In the afternoon the temperature rose to 103·2°; respiration 36; pulse 96.

Without giving the monotonous daily records, suffice it to say that the prostration and delirium increased; little or no expectoration; the pulse became very weak and small; the respiration was never very difficult and hurried, though both the lungs were now involved. The mixture was continued with the addition of tinct. digitalis and sulphuric ether, and squill substituted for senega. The friends of the patient (Hindu) were persuaded to give chicken broth. From the 21st the morning temperature began to come down to 100·4,° or so; though evening exacerbation mounted to 103° as before. The patient's pulse gained in strength, and he began to mend, though the result still seemed doubtful. On 28th August the morning temperature was 99·3°, and on 29th, 98·2°. From 31st he was free from fever, but still very weak, and on 11th September he was discharged cured, though still weak, as he was very anxious to go home.

There were ten major operations in August and September.

1. *Cataract.*—Brindaban, Hindu male, *æt.* 30 years, admitted with cataract of right eye operated on 31st August by flap extraction. No iridectomy; no anæsthesia by chloroform. Cocaine was used. He was discharged on the 17th day with good sight.

2. Raghu Nath, *æt.* 58, admitted with senile cataract, and operated on 26th September by flap extraction. There was some bleeding, which was stopped by pad and pressure. No iridectomy was made, as the pupils had dilated well by atropine. The case is under treatment.

In these two cases, as the pupils dilated well with atropine, iridectomy was not thought necessary. This is Dr. Macnamara's view.

3. *Staphyloma.*—Mudhu, Hindu female child six years old, admitted with staphyloma of right cornea; eyelids could not be closed and there was great pain. The protruding part was snipped off by the scissors. As the girl was very timid, she had to be anæsthetised by chloroform. The eye was closed with pad and bandage and belladonna ointment smeared over the brow and the case treated as an out-door patient.

4. Atamuddy, Mahomedan male, *æt.* 38, admitted with staphyloma of the right cornea. In snippng off the protruding part the cornea gave way, and the humour escaped or rushed out with the lens. The eye was bandaged with pad, and bandage and some belladonna ointment applied. The pain was gone, and the man left after three days to go home.

5. Case of cicatrix after burn, in which the forearm was contracted on the upper arm with keloid like tumour. The bone was divided, and the thickened cicatrix tissue being scraped off, the arm put on in angular splint. By daily extension, the elbow joint has become free, but the gran ulation tissue not being quite healthy, strong nitric acid and sulphate of copper or blue stone are being freely used for keeping down the proud flesh. The boy, Esuff Ali, *æt.* 12, was operated on 10th September, and is still in hospital.

Beside this there was a cystic tumour of the scrotum, amputation of the left index finger, after necrosis of the 1st and 2nd phalangeal bones, and a large polypus of the nose.

Glaucoma.—A case of acute glaucoma has just (24th September) been admitted. There being no esserine here we are obliged to use blisters and belladonna for the relief of pain. Simple puncture with needle for giving exit to the aqueous humour distending the chambers will be first tried before resorting to iridectomy.

PENETRATING GUNSHOT WOUND OF THE ABDOMEN.—LAPAROTOMY.

By SURGEON-MAJOR J. O'BRIEN, F.R.C.S.E.
Civil Surgeon, Darjeeling.

ON the 4th June last, at 11 A.M., Mrs. X, a healthy Native lady, aged 24, and the mother of three or four children, was accidentally shot by her brother, a lad of 10, with a pocket revolver. The boy was playing with the revolver, believing it, as his sister did, to be unloaded, when suddenly there was a loud explosion, and the lady was struck by the bullet in the abdomen from a distance of two yards. It appears that a stray bullet had either been left in the chambers of the weapon or had been placed there by one of the other children who sometimes used it as a toy. She fell to the ground at once, but the shock was not severe. There was but little external hæmorrhage, only a few drops of blood trickling from the wound, and the only pain experienced was a sense of burning at the point of entrance of the bullet.

I arrived at 12-30 P.M. and found the lady lying in bed; face rather anxious, pulse slow, extremities inclined to be cold, but no sign of severe surgical shock. There was a small circular wound with charred appearance at the edges on the abdomen, four inches to the right of, and on the same level as the umbilicus. It lay just external to a line drawn vertically upwards from the anterior superior spine of the ileum to the cartilage of the 10th rib. A long probe was carefully passed into the wound. It entered readily for some six or eight inches towards the opposite side of the pelvis in a direction inwards, backwards and slightly downwards, thus showing that the abdominal cavity had been penetrated. No trace of the bullet could be discovered with the probe. I examined a similar bullet from another cartridge, and found that it was conical in shape, a little more than a half inch

long, one-fourth inch in diameter, and that its weight was one-and-a-half drachm.

