a tooth was brought into view and grasped with fenestrated forceps. As the plate could not be broken through nor dislodged, it was judged that a hook while not seen in the X-ray photograph must be impacted in the wall. Gentle rotation was attempted without result. Finally, with the head fully extended at the atlanto-occipital joint and the neck as one piece flexed on the trunk to an angle of 45 degrees, thus flattening the curve of the cervical spine, the foreign body was removed by rotation on an antero-posterior axis, thus bringing the hook into the hypopharynx.

On removal, the plate was found to have two molars on the right, and one first molar on the left, behind which was a hook for fixation to the second or third molar.

The patient behaved well during the three-quarters of an hour manipulation. He was immediately put into a steam tent and given a large fluid meal—he had had nothing for over twenty-four hours—before the effects of the cocain had worn off. Good progress was made.

SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

March 8, 1924.

President—Mr SYDNEY SCOTT, M.S.

Case of Radical Mastoid Operation performed before Plastic Methods were generally adopted—Sir JAMES DUNDAS-GRANT, K.B.E., M.D. — Mrs C. was operated on for chronic suppurative otitis media with headache and vertiginous symptoms at a time when plastic methods were not yet generally adopted. The meatus was simply slit and a drainage-tube was retained between the mastoid wound and the meatus. At the present time the cavity is seen to have a smooth and shiny lining such as a Thiersch graft would produce.

Case of Radical Mastoid Operation with Temporo-sphenoidal Abscess in which no Plastic Measures were practised—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.— Miss L. H. was operated on for temporo-sphenoidal abscess a number of years ago, and drainage of the abscess was kept up through the post-aural opening and no "plastic" of any kind was practised. The radical mastoid cavity is now quite smooth, and apart from an occasional accumulation of cerumen gives no trouble.

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These cases are shown to illustrate the possibilities referred to by Dr Dan M'Kenzie.*

Dr KERR LOVE said he thought there was still room for this type of operation in which a flap was not cut, but the space was a comparatively narrow one. In these cases one was tied down too much to the cutting of a definite flap, because, in many of the cases in which the inner end of the posterior soft parts had gone, the soft parts contracted and left a good cavity, as Sir James Dundas-Grant had shown.

Dr DAN M'KENZIE said that when he showed his case of a similar kind there was a justifiable condemnation expressed of the operation being done in every case. He agreed it was applicable only to a small number of cases. The object of showing such cases was to encourage a more flexible outlook on mastoid problems; sometimes it was good to be jostled out of a groove.

Mr G. J. JENKINS agreed with what had been said, and remarked that recently he had been doing a different operation on cases of chronic middle-ear suppuration. He left the posterior wall intact and left a ring of bone. He removed the incus from behind, and by a flap, filled up the cavity in the mastoid. Cases so treated did very well when there was a certain definite lesion of the middle ear. One class of case where there was a little membrane left between the posterior wall and the perforation, did very well under the operation referred to; healing could be almost guaranteed in such cases. Later on, he would show some of the cases treated in this manner.

Sir JAMES DUNDAS-GRANT said that the first of the mastoid cases occurred in 1898; the second, twenty years ago.

Two Cases illustrating Trans-tubal Irrigation—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.—(*a*) Mrs W., aged 56, was first seen in August 1922, on account of discharge from the right ear of twenty-three years' duration. The special point was the extreme tenacity of the discharge, which was almost jelly-like in consistence. After inflation, intra-tympanic syringing and suction, it could only be extracted by means of fine forceps passed into the tympanum through the perforation. It resisted all treatment until copious irrigation with soda lotion through the Eustachian catheter was practised, when it gradually disappeared.

(*b*) Miss H., aged 48, was first seen in November 1923, on account of deafness and discharge from the left ear since the occurrence of scarlet fever in childhood, and on account of neuralgia of about two years' duration. A small intra-tympanic polypus and some granulations were removed. As progress was slow I syringed an alkaline solution through the Eustachian catheter and thereby forced a long thin polypus out of the perforation. Apart from this procedure the polypus

* See *Journal of Laryngology and Otology*, 1924, vol. xxxix., No. 2, p. 100.

