SOCIETIES' PROCEEDINGS

SCOTTISH SOCIETY OF OTOLOGY AND LARYNGOLOGY

ROYAL INFIRMARY, EDINBURGH

May 31, 1930

President—Dr G. EWART MARTIN

Hidden Infection of the Maxillary Antrum. — JAMES HARPER, M.B., F.R.F.P.S.G. This paper is published in the *Journal of Laryngology and Otology*, Vol. xlv., p. 841, December 1930.

DISCUSSION.

Dr HALL said—The results, or rather the lack of them, obtained by Dr Harper on proof puncture have particular interest for me, and I would be glad if Dr Harper would give some details as to his method of carrying this out.

In a recent investigation I have had occasion to carry out large numbers of proof punctures, and my results appear to differ very considerably from those of Dr Harper.

For more than two years now I have discarded the Higginson's syringe method as being too uncertain for accurate diagnostic work. The routine followed now in Mr Lithgow's department consists first of all in the introduction of an ordinary Lichtwitz cannula, through which a smaller loose-fitting cannula on a record syringe is passed. A small quantity of sterile fluid is then injected into the antrum and withdrawn into the syringe. This fluid is examined against the light and, if necessary, submitted to bacteriological examination.

This method, I consider, differs both in principle and in result from that commonly used, whereby a heavy needle is attached to a syringe and pushed into the antrum instead of the Lichtwitz trocar. Using this method I have found evidence of infection in about 50 per cent. of cases punctured. Just what constitutes evidence of infection is outside the scope of these remarks, but there is no doubt that the system offers very definite advantages over the older method, and I am indebted to Dr Logan Turner, who first suggested to me that a way might be found to improve this method of investigation. That the cases so examined were children, and might be more likely to yield signs of suppuration, might account for the discrepancy in results, but I shall be interested to know if Dr Harper has used the method I have outlined.

Dr GUTHRIE—I would like to ask Dr Harper what proportion of his patients were under 10 years of age. Everybody who deals with children knows that very troublesome type of case, a child who has had tonsils and adenoids removed and still persists in having nasal discharge. Your

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X-ray examination is negative, and antrum puncture is also negative, and what are you to do? It would be interesting to know Dr Harper's view on this type of case. Certainly I do not agree with him when he says that the intranasal operation is of little value. Obviously the radical operation in a small child is contra-indicated.

Dr FRASER stated that he was very sceptical indeed about the paper which had been read. There would not be much dispute about the first two types of case, which correspond more or less to antral suppuration and antral catarrh. There was grave doubt, however, about the third type of case, where nasal symptoms were absent. Dr Fraser took it that in this type anterior and posterior rhinoscopy were negative, except for strings of mucus. God help us if everybody with strings of mucus in the nose is to have a radical antrum operation. He understood that transillumination was negative, that radiograms were negative, and that proof puncture was also negative. The only indication appeared to be that the patient was not satisfied with the state of his or her health. This condition is rather like the hypertrophic sphenoiditis of Sluder—*i.e.*, the patient has pain in the neck, down the arm or elsewhere, and though there is no pus or polypus in the nose there is said to be a "hyperplastic sphenoiditis." This theory also provided an excuse for much intranasal operating. If this third type really exists, why should the infection be confined to the antrum? Why should not the sphenoids, the ethmoids and even the frontal sinuses be infected? It seemed to Dr Fraser that this new discovery is going to give considerable scope to the enthusiastic nasal surgeon. When we come to the question of post-nasal discharge we find that this is, of course, a very common complaint—mostly in women about the menopause who also complain of indigestion in some form or other. Personally, Dr Fraser very seldom found this post-nasal discharge on anterior or posterior rhinoscopy. He has come to the conclusion that patients of the type he had described were hypersensitive and that the normal passage of the nasal mucus into the nasopharynx was somehow appreciated by them while ordinary people do not feel it. He thought that this question might be considered by the Council as a subject for discussion, either at the Glasgow meeting or at a special meeting.

Dr HARPER (in reply)—With reference to Dr Hall's remarks regarding proof puncture, I may say that we have also tried the method he describes with negative results. The absence of pus in the wash-out is due to the fact that the pus is rarely found in these antral cavities at operation. In reply to Dr Guthrie, we have found that a large number of the children such as he describes are suffering from antral infection. With reference to Dr Fraser's remarks regarding those cases which complain of general ill-health, the suggestion he has made that because a patient is complaining of, say, gastric symptoms I would advise an antral operation is absurd. What I do say is that where a septic focus is being looked for the condition of the antra should be carefully investigated, and that a number of such cases, even although the patient does not complain of nasal symptoms and though proof puncture and transillumination are negative, are cases of antral infection. If the antrum is infected and dealt with the effect on the general health is most gratifying. Will

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Dr Fraser or anyone say that the slides shown to-day from cases with negative proof puncture and negative transillumination do not indicate disease of the antrum? They are very similar to those described by Hajek in his latest books. Such cases are too often missed.

Owing to the size of the billet the paper has had to be cut down considerably and the communication has been given in the hopes that those really interested in the subject, which is a big one, will examine into the matter and help us. I am sure if they go on the lines generally indicated they will come on many cases which otherwise would be missed.

CASES 1, 2 and 3.—MR HENRY WADE.

CASE 1.—E. P., aged 42, engine-driver, developed intrinsic cancer of larynx May 1925; thyrotomy performed. Large fungating tumour growing from right cord successfully removed. Pathologist's report:—"Squamous epithelioma of right cord." Satisfactory convalescence, later followed by recurrence of the disease, and when examined in July 1928 the glands in the neck were involved and the growth was active with actual ulceration of the epiglottis and the arytenoid region. Total laryngectomy performed on 26th July 1928.

CASE 2.—D. McD., aged 53, gas-meter worker. Probable duration of illness—thirteen months. Examined June 1929—carcinoma of larynx diagnosed.

28th October 1929.—Total laryngectomy performed.

CASE 3.—A. P., aged 56, sail-maker. Probable duration of illness—six months. Examined by laryngologist, who reported that both cords showed cauliflower outgrowths which extended the whole length of the right cord and over the anterior part of left. Recommended for total laryngectomy, which was carried out on 14th October 1929.

The PRESIDENT—In the name of the Society we ought to congratulate Mr Wade on these cases.

Mr WADE—It would be a very discourteous act on the part of a visitor to your Society to occupy your time. All I would like to do is, first of all, to take this opportunity of thanking the Society for permitting me to show these cases, and particularly my colleagues of the Ear, Nose and Throat Department here for the opportunity given me of operating upon them. It is a happy coincidence that you, Mr President, should be in the Chair, because, although I have received cases from all members of the Department, two of the cases to-day came from your Department.

First of all, I speak as a general surgeon. I am not prepared nor qualified to discuss the indications for thyrotomy as against the indications for total laryngectomy. I have never yet operated upon a case which did not come to me from the Ear, Nose and Throat Department.

One of the patients shown had been successfully operated on previously, a thyrotomy being performed and a malignant growth of the larynx removed. Some years later it recurred and, being considered unsuitable for a local operation, was referred to me with a view to the performance of the operation of total laryngectomy, if this was considered justified.

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In two of the cases the deep cervical lymphatic glands were secondarily involved, and in my opinion this is not a contra-indication to operation and it is my practice to remove these glands as the first stage of the radical excision when the glands are situated on the left side of the neck. If the right side is also involved, these are taken away at an operation ten days prior to the total laryngectomy.

When the question of total laryngectomy is being considered as a means of curing malignant disease of the larynx, certain other alternatives, of course, have to be considered. As I have already mentioned, the question as to whether the disease is capable of being cured by the simpler operation of thyrotomy is for the laryngologist to determine. Granted that he pronounces the case too far advanced for this form of treatment, the other alternatives are either to treat the case by radium or to perform a tracheotomy without removing the growth, which will prolong life and relieve to a certain extent the patient's suffering, but it is, of course, not a curative procedure.

As regards radium, my personal opinion is that although it may prove to be of value where the growth is intrinsic, I do not think it will turn out to be a curative agent where the disease is extrinsic and more widespread. Personally, I feel convinced that where the indications warrant it, the performance of the operation of total laryngectomy will give the best result.

You, of course, naturally will ask is it an operation which is attended by a high mortality. In my opinion it is not.

I do not propose to give you the detailed stages of the operation as it has been carried out by me. I may, however, briefly summarise the essential features of it. Here in Edinburgh certain of us who practise as general surgeons have the good fortune to gain a certain experience in the radical operative treatment of carcinoma of the cervical œsophagus by cases selected and referred to us by Dr Logan Turner as suitable for this treatment. In carrying out this work we learnt certain principles which are equally applicable to the performance of the operation of total laryngectomy.