Seeing that the bullet had passed through the abdomen, I considered it advisable, even in the absence of severe symptoms, to open the abdominal cavity to ascertain what internal injuries had been received. It was highly probable (1) that some small vessel in the omentum, mesentery or intestine, had been wounded and would need ligature; (2) that blood had been extravasated close to the parietal wound and would have, owing to danger of decomposition and consequent peritonitis, to be removed; (3) that the intestine, bladder or other viscus had been wounded, and would have to be dealt with; (4) that the bullet could be discovered and removed, and last but not least it, struck me as desirable to shut off the contused and charred parietal wound, which was bound to slough later on, from the cavity of the abdomen by careful suturing of the peritoneum at the seat of injury and by drainage externally. To have waited until symptoms of peritonitis or of severe hæmorrhage supervened would have been, I thought, decidedly adverse to the patient's chances of recovery.

Chloroform was accordingly administered by Mr. Milchem, the Resident Medical Officer of the Eden Sanitarium, who assisted me. Then, with strict antiseptic precautions, I made a vertical incision three inches in length and having the wound as its mid point. On dividing the skin and thick layer of fat, the aperture in the muscles came plainly into view. The various layers of the muscles were next cautiously divided and the peritoneum exposed. Here a small opening indicating the track of the bullet was also plainly seen. Bleeding, which was very slight, having been controlled, the peritoneum was slit on a director for about 2½". Beneath it the omentum came into view, lying upon the coils of the small intestine, and in it (omentum) a small circular hole corresponding to the peritoneal wound was perceived, but this was the last that could be discovered of the track of the bullet. I carefully raised the omentum and inspected the coils of the small intestine, but could not detect the slightest sign of any injury. I then inserted first one finger and afterwards nearly the whole hand in the vain search for the missile, which appeared to have passed without doing harm between the coils of the gut towards the opposite side of the pelvis, where it probably got imbedded in the substance of the psoas or iliacus muscles. A thorough exploration of the abdomen and of the pelvis near the course of the bullet was made, but no further trace of it could be found. The bladder, the uterus and its appendages, the rectum, the kidneys and the bodies of the lower vertebræ were successively felt. The aorta close to its bifurcation and the large veins came under the hand, but there was no vestige of the bullet; neither was there any extravasated blood, nor was there sign or smell of escape of fæces from the bowel.

As further search for the bullet appeared to be useless, and as no wound of the viscera had been detected, I immediately proceeded to close the incision. For this purpose I employed three sets of sutures, *viz.*, one for the peritoneum, one for the muscles, and the third for the skin and fat. As it was of the utmost importance that the abdominal cavity should be securely closed, I brought the edges of the peritoneum into close apposition, and slightly everting secured them with eight sutures of fine silk. The bullet hole which was small did not present any obstacle to the accurate approximation of this membrane. The muscles were then evenly drawn together with gut, and the skin loosely with horse-hair. Between skin and muscles a drainage tube was placed. The wound was dressed with Lister's protective and sal alembroth wool, and the patient placed comfortably in bed with the knees bent over a pillow.

The operation lasted for about an hour.

As it appeared to be possible that the intestine had been penetrated by the small bullet at some point which had escaped my notice, I thought it safest to administer morphia in small doses to check peristaltic action and to put the patient on low diet for a few days. 25 minims of Liq. Morphiæ Hydrochlor. were accordingly given in a couple of drachms of water shortly after she recovered from the chloroform.

The further course of the case was as follows:

7-15 P. M.—Temperature 100·5°; pulse small and quick, patient restless, much nausea and vomiting. No urine passed since morning, catheter had to be introduced: 10 oz. highly colored urine drawn off. Repeat morphia draught at bedtime, only a few spoonfuls of milk and water given as food.

5th June, 6 A. M.—Temp. 99·8°; slept badly; nausea continues. 9-30 A. M., temperature 100·5°. Urine drawn off with catheter; some pain and tenderness in the abdomen. The dressings which were soaked by sanious discharge from the external wound were changed. Wound looks healthy; no sign of inflammation; diet milk and barley water in spoonfuls.

6 P. M.—Temp. 99·8°. Catheter passed. Nausea continues; ice ordered; drinks to be iced and pieces given to the patient to suck.

6th.—Morning temp. 98·4°. Sickness relieved; patient feels better, tenderness in abdomen continues, but there is little pain. Dressings changed. There is free suppuration from the external wound; dressings soaked, diet improved;—chicken broth, a wineglassful every 3 hours; also milk and barley water. Still unable to pass water, probably owing to the soreness of the wound and the difficulty of using the abdominal muscles. Evening temp. 99·2°.