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might not have revealed itself, and the case is brought forward to illustrate a use for Eustachian irrigation which is new to me.

Sir WILLIAM MILLIGAN said his difficulty with trans-tubal irrigation had always been that, when he had tried to flush out the middle ear with a Eustachian catheter, he had been disappointed with the small amount of fluid which he had got into the middle ear. He suggested another method, namely, filling the meatus with the fluid with which it was intended to wash out the middle ear, using Politzer's bag, and driving it through from the other direction. This seemed to accomplish a better flushing. He asked whether Sir James Dundas-Grant used any particular catheter for these cases ; did he use compressed air, or drive up the fluid with an ordinary bag ?

Dr DAN M'KENZIE asked whether the exhibitor had ever encountered serious after-effects from the transtubal method. At the Central London Throat and Ear Hospital the method was tried years ago and then abandoned, because it was said to produce so many acute mastoids. In Vienna, however, it was still the routine method. If Sir James could give some assurance as to its safety, he would not mind trying it again. The feeling of most otologists was against syringing of any kind ; one did not quite know where the fluid was going to.

Mr F. C. CLEMINSON said the note stated there was a polypus forced out from the meatus by the irrigation, and he asked whether, by Sir William Milligan's method, there would not be a danger of forcing a polypus into the Eustachian tube.

Mr H. LAWSON WHALE said he thought the danger could be avoided by using an ordinary mechanical pump. There was a valve in such a pump, so that it would either suck, or blow, or suck and blow in rapid alternation, and the strength of the blast could be nicely regulated.

Mr J. F. O'MALLEY said he had found the method somewhat inconvenient on account of the quantity of fluid that got through the Eustachian tube, also because some of the fluid trickled into the throat and set up coughing. In preparing to treat a condition in the middle-ear cavity, in which there was a definite localised focus, with perforation of the membrane, he used the Eustachian catheter and tried to clear the Eustachian tube from the inner opening by inflation with air, then he cleared the tympanic cavity itself. He then inserted a few drops of 5 per cent. nitrate of silver through the external meatus, and used the Politzer bag, exerting a certain amount of pressure to drive it into all the crevices of the middle ear and through the Eustachian tube into the throat. In a certain number of cases that procedure had been very effective.

Mr H. J. BANKS-DAVIS said the amount of fluid liable to get into the patient's throat depended on the distance the tube passed into the Eustachian tube. If a long enough tube were used he thought there would be no danger. A Weber-Liel flexible catheter passed through the ordinary silver or vulcanite catheter answered the purpose well.

Sir JAMES DUNDAS-GRANT (in reply) said that the catheter he used was a silver one, with a rather long beak. Through it he pushed the

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Weber-Liel's tympanic tube, which went through the isthmus and could pass right up into the tympanic cavity. With an ordinary ear syringe he injected through this tube a weak solution of bicarbonate of soda, thereby forcing a blob of tenacious mucus out through the external meatus. He felt that nothing would dislodge the mucus except it were got at from behind. There must of course be a large perforation; he would not care to use the method if there was a small perforation. Had he known a polypus was present he would have hesitated more before exerting the pressure he employed. If the method mentioned by Sir William Milligan were successful, the issue would be satisfactory, but in suppurative cases he would hesitate to use it, for fear of driving fluid forcibly into the antrum. Where there was dehiscence it would be dangerous on the whole—more dangerous than the transtubal method. In answer to Mr Whale, in neither of these cases was suction of use. A class of case must be recognised in which a persistence of discharge was due, either to disease located towards the tympanic end of the Eustachian tube, or at a point where there was a thick tenacious secretion from post-nasal catarrh. The cure was actual.

