Mr A. R. TWEEDIE said he understood this was a case which had been only recently operated on, but at present there appeared no tendency for an epithelial covering to form over the graft.

Dr NICOL RANKIN said that if successful the value of this method would lie in the time and number of dressings saved in the healing of the mastoid cavity. He would be glad to hear the reasons for doing it, and to see the cases at a later date.

Mr KISCH (in reply) said radical mastoid cases required much attention and dressing afterwards, and he thought that if the cavity were obliterated, the need for so great attention would be obviated. At first he used a portion of the rectus femoris muscle, splitting the meatus and then applying the graft. That was three years ago, and the cases did well. In only one instance did the muscle graft die, needing the reopening of the wound to remove it. Then it occurred to him it would be better to use a muscle which could be left attached by its base, and he chose the temporal muscle. In order to obtain this graft there was no necessity to enlarge the mastoid incision; it was easy to expose a large portion of the temporal muscle, and, by an incision through the muscle, to bring it down, so filling up the mastoid cavity.

The question had been raised as to whether the muscle remained alive when it had been used. He had had the opportunity of re-opening a case and examining the graft afterwards, and he had found the mastoid cavity filled with the muscle, which was active, and contracted on stimulation. There was no necessity for a plastic operation on the auditory meatus, and the after-treatment was quite painless, whereas after an ordinary splitting of the meatus there was always some discomfort attending the dressing. The attic region was the only part which had yet to heal, but the amount of discharge from that area was very slight, and healing proceeded well.

SCOTTISH SOCIETY OF OTOLOGY AND LARYNGOLOGY.

TWENTY-SEVENTH MEETING, EDINBURGH.

May 26, 1928.

President—Dr JAMES ADAM.

The Bacteriological Examination of the Tonsils in Special Cases: A Preliminary Communication — R. B. LUMSDEN, M.B.

The paper is published in the *Journal of Laryngology and Otology*, Vol. xliii., p. 724, October 1928.

DISCUSSION.

Dr LOGAN TURNER said that the Society was indebted to Dr Lumsden for bringing forward this subject. He had made it clear that it was a preliminary communication and he (the speaker) thought that Dr Lumsden

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had very modestly stated his claims. He was working along very interesting lines, and he (the speaker) hoped that Dr Lumsden would be able to produce more evidence of the production of cholecystitis from organisms cultivated from the tonsil.

Dr J. S. FRASER congratulated Dr Lumsden on the work he had done. He had already had some results with regard to cholecystitis and nephritis. He (the speaker) suggested that cases of rheumatism would be very suitable for investigation. Cases of rheumatism of various degrees of severity suffered from attacks of tonsillitis, and it would be interesting to find out whether Dr Lumsden could by injecting streptococci from the tonsils of such patients produce rheumatism in rabbits. It would be remembered that Poynton and Payne produced rheumatic endocarditis by injections of streptococci.

Dr W. S. SYME said that this was a method of investigation which should prove very valuable to those who had experience of it, so to speak, from the other angle. He thought that most of them were convinced nowadays that in certain diseases, rheumatic affections for instance, and he had no doubt too in cases of cholecystitis, exophthalmic goitre, and perhaps in others, the tonsils were frequently the infective agents. But they had had no proof; now they looked to such an investigation as this to give them the proof and to help them to overcome the hesitation which they, as surgeons, sometimes had in removing the tonsils in these cases.

Dr W. T. GARDINER expressed surprise that Dr Lumsden's investigation had not isolated the hæmolytic streptococcus, as this organism occurred so frequently in acute throat conditions and especially in scarlet fever.

Dr LUMSDEN (in reply) said he must thank them for the kind way in which his paper had been received; he hoped in course of time to have something more definite to put before them. The cases were chronic cases of tonsillitis. In connection with what Dr Fraser and Dr Syme had said regarding rheumatism, he (the speaker) suggested that the work of Poynton and Payne dealt with hæmolytic streptococci — he was not certain but he thought that was so—and in the present investigation the idea was to try to eliminate these organisms as far as possible. That brought him to Dr Gardiner's remarks regarding the rarity of hæmolytic streptococci throughout the investigation. He (the speaker) suggested that the reason why hæmolytic streptococci were not obtained more frequently was partly because of the method used for culture. Mr Wilkie in his work on the gall-bladder was not very definite about that, but he (the speaker) gathered that his (Mr Wilkie's) reason for using glucose medium was to provide a medium which would give an optimum growth of non-hæmolytic streptococci, and he (the speaker) suggested that that might also be a factor in excluding other organisms.

Lupus of Palate and Tongue treated by Diathermy—DOUGLAS GUTHRIE, M.D. — Male, for six months complained of soreness and irritation of the throat. Two years ago he suffered from pulmonary tuberculosis, and was unfit for work for three months. He still has slight cough and sputum; voice slightly husky.

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On 13.3.28, left half of palate and left anterior pillar presented a red, nodular appearance, suggestive of lupus. The tonsils were small and buried. The epiglottis was rather red at one point on its edge, but the larynx was otherwise normal. On the right side of the tongue, far back, was a deep ulcer with a hard raised edge. There was no abnormality of nose or ears. Wassermann reaction was negative.

26.4.28, ulcer on tongue excised by diathermy knife after removing portion of margin for examination; affected area on palate treated by diathermy button. Pathologist reported that tissue from tongue "contained tubercle follicles and showed no evidence of malignancy."

Exhibitor asked for opinions regarding (1) present condition of pharynx and larynx, and (2) question of tonsillectomy.

Dr EWART MARTIN asked Dr Guthrie if he relied entirely on diathermy in cases of lupus. He (the speaker) had found that diathermy in itself was not sufficient. Artificial sunlight treatment carried out for over a year had been found to be very beneficial when used in conjunction with diathermy.

Dr SYME said that if diathermy was used in lupus it must be used thoroughly. He thought the patient should also be exposed to artificial sunlight. In lupus of the inside of the nose, he much preferred thorough curetting to treatment with diathermy.

Dr GUTHRIE (in reply) said that when the patient came under treatment the appearance of the palate was quite typical of lupus. The ulceration of the tongue, however, was of tuberculous nature and histologically it showed tubercle follicles. The palate had greatly improved after diathermy treatment, but he regretted that no one, in discussing the case, had given an opinion as to the advisability of removing the tonsils. Did the tonsils act as lymphatic glands of the palate, and should they in consequence be removed after the palate had been treated?

Four Patients illustrating the Results of Fat-Grafting in Mastoid Surgery—DOUGLAS GUTHRIE, M.D.—All were cases of chronic middle-ear suppuration. Ages ranged from 6 to 10 years. In each case the simple (Schwartze) operation was performed, and an autogenous fat-graft taken from thigh was introduced into the bone cavity. The operation cavity was treated with spirit and B.I.P.P. and the graft introduced; the wound was closed and in each case healed. In three, discharge from ear ceased, but in fourth diminished.