First of all, before the operation is undertaken, the patient must have a clean mouth. Secondly, I much prefer that there should be no preliminary tracheotomy prior to the radical excision. My reason for this is that if the operation is to be performed successfully, it is vitally important that the airway should be free of any risk of contamination by wound secretion or saliva entering it from above, and this is done by mobilising the divided trachea and bringing it out through a small opening made in the skin above the manubrium sterni, a short distance below the lower end of the wound through which the trachea was exposed. Thirdly, I consider it is very important that an operation which has an aseptic technique should be carried out, and on this account I much prefer that no preliminary lateral pharyngotomy for exploratory purposes should be necessary. The aseptic technique is achieved by mobilising the trachea and larynx and dividing the trachea at the level of the third tracheal ring and bringing its lower end out through the wound on the skin, as already mentioned. The divided trachea is then turned forward and the trachea and larynx are carefully dissected off the œsophagus and pharynx up to the glottis. The

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alæ of the thyroid cartilages are then divided and the trachea dissected downwards and the pharynx opened into beneath the epiglottis. A similar opening below having been made, a transverse slit remains opening into the pharynx. This is now hermetically sealed by a continuous suture of chromicised catgut. The wound left is diminished in size by a few sutures above and below but left open, being packed with iodoform worsted and allowed to granulate up.

In the three cases shown, one healed by primary union. In another a slight amount of leakage took place. In the other a larger communication with the pharynx developed, but this ultimately closed naturally.

Two of the men are now back to work and the third is willing and anxious to take up work again but cannot find suitable employment. One has now been operated on for two years, the other for ten months, and the third for nine months.

After so severe and mutilating an operation, which so seriously interferes with their voice, it might be imagined that the patients would be left dejected and depressed and cut off from their social intercourse. As you will have noticed, this does not apply to any of the three you have examined, and it is particularly noteworthy to observe how they have each developed what I describe as a pharyngeal voice, in that although they only talk in a whisper they can make themselves clearly audible to their friends at home and their comrades at work. I maintain that the benefit they have derived from the operation fully justifies the sacrifice they have made.

Dr LOGAN TURNER said that the Society were much indebted to Mr Wade for showing these cases and he (the speaker) thought they emphasised the value of employing the same surgeon for a particular operation. They had utilised Mr Wade's services off and on for a considerable time in the Department. The patients benefited in a way they would not otherwise do. He was inclined to agree with Mr Wade that as regards the extrinsic form of laryngeal cancer we would probably continue to rely upon the radical operation rather than make use of radium.

EXTRA CASES:—E. P., aged 44. On the 11th July 1928 this patient, then aged 42, was admitted to my wards. He came on the recommendation of Mr J. D. Lithgow, who had originally seen him on the 16th May 1925, when he then complained of hoarseness for the last fourteen months, which had become much worse during the last four months. He was examined, and on the 20th of that month a piece of tissue was removed from the right vocal cord and found to be a squamous epithelioma.

He was operated upon on the 27th—thyrotomy was performed and a large fungating tumour growing from the right cord was removed and a growth in the midline of the larynx taken away. A drawing illustrating the operation carried out shows their situation. The report from the pathologist was that they both showed extensive invasion with malignant squamous epithelial cells. A well-marked squamous epithelioma was present.

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He had a most successful convalescence and did very well, but recurrence took place and the glands in the neck became involved and he was referred to me by Mr Lithgow on the 5th July 1928, and on the 26th of that month total laryngectomy was carried out. The glands, which, fortunately, were situated in the left side of the neck, were first removed and the larynx exposed from its left lateral aspect and the left lobe of the thyroid gland taken away. Owing to the extent of the growth it was found necessary to remove a portion of the pharynx.

He had a successful convalescence and I now present him to you approximately two years since the treatment was carried out.

A. P., aged 56. This patient was admitted to my wards on the 12th October 1929.

He was recommended to me by Dr Martin. He was then 56 years of age. His illness was only of six months' duration. He first noticed that he was losing his voice and ultimately could only talk in a whisper. A month before admission he began to be troubled with a feeling that he had something in his throat which he was unable to get up and was subject to violent fits of coughing and breathlessness. On this account he was unable to lie down at night. In his case record it is noted that on admission he was a thin emaciated patient suffering from severe dyspnœa, all external muscles of respiration working, and obviously in great distress.

A laryngoscopic examination showed an extensive cauliflower growth involving both cords, which was found to be of the nature of a squamous epithelioma. His case was considered to be one suitable for total laryngectomy and on the 14th October I operated on him and carried this out. Intratracheal anæsthesia was not found possible owing to blockage of the airway. The patient stood the operation well and has had a successful convalescence.

He has returned to work for several months now and is now seen eight months after the operation.

D. S. M., aged 53. This patient originally came under my care on the 16th October 1929. He was recommended to me by Dr Martin, from whom he came complaining of huskiness of the voice and breathlessness, which had been of thirteen months' duration. For nine years before the onset of his illness he periodically became husky and was liable to lose his voice when he had a cold. On the 27th June 1929 he was examined by Dr Martin, who carried out treatment for carcinoma of the larynx.

When re-examined later, however, the disease was found to be so extensive that the operation of total laryngectomy was considered advisable and he was referred to me, and on the 28th October 1929 I operated on him and carried out a total excision of the larynx.

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He had a satisfactory convalescence and has been back at work for six months, and I present him to you eight months after the operation.

CASES 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13.—J. S. FRASER.

CASE 4.—E. J., aged 60. First seen 9.10.29 complaining of hoarseness (for three months), cough, expectoration and loss of flesh. Indirect laryngoscopy shows left vocal cord indurated and covered by whitish material extending to subglottic region. The vocal cord is fixed. 15.10.29.—Local anæsthesia: piece removed by direct method. Pathological report:—"Appearances suggestive of malignancy but condition masked by extensive suppurative process which is occurring." 17.10.29.—Septic teeth extracted. Wassermann reaction negative. Physician reports:—"Patient fit for operation in spite of some emphysema and a good deal of arteriosclerosis: urine normal."

5.11.29.—General anæsthesia: insertion of radium as in previous cases, but without preliminary tracheotomy. Six radium needles, each 1 mgrm., inserted. 9.11.29.—Radium needles removed (total, 416 mgrm. hours). Wound stitched up. 11.11.29.—Left vocal cord and aryepiglottic fold œdematous. 13.11.29.—Stitches removed. 20.11.29.—Œdema of arytenoid has disappeared.

12.2.30.—Vocal cord shows no evidence of any growth but left side still immobile.

CASE 5.—J. B., male, aged 70. First seen 24.7.29 complaining of hoarseness for three years.

Examination.—Whitish-yellow, irregular swelling about middle of left vocal cord, which moves fairly well. 25.7.29.—Piece removed by direct method. Pathological report:—"Squamous epithelioma."

29.7.29.—General anæsthesia: tracheotomy performed, followed by operation for insertion of radium needles. Five needles, each 1 mgrm., inserted and left in for four days. 3.9.29.—Tracheotomy wound healed: edge of right vocal cord still irregular. 24.3.30.—Left vocal cord almost normal and moves well.

CASE 6.—W. T., male, aged 60. First seen 1.7.29 complaining of hoarseness of six months' duration.

Examination.—White, irregular area with red margins on right vocal cord, which moves fairly well. A piece had previously been removed by the direct method by another laryngologist. Pathological report:—"Typical epithelioma."

7.7.29.—General anæsthesia: tracheotomy, followed by insertion of six radium needles. 11.7.29.—Radium removed. 13.7.29.—Tracheotomy tube removed. 22.7.29.—Œdematous swelling of right arytenoid. 10.9.29.—Patient reports his voice is good; arytenoid swelling has disappeared; right vocal cord returning to normal. 21.1.30.—Both vocal cords move well: it is difficult to be sure on inspection which cord was the affected one.

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CASE 7.—A. A., aged 60. First seen 13.7.29—hoarseness of six months' duration and slight dysphagia. Patient suffers from cough and expectoration and has been losing flesh.

On indirect laryngoscopy.—Left vocal cord involved by nodular swelling, which extends below the cord in the region of the vocal process; the right cord is also involved; no glandular enlargement.