Sir WILLIAM MILLIGAN said that many years ago, the late Professor Young and himself carried out experiments on the cadaver, incising the membrane, making a very small perforation in it in some subjects, and a large one in others; then they carried out intratympanic injections of methylene blue. In the large perforation cases they found no fluid in the antrum or mastoid cells, whereas in the others it was almost invariably found. Therefore, if the method mentioned by Sir James were adopted clinically, it should only be used where there was very free drainage from the middle ear.

Case of Vertigo of Central Origin—RICHARD LAKE, F.R.C.S.—Patient, aged 59, active and temperate, had spent a quiet day on Sunday, 29th January 1922, and had commenced to eat his supper, in fact had taken some soup, when suddenly, as he described it, everything began to rotate and in the direction right to left; he sat with his head on his hands and had marked nystagmus. Fairly violent vomiting occurred within half an hour. He slept soundly all night; in the morning he awoke and drank some milk, which he promptly vomited; he then slept again until the evening, when he realised that he was completely deaf in the right ear. His recovery was uninterrupted. He was seen by Dr Margan of Seaford, who found his blood-pressure 100, and never higher.

For a fortnight or so music was very distressing, as the ears heard different notes.

On examination I found his blood-pressure 110. Perception of loud voice in right ear; the left had been a little dull of hearing for some time (shooting). Right ear: bone conduction, 11/25; air conduction, C to C5; monochord, 18/22; Bing positive; Rinne negative.

Caloric test, 8 oz.; water at 60° F.; violent nystagmus right to left.

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The patient recovered gradually from his instability of gait and the hearing of the right ear improved to two inches for the voice.

On 20th August 1922 a second attack occurred during the night. Objects moved from right to left: diplopia; complete deafness.

Mr TWEEDIE noted that Mr Lake referred the origin of the vertigo to some central lesion, but he (the speaker) suggested that the report rather indicated a peripheral affection of the kinetic portion of the labyrinth, especially as the Rinne was negative.

As regarded the response to the caloric test, he would like incidentally to draw the attention of the Section to recent modifications with minimal stimuli, as suggested by Kobrak. The essential part of these consisted in the restriction of the amount of water to some 5 to 10 c.c., the use of a temperature of 15° C. and waiting thirty seconds as a necessary latent period before attempting to investigate the resulting nystagmus (*Journal of Laryngology and Rhinology*, 1923, p. 217). He (the speaker) had adopted this method and considered it was of increased value in this test.

Mr SYDNEY SCOTT (President) pointed out that Rinne's test might be pseudo-negative in one ear, because bone conduction was transferred to the auditory nerve on the opposite side.

Sir JAMES DUNDAS-GRANT raised the question as to the quantity of water at 60° F., which was required to produce nystagmus in a normal case. Eight ounces of such cold water seemed to be a large quantity to require, and to indicate lowered sensibility. 2½ oz. at about 75° should be sufficient in an average case.

Dr DAN M'KENZIE said that one should be cautious of conclusions depending on the measurement of time in these tests.

Mr LAKE (in reply) said that he did not test the patient's good ear. When he was doing a large number of tests, he had a standard for the sake of comparison, namely, 8 oz. of water at 60° F., passed in during 60 seconds.

His reason for stating that the origin in this case was central was that the deafness and vertigo improved. Moreover, there was an exceptionally low blood-pressure, which was not so likely to cause thrombosis in the vestibule as in the cerebrum. In addition, the monochord showed very good hearing, 22 by ear, 18 by bone, and nearly 50 per cent. of tuning-fork bone conduction. Bing's test was positive, and he regarded Bing's as the most valuable of all the tests.

Radical Mastoidectomy—Persistent Discharge—Healing by means of Massive Flap—E. A. PETERS, F.R.C.S.—Mrs R., aged 36, underwent a radical operation in 1908. For many years she was treated by many methods. The persistent discharge appeared to come from a posterior cavity.

