SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY.

President—DAN MCKENZIE, M.D.

March 5, 1927.

Glossopharyngeal Facial Nerve Anastomosis—E. WATSON-WILLIAMS, M.C.

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DISCUSSION.

Sir CHARLES BALLANCE said that he had not invented the glossopharyngeal nerve operation; it had been suggested to him in 1895 by Sir Edward Sharpey-Schafer. He (Sir Charles) had rejected it because he thought the spinal accessory and hypoglossal nerves were more easily reached and would probably be more useful for the purpose. Moreover, both these were motor nerves, and it used to be considered important to use a motor nerve. The experiments which Mr Colledge and he had carried out together showed clearly that there was no single nerve in the neck, including the cervical sympathetic, union between which and the paralysed facial nerve was not followed by recovery of faradic contractility in all the muscles of the face.

With regard to the glossopharyngeal nerve, the picture Mr Watson-Williams projected on the screen represented the nerve as so large that it gave a false view of its surroundings. The glossopharyngeal, in monkeys and in man, was a very small, white nerve, much smaller than the vagus, and it ran a "crinkly" course across the muscles of the pharynx. The reason for this was that these muscles were always contracting, and therefore the nerve was compelled to lengthen and shorten, just in the same way as the facial artery did.

Mr Watson-Williams had spoken of using the knife for cutting the deep cervical fascia along the anterior border of the sternomastoid, and then employing blunt dissection. The older surgeons, for instance Sir Thomas Smith, one of the most skilful operators he (Sir Charles) had ever seen, never used blunt dissection; they used the knife and forceps; everything was cleanly cut.

As this nerve was a very delicate one very little blunt dissection should be done in these operations upon it, though sometimes, of course, it might be necessary. In using the glossopharyngeal nerve it was important to proceed with the utmost gentleness, otherwise the best results were not likely to be obtained.

In the experiments which Mr Colledge and himself had carried out together on baboons and other monkeys, they had obtained complete symmetry of the face within two and a half months, and a return of faradic contractility in all the muscles of the face within three months, and that

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seemed to be much earlier than in the cases recorded by Mr Watson-Williams. Of course, in Mr Watson-Williams' second case the nerve had been paralysed for ten years, and that fact made a considerable difference.

The exhibitor had referred to the spinal accessory and hypoglossal nerves. If the spinal accessory was chosen there was no method of using it without causing some permanent atrophy of the sternomastoid or trapezius, or both, thus destroying the symmetry of the neck, which, especially for a woman, was an important matter; and further, dissociated movement was not obtained when the hypoglossal nerve was used; there were associated movements of the face during eating and swallowing. He (Sir Charles) had shown a patient at a meeting of the Section three years ago in whom this condition was very evident. He had dined with her, and as she ate with relish an unpleasing distortion of the face occurred during the meal; this was especially trying to him when he reflected that he had himself performed the operation.

After descendens noni—hypoglossal anastomosis in the monkey, the eye on the side of the operation would wink while it was eating, almost closing, and the pinna would move up and down. When descendens noni—facial anastomosis has been performed on human beings he believed these movements were scarcely noticeable.

One point he wished to emphasise was that in a case of facial palsy it was of supreme importance to keep up the angle of the mouth by means of a hook, otherwise it would droop, and before the anastomosis was complete the angle muscles might lengthen and so prevent a good result.

The exhibitor had stated that in one case he had found merely a piece of fibrous tissue with which to unite the nerve. If that had been actually so, he could never have succeeded in getting a return of faradic contractility in the muscles of the face. In all his (the speaker's) own experiments he had been convinced, by microscopical evidence, that there was a certain amount of peripheral regeneration in a divided nerve, and many authorities to-day held the same view. This theory would explain why, after ten years' paralysis, Mr Watson-Williams was able to obtain recovery in the face by anastomosis of the glossopharyngeal with the facial nerve.

The chief difficulty in making this anastomosis appeared to be the clean exposure of the facial nerve. The plan he (Sir Charles) had always adopted was to divide the tendon of the digastric and turn the posterior belly of that muscle backwards. Thus one arrived easily at the sterno-mastoid foramen, as the inner extremity of the digastric groove ended at the foramen, which was a most important landmark.

Mr LIONEL COLLEDGE asked whether the picture of the area concerned had been obtained from a post-mortem specimen or at an operation. He (the speaker) did not understand how the nerve could be exposed in that way without dividing the digastric. He had never seen a large nerve trunk running down in the way indicated.

With regard to the use of the descendens noni in these operations, that nerve was exposed more easily than the glossopharyngeal. In spite of what Mr Watson-Williams said, he (the speaker) considered exposure of the glossopharyngeal nerve very difficult and tedious. At a previous meeting he had shown a case in which all the muscles had recovered their faradic contractility after anastomosis with the descendens noni.

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In the monkey, the posterior auricular branch of the facial was very large. The monkey had large auricular muscles, and when the animal swallowed, the auricle moved up and down. This did not occur in the human being. After this operation in the human being the face movement during swallowing was so slight that there was no disfigurement.

Mr F. BRAYSHAW GILHESPY said that in Sir Charles Ballance's book on the temporal bone, an operation performed by Mr Sydenham was mentioned, namely, the implantation of silkworm-gut into the canal of the facial nerve, the result having been most successful.

Mr WATSON-WILLIAMS (in reply) said that his patients had had thin necks, and he had not found any great difficulty in exposing the glossopharyngeal. He had drawn the diagram at the second operation. Perhaps he had been tempted to exaggerate the size of the glossopharyngeal nerve, as at the first operation he had found a much larger nerve than he had expected to. He was also impressed by the way in which the nerve ran down the back of the stylopharyngeus and curled forward across so that he was certain that this was the nerve for which he was looking.

