Society of German Laryngologists, etc.

ANNUAL MEETING OF THE SOCIETY OF GERMAN LARYNGOLOGISTS, RHINOLOGISTS AND OTOLOGISTS.

Held at Munich, May 1926.

(Report abstracted from the Zeitschrift für Hals-, Nasen- und Ohrenheilkunde, Band xii., Heft 1 and 2*).*

By Sir JAMES DUNDAS-GRANT.

(Concluded from p. 473.)

The Physiology of Hearing—SPECHT (Kiel).—Specht finds a difficulty in accepting the Helmholtz resonance theory, as in such a small liquid container as the cochlea, the pressure throughout, at one time, must be the same. He suggests that the cells, by some "specific" property, react with different degrees of inertia to variations of pressure of different rapidity. Thus, the cells adapted for the long slow waves of deep-tones do not react with any readiness to the short rapid ones of the high tones. In this way he considers that analysis may be effected.

Subsequent speakers referred with respect and admiration to the work of Helmholtz and agreed in general that if his theory was not absolutely proved, it was not disproved, and it was up to the present the most convincing which had been brought forward.

On Recurring Ceruminal Plugs—J. BERBERICH (Frankfurt-a-Main).—Apart from local factors the writer finds an abnormally higher cholesterin content in the blood. Other evidences of this are seen in xanthelasma, arcus lipoides corneæ, and arcus lipoides myringis. The condition runs in families. His anatomical researches show that the cerumen is formed mostly in the sebaceous glands of the external meatus and to the least extent in the acinous glands.

VOSS related a case of vertigo in which he found the arcus lipoides in the corneæ and the tympanic membranes. Under the appropriate treatment for hyper-cholesterinæmia, recovery took place.

BERBERICH in reply recommended as treatment Rhodan (Soda-Rhodan 0·2 grm. thrice daily).

On So-called Secretory Middle-ear Catarrh—L. FORSCHNER (Vienna).—The author withdraws the fluid by means of a hypodermic syringe to which is attached a rectangular septum needle, the opening of which is ground-down short, thus effecting paracentesis and aspiration simultaneously. His bacteriological and microscopical results show that the condition is an inflammation (and not merely a hydrops). The most frequent cause is acute rhinitis or an acute exacerbation. In the

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preponderating number of cases there is complete sterility, but he suspects that there may be some invisible irritant. Possibly the bacteria may be lodged in the mucous membrane and not in the exudation.

BROCK found all his cases sterile and was in favour of the *hydrops e vacuo* explanation.

BONDY preferred the inflammatory causation and said he had had cases of secretory catarrh developing rapidly into otitis and apparent otitis transformed into secretory catarrh.

The Etiology of Secretory Catarrh especially in Nasopharyngeal Tumours—RUTTIN (Vienna).—Ruttin has observed that tumours pressing on the Eustachian tube from below have not the same tendency to induce secretory catarrh as those growing from above (chiefly malignant tumours of the base of the skull). The latter seem to lead to secretion before they are visible, and such secretion accompanied by pain is sometimes the earliest indication of the development of the tumour. The Eustachian tube may still be patent. In the secretory catarrh arising from nasopharyngitis he finds a change of air the most effective treatment. When the condition follows bullous myringitis he considers the possibility of an involvement of the trigeminal nerve.

KRAINZ adhered to the view that simple compression of the tube by a nasopharyngeal tumour can produce secretion by rarefaction in the middle-ear and associated cavities.

The Origin and Course of Mastoiditis—KRAINZ (Innsbruck).—Out of 100 cases 58 were in mastoid processes with extensive pneumatic spaces, 33 in those with normal pneumatisation and only 3 with imperfectly pneumatic, spongy, or sclerotic bone. Mastoiditis begins with increased pressure in the vascular system of the process, which exercises a destructive action on the framework of the cell-spaces. There may be no clinical signs until it reaches the exterior showing œdema of the outer surface or extension to the dura mater or great blood vessels. There are no sensory nerves in the endosteum and bone in the interior of the mastoid. Empyema is not the cause or beginning of the mastoiditis, but rather an accompaniment. A struggle takes place between epithelium-activity and inflammatory endosteum-proliferation in which the latter usually prevails and the pneumatic cells are transformed into medullary spaces. New bone formation becomes the most striking feature as in 88 of the cases. The spaces are replaced by spongy bone. There may be cases of latent mastoiditis in which the completely pneumatic mastoids may become sclerosed without being observed. The new bone being uncalcified is soft and is not diseased but sound. The pathologico-anatomical picture may be described as an *endostitis mastoidea*.

