A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF EXPLORATION OF THE BRAIN FOR SUSPECTED
ABSCESS OF OTITIC ORIGIN; NEGATIVE RESULT;
RECOVERY.—SECOND OPERATION ONE YEAR
LATER; EVACUATION OF EXTRA-DURAL
ABSCESS AT GENU OF SIGMOID SINUS;
RECOVERY.

(Under the care of Mr. PHILIP R. W. DE SANTI.)

A WOMAN, aged twenty-one years, was, on Feb. 7th, 1896, admitted into the Hollond Ward under the care of Mr. Philip de Santi. At six years of age she had measles; when about seven and a half years of age a discharge was noticed from both ears; it came gradually and without pain. The discharge was more profuse on the right side. From this period up to the time of her admission to hospital she had suffered from purulent discharge more or less continuously from both ears. She attended for some six years at the aural department at Westminster Hospital under the care of Mr. de Santi's predecessor, Mr. Black. In 1891 Mr. Black removed some post-nasal growths and enlarged tonsils. In November, 1894, in consequence of persistent mastoid pain Mr. Black explored both mastoids by Wilde's incision. For a time there was an improvement with regard to the pain, but the discharge from both ears remained profuse. In July, 1895, she was subject to frequent attacks of mastoid pain especially on the right side and the discharge from the ear was profuse and foetid. Mr. de Santi saw the patient for the first time on Feb. 6th, 1896 when her condition was as follows. Up to two weeks previously she had been in service as a housemaid. She had, however, to give up her work on account of persistent giddiness with a tendency to fall; she also became apathetic, stupid and drowsy. She had persistent headache and from the time she left service she had been steadily getting worse. On admission on Feb. 7th the patient was in a very drowsy condition and lay on her right side supporting the right side of the head with her hand. She had occasional sharp attacks of pain in the right mastoid and parietal regions which made her scream out. There was severe pain on percussion and pressure over the right mastoid and parietal bones. No redness or œdema over the right mastoid was observed and there was no swelling or tenderness in the course of the internal jugular vein. Her temperature was 99.4° F. The pulse was regular and 70. Nausea but not actual vomiting was present. The bowels were obstinately constipated and the tongue was furred. There was no paralysis or paresis, loss of memory, aphasia, or slowness of speech. The patient, however, seemed to be extremely dull and unable to understand questions, and she took no interest whatever in her surroundings. Taste and smell were unaffected. Sensation was not affected and the reflexes were normal. There were no tremors. The optic discs were normal. There was very severe giddiness with tendency to fall to one side, sometimes to the right and at others to the left. She had become considerably emaciated within the previous two weeks. There was profuse foetid discharge from the right ear and behind both ears there were scars of former operations. The whole of the membrana tympani and ossicles of the right side had been destroyed. No carious bone or fistulous openings could be detected with a probe. The ticking of a watch was heard only on contact. The patient was well purged and kept carefully under observation. The pain, however, especially over the mastoid, continued, the giddiness (when tested for) and drowsiness increased, the pulse became somewhat slower (65), and the sense of vomiting remained. It was therefore on consultation determined to explore for pus.

The head having been shaved, cleansed, and rendered

aseptic and the external auditory meatus washed out and plugged on each side with salicylic wool Mr. de Santi on Feb. 14th made an incision just behind the right ear from the top to the bottom of the mastoid process. Having raised the periosteum on either side of the incision he proceeded to open the mastoid antrum with trephine and gouge. The spot chosen was Macewen's supra-meatal triangle. The bone was extremely sclerosed; on removal of the outer wall of the mastoid antrum no pus was found; the mastoid cells were non-existent. No carious bone or fistulous track could be seen in the mastoid antrum or attic. Another trephine opening of about one inch in diameter was now made one inch behind and above the centre of the external auditory meatus exposing the dura mater over the temporo-sphenoidal lobe. There was no thickening or bulging observed. The lobe was explored with a trocar and canula in various directions to a depth of one and a quarter inches. No pus was reached. A third opening was now made directly over the meatus and the tegmen tympani et antri and the dura mater covering it were explored. No extradural abscess, thickening, or fistula of the dura was found. The skin flaps were now closed and a small drain was left in the lower angle and the parts were dressed with dry antiseptic wool. The operation lasted one hour and forty minutes. On the 17th the wounds were dressed; they looked very well. The temperature was normal, but the pain was still very bad indeed. On the 18th the pain still persisted and there was marked pain in the occipital region; well-marked giddiness was present. Mentally the patient appeared to be better. It was decided to explore the cerebellum. Mr. de Santi therefore turned down a flap with the base over the superior curved line of the occipital bone, raised the periosteum, and exposed the inferior curved line. Directly below this line he trephined, exposed the dura mater, and explored the cerebellum to a depth of one and a half inches. Both the anterior and outer and the anterior and inner parts of the cerebellum were carefully explored as well as the deeper parts; no pus was found. The scalp flap was sutured with horsehair. The original wound was slightly opened up and the temporo-sphenoidal lobe was again explored, but with a negative result. On the 19th the patient felt better and had had a good night; the pain was less. On the 24th all drowsiness and giddiness had disappeared. There was no pain in the mastoid or head and the wounds had healed by first intention. She took an active interest in all that was going on in the ward and was bright and cheerful. The temperature had never been above 100.4° since the operations; the pulse was 75 and regular. On March 4th she was sent to a convalescent home.