He did not use any force in blunt dissection, force was not necessary. Until the nerve was exposed and identified he did not divide anything after passing the deep fascia. He was looking for a nerve which he had never before exposed in a patient, and, of course, he did not want to find it by the process of dividing it. It was a conspicuous object when one approached it in the way he had described. It was not necessary to divide the digastric. If one kept above that muscle the exposure of the nerve, at least in a thin neck, was easy and certain.

X-ray Skiagram by Dr Gordon Thomson showing a Normal Bony Auditory Canal in a Boy, aged 4, with a Rudimentary Auricle — H. J. BANKS-DAVIS, M.B., F.R.C.S.— Opinions were asked as to whether any operation would be likely to improve the hearing. There were great difficulties in taking the skiagram as the boy could not be kept steady.

Dr DAN MCKENZIE (President) said that the presence of a bony auditory meatus in a case of rudimentary auricle was unusual. Did the clear space in the skiagram represent the bony meatus? If the boy had a bony meatus it would surely be skin-lined, and that would mean further trouble, because desquamation would be going on inside. As a rule, the external meatus was as rudimentary as the auricle in these cases.

Mr A. R. TWEEDIE said that he would hesitate to agree that the skiagram necessarily showed the external auditory meatus [Mr Banks-Davis: The term Mr Thomson used was "normal auditory canal"], even if this latter term were intended to include the external auditory meatus and middle-ear. But in any case the important point to be determined was the integrity of the inner ear. Was there any such case on record in which the hearing, even in a slight degree, had been restored by operation?

Dr P. WATSON-WILLIAMS suggested that, in such cases as this, stereoscopic skiagrams would afford much more information than ordinary single plates, and would show up details in a very useful way, *e.g.*, not only mastoid cells, but even the bony labyrinth. When, as in the present case,

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the child could not be kept steady for the taking of the photograph, and the question at issue was important for the patient's welfare, it was justifiable to administer an anæsthetic.

Sir CHARLES BALLANCE agreed with Dr Watson-Williams that a stereoscopic picture was the only kind which enabled an observer to see the external auditory meatus; and the surgeon should not be satisfied merely with the report of an X-ray expert, he should be able to see these things for himself. A long time ago he (the speaker) had operated in one of these cases on a person suffering from otorrhœa and he found a small antrum, and also a tympanum. No hearing had resulted from the operation, but the otitis was cured.

Mr T. B. JOBSON said that X-rays might show the condition of the inner ear. Mr Cathcart had shown to him (the speaker) a skiagram of a patient with otosclerosis, and he had been amazed at the clearness with which the inner-ear showed up; all the canals, the vestibule and the cochlea could be seen, and a comparison easily made between the two sides.

Dr DAN MCKENZIE (President) said that as the X-ray report was so definite, Mr Banks-Davis might be justified in making an exploration. [Sir Charles Ballance: No.]

Mr E. WATSON-WILLIAMS said that he had been watching an almost exactly similar case for four years, the child being still too young to be tested. All that he (the speaker) had been able to suggest in the way of treatment was a plastic operation later to remedy the deformity.

Mr BANKS-DAVIS (in reply) said it had been suggested that if an external aperture were made there was a possibility of obtaining hearing. The general feeling of the Members seemed to be against operation. He believed that the boy had some hearing on that side.

Postscript.—The radiograph shows the external auditory meatus *and* the internal auditory meatus. It was compared with a radiograph of the opposite (normal) mastoid region and did not differ from it. It is also similar to other radiographs of the normal mastoid region. A satisfactory antero-posterior view was not obtained as the child was very restless and an anæsthetic could not be administered at the time. I have taken stereoscopic films of the mastoid region on a dried skull at the angle at which this region is radiographed and find that the stereoscopic view only shows that the external meatus is not on the same plane as the internal meatus. It does not give a clear indication of the canal itself.—GORDON D. THOMSON.

The Influence of Insulin upon Acute Suppuration of the Middle Ear in a Glycosuric Patient—DAN MCKENZIE, M.D.—Male, aged 80, the subject of glycosuria, had been undergoing treatment by insulin from time to time.

During one of his periods of abstention from insulin acute suppuration of one middle-ear developed, and a paracentesis was performed. After a few days the membrane closed and the acute symptoms recurred. His age and ailments made posterior mastoid

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drainage unadvisable and a second paracentesis was therefore performed.

Following this, the second intervention, Dr A. L. Sachs, his medical attendant, resumed the administration of insulin, beginning with 0.5 c.c. twice daily. With this small dose no effect on the ear was produced. Discharge was noticed. Several days later the dose was increased to 0.75 c.c., and improvement at once became evident, the discharge drying up and the incision in the membrane healing in a few days.

Abscess of the Temporal Fossa secondary to Antro-meatal Fistula—DAN MCKENZIE, M.D.—A child, aged 6, came to hospital with signs of an abscess in the temporal region. Fluctuation was felt in front of the auricle above the zygoma, where the main mass of the abscess was centred, and the swelling extended as far forward as the orbit, the eyelids being œdematous. Over the mastoid the swelling and œdema were but slight.

The illness, according to the mother, had begun only a few days before, and she was firmly convinced that the child had never had any discharge from the ear.

No discharge, as a matter of fact, was visible in the meatus until the child was on the operating table, although the house surgeon had removed from the meatus a pale, flabby granulation or polypus.

Operation showed the abscess to have stripped up the pericranium of the squama; the bone of the zygoma was also bare.

The mastoid process was opened and emptied; it contained some pus and granulations. No zygomatic cells were discovered, and the origin of the abscess was not made clear until a probe passed along the roof of the bony meatus entered what seemed to be a fistula leading to the tympanic antrum.

Fistulous openings between antrum and meatus are, of course, common enough in cholesteatoma. But the bursting of an acute abscess of the antro-tympanum through its anterior or external bony wall, without discharging into the meatus but tracking outward to form a subperiosteal temporal abscess, seems to be rather rare.

The possibility of an antecedent primary cholesteatoma eroding the antro-meatal wall occurred to us, but no sign of any cholesteatoma was found.