JOSEPH BECK stated that there might be mastoiditis with little or no involvement of the cells.

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OTTO MAYER considered that when cases came to operation it was too late to judge as to whether the spaces formed were previously existing cells or absorption products. He advised animal experiment.

SCHEIBE thought that some cases were neither exclusively necrosis nor empyema but simple suppuration in cell spaces.

The Histology of Suppurations at the Apex of the Petrous Bone—SCHLANDER (Vienna).—The cases are characterised by trigeminal pain and paralysis of the external rectus, and without the former the presence of the latter alone is not sufficient to justify a diagnosis of suppuration at the apex of the petrous bone. There are various routes of extension of disease from the middle ear to the apex, such as; the prelabyrinthine pneumatic spaces, perforations in the upper surface of the petrous bone, the carotid canal, the roof of the attic or tubal canal, as from cholesteatoma, where the dura mater is very loosely attached. A case is described in which there was osteomyelitis involving the whole of the petrous bone.

A Contribution to the Histology of Aural Tuberculosis—E. OPPIKOFER (Bâle).—Among the specimens were several in which, in spite of death from tuberculosis, the aural lesion showed a tendency to heal by ingrowth of meatal epidermis into the middle ear. Another was one with tuberculosis of the auditory nerve trunk associated with a solitary mass of tubercle in the cerebellum, death having resulted from tuberculous meningitis.

NEUMANN (Vienna) quoted the observations of Loewenstein who, by a new method of cultivating the bacilli had found, in Vienna, aural tuberculosis in 35 per cent. (? of chronic middle-ear suppuration).

The Opening of the Middle-ear Cavities from the Meatus—VON EICKEN (Berlin).—This is effected by means of a rotating bur, the inner wall being guarded by a hook. Attic cases seem the most eligible; there must be no evidence of complications and the Röntgen picture should show a completely sclerotic mastoid process.

The Röntgen Picture of the Mastoid Process and its Clinical Significance—STEURER (Tübingen).—In order to avoid the congestion of the vessels of the head occurring in the lying posture, the sitting position is recommended. Sharply defining Coolidge tubes with a variable focus, doubly dipped films with doubly intensifying leaves are employed with an exposure of from three to six seconds. In an examination of 300 temporal bones taken from the cadaver Steurer found in most cases a notable agreement with the findings on dissection as regards anatomical structure (extent of cells, position of sinus, course of emissaria, compact and spongy areas of bone). In some cases deeply situated groups of cell-spaces could not be demonstrated. Sometimes, especially in aged individuals, there

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was a clouding of fairly pneumatic cells owing to thickness of the cortex. In respect of prognosis, it was favourable in acute cases with normal pneumatisation and vice versa. The Röntgen picture is often of great value in the insidious form of almost symptomless mastoiditis following infection with streptococcus mucosus or pneumococcus, where operation is delayed till the point of danger is reached.

The development of foci of breaking-down of bone is sometimes shown.

VON EICKEN and others (in discussion) insisted on the greater value of stereoscopic pictures.

Röntgen-raying of the Eustachian Tube—AMERSBACH and WUCHERPFENNIG.—The normal position was studied from various directions by means of radiograms of skulls with leaden wires in the bony tube. These showed that the two posterior upper molars lay in the same plane as the axes of the two tubes. With various appropriate precautions the rays are directed by means of a lead-glass tube through the mouth in the direction of the tube in four applications at intervals of a week. There is checking of the secretion of the glands in the tube, diminution of the cushion, and also shrinking of the post-nasal adenoid tissue.

Malignant Neoplasms of Organ of Hearing—J. FISCHER (Vienna).—Three cases are narrated, one of carcinoma, one of sarcoma and one of endothelioma. The first was remarkable for the extent of destruction of the petrous bone. In the inner ear there were, however, no carcinomatous outgrowths, but only detritus. In the second case the sarcoma had invaded the inner ear (the organ of Corti being little altered) and perforated the roof. The endothelioma arose at the base of the skull and made its way through into the middle ear, not further outwards. It scarcely affected the capsule of the cochlea and left the membranous internal ear intact.