Dr LEITCH said that Dr Guthrie was to be congratulated on his results, but he (the speaker) was doubtful about the utility of the fat-graft. A tissue graft in a bone cavity was very apt to be absorbed, and should any of these cases require re-opening of the mastoid within a year, he wondered how much of the fat-graft would be found. On the other hand, B.I.P.P. in the mastoid was so resistant to absorption that he had given up using it in the Schwartze operation, and he used it very sparingly, if at all, in the radical operation. Dr Guthrie had used Bipp in all four cases, and he

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(the speaker) wondered how much of it would still be there after twenty or more years. Thirdly, all four patients were under 10 years of age, and in such even a "pneumatic" mastoid left a comparatively small cavity after complete exenteration. His (the speaker's) difficulty had been with the large cavity left after exenteration of a fully-developed adult mastoid of the "pneumatic" type. Had any one experience of the result of a fat-graft in such a case?

Dr GUTHRIE (in reply) said the method was merely experimental, and was not recommended as a routine procedure. Cases of chronic suppurative otitis media in children, and they were very numerous, were notoriously difficult to treat. They improved in hospital, and became reinfected on returning home. The radical mastoid operation could only on rare occasions be recommended in children under ten. Ionisation appeared to be painful in children, and required much time and patience. Post-auricular drainage involved tedious after-treatment. Recently he had tried the method of simple mastoidectomy, allowing the antrum to fill with blood and then closing the wound. It was thought that fat would provide a more solid tissue than blood-clot, and he had exhibited the four cases in which this method was adopted.

Laryngeal Case for Diagnosis—DOUGLAS GUTHRIE, M.D.—Female, aged 32, stated (6.12.27) that she had suffered from dryness and irritability of the throat for six years, and that recently her voice had become slightly hoarse. On examination the nose appeared rather "roomy," but contained no pus or crusts. The pharyngeal mucosa was dry and atrophic. The left vocal cord was immobile near the mid-line, and the left arytenoid was enlarged and prominent and also of a deeper red colour than the surrounding mucosa. The right side of the larynx was normal in appearance and movement. Under simple treatment by inhalations the hoarseness almost disappeared, and on examination (6.3.28) the arytenoid swelling was much smaller, although the left cord remained fixed. On phonation, the left arytenoid was seen to twitch, but the left cord did not move. Since then, the appearance has persisted unaltered. Wassermann reaction is negative. There is no cough. Health is good. Is this a crico-arytenoid arthritis?

Dr FRASER said that the case seemed to be an involvement of the left crico-arytenoid joint. The vocal cords were normal, but of course the left one was immobile in the cadaveric position and the left crico-arytenoid joint was swollen and the arytenoid misplaced.

Dr SYME wondered if the case was not one of congenital abnormality. It did not strike him that the arytenoid was swollen and red; it seemed to be overhanging. The patient had told him that her voice had always been such as it is, and he suggested that possibly it was a congenital affection.

Dr BROWN KELLY said the twitching of the arytenoid was a little suggestive of paralysis, and the cord was slightly to the outside of the

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middle line. It was possible that it might be a paralysis following infiltration of one of the bronchial glands.

Dr ADAM (the President) asked if there was any X-ray examination of the chest, and Dr Guthrie replied that there was not.

Acute Purulent Meningitis following Acute Suppurative Otitis Media: Operation: Recovery—J. P. STEWART, M.D.—Male, aged 33. Admitted 20.2.28, with history of influenza two weeks previously and pain in right ear for five days; has severe headache and vomiting.

Right meatus is full of pus and the drumhead is perforated posteriorly; stiffness of neck; cerebrospinal fluid clear, under slight pressure. Cells 1870 c.mm. Globulin increased—sugar 59 mgms. per cent., chlorides 760 mgms. per cent.

Schwartze operation; no pus in mastoid; swab shows growth of hæmolytic streptococci.

21.2.28.—50 c.c. 10 per cent. NaCl intravenously. White blood count 19,600. Polymorphocytosis. 22.2.28.—Temperature 104° F.; pulse 116. 23.2.28.—Cerebrospinal fluid under slight pressure, but turbid; numerous pus cells and a few cocco-bacilli which did not grow on culture. Chlorides 783 mgms. per cent. 50 c.c. 10 per cent. NaCl intravenously. Temperature 103.5° F.; pulse 80.

24.2.28.—Cerebrospinal fluid under slight pressure and turbid. Chlorides 614 mgms. per cent. Sugar 50 mgms. per cent. Temperature 102° F.; pulse 72.

25.2.28. — General condition improving; temperature 98.4° F.; pulse 88. 28.2.28.—Reflexes exaggerated, but patient looking well; 50 c.c. 10 per cent. NaCl intravenously. Cerebrospinal fluid under slight pressure and turbid; sugar 46 mgms. per cent.; chlorides 626 mgms. per cent.

29.2.28.—Cerebrospinal fluid under slight pressure but clearer; colloidal gold reaction 0000122110. 2.3.28.—50 c.c. 10 per cent. NaCl intravenously; patient much better. 9.3.28.—Erysipelas developed in mastoid wound. 2.5.28.—Was operated upon for acute appendicitis.

The case is interesting as it is only the second case of septic meningitis following an acute suppurative otitis media which has recovered in the Department during a period of twenty-one years. The intravenous injections of NaCl have assisted in keeping the chloride percentage in the cerebrospinal fluid at a high level. Has this factor contributed to the recovery?

Dr MCCAY asked Dr Stewart if he examined the cerebrospinal fluid for organisms each time he performed lumbar puncture.

Mr LITHGOW asked Dr Stewart if he considered this to be the only case of septic meningitis which had recovered. He had had two cases in which there was thick pus in the spinal fluid and both recovered with repeated puncture.

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Dr LEITCH asked what was the criterion of acute purulent meningitis. Was it the presence of pus cells, or of bacteria, or of both? Did a secondary meningitis where organisms and pus cells were found in the turbid cerebrospinal fluid ever recover?

Mr DONALD WATSON said he had been called to see a case of meningitis. The child had pain in her ear and the drumhead was bulging. He performed paracentesis and the doctor did lumbar puncture. There was a little seropus in the middle-ear; the cerebrospinal fluid was turbid and it was reported as an infective meningitis. He (the speaker) gave a very grave prognosis and left the case thinking the child would be dead in a few days; the child recovered without any saline or other special treatment. It was a coccal meningitis.

Dr SYME said another interesting point to him hung round the question whether there were living organisms in the cerebrospinal fluid or not. All of us have had cases of infective leptomeningitis which recovered where organisms were found but did not grow. The whole point of the case was whether the organisms which were actually found were capable of growth.