Sir JAMES DUNDAS-GRANT said that a good description of that kind of abscess was given in Gruber's work on otology, translated by Edward Law. Gruber laid down the rule that if the bulging was at the level of the upper third of the auricle, the opening should be made through the meatus, *i.e.*, through its roof. But if the bulging was below the upper third, the opening should be into the antrum. Sometimes the opening in the roof of the meatus was the key to the whole situation. He (the

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speaker) had had one or two cases which illustrated this extremely well. Rapid recovery had taken place after the abscess had been opened in the temporal region and a counter-opening made through the meatal roof. In the President's case, apparently, the pus had tracked from the tympanum, possibly from the attic, and found its way up between the cartilaginous and the bony meatus.

Mr NICOL RANKIN said that another very similar case had come to the same hospital. The posterior meatal wall was necrosed, and the pus tracked up along the zygoma, forming a big subtemporal abscess. It was an acute case and there was no sign of cholesteatoma. The patient was a child who had never had any ear trouble until three weeks previously. When he (the speaker) operated he had found the tympanic antrum full of pus, the deepest part of the posterior meatal wall had been destroyed, and the pus had tracked along the zygoma and under the temporal muscle. No zygomatic cells were found.

Mr A. R. TWEEDIE said that a possible solution was that this was an instance of acute otitis media with the usual extension beneath the periosteum of the posterior meatal wall, and that the probe had followed this track into the middle-ear and thence through the enlarged aditus into the antrum.

Dr D. MCKENZIE (in reply) said that he had not been sure where the probe was, and so he had enlarged the opening outwards along the meatal wall. When he found that the probe was against the bone on the far side, he concluded that it was in the antrum.

Furunculosis (Right Ear) followed by Necrosis of the Anterior Bony Wall of the External Auditory Canal.—NICOL RANKIN, M.B.—Male, aged 44, was seen in May 1925 complaining of earache for five days.

On examination a large tender swelling was found in the right ear on the floor of the meatus; no pus found on incision; pain continued; ear filled with granulations; mastoid tenderness with swelling suggestive of a developing Bezold's abscess. Patient was admitted and the mastoid opened up but found healthy. The meatus and canal were curetted thoroughly. Reported, "simple granulation tissue." Wassermann reaction negative.

Patient was seen from time to time in the out-patient department till September 1926, when he was readmitted to the ward suffering from pain, discharge, and stenosis of the meatus. A loose piece of bone could be felt which seemed to be part of the posterior wall of the external auditory canal. Mastoid was re-opened and the posterior wall found healthy. A fair-sized sequestrum was then removed through the meatus. There was no relief from the symptoms and for the third time the mastoid wound was opened. This time the whole posterior wall was taken away and a large sequestrum, almost half an inch square, was removed; this proved to be the entire anterior wall of the external auditory canal.

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Mr T. B. LAYTON asked whether there was any trouble with the movements of the jaw at any time.

Mr RANKIN (in reply) said that the jaw movements were not impeded though immediately after the operation they caused pain. The parotid gland could be seen pushed back into the meatus when the patient opened his mouth. He questioned whether he ought to have called it furunculosis. The condition might have been secondary to disease of the bone itself.

Large Extradural Abscess with Collapse of the Lateral Sinus and Compression of the Left Lobe of the Cerebellum—NICOL RANKIN, M.B.—Male, aged 24, was admitted in November 1924. He was carried into hospital on account of extreme giddiness. Intense headache, vomiting, profuse discharge from left ear and tenderness over left mastoid were present. Patient was drowsy; some spontaneous nystagmus to the right; no fistula sign (left). Well-marked dysdiadokokinesis (homolateral) and arm tonus reaction (homolateral); patient had had two well-marked rigors.

Operation.—Radical mastoid operation performed; cholesteatoma found and a very large extradural abscess was drained behind left lateral sinus. Sinus was opened and found collapsed and empty with healthy walls. Left internal jugular vein was tied. Large suboccipital abscess was opened and drained some time later. Patient was discharged well about middle of December but readmitted on 30th December, very ill. Left thoracic empyema was discovered. This was treated at University College Hospital, and the patient made a complete recovery.

Mr A. R. TWEEDIE asked if Mr Rankin could say whether the symptoms were due to compression of the cerebellum or to labyrinthitis. Had the patient now a normal labyrinth on that side?

Mr RANKIN (in reply to Mr Tweedie) said that he was not able to say whether there was now a normal labyrinth. The patient had been almost moribund, having had merely enough sense to make movements as directed. Here he thought the cause of the symptoms was extradural. The case was shown also because of the condition of the lateral sinus. He had never before found the lateral sinus quite empty with healthy walls. He wondered whether it was due to the pressure of the abscess sweeping the blood up and down and emptying the sinus.

Dr DAN MCKENZIE (President) asked if there was any question of posterior basal meningitis or meningeal irritation in this case, apart from the mechanical pressure of the extradural abscess.

Mr LIONEL COLLEDGE asked why the internal jugular vein had been tied if the walls of the sinus were healthy.

Mr RANKIN (in reply) said that the patient had had two definite rigors and was very ill, therefore he (the speaker) did not wish to omit any procedure which might aid recovery. He had opened the sinus not knowing what he would find; he had been surprised to find nothing!

Arterial Bruit causing Tinnitus—L. GRAHAM BROWN, F.R.C.S.—Female, aged 48, has complained of various kinds of head noises,

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worse always in left ear, since September 1926. She now definitely states she hears a sound like the "cawing of a rook" in the left ear. The noises are very distressing to her and cause much sleeplessness and mental anxiety. Her systolic blood pressure is 150.

By induction one can actually hear this noise, which is synchronous with the pulse and can be definitely controlled by pressure over the left common carotid.

Mr JEWELL said that he had once shown a patient suffering from objective and subjective tinnitus which, however, ceased during sleep. After the removal of adenoids it had ceased altogether. He (Mr Jewell) thought the patient could exercise some voluntary control over it by contracting the muscles. The tinnitus resembled the ticking of a watch and varied from 60 to 70 per minute, and could easily be heard at a distance of one yard.