Pulse-tracing in Diseases of the Ear and Intracranial Complications—NÜHSMANN (Halle).—Bradycardia, though usually attributed to the intracranial pressure is probably due to toxic influences on the vagus centre. It is generally an accompaniment of a slight or even minimal meningitic irritation. It is a reason for making a lumbar puncture and being ready for operative treatment.

BORRIES said that it was also a labyrinth symptom.

Brain Puncture — FREMEL (Vienna). — Among the possible dangers of exploratory puncture of the brain, hæmorrhage was found in 30 cases (punctured with a hollow needle through the dura mater) to be the only serious one, and it occurred in 4 of these cases. Bleeding is favourably influenced by jugular vein ligation (increasing the intra-

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cranial pressure) and by lumbar puncture (producing by suction diminution of intravascular pressure). Puncture is safest in cases of abscess, least safe in meningitis.

Röntgenographic Delineation of the Extent of Temporo-sphenoidal Abscesses—O. MAYER (Vienna).—This is made possible by the injection of iodipin. After exposure of the dura mater the exploratory puncture of the temporo-sphenoidal lobe is carried out and if pus is withdrawn, 5 or 10 c.c. are sucked out with the syringe and a smaller bulk, 2 to 3 c.c., of iodipin is injected. Sagittal and frontal radiograms are then taken. The most favourable site for evacuation, as also for counter-opening, can be defined. If the symptoms continue, another injection and radiogram can be made. A strip of gauze moistened with iodipin can be introduced into the cavity of an abscess which has been opened with the chance of the iodipin finding its way into the anfractuosities.

The Treatment of Brain-abscess with Auto-vaccines—W. UFFENORDE (Marburg).—While favourably disposed to the use of vaccines (auto-vaccines by preference, and stock or other vaccines only when necessary to avoid loss of valuable time), Uffenorde insists that "the use of vaccines must by no means exclude or in any way take the place of the therapeutic measures generally invoked." He gives two cases, one of frontal abscess and one of cerebellar abscess, which appeared to have become hopeless in spite of every other form of treatment, until the time of the injection of auto-vaccines. These are especially indicated if ample opening and drainage of the abscess do not reach the goal, if prolapse formation points to more or less extensive encephalitis, and sacculated abscess or further abscess formation can, as far as possible, be excluded. The vaccines might be prepared in every case in which abscess is discovered.

KOBRAK thought vaccine treatment should be employed with less scepticism. He had them prepared in early mastoid operations.

Cerebellar Abscess with Death from Mediastinal Emphysema due to Block of the Cerebello-medullary Cistern and Consequent Interference with the Respiratory Centres—KINDLER (Graz).—Fourteen days after a radical mastoid operation which followed a nearly normal course, there occurred suddenly in the night very severe cerebral symptoms—dullness, cyanosis, Cheyne-Stokes breathing, violent headache. Puncture of the medial cerebellar cisterna evacuated no fluid. Lumbar puncture gave a pressure of 140 mm. of mercury, turbidity, and pleocytosis. A cerebellar abscess was opened, and soon after this the Cheyne-Stokes mode of breathing ceased and gave place to accelerated respiration and pulse. For a few hours the patient was conscious and free from pain, but the giddiness

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returned with cyanosis of the trunk and extremities. Two days later the patient died. The autopsy revealed the cerebellum with emptied abscess deeply pressed into the foramen magnum, and the cistern filled with swollen brain masses. Among other conditions there was extensive emphysema of the whole mediastinum, starting from a left-sided pulmonary emphysema. The emphysema was considered to be the cause of death.

RUTTIN had seen three similar deaths, but in them the respiration suddenly stopped while the pulse continued, and the patient only died when artificial respiration was given up.

The Histology of the Lymphatic Glands in Lateral Sinus disease—J. POPPER (Vienna).—Popper considers that in some septic febrile cases the glands are affected before the vein and that the inflammation extends from the glands to the vein. The vein may be practically normal while the temperature is febrile and the glands on section show bacteria or other evidences of inflammation.

SCHEIBE had seen cases which confirmed Popper's views.

BRUNNER, in reference to Popper's observations, said he had often been struck by the presence of foci of suppuration in the tonsils of patients who had died with pyæmia and sinus thrombosis.

