment. Careful records are made of the surface temperatures after the induction of spinal anaesthesia.
Should there be any improvement after removal of the spastic element, sympathetic ramisectomy is considered.

**Hæmophilia.**

Ovarian extract is being tried out to control the hæmorrhages of hæmophilia. The basis of the treatment rests on recent work carried out in America on guinea-pigs. It was found that “bleeders” lacked a certain female ferment. One case treated here stopped bleeding after a hypodermic injection of ovarian extract. Twelve hours later the bleeding recommenced, but was again checked by the use of ovarian extract. This particular case showed a very rare condition of Volkmann’s paralysis following a hæmorrhage into the ante-cubital fossa resulting from a bruise. I understand that only one other similar case has been recorded in the literature. Further work is being done here on these lines.

Two other points are of interest: a new technique for X-ray examination of the liver and spleen and the question of autopsy.

**X-ray of the Liver and Spleen.**

A new German method is on trial for the demonstration of the liver and spleen by X-ray, using a solution of “Thorotrast.” This solution is an emulsion of thorium dioxide in oil and is injected intravenously. The cells of the reticulo-endothelial system absorb the oil and the thorium shows as a shadow on the film. No toxic symptoms have yet been observed. The dosage is calculated on the principle of one cubic centimetre per kilo of body weight, the injections being given once daily for four days. The calculated dose is distributed evenly throughout the four injections. The solution is expensive, each examination requiring about 25s. worth of solution. Some photographs in the German literature show convincing studies of the liver and spleen with secondary metastases appearing as clear areas in the general shadow. This method may be of great value when it has been perfected, and the field of application is a large one. Some experiments carried out on rabbits here, using the requisite dose, suggest that the method is sound, the liver and spleen showing clearly in the skiagram.

**Autopsy.**

Chinese religious practices do not allow any mutilation of the body after death, and it is difficult to persuade the very superstitious Chinese to allow a post-mortem. Many specimens are lost, as after great persuasion only about fifty per cent of deaths come to autopsy.

The surgical teaching round is on Thursday, when all cases are reviewed and discussed. I venture to give one or two impressions of these rounds.

First, the value placed on laboratory reports seems rather out of
proportion to the clinical examination. Pneumonias are X-rayed and the film causes more discussion than the pulse-rate. Bronchoscopy was advocated for several cases of post-operative pneumonia, a form of treatment which would be regarded as rather drastic by the more conservative English school. I was left with the idea that one's sense of proportion was being lost in a mass of laboratory figures but, on the other hand, one can imagine the caustic comments of our forefathers when the new school of medicine started to listen to the heart with a stethoscope.

Second, the surgical unit is most progressive. The latest literature is eagerly absorbed and new methods are tried out at the earliest opportunity. The industry of the Chinese is truly astonishing. All of them read and speak English, and some also read German easily. A high standard of English is required before admission to the College.

Third, the manual dexterity of the Chinese is very high. They are neat and quick and have a remarkable ability to get a needle into very poor veins.

Fourth, anyone who has been brought up in the atmosphere of our voluntary hospitals at home would be amazed at the general impression of plenty of money. There seems to be absolutely no limit to the expenditure on equipment, instruments, ward fittings, etc. I understand there is a yearly budget, but the margin for extra expenditure under the Rockefeller benefit must be a very generous one. It is a remarkable thing to go into a private room fitted with every comfort and find an almost inarticulate coolie occupying quarters which would cost about £20 a week in a London nursing home. Any instrument which may be required is obtained without difficulty, regardless of expense. I understand that the staff required to run the hospital is approximately 1,000. It is a little disappointing to think of the hospitals at home struggling along in a financial morass, and to see this hospital run on such a lavish scale, where expense seems absolutely no object.

Under these scattered headings I have attempted to give some of the methods I have seen. To anyone who is fortunate enough to visit this city, a tour of the hospital will be more than repaid. He will carry away the memory of first-class work in one of the show hospitals of the world.