Mr GRAHAM BROWN (in reply) said that he had actually heard the so-called "cawing of a rook" in hospital, by placing his ear close to the patient's face, at the same time occluding the other ear. The noise was said to be preying on the patient's mind to such an extent that even the possibility of suicide had arisen, so that the question of treatment became urgent. At his (the speaker's) suggestion the patient had worn during the night a broad band tied round the neck; to this was attached a small pad which pressed gently on the carotid. This had given her some relief, but he would be glad of suggestions as to further treatment.

Mr WATSON-WILLIAMS said that at the worst one could divide the eighth nerve. He remembered a case of agonising tinnitus for which the cochlea was destroyed, with completely successful results.

Mr TILLEY said that the operation mentioned by Mr Watson-Williams had been performed for tinnitus so severe and continuous that suicide had been threatened by the patient. The operation was discussed in the old Otological Society, and one or two cases were recorded in which the auditory nerve had been divided within the skull; but the tinnitus had been in no degree relieved, so that a central factor was probably associated with the symptom.

Sir JAMES DUNDAS-GRANT said that Dr Reik, an American aurist, had described an operation of his own at the Boston International Otological Congress. He had put a metal band round the carotid artery, and was able to graduate the degree of constriction exerted on the vessel. Had the effect of compression of the vertebral arteries, *i.e.*, compression in the sub-occipital triangles, been tried in the present case? He (the speaker) thought this should be done in all cases of pulsating tinnitus. The pressure could be kept up by means of pads put into the depressions, and a strap passed round the head. Treatment directed towards the blood pressure, and the administration of bromides, might do good. In obstinate cases sometimes the anode of the galvanic current was beneficial.

Mr H. J. BANKS-DAVIS said that the most difficult cases of tinnitus were those in which the noise increased when the patients were lying down. The best all-round treatment he had found was to give a large dose of

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hydrobromic acid, with nux vomica, with a blister behind the ear. He would not give bromide, which was a depressing drug. In many of these cases the blood pressure was low, rather than high.

Mr GRAHAM BROWN (in reply) said he had decided that the sound was an arterial, not a labyrinthine congestion tinnitus ; for that reason treatment was not here a question of sedatives, but of some drastic measure for giving relief. He thought the bruit was caused by the blood passing through a dilated vessel, or through a narrowed bony orifice, or past an atheromatous patch. He would not suggest such a thing as tying the carotid artery, but he would be interested in trying Sir James Dundas-Grant's suggestion of mechanically compressing the vertebral arteries, though he did not see how this would be more beneficial than his (the speaker's) plan of pressing on the common carotid.

Frontal Abscess; no Headache; no Localising Signs—E. BROUGHTON BARNES, F.R.C.S.E. — Male, aged 11, developed swelling of the forehead on the third day of a severe "cold." He was first seen on twenty-third day and found to have necrosis of the left ethmoid and extensive osteomyelitis of the frontal bone. The necrotic bone was removed and the patient progressed. On the sixty-first day he vomited twice and was drowsy. He had internal strabismus of the left eye. The ophthalmic surgeon reported: "Bilateral papillœdema—central nebula, left." Intelligence was normal; no headache; no other signs discovered. A right frontal abscess containing about 1 oz. of pus (pure *Staphylococcus aureus*) was found at a depth of ½ in. The dura mater over both frontals had already been exposed; the right lobe was explored first as the granulations over it were slightly less healthy.

The patient developed hernia cerebri and died from basal meningitis exactly three months after the brain operation. No other abscess was found post-mortem.

Giddiness persisting after Radical Mastoid Operation—T. B. LAYTON, D.S.O., M.S.—Male, aged 32, had discharge from ear when he was in the Army in 1918. He underwent two operations, the second—in 1921—a radical mastoid. The wound did not heal perfectly, but a false membrane developed, behind which there was always some purulent secretion. An attempt was made to dilate the perforation in this membrane with a laminaria tent so as to secure drainage, and on several occasions portions were punched away under cocain anæsthesia, but the membrane always grew again very quickly. Attacks of giddiness began about 1922, and after one worse than usual, in March 1925, the wound was re-opened, a small piece of bone removed, and a graft applied to the cavity. Healing was rapid except in one minute spot taking more than a year to heal. During convalescence patient had many attacks of giddiness with sensations

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of stiffness at the back of the neck. These became fewer from October 1926 onwards, but there was a severe attack on 3rd February 1927 and another on 14th February 1927. Five days after the second attack a "tight feeling" developed behind the ear and he then discovered a small crack in the ear. By means of mirrors he can look into his own aural cavity.

Mr H. J. BANKS-DAVIS said that patients who had undergone a radical mastoid operation and were considered to be cured, frequently complained of giddiness in cold weather. The reason was that cold air set up currents in the external canal and these produced vertigo.

Mr A. R. TWEEDIE said that everyone who had attempted to repair, or to operate again on an "old mastoid" well knew the difficulties entailed. In the present case it was impossible to give an opinion without having had an opportunity of testing the labyrinth; but appearances suggested a localised patch of osteitis in the neighbourhood of the external horizontal canal, and presumably it was recurrent inflammation of this lesion which from time to time caused the trouble. The effect of a light application of the actual cautery might be tried.

Dr DAN MCKENZIE (President) said that Mr Tweedie's suggestion was a very likely explanation in many cases of vertigo which persisted in a similar way and in which there were no fistula symptoms.

Mr LAYTON (in reply) said that the operative success in his case was largely due to the skin-graft cut and inserted into the wound by Mr Gill-Carey. It was a distressing case. From time to time the patient was obliged to be a few days away from his work owing to the attacks of giddiness.

