removal. The patient being then in good health, the wound healed rapidly. He has since been discharged on pension.

The following note from Lieutenant Bacon is interesting, as it illustrates a point in the diagnosis of metallic substances by electrical means which I find is not generally understood in the profession, although it may readily occur to those who have practical acquaintance with electrical phenomena.

"The piece of metal extracted was subsequently tested with a view to determining the nature of the non-conductibility of the exterior with results that (1) when dry no circuit could be obtained by rubbing the ends of two bare copper wires over the surface; (2) considerable pressure with two soft iron points gave no circuit; (3) with two needle points considerable pressure was required to establish a circuit.

"To arrive at an estimate of the pressure required to force the needles into contact with the conducting portions of the metal, the piece of iron was placed between two needle points connected to a galvanometer and three secondary cells, and weights placed on the upper needle, when it was found that as much as 3 pounds weight was at times required to force the needles into contact with the iron.

"After soaking in warm water for an hour and a-half, the conductivity appeared to be slightly better in places where the iron had been previously rubbed, but still a weight of over 2 pounds was required to give a deflection of the galvanometer.

"These rough experiments point to the necessity of sharp points to electrical probes as well as a fair pressure being applied in working them, so that if no deflection is obtained it may be confidently known that no metal has been touched."

BULLET WOUND OF SKULL.

By HOWARD J. McC. TODD, M.R.C.S.,

Staff-Surgeon R.N.

[Communicated by the DIRECTOR-GENERAL OF THE MEDICAL DEPARTMENT R.N.]

T. T., aged 25, was shot in the right temple at 4 P.M., the weapon (a revolver 0.385) having been discharged close to the head. When seen one hour later he was lying on his back with his eyes closed, but on being spoken to answered readily, and moved all his limbs quite freely. The pulse was 80, the respirations 16, the pupils were equal and active. During the evening he rose from his bed to pass water and use the stool, and then walked to a room some distance off and conversed with his friends, who persuaded him to return to his bed, which he did, and remained quiet for the night.

On admission at 8 A.M. next day there was a small blackened aperture, from which cerebral matter and blood oozed, situated a quarter of an inch above and posterior to the right external angular process of the frontal bone. A probe could be easily passed through this for $3\frac{1}{2}$ inches backwards, upwards, and inwards into the brain. Under chloroform and with antiseptic precautions a V-shaped flap was reflected, and a large trephine applied immediately above and behind the hole in the skull. On removing the disc of bone the dura mater was seen to be contused; and on introducing my finger several pieces of bone were felt imbedded in the frontal lobe; these were removed. The wound was washed gently with a 1 in 5,000 perchloride, dressed with cyanide gauze, and an icebag to the head. The patient rallied well after the operation. The pulse was 68, the temperature 100.4° , and respirations 32. The pupils were active and equal. He answered questions intelligently, and drank iced soda and milk. During the night he was restless, frequently flexing and extending his legs.

On the third day the pulse was 48, regular; the temperature 100.4° . The bowels were confined, but acted to calomel, the patient using the bed slipper. There was very slight discharge of bloody fluid from the wound. The pupils were equal; he answered questions; and there was no paralysis.

On the fourth day the pulse was very rapid and irregular, and the temperature 103.2° . Cheyne-Stokes respiration was present; the patient was unconscious, the pupils equal and dilated. There was a good deal of cerebral matter on dressings. At 4 P.M. a marked change was noted. The tempera-

ture had risen to 105.2° , the teeth were tightly clenched, and there was paralysis of right arm and forearm. At 11 P.M. the right lower extremity was paralysed and the pupils widely dilated. At 2 A.M. the temperature was 108° , and the patient died at 4 A.M.

Post-mortem Examination.—The course of the bullet is shown in the accompanying sketch. Having traversed the

right frontal lobe, it cut a groove in the right corpus striatum, passed beneath the corpus callosum into the left lateral ventricle, grooved the left corpus striatum and optic thalamus, and passed out of the ventricle at the commencement of the left posterior cornu into the left occipital lobe, where it was found embedded in the white substance half an inch from the surface. There were no hæmorrhages.

