We have here a case considered hopelessly insane for over twenty years and which gave no indication of a real pathological condition, possibly existing during the whole period, but which, once demonstrated, affords a clear insight as to the cause of the man's mental symptoms.

My thanks are due to Dr T. C. Graves and Dr H. E. Brown for the clinical notes of the case.

SOCIETIES' PROCEEDINGS

SCOTTISH SOCIETY OF OTOLOGY AND LARYNGOLOGY

TWENTY-NINTH MEETING, EDINBURGH

May 18, 1929

President—Dr Ross Souper

Case 1. **Atrophic Rhinitis after Treatment.**—Dr John Donald.

Dr John L. Howie wondered what the condition had been which led Dr Donald to consider this a case of atrophic rhinitis. It did not look very typically atrophic: there was no crusting and no undue atrophy of the inferior turbinals. They would be very glad to hear the nature of the treatment.

Dr Donald said he had brought this case of atrophic rhinitis from Glasgow to show at this meeting because as they were all aware very little could be done for the disease in the way of cure; indeed he could truly say that after eighteen years' hospital experience he had never seen a surgeon do any good for this disease, except in so far as a patient may be guided as regards irrigation of the nostrils to keep down the foul condition to a minimum.

There was one form of atrophic rhinitis which might be put right by surgical operation, *i.e.*, where there was a septal deflection. The physical condition where there was too much space on one side could be easily understood: by removing the cartilage one reduced the airway on the concave side.

Treatment adopted:—The high frequency current from an X-ray coil of sparking distance 16 inches was used. The patient sat on the condensation couch. The operator held one wire from the top of the solenoid in the left hand and with the right hand supported a glass vacuum electrode in one nostril—the operator being thus placed in the

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circuit. A current of 100 m.a. and spark gap 1 cm. was used. One nostril was treated after the other each time and the sitting lasted twenty minutes. Fewer sittings than twenty were given. Some improvement was observed after even one treatment. Only one treatment has been given within the last four months, and douching for the last eighteen days has been purposely stopped so that there could be no question of the patient having washed out the nose before examination.

The method of action Dr Donald considered was not bactericidal but stimulating, the current acting on the blood supply and local nerve mechanism. He thought it was a most happy result and the patient was extremely well pleased.

CASE 2. **Trauma to Head: Acute Mastoiditis: Operation with Injury to Lateral Sinus. Septicæmia**—Dr D. R. PATERSON (introduced by Dr J. S. Fraser).—T. C., aged 46, labourer. No previous history of ear trouble. Three weeks ago sustained a fall against a goalpost. Two weeks ago clear watery discharge from right ear with commencement of pain in ear. Seven days ago increase in pain prevented sleep. Purulent discharge from ear.

12.11.28.—On examination, pus in meatus—anterior perforation R.T.M. Definite tenderness mastoid apex. X-ray cloudiness of mastoid cells on right side.

13.11.28.—Schwartze operation. Cortex normal. Pus in mastoid cells. Bone very soft. Middle fossa dura and sinus exposed—both normal. In curetting tip of mastoid escape of sinus blood. Temporal muscle used as plug. Antrum freely exposed and zygomatic extension of cells followed up. Cavity packed.

14.11.28.—It is remarkable that on the day after the operation at which the sinus was injured the patient had already a marked rise of temperature, with a dry, brown furred tongue.

15.11.28.—Profuse sweating at night. Blood culture revealed hæmolytic streptococci. W.B.C. 14,000.

16.11.28.—Rigor during night. Right internal jugular vein exposed in neck and divided between ligatures. Removal of bone overlying sinus in its horizontal part and packing inserted.

Intravenous saline 50 c.c. B.I.D. instituted.

20.11.28. Septicæmia still marked. Red blotches over body.

Formation of abscesses followed, and for about a month patient had to be watched for "quiet" foci. These abscesses formed in cellular tissues and joints.

On 15.3.29 patient was discharged to convalescent hospital and has made excellent progress since.

Patient is awaiting plastic operation.

Dr R. A. GRAY said he would like some further information on this case. He asked why a muscle plug was used at the time of trauma. Was the type of organism discovered at the time of operation and was it the

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same as in the abscesses which formed. The other point—the marked rise in temperature—could the thrombosis not have been present at the time of trauma.

Dr M'CAY said he would like to know what plastic operation was intended here, as he had had one or two similar cases where the result of plastic operation was not very satisfactory.

Dr PATERSON (in reply) said that it had been asked why a muscle plug was used at the time of operation. This treatment was a recognised means of promoting hæmostasis, especially in head operations. Muscle tissue was said to be especially rich in thrombokinase, which is an active factor in producing clotting.

Was the organism found at operation? Yes, a culture was made from a swab and the same type of organism was found as was recovered from the blood, namely, the streptococcus hæmolyticus.

Could there have been thrombosis at the time of trauma? The sinus was exposed and appeared to be healthy at the time of operation. It was no doubt possible that a clot might have been present at operation. The history was very interesting and the question was raised as to whether mechanical trauma had a place in the etiology of mastoiditis as it had in inflammation at the ends of long bones in children. Of course the temporal bones and the long bones in children cannot be compared in their type of blood supply after the age of one year when the suture between the squamous and petrous portions are said to unite. As to the plastic operation which was used, perhaps Dr Fraser would be so good as to say what operation was to be done.

CASE 3. **Bilateral Pansinusitis** — Dr R. PATERSON (introduced by Dr J. S. Fraser).—A. W., aged 38, electrical engineer. Long history of nasal trouble and various operations done before admission to Royal Infirmary, Edinburgh. Main complaint pain.

Double radical frontal operation with clearing out of both ethmoids and sphenoids—much pus and polypoidal mucosa. Blood examination revealed positive Wassermann. Examination of C.S.F. showed R.B.C. increase and globulin present. Convalescence uneventful. Salvarsan given intensively. Wassermann C.S.F. negative. Headaches still present. Openings into sphenoid quite patent.

In this case it was considered quite useless to do any further nasal operating since pain is probably due to syphilis of brain or meninges.

Dr LOGAN TURNER said that he had asked this patient whether he thought that the operation had improved his headache; his reply was that he considered operation had practically cured it.

Dr PATERSON (in reply) said it was some time since the case had been seen and at that time the patient's headaches were severe and had not apparently been greatly benefited by operation. In the light of the positive Wassermann reaction it was thought that the patient had a specific lesion of the meninges, such as circumscribed meningitis described by the authorities. The septic process in the sinuses had apparently been the cause of the head pain and consequently had been cured by operation.

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CASE. 4. **Double Frontal Sinus with Fracture of Superior Maxilla and Frontal Bone: Operation**—Dr A. B. SMITH (introduced by Dr J. S. Fraser).—J. K., aged 34. Admitted to general surgical ward, on 5.2.29, with history of having fallen 25 feet down a pit shaft and of having received a blow on the head. Four days after admission developed an orbital cellulitis of left eye. X-rays showed a fracture of the frontal process of left superior maxilla extending up into frontal sinus.

On examination on 27.3.29, there was pus seen on right and left sides of the nose with pus in the right olfactory cleft. Polypoid right middle turbinal. Sinus exuding pus on inner canthus of left eye with swelling of left upper eyelid. X-ray examination showed both frontals, both ethmoids, and right antrum dull.

Operation—2.4.29. Killian incision on both sides with transverse incision across the root of the nose. Floor of left frontal sinus removed first and sinus found to be full of pus and œdematous mucosa. The fracture of the frontal process extended up into the sinus and so the anterior wall was removed and the sinus obliterated. Similar condition found in right frontal but septum between right and left sides was intact. Anterior wall and floor of right frontal sinus removed along with intervening septum and the ethmoido-frontal cells. Cavity packed with iodoform gauze and stitched up.

