SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

May 18, 1923.

Chairman—Sir CHARLES A. BALLANCE, K.C.M.G., M.S., *Vice-President.*

An Instrument for Assisting the Deaf—W. M. MOLLISON, M.Ch. The instrument exhibited is known as the Marconi Otophone. It consists of electrical amplifying circuits in a polished cabinet to which are connected a sensitive microphone and a pair of head telephones.

By means of three switches the amount of current supplied to the valves can be regulated, and the degree of speech amplification can be adjusted to five different values.

The Marconi Company does not intend to market this instrument through the usual trade channels, but proposes to supply it only through the recommendation of the medical profession. A full description of it can be obtained from the Marconi Research Department.

Mr MOLLISON said that he had only had a week's experience of the instrument, but already he had found it useful in helping really deaf people to hear.

Sir CHARLES BALLANCE (Chairman) said that this was a remarkable instrument. In course of time it would no doubt be greatly improved; it would be a great advantage if outside noises could be suppressed. A great obstacle to its use at present was its weight (16 lb.).

Mr SOMERVILLE HASTINGS asked whether the instrument had been tried in the case of congenital deaf-mutes. When he (the speaker) heard the confusing extraneous sounds, he wondered whether it would be possible to attach a funnel to the microphone which could be directed towards the sound one desired to hear.

Epidemic Cerebro-spinal Meningitis associated with Acute Suppuration of the Middle Ear—FREDERICK SYDENHAM, F.R.C.S., and DAN M'KENZIE, M.D.—Girl, aged 16, was admitted to hospital in February 1922, under Mr Sydenham's care. She was semi-comatose and, to all appearance, totally deaf; the temperature was 103.5° F.; there was discharge from both ears with pain in both mastoids, and œdema on one side. The Heath operation was performed on each side. A little pus was found in the antrum, but nothing further, and not enough in Mr Sydenham's opinion to account for the grave

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symptoms. Both lateral sinuses were exposed and explored. The patient made a good recovery but remained deaf.

On 7th December 1922, she came under the care of Dr M'Kenzie, on account of the deafness. On examination she was found to hear all the tuning-forks, but only for a few seconds both by air and bone. A shout was heard as a loud noise only. The caloric tests were negative.

The case is reported as one of (probable) epidemic meningitis associated with suppuration of the middle ear, in order to draw attention to the possibility of the meningeal infection being due to that of the middle ear (see *Journal of Laryngology*, August 1922).

Epileptiform Seizures subsequent to Operation for Temporo-sphenoidal Abscess—DAN M'KENZIE, M.D.—Female, aged 35, was operated on for temporo-sphenoidal abscess six years ago, the pus being successfully evacuated through the antro-tympanic roof. The abscess was chronic, symptoms having existed for about six months, and the walls of the cavity were thick and tough. The first suspicious seizure occurred a year after the operation, and they are becoming more frequent as time goes on. They have never amounted to more than one in two or three months. The diagnosis of probable epilepsy has been made by Dr C. O. Hawthorne.

Sir CHARLES BALLANCE (Chairman) said that the second case seemed to be an unusual one, because the temporo-sphenoidal abscess was followed—a long time afterwards—by epilepsy; he (Sir Charles Ballance) did not remember that sequence in any of his own cases, though epilepsy following brain operations was not infrequent. In the first case, he supposed there must have been, as suggested, some meningitis in the posterior fossa, which involved the nerve, and, consequently, when the patient recovered, she was deaf. He remembered one case of pterygo-maxillary abscess in a case which was complicated by some intracranial infection; he believed it was lateral sinus infection. In his experience successive operations were always unsatisfactory, and often ended fatally. Whenever it was possible, all that was needed should be done at one operation. In this case the cavernous sinus was thrombosed, and there had been no attempt to deal with that infective process. He asked whether there had been a recent operation on infective cavernous thrombosis, and if so, what had been the result. Had any member had a successful operation recently?