Weight of bullet, 182 grains.

NOTE ON THE AFTER-TREATMENT OF GASTROSTOMY CASES.

By C. H. GOLDING-BIRD, F.R.C.S.,

Surgeon to Guy's Hospital.

THE greatest trouble that attaches to the after-treatment of a gastrostomy case is the prevention of leakage of stomach contents, and the digestion of the skin around the opening, causing, to say the least of it, very severe discomfort to the patient.

Many plans, both operative and mechanical, have been tried, and with varying success, by various surgeons; but having now under my care a man of middle age, on whom I did gastrostomy for epithelioma of the œsophagus more than two months ago, and in whom there has been no leakage whatever, though the patient is walking about and feeds himself, I think the method adopted should be recorded.

The plan on which I went was one that I am in the habit of adopting when desiring for any reason to examine a sinus to its bottom; it is to dilate the sinus with laminaria and sponge tents instead of incising it, and the result is that the inspection of the sinus or removal of a buried suture, or whatever may have hindered healing, being accomplished, the

sinus, being only stretched, mechanically contracts again in a very short time.

I carried out this principle in this case of gastrostomy. On the fourth day after the attachment of the stomach to the parietes the viscus was opened only enough to admit a No. 10 catheter, and then this small opening was dilated with tents till a short piece of rubber tube, the thickness of the forefinger, could be introduced and tied *in situ*. The stomach walls—from mere physical reasons—contracted now firmly round the tube, and from the time of its introduction there has not been a vestige of leakage. The tube, which only just projects into the stomach and about 1 inch externally is kept corked, the cork being removed at meal times; and then with a funnel and a tube that will pass into the lumen of the permanent tube the patient easily feeds himself.

Around the tube, on the skin, boracic acid ointment, with a large proportion of chalk in it, was smeared to counteract any acidity should there be regurgitation at any time; but this has never occurred.

Had the opening into the stomach been made with a knife and then the large tube at once inserted the subsequent contraction, though it would have held the tube well gripped, would not, in my opinion, have prevented leakage, for in this case there would have been only the cicatricial contraction to have relied upon, but where the opening is made by dilatation the gastric musculature remains uninjured, and I believe around the tube acts the part of a sphincter, and thus there is an active as well as passive hold.

THE USE OF DEFIBRINATED SHEEP'S BLOOD FOR TRANSFUSION.

By W. A. F. BATEMAN, M.R.C.S.,
Senior Surgeon, Richmond Royal Hospital.

THE following case may be worthy of publication, as suggesting a substitute for human blood, in cases demanding transfusion:

E. J., aged 72, was admitted to the Royal Hospital, Richmond, suffering from scirrhus of the head of the pancreas, involving the common duct. She was very emaciated, the skin and conjunctiva deeply stained with bile, and the whole surface of the body covered with patches of purpura.

At the time of operation (October 8th) she was almost in a moribund condition, and though the nature of the case did not admit of any measure of success beyond prolonging life for a few days, I thought it a good opportunity to try a method of transfusion I had long desired to employ. I arranged with a local butcher for a supply of defibrinated sheep's blood. This I procured immediately the animal was slaughtered, so that it was still quite warm when I used it. With the blood I mixed an equal quantity of water in which was dissolved table salt in the proportion of a drachm to the pint. This mixture I carefully strained through fine muslin to catch any chance atom of fibrin.

The temperature of the fluid when injected was as nearly as possible 98°. The instrument used was a common Higginson's enema apparatus, to which was attached an aspirator needle. The quantity of fluid injected was not quite 8 ounces. I should have used more, but I was afraid that a bubble of air had got into my rather imperfect apparatus, an accident I hope to avoid in the future.