Convalescence uneventful. Packing removed on 4.4.29.

18.4.29. Submucous resection of the septum and turbinotomy.

The PRESIDENT thought Dr Smith was to be congratulated upon the result of this case. The President liked the phrase "convalescence was uneventful."

CASE 5. **Orbital Cellulitis with Frontal Sinus Disease: Operation**—Dr A. B. SMITH (introduced by Dr J. S. Fraser).—J. W., 14 years. Patient was admitted to the Eye Department, on 30.4.29, with a history of swelling of the left eye of three days' duration. No cause could be given, but she had had an attack of scarlet fever three months previously. There was a marked orbital cellulitis on the left side. An incision was made in the upper eyelid and two narrow drainage tubes inserted. She was then transferred to the Ear and Throat Department, and it was found that there was pus in the left middle meatus. X-ray examination showed the left frontal sinus and left antrum dull.

Operation (Dr J. S. Fraser), 2.5.29.—General anæsthesia. Left middle turbinal removed and ethmoid opened up. Killian's incision on left side down to bone, and periosteum retracted, when it was noticed that pus was coming through the floor of the frontal sinus at a point more lateral than usual. The floor of the sinus, frontal process of the maxilla, and the paper plate of the ethmoid were removed

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and a free opening made into the nose. The mucous membrane of the sinus was not curetted. The cavities were lightly packed with iodoform gauze and the wound closed with stitches. A fresh drainage tube was inserted into the abscess opening in the left upper eyelid. The tube was removed on the 4th and the packing on the 5th.

The organism found in the pus from the sinus proved to be a hæmolytic streptococcus.

Dr HARPER suggested that this case be shown again at the next meeting of the Society. It appeared to him that the operation had not been sufficiently radical and he would be surprised if something further would not require to be done.

Dr LOGAN TURNER said that the point which interested him was the reference in the notes to the lateralised position of the carious opening in the floor of the frontal sinus. It was more frequent for the floor to give way towards the inner canthus, but occasionally a case occurred in which the floor extending outwards gave way towards the external angular process. He (the speaker) showed a case at this Society four years ago in which the ophthalmic surgeon had regarded the orbital swelling as due to inflammation of the lachrymal gland on account of its lateral position in the orbit. On opening the abscess the hole in the floor of the frontal sinus was found near the external angular process. The presence of such openings pointed to the wisdom of employing the external operation in many cases of orbital cellulitis. He thought there was a tendency to the too frequent carrying out of intranasal methods in such cases.

Dr FRASER (in reply) said Dr Harper might be right about further operation being required. If the case had been one of chronic frontal sinus suppuration then, undoubtedly, he (the speaker) would have done the obliteration operation as in cases No. 3 and 4. This, however, was a case of acute frontal sinus suppuration following scarlet fever. As the patient was a female, he did not want to cause any flattening of the forehead on one side if it could be avoided, and so he did what was called the "Howarth" operation. The weak spot of the Howarth operation was this—between the orbital tissues and the anterior part of the cribriform plate the opening was very narrow and drainage may be poor. He had been watching the case for any redness and swelling over the line of incision but so far there had not been any. The swelling was going down slowly. It would perhaps have been better if he had got the case before a knife had been plunged into the orbital tissues. There now seemed to be some paralysis of the levator of the upper eyelid.

Dr GAVIN YOUNG said with regard to what Dr Logan Turner had said about these orbital cellulitis cases treated intranasally he had come round to the opinion Dr Turner had expressed to-day with regard to the cases which were shown several years ago at the Victoria. He (the speaker) had dealt with a number since then and he thought in almost every case he had done an external operation. With regard to the Howarth operation, he had met with this difficulty in several cases, and indeed in one case, the girl had had her frontal sinus opened twice or three times because the

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opening of the sinus ostium became occluded by the pressure of the orbital fat entirely blocking the ostium. He did not feel confident that they had seen the end of this particular case.

Mr DONALD WATSON said with regard to these acute frontal sinus conditions, he thought it was absurd to say that they must do an external operation in every one of them. He had treated several now simply by resecting the septum and removing a portion of the middle turbinal and the suppuration had cleared up.

The PRESIDENT said he thought the intranasal operation should be considered first of all before attempting the external one.

CASES 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 17A, 18, 19, 20, 21, 22, 23, 24.—Dr J. S. FRASER.

The following case records are those of all patients treated by the exhibitor by means of radium therapy. They are arranged under the following headings:—Nose and Paranasal Sinuses, Tonsil and Base of Tongue, Oropharynx, Nasopharynx, Ear, and Larynx.

Before the year 1926 radium was only available in Edinburgh in the form of capsules, somewhat of the size and shape of a small date stone. This form was quite unsuitable for the treatment of malignant disease of the upper air passages and of the ear. Since 1926, however, radium needles of 0.5, 1.0, and 5.0 mgrms. have been supplied and have been found of great advantage. It will be noticed that the best results have been obtained in cases of intrinsic cancer of the larynx, *i.e.*, in that variety of malignant disease which is also most suitable for surgical intervention. From a limited experience, however, the exhibitor has come to the conclusion that the results obtained by radium treatment of intrinsic cancer are superior to those following thyrotomy. The exhibitor hopes to show the apparently successful cases from year to year and also to bring before the Society any fresh cases of malignant disease treated by radium.

All patients, or their doctors, have been written to, asking for further reports. Only in Case 17 has no report been obtained. The patient came from Shetland.

The screening is given in each case.

CASE 6. **Extensive Malignant Disease of Nose, Sinuses, Palate, and Pharynx** (see *Journal of Laryngology and Otology*, 1928, Vol. xliii., p. 756). — R. F., aged 52. Case shown at Meeting of Scottish Society in May 1928. On 24.4.28 four radium needles, each 0.5 mgrms., were inserted for forty-eight hours, screening 0.5 mm. platinum; also two needles, each 5 mgrms. for forty-eight hours, screening 1 mm. platinum, *i.e.* 576 mgrm. hrs.

Further Reports—6.6.28.—Patient readmitted: there are still nodules on the left side of the septum; the tumour of the palate has

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disappeared and the forehead is quite flat. 7.6.28.—Radium needle, 0.5 mgrm., inserted into left side of septum and retained for forty-eight hours, screening 0.5 mm. platinum, *i.e.*, 24 mgrm. hrs. Total dose—600 mgrm. hrs.

20.8.28.—Definite recurrence in the skin over the right eyebrow, also enlarged glands in submaxillary region. 3.9.28.—Swelling over right eyebrow now the size of a hen's egg. Further radium treatment regarded as hopeless: patient to be treated by deep X-ray therapy. 24.10.28.—In spite of this treatment the swelling over the right eye has increased enormously and another swelling had formed in front of the right ear and below the right side of the mandible. A further tumour growth can be seen coming down behind the soft palate. 30.11.28.—A swelling has formed over the sterno-clavicular joint on left side; swelling of hard palate has re-formed. Patient's doctor reported that he died on 2.3.29. His head and neck were frightfully swollen at the finish and also the glands in the groin.

Case 7. **Malignant Disease of Antrum and Nose treated by Radium Needles.**—Mrs E. P., aged 72, first seen 18.1.29. Patient operated upon by another surgeon in South Africa in October 1928. Pathologist's report: basal-celled carcinoma.

Examination.—Left nasal cavity contains reddish-pink growth with uneven surface; growth reaches the left choana; right antrum illuminates, left one dark.