Sir JAMES DUNDAS-GRANT asked whether, in the second case, there was any localising Jacksonian sign or any warning aura in connection with the epilepsy.

Mr E. MUSGRAVE WOODMAN said he had asked the patient whether she had any such warnings, and she had told him that she suddenly fell down wherever she happened to be. This seemed to him significant, and suggested that the condition might be hysterical. It would be interesting

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to hear from members their views as to what treatment, operative or non-operative, would suit such a case, especially if the seizures were caused by a brain scar.

Dr DAN M'KENZIE (in reply) said that he had since seen another case in a patient who had undergone an operation twenty years ago. There had first been a brain abscess, which was operated upon by Mr Marsh, of Birmingham; then a mastoid operation had been performed by Sir Charles Ballance. He (Dr M'Kenzie) had not been able to persuade the man to come to the meeting. The attacks seemed to be those of *petit mal* or automatism. He had never had regular epileptic convulsions. He (the speaker) did not know whether in the present patient it would be worth while to try and reopen the old area. Mr Tilley had told him of a case in his own practice of epilepsy following brain abscess in which operation had been successful, *i.e.*, there were no fits following it. The epilepsy in these cases might be idiopathic, and then operation would be useless. If the fits were due to a scar, conceivably operation would bring relief.

Sir CHARLES BALLANCE (Chairman) referred to a patient who, before suffering from a left temporo-sphenoidal abscess was very musical, but afterwards lost his musical sense, and was unable to play the piano. With regard to operation in cases of *petit mal*, or so-called idiopathic epilepsy, he (the Chairman) had seen many of these cases during and after the war; he thought the scars in the brain produced a definite vascular change in the cortex. When exposing the cortex, he had seen a blush come round the scar and the area then became white again. If the scar was adherent to the dura mater and the latter adherent to the bone, the normal excursions of the brain were prevented, and in such a case, he thought, some benefit would be produced by freeing the dura mater and thus allowing the brain to move freely again. In some cases in which he had carried out this plan the epilepsy had ceased, but he did not think he had done so after operations on brain abscess caused by ear disease. A drug which he had used in war cases with remarkable effect was luminal; if a patient takes this drug continuously in small doses the epilepsy may not return. To prevent the parts becoming adherent, Mr Sargent used celluloid, which served the purpose very well as, like pure platinum, it was not acted on by the tissues and fluids of the body.

Otitic Pterygo-maxillary Abscess induced by Thrombophlebitis of the Jugular Bulb—DAN M'KENZIE, M.D.—Boy, aged 8, was admitted with chronic suppuration of the left middle ear and a temperature of 102° F.; immediate radical mastoid; no relief to fever. Two days later wound reopened, and a small drop of pus on the floor of the external meatus was found to lead to an abscess in front of the bony meatus. This was opened and drained and a counter opening made into the pharynx. Lateral sinus was explored, but no clot found; no relief to fever. Two days later the internal jugular vein was exposed and resected and found thrombosed down to lower border of thyroid cartilage. Vein cleared

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of clot with curette as high as jugular bulb. Next day there were signs of cavernous sinus thrombosis, followed two days later by death.

Post-mortem.—Specimen shows erosion of outer wall of jugular bulb leading to the site of abscess in the pterygo-maxillary fossa, but no evidence of bone disease adjacent to the abscess.

This was evidently a case of thrombosis of the jugular bulb, which had extended down the vein into the neck, but not upwards into the lateral sinus. The thrombus in the bulb had broken down, and the pus had made its way through the wall of the bulb into the pterygo-maxillary fossa, tracking down towards the pharynx and back over the floor of the external meatus. This development is rare. Going over the literature of pterygo-maxillary abscess in 1915, the exhibitor could find only three cases in which the abscess was (doubtfully) traceable to thrombosis in the bulb.