Subsequently to her discharge from the hospital the patient was frequently seen by Mr. de Santi and she remained quite well with the exception of deafness and a small amount of discharge from the right ear, which was gradually getting less, until about the third week of December, when she began to complain of pain over the right parietal region. This pain seemed to be constant and at times was very acute. She winced considerably on percussion of both right parietal and mastoid regions. The pain continued and she again began to suffer from giddiness, vomiting, stupor and drowsiness; discharge, which was slight in amount and foetid only as regarded the right ear, was present. She was readmitted under the care of Mr. de Santi on Feb. 22nd, 1897.

Just previously to readmission a swelling had formed in the line of the old post-auricular scar of the right side; eventually some slight quantity of pus came away from this swelling; a probe entered the sinus left for about half an inch. The sinus led to the neighbourhood of the trephine aperture made one year before for the temporo-sphenoidal abscess. The patient's general condition was as follows: she lay curled up on her right side and was almost always in a very drowsy state. She had occasional vomiting, which was irrespective of the ingestion of food. Her facial aspect was that of general apathy except when she had a sharp attack of pain in the right parietal and occipital regions, when her expression became that of lively pain. She usually kept her hand up to her head on the affected side. She had no inclination to eat. Her tongue was furred. The temperature was 99° and the bowels were slightly constipated. There was no paralysis or disturbance of sensory functions. The eyes were normal. There was a foetid discharge from the right ear; the membrane was gone, but no rough bone was to be discovered with the probe. A non-foetid discharge from the left ear was present. When she

was thoroughly roused the patient answered questions rationally, but took a long while to reply. The pulse was 65 and soft and the respirations were 18 and regular. Her condition gradually becoming worse and the stupor tending towards semi-unconsciousness Mr. de Santi determined to explore the sinus.

On Feb. 26th the patient having been prepared in the usual way and given a hypodermic injection of morphia one hour before the operation Mr. de Santi proceeded to slit up the old wound and to explore the sinus therein. Having got down to the bone the periosteum was turned back on either side and the parts were well exposed; the sinus was then seen to extend through the substance of the temporal bone about midway between the two old trephine apertures made one year before for exploration of the temporo-sphenoidal lobe and cerebellum. A trephine (one inch in diameter) was applied over the sinus and the area of bone was removed. At one part the dura mater was found to be very adherent and much thickened. On following up the sinus pus was found between the dura mater and the posterior aspect of the petrous bone and in the bone itself. The pus was very foetid and amounted to about $9\frac{1}{2}$ drachms in quantity. The dura mater was much thickened and the lateral sinus was found to be partly separated from the bone, its walls being much thickened and covered with granulation tissue. The sinus, however, was patent; on examining the posterior aspect of the petrous portion of the temporal bone carious erosion was found close to the genu of the sigmoid sinus; foetid pus exuded from the diseased bone. Having evacuated the pus Mr. de Santi carefully scraped the diseased bone area and enlarged the opening until he got a free through communication into the middle ear and out of the external auditory meatus. The parts were then gently syringed out with a 1 in 60 carbolic solution and dried. A plug of iodoform gauze dusted with iodoform was introduced so that it ran from the trephine aperture behind, through the middle ear forward, and out at the external auditory meatus. The whole of the operation area was dressed with double cyanide gauze. On the 27th the patient felt fairly well and was much brighter; the temperature was 100° . There was pain in the frontal region of the head. On March 1st she was doing very well; she still had frontal headache but otherwise she was in every respect much better. On the 2nd the temperature was normal; the wound was dressed, looking very well. The bowels were well opened. On the 24th she suffered from right facial palsy; this was not present until the 23rd. The wound was still kept patent with a plug and dressed daily. She was quite well in all respects except as regarded the paralysis of the right facial nerve which was complete. She was discharged on May 6th with the wound quite healed and the discharge from the ear stopped. Her temperature never rose at any time above 100° and the relief to all her symptoms after operation was marked. The supervention of the right facial paralysis was regrettable.