26.2.29.—General anæsthesia: left antrum opened as in Caldwell-Luc method and found to be full of growth; 10 mgrm. tube of radium inserted (screening 1.5 mm. platinum) and left in for four days. Pathologist's report on tissue removed, same as above.

28.2.29.—10 mgrm. tube of radium inserted (screening 1.5 mm. platinum) into intranasal section of growth, by Dr Gardiner, and left in for four days. At the end of this period there had been 960 mgrm. hrs. of radium irradiation into both the antral and nasal portions of the growth.

7.3.29.—Local anæsthesia: piece removed from anterior end of left inferior turbinal to give access to the antrum—note that part of the medial wall of the antrum had previously been removed in South Africa. 25.3.29.—Left side of nose still blocked. 26.4.29.—Growth still present in nose. Radiologist advises waiting before further treatment.

Case 8. **Bleeding Polypus of Nose.**—D. M., aged 56, first seen 3.5.28, complaining of epistaxis.

Examination showed a large bleeding polypus, high up, apparently on roof of nasal cavity, on left side: septum deviated to the left.

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10.5.28.—Submucous resection of septum: thereafter polypus appeared to be growing from the roof of the nose, about the level of the nasal bone. It was removed with a snare and the base curetted. Pathologist's report: angioma; no evidence of malignancy.

15.5.28.—One radium needle, 5 mgrm., inserted for twenty-four hours, screening 1 mm. platinum, *i.e.*, 120 mgrm. hrs. Needle kept in position with packing. 1.6.28.—Left nasal cavity looks well: no recurrence of tumour. 9.5.29. — Patient's doctor reports, "area soundly healed and no evidence of recurrence."

CASE 9. **Sarcoma of Right Tonsil treated by Radium in Capsule Form.**—Mrs E., aged 51, first seen 15.3.22, complaining of a "lump" in the throat of five weeks' duration.

Examination.—Right tonsil enlarged and ulcerated, edges not hard; slight glandular enlargement in neck. Bacteriological report: fusiform bacilli and spirochætes of Vincent with other organisms. Wassermann reaction negative. Iodine paint prescribed.

28.3.22.—Ulceration has increased: operation advised but refused 25.4.22.—Right tonsil removed by another surgeon but it was found that disease extended down towards the hypopharynx. Pathological report: sarcoma showing active growth.

18.5.22.—Capsule of radium inserted into anterior pillar and soft palate: dose unfortunately not noted but tube kept in position for nine days. 12.6.22.—Growth still present. The patient did not report again but her doctor stated, in May 1929, that she "died some years ago: in spite of temporary alleviation the disease progressed."

CASE 10. **Sarcoma of Tonsil treated by Radium Tube** (see *Journal of Laryngology and Otology*, 1926, Vol. xli., p. 681).—A. P., aged 15. Case shown at Meeting of Scottish Society in June 1926.

Further Reports—12.10.27.—There is a slight cleft palate voice. 10.10.28.—Throat condition satisfactory.

CASE 11. **Malignant Disease of Tonsil and Base of Tongue treated by Diathermy and Radium Needles.**—J. C., aged 44, first seen 26.9.27 complaining of sore throat of seven months' duration, with slight difficulty in swallowing. Patient operated upon in Canada two months before admission. Report by Canadian pathologist: squamous epithelioma.

Examination.—Enlarged gland beneath sterno-mastoid on right side; large irregular ulcer in region of right tonsil, very hard to the touch; anterior faucial pillar affected and also base of tongue.

15.10.27.—Right tonsil and anterior pillar removed by diathermy knife by another surgeon; base of tongue cauterised with diathermy

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button. Later, removal of enlarged gland in neck by general surgeon. 28.2.28.—Patient complains of stinging pain in right side of neck and of earache on the right side. 30.1.29.—Patient reports: swelling in neck has returned. Base of tongue on right side infiltrated. 1.2.29.—Radium plaque, 15 mgrms., applied over swelling in neck and removed in twenty-four hours. 7.2.29.—Four radium needles, each 1 mgrm. (screening 1 mm. platinum), inserted in pairs into base of tongue and removed in twenty-four hours. 20.3.29.—Larynx normal; considerable swelling at back of tongue in region of lingual tonsil. 21.3.29.—Two radium needles, each 5 mgrms. (screening 1 mm. platinum), inserted into base of tongue and tonsil region on right side and removed in twenty-four hours. Total dosage—336 mgrm. hrs.

CASE 12. **Malignant Disease at Base of Tongue treated by Radium Needles.**—H. N., aged 64, first seen 1.2.29, when he stated that he swallowed (?) a fish bone last August and has complained of pain in his throat since then. There has been swelling on the outside of the neck for two weeks.

Examination.—Marked dental sepsis; enlarged jugulo-digastric glands on left side of neck; in the glosso-epiglottic fossa on the left side there is a hard ulceration.

4.4.29.—Local anæsthesia: four needles, each of 5 mgrms., put into the infiltration at the base of the tongue (screening 1 mm. platinum). The needles were left in for twenty-four hours, *i.e.*, 480 mgrm. hrs.

CASE 13. **Squamous Carcinoma of Lateral Pharyngeal Wall treated by Radium in Capsule Form** (see *Journal of Laryngology and Otology*, 1924, Vol. xxxix., p. 650).—J. S., aged 39. Case shown at Meeting of Scottish Society in June 1924.

Later Reports—May 1924.—Radium inserted by Professor John Fraser into glandular swelling in neck. 20.1.25.—Large mass of glands in left side of neck. Patient's doctor reported that he died towards the end of 1925.

CASE 14. **Malignant Disease of Posterior Pharyngeal Wall treated by Radium in Capsule Form** (see *Journal of Laryngology and Otology*, 1924, Vol. xxxix., p. 651).—E. S., aged 35. Case also shown at Meeting of Scottish Society in June 1924.

Further Reports—20.5.24.—Excision of enlarged cervical glands and part of right internal jugular vein by general surgeon; two radium tubes inserted. Pathologist's report: lymphadenoma. 30.6.24.—Again large mass of glands on right side beneath the scar. 9.7.24.—Condition of nasopharynx satisfactory: unilateral paralysis of tongue

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present; vocal cords move well. 18.7.24.—Vomiting; jaundice present. Patient transferred to a Medical Ward from which it was reported that "patient gradually sank and died from exhaustion, due to persistent vomiting on 8.9.24."

CASE 15. **Malignant Disease of Pharynx treated by Radium Needles.**—Mrs A. W., aged 44, first seen 5.9.27, complaining of difficulty in swallowing and discomfort in the throat for six months; slight spitting of blood.

Examination showed swelling of left lateral wall of oro- and naso-pharynx. Wassermann reaction negative. Piece removed and reported upon as "rapidly-growing epithelial tumour."

28.2.28.—Four radium needles (0.5 mgrm. each, screening 1 mm. platinum) inserted and left in for twenty-four hours. 34.4.28.—Lateral wall of pharynx appears normal but still swelling on roof of nasopharynx. 5.6.28.—Two radium needles, 0.5 mgrm. each (screening 1 mm. platinum) inserted into growth through left nostril and one needle passed into growth in nasopharynx through right nostril. 25.6.28.—Still swelling on roof of nasopharynx. 11.10.28.—Report from patient's doctor that patient has had several epileptic attacks. Patient died on 21.10.28.