Dr STEWART (in reply) said he was inclined to think that the organisms obtained in direct films were really a contamination; they did not grow on culture. In reply to Mr Lithgow, at least in Dr Turner's and Dr Fraser's wards, this was only the second case following acute mastoiditis which had recovered during the last 21 years. They had had seven or eight recoveries of acute purulent meningitis after chronic middle-ear discharge, but this was the second associated with acute otitis. The diagnosis of acute purulent meningitis was a much debated point. There were two schools: one demanded the presence of organisms in the fluid associated with the death of the patient, whereas the other school was quite satisfied with the necessary biochemical and microscopical changes. He had investigated several cases where the patients undoubtedly died of meningitis. The cerebrospinal fluid contained pus cells, but no organisms up to the time of death. At the post-mortem he took a smear of pus from the surface of the brain and obtained a growth of streptococci or some other organism. The prognosis was much better where one had a sterile cerebrospinal fluid. In answer to Dr Martin, lumbar puncture was performed five times in this case, and he (the speaker) certainly thought the intravenous injection of 50 c.c. 10 per cent. sodium chloride was a very good adjuvant form of treatment in these cases; *e.g.* in aural bacteriæmia they had had marked success with this treatment.

Case for Diagnosis—J. P. STEWART, M.D.—Female, aged 32, gave a history of an ulcerated throat ten years ago; now returns with deafness and tinnitus; family history satisfactory.

Anterior and posterior pillars on left side have disappeared; extensive scarring of pharynx.

Larynx shows some injection of epiglottis. There is thickening of false cords, especially marked on left side where it obscures in a large measure the corresponding vocal cord; swelling of interarytenoid fold;

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vocal cords are fleshy, adhesions present at anterior commissure, no restriction of movement.

Perforation of cartilaginous septum with bilateral expansion of septum; crusting on both sides. Posteriorly pus is coming down from roof of nose.

Left tympanic membrane shows indrawing and a catarrhal condition is present; right tympanic membrane has a large central perforation; middle-ear deafness.

X-ray examination shows some opacity of left antrum. Chest examination is negative. Blood Wassermann reaction negative; after provocative dose of neosalvarsan, is still negative.

The condition is very suggestive of a specific nature.

Dr FRASER asked if it was not possible that this was a case of congenital syphilis in which the Wassermann reaction was now negative. One knew that in many congenital cases, after the age of 25 or 30 years, the reaction was negative, and therefore the fact that it had been found negative did not exclude the possibility of congenital syphilis.

Dr MCCAY thought that against specific infection was the fact that the patient was a married woman with three very healthy children; she had had no miscarriages, no trouble with her eyes or other specific stigmata, and, with a negative Wassermann, there was strong evidence against the syphilitic infection.

Dr LEITCH said that against syphilis in this case was the fact that the deafness was of middle, not inner, ear type. If it were congenital one would have expected the deafness to have appeared in the second decade of life. Tubercle appeared the more likely cause.

Tuberculous Middle-Ear Disease and Facial Paralysis—C. E. SCOTT, F.R.C.S.E.—Child, aged 3 months, had, on 10.2.28, swelling in front of the left ear. Since then other swellings have appeared in the left side of the neck.

23.3.28.—The left ear commenced to discharge and has continued. The child has had practically no breast feeding; virol and cow's milk.

First seen on 31.3.28, with very profuse discharge from the left ear. All the glands on the left side of the neck, including the pre-auricular, were very enlarged. Conservative treatment commenced. 11.4.28.—Discharge profuse and slightly blood-stained; complete left facial paralysis. Treatment continued. 8.5.28.—Ear still discharging. Facial paralysis has cleared up.

Suggestions for treatment of ear and glands desired.

Dr ADAM (the President) asked Dr Scott if the discharge from the ear had been examined for tubercle.

Dr MCCAY said he had operated on a child some time ago for mastoid disease with enlarged tuberculous glands on the same side. A radical mastoid operation was performed, after which the glands subsided con-

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siderably. He suggested that this case was more likely to be a tuberculous infection of the glands arising from tuberculous middle-ear disease.

Dr ADAM (the President) said he thought it was quite definitely a case of tuberculous otitis media. He said that no one who had had much experience of ear disease in children could doubt that. The question of treatment was a problem, because there was no doubt about the fact that cases in which one did an extensive radical operation, on the whole did badly. One case he had seen last year was so extremely advanced with glandular enlargement and facial paralysis that he declined to operate, as he was certain the child would die. He transferred the child to the Tuberculosis Hospital for general treatment, with the result that the child was alive and well; but the ear condition was unchanged and the facial paralysis persisted.

Dr SCOTT (in reply) said the child had only just come under his care and he had not so far examined the discharge from the ear. Meantime he took it for a fact that it was a tuberculous otitis media. He showed the case for opinions, whether to operate on the ear or whether to put it on a course of general treatment with sunlight and perhaps some tuberculin as well. When he saw her first, the facial paralysis was present. He saw the patient two or three days later and the paresis had practically cleared up. He applied ichthyol dressings to the glands, and for the ear, ordinary conservative treatment was carried out.

Facial Paralysis—C. E. SCOTT, F.R.C.S.E.—Child, aged 9 years, had paralysis of left side of face when 4 years old, following on a motor run. This cleared up in six weeks. 6.3.28.—Present history: slept in a draught and paralysis appeared three weeks ago; previous illnesses —measles.

Tonsils large; adenoids present. Right tympanic membrane dull and slightly retracted; left the same; no scarring seen; no pain. There is no history of ear trouble.

24.4.28.—Shows some improvement.

Dr LEITCH advised removal of the tonsils and adenoids.

Dr ADAM (the President) said if it were an ordinary Bell's palsy it would recover without any treatment. He thought the important thing was to strap up, or splint, the affected side and so take the stretch off the affected muscles.

Foreign Body in Right Ear: Injury to Tympanic Membrane: Acute Middle-Ear Suppuration: Serous Labyrinthitis: Recovery—G. L. REID, M.B. (introduced by Dr J. S. Fraser).—Female, aged 7, was admitted 23.9.27, with a history of having put a bead into her right ear two days previously. The child's doctor reported that there had evidently been some attempt made to remove the bead, and he found the tympanic membrane badly damaged and bleeding slightly. Pain was so acute that the child refused to allow any attempt at removal, and he sent her to

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the local hospital, where they tried to remove the foreign body but failed, the drumhead being further damaged. When taken home from the local hospital the child was very sick, but her mother did not notice any giddiness.

Examination.—The right ear contains blood. Anæsthetic given and bead removed; child kept in bed.

24.9.27.—Patient was very sick last night; giddiness when she sits up; nystagmus to left (healthy side); with noise box in left ear, child is quite deaf; no neck rigidity; Kernig negative; no facial paralysis. 25.9.27.—No fever; nystagmus to left still present. The child slowly improved and on 14.10.27 was able for the first time to hear a loud voice by the right ear with the noise box in the left ear.