In 1921, I opened up the post-aural incision, removed the affected bone and filled up the cavity with a massive flap. The meatus is now of normal size and there is no discharge.

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Royal Society of Medicine

A Thick Flap for the partial Lining and Diminution of too large Mastoid Cavities — RICHARD LAKE, F.R.C.S., and E. A. PETERS, F.R.C.S.—This flap has been used by both of us in a fairly large number of cases and has given gratifying results.

It shortens the period of healing and very materially contracts the cavity, these large cavities being, as is well known, the cause of many of the troubles in after-treatment of mastoidectomies in which large amounts of bone have been removed.

Description of Flap.—A post-aural incision is made, close to the attachment of the auricle, dividing all tissues down to the bone. A second incision is made parallel with the former and beginning about $\frac{1}{3}$ in. to $\frac{1}{4}$ in. higher up.

A third incision joins them above. At the base a narrow strip of skin is removed between the lower ends of incisions 1 and 2.

The flap after being separated from the subjacent bone is rotated upon itself. Should the auricle be treated as suggested by one of us for labyrinthine operations the rest is easier. The original posterior margin of the flap is attached to the inner end of the cartilaginous external meatus.

Mr F. HOLT DIGGLE said that in Birmingham, four years ago, he saw a similar flap used. The operator attached it to the bottom, and turned it in, leaving it open above; at the second operation he severed the attachment, and closed it behind. The operation was given up because hairs grew in the cavity.

Sir JAMES DUNDAS-GRANT said a somewhat similar flap was made by Witmaack; it was described in the *Journal of Laryngology*. The purpose of it was to bring the tip of the flap over the Eustachian orifice in order to close it. To fix it there, a thread was passed up the Eustachian tube on a very thin bougie. The thread was attached to the tip of the tongue of flap and pulled back down to the Eustachian orifice.

Mr G. J. JENKINS said he did not think there were many opportunities for using this flap, but it might be a successful procedure. Occasionally he had had to fill up a cavity behind and below the meatus, after a radical mastoid operation had been done two or three times. Recently he had had a case in which there was a very marked cavity behind and below the meatus, which he filled up by cutting a periosteal flap and placing it in this cavity below the meatus, and allowing it to skin over in the ordinary way.

Mr E. A. PETERS explained that the method was not only used for filling up the cavities, it was also very valuable in cases in which some chronic osteitis was in progress. The original operation was done in 1908, and in the succeeding years of suppuration most of the methods used for that condition were employed. It was three years ago that he carried out this procedure. The cavity was opened again, and patches of chronic osteitis removed. It was very unphysiological to cover bone with a thin layer of epithelium, and thin grafts were much worse than thick ones. Mr Lake and he therefore worked up to the idea that it was better to use

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a solid flap. In this case the osteitis disappeared, and a normal condition of the meatal wall had evolved. It was important to take into account the condition of the membranous external meatus; a certain amount should be shaved off; if the whole of the membranous meatus was left, contraction was liable to follow. It was true that hair might appear in the site, but he had found that it soon dropped off. Sometimes a relaxation incision 1 in. behind the original had to be made. He felt sure that if others tried the method, they would not be dissatisfied with it.

Forceps for Use in Tonsillar Dissection — RICHARD LAKE, F.R.C.S.

Mr H. J. BANKS-DAVIS said he considered sharp-toothed serrated forceps, of which there were several patterns on the market, were liable to tear out when traction was made on a friable tonsil. There was insufficient grip.

Dr W. S. SYME did not agree with Mr Banks-Davis. Getting a good grip on the tonsil was the important thing; one must go deeply into the tonsil between the pillars.

Dr W. H. KELSON said much depended on the tonsil. If the tonsil were brittle and disintegrated he had found such forceps tear out, and those were just the cases in which one did not want that to happen. He had now adopted gland-holding forceps; these had no sharp teeth; they efficiently gripped the tonsil, and there was no tearing out.