Demonstration of Induction of Optical Nystagmus with Simple Apparatus—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.—The apparatus consists of a piece of white paper about 5 ft. long and 8 in. broad (or high). On it are transverse vertical black stripes 2 in. wide, and separated from each other by spaces of about 7 in. The paper is drawn from one side to another in front of the patient while he looks straightforward at the black stripes. His eyes then enter into active nystagmic movements in a direction opposite to that in which the paper is moved.

The method has some clinical value, more perhaps for the neurologist than for the otologist. If a patient's nystagmus is of labyrinthine origin, the optical nystagmus thus induced will counteract it. If it does not counteract it, the nystagmus is probably of some origin other than labyrinthine. The roll can be easily carried in the aurist's or neurologist's bag.

Dr DAN MCKENZIE (President) said that the apparatus was very convenient, and that another useful device of the exhibitor's was the cold-air apparatus for labyrinth testing; it was much more cleanly and convenient than cold water.

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Abstracted by Sir JAMES DUNDAS-GRANT, K.B.E., M.D., F.R.C.S.

(*Concluded from p.* 410.)

Investigations on the Nose and Air-Passage—HELLMANN (Münster-in-W.).—By using water instead of dusty air or tobacco-smoke in the nose of the cadaver he found eddies formed in front of the inferior and middle turbinals. If the orifice of the naris was placed at right angles to the lip the eddies were of equal size, but if it was at an obtuse angle the upper eddy was larger and the lower one smaller.

Therapeutical Action of Small Doses of Free Iodine and Other Halogens on Acute and Chronic Nasal Hypersecretion—STERNBERG and SUGAR (Vienna).—The remedy was administered hypodermically, at first to the amount of 1 c.cm. of 5 per cent. sol. of iodine in a 3 per cent. sodium-iodide solution. Subsequently smaller doses were used. There should be some free detached iodine in the solution, so that it is better that the sodium-iodide should not be of the chemically pure kind. The writers claim most satisfactory and immediate results in vasomotor rhinitis, acute and subacute rhinitis.

KOBRAK attributed the effects to a hormone factor, the iodide acting in a roundabout way on the thyroid gland.

The Vibration-Number of the Vocal Cords—TONNDORF (Göttingen).—The principles of stroboscopy are very clearly explained and its use in studying the vibrations of the vocal cords advocated. They may range from 80 to 1000 per second. Tonndorf finds complete closure of the glottis in the head as much as in the chest-register. In the chest-register the cords are comparatively little stretched and they vibrate with great amplitude, whereas in the head-register they are powerfully stretched but vibrate only in their marginal zone and with small amplitude. The number of vibrations corresponds to that of the fundamental tone independently of the resonating chambers.

A New Stroboscope—LOEBELL (Marburg).—The instrument, demonstrated, showed how the rapidity of the slit-carrying disc could be graduated by moving a smaller disc on the same axis nearer to or farther from the centre of another disc at right angles to it on the axis of the motor, the edge of the smaller disc being in frictional

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contact. It is supplied by W. Bleicher, Marburg, and its range extends from 50 to 2000 double vibrations per second. It is claimed for it that it can be worked even by unmusical observers and with the ordinary laryngeal mirror.

STERN denied that the glottis was closed in the head- as in the chest-register except in pathological cases, such as the hyperkineses and spasms.

Contribution to the Physiology of Deglutition—HAJEK (Vienna).—In a case in which the upper jaw was removed to a considerable extent it was possible to see from above in the naso-pharynx an enormous conical bulge of the soft palate and surprisingly close approximation of the Eustachian tubes to the middle line, the latter movement being effected mainly by salpingo-pharyngeus muscles. Hajek attaches little importance to the rôle of the cushion of Passavant. He believes that the contraction of the superior constrictor, especially the upper portion, described as pharyngo-pharyngeus, can effect a forward bulging of the posterior wall of the pharynx. He attributes the major portion of the closure to the upward projection of the soft palate.

The Surgical Treatment of Facial Paralysis—BRUNNER (Vienna).—Brunner advises the intra-oral detachment of a strip of the masseter which is pulled through a sub-mucous tunnel and attached to the lower lip. A very important point is the drainage outwards through a stab-incision medial to the lower jaw. Among other advantages he claims that there is no section of the facial nerve. Thus the possibility of spontaneous recuperation of the nerve is preserved. There is further no external scar beyond that of the insignificant drainage puncture.

Operations on the Pituitary Body in Dwarfism — O. HIRSCH (Vienna).—The various forms of dwarfs are classified as ill-proportioned and well-proportioned. The former include the chondro-dystrophic (achondroplastic), the rachitic and most of the cretinic. The well-proportioned include the primordial and pituitary. The primordial dwarf is small from birth and grows for the usual length of time till the sutures close, but never reaches the normal size. The pituitary dwarf is of the normal size at birth and it is first in childhood that deficiency of growth begins. The sutures may remain open up to advanced age. There is, therefore, a possibility of resumption of growth after a number of years. The only case operated on for this condition is described by Hirsch. The patient was 14 years old but was of the size of a child of four. The intelligence was normal for his age, but he had the emotions of a child of four, and cried and laughed like a child. Hirsch evacuated a cyst by his operation, but the patient died of thrombosis of the right carotid. The cyst was found to be collapsed

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and its place in the sella turcica filled up by the brain. The author has operated on 107 pituitary cases but he takes the last 50, namely those subsequent to the Great War, as illustrating the value of careful, undisturbed after-treatment, especially by the use of radium. The mortality was under 10 per cent. The permanency of the result is considered definite only after four years, as in the 14 cases operated on in the years 1918 to 1922. Of these 1 died of meningitis following the operation, 2 about a year after; 1 five years after (diabetic coma); 1 after four years (after treatment interrupted); 1 after two years (no after-treatment possible); 6 after from four to eight years clinically cured; 2 not reported. Hirsch operates by his septal method.