11.11.27.—Right drumhead red in lower part. With finger in left ear conversation voice heard at one foot; with noise box in left ear child appears to be quite deaf. Cold caloric test with Dundas-Grant apparatus produced nystagmus to left in 40 seconds.

Dr FRASER asked Dr Reid if he had tested the child with the noise box in the good ear to-day. Dr Fraser's recollection was that on admission the child was totally deaf in the affected ear when the noise box was in the other ear, but before the child left the ward she could hear to some extent when the noise box was in the healthy ear. The point of the case appeared to be that there was a mild labyrinthitis, "serous" if one liked to call it so, which had cleared up to some extent and left the child with an appreciable degree of hearing. He wanted to know if that degree of hearing still remained.

Dr LEITCH asked if the child now heard with the right ear.

Dr R. A. GRAY said, with regard to the foreign body in the ear, they had had a case in the Royal Infirmary, Glasgow, some time ago, that of a child with chronic middle-ear suppuration in whose tympanic antrum a bead was found at operation.

Dr REID said he had tested the hearing to-day with the noise box in the left ear and the patient could hear the raised voice, but could not distinguish words though she was not totally deaf with the noise box in the good ear. With regard to Dr Leitch's question, the foreign body was in the ear all the time, but it was removed by Dr Fraser when she came into the Infirmary.

Extensive Bilateral Chronic Frontal Sinus Suppuration: Radical Operation—J. D. LITHGOW, F.R.C.S.E.—Male, aged 50, had a history of nasal polypi extending over twenty years. In February, 1926, ethmoids and sphenoids were opened and drained. Some tenderness on floor of right frontal sinus and right eye. A solid mass extended along the roof of the orbit and X-ray report suggested an orbital tumour. The roof of the right orbit was incised and a large quantity of pus evacuated. The opening into the right frontal sinus

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was kept patent, washed out daily, a small rubber plug being inserted each day. Drainage was unsatisfactory. Radical operation was done. Both frontals were full of very polypoidal tissue, very friable and hæmorrhagic. Free drainage obtained into the nose on both sides. Very slow recovery.

Patient has been complaining again of pain since operation, with some definite mental symptoms.

Dr LEITCH said that the amount of bromide which the man took might be partly at least the cause of his mental symptoms. The "high frequency' current had sometimes proved useful where pains referred to the vertex and occiput had followed an extensive mastoid operation. If that failed, alcohol injections might be tried.

Dr SCOTT said probably the supraorbital nerve was caught up in some of the scar tissue, and he asked if there was not some neurosis in the case as well. It had been going on for a long time.

Retropharyngeal Abscess Simulating a Nasopharyngeal Tumour—J. D. LITHGOW, F.R.C.S.E.—Male, aged 63, was admitted with the history of the nose being blocked for over a month. A large mass occupied the nasopharynx, fairly hard on palpation. Wassermann reaction was negative. On removing a piece for examination, there was a large evacuation of pus.

Dr BROWN KELLY asked Dr Lithgow if the case might not be one of a small class in which one found a smooth, dusky swelling depending from the roof of the nasopharynx. On incising it, perhaps through the nose, fluid escaped and the whole thing shrivelled up. The condition was usually found in adults and the obstruction it caused might not be of very long duration. Such swellings were usually cysts which developed in the substance of a mass of adenoids. In this case there was a symmetrical bilobed red mass at the choanal arches, which might be a cyst. The possibility of other affections, *e.g.* sarcoma, must be kept in view.

Mr LITHGOW said he did not think the case was of the nature such as Dr Brown Kelly suggested, because it was covered by normal mucous membrane and ran up insensibly on to the posterior pharyngeal wall. It almost completely filled the nasopharynx; in fact one could not get the little finger in. It was firm and well under the mucosa. On incising it, he (the speaker) got a teaspoonful of thick pus.

Traumatic Hæmatoma of Larynx—G. EWART MARTIN, F.R.C.S.E.—Female, aged 12, seen on 5.5.28. She had an accident at school three hours previously, a child having bumped into her neck. On admission there was definite stridor; otherwise she was very well except for pain in the neck.

On examination there was seen hæmatoma of left vocal cord and left arytenoid, with a slight want of movement. The larynx was now almost normal.

Dr LEITCH thought there was still some paresis of the left cord.

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Sweetmeat in Lower Air Passages—G. EWART MARTIN, F.R.C.S.E.—Child, aged 4, was admitted 23.9.27 at midnight, with a history of having gone to sleep with a sweet in her mouth. She wakened up two hours later. On admission, child was blue, with stridulous breathing; she was collapsed.

On examination, throat and larynx were normal. Bronchoscope was passed and the whole of the lower part of the trachea and bronchus was coated with sugar. This was washed out with boric. Breathing at once improved. Child showed a slight bronchitis for three days. Recovery otherwise uneventful.

Destruction of both Labyrinths: Peculiar Gait: Element of Neurosis—G. EWART MARTIN, F.R.C.S.E.—Male, aged 42, had a left radical mastoid operation during the war, following a gunshot wound. The labyrinth at that time was destroyed. Later he was admitted to hospital with right labyrinthitis; very foul discharge from right ear. Right radical mastoid operation performed; labyrinth opened and drained. Slow recovery took place. Patient showed a very curious gait. Examined by Professor Bramwell, who thought this was partly a neurosis. Advised patient to be put back to bed for three weeks, and to be taught to walk like a child. This was done with the use of footprints on the floor. Patient was taught to walk with feet wide apart then bringing them closer together. He is still not walking perfectly normally.

Dr LEITCH said that Dr Martin told us that the gunshot wound was not a penetrating wound and was in no way a cause of the ear condition. It was important that this should be stated, because he had lately had to operate on an ex-service man in Bellahouston Hospital who had a perforation of the septum, adhesions to the turbinates on both sides and a pansinusitis. He had the entrance and exit scars of a penetrating transverse gunshot wound on the outer aspects of the malar bones, but had not applied for pension or treatment until a few months ago.

Acute Mastoiditis with Bezold's Abscess and Perisinus Abscess: ? Aural Bacteriæmia—A. W. MCCAY, F.R.C.S.E.—Boy aged 14, was admitted on 7.3.28, suffering from acute mastoiditis. Large fluctuating swelling over the region of the right mastoid and extending down the right side of the neck (Bezold's abscess). Temperature 100·8° F., pulse rate 92. Child appeared very ill indeed. Much discharge from right ear; no pain; no giddiness. On making incision over mastoid, much pus escaped. The Bezold's abscess was evacuated and a counter drainage made in the neck. On exposure of the lateral sinus a perisinus abscess was found. Sinus not thrombosed when punctured.