Case of Chronic Suppurative Otitis Media of "Attic" Type. Cessation of Discharge after Removal of Outer Attic Wall by Electrolysis—T. B. JOBSON, M.D.—W. L., aged 25, had discharge from the right ear for nine years. No headache or giddiness; hearing good; membrane showed reddening of malleus with a perforation about 2 mm. wide in the anterior part of Shrapnell's membrane, through which a scanty brownish fœtid discharge exuded.

Treated for three years by a variety of antiseptics: drops, powders, intratympanic injections, intratympanic irrigation, intratympanic irrigation plus ionization, etc.

He improved considerably, but there still remained a very slight discharge with fœtor.

On 3rd April 1923, the perforation was enlarged by electrolysis. This was repeated four times until the opening was 7 mm. wide. Tympanum is now quite dry.

Mr SYDNEY SCOTT (President) asked why electrolysis was used instead of the ordinary method? Was it because the patient objected to the removal of the attic wall by operation, or was it for some other reason?

Dr J. KERR LOVE said it was difficult to discuss such a case when one had not seen the patient, but he thought a more reasonable treatment would be the ordinary Stacke operation, the attic wall being removed, as done by Dr Dan M'Kenzie in a later case. The treatment carried out in this case was not one which should be applied to the many cases which failed to yield to the attic syringe.

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Sir JAMES DUNDAS-GRANT referred to a paper on attic suppuration published many years ago by Schmiegelow, recommending that ossiculectomy should always be carried out. If the hearing was bad and there were symptoms of blocking, the practice of that operation was right, but not in the presence of good hearing. Later, Dr Bronner of Bradford recommended a set operation for attic suppuration. It consisted of the first steps of Stacke's operation, but with the incision well down over the front of the upper part of the attachment of the auricle. This was drawn down and the attic exposed by chiselling away the outer wall. He (the speaker) once showed a case in which he performed such a modified Stacke, chiselling out the upper part of the outer attic wall, leaving the membrane and ossicles *in situ*, the result being excellent. He had invented a "tack-headed" attic burr ; it was good theoretically, but was apt to fail in practice. The wedge of bone was difficult to get away with anything short of gouge and mallet.

There was no headache or giddiness in the present case, and therefore an excess of zeal should not be displayed. A preparation which would dissolve up the epithelial desquamation was a 10 per cent. solution of salicylic acid in sulpho-ricinate of sodium. Alcohol could be used by intra-tympanic irrigation through the writer's modification of Sir William Milligan's tympanic syringe.

SIR WILLIAM MILLIGAN said the point in this case seemed to be that the electrolysis produced efficient drainage, and the ear healed. Efficient drainage could be produced more simply by avoiding the complicated technique of electrolysis, and he agreed with Dr Kerr Love that the proper course here was to do a Stacke or modified Stacke operation. There were two main things in surgery to be learned: (1) to see ; (2) to drain. To approach these cases through the meatus was to perform a surgical procedure more or less in the dark. Other things being favourable, it was infinitely better to approach these cases from the outside, and carry on the treatment as in an ordinary first-class surgical procedure. He did not think anything was to be gained by electrolysing bone. How far was that process likely to proceed and what degree of sequestration would result?

Mr SYDNEY SCOTT (President) agreed with Sir William Milligan, who had summarised the situation so concisely.

Dr FRIEL said that if a current of electricity were applied to tissues for a considerable time the nutrition of the cells would be so disturbed that they would be killed. It was preferable to use an ion such as zinc, which closed the blood-vessels, rather than ions such as chlorine, sodium or iron.

Dr JOBSON (in reply) said that he had exhausted other methods before resorting to electrolysis ; nothing seemed to make any difference to the discharge, even five ionizations. The case illustrated the extreme resistance of these attic cases to any form of treatment. The question of operation was not discussed with the patient. There had been no working in the dark: he could see what he was doing. On the other hand, he considered that working with forceps was, in these cases, working in the dark.