16.9.29. — Wassermann reaction negative. 17.9.29. — Local anæsthesia: piece removed from left vocal cord. Pathological report:—"Extensive malignant growth (squamous epithelioma)." 23.9.29.—Physician reports:—"Definite evidence of pulmonary tuberculosis at left apex." 26.9.29.—No tubercle bacilli found in sputum. Consultation with Dr Logan Turner, who advised against excision of larynx in view of physician's report. As both vocal cords affected case considered unsuitable for thyrotomy. It was decided to try the insertion of radium after removal of a large piece from both alæ of thyroid cartilage.

1.10.29.—General anæsthesia: tracheotomy. Small piece of isthmus of thyroid cartilage left in middle line. Five radium needles, each 0·5 mgrm., inserted on each side (these needles were really too short).

5.10.29. — Radium removed. 6.10.29.—Temperature elevated. 11.10.29.—Secondary hæmorrhage from tracheotomy wound. 17.10.29. —Large gaping wound in front of neck, lightly packed with gauze: laryngeal condition satisfactory. 18.10.29.—Again severe hæmorrhage from neck wound.

3.11.29. — Neck wound healing: indirect laryngoscopy shows irregularity of both cords. 12.11.29.—Both vocal cords moving, left better than right.

28.3.30.—Patient sent from Kirkcaldy Sanatorium. Laryngoscopy shows right vocal cord almost normal; left cord, however, shows ulceration of vocal process and posterior end of false cord; both vocal cords move; upper aperture of larynx normal. Report from Dr McIntosh of Kirkcaldy Sanatorium:—"Patient admitted on 20th January. Week later, slight hectic temperature, rapid respiration and friction over right axillary region. On 8.2.30 he had a sharp hæmoptysis."

23.4.30.—Ulceration extends along whole length of left vocal cord and up to posterior commissure: question of further radium treatment.

CASE 8. **Malignant Disease of Antrum and Nose treated by Radium Needles** (see *Journal of Laryngology and Otology*, 1929, Vol. xliv., p. 758). Mrs E. P., aged 72. Further reports—20.6.29.—Local anæsthesia: part of big mass of tumour in posterior part of left inferior turbinal removed with snare. Two radium needles introduced into posterior ethmoidal region, two more into the tumour of the left inferior turbinal and, lastly, two needles introduced into left maxillary

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antrum. (All needles of 1 mgrm., kept in place by iodoform gauze packing.) 22.6.29.—Radium needles removed. 2.9.29.—Left side of nose looks very satisfactory; probe passes easily into antrum; no appearance of disease now in posterior ethmoidal region; posterior end of left inferior turbinal slightly larger than right.

4.10.29.—Still a bright red swelling low down on left side of nasal septum: radiograms show left frontal, ethmoid and maxillary antrum dull. 10.10.29.—Posterior end of left inferior turbinal removed, also swelling on left side of septum. Pathological report:—"Both specimens show extensive involvement with basal-celled carcinoma."

4.2.30.—General anæsthesia: sponge in nasopharynx. Old incision at junction of gum and lip opened up and tissues retracted. Then found that there was a great deal of malignant disease in floor of left maxillary antrum and also on floor of the nose on left side: this was removed with spoon and Blakesley forceps. Septum and upper part of nasal cavity look very healthy. A double piece of iodoform gauze was placed on the floor of left antrum and nasal cavity and on this were laid six radium needles of 1 mgrm. each; left nasal cavity lightly packed with iodoform gauze and mouth wound closed with catgut sutures. 10.2.30.—All needles removed.

19.3.30.—A good deal of crusting in nose. 23.4.30.—Nose looks fairly well; no evidence of swelling in canine fossa; wound made in opening antrum has healed.

Case 9. **Malignant Disease of Tonsil and Base of Tongue treated by Diathermy and Radium Needles** (see *Journal of Laryngology and Otology*, 1929, Vol. xliv., p. 759). J. C., aged 44. Further report—Patient did not return to Royal Infirmary until 26.7.29, when there was a hard mass of glands on the right side of the neck and a good deal of infiltration at the base of the tongue on the right side. He was admitted to the Longmore Hospital for Incurables, where he died on 19.12.30.

Case 10. **Malignant Disease at Base of Tongue treated by Radium Needles** (see *Journal of Laryngology and Otology*, 1929, Vol. xliv., p. 760). H. N., aged 64. Further report—8.5.29.—Region at back of tongue looks very clean, but still large ulcer between back of tongue and epiglottis on the left side. Vocal cords move quite well. Patient taken over by general surgeon, who stated that if he operated upon the glands he would prefer to take charge of the tongue condition also. Patient died in September 1929.

Case 11. **Malignant Disease of External and Middle Ear treated by Radium Needles** (see *Journal of Laryngology and Otology*, 1929, Vol. xliv., p. 763). Mrs A. H., aged 62. Further report—17.1.30.—Patient reports by request: large gland at lower

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end of scar behind right ear; right external meatus entirely closed up and bleeds easily; tenderness in front of right ear but it is difficult to be sure that one feels an enlarged gland here. 29.1.30.—Radium plaque (10 mgrms.) placed on swelling behind ear and left in position for twenty-four hours, when it was placed in front of the auricle for twenty-four hours.

CASE 12. **Intrinsic Cancer of Larynx treated by Radium** (see *Journal of Laryngology and Otology*, 1929, Vol. xliv., p. 765). A. A., aged 56. Further report—Patient reported 8.11.29. Condition of the larynx found to be quite satisfactory.

CASE 13. **Intrinsic Cancer of Larynx treated by Radium Needles** (see *Journal of Laryngology and Otology*, 1928, Vol. xliii., p. 756; also 1929, Vol. xliv., p. 766). W. Y., aged 54. Further report—26.2.30.—There is a hollow in the left vocal cord, where the growth was previously situated. Condition very satisfactory.

Dr BROWN KELLY said he had not had an opportunity of examining all Dr Fraser's cases but he could not help referring to three in which he had great difficulty in making out which cord had been the seat of the disease. In these cases—5, 6 and 12—the outline of both vocal cords was perfect. There was perhaps a slight difference in colour on the affected side, but nothing further. Dr Brown Kelly said Dr Fraser was to be congratulated on these results and also asked how he (Dr Fraser) compared this treatment with thyrotomy.

Dr SYME asked Dr Fraser if he had had any trouble with necrosis of the cartilage after this larynx operation.

Dr FRASER said that Case 4 is not doing well. There is now a large œdematous swelling of the arytenoid and of the false cord. He was not sure whether this is a late effect of the application of radium or a recurrence of the disease in spite of radium. If it is a recurrence, Dr Fraser wondered whether Mr Wade would consider excision of the larynx. He did not think it would be any use to put in more radium. Dr Fraser was obliged to Dr Brown Kelly for what he said about Cases 5, 6, and 12. He could only say that since taking up the radium treatment of intrinsic cancer he had entirely given up thyrotomy. It may be that Case 4 was not a very suitable case because there was entire fixation of that side of the larynx. As regards Case 7 (Armstrong), we were in considerable difficulty. Dr Fraser was much obliged to Dr Logan Turner for kindly seeing the patient with him. The point was that the patient had pulmonary tuberculosis and one did not want to ask Mr Wade to excise the larynx in such a case. Consequently, although the disease was bilateral, he (Dr Fraser) put in radium on both sides. There is now distinct evidence of recurrence of the growth on the left side but not on the right. Here again Dr Fraser did not know whether Mr Wade would consider an excision of the larynx, but that seemed to be the only chance for the patient.

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Dr EWART MARTIN (President) asked about the reapplication of radium if there was a slight recurrence and if there was anything against it.

Dr FRASER said he had never done this and did not think Case 7 a very suitable one for reapplication of radium. He would be glad to hear the opinion of the members. There was again marked ulceration of the left cord and interarytenoid region. Dr Fraser said he understood, in passing, that the conjunction of cancer of the larynx and tubercle of the lungs is supposed to be very rare indeed.

CASE 14. **Rupture of Malignant Thyroid into Trachea**—W. T. GARDINER.—Mr H., aged 47. Shortness of breath for several months and occasional hæmorrhage. No evidence of tubercle bacilli either on examination of chest or of sputum. Latterly commenced to cough up solid material at first thought to be bronchial gland tissue but later proved to be malignant thyroid. Microscopic section and X-ray plates shown.

On direct examination bronchoscope held up shortly after passing through the glottis and nothing could be seen on account of the free bleeding. Limitation of movement of the right vocal cord.

CASES 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24.—Mr J. D. LITHGOW, EWART MARTIN and I. S. HALL.

CASE 15. **Osteoma involving the Left Frontal Sinus followed by Suppuration of the Right Frontal Sinus six months later.**—H. R., aged 30. Left radical frontal operation, followed six months later by right radical frontal. Patient has occasional frontal headaches and attacks of mental depression.