Brain Abscess due to Otitic Infection; Right Temporo-sphenoidal Abscess without Clinical Signs—T. H. JUST, F.R.C.S.—Female, aged 27, had had otorrhœa and deafness on the right side since childhood. She had no other symptoms until a few days before admission, when she had had constant headache for three days, increasing in severity, and each morning she had vomited. On admission, she was able to walk slowly, but kept her head fixed, and there was some rigidity of the neck. The temperature was 101·2° F., pulse 120. The right tympanic membrane was obscured by epithelial debris, purulent discharge, and granulations. No abnormal signs were discovered during the examination of the central nervous system. The patient was right-handed. There was no amnesia.

The right mastoid was explored and the dura mater exposed. The mastoid was acellular, but the roof of the antrum was carious, and an extradural abscess was found immediately above the tegmen.

The dura mater beneath the temporo-sphenoidal lobe was covered with granulations; no pulsation of the brain could be felt; in the centre of the exposed dura mater a sinus was found leading into an abscess within the brain. This was opened up and drained by tubes, according to the procedure which Harvey Cushing suggested in the treatment of war wounds. With a No. 10 catheter the cavity was washed out with saline solution, and the material used in washing-out sucked out, the process being repeated several times in the effort to get away all the debris from the abscess cavity. The tube was kept in ten days; at the end of which time there was no pus coming from the abscess cavity, therefore the tube was removed. In a recent case in which the wound is not yet healed a similar technique was used. In this case there was 1½ oz. of offensive pus in the temporo-sphenoidal lobe: after removing the granulating dura which was covering the abscess, the cavity was washed and the fluid sucked out

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with a syringe for ten minutes, and a tube inserted; it was changed on the second day when no pus came out, but only a little straw-coloured fluid. On the third day the tube was removed. In war wounds of the brain it was found better to keep the track clean and not to use a tube, as the tube seemed to act as an irritant. Recovery was progressive and uneventful, and she left the hospital five weeks afterwards.

It is now nearly eighteen months since the operation, and nothing further has developed, though she occasionally attends the out-patient department complaining of vague "sensations down the right side of the body," regarded as "functional."

Mr G. J. JENKINS said that it was difficult to generalise, as no two cases of brain abscess followed the same course. In one of his own cases he had drained with corrugated rubber tissue; this tissue was much softer than a drainage tube, and as much or as little as required could be packed into the cavity. Sometimes a tube was rendered useless by becoming blocked. His (the speaker's) inclination was to make the drainage from the abscess cavity as free as possible, cutting away a good deal of the wall, according to the extent of the surrounding adhesions. The plan was likely to be much more effective than that of making a small hole and passing a tube through it.

Sir JAMES DUNDAS-GRANT asked whether there was any objection to exploring the abscess cavity with the protected little finger so as to ascertain whether the abscess wall was rigid, and whether there was, possibly, a second abscess feeling like an oyster through the wall. If the wall was not dense, the case would be suitable for removal of the tube, whereas if the wall was dense, it would be most unsuitable.

Sir CHARLES BALLANCE (Chairman) said that, except in a few cases, he had never dealt with a brain abscess without drainage, the exceptions being those cases in which he could enucleate the abscess. In his experience, a brain abscess was very difficult to drain. The liquid tissue of the brain was the difficulty. If the abscess had no wall, then as soon as pus came out, the brain flowed around and filled up the cavity. If one took out the drainage tube to see how the case was getting on, it might be very difficult to replace it accurately. His (the speaker's) best cases had been those in which he had inserted the drainage tube immediately after opening the abscess, and left it there. The suggestion to use rubber tissue might be a good one. It was difficult to wash out brain abscesses; their size was not known, so that sometimes the attempt to wash them out was dangerous as well as difficult. Moreover, sometimes a brain abscess had diverticula, and when the main abscess was drained, the pus in these diverticula was untouched. Brain abscess cases certainly required much caution in their management.

Mr JUST (in reply) said that he recognised the difficulties and limitations in dealing with brain abscess, but he thought what he had done was worth trying. The abscess was subacute and the walls were not very thick. He had used rubber tissue instead of a tube, and, on the whole, he preferred it.