Since May Mr. de Santi has seen the patient regularly and she has remained quite well and free from headache, giddiness, or aural discharge; for some little time she had the galvanic battery applied for the facial paralysis but it did not seem to improve at all. Now, however (January, 1898), the paralysis has improved so considerably as to be hardly visible. Her hearing has also much improved, for she is able to hear the ticking of a watch at 5 in. on the right side and $4\frac{1}{2}$ in. on the left side.

Remarks by Mr. DE SANTI.—The above case seems to me to be of considerable interest from many points of view. The patient had been suffering for some fourteen years from more or less continuous purulent discharge from both ears. She had previously to my first operation been under skilled treatment for six years, during which time she had had adenoids and enlarged tonsils removed and both mastoid antra explored. Notwithstanding the constant treatment she had received the purulent discharge continued, and finally there were symptoms which pointed so strongly to involvement of the brain that an extensive exploratory operation was deemed necessary. This exploration proved quite negative as regards intracranial complications and yet the patient derived immediate benefit therefrom, the relief obtained lasting for some ten months. Her old symptoms then recurred and at first I considered them to be of a probably imaginary character; they became, however, so well marked that I felt strongly there must be some intracranial complication present. The formation of a collection of pus in the site of one of the old scars and the supervention of a sinus leading to bone finally determined me to again thoroughly explore.

This I did one year after the first operation with the result that a well-defined, though small, thick-walled abscess was found in the posterior fossa of the skull, between the groove for the lateral sinus and the posterior aspect of the petrous portion of the temporal bone. The fact of the sinus not being thrombosed is noteworthy; it could only have been a matter of time before this occurred and the prognosis would have been rendered all the more grave had lateral sinus thrombosis been present. Moreover, the case is most instructive if only as an illustration of the great difficulties often presented in forming a diagnosis of and localising the seat of intracranial complications of otitic origin. The diagnostic features leading me to explore in February, 1896, were the sudden and definite onset and progressive course of the disease occurring in a patient the subject of chronic foetid otitis media purulenta. The trouble was ushered in by persistent giddiness, with a tendency to fall and severe localised headache sufficient at times to make the patient scream out. There was severe pain on percussion and pressure over the right mastoid and parietal bones, as well as from the application of heat, and extremely well-marked and increasing drowsiness and stupidity. (Normally the patient was of a cheerful and active disposition.) In conjunction with these symptoms there were obstinate constipation and nausea independent of the ingestion of food and the temperature was slightly raised. There was nothing in this train of symptoms which could be taken as diagnostic of the localisation of the mischief. All that could be surmised was that from the persistent right-sided pain and tenderness and the extremely foetid right aural discharge the disease would be found on the right side. Exploration of the mastoid, tegmen tympani and temporo-sphenoidal lobe having proved negative and the symptoms persisting, especially giddiness and pain in the occipital region with a tendency to retraction of the neck, it was thought only right to go one step further and explore the cerebellum. The exploration was very thorough, yet no pus or abnormal intracranial conditions were found and the patient subsequently lost all her symptoms, though ten months later they recurred. As I have already said the formation of an abscess in one of the old scars together with increasing drowsiness determined me to operate again in February, 1897, with the result already narrated.