7th.—Morning temp. 98·6. Slept well; dressings changed; pus in large quantity discharged from the wound. Flatus freely passed this morning. Catheter still required. Some pain in epigastrium complained of. Morphia to be continued.

Evening temp. 100°.

8th.—Morning temp. 99·2°. Slept well; feels easy; no pain except in the external wound. Urine passed naturally. Dressings changed. Copious discharge of pus. Morphia pills to be continued.

Evening temp. 99·6°. Feels easy, urine passed naturally; flatus freely passed during the day.

9th.—Slept well; no pain. Several small sloughs came through the tube. As the wound was discharging pus and small sloughs copiously, I broke down the adhesions of the edges of the skin over the lower half of the wound so as to permit of a thorough cleansing and the removal of sloughs. Morning temp. 98·4°.

Evening temp. 99·6°.

10th.—Morning temp. 98·4°. Bowels not moved since the operation. As discomfort is now felt on this account a soap and water enema was given this morning. This produced a copious evacuation of scybalæ, &c. I had the stool washed to make sure that the bullet had not passed by the bowel but no sign of it discovered.

Dressings changed, a few of the gut sutures of the muscles came away with some small sloughs to-day.

Evening temp. 99·2°.

11th.—Morning temp. 98·8°. Copious purulent discharge in the dressings as before.

Evening temp. 99·4°.

12th.—Temp. normal. Patient doing well.

15th.—External wound clean and free from sloughs. Temperature normal.

18th.—A few of the fine silk sutures employed for the peritoneum came away this morning with a shred of slough of this membrane included. From this date the patient did well. I discontinued my daily visits on the 22nd. The external wound, however, took a long time to heal. It was two months or more from the date of the injury before it had healed permanently. The patient is now in her usual state of health, active and busy, and though the bullet is still buried in some part of the abdomen or pelvis it causes so little inconvenience that she has not the slightest intimation of its precise situation.

Remarks.—It may be said or thought that it was unnecessary to open the abdomen in this case. In reply to any such objection, I give the following quotation from the latest edition (1891) of the Surgeon's Pocket Book.

"The prognosis of wounds of the abdomen is very unfavourable, the diagnosis very obscure, and the results of treatment discouraging. It is therefore most important that the question as to penetration of the abdominal cavity should be settled as speedily as possible, and this can be most easily determined by passing a probe into the wound. MacCormac adds: "And if this fails to clearly establish the fact or otherwise of penetration the wound should be enlarged and explored to its termination either in the parietes or more deeply." (Abdominal Section by Sir W. MacCormac, 1887.)

"Abdominal section for penetrating wounds is steadily gaining adherents, it being admitted that the mortality has been materially decreased since its introduction, and that the intrinsic risk of an abdominal section for exploratory purposes is, if properly performed, very slight. It must always be remembered that to wait for symptoms of perforation of intestine to appear in a case of penetrating abdominal wound is greatly to decrease the chance of recovery, and some surgeons advocate immediate exploration in all such cases." (Year Book, 1890.)

I have to thank Dr. Dutt, of Beadon Street, Calcutta, who joined me in the treatment of the patient, on the afternoon of 5th June, for the notes from which I have written out this case.

A CASE OF PARAPLEGIA WITH PARTIAL CERVICAL PARALYSIS—THE RESULT OF MALARIAL POISONING.

By SURGEON J. FAYRER, M.A., M.D., F.R.C.S.E., M.S.

PRIVATE D., 5th Royal Irish Lancers, was transferred to this hospital from Meerut. The following is an abstract of his case sent, with him, by Surgeon-Major Dempey, from the latter station.

"This man was admitted on December 16th, 1890, suffering from ague."

Stated, that a few days previous to admission into hospital, he stepped unexpectedly from the verandah of the guard-room on to the ground, jarring his back a good deal by the fall. A few days later, after a long exercising parade he felt so weak that he reported sick.

About a week after his admission into hospital, he noticed that his legs were becoming numb, and shortly afterwards he lost the power of walking.

These symptoms gradually extended up the trunk, affecting the urine, but to a lesser degree, a week later. There was no paralysis of the bladder or rectum: complete loss of both superficial and deep reflexes and great and rapid wasting of the muscles which were tender on pressure. There does not appear to be any history of syphilis:—

Treatment: Iron, quinine, strychnia, phosphoric acid with bitter infusions, galvanism and shampooing.

He has steadily improved since he first began to mend about the beginning of February, and is now transferred to Landour for change of climate."