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Left Temporo-sphenoidal Abscess; Amnesia for Names of Objects—SYDNEY SCOTT, M.S.—Female, aged 10, was said to have had deafness in the left ear for fully two years. She had been treated for otorrhœa until nine months ago, when the discharge ceased after removal of tonsils and adenoids. There had been no other symptoms until about a month before admission. She attended the out-patient department, complaining of pain in her left ear and some otorrhœa, but her condition was not regarded as serious until she had some kind of convulsion, followed by another two days later, and was then admitted as an emergency case. The convulsions were said to have involved the right side of the face and right upper and lower extremities.

On admission she was conscious; no hemiplegia. Temperature 101·6° F., pulse 96; tongue thickly furred; some pus and debris in left external auditory meatus; no mastoid signs, but slight tenderness on left side. The knee-jerks were unobtainable. The superficial abdominal reflexes were weakened on the right side. The child said she had no headache, but she liked to be left alone. On being questioned to test her memory for names of objects, she soon made repeated mistakes, became confused, and exclaimed she "could not be bothered to think." It seemed probable that the child had localised encephalitis of the left temporo-sphenoidal lobe. The antrum and aditus contained cholesteatoma and pus, and there was an extradural abscess in the middle cranial fossa, as in the preceding case. No pulsation of the exposed dura could be felt. When the dura mater was incised, unmistakable adhesions to the arachnoid and pia mater were found, extending to the lateral surface of the temporo-sphenoidal lobe. No pus escaped through the dura mater, though the incision was carried into the cortex, nor did the brain tissue protrude.

The child's general condition did not become quite satisfactory though neurological examinations revealed no fresh signs. She was allowed up and walked in the ward. The nurses said she seemed peevish and irritable and behaved like a spoilt child, and her mother said she was unlike her real self. In the third week she vomited unexpectedly two or three times. The "name amnesia" persisted, and it seemed justifiable to make a more determined exploration of the brain. On making an incision through the adherent membranes into the brain an abscess was at once found. This was drained with rubber tubes, and the child's condition, temperament, and memory rapidly improved forthwith.

It is now one and a quarter years since this operation, and the child is particularly bright and well, though the period of convalescence cannot be said to have been free from anxiety. Last summer she

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had more convulsions after a minor plastic operation, and terrifying dreams frequently disturbed her night after night. No further operation on the brain has been necessary. The operation cavity closed down and the meatus became stenosed. At present a post-auricular sinus persists. Attempts to re-establish a meatus and to close the sinus have been deferred until the child's condition justifies the procedure.

The observation of amnesia for names of objects, the occurrence of vomiting and absence of headache, were the leading clinical features of her case. The presence of the extradural abscess and of adhesions between the dura and the brain indicated the path of infection. Recovery was, no doubt, greatly favoured by the dural adhesions.

Cerebellar Abscess; Sudden Coma and Apnœa; Recovery after Operation during Artificial Respiration — SYDNEY SCOTT, M.S.—Male, aged 17, suffering from severe headache and chronic otorrhœa. Was admitted about 2 A.M., and in spite of his pain he could then walk and stand, and showed no discernible physical signs apart from discharge from the right ear. The house-surgeon withdrew some clear cerebro-spinal fluid, obviously under pressure, and arrangements were made to operate on the ear at 2 P.M. the same day. The patient became drowsy shortly before the time for operation, and had become quite unconscious when first seen in the operating theatre. Apart from confirming the evidence of middle ear suppuration, and finding that the patient's upper extremities remained elevated when raised and left free (cataleptic state), no other observations could be made. An anæsthetic was given, though this hardly seemed necessary, and the operation on the mastoid was begun, but before the antrum had been opened the patient had ceased to breathe. Artificial respiration was applied and the operation stopped, but breathing remained suspended while the dura mater of middle and posterior cranial fossæ was exposed. The tension of the dura mater was much higher in the posterior fossa, and no pulsation could be felt. No extradural abscess was seen. It was not possible, in the circumstances, to see if any path of infection could be followed up, and the dura mater was incised posteriorly to the sigmoid sinus by several radiating incisions through the dura mater covering the lateral and inferior surface of the cerebellum. Here no adhesions were encountered, the cerebellum prolapsed freely, expanding over the edges of the cut dura mater. In the cerebellum a large abscess was found, and on the escape of an ounce or two of pus spontaneous respiration was resumed. It was, however, necessary to apply artificial respiration for some little time, and the patient remained comatose for about two days, then he began to recover, and it was possible by the usual tests to recognise the signs of a cerebellar lesion, *e.g.*, coarse nystagmus to the side of the lesion—asynergia