On third day the temperature suddenly rose to 103° F., pulse rate 90, and patient had a severe rigor. This was thought to indicate

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sinus thrombosis and a second operation was performed. The sinus was still found to contain fluid blood, but on further removal of bone over the posterior fossa, an extradural abscess was found. On *12th March* patient had another severe rigor and the temperature suddenly rose to 107° F. and pulse rate to 160.

The internal jugular and the anterior facial veins were ligatured. The lateral sinus was again examined, but no thrombosis found. The patient was given large doses of hexamine.

Blood cultures on each occasion gave a negative result.

Examination of the urine now showed the presence of blood cells and a few pus cells, indicating the presence of toxic nephritis. For four days the temperature varied between normal and 105° F. and the patient was extremely ill, during which time he had three rigors.

Gradual improvement and final recovery.

Acute Mastoiditis: Lateral Sinus Thrombosis: Employment of Blood Transfusion—A. W. McCAY, F.R.C.S.E.—Boy, aged 10 years, was admitted with symptoms of acute mastoiditis. Temperature 103° F., pulse rate 122. Child very toxic and ill.

Lateral sinus was filled with pus. The internal jugular and anterior facial veins were then ligatured. On exposure of the middle fossa an extradural abscess was found. The wound was left open and packed with iodoform gauze. Patient's condition remained serious, temperature fluctuating between normal and 101° F., and pulse rate about 116: nothing could be found to account for this. Blood culture negative, urine negative, no signs of secondary abscess; bones and joints normal.

Blood transfusion was done on 8th April. Following this the patient's condition improved and the temperature fell for five days, after which it began to fluctuate again between normal and 102° F. As this continued, another blood transfusion was given on the 27th April. Again the child's condition improved considerably. However, the temperature still continued to fluctuate between normal and 102° F. This has persisted up to the present time. The child's condition is very much improved; appetite good; wound almost healed. The improvement after transfusion on each occasion was very marked, and another transfusion is contemplated.

Dr ADAM (the President) said there was one point he was not quite sure about in Dr McCay's first case; Dr McCay stated that the sinus was not thrombosed and then he stated that at the second operation the sinus was still found to contain fluid blood. Then again, at the third operation, after the internal jugular and facial veins had been ligatured, the lateral sinus was again examined and again found to be fluid. The President asked if the sinus had been slit up.

Dr McCAY replied it had not; it was punctured by a needle.

Dr ADAM (the President) suggested that the affection was aural bacteriæmia and that probably the administration of scarlet fever anti-

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streptococcus serum intravenously might have produced improvement. He had had several cases of aural bacteriæmia definitely improved by giving Parke Davis's antistreptococcus scarlet fever serum in very large doses and he was quite certain that in two cases the patient's life was saved in the most dramatic fashion. He wrote a short letter to the *Lancet* about it and mentioned that; a week or two afterwards a physician from Cheltenham wrote about the case of a nurse on whom he (the physician) had employed the scarlatinal serum intravenously as he (the speaker) had suggested, and she also had a dramatic recovery. All cases he had come across in which he used the serum had recovered except one, where there was a definite sinus thrombosis. He had been meaning to try the hypertonic saline intravenously, but he had had such good results with the scarlet fever antistreptococcus serum that he had continued to use it. There were cases in which there was no scarlet fever at all. When first he gave the serum it was put up in doses of 500,000 units, and in a few cases he gave a million units as an initial dose, but latterly the serum had been put up in doses of 300,000 units and he gave 600,000 units intravenously, repeated in single doses as necessary.

Mr DONALD WATSON said he had very great doubts as to whether aural bacteriæmia actually occurred. He had a child operated upon as an acute mastoiditis about two months ago and she ran a normal temperature for ten days and then it started to shoot up; he had thought this was a case of aural bacteriæmia. He treated her with injections of anti-streptococcus serum and quinine — Lukers treatment for puerperal septicæmia cases. The child developed fixation abscesses in the buttocks, where the injections were given, proof that she had a septicæmia, but it did not cure the case. Three weeks later he ligatured the jugular vein and inspected the lateral sinus. The lateral sinus was absolutely normal on examination. He opened the internal jugular vein and it was filled with blood but small. He ligated the lower end and slit up the other end and there he found the end of a clot lying in the upper part of the internal jugular vein, proof that this child had an infection with a localised thrombosis of the bulb extending down into the internal jugular vein. It was the first time he had ever seen it.

Dr ADAM (the President) said he should have said that the question of lateral sinus thrombosis was to the best of his ability ruled out in all cases. One had to make quite sure because one was apt to miss it. He had given the ordinary stock antistreptococcus serum without the slightest benefit; it had to be the scarlet fever type.

Mr WATSON said one could not tell whether the internal jugular vein in the region of the lateral sinus was thrombosed or not.

Dr FRASER said the question of primary bulb thrombosis was the weak spot about the diagnosis of aural bacteriæmia. He thought Dr Gardiner had had some four or five cases of what appeared to be aural bacteriæmia in young subjects with acute middle-ear suppuration. These cases had hectic temperature, but no rigors and no sweating. It would be interesting to hear from Mr Watson whether his case had rigors and sweating. The cases they had regarded as aural bacteriæmia gave as a rule positive blood cultures, whereas in sinus thrombosis, blood cultures had usually been

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negative. At the mastoid operation the sinus wall appeared quite normal. Further, the prognosis in the case of aural bacteriæmia was much better; the cases almost always recovered without operation on the sinus or jugular vein. He said it was difficult to believe that these cases were all instances of primary jugular bulb thrombosis which recovered spontaneously.

Dr GUTHRIE said that in his experience he seldom met with rigors as a symptom of sinus thrombosis in a child, and he had never seen it in a small child, although at the Children's Hospital quite a number of cases of bulb thrombosis were treated.

Mr WATSON said that in his case there were no rigors and the temperature went up to 103° F. and down to below normal; it had a typical swing. The child perspired and felt cold, but actual rigor there was none. She was about six years old. He had found that children did not have rigors if they had a typical lateral sinus thrombosis. The weakness, he thought, in Dr Fraser's argument was that in his case of aural bacteriæmia he did not examine the bulb. He (the speaker) maintained that in all cases there was a clot, but that after a time it organised and resolved.

Dr MCCAY (in reply) said in his case the blood was examined on each occasion for organisms and cultures were made, but at no time were organisms grown. On the first occasion, the day after the child was operated upon, the temperature went up. He thought it was probably a sinus thrombosis and put a needle into the sinus, when blood came out freely. On the second occasion the temperature went up to 107° F. He ligatured the internal jugular vein. He did not slit up the sinus, but rather fancied that if he had he would have found, as Mr Watson said, a partial thrombosis. The internal jugular vein itself was quite fluid, as also the sinus as far as the needle went. The blood culture was negative, but on examination of the urine, pus and blood cells were found. He thought the rise of temperature and the rigor were probably due to the toxic affection of the kidney. With regard to the scarlet antitoxic serum, it might have been quite effective in this case, but the boy recovered and went out without any bad effects.