CASE 16. **Malignant Disease of Pharynx treated by Radium: A.S.O.M. (bilateral): Acute Purulent Labyrinthitis (bilateral): Meningitis: Death.** — W. I., aged 70, first seen 27.2.29, complaining of pain and difficulty in swallowing; duration not stated. The left tonsil had been enucleated by another surgeon on 28.7.28.—In addition, patient complained of pain in the left ear and gave a history of discharge from this ear two months before admission.

On *examination* it was found that there was difficulty in opening the mouth. The region of the left tonsil fossa was filled up by a large, hard, ulcerated mass which involved the posterior pillar. There was a hard, swollen gland behind the angle of the jaw; acute otitis media present on left side. Wassermann reaction negative.

12.3.29.—Throat sprayed with cocain; six needles of 1 mgrm. each, inserted into malignant growth in left tonsil fossa, three from behind and three from in front (screening 1 mm. platinum). External application of radium plaque (10 mgrms.; screening 2 mm. platinum) was applied over the enlarged glands in the neck; the radium plaque was removed in twenty-four hours, the needles in seventy-two hours, *i.e.*, 692 mgrm. hrs. altogether.

16.3.29.—Patient discharged.

24.3.29.—Patient readmitted to ward complaining of earache, deafness and dizziness. There was a profuse purulent discharge from

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both ears of about a week's duration. Slight tenderness on pressure over both mastoids; slight nystagmus to both sides, equal.

27.3.29.—Both ears still discharging; patient completely deaf; headache complained of. 28.3.29.—Temperature 104° F., no sickness; patient very ill. Lumbar puncture under ethyl chloride yielded cloudy, almost purulent fluid under great tension (hæmolytic streptococcus on culture). 29.3.29.—Death.

Post-mortem.—Extensive purulent leptomeningitis, especially over frontal lobes and vertex; there is no indication of the route of infection on examination of the cranial bones; the labyrinths are to be microscopically examined and will be reported upon later.

CASE 17. **Sarcoma of Nasopharynx treated by Radium Emanation.**—Mrs M. M., aged 50, first seen 23.7.24, complaining of sore throat and difficulty in swallowing for seven months, also of slight deafness.

Examination.—Left side of soft palate bulged forwards by a tumour mass in the nasopharynx; surface of the tumour is ulcerated; enlarged gland on both sides of neck. Wassermann reaction negative. Piece of tumour removed. Report: round-celled sarcoma.

12.8.24.—Tumour of nasopharynx treated by "Radon" capsule obtained from the Radium Institute in London; tube contained 23 millecuries of radium emanation and was removed after fifteen hours, by instruction. 17.8.24.—Temperature swinging from normal in the morning to 101° F. in the evening. No further report but result almost certainly fatal.

CASE 17 A. **Malignant Disease of Nasopharynx treated by Radium Needles.**—Mrs L. D., aged 69, first seen 6.5.29, complaining of nasal obstruction and post-nasal discharge. Patient feels "something" in her throat when she swallows.

Examination showed the soft palate bulged forwards on the right side by a pinkish-red, irregular swelling on the lateral wall of the nasopharynx. The swelling could easily be seen by lifting up the soft palate with a post-nasal mirror. There was no obvious ulceration. The swelling could also be seen through the right nasal cavity on anterior rhinoscopy. On digital examination the growth felt soft and smooth and appeared to be attached to the right lateral wall of the nasopharynx behind the posterior pillar. Both drumheads were slightly indrawn. There were no enlarged glands to be felt in the neck.

6.5.29.—Piece of growth removed for microscopic examination and reported on as a rapidly proliferating malignant growth; it was difficult for the pathologist to state whether it was a sarcoma or a carcinoma.

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14.5.29.—Local anæsthesia: nose packed with cocain and adrenalin gauze and pharynx sprayed with cocain. Four radium needles, each of 1 mgrm., inserted into the tumour through the mouth after the soft palate had been tied forwards by means of a rubber catheter passed through the nose. Part of the right inferior turbinal removed and one radium needle, of 1 mgrm., inserted into the growth through the right nasal cavity.

15.5.29.—During last night patient's temperature rose, and this morning it is 104°F. Patient appears rather collapsed and is very restless, tossing about in bed. The tongue is dry, brown, and furred. The patient is not pale, as if from loss of blood, though there has been some bleeding. Dr Woodburn Morison advised immediate removal of radium needles and this was carried out. 16.5.29.—Temperature down to 100°F.; patient better; pulse 120. 19.5.29—Temperature is lower and the patient looks slightly better; the tongue, however, is still dry and caked and the patient is still rather restless; she is taking fluids well; chest examination negative; pulse 112. 21.5.29.—Patient not so well; temperature up to 101°F.; pulse 136; some consolidation of right middle lobe. 22.5.29.—Patient died at 9 p.m.

Post-mortem.—Consolidation of right middle lobe.

Remarks.—This is the first case in the writer's experience in which the patient has become suddenly ill after insertion of radium. Her condition was obviously not due to loss of blood; it appeared to be rather of the nature of shock, or possibly acute toxæmia due to the breaking down of the malignant cells by the radium. The writer understands from Dr Woodburn Morison that similar cases have been reported.

Case 18. **Malignant Disease of External and Middle Ear treated by Radium Needles.**—Mrs A. H., aged 62, first seen 11.3.19, complaining of swelling and tenderness in region of right auricle of fourteen years' duration.

Examination.—Right external meatus blocked by a neoplasm apparently growing from the posterior wall. 13.8.19.—Operation: free bleeding; the mastoid cells were healthy; whole of posterior wall of membranous and cartilaginous meatus removed, including the tumour; the drumhead appeared practically normal; cavity packed. Pathologist reports that "tumour consists of a scanty matrix in which lie large masses of epithelial cells of glandular origin; in places there are signs of acinous formation. Conclusion was that condition was one of malignant adenoma probably growing from sebaceous glands."

29.10.20.—Swelling has recurred but there is no ulceration; the drumhead can be seen. 19.8.23.—Patient still complaining of pain in right ear. 21.12.28.—There is now a large tender swelling behind

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the right ear; there is also some swelling in front of the auricle; rotation reactions normal.

8.1.29.—General anæsthesia: four radium tubes inserted, two behind the ear, one into the meatus and one in front of the auricle; each tube 5 mgrms. (screening 1 mm. platinum), and retained in position for three days, *i.e.* 360 mgrm. hrs. A piece of tumour removed at same time and reported on as "basal-celled carcinoma of the rodent type; the tumour is of slight malignancy." 7.3.29.—Condition fairly satisfactory.

CASE 19. **Malignant Disease of the Middle Ear treated by Radium Capsules after Operation.**—Mrs A. W., aged 49, first seen 27.1.25, complaining of bleeding from the right ear and pain, worst at night; foul-smelling discharge present.

Examination showed a cleft palate; right external meatus contains pus and polypus; left drumhead shows a scar; right ear not totally deaf. Wassermann reaction negative.

29.1.25.—Radical mastoid operation right ear: tympanum full of granulations. Pathologist's report: squamous epithelioma. 24.7.25.—Right ear is not quite deaf but whole operation cavity is filled with mass of malignant material. 28.7.25.—Two capsules of radium inserted, each 10 mgrms., and kept in for five days. Patient's doctor reported that after operation the discharge from the ear never ceased and gradually the cervical glands became affected, and the whole right side of the neck was filled with a mass of fungating, cancerous glands with a profuse discharge. Patient was not sent back again to the Royal Infirmary. She died in January 1927.

CASE 20. **Chronic Middle-Ear Suppuration (left): Malignant Disease of Middle Ear, involving Labyrinth (?): Radical Mastoid Operation: Treatment by Radium** (see *Journal of Laryngology and Otology*, 1926, Vol. xli., p. 677).—Mrs J. S., aged 48, case shown at Meeting of Scottish Society in June 1926.