The Problem of Injury of the Hypopharynx and the Uppermost Part of the Œsophagus by Foreign Bodies—VON EICKEN (Berlin).—Ninety per cent. of foreign bodies when swallowed stick in the uppermost segment of the œsophagus below the cricoid cartilage. When there is a suspicion of perforation Röntgen ray examination should be repeatedly made and the emphysema shadow looked for. Œsophagotomy is not called for unless there are high temperature, well-marked disturbance of the general condition and violent pain, when it should be carried out as quickly as possible. Several cases of recovery without œsophagotomy, with X-ray pictures, are described.

ENGELMANN recommended in appropriate cases the removal under guidance of the X-ray screen of foreign bodies which were visible under the screen.

HAJEK thought it required a good deal of courage to postpone œsophagotomy for any length of time.

VON EICKEN considered that if the foreign body was to be removed under the control of the Röntgen screen it was possible to operate with bent forceps without the œsophagoscope, but there was a danger of further injury. A combination of œsophagoscopy and the simultaneous use of the Röntgen screen would in certain cases be of great value.

On Lympho-Epithelial Tumours of the Larynx—MARX (Münster).—In the larynx of a man, aged 64, there appeared to be a cancerous growth involving the pyriform sinus and arytenoid region and projecting into the lumen of the larynx across the middle line. There was a gland of the size of a cherry in the anterior triangle. A portion was removed for examination and the diagnosis wavered between carcinoma and polymorph-celled sarcoma. After laryngectomy the growth was found to consist of two elements, large epithelioid cells and lymphocytes. It corresponded to the "lympho-epithelial tumour" described by Schminke. The patient was quite well a year later.

MAX MEYER (Würzburg) said that such tumours reacted most favourably to radiation, but were apt to recur if removed surgically.

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Society of German Laryngo-Otologists

Histological Investigation of the Action of Chromic Acid on the Nasal Mucous Membrane—O. BECK (Vienna).—By means of microscopic sections of portions of a turbinate made at intervals of an hour to fourteen days, Beck arrives at the conclusion that the action of chromic acid is for the most part a fixation of the tissue by coagulation. This explains its efficacy as a hæmostatic.

W. SCHMIEDT uttered a warning against using chromic acid as a caustic for the reduction of swelling of the inferior turbinated body.

An Improved Girdle-Pneumograph—GUTZMANN (Zehlendorf).—Instead of the straight rubber tube generally used, which readily becomes kinked, Gutzmann employs a curved tube. The tube must necessarily be somewhat thin in the wall and on this account liable to kink.

A New Instrumentarium for Surgical Diathermy—CÆSAR HIRSCH (Stuttgart).—A pistol handle with a switch-knob, worked with the index finger, allows of great steadiness. A series of useful electrodes is figured. Insulation of the metal spatulæ and specula is effected by a coating of "Bakelitlack" or a piece of indiarubber tubing. Hirsch considers the diathermic point by far the best means of treating miliary tuberculosis of the pharynx. He advises it also for angiomata and cavernomata, for some cases of cancer of the tongue and for rhinophyma. It is peculiarly well adapted for malignant growths of the upper jaw.

Contribution to the Clinical Study and Therapeutics of the Dullness of Hearing of Old Age—BERBERICH (Frankfort-on-the-Main).—The deafness of old age is essentially a nerve-deafness, but the extent of loss of the highest part of the range of hearing and in a lesser degree of the lowest, varies very considerably in different cases. The author dwells on the necessity of excluding Eustachian and middle-ear lesions when making the diagnosis. The chief factor is stated to be an abnormally high cholesterin content in the blood. This leads to high blood-pressure with contraction of the smaller arteries, including those of the internal ear. There is most probably a loading of the membrana basilaris with a fatty cholesterin material. There is often a fatty arcus senilis of the membrana tympani comparable to that of the cornea. The causes of the hypercholesterinæmia may be endocrine (defect of genital glands or thyroid) constitutional or endogenous. The two most effective therapeutic agents are calcium-diuretin and rhodan. Diuretin is said to have a direct antispasmodic action on the peripheral arterioles, and it is aided by the calcium. Rhodan appears to raise the permeability of membranes and to favour the outflow of the cholesterin from the non-striated muscle of the arterioles.

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Societies' Proceedings

The Influence of the Nose and its Accessory Sinuses on the Results of the Weber Test — GEORG CLAUS (Berlin).— Unilateral, feeble, or non-development of the frontal and maxillary sinuses or disease of these sinuses has no influence in lateralising the sound of the tuning-fork, and if there happens to be a lateralisation to the diseased side, it is due to concomitant catarrh of the Eustachian tube or tympanum. Lateralisation of the Weber test affords, therefore, no criterion as to the condition of the sinuses.

Adrenalin Damage—GOLDMANN (Inglau).—After the injection of adrenalin a feeling of restlessness pervades the whole body, the breathing becomes deeper, the pulse quicker and stronger and the pulse-tension rises 10 to 30 mm. higher. With further injection there supervenes coldness of the extremities, pallor, dilatation of pupils, and continuance of rise of blood pressure. Amaurosis occasionally occurs, and though usually transitory, it appears to have been lasting in some cases reported by Halle. Thyrotoxic symptoms or, it may be, aggravation of those already existing in some goitre cases arise by the summation of the effects of the hormones of the thyroid and suprarenal glands on the tonus of the sympathetic. Probably the doses employed err on the side of excess. Great caution should be exercised in using it in sympatheticotonic subjects. The atheromatosis produced in experiments by adrenalin should be kept in mind.

KOBRAK suggested diminishing the injurious effect by the addition of "Gynorgen," an equivalent of Ergotamin.

HALLE mentioned a case of necrosis of the tip of the nose and one of necrosis of the lower eyelid following the injection of one minim of adrenalin solution in 1·5 c.cm. of a 0·5 per cent. solution of novocain.

SCHMIEDT advises a pause for five to ten minutes after injecting the first one or two cubic centimetres, before giving the second.