Acute Leptomeningitis following a Radical Mastoid Operation: Recovery—A. W. MCCAY, F.R.C.S.E.—Male, aged 42, had had a radical mastoid operation performed on the 25th February. He was first seen by exhibitor on 24th March and showed all the signs of meningitis. The lateral sinus and middle fossa dura mater had been accidentally injured at this operation.

The cerebrospinal fluid contained pus cells, but no organisms were present even after culture. Lumbar puncture was carried out daily until the 9th March. Patient appeared gradually to get worse. The cerebrospinal fluid showed no change; still no organisms present. Second operation decided on.

9.3.28.—Middle and posterior fossæ widely exposed and all diseased bone removed. Sinus exposed until free bleeding occurred. No extradural abscess found. Exploration of middle and posterior fossæ gave negative result.

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Lumbar puncture carried out daily during the following week. Patient's condition gradually improved and all symptoms of meningitis gradually disappeared.

Dr McCAY said that in this particular case he did not perform the first operation. It was done by a general surgeon and the dura mater had been accidentally injured and the lateral sinus opened. A considerable amount of diseased bone had not been removed. At his (the speaker's) operation the cerebrospinal fluid was examined and an abundance of pus cells but no organisms were found. Evidently some local lesion caused irritation of the soft membranes as typical signs of meningitis were present. At operation, although he had explored the posterior and middle fossæ, only diseased bone was found. There was quite a considerable amount of it, which was removed.

Radical Mastoid Operation: "Induced" Labyrinthitis: Labyrinth Operation: Recovery—J. S. FRASER, F.R.C.S.E.—Boy, aged 7 years, seen 20.11.27, with a history of pain in and discharge from left ear of two years' duration; severe pain for five days with rigors and sweating, but no vomiting. On admission, temperature 102° F.

Examination showed slight tenderness at mastoid tip; granulations and cholesteatoma in meatus; whisper heard by left ear at six inches: no spontaneous nystagmus: no rigidity of neck.

24.11.27.—Radical mastoid operation left ear: pus in antrum: lateral canal prominence normal: cavity skin-grafted.

25.11.27.—Temperature 101° F. Patient is very sick and has marked nystagmus to the right: complete deafness with noise box in right ear. *Second operation.*—Skin-graft removed; promontory chipped off and lateral canal opened (Hinsberg operation): wound left open. 30.11.27.—Child much better: nystagmus only of first degree: wound closed. 20.12.27.—Patient sent to convalescent home.

Case shown to illustrate "induced" labyrinthitis after the radical mastoid operation and skin-graft, fortunately a very rare occurrence.

Acute Middle-Ear Suppuration: Mastoiditis: Latent Labyrinthitis: Perisinus Abscess—J. S. FRASER, F.R.C.S.E.—Male, aged 17 years, admitted 9.5.28, with a history of discharge from the left ear for twelve weeks, following a sore throat. Pain and swelling behind left ear for three days. A history was obtained of severe giddiness, with sickness, rotation of external objects and loss of balancing four weeks before admission.

No fever; left meatus full of pus; sagging of meatal wall and red boggy swelling over mastoid. With noise box in right ear patient is quite deaf. No spontaneous nystagmus; no Rombergism; no spontaneous pointing error; rotation to right produced nystagmus to left for 13 seconds; rotation to left produced nystagmus to right for 20 seconds and the nystagmus was more marked. Cold syringing

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of the right ear produced nystagmus in 40 seconds, with typical past-pointing afterwards; cold syringing of left ear for two minutes gave no result.

10.5.28.—Radical mastoid and labyrinth operation; large perisinus abscess; sinus exposed by disease and covered by purple granulations; malleus removed, but incus absent or not found; fistula present over anterior part of lateral canal prominence; double vestibulotomy. Operation cavity packed with iodoform gauze and left unstitched.

The case is of interest on account of the presence of a bone erosion (fistula) in a patient suffering from acute or subacute otitis media. The oval window was closed to the probe at operation.

Dr SYME asked Dr Fraser if he would lay it down as a rule that in induced labyrinthitis, *i.e.*, in labyrinthitis following the radical mastoid operation, one should proceed to open the labyrinth. His (the speaker's) contention was that these cases of induced labyrinthitis, unless one was conscious of having opened into the horizontal canal or through the wall of the labyrinth, were cases of serous labyrinthitis and should be left alone. Another point was that if he (the speaker) should be induced to open the labyrinth in a case of induced labyrinthitis he should do the whole operation, if he were convinced that he had damaged the labyrinth and caused a suppurative infection of it.

Dr FRASER said that it so happened that shortly before this case came to be operated upon, they had had a fatal case in the ward in which labyrinthitis had followed the radical mastoid operation. Accordingly, he had made up his mind that if, following a radical operation, the patient had complete deafness in the affected ear with marked nystagmus to the affected side, he would open and drain the labyrinth at once. With regard to the second question, he thought that the Hinsberg operation was quite sufficient. If the case was one of cerebellar abscess, the Neumann operation was performed, but in a case in which there had been induced infection through the labyrinth windows following the radical mastoid operation, then it was quite sufficient to chip off the promontory and open the lateral semicircular canal. He had shown this case because, so far as he knew, it was only the second one he had had which had followed the radical mastoid operation and skin-graft, and the number of skin-grafted cases must now be nearly four hundred.

Case for Diagnosis: ? Acoustic Nerve Tumour—J. S. FRASER, F.R.C.S.E.—Female, aged 68, seen 9.3.27, complaining of gradual deafness in left ear for three months, and of pain around the left eye and left facial paralysis for four weeks. There has been some tinnitus in the left ear and a slight giddy feeling.

Examination. — Well-marked facial paralysis; both drumheads normal; with noise box in right ear patient is quite deaf. Cold syringing of right ear produced nystagmus in 45 seconds; similar syringing of left ear produced no reaction in three minutes. Wassermann reaction negative. Patient only tastes salt on right side of

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tongue. Professor Bramwell's report states that the optic discs are healthy; there is no defect of ocular movements; no motor or sensory defect of 5th nerve and no weakness of tongue or palate; no loss of co-ordination. Professor Bramwell agrees with the tentative diagnosis of acoustic nerve tumour made by the exhibitor.

X-ray examination of ears shows sclerosis of mastoid area on right side; the vertical radiogram to show erosion of internal meatus was not a success.

Dr SYME said he did not notice if there had been any examination of the cerebrospinal fluid. He asked Dr Fraser if there was any sign of involvement of the nerves which passed through the jugular foramen on that side. The history was certainly very like an acoustic nerve tumour—the slow, gradual deafness without any signs on ordinary examination, but one would have expected that some other nerves would have been involved by this time.