Further Reports.—7.5.26.—Five days after radical mastoid operation three radium needles, each 5 mgrms. (screening 1 mm. platinum) introduced, one in region of middle fossa dura, one posteriorly, and one antero-inferiorly in the operation cavity. The needles were packed in position with gauze soaked in 30 per cent. glucose solution and remained in position for three days, *i.e.* 1080 mgrm. hrs.

27.5.26.—Second radium treatment: on this occasion the needles were of the same number and strength but were only left in for twenty-four hours, *i.e.* 360 mgrm. hrs. In the last week of June the patient made a feeble attempt at cutting her throat. Patient's doctor reported that she died on 28th August 1926, having had considerable pain in the ear for some weeks. The doctor added that the patient

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had amnesia, especially for nouns. For the last four or five weeks of her life she could hardly speak at all. There was also a history of fits, though the doctor himself had not witnessed these. Probably there was invasion of the left temporal lobe by the disease. No *post-mortem.*

CASE 21. **Keloid treated by Radium Capsule.** — C. B., aged 12, first seen 31.10.24, complaining of C.O.M.S. (left) of several years' duration. Radical mastoid operation. 3.11.24.—cavity skin grafted; posterior wound suppurated; eusol dressings.

22.5.25.—Meatus has become narrow; keloid formation in the scar. 9.6.25.—Second operation: large meatus made; keloid excised. 8.9.25.—10 mgrms. of radium inserted into the meatus and left in position for forty-eight hours. 2.6.26.—Meatus again greatly contracted; posterior scar still shows keloid; cavity dry; hearing good. 6.5.29.—There is now no keloid formation in the scar. The meatus, however, is still very narrow but there is a big cavity inside, and this, as far as can be seen, looks fairly satisfactory.

CASE 22. **Intrinsic Cancer of the Larynx treated by Radium.** — A. A., aged 56, first seen 15.2.29, complaining of hoarseness of five months' duration.

Examination showed large nodule on left vocal cord: the cord moves fairly well.

19.2.29.—Piece removed by direct method. Pathologist's report: squamous epithelioma. 4.3.29.—Teeth extracted.

19.3.29.—Operation: The method used was that described by Mr Harmer of St Bartholomew's Hospital. Local anæsthesia: larynx sprayed beforehand with cocain; injection of novocain and adrenalin along line of incision, which extended in middle line from above thyroid cartilage to episternal notch. Tracheotomy performed; no coughing. Outer perichondrium elevated from left ala of thyroid and piece removed with difficulty from the ala with chisel and hammer; cartilage ossified; opening enlarged with Jansen forceps till only a thin rim of thyroid cartilage left above and below; inner perichondrium thus freely exposed. Five radium needles, each 1 mgrm. (screening 1 mm. platinum) inserted in vertical direction like a pallisade and left in for four days. Iodoform gauze packed in superficial to the needles; stitches inserted in neck wound.

22.3.29.—Evening temperature elevated (102° F.); a good deal of coughing. 23.3.29.—Radium needles removed. 25.3.29.—Tracheotomy tube removed. 30.3.29.—Tracheotomy wound closing well; evening temperature still elevated. 6.4.29.—Patient discharged. 12.4.29.—Both vocal cords move; no sign of any growth. 26.4.29.—Neck wound healed; cords move well. 3.5.29.—Cords move well;

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the left cord is more pink than the right, but otherwise no difference can be seen.

CASE 23.—**Intrinsic Cancer of Larynx treated by Radium Needles.**—W. F. C., aged 57, first seen 26.4.28, complaining of hoarseness of three years' duration. Patient had seen several doctors in New Zealand and also in this country; most of them had stated that he was suffering from laryngitis. The patient spoke in a hoarse whisper.

Indirect laryngoscopy showed irregularity of the left vocal cord with an irregular projection towards the posterior part, about the size of a split pea; the left cord was not entirely fixed.

27.4.28.—Larynx sprayed with cocain: the small, pedunculated growth on the left cord was removed by the direct method, and sent for microscopic examination. Pathologist's report: squamous epithelioma.

10.5.28.—Operation as in previous case. Six radium needles inserted, 0.5 mgrm. each (screening 0.5 mm. platinum) and left in position for four days, *i.e.*, 288 mgrm. hrs. There was no trouble with swallowing or fever after the operation. Tracheotomy tube removed three days after operation.

Patient last seen by J. S. F. on 30.5.28.—Neck wound healed; left vocal cord red but moves fairly well. Further report from patient's doctor in New Zealand 4.1.29: "The larynx looks very well and both cords move normally; patient's voice is gaining strength."

CASE 24. **Intrinsic Cancer of Larynx treated by Radium Needles** (see *Journal of Laryngology and Otology*, 1928, Vol. xliii., p. 756).—W. Y., aged 54, case shown at the Meeting of Scottish Society in May 1928.

Further Report—1.10.28.—There is a small excavation in the middle of the left vocal cord; on phonation the anterior parts of both cords meet and also the vocal processes. 13.3.29.—Condition of larynx as above.

The PRESIDENT said they were much indebted to Dr Fraser for bringing this subject before them, because even the man in the street thinks he knows all about radium nowadays and they must try and get all their knowledge gathered together as far as possible so that they could get to the real value of it. Meantime, of course, they were just in the experimental stage and they all felt a great difficulty, not only from want of experience, but from want of material to work with. Speaking of his own experience in the Victoria Infirmary, they had only one needle of 30 mgrms. and two little plaques of 10 and 15 mgrms. each. Of course they had the privilege in Glasgow of getting emanations from the University, but even there they had to wait for several weeks before they could get their supply.

What he felt about the use of radium was the uncertainty of dosage. Here they had 0·5, 1, and 5 mgrms.; then the time that this is to be kept

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in and the screening, and all that sort of thing. Of course it will resolve itself into team work: the laryngologist looking after the clinical aspect and the radiologist to guide them in the matter. They must have all the three working together, the radiologist, the pathologist, and the laryngologist.

Dr M'CAY said—As they happened to be getting a supply of radium at the Chester Royal Infirmary he was very interested in Dr Fraser's cases. He (the speaker) had been to Manchester seeing the work of Mr Birkett who was in charge of the Radium Institute there, and he (Mr Birkett) informed him that, in his opinion, malignant diseases of the nasal accessory sinuses were not very responsive to radium treatment, and on the whole he was not justified in taking on these cases owing to the scarcity of radium at the present time. Mr Birkett also remarked on the marked destruction of bone which occurred. Perhaps Mr Fraser would tell him (the speaker) if he had had a similar experience. Mr Birkett's results in cases of malignant disease of the tonsil and mouth were very excellent.