In a paper I wrote for the Westminster Hospital Reports, 1897, on the Operative Treatment of Cerebral and Cerebellar Abscesses of Otitic Origin, I have laid stress on the importance of a consideration of the anatomical conditions that may be met with, the most advantageous spot for trephining, and the boundaries of the brain area operated on and the depth to which it is safe to penetrate. I have also pointed out that as the great majority of cerebral abscesses of otitic origin are located in the temporo-sphenoidal lobes, the pus being usually found in that part corresponding or close to the tegmen tympani et antri, the trephine should be applied over the bone corresponding to this area; when the brain is exposed it is advisable not to penetrate the brain to a greater depth than $1\frac{1}{2}$ in. In my opinion the operation should be carried out as follows. If symptoms of abscess, whether cerebral or cerebellar, be present the preliminary step should be an exploration of the mastoid antrum. In many cases the abscess has been reached from the cavities of the middle ear, in others all symptoms have ceased after opening the mastoid antrum. The tegmen tympani et antri can also be explored by opening up the cavities of the middle ear together with the bony partition between them and the dura mater as well as the bony partition at the sigmoid sulcus. By this preliminary step pus, granulation tissue, and carious debris can if present be removed from the antrum and attic. Should the brain symptoms persist after this step, and point strongly to temporo-sphenoidal abscess, a large trephine hole should be made with its centre perpendicularly over the bony meatus; the disc of bone being removed the upper part of the bony external meatus and roof of the mastoid are chiseled off to the depth of three-fifths of an inch, the dura mater is raised, and the tegmen tympani et antri is exposed. The parts should now be well dried and a good light thrown into the wound. The condition of the bone, whether carious, and of the dura mater, which may be found inflamed, adherent, or fistulous, can now easily be ascertained and any extradural abscess present evacuated. If the dura mater be adherent or fistulous the fistula should be followed up, widened, and the abscess exposed and drained; any diseased bone present must be carefully removed

if possible. Should the exploration so far give no indications of the proximity of the abscess the lobe must be explored in various directions with a trocar and canula of sufficient size. I advise the use of an instrument with the inches and fractions of inches delineated on it, so that accurate measurements of the actual depth of brain penetrated can be estimated. The abscess having been found the dura mater is carefully incised and the abscess cavity gently irrigated with carbolic lotion (1 in 100) at 100° F. If the abscess be small two decalcified chicken bone drainage tubes are inserted (if large a silver tube is preferable) and the skin flaps are closed, an aperture being left for the tubes. The whole is then dusted with iodoform, dressed with double cyanide gauze wrung out of a 1 in 40 carbolic solution, and covered with a thick layer of double cyanide wool. If, on the other hand, after the opening up and exploration of the mastoid the symptoms point very decisively to cerebellar abscess the bone is best trephined at a point one and a half inches behind and a quarter of an inch below the centre of the external auditory meatus. After the dura mater is exposed and opened the exploring trocar and canula should be passed forwards, upwards, and inwards. An abscess in the anterior and outer part of the lobe is thus reached and this is the most usual situation for a cerebellar abscess as it is the part nearest to the bone disease—i.e., the inner side of the mastoid or posterior surface of the petrous bone. If the abscess be in the anterior and inner part it may be necessary to penetrate to a depth of two inches. When found the abscess is to be dealt with in a similar manner to a cerebral abscess. I furthermore advise exploring by enlarging the trephine hole with Hoffman's cutting forceps, the sigmoid sulcus up to the jugular fossa and the posterior surface of the petrous bone up to the internal auditory meatus, for in my opinion it is hardly sound surgery to merely open up any abscess found leaving the bone disease which has given rise to it untouched. If possible any diseased bone should be eradicated. One other point: I always wash my exploring needle-syringe in boracic solution just previously to puncture, as carbolic solutions when mixed with a little blood and brain matter produce a fluid very much like pus and this gives rise to false hopes.

AYR COUNTY HOSPITAL.

A CASE OF SERIOUS INJURY TO THE HEAD; OPERATION;
RECOVERY.

(Under the care of Mr. W. J. NAISMITH.)

THERE are several points of interest in the following account of injury to the head. In the first place it is remarkable that so extensive a depression of bone was not accompanied by any complete unconsciousness, though the depression must have disturbed to some extent the intracranial pressure, but that the disturbance was probably not very great was shown by the equality of the pupils. A second point worth notice is the alteration of the temper; this is by no means rare after injury to the head and unfortunately the change is always in the direction of deterioration, a good-tempered man becoming bad-tempered—at least, we are not aware of any case in which moral improvement occurred as a result of an injury to the head. The complete recovery which followed so very extensive a compound depressed fracture of the skull is an eloquent testimony to the progress which has within recent years been made in the treatment of these severe injuries. Lastly, the manœuvre adopted by Mr. Naismith of only partially trephining the bone in order by bending to set free a piece of depressed bone is well worthy of imitation in suitable cases.