Specimens shown by Dr Logan Turner.

CASE 16. **Osteochondroma growing from the Left Ethmoidal Region.**—Mrs S., aged 62. History of swelling over inner canthus of left eye for six weeks. Radical frontal and ethmoidal operation. Specimens shown.

CASE 17. **Chronic Suppurative Frontal Sinusitis Right Side with Orbital Abscess.**—Mrs E. C., aged 51. Swelling of right eye opened in Eye Department. Found to be an abscess connected with the frontal sinus. Right radical frontal operation.

CASE 18. **Acute Exacerbation of a Chronic Antral and Ethmoidal Suppuration with a Deep Cellulitis of the Face.**—J. G., aged 18. Admitted with history of headaches for two days and swelling of right side of face from the external angle of the left orbit along the zygoma to the ear. Pus pouring from left side of nose. Old history of nasal trouble.

X-ray showed blurring of left antrum and ethmoid, but with normal frontals.

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Intranasal antral and ethmoidal operation, free flow of pus obtained. Two days later incision made over the zygoma. It was found that the pus had leaked through the deep tissue under the zygoma from the antrum.

CASE 19. **Acute Antral and Ethmoidal Suppuration with a Cellulitis of the Left Orbit.**—D. B., aged 16. Admitted with history of headaches for three days with swelling of right eye and marked œdema of both eyelids and conjunctiva.

X-ray showed complete dullness of right antrum and of right ethmoid. Intranasal antral and ethmoidal operation performed under chloroform with a very free flow of pus, but with very little relief to the patient. The following day an external operation was performed, when it was found that the ethmoid was very extensively and widely infected.

CASE 20. **Right Chronic Ethmoidal and Right Frontal Suppuration with ? Œdema of the Orbit.**—J. D., aged 17. Treated by intranasal frontal and ethmoidal operation. Swelling of right eye and side of face has continued after treatment.

For diagnosis and suggestion for any further treatment.

CASE 21. **Bilateral Dental Cyst, simulating Chronic Antral Suppuration.**—Mrs G., aged 60. Swelling and œdema of both upper jaws thought to be antral suppuration.

X-ray and transillumination showed both antra to be dull, but a negative proof puncture on both sides.

Operation showed a dental cyst on either side.

CASE 22. **Fibroma (originating in a Polypus) in the Naso-pharynx involving the Left Antrum with a Chronic Left Antral Suppuration.**—W. K., aged 15. Radical antrum operation, fibroma found. Pathological report:—"Fibroma originating in a polypus."

CASE 23. **Temporosphenoidal Abscess following an Acute Exacerbation of a Chronic Suppurative Otitis Media with an Anterior Perforation of the Tympanic Membrane.**—Mrs S., aged 45. Modified radical operation with drainage of the abscess.

This is the third case shown in the Department where there has been a mastoid involvement following an anterior perforation.

Dr LOGAN TURNER said that Cases 18 and 19 raised a question which had been more than once before this Society in the last two or three years, viz. the cases of inflammatory orbital mischief secondary to accessory sinus disease suitable for intranasal treatment or for the external operation. He held rather strong views on this question because he felt that there was a tendency to-day amongst the younger school to employ the intranasal operation sometimes too frequently. He thought great care should be taken in selecting the case suitable for the intranasal operation.

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He had not seen these two patients before treatment and he did not doubt that the surgeon had his reasons for doing the intranasal operation, but in both the extranasal operation had followed almost immediately.

Dr Guthrie said with regard to Case 20, where suggestions for further treatment are requested, would it be of any advantage, in these cases in which surgical methods appear to have failed, to try local diathermy under careful control, only a mild degree of heat being used? It appears to be of benefit in chronic long-standing suppuration elsewhere.

Case 24. **Case for Diagnosis.** J. K., aged 35. History of swelling over the left mastoid for the last five years. Swelling is now occluding the meatus. No history of discharge and no deafness until within the last three years. Had no pain until two months ago. There is no history of a blow on the ear. X-ray is very indefinite.

Dr Fraser said that this case looked to him like one of chronic middle-ear suppuration with expansion of the mastoid bones. Patients' histories are very unreliable. We cannot be sure that this patient has only had middle-ear suppuration for a short time. We know how often patients say they have never had ear suppuration until a week or two ago and yet when we examine the ear we see cholesteatoma. Dr Fraser suggested that the mastoid should be opened up and the case reported upon later.

Dr Leitch asked if there was any possibility of the case being a chronic sequestrum.

Cases 25 and 26.—B. E. Nesbitt (introduced by J. S. Fraser).

Case 25. P. K., aged 53. First seen 15.12.29 complaining of pain in right ear and right side of neck for five days; blood-stained discharge for three days; purulent nasal discharge for two days. On day of admission, vomiting, giddiness and sweating. Temperature on admission 102° F., pulse 100, respirations 32.

Examination.—Right drumhead red and bulging; purulent rhinitis; complete deafness right ear, spontaneous nystagmus to left; mastoid tenderness present. No stiffness of neck; no evidence of brain abscess. *Immediate operation.*—Leaking of pus in mastoid cells (mixed growth of hæmolytic streptococci and staphylococci); middle fossa dura normal; sinus exposed with gouge and appeared normal; radical mastoid and labyrinth operation; lateral canal prominence healthy but contents congested; wound left open.

19.12.29.—Pain in left foot; hectic temperature; blood cultures negative; ocular fundus normal; cerebrospinal fluid almost normal; patient mildly delirious; no vomiting, rigors or sweating. Dr Logan Turner consulted and agreed that it was advisable to investigate condition of lateral sinus and internal jugular vein.

Second operation.—General anæsthesia: jugular vein ligatured but appeared quite healthy; further bone removed from lateral sinus; vessel appeared quite normal and bled profusely when opened; no evidence of thrombosis.

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20.12.29.—Patient delirious; pain in and swelling around right elbow joint; 50 c.c. of 10 per cent. saline given intravenously; still profuse bleeding from lateral sinus; free bleeding on opening upper end of jugular vein. Conditions found at operation were certainly against the view that these cases of so-called aural bacteræmia or septicæmia are really cases of septic thrombosis of the jugular bulb. Hectic temperature continues but no rigors or sweating.

28.12.29.—Still free bleeding from sinus; both wounds discharging foul-smelling pus. 31.12.29.—Hectic temperature continues; mastoid wound shows bare white bone; still free bleeding from torcular end of sinus; blood cultures still negative. 2.1.30.—Bleeding from lateral sinus ceased. 4.1.30.—Abscess over elbow opened, much pus evacuated. 4.2.30.—Purulent rhinitis still continues and left ear has been discharging for several weeks.

Third operation.—General anæsthesia: Schwartze operation left ear; mastoid cells extensive; mucosa swollen but very little pus.

16.3.30.—Still some thin discharge from left ear; cavity behind right ear closing rapidly.

Case 26. E. R., aged 10. Admitted to medical ward 10.1.30.—Ill for ten days with earache, otorrhœa, occipital headache and vomiting. Admitted to R.I.E. as case of appendicitis. Slight Kernig's sign but no head retraction. C.S.F. clear but under pressure. Patient drowsy.

Examination.—Purulent rhinitis; tongue dry and furred. R.M.T. pink, bulging, with dilated vessels; no mastoid tenderness. X-ray shows very slight cloudiness of right mastoid cells. Developed severe pain inner side of right thigh: radiogram showed nothing abnormal in pelvis or femur.

22.1.30.—Right ear discharging freely. Patient transferred to E.N.T. Department. Hectic temperature, one rigor; no mastoid tenderness; blood culture shows hæmolytic streptococci. *Schwartze operation.*—Few mastoid cells; pus in antrum; sinus far forward but quite normal; wound packed and left unstitched.

27.1.30.—Septic temperature continued in spite of hypertonic intravenous saline; mastoid dressed; sinus still looks healthy. C.S.F. clear; leucocytosis only 10,000. 6.2.30.—Case regarded as septicæmia and sent back to medical ward. Hectic temperature continued; mastoid wound granulating slowly. 22.2.30.—Abscess formed in sacral region, opened. 6.3.30.—Still hectic temperature; no rigors or sweating; abscess formed in left foot. 11.3.30.—Abscess in left buttock. 21.3.30.—Death.

Post-mortem.—Pus in right jugular bulb and in vein and in right lateral sinus as far as superior petrosal. Multiple subcutaneous abscesses—hæmolytic streptococci in all.