Dr HARPER said he was sure they must all be very much indebted to Dr Fraser for bringing this series of cases before them. Most of them had used radium in various forms, and he said that his own experience of it had been very disappointing. He had tried it in nasal conditions involving the antrum and the ethmoid without any real benefit. He had never seen any good result in its use in carcinoma of the œsophagus. He said that practically every case of carcinoma of the œsophagus died from the effects of malignant disease. Perhaps their technique had been at fault, but they had done the best they could with the radium they had at hand, and he said that their results as regards the ultimate cure of the disease had made them doubtful whether radium was of any real value to their specialty. He remembered reading, about the year 1910, a report issued by the Radium Institute on the use of radium, and to summarise that report as far as he remembered, it came to this: that radium undoubtedly was of value in curing malignant disease, but that it was in those cases in which the surgeon was most confident in being able to deal with the disease by operation. He thought the result of Dr Fraser's series of cases just coincided with this. Dr Fraser's case of sarcoma of the tonsil was an excellent one, but with regard to the other cases, the results were disappointing. A great many of them had died, especially those cases in which the ear had been involved. In case No. 18 malignancy was still present. Dr Fraser's successful cases were those of intrinsic cancer of the larynx—the type of case in which their results by operative measures were most satisfactory. Dr Fraser's cases showed an excellent result but he (the speaker) would be very reluctant, in a case of intrinsic carcinoma of the larynx where he thought he had a good chance of removing all the disease, to waste time with radium. After all the surgical operation was not much greater than that performed by Dr Fraser. There might be a little more shock, but not much, and it would require a great many more cases than three to convince him that the surgical treatment of intrinsic cancer of the larynx should give place to radium.

Dr ADAM expressed his debt to Dr Fraser for this splendid series of cases. There was this to be said for the application of radium in the

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laryngeal case: the patient has a perfectly mobile vocal cord afterwards and a perfectly good voice. Carcinoma of the vocal cord is slow in its growth and it is that kind of case in which radium succeeds. It was some years ago that he (the speaker) mentioned at this Society four cases which he had had. They had all cleared up for a time but they all died. One class of case in which radium has been successful hitherto was pharyngeal fibroma. He had shown a case some years ago and no operation was required except the insertion of radium. This series of cases of Dr Fraser's made one think that they would become more successful in getting to know how to use radium. He thought Dr Fraser should report again on these cases a year hence.

Dr HALL said—The wide variations in dosage and method of application which were frequently encountered to-day in the hands of different authorities and the sharp differences of opinion on these points found in closely related centres showed how little the use of radium was understood at present. Treatment, in their specialty at least, being still of an experimental character, the careful record and correlation of results became essential for progress, and he thought that Dr Fraser was to be congratulated on the interesting and practical manner in which he had brought this to their attention to-day.

It might be of interest then to those present if he gave very briefly some indication of the results of radium treatment in the wards under Mr Lithgow's charge. He (the speaker) quoted only figures relative to the last three years partly because as Dr Fraser had pointed out it was only during this period that radium had been available to them in a form suited for their work and partly because it was with these cases only that he had had contact himself. There had been, during the last three years, treatments carried out on fifteen patients. These were classed as follows :—

Naso-antral tumours	4
Nasopharyngeal tumours	6
Ethmoidal	1
External ear	1
Œsophageal	3
Endothelial of neck	1

Of these, there had been three recoveries. An epithelial tumour of the external ear, a sarcoma of the nasopharynx, and a benign tumour of the nasopharynx. Two cases had shown such marked improvement as to permit them to hope that they would turn out to be "cures" and two cases had been too recently treated to justify any report. Naso-antral cases had been in their experience the least amenable to treatment, as no benefit had been noted apart from the improvement attributable to complete surgical drainage of an area necessarily septic. One case of angioma of the ethmoid showed marked improvement of the tumour but sepsis had so far weakened the patient when he came under their care that there was little doubt of the ultimate prognosis. The most recent undertaking had been the treatment of cancer of the œsophagus, and while it was too early as yet to give any results of treatment, this appeared to them to afford the only reasonable solution of this difficult problem. Surgical treatment in their experience had been immediately disastrous to the patient, while

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good results, notably those of M. Guisez of Paris, had been recorded following the use of radium. Admittedly their figures showed a very poor percentage of improvement, but he (the speaker) was confident that by the careful record of cases they could improve their technique and with it their results.

Dr W. T. GARDINER said that he had got a similar opinion as to the effect of radium on bone from Dr Woodburn Morison. He had had a case of soft fibroma of the nose and nasopharynx eighteen months previously and he wished to try radium but Dr Woodburn Morison had strongly advised against it.

Dr COLLINS mentioned a case he had seen about five years ago—a carcinoma involving the antrum. A radical operation was done, and subsequently it was found that the hard palate was infected. Radium was applied in that one and three years after operation there was no obvious recurrence visible when she died of an intercurrent infection.

Mr DONALD WATSON said—With regard to these antral conditions, he thought it was Mr Hall Forbes of New York, who read a paper on the treatment of antral and ethmoidal disease in which he did an operation and then packed radium in with his packing and irradiated the area for a short time, to kill any portions of tumour that had been left. This seemed to him (the speaker) a very sound method. They had radium now in Bradford, with an expert in charge of it. He had just come and they hoped to have some cases in time. He (the speaker) had sent him a case of lupus. He (the speaker) had treated it now for five years. When he saw the case it had lupus of the nose, the palate, both tonsils and posterior pharyngeal wall, with adhesions between the soft palate and the nasopharynx. There was just a tiny hole there. He treated it with diathermy and cauterisations, and it is clear as far as the epiglottis but he had not been able to influence the larynx greatly. The patient is being treated now by radium and has had one application. Plates of radium are applied to the outside of the larynx and they get very good results with them in cases of lupus.

Dr FRASER (in reply) said he was very much obliged for the way in which the members had received these radium cases. He admitted that many of them—he thought the majority—had died. He wished to call their attention again to the fact that it was only during the last two or three years that they had had radium available here in a suitable form. With regard to dosage and screening, full notes would be published with each case. Dr M'Cay mentioned bone necrosis. He (the speaker) had not had many nasal cases. Case No. 6 died in March this year. In Case No. 7, he opened the antrum and, without attempting to curette out the growth, inserted a 5 mgrm. tube of radium and almost closed up the mouth wound, of course, leaving the silk threads coming out of the mouth. Subsequently Dr Gardiner treated the growth in the nose at another sitting. He (the speaker) quite admitted that disease was still present here. However, there had been no bone necrosis so far.

The case of sarcoma of the tonsil (Case No. 10) had been shown here on several previous occasions. In No. 18 malignant disease was still present, but there was no doubt that the patient was much better than

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she had been previously. The large tender swelling over the mastoid had disappeared but there was still a little swelling over the jaw-joint. Mr Harper mentioned cancer of the œsophagus. He (the speaker) had never attempted to treat cancer of the gullet with radium but recently, during the stay of the Visiting Association in Birmingham, they had had the opportunity of seeing the way in which Mr Musgrave Woodman treated these cases. The œsophagoscope was passed and "radon" seeds implanted in the growth. The weak spot in that line of treatment was that the growth in the œsophagus was probably of considerable length and one could only treat the upper margin at any rate at the first sitting. One would require to repeat the treatment in a few weeks and attack a lower area.

Dr FRASER said he wanted to join issue with Dr Harper with regard to the question of intrinsic cancer of the larynx. He (the speaker) had now operated on some twenty cases by thyrotomy and the results of the first fourteen were published in the *Journal of Laryngology*, 1924, vol. xxxix., p. 79. Half the cases were alive at that time and half were dead. It was true that it was only a matter of two years since he had used radium but he thought the results from radium were distinctly better. One case was now in New Zealand, but his doctor wrote that this patient was very well indeed and that he (the doctor) had considerable difficulty in telling which was the cord with the malignant disease and which the normal cord. In one of the two cases shown to-day one would almost say the same thing. In the other case it looked as if a mouse had nibbled a small piece out of the centre of the cord, but even then the result as regards appearance and voice was distinctly better than one was accustomed to see in cases of thyrotomy. Everyone who was present two years ago at St Bartholomew's Hospital and saw the results obtained by Mr Harmer was astonished at their excellence. They agreed that the radium was superior to thyrotomy. Dr Hall called attention to the question of following up these cases and of course he (the speaker) quite agreed. He was willing, when they met again in Edinburgh, to give an account of the progress of all the cases shown to-day.