Since the notes were sent in, the patient had had a slight recurrence

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of the discharge, but he had not seen the patient. He proposed to make the opening larger, and report later.

Tuberculosis of the Temporal Bone in an Infant, not caused by Milk Infection—DAN M'KENZIE, M.D.—In view of current opinion that tuberculosis of the middle ear (temporal bone) in artificially fed infants is always caused by milk infection by way of the Eustachian tube, the following case is of interest as showing that this cannot be looked upon as the only cause.

The child, now three years of age, was brought to hospital when six months old with painless bilateral suppuration of both middle ears and complete left facial paralysis. The glands around the ears were enlarged, and one subsequently broke down and was curetted. Pathological examination of granulations from the middle ear showed them to be tuberculous. A radical mastoid was performed on the left ear and a cortical (Schwartze) on the right. The ears are now quite dry, but the facial paralysis persists.

The point of interest is that the child had been brought up entirely upon one proprietary infants' food. I have communicated with the manufacturers of the food used and have received from them the assurances first, that the milk used in making the food comes from herds free from tuberculosis (tuberculin tested); and, secondly, that the food, after manufacture, is regularly submitted to bacteriological examination, with the result that the *bacillus tuberculosis* has never been grown from it.

These assurances seem to be worthy of acceptance; and we are therefore driven to the conclusion that temporal bone tuberculosis is not always caused by food infection.

Incidentally, the case shows how complete cure of the disease may follow operation.

Mr H. J. BANKS-DAVIS said he had seen cases of babies who were nursed by the mother develop the disease. It was not likely the mother's milk was tuberculous.

Dr W. H. KELSON, referring to the words in the notes, "complete cure of the disease," asked what was "cure." A case of his had been shown three or four times, in which the diseased area completely healed up for two or three years and then the disease reappeared. One could not speak of cure until a considerable time had elapsed without a recurrence.

Mr SYDNEY SCOTT (President) said he did not remember a child with proved tubercle of the temporal bone, which had been reared entirely by breast-feeding only.

Another Modification of the Radical Mastoid Operation—DAN M'KENZIE, M.D.—In cases where the mastoid antrum is small and inaccessible, particularly when a forward-lying lateral sinus is

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interfering with our freedom of approach, it is often advantageous to leave the mastoid surface entirely and to open directly into the aditus and antrum by removing the postero-superior segment of the bone wall of the meatus close to the membrane. This can be quite safely done with a small chisel held horizontally.

The operation is then completed from the antrum outwards towards the mastoid surface, and from the antrum forward towards the tympanum.

Case of Abscess of Lateral Sinus—Miss D. J. COLLIER (introduced by Mr Richard Lake).—R. E., aged 14, admitted to the Royal Ear Hospital on 12th December 1923, with history of discharge from left ear for four years. Three weeks before admission, attack of severe pain over left side of the head and in the left ear, and a polypus was said to have been removed from the left ear. A week later another attack of pain over the left mastoid process and attacks of shivering and vomiting. These recurred at intervals until admission a fortnight later.

On admission the girl was very ill, temperature 97° F., pulse 120, with pain and tenderness over the left mastoid process. Operation (Mr Richard Lake): Extradural abscess, $1\frac{1}{2}$ oz. of foul pus and thrombosis of the lateral sinus down to jugular bulb; septic clot evacuated; jugular vein not tied.

The following day, general condition was still bad, but no rigors, and no signs of early meningitis; lumbar puncture, and fluid found to be normal. Temperature rose from 100° to 104° F. and pulse from 108 to 156 during the day.

The following day a large superficial swelling was found over the occipital bone posterior to the mastoid region; aspirated, and 2 oz. of pus withdrawn. Lumbar puncture, fluid again normal. Abscess posterior to the mastoid process refilled and was again opened.