A private in the 1st Argyll and Sutherland Highlanders, a recruit, eighteen years of age, of two months' service, who had been sent with his company from Glasgow to the rifle range at Irvine for musketry practice, was, on May 17th, 1897, transferred to Mr. W. J. Naismith's care in Ayr County Hospital by Dr. Wilson, of Irvine, in medical charge of the detachment. The patient was suffering from compound fracture of the skull. On this day, after the men's dinners, one of his comrades was amusing himself by throwing the hammer, which in this instance consisted of a 16-pound shot with a three-foot rope attached to it for a handle. It slipped from the hands while being swung preparatory to being thrown and, flying off at an angle, landed with crushing effect on the patient's head, who was lying on the grass

several yards off reading. He was taken to Ayr in an ambulance and had vomited repeatedly by the way. On examination about five hours after the accident the general condition was that of shock; the pulse was 92 and weak and the respirations were 24 and shallow. The pupils were equal and dilated, with sluggishness of the conjunctival and pupil reflexes. There was neither nasal nor aural discharge and no paralytic or localising symptoms whatever were present. The patient was only partially conscious, repeated questioning eliciting with difficulty but a monosyllabic reply. He could not open his eyes, but he could partially protrude the tongue which showed no deflection. There was intermittent moaning with deep sighing and restlessness of the head. It may be stated that at no time, even at his worst, did he become totally unconscious, but he could always be partially roused. Locally, there was on the right frontal region of the head a longitudinal wound two and a half inches long and crescentic in shape with the convexity outwards. Blood freely oozed from its irregular ragged edges on removal of the dressings. This led down to an extensive depressed fracture half an inch deep at its central part necessitating an operation which was proceeded with under chloroform with the assistance of Dr. Muir, of Ayr. Utilising the scalp wound and considerably extending it two large flaps were raised revealing the area of fracture, which was of eggshell character, the several fragments being jammed down and immoveable. Oval in shape, with a long axis of two and three-quarter inches antero-posteriorly, it involved the half of the right frontal bone to near its superciliary ridge, crossed the intervening coronal suture, and included about three-quarters of an inch of the contiguous right parietal bone, measuring rather more than two inches transversely across the central and widest part of the depressed oval. In addition there was a single deep fissure of fracture from which blood was oozing, this fracture extending from the posterior part of the depressed margin obliquely back across the parietal bone towards the lambdoidal suture for at least three and a half inches.

The trephine was applied to the inner or mesial side of this fissure, to that portion of the parietal bone just clear of the depressed margin. The included disc was not entirely sawn through as for removal but only partially, sufficiently so as to enable Mr. Naismith, by bending it, to free the edge of the nearest depressed fragment and to introduce the elevator for prising it up. This use of the trephine may be worthy of note. The other pieces of bone were then easily removed in succession; they were altogether eight in number, more or less irregular in shape, the largest one being of about the size of a florin, and the others being as large as a sixpenny-piece. The dura mater was incised and egress was given to a quantity of blood and a few small clots which revealed a longitudinal laceration an inch in length of the brain surface itself. It will thus be seen that a considerable hole was necessarily left in the skull, the cerebral area deprived of its osseous covering consisting of the first, second, third, and ascending frontal convolutions. The bony margins were trimmed with bone forceps; a good-sized drainage-tube was inserted and the scalp wound was brought together with fish-gut sutures. A light dressing of protective, double cyanide gauze and corrosive wool was applied, and an ice-bag was superimposed after the patient was removed from the table. A brisk laxative and fluid nourishment in small quantities were ordered. On the next day (May 18th) the temperature rose to 101° F. with corresponding rise of pulse. The bowels acted freely after a castor-oil and turpentine enema. The patient was very restless, constantly endeavouring to tear off his dressings. On the 20th the left side was paralysed, the tongue being deflected on protrusion, but the right arm and leg were in almost constant automatic motion. He had three epileptic seizures, passing urine and faeces in the bed involuntarily, but he took nourishment fairly well. The wound was dressed regularly every eight hours. Though his left side was powerless, yet the constant efforts to roll out of bed and to remove his dressings with his right hand forced Mr. Naismith to apply to the officer commanding at Irvine for a man to watch the patient at night, a request most courteously granted. On the 23rd the temperature reached the normal, but restlessness and left hemiplegia continued, though a marked improvement in consciousness was noticed along with the articulation of a few words addressed to his nurse. No more fits occurred. From May 26th to June 4th the temperature remained at 97°, this subnormal condition ensuing on the evening of May 25th. During these ten days