Dr HALL said—With regard to that last point of Dr Fraser's, within the last twenty-four hours, he (the speaker) had also been faced with a similar problem on behalf of Dr Ewart Martin who was not present. A patient in which Dr Martin had inserted radium—a case of cancer of the œsophagus—developed a temperature of something like 102° in twenty-four hours. It reached 101° the first day and went up to 102° on the second. He (the speaker) removed the radium, happily with an immediate fall of temperature. The patient to-day was feeling well. It was interesting to note that in one particular cancer centre he had referred to—the centre in Paris—a rise of temperature was actually used as a control in the treatment with radium. In certain cases the radium was removed when the temperature went up, and re-inserted on its fall.

The PRESIDENT said there was one thing they liked about Dr Fraser and that was that he gave them not only his successful cases but all his cases. He (the speaker) drew attention to the fact that the whole thing was discussed at the meeting Dr Fraser spoke of. In the *Journal of*

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Laryngology, March 1928, Drs Watt and Finzi's paper, which was read at the Section of Laryngology, Royal Society of Medicine, London, on 2nd December 1927, is given in full. The question was discussed very fully and he thought it was worth while to read that over in connection with the discussion they had had to-day. The whole question of deep therapy is also discussed and the selection of cases; some might be more suitable to treat with radium and some with diathermy and sometimes a combination of the radium and diathermy. In reply to Dr Harper, the President said the answer was given to his question here. He disagrees with Dr Harper in this respect—he says that the cases more suitable for treatment with radium are not cases most suitable for operation. The best results up to this time have been the rapid growing cases. They are all classified in that article according to two or three different types. (See p. 201.)

CASE 25. **Fracture of Temporal Bone: Hæmorrhage into Labyrinth: Acute Mastoiditis: Operation: Recovery**—J. P. STEWART.—T. S., aged 25. Admitted 10.8.28 with history of a motor accident three weeks ago. Following the accident he was unconscious for the first twenty-four hours and there was some bleeding from the left ear. He vomited and had attacks of giddiness during the next twenty-four hours and was delirious at night for the first week. On 3.8.28 had severe pain and discharge from the left ear which has continued up to the present.

10.8.28.—Very copious foul-smelling, blood-stained discharge from left ear. Owing to bulging of posterior meatal wall it is difficult to see much of the drumhead. There is no mastoid tenderness. Patient is deaf with a noise box going in right ear. X-ray shows comparative cloudiness of the cells in left mastoid process, also a fracture running across this process.

16.8.28.—Patient has been running an evening temperature (100° to 102°). No more attacks of vomiting nor giddiness. It was decided to open the mastoid.

Schwartze operation. On reflecting the periosteum a definite fracture was seen involving the posterior wall of the external meatus and running across roof of antrum and upwards for a distance of about 2 to 3 inches. Pus present in mastoid cells. Edges of fracture pared away giving a free exposure of middle fossa dura which was healthy. Operation completed and wound left open.

28.8.28.—Patient has done very well. Temperature settled, etc. Wound edges stitched.

14.9.28.—Discharged to Convalescent House.

28.11.28.—Left ear is now quite dry. Very slight spontaneous nystagmus to both sides. Cold syringing of left ear for two minutes produced no increase in existing nystagmus. There was no falling or past-pointing. Rotation to right produced after nystagmus to left

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for 9 secs. (left labyrinth). Rotation to left produced after nystagmus to right for 20 secs. Absolutely deaf with noise box. Sent for X-ray.

15.3.29.—Feels very fit. No aural discharge. Going about his ordinary duties.

The disturbance of the functions of the inner ear were most probably due not to the actual fracture, but to hæmorrhage into the labyrinth from the force of impact, otherwise we would have expected a septic involvement of the labyrinth at the same time as this supervened in the mastoid process. After the first few days the labyrinthine symptoms had entirely disappeared. (Compare the extirpation of the labyrinth by operation.)

CASE 26. **Cases illustrating Continuous Dilatation for Laryngeal Stenosis following Tracheotomy**—Dr W. T. GARDINER.—E. W., 15 years. At the age of $1\frac{3}{4}$ years tracheotomy was performed for diphtheria. During convalescence she was unable to dispense with the tube. Tracheotomy had been performed because intubation had failed. First examination, suspension laryngoscopy in 1915, marked subglottic narrowing. Two attempts were made to reconstitute the tracheal tube. This only resulted in further stenosis. Thereafter at weekly intervals until 1928 Jackson's bougies were passed. It was impossible to keep the aperture permanently dilated. In March 1928, the new continuous dilatation was tried and the aperture gradually dilated up to the requisite size. This was kept in continuously, with an occasional removal for cleaning and re-insertion. Removed finally in December 1928, and a corked tracheotomy tube inserted. After a fortnight the tube was removed for good and has remained out since. Patient has ample airway now. There is no apparent sign of contraction. Otherwise, she has done satisfactorily.

CASE 27. J. W.—First seen in 1920, at the age of 2 years, for laryngeal papillomata. Owing to dyspnœa tracheotomy performed. No subglottic contraction following another rather high tracheotomy. Tracheotomy tube remained in. Continuous dilatation commenced in October 1928. Tube removed March 1929. The voice is moderately good and the airway is clear.

CASE 28. E. B.—Undergoing continuous dilatation. Subglottic stenosis following tracheotomy. Patient was unable to do without tube. In this case the tracheotomy opening had to be enlarged and the laryngeal tract found before the continuous dilatation could be practised. First inserted in October 1928.

CASE 29. J. R.—Case undergoing continuous dilatation. Tracheotomy following diphtheria, subsequent stenosis. History similar to last. Patient at the moment is giving a little trouble because he loses his inner tube.

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Dr LOGAN TURNER said he was interested in these cases. The girl had been in the ward when he was in charge of it. She was then aged $1\frac{3}{4}$ years and was one of a series of cases which had been treated at the Fever Hospital — cases of diphtheria or cases of laryngeal obstruction not necessarily diphtheritic—treated by intubation followed by tracheotomy because the intubation tube failed to remain in position. In these cases the obstruction was subglottic. The girl, as Dr Gardiner said, had been treated for a number of years by occasional dilatation, and then, very successfully by him, by continuous dilatation. He (the speaker) had seen a series of cases very similar to this at Guy's Hospital some two or three years ago. They were shown by Mr F. J. Steward, the Senior Surgeon. He rapidly dilated with a urethral bougie and then kept the tracheotomy tube in place; but instead of having the up-stem from the tracheotomy tube, as shown by Dr Gardiner, he intubated, gradually increasing the size of the intubation tube.

Dr M'CAY asked if something could not be done in the way of prophylaxis. In doing a tracheotomy, instead of making a mere slit in the trachea he excised a round portion so as to fit the tracheotomy tube, and in this way prevented the invagination of the severed rings of the cartilage and the mucous membrane which nearly always occurred where the slit was made and in this way formed stenosis. He had had to do quite a number of these cases in children and in each case he had been able to carry out this operation.

Dr BRAND thought the point which must be emphasised with regard to these cases was that the tracheotomy should always be low; the wound in the trachea at least below the second ring. There would then not be the same risk of stenosis.