The Pathology of Otogenous Thrombo-phlebitis of the Cavernous Sinus—BRUNNER (Vienna).—This condition is always associated with some other cerebral complication, either sigmoid sinus phlebitis or meningitis, or the two combined. The pathways from the sigmoid sinus may be (1) along the petrosal sinuses or the internal jugular; (2) retrograde transference of portions of thrombus; (3) the carotid plexus. From meningitis the process may extend (1) by infection of the pial veins; (2) infection at the tip of the petrous bone; (3) infection of the carotid plexus. Brunner states that cavernous sinus phlebitis is more frequent among the otogenic cerebral complications than is usually supposed. Its most common associate is meningitis, but it may occur apart from this, in which case there is thrombo-phlebitis of some other sinus as well.

ENGELHARDT pointed out that even very extensive suppuration at the tip of the petrous bone did not usually cause cavernous sinus thrombosis.

POPPER narrated a case in which the symptoms led to the lateral sinus and jugular vein operation, but in which there were found *post-mortem* normal conditions in all the sinuses except the cavernous, in which there was an organised suppurating clot. With this there was suppuration at the tip of the petrous bone without trigeminal neuralgia, abducens paralysis, or meningitis.

The Histology of Tuberculous Labyrinthitis—L. DEUTSCH (Vienna).—In a case occurring in a child aged $3\frac{1}{2}$ years, with chronic

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middle-ear suppuration, facial paralysis, recurring headache, complete absence of caloric reaction, and subsequent fatal tuberculous meningitis, there was found obliteration of the semicircular canals and cochlea, the former with old compact bone, the latter with younger spongy bone. The extension to the meninges appeared to have taken place along the nerves in the *foramen lacerum posterius* and not by the internal auditory meatus, the carotid artery, or the jugular bulb.

The Significance of the Cranial- and Cranio-tympanic Route of Bone-conduction—RUNGE (Jena).—For deep tones the tympanic ossicular apparatus is of importance, but the higher the pitch of the tone the more important becomes the purely cranial route.

The Significance of Shortened Bone-conduction—A. RETJÖ (Budapest).—Shortened bone-conduction can be produced by rigidity of the two fenestræ and, therefore, it can only be accepted as evidence of involvement of the auditory nervous apparatus if there is evidence that the fenestræ are intact, namely preservation of hearing for deep tones.

The New Cranial Resonance Test and its Significance in the Diagnosis of Diseases of the Ear and Nasal Accessory Cavities—K. GOLDBERGER (Vienna) and S. SCHÖN (Znaim).—The ears of the patient are connected with those of the observer by two india-rubber tubes. The tuning-fork is placed on various parts of the head. If it is on the left half of the patient's head it is heard most in the observer's right ear (normal "diagonal" hearing). In pure nerve deafness this diagonal hearing persists, but in unilateral obstruction the fork is heard by the observer least in the ear connected with the obstructed one, whereas the patient hears it most in the obstructed ear. With normal nasal sinuses the fork on any sinus is heard "diagonally," but with unilateral disease it is heard in the ear of the affected side. It is claimed for the method that it affords the observer a means of checking to some extent the patient's statements.

Further Experiences on Nerve Deafness associated with Increase of Uric Acid in the Blood—T. GERMAN (Budapest).—Although in Hungary cases of gout are uncommon, German found a number in which nerve-deafness was associated with an excess of uric acid in the blood, namely above the normal from 3.5 mg. per cent. even up to 6 mg. per cent. With non-purin diet and atophan, the uric acid diminished and the hearing sometimes improved very considerably. In certain cases the favourable result did not ensue and possibly the deafness was due to some other co-incidental cause.

Professor VOSS confirmed German's observation and recommended the treatment in appropriate cases.

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Societies' Proceedings

A New Principle in improving the Hearing—PERWITZSCHY (Greifswald).—Comparing hearing-trumpets and spectacles, the wave-lengths for sound are so enormously longer than those for light, that the trumpets would need to be of a much greater size than is practicable. The electrical telephone-microphones magnify all tones, and not merely the desired ones, to such an extent as to limit very greatly the scope of their usefulness. Brünings develops the principle that dullness of hearing is, as a rule, only partial, *i.e.*, limited to a certain portion or portions of the normal range of audition, and that an apparatus is required which can "transpose" the tones into a higher or lower octave. Such an apparatus might be devised according to Arco's principle with comparative ease for simple tones but with doubtful possibility for combined ones.