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Case evidently one of primary thrombosis of jugular bulb and pyæmia. This condition missed on account of healthy appearance of sigmoid sinus at operation.

Cases 27 and 28.—J. D. Lithgow, G. Ewart Martin and I. S. Hall.

Case 27. **Acute Exacerbation of a Chronic Suppurative Otitis Media with Lateral Sinus Thrombosis followed by a General Septicæmia, Empyema and Lung Abscess.** (*Specimen shown.*) D. McL., aged 7. Child admitted to hospital—temperature 105° F., practically comatose. Radical mastoid operation with ligature of the jugular. Improved for four days, then showed pneumonic signs; developed an empyema which ruptured into the bronchus, followed by spontaneous cure. General condition cleared up entirely.

Case 28. **Acute Suppurative Otitis Media with a Lateral Sinus Thrombosis followed by a General Septicæmia and Multiple Local Abscess.** J. A., aged 43. Readmitted to hospital six days after operation for drainage of both ethmoids suffering from an acute otitis media with mastoid involvement. *Schwartze operation* showed marked cellular mastoid with unhealthy sinus. The operation could not be prolonged to allow of the ligature of the jugular. Patient developed general septicæmia with an abscess in both legs and right knee-joint which were opened separately.

These two cases are shown with a view to illustrating the futility of adopting a fixed procedure in the operative treatment of infections of the lateral sinus.

Dr Fraser said the point for discussion in Cases 25 and 26 was the one which had been raised by Mr Donald Watson—namely, the question of aural bacteræmia. Is there such a condition or are all cases of so-called "aural bacteræmia" really cases of septic thrombosis of the jugular bulb? This question is not yet settled. In the first case (No. 25) Dr Fraser opened the lateral sinus and found it apparently perfectly healthy. He also exposed and divided the internal jugular vein—that also appeared normal. It is true that metastases was present, so that there must have been some blood infection. We regarded the second case (No. 26) as almost a typical aural bacteræmia. The child had a hectic temperature and a positive blood culture but no rigors or sweating. The operation for acute mastoiditis was performed and the sinus exposed; it was apparently perfectly healthy. The case came from a medical ward and afterwards went back to the medical side of the Infirmary. The child lingered on but eventually died. At post-mortem it was found that there was suppuration in the internal jugular vein, jugular bulb and in the lateral sinus. Thus the first case was thoroughly investigated and, though no thrombosis was found, the patient recovered. The second case, in which the condition of the sinus and vein were not investigated, died from septicopyæmia. Dr Fraser said the conclusion appeared to be that in every case of this sort in which hectic temperature continues we should investigate the sinus and

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vein. We know that there is such a thing as spontaneous cure of lateral sinus thrombosis but is it safe to wait in the hope that this may occur?

Dr GAVIN YOUNG thought it was impossible to tell in the early stages, simply by looking at the wall of the lateral sinus, as to whether there was a mural clot, for example, present or not, and he quite thought that, given the slightest necessary indication, one should go for the sinus every time. Dr Young said when he was a clinical assistant with Dr Logan Turner, if Mr Lithgow would allow him to remind him of a case he thought he (Mr Lithgow) would remember—that of a small girl who had had a mastoid operation and who had persistent vomiting for a week or ten days thereafter —inspection of the sinus seemed to show that it was healthy. Eventually the child died and clot was found in the jugular bulb. She had not a swinging temperature by any means, but simply a constant elevation. That case always remained as an indication, Dr Young thought, that it was better to go for the sinus and tie the jugular than to leave the thing and discover the findings post-mortem.

Dr HARPER said he was very sceptical about these cases of aural bacteræmia. He thought that where one got well-marked definite symptoms of what is called septic sinus thrombosis, even although one is unable to make out the clot in the vein, that the sinus should be dealt with.

Dr GARDINER admitted that these cases were difficult. If one felt clinically that the condition was a bacteræmia and not a sinus thrombosis, then one should proceed with whatever remedies one favoured—anti-streptococcal serum, intravenous saline, etc. If, however, in spite of these remedies the temperature continues, then he considered the vein should be tied and the sinus opened, because until this had been done the surgical resources had not been exhausted.

Dr RITCHIE RODGER said with regard to the question of bacteræmia and sinus infection one must remember that the sigmoid sinus and the jugular bulb, although the parts most intimately in connection with the mastoid cells, were not the only parts of the sinus tract which could be infected. There were also the superior and inferior petrosal sinuses, which drain into these, and they might be the seat of thrombosis which was very difficult to find out. He thought he had the pleasure of reporting the first case of what seemed to be a primary thrombosis of the superior petrosal sinus some ten years ago ; at least he could not find any others in literature, though there have been one or two since reported. McEwan says in his book that the labyrinth and deeper parts of the petrous bone drain directly into the superior petrosal sinus. Dr Ritchie Rodger said the case he had was a boy of 12 years who had a spontaneous facial paralysis and also giddiness and was unable to stand. After the mastoid operation was performed the boy continued to have a swinging temperature characteristic of sinus thrombosis. Dr Ritchie Rodger opened the mastoid again and exposed the whole length of the sigmoid sinus, which seemed healthy. He passed a needle and drew a syringeful of blood which was liquid and seemed normal. In view of the temperature he tied the jugular vein, doing no more at that sitting. The blood was examined, and, to his surprise, when it was reported on twenty-four or forty-eight hours later it contained pneumococci, and on that account he took the patient back to the theatre to open the sinus, thinking he was dealing with a mural clot through which

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his needle had passed—a clot not sufficient to obliterate the sinus. On opening the sinus Dr Ritchie Rodger found no such clot. There was only the clean red blood clot which one would expect to find in the sinus after ligating the vein two days before, but when he scooped this out and obtained the usual flow of red blood he saw then a couple of little dark grey clots, like worm-casts, in the flow of blood. These were just the size of the superior petrosal sinus, from which they had been dislodged by the passing blood current. The facial paralysis and the labyrinthitis with giddiness made this interpretation probable, and, unfortunately, it was further supported by the fact that the infection spread the other way and the boy died of cavernous sinus thrombosis.

CASE 30. **Speech Defect (Dyslalia) in a Child**—DOUGLAS GUTHRIE.—D. A., aged 7. Intelligent and healthy child. Tonsils and adenoids removed at three years owing to nasal obstruction and indistinct speech. Speech defect has persisted.

Opinion of members is asked regarding the mobility of palate although symptoms are not those of rhinolalia. Speech defect is difficult to classify. Vowel sounds are correctly produced and also certain consonants. Defect does not definitely concern any one group of consonants, corresponding to one of the stop positions:—

"S" pronounced correctly when it is initial letter of a word.

"M" and "N" likewise only clear as initial letters.

"R" and "G" cannot be pronounced and "F" is often rendered as "th."

Numerals are thus pronounced:—1, tha-oo; 2, two; 3, thee; 4, four; 5, five; 6, si; 7, seven; 8, eight; 9, ni; 10, te.

Exhibitor will welcome opinions regarding the classification of this case and suggestions as to treatment.

CASE 31. **Specimen showing Bone and Cartilage Formation in the Tonsil Capsule**—W. T. GARDINER.—Patient, male, aged 67. Discomfort on right side of throat and a feeling as of a lump. The right tonsil looked congested and was enlarged and on palpation felt densely hard. Considered it probably malignant. Removed both tonsils and diathermied the right fossa after enucleation. Section shows cartilage and bone. The bone section shows Haversian canal systems.

CASE 32. **Series of Cases showing Continuous Dilatation for Laryngeal Stenosis.**—W. T. GARDINER.

Dr MARTIN (President) asked if Dr Gardiner would give the method he used in dilating, and if he would also say whether he cocainised the patient before dilating and how long he left the tube in.

Dr GARDINER (in reply to the President) stated that he administered a general anæsthetic and dilated up rapidly. The dilator was left in one month.

Dr ADAM asked if Dr Gardiner had ever tried Dr Duel's method of electrically heated bougies on these cases. They have had good results in America and it seemed a much simpler method.

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Dr RITCHIE RODGER said he would like Dr Gardiner to say what was the cause of the laryngeal stenosis in these cases. One child had a paper with him which stated that he was intubated for diphtheria at an early age. He would like to know if that was the cause in all these cases, because, if so, he thought the most important thing would be to get the intubation stopped. It seemed to be a procedure which should not be continued. The question was important from this point of view. Dr Ritchie Rodger said he had quite a large area to drain and he never saw those cases of laryngeal stenosis. He had not seen one in a dozen years and intubation was not done in his area at all. Nowadays the anæsthetists ask the laryngologists to show them how to introduce intubation tubes for intratracheal anæsthesia. If that was to be a common procedure in the hands of people who have not learnt to pass a bronchoscope through a laryngoscope with care laryngologists might possibly be getting a great many of these cases of stenosis of the larynx.