Dr W. T. GARDINER stated that the multiplicity of cases was more apparent than real. These were children who had been tracheotomised over a period of years and having once had the tube inserted, apart from occasional visits for cleansing operations, nothing further was being done for them. When he first heard of this continuous dilatation naturally all cases that were on the books were collected. The reason they developed stenosis was because the tracheotomy was usually done in the Infectious Diseases Hospital, probably under great emergency, rather high up through the cricoid cartilage and crico-thyroid membrane. When the tube was removed the subglottic tissue tended to swell and gave rise to partial stenosis so that probably the tube had to be re-inserted and then the vicious circle started. With regard to Dr M'Cay's cosmetic operation, this might be possible in an adult where there was no particular emergency, but to make this elliptical opening to get the exact size to fit the tube in the trachea of a young infant was hardly possible.

CASE 30. **Cerebrospinal Meningitis, Destruction of whole Labyrinth on Left Side and Partial Destruction of the Right, Labyrinth**—Dr J. P. STEWART (30, 31).—J. M., aged 25. History of epidemic cerebrospinal meningitis at the age of two and since then patient has been deaf on the left side. Examination shows both drum-heads normal.

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There is a slight, very fine spontaneous nystagmus present to each side.

Cochlear Tests.—Rinné—absolutely negative on the left side. (Tuning-fork heard in right ear by bone conduction when stem of fork placed on left mastoid.)

Rinné—right ear. Weber heard in right ear. With noise box in right ear is absolutely deaf and when it is going in left ear, can hear a raised voice at 2 feet. Conversation voice is heard on right side at 4 feet.

Vestibular Tests.—After cold syringing of each ear for two minutes no nystagmus was produced.

On carrying out the rotation test no real labyrinthine nystagmus was obtained, only the fine spontaneous nystagmus already noted. There was no past-pointing and no Rombergism. The Wassermann reaction was negative.

The major part of the cochlea on the right side is undamaged, and it is rather lucky for the patient that this is so, otherwise he must have become a deaf-mute. By the laws of development we should have expected the more recent and specialised cochlea to have been selected and not the vestibular apparatus.

Dr FRASER said this was a very interesting case. He agreed with Dr Stewart that it was rather surprising that no result should be obtained from the caloric test while the patient still had some hearing in one ear. One would certainly expect that if any of the functions of the inner ear were to disappear as a result of the cerebrospinal meningitis, it would be the cochlear function rather than the vestibular. He could not see any other explanation than that which Dr Stewart had given, except the very exceptional one that the patient was one of those rare and peculiar people who failed to respond to vestibular tests. Bárány and Ruttin and others have pointed out that one does occasionally meet with a patient who does not respond to caloric tests. But that such a condition should be found in a patient who had had cerebrospinal meningitis and had lost entirely the function of one cochlea—the odds were too great against such a supposition.

CASE 31. **Gumma of Nasal Septum**—Dr J. P. STEWART.—S. D., aged 27. Complains of crusting and a blood-stained discharge from the nose for the last few months.

Examination shows extensive ulceration of right side of septum, the central portion of the vomer and the cartilage in immediate relation to it, being involved.

There are a few granulations overlying the quadrilateral cartilage anteriorly on the left side of the septum. Wassermann reaction is triple positive.

Dr FRASER said he had seen often the results of gumma of the nasal septum but he had never seen a syphilitic perforation of the septum in the

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process of formation. As far as he could make out, on the left side the septum seemed to be in fairly good condition.

The PRESIDENT asked if this was a recent case and if any treatment had as yet been instituted. He said that it had struck him that it had more the appearance of a lupus; of course, it is not uncommon to get a combination of the two.

Dr STEPHEN YOUNG said he had recently seen a patient with a gumma of the septum in the acute stage in the Fever Hospital where it was sent in as a nasal diphtheria.

Case of Sudden Complete Deafness in a Man with an Old Bilateral Chronic Otitis Media.—Dr G. EWART MARTIN.

Dr HARPER asked if the Wassermann reaction had been done in this case.

Dr HALL said he was afraid that off-hand he was unable to answer that particular question. He knew that the case was referred, as most of these cases were, to a physician for investigation. (*N.B.*, Wassermann reaction was negative.)

Dr GAVIN YOUNG said that it struck him that the man's voice was extraordinarily well modulated considering that the patient was completely deaf.

Dr FRASER said that if the case was functional, he thought he had heard some one say that if in these cases one syringed the ear with very cold or very hot water and produced giddiness, and even vomiting, it was remarkable how the functional deafness, if it was functional, cleared up afterwards.

Paralysis of the Left Vocal Cord: Removal of the Right Mamma for Scirrhus.—Dr G. EWART MARTIN.

Dr LOGAN TURNER said he had seen this case two or three days ago on Mr Lithgow's suggestion. Fourteen cases of this kind had now been published in the *Journal of Laryngology and Otology* and this case made fifteen. Of this total both mammæ had been diseased in one, and in the remaining fourteen the right mamma was affected in eight and the left mamma in six. In twelve of the fifteen patients there was one vocal cord paralysed, and in three patients, both cords. The vocal cord paralysed was obviously homolateral in six and obviously contralateral in seven, and there was one in which the paralysis was both homolateral and contralateral. The presence of contralateral paralysis in as many as seven cases was interesting and might be explained by the fact that efferent lymphatics passed from the mamma across the sternum to the supraclavicular glands on the opposite side. Having become infected by cancer the most medial of the supraclavicular glands might cause pressure on the recurrent laryngeal nerve or the cancer cells might permeate to the recurrent laryngeal chain of glands, the latter then exerting the necessary pressure on the nerve.

Case for Diagnosis.—Dr G. EWART MARTIN.

Dr HARPER said he had two suggestions to make regarding this case. It undoubtedly looked specific, but anti-specific treatment had had little or no effect upon it. He suggested to Dr Martin that the patient be given a

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one-grain iodoform pill for a few days and then be treated with large doses of potassium iodide. There was a possibility, however, that the case might be one of chronic glanders. He (the speaker) had seen one such case which behaved as this one had done. It was seen by at least fifty competent laryngologists who all diagnosed tertiary syphilis. The Wassermann reaction was always negative and anti-specific treatment had no effect. At the end of two years the patient died, and at the post-mortem typical changes were found in the spleen and the glanders baccillus was isolated and cultured. He suggested that the possibility of this case being glanders be kept in view.

Dr HALL said he was very grateful to Dr Harper for these suggestions. The case would be investigated from the point of view of glanders.

The PRESIDENT reported upon a case which he had shown last November in Glasgow. A case of urticaria which had cleared up after enucleation of the septic tonsils. The patient had a return of the urticaria after fourteen months, just as bright and brilliant as ever. He happened to mention the case to Dr Adam who said "Give her a blue pill." She had had three or four blue pills and there had been no return.

ABSTRACTS

EAR

Lumbar Puncture Diagnosis of the Cerebral and Subdural Abscesses. G. V. Th. BORRIES, Copenhagen. (*Annales des Maladies de l'Oreille*, Tome xlvii., s. 452.)

The quality of the spinal fluid in cases of cerebral abscess varies greatly. From the quite normal, clear, and sterile fluid we have all stages to the highly turbid and bacterial.

The following four types of spinal fluid may be distinguished :—

I. The quite normal fluid in the cases of abscess without any complicating active leptomeningitis.
Less frequent type.

II. The clear sterile liquor, containing cells by microscopic examination, found when the abscess is complicated by a "minimal" (microscopic) leptomeningitis.
Frequent type.

III. The turbid liquor, presenting a "benign type" in the abscess, complicated by a "minimal" (microscopic) meningitis or a light macroscopic meningitis. Numerous cells, mostly lymphocytes, but in some cases a transitory polynucleosis may be seen. In most cases the fluid is sterile, but bacteria may be present.
Frequent type.

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