Dr FRASER said he did not think he would attempt another operation for 8th nerve tumour by the mastoid route. The case was really in the hands of Professor Bramwell and it was for him to make a definite diagnosis of 8th nerve tumour. It would then be for the cranial surgeon to operate by Professor Cushing's method. His (the speaker's) one experience of trying the translabyrinthine route was not a success.

Endothelioma of Right Temporal Bone of Seventeen Years' Duration—J. S. FRASER, F.R.C.S.E.—Female, aged 50, was first seen 12.12.10 (*Journ. of Laryng. and Otol.*, 1912, Vol. xxvii., p. 200). She then stated that four months ago she first had pain and tinnitus in the right ear. She also noticed that her face was paralysed. The pain and tinnitus have continued and prevented sleep. Two weeks ago a watery discharge was noticed from the ear. Patient also complained of attacks of giddiness.

Examination.—Patient mentally depressed; complete right-sided facial paralysis; external meatus occupied by smooth red polypus; slight mastoid tenderness. Schwabach lengthened; Rinné negative (right ear); low tones not heard by right ear; watch heard on right mastoid; raised voice heard at 6 inches. Slight spontaneous nystagmus to left; rotation tests showed some reduction of irritability of right vestibular apparatus.

26.12.10.—Operation; cortex normal; large hole in posterior wall of membranous meatus, so that the polypus is in contact with the bony meatus; mastoid cells and antrum normal; severe bleeding from the meatus, especially from facial spur; radical operation performed; malleus and incus absent; external canal and promontory healthy, but facial canal eroded; the polypus was apparently growing from the facial canal. Pathological report upon polypus:—Sarcoma of probable endothelial type growing from lymph-spaces.

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Progress.—Excessive blood-stained discharge from cavity. 13.1.11. —Profuse granulations; patient complained of giddiness. 15.4.11.— Pain and giddiness have disappeared; bleeding ceased; facial paralysis *in statu quo.* 12.8.11.—General health good; no loss of weight. Cervical glands not enlarged. Operation cavity has filled up, but is covered by smooth epithelium. Occasional pain; facial paralysis *in statu quo.* With noise apparatus in sound ear, patient is quite deaf.

The patient was asked to report on several occasions, but did not come back again till she was sent back by her doctor on 28.12.27, *i.e.*, seventeen years later, complaining of bleeding growth in the right ear, pain and giddiness.

Examination showed a hard mass on the right side, below the tip of the mastoid. There was also a swelling of the right tonsillar region and lateral wall of the pharynx. The tongue is protruded to the right; loss of taste on right side of tongue. On laryngoscopy the right vocal cord does not move. Patient is unable to put her right hand to the back of her head.

Neurological examination by Professor Bramwell showed ptosis of the right eye; right pupil smaller than left (cervical sympathetic involved); optic discs normal; no paresis of ocular muscles; some loss of sensation on right side of face; complete right facial paralysis and paralysis of right side of palate and right vocal cord; right sterno-mastoid reduced to thin band and trapezius also wasted; no weakness, inco-ordination or abnormality of the reflexes either in the upper or lower limbs.

9.1.28.—Patient developed a femoral hernia and was admitted to a surgical ward for operation: death.

Dr FRASER said the remarkable thing in this case was the long duration of malignant disease affecting the temporal bone—seventeen years from the time of the first operation until the patient died as a result of an operation for hernia. She might have lived a good deal longer had she not had intestinal obstruction.

Dr ADAM (the President) asked what the precise cause of death was. Was it the anæsthetic?

Dr FRASER replied that it was not the anæsthetic; but she died some days after operation and he did not know the cause.

Large Bleeding Polypus of Nose—J. S. FRASER, F.R.C.S.E.—Male, aged 56, complained of swelling over bridge of nose, on left side, and epistaxis of nine months' duration. His own doctor attempted to operate through an external incision.

Examination showed a smooth, purplish-red, polypoid swelling high up in the anterior part of the left nasal cavity. The septum was deviated to the left. Both maxillary and frontal sinuses illuminated.

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Posterior rhinoscopy normal. A piece removed for examination was reported upon as angioma.

10.5.28.—Local anæsthesia: submucous resection of septum and removal of bleeding polypus with snare; it was attached to the roof of the nose anteriorly, probably in the region of the nasal bone. The case is shown on account of the unusual size and location of the bleeding polypus.

Pansinusitis: Operation on Septum, Ethmoids and Frontal Sinuses: Intracranial Complication suspected: Cure after Drainage of Sphenoidal Sinuses—J. S. FRASER, F.R.C.S.E. —Male, aged 60, had multiple sinus suppuration in 1917 after an attack of influenza. Lower part of both middle turbinals removed in 1917; minor operation on maxillary antra, and vaccine therapy. In 1920 a radical antrum operation was performed on both sides by another surgeon. The patient was seen by the exhibitor on 25.10.27, complaining of frontal headache, especially in the early part of the day; indeed the headache was so severe that he had to take analgesics at frequent intervals. Patient also suffered from well-marked loss of memory, *e.g.* he could not remember if he had answered a letter or not. He also had profuse nasal discharge and some evening fever.

Examination showed the nasal septum markedly deviated to the left; pus present in the middle meatal region on both sides; pus also present on roof of nasopharynx on posterior rhinoscopy. The maxillary antra illuminated equally but faintly; frontal sinuses dark. Radiograms showed frontals and ethmoids cloudy; vertical view for sphenoids unsatisfactory.

29.10.27.—Submucous resection of septum (general anæsthesia). On separating the muco-perichondrium from the cartilage and mesethmoid, pus was noted coming down between the flaps; no stitch inserted. Ethmoid cleared out on both sides with Blakesley's forceps. A fairly good intranasal opening was obtained into the right frontal sinus, but a very poor opening on the left side.

30.10.27.—Temperature 100° F.; vomiting; suspicion of photophobia; headache persists. 31.10.27.—Temperature 102° F.; severe frontal and occipital headache; shivering attack; intracranial complication suspected. *Second operation.*—Double radical frontal operation; anterior wall, floor and bridge removed on both sides; septum between the two sinuses perforated by disease; both cavities contained pus; posterior wall of left frontal sinus removed, but dura mater appeared healthy.

2.11.27.—Patient rather better, but evening temperature still rising to nearly 102° F. 7.11.27.—Patient somewhat confused; evening temperature elevated to 102° F. or 103° F.; tongue dry and furred; appetite poor; loss of sleep. Examination by Professor Bramwell

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showed Babinski's sign present on both sides and loss of abdominal reflexes. Leucocytosis 23,000; slight stiffness of neck; blood culture negative; no optic neuritis. 13.11.27.—Patient very drowsy; he begins a sentence, but does not finish it; slight stiffness of neck; temperature still about 101° F.; he takes very little nourishment; marked constipation. A second leucocyte count showed 25,000 per c.mm., with 90 per cent. polymorphs. Possibility of frontal lobe abscess, basal meningitis and thrombosis of superior longitudinal sinus discussed. There was no definite evidence of intracranial complication —no paralysis, no convulsions, no vomiting and no optic neuritis. The main symptoms were the presence of fever, the frontal headache and the peculiar mental condition of the patient; conclusion come to was that there must be pus under tension to account for the patient's temperature.