In reply to Dr Ritchie Rodger, Dr GARDINER stated that he did not consider that intubation was a cause of laryngeal stenosis. He considered that in certain cases the actual diphtheritic inflammation caused swelling in the subglottic region and the intubation tube kept this at bay until it was removed, when the swelling returned and first acute and then chronic stenosis supervened. In some of these cases the patient was quite unable to retain the intubation tube and tracheotomy had to be resorted to. In some cases the tracheotomy was done hurriedly and the incision was frequently made through the cricoid cartilage. This was another cause of stenosis. Dr Gardiner said that although several cases were shown, several of them were in the nature of legacies and were the collection of the last fifteen years, which really gave a very small percentage. Intratracheal anæsthesia intubation could never cause laryngeal stenosis.

Dr LOGAN TURNER said he wished to supplement what Dr Gardiner had said in connection with Dr Ritchie Rodger's question. The cases in Dr Gardiner's care had suffered from laryngeal obstruction mainly due to diphtheria and had been intubated and subsequently tracheotomatised because the intubation tube would not remain *in situ*. The lesion in those cases was subglottic.

CASE 33. **Case of Pituitary Tumour operated upon by Transnasal Route**—J. P. STEWART.—Male, aged 54. Referred to E. and T. Department, Stirling Royal Infirmary, suffering from severe frontal headaches. Patient had had right eyeball enucleated several years ago. Left eyeball proptosed and sight completely gone. The patient was myo-œdematous, practically bald, and the skin, pigmented yellow, was thick, dry and scaly. Nothing abnormal in nose. Case sent for X-ray examination. X-ray plates showed considerable erosion of roof of sphenoidal sinus and the diagnosis of pituitary was easily made (X-ray plates shown).

Patient admitted. Under rectal anæsthesia, S.M.R. performed, the reflection of the soft layers of septum being continued round from off the bony anterior wall of the sphenoidal sinus, which was then removed by means of punch forceps. The tumour was revealed

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filling the upper half of the sphenoidal sinus as a smooth bluish-coloured rounded swelling. Six tubes of radium (40 mgrms. in all) inserted into the tumour and left *in situ* for 2720 mgrm. hours (X-ray plate shown).

Patient improved after operation. Frontal headaches disappeared and proptosis of the eye grew less.

Admitted three months later in very precarious state. It was decided to operate again as patient had severe headaches over the vertex, although the chance of recovery was remote. Under rectal anæsthesia the posterior third of the septum and the anterior wall of the sphenoidal sinus, now composed of only soft tissue, was removed. The sphenoidal sinus was seen to be full of grey, rather friable, gelatinous-like material. This was scooped out. Apparently the tumour was cystic, because once or twice the nasal cavity would fill up suddenly with greyish fluid which when mopped out did not refill.

The patient died twenty-four hours after operation.

Permission for P.M. examination was refused.

Microscopic sections of tumour after treatment with radium showed extensive necrosis and degeneration—so much so that the nature of the tumour was difficult to ascertain—but the presence of epithelial cells led to a diagnosis of epithelioid tumour.

The case is interesting in showing the effect of radium treatment on the tumour tissues. Apparently the healthy mucous membrane of the sphenoidal sinus was undamaged while the tumour tissue was destroyed.

X-ray photograph of tumour and of radium needles in position in the tumour shown; also microscopic section taken from the tumour at second operation.

CASES 34, 35 and 36.—R. W. MARSHALL (introduced by J. S. Fraser).

CASE 34. **C.O.M.S. (B): Latent Labyrinthitis (L): Radical Mastoid and Hinsberg Labyrinth Operation (L): Modified Radical Mastoid Operation (R).** A. P., aged 32. First seen 25.9.29. Deafness in and discharge from left ear since childhood; for several weeks giddiness and sickness in morning. Right ear has also discharged since infancy and there has been pain in and swelling below this ear.

Examination.—Polypus in left meatus; no mastoid tenderness. R.M.T. shows large marginal perforation; mucosa of inner wall granular. Patient very deaf and does not co-operate; tuning-fork and vestibular tests impossible.

26.9.29.—General anæsthesia; radical mastoid and Hinsberg labyrinth operation left ear; pus and granulations in antrum; fistula in lateral canal, which was merely a gutter; pus in vestibule; promontory removed; wound left unstitched.

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27.9.29.—No nystagmus—this indicated that left labyrinth had been functionless for a considerable time. 1.10.29.—Posterior wound stitched but subsequently broke down. Discharge from right ear still continues; appears to be some hearing in this ear. 22.1.30.—Operation cavity satisfactory on left side.

23.1.30.—Modified radical mastoid operation right ear; antrum full of cholesteatoma; bridge and tympanum left untouched, though attic apparently full of cholesteatoma; wound closed. 27.1.30.—Wound healed. 30.1.30.—Tonsils and adenoids removed. 19.3.30.—Left ear appears satisfactory but operation cavity on right side full of pus.

Case 35. A. W., aged 55. First seen 2.10.29. Had sudden attack of giddiness fourteen days ago and several attacks since. Giddiness and nausea come on when patient looks suddenly sideways. Has become irritable. Discharge from left ear for twenty years. Deafness in left ear for many years. Served in Navy during War and ear bled once following loud explosion near him.

Examination.—R.M.S. cicatricial. Left ear foul pus in meatus. Total loss of T.M. Deaf with noise-box in right ear. Spontaneous nystagmus to both sides (equal). Sways a little (Romberg's test). Cold caloric test—left ear. No reaction after two minutes. Pointing test—inward pointing error with right hand. X-ray shows cells in right mastoid. Left mastoid dense.

8.10.29.—Operation. Radical mastoid and labyrinth (left ear). Translabyrinthine drainage. Mastoid dense—pus and cholesteatoma in antrum. No ossich. Anterior semicircular canal outlined in purple and bony wall thin but no fistula. Canal opened—pus escaped. Promontory chipped off. Lumbar puncture—cerebrospinal fluid cloudy and under tension. Inner wall of vestibule removed. Wire drain inserted. No flow of C.S.F. Pathologist's report on C.S.F.:—"Cells increased, some pus cells present. No organisms."

10.10.29. No fever, no vomiting. No flow of C.S.F. from translabyrinthine drain. Facial paralysis present. Nystagmus to right and slightly to left. Kernig's sign present. Lumbar puncture—fluid under tension and cloudy.

14.10.29.—Lumbar puncture performed daily. Growth on culture from C.S.F. consisted of non-hæmolytic streptococci. 21.10.29.—Less fever. Spontaneous nystagmus to both sides. Free flow of C.S.F. from drain. Lumbar puncture gave clear fluid still under tension. No Kernig's sign. Neck muscles not now rigid and stiff. Margin of optic discs swollen. No dyschadokokinesia.

6.11.29.—Drowsy. Prof. Bramwell advised exploration of left temporal lobe of brain. *Second operation*—Posterior wound extended. Large area of dura exposed. A granulation on the dura extended down into the antrum. Temporal lobe explored. No pus. 9.11.29.

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—Patient had remained lethargic. Nystagmus to right. Cerebellum exposed (Neumann's operation). No pus. 22.11.29.—Wound behind left ear now healing after resuture.

12.2.30.—Small opening behind left ear. Facial paralysis much better. Patient can now shut left eye.

CASE 36. B. G., aged 19. First seen 17.7.29. Complaining of vomiting and giddiness for two months. Discharge from right ear for six years.

Examination.—Pus in right meatus—meatus narrow and contains cholesteatoma. L.M.T. cicatricial. Facial weakness on right side. Hears whispers at 2 feet in left ear. Raised voice heard in right ear at 1 foot. Hears nothing with noise-box in left ear. Schwabach lengthened. Weber lateralised to left. Spontaneous nystagmus to left. Rotation to right and left produced nystagmus for fifteen seconds in each case. No fistula symptoms. Blood count. Increased polymorph.