Comparison of the Radical Operation, Attico-antrotomy and the so-called Conservative Radical Operation—BEYER (Berlin).—The radical operation is primarily called for in the presence of intracranial complications. It is not necessarily required in cholesteatoma, as such, as some small cholesteatomata may be cleared away with less extensive opening, such as exposing the attic; hence the resort to attico-antrotomy, leaving the membranes and ossicles *in situ*, in cases in which the anatomical structure of the attic permits of it. Beyer's mode of operating is to begin with a searching antrotomy with a clearance of all diseased cells. Next he opens the attic, attacking in order the zygomatic cells, the inferior root of the zygoma, the lateral wall of the attic, and a portion of the posterior wall of the meatus. In attico-antrotomy the posterior wall is only partly removed, but in the conservative radical, it is cleared away to the level of the

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external semicircular canal. The plastic is described as a Stacke's incision along the middle of the meatus and the formation of a Körner's flap. The ultimate result is much the same as that of the so-called "spontaneous operation" effected by the pressure of a cholesteatoma.

VOSS and NEUMANN advocated the limitation of operation described in the paper.

NEUMANN expressed his present view that we should be as radical as possible in acute otitis and as conservative in chronic otitis as the otoscopic and clinical appearances justify.

Bock's Method of Hormone-Investigation applied to Otosclerosis — WERNER (Heidelberg). — Various hormones were sought for in the blood in 12 cases of otosclerosis and there was a deficiency of that of the parathyroid in three-quarters of them. Although the number is small the examination confirms the opinions of Voss, Leicher, Frey, and Orzechowski.

Casual Communication on the Treatment of Corrosion of the Œsophagus—J. TREER (Szeged).—It is desirable to start early prophylactic dilatation as soon as the stage of pain is over and before cicatricial contraction has taken place, as first insisted on by Salzer. Treer uses a rubber (gummi) stomach tube without a filling with shot. When the prophylactic period is past and stricture has developed he employs an instrument with gradually increasing members which pass readily one after the other in "serpent spindle" shape.

The Influence of Movements of the Pelvis and Extremities on the Position of the Other Parts of the Body—GRAHE (Frankfort-on-Main).—Grahe experimented on rabbits after the manner of Magnus and De Kleijn in an endeavour to establish the laws of governing these reactions. Movements of the eyes were pretty constant. When tried on normal human beings they did not occur, but in deaf-mutes they could be induced.

Calcification and Bone-Formation in the Middle-Ear in Chronic Middle-Ear Suppuration—MAX MEYER (Würtzburg).—Two cases were demonstrated to illustrate these changes in granulation and fibrous tissue in the middle-ear.

Cysts of Facial Cleft. Origin in the Naso-Ethmoidal Region — KLESTADT (Breslau). — In this region the characteristic affections in relation to development are cephaloceles and congenital cysts. As an acquired condition we meet with swellings due to the breaking through of purulent foci in the ethmoidal cells, also ethmoidal mucoceles. The writer shows the relation of the cysts to the

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embryological processes and explains the presence of lining epithelium characteristic of the respiratory mucous membrane. Several illustrative cases are narrated, one being a dermoid.

The Problem of Radical Operation on the Antrum—AMERSBACH (Freiburg in Bresgau).—The loss of sensation in the teeth involved is sometimes transitory but sometimes persistent, without, however, interfering materially with mastication. It is the anæsthesia of the peri-odontium that the patient is conscious of, but the sensibility of the pulp is lost at the same time without his being aware of it, and this continues even when the peri-odontial sensibility returns. Such a pulp readily becomes infected without the patient being warned by the occurrence of pain, and the tooth decays. To avoid these results the removal of the facial wall of the antrum should be omitted, as also the destruction of the antral mucous lining. Sturmann's intra-nasal operation (equivalent to Canfield's) should be kept in view.

Otitis Interna and Meningitis — ALEXANDER (Vienna).—Holding that any case is worth recording in which the route of extension of suppuration from the middle-ear to the meninges is clearly made out, Alexander demonstrated a preparation from a case of chronic middle and internal ear suppuration with an exostosis on the promontory. At the operation on the labyrinth an area of purulent softening on the upper ridge of the petrous bone and localised meningitis were found. The autopsy revealed old suppuration in the apex of the petrous bone and thrombophlebitis of the cavernous sinus.

Treatment of Ozæna by Means of Capsule-Bacterial Vaccines—MARSCHIK and SCHNIERER (Vienna).—Out of 58 cases, 51 were submitted to bacteriological investigation; 35 had Abel's bacillus, a pure culture in 13, mixed in 22. Perez' bacilli and cocci were suspected in 11 but proved in only 3. The vaccine employed was a mixture of the three "capsule" bacilli, namely mucosus of Abel-Löwenberg, scleroma of Frisch, and pneumonia of Friedländer. Of the cardinal symptoms crusts, fetor and atrophy, crusting was subdued in 42, atrophy somewhat improved in 28, fetor ceased to be characteristic in 42. The ozæna as a whole improved to a slight degree in 21, to a very high degree in 16, while in 11 the improvement was so considerable that in 4 of them the nose might be termed normal. Nine remained quite refractory, but none were made worse. The 3 Perez cases were especially favourably affected by the capsule-bacterial vaccine. Inspired by the results of the malaria treatment in general paralysis the writers tested it in 4 cases of ozæna, one of which had a positive Wassermann reaction. In all four the fetor disappeared at least while the fever lasted and in one permanently. Response to a renewal of the vaccine treatment was afterwards more pronounced than before.

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Abstract of Proceedings by Mr A. R. TWEEDIE, F.R.C.S.

Diffuse Purulent Latent Labyrinthitis on one side; Diffuse Serous Secondary Labyrinthitis on the other side, following Scarlet Fever: Labyrinth Operation: Recovery — E. RUTTIN. — Girl, aged 7 years, was admitted on 23rd July 1926. She had scarlet fever early in June; eight days later, bilateral otorrhœa without much pain, but a swelling noticed behind the ears prior to the discharge. As she had a very high temperature the range of her hearing was not determined; but fourteen days after the beginning of her illness her hearing was extremely bad on both sides; while two weeks later, the face was paralysed on the right side. One week later, she was able to get up but was extremely giddy.