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and the usual signs of inco-ordination in limbs on same side as the lesion.

When he left the hospital after three months he appeared to be perfectly well. The drainage in this case was *not* by the route of infection for reasons which are obvious.

Cerebellar Abscess Five Weeks after Onset of Right Acute Otitis Media—SYDNEY SCOTT, M.S.—Boy, aged 7, was admitted with otorrhœa and deafness on the right side. During the previous week drowsiness had been noticed and he had vomited a few times. On admission—temperature, 98° F.; pulse 130; nystagmus to the right; deviation to the right when pointing with right upper extremity: no asynergia, no dysdiadokokinesia, and finger-to-nose test was correct; reflexes normal, except doubtful plantar response.

Schwartze operation—very small extradural abscess found on mesial side of sigmoid sinus; exploration of cerebellum through this area, and about ¼ oz. of pus evacuated; tube drainage.

The boy is progressing favourably.

These few cases of brain abscess are brought forward as examples, on the one hand, of the comparatively scant clinical evidence which would have justified a clinical diagnosis of abscess in each case, and, on the other hand, the fortuitous circumstances on which recovery depends. The cases do not comprise all met with during the last eighteen months, for some others which appeared as likely to recover have succumbed. Of the fatal cases, two cerebellar abscesses developed meningitis later, and in one case of temporo-sphenoidal abscess which had been diagnosed and drained within three weeks of the onset of acute otitis media, and had almost recovered, there developed a very slowly-spreading œdema of the brain, which terminated fatally about two months later. The autopsy in the last case proved that the abscess was efficiently drained, and there was no meningitis or intraventricular effusion, only œdema of the left cerebral hemisphere—a diffuse form of infective encephalitis.

Mr LAWSON WHALE asked whether Mr Scott considered that amnesia was still present. The girl, when a watch was shown to her, called it a clock; whereas any girl aged eleven might be expected to know the difference between a watch and a clock.

Mr G. J. JENKINS asked whether Mr Scott found "Cushing's defect" in the perimeter tracing in the first of these cases. He thought that for amnesia to be present the abscess would be further forward than in cases in which this defect was likely to be obtained.

Sir CHARLES BALLANCE (Chairman) said he thought that the presence of amnesia was a sufficient ground for diagnosis, and in this case Mr Scott had diagnosed the condition at once, and had been able to save the patient's

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life. A little before the war he (the speaker) had as patient an officer who had undergone a mastoid operation for long-continued otorrhœa. The nurse who was looking after him one day reported that he had forgotten her name; and when shown a watch he had been unable to name it. He (Sir Charles Ballance) had gently removed the tegmen and incised the dura mater above it. The dura mater was not pulsating, and was discoloured. There was no abscess, but the part of the brain above the tegmen was in a condition of encephalitis. Drainage through the dura mater was continued for ten days, and the patient had recovered. Shortly before his complete recovery he had been able to distinguish and name objects, and afterwards he had remained well.

Mr A. J. HUTCHISON remarked that the patient in the second case could use his hand well, except for buttoning and unbuttoning, and the disability in this respect was due to his having lost sensation in the tips of fingers and thumb.