The immediate result of the operation was an increase of pulse power. This, however, was followed by faintness, whether from the bubble of air, or from the effect of the slight cutting operation I am unable to say. A little whisky and water, however, soon revived her, and in a few hours she was very much in the same state as before the operation. On the following two or three days she was better and rather stronger, and could sit up in bed without help. This she had not accomplished for a considerably time previously. She died, however, eight days after, but judging from her condition when the operation was done, I think there is fair ground for supposing that life was somewhat prolonged. My motive, however, for publishing this case is to suggest the use of "sheep's blood" for cases where transfusion is deemed necessary.

This method is worthy of further trial. First, to determine whether it is as life-saving as the use of human blood;

secondly, because there are obvious advantages in its use, inasmuch as many cases have been reported of serious consequences following the abstraction of blood for transfusion; and, lastly, because it is easily obtained, and as sheep are constantly being slaughtered it is not even doing an injustice to that excellent domestic animal.

Allow me to say, in conclusion, that I have not searched the literature on transfusion as thoroughly as I could wish. If, therefore, this method has been already tried, I shall be glad if some of my professional friends will bring it forward.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

INGUINAL HERNIA INVOLVING THE OVARY.

A HINDU child, Kalloo, 3 to 4 years old, was admitted to the hospital early in August, 1895, with an ovoid swelling in the right groin extending well into the labium. It was due to a hernia of the intestine, together with a hernia of the ovary. The intestine was reducible, but the ovary could not be returned into the abdominal cavity by taxis. An incision was made, and the sac was dissected out. Through the thin walls the ovary could be seen, of a purplish hue. Some torsion of the pedicle may have been present, as in a case of Mr. Lockwood's, reported in the BRITISH MEDICAL JOURNAL of September 21st, 1895. The resulting congestion prevented its reduction until the ring had been enlarged by the knife. The sac was then given three twists on its long axis, and passed up behind the transversalis and internal oblique, from which the parietal peritoneum had been separated, and there fastened. The child has made an excellent recovery, and is now (three months after the operation) running about without a truss or any form of mechanical support. The result is perfect, there being no bulging or extrusion whatever, although she could not be kept recumbent after the second day.

L. P. MUMBY, M.B.Lond., D.P.H.Camb.,
Surgeon-Captain A.M.S.
Umballa. Medical Officer in Charge of Cantonment General Hospital.

A CASE OF POISONING BY CYANIDE OF POTASSIUM: RECOVERY.

ON November 4th I received an urgent message to see Miss A. A few minutes afterwards I found the patient, a girl, aged 20, at the foot of the staircase, breathing stertorously, unconscious, convulsed, with widely-dilated pupils, no pulse at the wrist, and cold.

Her mother informed me that Miss A. had gone upstairs to change her dress, intending at the same time to do some photographic work. She shortly afterwards heard her rush out of her room calling "Mother!" immediately afterwards falling downstairs, convulsed and very sick. There was a strong odour of bitter almonds in her breath and vomit, and I came to the conclusion she had in some way poisoned herself with cyanide of potassium or prussic acid. She was perfectly well half an hour before the occurrence.

I removed her to bed, and at once injected $\frac{1}{15}$ gr. of digitalin and $\frac{1}{2}$ gr. of strychnine, followed by two syringefuls of brandy, and also commenced artificial respiration and general friction. Shortly afterwards there was some feeble pulsation at the wrist, and with the aid of a battery (which had by that time been obtained), fresh injections of brandy, hot bottles, and mustard over the heart, the patient gradually rallied, not, however, before she had several alarming relapses. She was several times sick and slightly convulsed. The pupils were widely dilated the whole time. She did not recover consciousness until fully three hours after the accident, but then rapidly rallied, and in the evening only felt faint and sick.

On searching her bedroom a large piece of cyanide of potassium, and a penknife with which she had been scraping it to a powder, was found. How she managed to convey a portion of this powder to her mouth she is quite unable to say, as she remembers nothing of the whole occurrence, although there must have been a momentary period of consciousness