23.7.29.—*Operation*—Radical mastoid operation. Antrum contained pus and granulation. No ossich found. Lateral canal prominence gone and promontory eroded. Facial nerve lying free above oval window. Canals opened and promontory chipped off. The labyrinthine capsule was a sequestrum and could be coiled. This sequestrum was not removed. 27.7.29.—Nystagmus and facial paralysis more marked. 28.7.29.—Patient rapidly developed coma. Anæsthesia of right cornea and limbs on right side flaccid. 28.7.29. —*Second operation* — Sequestrum removed consisting of canals, vestibule and part of cochlea. Deep cavity lined by granulation. Spontaneous respiration ceased. Cerebellum exposed and large abscess opened. Occipital bone nibbled away till opening about 1 inch in diameter. Another opening made into abscess posteriorly. Gauze drain placed in each opening into the abscess. Pus contained Gram-negative cocci and diphtheroid bacilli. There was no growth obtained from cerebrospinal fluid. 29.7.29.—Patient much better—conscious; respiration normal. Nystagmus to both sides—most marked to right side. 30.7.29.—Respirations 10-12 per minute. Abscess dressed. Pus on removing drain. Gauze drain reinserted.

30.8.29. —Temperature normal. No discharge from abscess. Wound granulating. Facial paralysis as before. Nystagmus still present.

30.9.29. — Post wound healed except in central part. Facial paralysis present. Spontaneous nystagmus to right and left.

4.10.29.—Readmitted from Convalescent Home. Severe headache and vomiting. Temperature 99° F. Right optic disc blurred. Post wound opened. Cerebellum exposed and explored—no pus. Lumbar puncture — fluid under pressure and opaque. 5.10.29. — Lumbar puncture—fluid under pressure and turbid. Patient unconscious.

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Died 9.30 P.M. Cerebrospinal fluid. Film showed Gram-positive cocci and streptococci. On culture hæmolytic streptococci were grown.

Post-mortem.—Acute septomeningitis. Pus in pia arachnoid at sylvian fissure and at base.

Abscess in cerebellum and a daughter abscess in cerebellum which had not been opened at operation.

CASE 37. J. S. FRASER.—Miss I. First seen 27.2.30 complaining of recent coryza, sore throat and pain in right ear.

Examination.—R.M.T. red, desquamating and bulging; mastoid tenderness present; temperature 100° F. 3 P.M.—Ethyl chloride given and paracentesis performed—pus and gas escaped. Patient did well until 6.20 P.M., when she was violently sick and giddy and said the room was going round. 28.2.30.—Giddiness still present; well-marked nystagmus of first degree to the left; patient quite deaf with noise-box in right ear. Consultation with Dr Logan Turner, who agreed that acute labyrinthitis was present; further operation considered necessary.

Second operation.— General anæsthesia: radical mastoid and labyrinth operation. The mastoid cells contained pus right down to the tip; sinus and middle fossa dura normal; tympanum contained pus under tension; lateral canal healthy. Lateral canal opened up—contents deep red. Promontory removed; wound left unstitched.

1.3.30.—Temperature normal, pulse 80; nystagmus as before; no facial paralysis. 10.3.30. — Posterior wound stitched; cavity treated by drops of scarlet red in spirit. 25.4.30.—Operation cavity looks satisfactory.

Note.—The interesting point is the onset of labyrinthitis in spite of paracentesis.

CASES 38, 39 and 40.—J. P. STEWART.

CASE 38. **C.O.M.S. (L) with Polypus: Necrosis of Labyrinth: Meningitis: Radical Mastoid and Hinsberg's Labyrinth Operation: Exploration of Cerebellar and Temporal Lobes: Translabyrinth Drainage: Recovery.**—T. G., aged 15. 14.1.30.—Admitted 2 A.M. to R.I.E. Became ill at work this morning. Felt very dizzy and vomited. All day when he tried to stand fell to left side. Very severe headache. Left ear has discharged since childhood.

Examination.—Patient only semi-conscious, and even on shaking cannot be roused. Lies curled up on his right side. Definite head retraction and Kernig's sign present. Babinski's extensor response present on left side. Abdominal reflexes absent. Patient's body rigid, and when turned on his back he still resumes the hoop-like attitude. The eyelids were closed, and on retracting them the pupils are contracted but retract to light. The eyeballs also swung over to the left side. No marked optic neuritis. Temperature 99·5° F., pulse

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80. A polypus presented at the left external meatus. It was decided to do an immediate operation and be guided by what was found.

General anæsthesia: radical mastoid operation performed. Mastoid antrum full of unhealthy granulations. Promontory of lateral canal black and necrosed. Double vestibulotomy performed. An offensive odour smelt on opening up the labyrinth. The sigmoid sinus exposed and the walls found reddened. Bone removed in front of sigmoid sinus over Trautmann's triangle. The dura appeared healthy but very tense. Middle fossa dura was exposed and found discoloured and tense. It was decided to explore the brain for a possible abscess. Cushing's trocar and cannula introduced through the dura in front of the sigmoid sinus overlying the cerebellum. After thorough exploration no abscess located. The temporal lobe was similarly dealt with, with negative results. Lumbar puncture performed—fluid under great pressure and turbid. Total cell count 2000 per cm., mainly polymorphs. Globulin was increased +++. Lange's colloidal gold reaction was 001,1232,110 (meningitic curve). No organism seen on direct films or culture.

14.1.30.—Noon. Translabyrinthine drainage of the cerebrospinal fluid performed. Good flow of almost purulent C.S.F. obtained. Wire drain inserted. 17.1.30.—Lange's curve shows 000,2321,000. 20.1.30.—Dressed daily. Fluid draining well through the labyrinth. Daily lumbar puncture also done. Wound showing signs of reaction and the neck much less stiff. Kornig's sign almost disappeared. 24.1.30.—Wire drain removed. C.S.F. has ceased to issue from labyrinth. 30.1.30.—Secondary suture of mastoid wound.

11.2.30.—Discharged.

10.4.30.—Readmitted with acute tonsillitis. Temperature 104° F., pulse 120. 24.4.30.—Tonsils and adenoids removed. 26.4.30.—Discharged.

CASE 39. **Series of X-ray Photographs from Two Cases (Sisters) of Bilateral Congenital Bony Atresia of the Choanæ: Nose has been injected with Lipiodol.**

CASE 40. **Plastic Operation on Nose after "Falling In" of Bridge following Submucous Resection of Septum.**—Female, aged 24. Underwent operation for S.M.R. at another hospital three years ago. Shortly after noticed that the bridge of her nose had fallen in.

1.5.30.—Under chloroform anæsthesia vertical incision made over tip of nose. Submucous elevator introduced and tunnel made on to apex of nasal bones. Ivory graft introduced. Incision stitched. Healed by first intention. (Ivory graft sterilised in boiling water for half an hour, then soaked in spirit for twenty-four hours.)

The PRESIDENT said Dr Stewart must be congratulated on the good result in this case.

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CASE 41. **Acute Exacerbation of a Chronic Otitis Media with a Temporosphenoidal Abscess followed One Year later by a Meningeal Cyst.**—C. E. SCOTT.—G. N., aged 7. Modified radical operation with drainage of the temporosphenoidal abscess. Recovery satisfactory. One year later child admitted with large meningeal cyst which was opened.

Dr C. E. SCOTT said that in this patient he had some trouble with the drainage of the abscess cavity. Some days after operation a pocket of pus caused a series of convulsive fits. After this was evacuated convalescence was uneventful. On admission a year later her condition was very similar to that when first admitted; she was just conscious and had Jacksonian-like fits. On opening up the old operation wound a meningeal cyst was found occupying the bone cavity. This was excised and the patient recovered. Apart from a slight aural discharge she has been quite well since.

CASE 42. **Treatment of Chronic Deafness by Baths. A Suggestion for Trial in Suitable Cases.**—JAMES ADAM.—H. McG., aged 42. Complained in December 1927 of progressive deafness in left ear for two years. No obvious retraction or thickening of membranous tympanum.

Right, W.V. across room (say 15 feet). *Left*, 5 feet.

29.1.28.—Treated by catheter and bougies and inflation for a year with the reverse of improvement.

5.11.29.—*Right*, W.V. 5 feet. *Left*, 2 feet.

Ordered hot baths with 1 lb. of commercial Epsom salts to the bath; fifteen minutes' immersion at bedtime every second night for a week, only one bath the next week, and so on during alternate weeks.

12.11.29.—	*Right*, W.V. 15 feet.	*Left*, 9 feet.
17.12.29.—	*Right*, W.V. 12 ,,	*Left*, 9 ,,
18.2.30. —	*Right*, W. 40 ,,	*Left*, 36 ,,
	W.V. 15 ,,	15 ,,

When he cut down baths to one in ten days he noticed his hearing deteriorate, and is now taking one weekly.