Mr E. MUSGRAVE WOODMAN asked what would be the best method of draining cerebellar abscess in contradistinction to abscess of the temporo-sphenoidal lobe. If cerebellar abscess were approached from the aural region, pus welled up from the bottom, and everything looked satisfactory, but it was upward drainage, and in most of the cases which he had seen the patients died. In approaching the abscess from below, if there was a dural space which was not shut off by adhesions, there was a risk of infection and the production of meningitis.

Mr W. M. MOLLISON suggested that the numbness of the finger tips might be due to congestion of the cerebral cortex, in consequence of the temporary cessation of respiration.

Mr G. J. JENKINS, referring to the danger of meningitis in cases of abscess, said that recently, in two cases, he had put B.I.P. round the edges, getting between dura mater and brain. It was a special preparation of B.I.P., without paraffin, and the components sterilised separately. He thought it acted as a wall to prevent the extension of sepsis. He believed that the statistics of the results of treatment of brain abscess would give a gloomier picture than was generally thought.

Mr MUSGRAVE WOODMAN said he understood that at Queen Square Hospital intratracheal ether was being used as the anæsthetic in brain cases. At Birmingham they were using oxygen and chloroform intra-tracheally. With this method of anæsthesia it was not material if the patient voluntarily breathed.

Mr H. J. MARRIAGE said that he had once had to operate at a cottage hospital on a child, under artificial respiration, in a case of acute mastoid disease. It had been obvious that a brain abscess was also present, but there had been no localising symptoms to show where it was situated. Just after the administration of the anæsthetic had begun, the child ceased to breathe, and this circumstance pointed to the cerebellum as the site of the abscess. The Silvester method of inducing artificial respiration had been carried out for ten minutes, without any return of breathing, although the pulse had remained quite good. The assistant had then employed a modified Silvester's method, bringing the arms up to the level of the

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shoulder and then pressing them forcibly against the chest. While this was being done he (Mr Marriage) had trephined over the cerebellum. As soon as the trochar had been inserted pus had escaped, and the breathing had immediately recommenced. For the moment he (the speaker) had been satisfied with putting in a drainage tube and leaving it. Next day he had opened up the mastoid and found a track running beneath the lateral sinus into the abscess. He had put drainage tubes into both wounds, and for a week the child had done very well. Then it had suddenly rolled over and died. At post-mortem, not only a cerebellar abscess had been found but also a temporo-sphenoidal abscess, of which there had not been any symptoms.

Mr CLEMINSON said that he had had an opposite experience in connection with cerebellar abscess (in a girl aged 15). While the pus was draining out, the patient had stopped breathing, and though artificial respiration had been carried on for six hours, she had never breathed again. At that time there had been no intratracheal apparatus in the hospital for the administration of the anæsthetic, but he felt that if a tube could have been introduced through the larynx and air insufflated, possibly the œdema which caused pressure on the edge of the foramen magnum might have subsided. If he had to operate again in a case of cerebellar abscess he would have an intratracheal anæsthetic, because the tube could be left in position, and air could be blown into the lungs indefinitely.

Sir CHARLES BALLANCE (Chairman) said that in his experience as soon as the dura mater was opened respiration was resumed. In one case he had had, artificial respiration had been carried on for five hours; he (Sir Charles Ballance) had performed craniectomy, and as soon as the dura mater had been opened, the patient had begun to breathe again. This had also been the case during his operations on cerebellar tumours and abscesses, breathing had begun again as soon as pressure had been removed from the medulla. In the cases with which he had had to deal, the Silvester method of artificial respiration had been employed. The most important point was that of the prevention of meningitis in cases of brain abscess in which there was no matting of meninges. That was a problem which, he thought, had not yet been solved. Some members had suggested putting various materials underneath the dura mater before opening the abscess; but it was not easy—owing to the pressure—to introduce anything between the dura mater and the arachnoid, before opening the abscess, and even if that was done, the subarachnoid space was not shut off. He (the speaker) had tried putting pieces of gauze which had been soaked in some solution between the dura mater and the arachnoid, simply closing the subdural space in that way, or putting in B.I.P. But that was not all that was necessary; the subarachnoid space must also be closed, for it was in that space that one desired to avoid the possibility of meningitis. In some cases, when he had opened the brain abscess, he had been able to prevent the extension of infection to the subarachnoid space through healthy brain tissue without matting of the meninges. If this problem could be solved the lives of the patients in these cases could be saved. Then we should not have to search for the pathological track through which the infection had entered the cranial cavity.