14.11.27.—*Third operation.*—It was decided first of all to investigate the sphenoidal sinuses: both sphenoidal sinuses found to contain pus under tension; large opening made. 15.11.27.—Patient still semi-comatose, but temperature has come down. 16.11.27.—Patient much better; temperature only rising to 99° F.; taking food well, but still rather drowsy. 23.11.27.—Satisfactory progress; patient getting up. Complete recovery.

Dr LOGAN TURNER said he had seen this patient in consultation with Dr Fraser. The case was one which gave them very great anxiety. It was quite obvious that there was some purulent condition which was draining insufficiently. All the sinuses had been opened with the exception of the sphenoidal cavities. It was also evident that the patient had no real intracranial complication and the discussion arose as to whether there might be sphenoidal sinus suppuration. These sinuses were opened by Dr Fraser late one evening, and the remarkable change in the patient's condition was almost immediate; the temperature had been swinging, he was in a low, almost delirious condition, and next day the temperature was normal and remained so. The general improvement was rapid. Both sphenoidal sinuses were full of pus.

Dr MCCAY asked if the X-ray photograph showed any signs of pus in the sphenoidal sinuses.

Dr FRASER admitted that he ought to have opened the sphenoidal sinuses earlier, but he could not say that he was quite so certain as was Dr Turner that there was no intracranial complication. The patient was in a very peculiar mental condition; he was not pleased with anything; he fed himself with his fingers; he began sentences and did not finish them; he was mildly delirious; altogether the patient had symptoms which one attributed to some lesion affecting the frontal lobe. At the last operation Professor Wilkie was kindly present and they were prepared to explore the frontal lobes if necessary. It was only when they found the sphenoidal sinuses full of pus that they had determined to give the patient the chance of sphenoidal drainage. Luckily there was no need

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to do anything more. The radiograms showing the sphenoids were unsatisfactory; the patient's head could not be got far enough back for the vertical position to show the sphenoidal sinuses side by side.

Extensive Malignant Disease of Nose, Sinuses, Palate, and Pharynx—J. S. FRASER, F.R.C.S.E.—Male, aged 52, was first seen 12.3.28, complaining of nasal obstruction on the right side for one year, and swelling over the forehead for six weeks.

Examination showed a somewhat elastic swelling over the glabellum, about the size of a small chestnut. On anterior rhinoscopy several small, pale swellings, about the size of a pea, were noted on the left side of the septum. On the right side there was a large, hard swelling anterior to the inferior turbinal. Further, there was a smooth, purplish-red swelling in the middle line of the soft palate, about the size of a small bean. On digital examination a soft mass was found filling up the nasopharynx. A radiogram showed obscurity of the right maxillary antrum and of both frontal sinuses. Wassermann reaction negative. A piece of the tumour from the right nasal cavity was removed and reported upon as malignant, probably an adeno-carcinoma. The case was sent for opinion to a general surgeon, who did not advise operation, but suggested radium.

24.4.28.—Incision over glabellar swelling, part of tumour removed and radium inserted. Right maxillary antrum opened and found to contain tumour tissue; radium inserted here and also into swelling in right nostril and into tumour of soft palate.

Suggestions for further treatment are requested.

Dr FRASER said this patient certainly looked very much better than he had expected to see him. He intended to readmit him for further radium treatment.

Intrinsic Cancer of Larynx: Thyrotomy—J. S. FRASER, F.R.C.S.E.—Male, aged 46, was seen on 5.10.27, complaining of huskiness for two years. Laryngoscopy showed the left vocal cord broad and thick, but still retaining some mobility.

13.10.27.—Biopsy; squamous epithelioma. Wassermann reaction negative. 1.11.27.—Thyrotomy: affected vocal cord removed with scissors back as far as the vocal process and arytenoid; larynx packed. Progress satisfactory as regards general condition. 4.1.28.—Laryngoscopy shows some swelling of left false cord and a little granulation (?) below it. 30.4.28.—Swelling of false cord not so great as formerly.

Intrinsic Cancer of Larynx treated with Radium—J. S. FRASER, F.R.C.S.E.—Male, aged 54, seen 27.2.28, complaining of hoarseness for two years. *Examination*—Left vocal cord swollen, ulcerated and immobile. 6.3.28.—Biopsy; widespread squamous epithelioma. 15.3.28.—Incision from above thyroid notch down almost to episternal notch; tracheotomy performed; perichondrium

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removed from lateral surface of left ala of the thyroid cartilage; opening made in cartilage with gouge and hammer and almost the whole of the left ala taken away with biting forceps, exposing the inner perichondrium. Eight needles (half milligramme each) inserted into tissues thus exposed; wound temporarily closed with stitches. Needles removed forty-eight hours later. 27.3.28.—Tracheotomy tube removed. Indirect laryngoscopy shows swelling of false cords: no dyspnœa. Patient's convalescence retarded by ischio-rectal abscess which was dealt with by a general surgeon. 17.4.28.—Still some swelling of left vocal cord which only moves to a slight extent.

Dr SYME thought that after all cases of thyrotomy one had the same anxiety for a time. Granulations formed, and in his few cases he had waited. He would never attempt to take a bit away. He would rely on the fact that he had removed the growth widely at operation and that it would be almost impossible for a recurrence to take place in the time.

Dr FRASER said he was not fortunate enough to be present at Mr Harmer's demonstration which he gave recently at St Bartholomew's Hospital, but those who were present had told him (the speaker) that it was a marvellous demonstration of what radium could do in malignant disease of the larynx. He (the speaker) had since had another case in private where he had adopted the same method—tracheotomy, excision of practically the whole of one half of the thyroid cartilage, insertion of radium needles which were left in for four days. The case had done well so far, but of course it was far too early to come to any conclusion. These were the sort of cases which should be reported upon at another meeting.

ABSTRACTS

THE LARYNX

The Duplicated Vocal Cord Question. W. BERGEN, Münster. (*Zeitschrift für Hals-, Nasen-, und Ohrenheilkunde*, Band xix., Heft 5.)

In a typical case of this rare condition there was a white band under each vocal cord forming apparently a second glottis. Under careful examination by probing after thorough local anæsthetisation it was found that these bands did not move. As compared with these, the real vocal cords were more vascular and more concave in their vibrating portions. The voice was rather high-pitched and slightly hoarse. The condition is a congenital anomaly of development and not cicatricial in nature. The subject has received attention from Citelli.

JAMES DUNDAS-GRANT.

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