Note—Baths make patient sweat profusely. The treatment has been tried in several cases of pronounced deafness without benefit except one where a woman who could not hear shouting with either ear became able to hear C.V. at 18 inches with one ear. It also promptly abolished persistent tinnitus in a man of 29.

Dr ADAM said this suggestion was based on success obtained in cases where usual treatment by catheter, bougie, etc., had failed. In the case detailed in the billet there was no tinnitus but some tubal obstruction and later in the history some indrawing of the membrane. Self-inflation (Valsalva) became easy after patient began the baths, and if he neglected baths for more than a fortnight hearing deteriorated. Another patient, a lady of 33 years, came in 1922 complaining of tinnitus in left ear with slight

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decrease of hearing in that ear (watch, 3 feet). Notwithstanding various modes of treatment, as well as S.M.R. of the septum and removal of septic tonsils, tinnitus and deafness got worse, affecting both ears. On 16th May 1930 whisper on right side was at 8 feet; on left at 18 feet. After a short course of baths the figures were 21 feet and 25 feet. Tinnitus not improved. In a subacute case tinnitus and deafness vanished within one week. In another case of a man of 64 who had acquired syphilis thirty years ago but whose W.R. is now negative, whose right membrane was dull and indrawn, and in whose left ear the membrane is gone and the ossicles embedded in cicatrix, the hearing for conversation on 31st March 1930 was 4 feet on right, and 4 feet on left. After baths, 10 feet and 2 feet. In a girl with congenital syphilis the hearing on 15th May was, for conversation in each ear, 4 inches. After a course of baths conversation voice on 29th May was heard at 10 inches and 9 feet. In two cases of Ménièrism there was little improvement and none in a case of otosclerosis.

Dr Adam reported that where the baths fail to produce sweating there is no improvement. To this end a pound of commercial Epsom salts was added to each bath and seemed to help—a patient thought doubling this quantity promoted the flow of sweat. Fifteen minutes was duration of the bath. The success of the treatment in the two syphilitic cases was surprising; it looked hopeful for less chronic cases of "catarrhal deafness" than the first two mentioned and might be of value in early cases of Ménièrism, for after the profuse sweating produced in the attacks of that disease the hearing improves at once. The method seems worth a trial, for every known method had been tried previously in the cases recorded.

Dr MARTIN (President) asked if Dr Adam took any special type of case.

Dr HOWIE asked if the treatment had any effect upon noises.

Dr ADAM said he had not as yet tried the treatment longer than six months. It did not help unless sweating was produced. It did not help a case of otosclerosis; it did not help tinnitus in chronic cases but it vanished it in a subacute case. Dr Adam said he did not know of Dederding's paper on Ménière's disease until a month ago, but one may find there support for this treatment.

CASE 43. **Partial Thrombosis affecting Supply of Left Inferior Cerebellar Artery: Dysphagia** — T. J. WILLIAMS (introduced by J. S. Fraser).—T. D., aged 54. First seen 23.4.30 complaining of difficulty in swallowing for one week.

Examination.—Slight ptosis of left eye; slight narrowing of palpebral fissure on left side; very slight facial weakness; slight tendency for palate to move to right. Direct laryngoscopy shows collection of saliva in the glosso-epiglottic fossa and at the sides of the larynx. No swelling or pain at root of neck on either side.

24.4.30.—Direct œsophagoscopy with the aid of local anæsthesia; frothy saliva sucked out and œsophagoscope passed without any difficulty through the hypopharynx into the œsophagus; no growth seen but all the way down the mucous membrane showed a catarrhal condition.

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25.4.30.—Patient examined by Professor Edwin Bramwell, who reported:—"Almost complete inability to swallow; articulation a little thick; no weakness of palate; left pupil rather smaller and left palpebral fissure rather narrower than right; very slight left peripheral facial weakness; no diplopia; no nystagmus; right-sided hemianalgesia including right side of face; grasps—right, 170, 180; left, 160, 160 (right-handed); no inco-ordination upper limbs; right knee-jerks greater than left; right plantar indefinite, left definitely flexor; heart sounds pure; pulse regular; B.P. 104 and 64.

"*Diagnosis.*—A thrombosis affecting part of the supply of the left inferior cerebellar artery. The dysphagia in these cases is often very persistent." W.R. negative.

CASE 44. **Case for Diagnosis**—R. S. VENTERS (introduced by J. S. Fraser).—Mrs M. R., aged 42. First seen 19.3.30 complaining of giddiness for two months. Patient has not fallen down but tends to sway to left. No pain in ears and no otorrhœa. No recent vomiting.

Examination.—Drumheads normal. Patient hears well. Watch not heard on forehead or right mastoid but heard on left mastoid. Watch heard at 1 inch right ear. Watch heard at 3 inches left ear. C. 32 heard both ears. C. 4096 heard both ears. No spontaneous nystagmus. No spontaneous pointing error. Nose, fauces and pharynx—nil. Abnormal. Knee-jerk present. Cold syringing left ear—no reaction in two minutes. Cold syringing right ear—no reaction in two minutes.

21.3.30.—Spontaneous nystagmus on extreme movement to right and left but none on looking up and down. Slight swaying—Romberg's test. Rotation to right or left produced no nystagmus.

24.3.30.—Cold syringing right ear—no nystagmus but pointing error to right with both arms afterwards.

Cerebrospinal Fluid.—Cells, 1 per c.c. Globulin no increase; no pus cells; no organisms; no growth on culture.

W.R.—Negative in blood; weak positive in cerebrospinal fluid.

Examination by Professor Bramwell.—No organic disease detected. Whole picture accounted for on basis of a neurosis.

Examination by Dr Arthur Sinclair.—6/6 each eye with some hypertropic astigmatism. The fundus oculi show no abnormal changes.

28.3.30.—*Second Examination by Professor Bramwell.*—No evidence of any organic condition of nervous system or elsewhere to account for giddiness. Now practically free from giddiness and feeling well.

DR FRASER said that this case was one in which they would be glad of some help. The point was that Professor Bramwell apparently thought the case one of neurosis. Both ears failed to react to cold syringing. The rotation test was also negative. Was that compatible with a diagnosis of

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neurosis? Dr Fraser understood that some normal people do not react to the rotation and caloric tests but he had never met with such a case.

Dr ADAM suggested that the case was one of Ménière's disease.

Dr HALL said Dr Venters had shown a case of more than ordinary interest, considered from the aspect of investigation of the vestibular function, and there were one or two points one would be glad to have amplified. The first concerns the production of pointing error on syringing. A conjugate deviation of the arms implies a vertigo. The pointing test being of the nature of a psychological phenomenon and not a neurological test, as it is the conscious response of the patient to a sensation of giddiness, one may suppose that the reaction of the arms was in response to a giddiness. If this assumption is correct, it would be interesting to know whether there was at this time any falling reaction, such as one would expect with a systematic vertigo, and also if it was influenced by alteration in the position of the head, as would occur in vertigo of labyrinthine origin.

Dr Hall said the second point which interested him rested upon the localisation of the lesion. If it be assumed to be central, one may take it that the most likely position for a bilateral lesion is at the grouping of the peduncles—*i.e.* at the uppermost part of the floor of the 4th ventricle or in the floor of the aqueduct just above. We will leave aside for the sake of argument the difficulty of reconciling such a lesion with a lack of evidence of involvement of the 3rd and 4th nuclei, which would almost certainly be involved. If the disease be at the point suggested, one is prompted to ask whether in this case Professor Tait's tilting table tests would not give real help. These tests depend upon the continuity of the connections between the vertical canals and the equilibrating tracts, in particular the vestibulo-spinal. Although physiology is somewhat vague on this point, in this case, assuming the lesion to be at the point indicated, the path concerned in the tilting table tests, which is through the lower part of Dieters' nucleus, or even omitting Deiters' nucleus, direct to the vestibulo-spinal tract, would fall below the level of the lesion and one ought to find the balancing reactions of the vertical canals intact. This would afford a satisfactory explanation of the interruption of the ocular connections which would naturally follow upon any interference with the posterior longitudinal bundle, at the level indicated.

Dr FRASER (in reply) said he would be very glad indeed if Dr Hall would investigate this case with Tait's table, which they possessed in the Department. If Dr Hall would look up the book by Braun and Friesner he would see that, in theory, a lesion in the posterior longitudinal bundle might permit the production of a pointing error after stimulation of the canals although there was no nystagmus. It was very difficult, however, to believe that there could be such an extremely localised lesion.

CASE 45. **X-rays of Three Cases showing Foreign Bodies in the Maxillary Antra.**—J. D. LITHGOW, G. EWART MARTIN and I. S. HALL.

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