The next day, temperature rose to 104° F. and pulse to 140; vomiting during the night. Wound reopened, and septic clot was turned out of lateral sinus nearly as far back as the torcular Herophili. The patient made an uninterrupted recovery from this date.

Paralysis of the Sixth Cranial Nerve in a Patient suffering from Chronic Otorrhœa—W. H. KELSON, M.D.—Mr B., aged 28, has suffered since infancy from an intermittent discharge from the left ear. Five weeks ago he noticed that he saw double on looking to the left. An ophthalmic surgeon, whom he consulted, could not find any cause for this, and sent him on to me. He was found to have an offensive discharge, with cholesteatomatous material, from the left ear and granulations in the middle ear posteriorly. He has very little pain or tinnitus. Hearing: watch, $\frac{12}{30}$ left; $\frac{10}{30}$ right; bone conduction better than aerial; Wassermann reaction negative.

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Is there any connection between the aural condition and the paralysis of sixth nerve?

Mr SYDNEY SCOTT (President) asked whether Dr Kelson proposed to do any operation, as a cholesteatoma and granulations were present in the middle ear.

Dr W. S. SYME said that in this case it was possible that the paralysis of the sixth nerve was not due to extension from the middle ear and mastoid, but rather to infection of the sphenoidal sinus on that side. There was nasal obstruction on the left side, and the patient complained of nasal catarrh. He should be given sufficient nasal airway by means of submucous resection, and then opening up the sphenoidal sinus if necessary. An X-ray examination should be made first.

Sir JAMES DUNDAS-GRANT asked whether there were not likely to be aberrant cells round the Eustachian tube; the zygomatic region should have special attention.

Mr T. H. JUST said that six weeks ago he saw a patient who had sixth nerve paralysis on the right side. His aural symptoms were very slight. Seven weeks previously he had had slight discharge from the right ear, but none since, and he had had but little pain. When seen, he had hyperæsthesia on the same side of the head, but no definite mastoid swelling or tenderness. The drum was slightly dull, but was not perforated, and there was no active disease in the ear. Because of the nerve paralysis and the hyperæsthesia, it was decided to explore the temporal bone. The whole mastoid process was found infected, and there was muco-pus in the antrum. Behind the external semicircular canal he found a gallery of cells running in towards the tip of the petrous bone, and these were infected. A $\frac{3}{4}$-in. hole was made, the diameter of an ordinary pen-holder, and in order to make sure that there was no mischief in the middle fossa, the dura mater over that fossa was widely exposed, and was found to be normal. Lumbar puncture showed clear fluid under slight pressure. The gallery of cells was curetted and packed, and the wound left open. In three days the sixth nerve paralysis had disappeared. He had had diplopia, and in two days that had cleared up.

He advised opening up the petrous bone in Dr Kelson's case, as the ear was still moist.

Mr SYDNEY SCOTT (President) said he saw the man about whom Mr Just had spoken. The only indication for operating on the mastoid was the internal strabismus, due to sixth nerve paralysis. The drum membrane was intact.

In the case of a child, also under the care of Dr Hinds Howell, there had been a discharge from her ear two or three weeks previously. There was none when the speaker saw her, and the drum was normal. There had sometimes been headache, before she developed sixth nerve paralysis. He opened the mastoid because Dr Howell urged it, and found it full of pus. The cerebro-spinal fluid was clear, free from organisms, but under hypertension.

They had seen many similar examples of sixth nerve palsy with otitis

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media, and made a rule of operating on the mastoid and of puncturing the lumbar theca.

Mr G. J. JENKINS said it was a dubitable point whether this symptom was due to raised intracranial pressure or extension of inflammation of the dura mater or of the temporal bone. In these mastoid cases he did not think the cause was a rise in intracranial pressure.