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Mr SYDNEY SCOTT (in reply) said that artificial respiration had been performed by the anæsthetist Dr R. Wade, and the house surgeon, Mr Prance, the sister of the ward acting as chief assistant while he exposed and opened the cerebellum.

Case of Vertigo cured by Opening the External Semicircular Canal—W. M. MOLLISON, M.Ch.—Male, aged 42, was seen in September 1922; for two months he had suffered from giddiness and tinnitus in the left ear. The giddiness came on suddenly while he was driving a van, objects rushed to the left and he "felt queer"; the attack gradually passed off. The attacks recurred, sometimes he had as many as three a day; on one occasion he fell in the fire and burnt himself severely. Examination of the ears showed normal membranes. Hearing in the right ear was good, in the left ear almost absent.

No spontaneous nystagmus was seen. Caloric response on both sides was sluggish; indeed it was doubtful whether any response was obtained on the left side. Past pointing normal on the good side (right) and absent on the deaf side. Dr Symonds examined the patient and found no sign of intracranial lesion. It was decided to open the left external semicircular canal. This was done in January 1923. Within four weeks of the operation the patient was entirely free from vertigo and could hear a whisper at a distance of 8 ft. from the left ear. To-day he is deaf in the affected ear.

Dr DAN M'KENZIE asked whether Mr Mollison could say what the lesion might have been. He (Dr M'Kenzie) remembered the suggestion that in some cases of vertigo there was a state similar to that in the eyeball in cases of glaucoma; that is to say, the condition was due to pressure. He thought this theory would explain the symptoms in the present case; first the attacks of deafness, secondly the relief following the opening of the external canal.

Dr KELSON said that, in 1913, he had had a similar case. The patient, a house-painter, had been so giddy that he could not go up a ladder in the course of his work. He (Dr Kelson) had operated on the right external semicircular canal in a similar way to that described, and had shown the patient, in 1914, at a meeting of the Section. At that date he had practically lost the giddiness and the tinnitus. Since half the benefit from recording such cases was lost if they were not followed up, he (Dr Kelson) had written to the patient's doctor who had reported, in 1916, that the man was well, could again climb ladders and do his work and no longer had tinnitus. In 1921, eight years after operation, the report was that the man had kept well until the previous September, when he had again begun to have attacks of giddiness and some degree of tinnitus.

Mr ARCHER RYLAND said Mr Mollison had certainly achieved a good result in this case, for not only had there been a total abolition of the vertigo, but the hearing had very substantially improved. He (Mr Ryland) did not know if Mr Mollison would strongly advocate this operation for

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the relief of vertigo. He (the speaker) would feel very hesitant about opening the external semicircular canal for that purpose. He had on one occasion opened this canal inadvertently in the course of an ordinary radical mastoid operation, and a prolonged and troublesome vertigo had resulted.

Sir JAMES DUNDAS-GRANT said he supposed the idea was that in this case there had been an increased tension in the fluids of the internal ear. He asked what had been the steps in the operation. The middle ear had been preserved intact. He (Sir James Dundas-Grant) suggested that if the operation on the external semicircular canal was to entail loss of hearing, it would be safer, and to many easier, to remove the tympanic membrane and ossicles completely, thereby allowing more room for the expansion of the internal liquids through the freer play of the annular ligament in the fenestra ovalis. The greater play might suffice to relieve the pressure.