On admission, the meatus on both sides was filled with granulations and thick non-offensive pus. Right ear, totally deaf to speech and tuning forks; left ear, loud voice only *ad concham*.

No spontaneous nystagmus; facial paralysis, right; reversed fistula symptom, left, with which was associated vertical upward nystagmus on compression; caloric reaction, negative on both sides; on rotation, possibly slight traces of reaction as regards the horizontal canals, but the superior canals did not respond, nor was there any giddiness, head or body reaction. The patient was in a miserable condition, and complained of headache, suggestive of meningitis.

In accordance with the above symptoms, with the report of recent and continued fever and mastoid tenderness, operation on the right mastoid was decided upon. A fistula was found on the mastoid surface, while the mastoid process contained pus, granulations and four sequestra. Later a fifth sequestrum was removed, which represented almost the whole horizontal canal; this exposed the labyrinth. The oval window was also empty. The horizontal portion of the facial nerve lay exposed, as did also the lateral sinus and dura mater of the posterior and middle fossæ, all of which were covered with granulations. Neumann's labyrinth operation was forthwith performed, and the promontory removed, but without any flow of fluid. After the operation there were no labyrinth symptoms and no nystagmus. Healing of the wound was normal.

18.8.26. — Polypus was removed from the left ear; right ear, deaf. Left ear, c.v. at $\frac{1}{2}$ metre. Weber to the left, no spontaneous nystagmus or by-pointing. Caloric reaction on each side, negative.

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Rotation: (apparently head erect) no nystagmus except slight reaction after rotation to the right. With face downwards; rotation to the right, slight nystagmus, but no giddiness or body reaction. Rotation to the left, no nystagmus, no giddiness, no head or body reaction.

Fistula symptom, left positive but reversed.

21.10.26.—Right ear healed and epidermised. Left ear, large central perforation with red mucous membrane and slight secretion; right ear, deaf; left ear, c.v. at 4 to 5 metres. Whisper 1.5 metres. Weber to the left. Caloric reaction left, positive but very weak.

Fistula symptom, left, positive; resulting in two course vertical movements downwards on compression followed by horizontal movements to the left. On aspiration, a slow movement of the eyeballs to the right. No spontaneous nystagmus or by-pointing.

On rotation to the right, nystagmus to the left, 2 or 3 jerks.

On rotation to the left, nystagmus to the right, 2 or 3 jerks.

With the head inclined to the side and face downwards, no nystagmus, no giddiness, no head nor body reaction.

Thus at the first examination, there existed on the right side a diffuse purulent latent labyrinthitis, and on the left side a circumscribed diffuse serous secondary labyrinthitis.

The tenderness of the mastoid process on the right side and meningeal symptoms afforded indication for the operation.

Acute Otitis with Neuritis of the Cochlear and Vestibular Nerve—E. RUTTIN.—Girl, aged 10 years, had suffered from pain in her left ear since the 1st October 1926, without headache or vomiting but with considerable fever. Three days later, paracentesis: the left tympanic membrane was reddened and infiltrated.

Hearing: c.v. at 3 metres: Whisper at $\frac{1}{2}$ metre; Weber to the left; Rinné, left negative; Bone conduction, left, lengthened. No spontaneous nystagmus, dizziness or fistula symptom.

She was sent home and treated as an out-patient. Six days later her doctor brought the child again and reported that she had a high temperature, tender mastoid, and some torticollis.

On re-examination: meatus eczematous, tympanic membrane injected, incomplete deafness in left ear.

Weber, not lateralised; Rinné, negative.

No spontaneous nystagmus and no fistula symptom.

Rotation reaction normal on both sides. Temperature 39 C. Mastoid process tender, torticollis (the child holding the head to the right). Right ear normal. Temperature in the evening normal.

On the 18th October no sign of torticollis; left ear deaf.

On the 22nd October loud voice heard at $\frac{1}{2}$ metre. No spontaneous nystagmus or caloric reaction.

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Rotation with the head erect—

To the right gave nystagmus to left, 12 seconds.
,, left ,, ,, ,, right, ,,

With face downwards—Rotation to right gave a downward directed nystagmus 1.5 seconds. Giddiness and typical head and body reaction; rotation to the left gave a rotatory nystagmus to the right, 6 seconds. Giddiness, typical head and body reaction.

Rotation to the right—

With head on the right shoulder, a vertical, downward nystagmus, 6 seconds.

With head on the left shoulder, a vertical, upward directed nystagmus, 4 seconds.

Typical giddiness, head and body reaction.

On the 23rd of October, hearing still only *ad concham;* temperature not raised since the 12th October.

The exhibitor considered the case was one of acute otitis media and the cause of the torticollis was to be referred to inflammatory conditions of the lymphatic glands. He pointed out that the incidence of the almost complete deafness coincided with the appearance of torticollis, and further that as the deafness was only slightly improved, it could not be the result of an inflammatory middle-ear lesion alone. A serous labyrinthitis could be excluded by the vestibular reactions obtained. Hysteria also was improbable, although no caloric reaction could be induced.

He therefore considered there could be no other cause than a toxic neuritis.

Deaf-Mutism following Whooping-Cough.—Dr MARKUSSAN.—A male, aged 19 years, had whooping-cough at 4 years old, followed by deaf-mutism; otherwise patient is perfectly healthy; has no appreciation for either speech or tuning-fork, and both labyrinths are completely reactionless. On standing, walking forwards or backwards with eyes shut, is very unsteady. Wassermann reaction negative. Physician and oculist report normal conditions.

The interesting point was the etiology of the case. From the history there had been apparently no meningitis, and although it was difficult to say exactly what was the true cause, one would not suppose that such a sudden bilateral paralysis of the labyrinth function could be due to a hæmorrhage. He therefore considered the cause must be some central toxic lesion or a toxic neuritis.

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