time she was admitted to Guy's Hospital under Dr. Pavy, December 28th, 1885, for chorea and exophthalmos. No cardiac *bruit* was noted. The pulse was 80, and the thyroid gland was enlarged.

At the age of 21 the catamenia appeared, and at the same time the general health improved. During the past four years the hair of the head has been coming out; for three years a dry harsh condition of the skin has been noticed; speech has become less distinct than formerly and slower in character; a feeling of coldness is constantly complained of; the appetite has been indifferent, and constipation has been the rule.

In March, 1895, the condition of the patient was as follows: The expression of the face was vacant; there was an appearance as of cedema under the eyes and a fulness under the chin. The face and neck were sallow and pigmented, with a flush over the cheeks. The eyelids met together when closed (formerly the eyeballs were partially exposed). The skin of the hands was hard, dry, and thickened. The tongue was enlarged; speech was slow and rather indistinct. There was no albumen in the urine. The heart and lung sounds were normal. The temperature was 96.4°. Constipation was present.

Although there existed ten years earlier considerable enlargement of the whole gland, the substance of the thyroid body could not be detected either by sight or by palpation.

Towards the end of March, 1895, dried sheep's thyroid was given in 5-grain doses twice daily; the weight of the patient being 10 st. 9 lbs., and her pulse 84. The subsequent progress was as follows:—

March 20th. Tongue smaller, feels cold less; pulse 112; speech clearer and less slow.

April 5th. Lower lip becoming less full; pulse 96.

April 20th. Roughness gone from hands; pulse 104; constipation continues.

April 25th. Speech prompt in reply; pulse 120.

May 18th. A fine, close crop of young hair coming on bald parts; reappearance of catamenia after several months' cessation.

June 15th. Baldness hardly perceptible; constipation continues; pulse 98; weight 10 stone.

July 13th. Old hair coming out freely; pulse 124.

August 10th. Bowels more regular.

August 24th. Weight 10 st. 4½ lbs.

On September 18th the patient appeared to be in a normal state of health. She had worked in the fields since July.

In this case a condition resembling Graves's disease existed six or seven years prior to the appearance of the first symptoms indicating the onset of myxœdema.

The clinical history of the case seems to justify the conclusion that complete atrophy of the thyroid followed the well-marked general enlargement of the gland which was observed and verified ten years ago.

The illustrations show condition of patient before and six months after treatment with sheep's thyroid. The sulcus between the sterno-mastoid muscles is well shown. The most characteristic change is in the hands.

The patient was shown at a meeting of the West Kent District of the South-Eastern Branch of the British Medical Association held at Maidstone.

A CASE OF GUNSHOT WOUND,

ILLUSTRATING THE DIAGNOSIS OF METALLIC SUBSTANCES IN THE BODY BY THE ELECTRIC PROBE.

By WALTER REID, M.D.,

Deputy-Inspector-General, Royal Naval Hospital, Haslar.

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

THE following case is of interest, as it illustrates one or two points in the diagnosis of metallic substances in the body.

A bluejacket, engaged in the Nana expedition in August, 1894, received four wounds by the discharge of a battery of smooth-bore guns, loaded with a variety of missiles, upon the boat of which he formed one of the crew. Out of ten in the boat six were wounded and two fatally.

In the case in question the man was wounded in four places. His left forearm was shattered, and had to be amputated. There was a flesh wound in the right buttock, and another in the left ear; but the wound which is the subject of this paper was a severe wound in the left gluteal region, where the man was hit by a missile of some kind, which entered at a point about three inches below the middle of the crest of the left ilium. No foreign body could be found, and it was suspected that the missile had passed through the bone and lodged in the abdominal cavity. After going through a bad attack of fever, the patient reached Haslar on December 20th.

On examining the wound with a probe the instrument came upon a rough surface, but it could also be passed beyond it into the abdominal cavity. In order to determine whether this rough surface was dead bone or some metallic body, I proposed to place the patient under chloroform, and cut down upon and, if necessary, remove it. But the patient, who had gone through a good deal, objected to any further operation for the time being. Nélaton's probe gave no certain indication, and on the points of a pair of electrical forceps being brought down upon the hard surface the magnetic needle was not deflected.

I happened to mention the matter to my friend, Lieutenant Bacon, R.N., of the Naval Torpedo School at Portsmouth, who pointed out that the claws of the forceps were not sharp enough to penetrate any non-conducting film arising from oxidation or other chemical combination upon the surface of the metal. He provided me with a probe consisting of two sharp needles insulated from each other with their points exposed and about one-eighth of an inch apart. Wires attached to these needles led to a single bichromate cell and galvanometer. On bringing the points of this probe down upon the hard surface and pressing it firmly with a slight grinding movement the magnetic needle was readily deflected.

The patient, being now quite convinced that he had a piece of metal in him and within reach, consented to an operation. He was placed under chloroform, and, having exposed the parts by a free incision, I found and removed a piece of steel, cylindrical in shape, of ragged contour, about 1¼ in. in length and ¾ in. in diameter. It was not firmly impacted in the bone, through which it had partly passed into the abdominal cavity, and into which I could pass my finger freely after its

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