Mr LAWSON WHALE said that he had done this operation deliberately in two cases. He had to do the radical mastoid operation first, otherwise he would not have obtained access to the horizontal canal. He made a $\frac{1}{4}$ in. opening immediately above and parallel to the horizontal part of the facial canal, and he would like to hear how large an opening Mr Mollison had made, and how much exposure of the semicircular canal he had secured. He would also like to know how long after the operation compensation for the loss of labyrinthine function had occurred. In his own cases the patients had been giddy for three weeks, and had then recovered.

Mr MOLLISON (in reply) said that beyond accepting the suggestion that these cases might be compared to those of glaucoma, he had no theories. He approached such cases, from an operative point of view, with considerable hesitation. In the cases (4 in number) in which he had operated, the hearing in the affected ear had been much diminished; in two it had been practically absent. Three of the patients had been taken into hospital and carefully examined by physicians before it had been decided to operate. In two of the cases he had operated at the request of the physician, as the patients' lives were a burden as a result of vertigo. In one case, that of a clergyman, there was some pressure on the part; the second case was the one shown to-day. In the third case the patient was a publican whose vertigo had been so severe that he had had to give up all his work. The fourth case was that of a private patient, who had consulted Dr Hurst. He (Mr Mollison) had found the operation so easy that he feared he might be tempted to perform it without due consideration. He opened the mastoid exactly as for ordinary mastoidotomy, exposing the aditus region as fully as for a mastoid, so as to get a good view of the external semicircular canal; he then chipped open the canal. He had not formed a conclusion as to the best course to pursue after that. In the first case, remembering Mr Sydney Scott's experiments on pigeons, he had injected absolute alcohol into the canal, in order to destroy the function of the labyrinth. The result had been fortunate; it was more than two years ago since the operation, and the patient had resumed work and had had no more vertigo. In the second case alcohol had not been injected, and all vertigo had ceased. In the third case pure carbolic

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acid had been applied, and the attacks had ceased absolutely. The fourth case was so recent that the result was not yet known. The operative treatment of cases of non-suppurative labyrinthine vertigo had been suggested many years ago by Mr Cheatle, and carried out by Mr Lake, Mr Jenkins, Mr Hugh E. Jones, Mr Sydney Scott, and others.

The difficulty consisted in selecting cases in which operation was indicated, and in excluding extra-labyrinthine causes for the vertigo.

Sequestra removed from the Region of the Eustachian Tube during a Radical Mastoid Operation—T. H. JUST, F.R.C.S.—Female, aged 23, had suffered from suppuration in the right ear since childhood. For six weeks before being seen by exhibitor she had had a right-side facial palsy. She died suddenly five days after a radical mastoid operation. An autopsy showed extensive osteitis, practically the whole of the petrous portion of the temporal bone being involved.

Section of Ependymal Glioma growing from the Floor of the Fourth Ventricle, simulating a Cerebellar Abscess, in a case of Bilateral Chronic Suppurative Otitis Media—T. H. JUST, F.R.C.S.—Male, aged 26, complained of double otorrhœa of long standing, and of symptoms indicating that the left cerebellar fossa was involved. On exploration, the cerebellum bulged under pressure, but no abscess was found. The patient became worse, and a more thorough exploration was made, but the result was negative. The patient suddenly died of respiratory failure two days later. On post-mortem, an ependymal glioma was discovered, arising from the floor of the fourth ventricle. The tumour would have been absolutely irremovable.

THE SCOTTISH SOCIETY OF OTOLOGY AND LARYNGOLOGY

SEVENTEENTH MEETING, HELD IN THE ROYAL INFIRMARY, EDINBURGH

June 9, 1923

President—Dr R. P. MATHERS.

A Case of Adeno-Carcinoma of the Kidney with Secondary Metastatic Growth in the Larynx—Dr A. LOGAN TURNER.—(The case will be published *in extenso* in the *Journal of Laryngology*.)—Male, aged 70, suffering from hoarseness for three months, was seen in January 1922. The mobility of the right vocal cord was impaired by a smooth, pale, non-ulcerated sub-glottic swelling. The rest of the larynx appeared normal. A firm, painless swelling, the size of

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