Mr W. M. MOLLISON said that in his experience this was a rare condition, while in acute mastoid cases he had seen three or four cases of paralysis of the external rectus. He felt sure the present patient had chronic disease of bone; there was nystagmus to the right, suggestive of labyrinth irritation, and in his opinion the mastoid should be opened as soon as possible.

Mr A. R. TWEEDIE said he recently saw a small girl with bilateral suppurative disease. He had operated, and all apparently progressed favourably. Some ten days after the operation, however, he was horrified to hear a typical meningeal cry, and two or three days later she had complete paralysis of the left sixth nerve. This was verified by the oculist, who also expressed the opinion that she would recover from it, and fortunately she did so. The patient's convalescence was otherwise uneventful. The paralysis he (Mr Tweedie) thought must have been due to some temporary localised meningitis.

Dr KELSON (in reply) said that he intended to explore the temporal bone first; it might not be necessary to proceed to the sphenoid. He considered that the patient was at present in some peril; and there was a definite cholesteatoma, which should be removed, and the mastoid opened.

Postscript.—The left mastoid was opened and two large sequestra removed, one involving the middle fossa. The sixth nerve paralysis gradually disappeared.

Three Cases of Chronic Suppurative Otitis Media treated by Ionization—A. R. FRIEL, M.D.

CASE I.—Male, aged 40, with discharge from left ear for many years.

On examination on 23rd January 1924, a marginal perforation was seen with polypi from a cavity at posterior wall. The polypi were removed and silver nitrate was applied. On 30th January, zinc ionization. No treatment since that date.

CASE II.—Boy, aged 8, with discharge from right ear for nine months. Cause of chronicity was tympanic sepsis and granular condition of mucous membrane.

Zinc ionization on two occasions and boracic powder in addition on last ionization; boracic powder insufflation once afterwards.

Discharge from left ear for twelve months; cause of chronicity was tympanic sepsis.

Zinc ionization and boracic powder on one occasion: boracic powder on one subsequent occasion.

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CASE III.—Boy, aged 12, with chronic suppurative otitis media.

Right ear: cause of chronicity tympanic sepsis. Readily and quickly cured by zinc ionization.

Left ear: cause of chronicity cholesteatoma in aditus. *Difficult* to cure. Outer attic wall has been in part destroyed by electrolysis. The sepsis in the ear has been treated by zinc ionization. There now is scarcely any discharge.

ABSTRACTS

EAR.

Tenderness in Acute Mastoid Disease. MACLEOD YEARSLEY, F.R.C.S. (*Practitioner*, April 1924.)

The author complains that the text-books give so many indications for operations on the mastoid, that the most important symptom of all in acute cases, viz., mastoid tenderness, does not stand out predominantly as it should. "As a matter of fact, all these indications are as nothing in the face of tenderness, and to wait for any of them is to temporise, and to temporise is, in nine cases out of ten, to court disaster." The method of eliciting the tenderness is important—the patient should not be asked if it hurts: his attention should be diverted by conversation while pressure is applied, and the face should be watched for involuntary twitching of the eyelid.

A selected number of illustrative cases are given.

T. RITCHIE RODGER.

Scarlet Fever Otitis. E. H. R. HARRIES, and F. B. GILHESPY. (*Lancet*, 1924, Vol. i., p. 843.)

The writers deal ably with the percentage and age incidence, importance, and treatment of this condition. An interesting point brought out is that at Birmingham City Hospital a number of cases of scarlet fever had chronic otorrhœa, on admission. The age period 0 to 5 years is responsible for the greatest case mortality and also for the greatest percentage incidence of otitis. The young children die from an overwhelming infection of the nasopharynx. Prevention of otitis is insisted upon, and the means suggested are, (1) removal of the initial focus of infection, *e.g.*, adenoids and tonsils, and (2) release of pent-up secretions of the middle ear, *i.e.*, incision of the drumhead. The authors point out in conclusion that (1) the onset in about half the cases is painless; (2) a small rise of temperature should always suggest an examination of the ears, and

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