BRÜNINGS considered the question from the point of view of the understanding of the sounds of the human voice and dwelt on the specific tone (Formant) peculiar to each vowel apart from the note on which it is sung or spoken. This may be very high in the scale; the retention of the specific part of the range of audition must be assured for intelligibility, when transposition upwards is aimed at for those deaf to deep tones (middle-ear cases) or downwards for those whose deafness is for the higher tones (labyrinthine cases). To carry this out was a difficult physical problem.

The Advantages and Disadvantages of Electrical Apparatuses for the Deaf—B. LANGENBECK and H. SELL (Berlin).—The normal person can hear and understand the sounds conveyed through the telephone in spite of the disturbing "proper" tones and overtones of the disc, but the deaf person cannot pick out the essential partials of the speech sounds. To increase the total loudness is to magnify the disturbing tones along with the others. By the use of a light muffled vibrating membrane the disturbing "proper" overtones are eliminated. The microphone requires a certain intensity of sound to start it ("threshold-stimulus")—and in cases of slight deafness this may be greater than the patient's ear requires—hence it is intelligible that for such cases the hearing-trumpet may be more helpful than the electric apparatus. Comparing various ear-trumpets and telephone-microphones the authors found a combination of double-microphone, microphone strengthener and box-receiver with ring-magnet gives the best results in all except mild cases.

VON EICKEN found in an extreme case that the inclusion of a cathode tube was successful in enabling the patient to resume his profession of teaching and examining.

NEUMANN and KÜMMEL dwelt on the importance of understanding as compared with hearing.

On the Physiology of the Pointing-test—E. WODAK and M. H. FISCHER (Prague).—The authors discuss the pointing-test in

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the light of Wodak's description in the *Monatschrift* for 1924, pp. 404 and 1107, and for 1925, No. 59. Among other important observations it is noted that when the pointing is carried out quickly, it is often in the same direction as the nystagmus instead of in the opposite direction as when done slowly. The slower the pointing the more marked is the deviation.

Rotation of the Eye on Galvanic and Static Irritation of the Labyrinth—STRUYCKEN (Breda).—By means of a lens with a slit formed by the near apposition of two prisms the rotation induced by galvanism or by leaning the head over towards the shoulder can be studied as revealed by the altered position of the conjunctival vessels. Contraction of the neck muscles by means of faradism without movement of the head produces no rotation. If the right labyrinth is hypo-æsthetic (equivalent to hyper-æsthesia of the left) the rotation on leaning to the left is less developed, that on leaning to the right more so. Continuous vertigo with loss of galvanic and static eyeball rotation points to bilateral degeneration of Deiter's nuclei.

Experimental Investigation as to the Central Localisation of Compensation of Nystagmus after Unilateral Destruction of Labyrinth—T. H. DÉMÉTRIADES and E. A. SPIEGEL (Vienna).—If the left labyrinth is destroyed spontaneous nystagmus to the right side develops. This disappears if the other labyrinth is destroyed soon after or at the same time. If the second labyrinth is only destroyed after the lapse of some days when the nystagmus is going off, nystagmus appears in the direction of the labyrinth first removed. This is the compensatory nystagmus referred to. It occurs even if the cerebellum is removed, but it is prevented from occurring if the intramedullary terminations of the first operated side are destroyed. The compensation is explained by an acquired hypersensibility of the labyrinth-nuclei in the medulla. It also explains the compensation of rotational nystagmus observed after extirpation of one labyrinth.

Apparatus for the Observation of Nystagmus during Rotation—FRENZEL (Greifswald).—This apparatus is made in the scientific technical works at Greifswald. An observation tube which remains fast is attached to the top of a vertical tube containing reflecting mirrors and rotating with the revolving chair. These mirrors enable the observer to watch the movements of the patient's eye without undergoing rotation along with the patient.

Static (position) Sensations and Reflexes in the Human Subject—KARL GRAHE (Frankfort).—By means of a table formed by an iron frame over which sail-cloth is stretched, fitted with various straps, head fixators, and adaptable foot plates, an individual can be

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placed in almost every conceivable position. The observations of Delage, Alexander and Bárány are referred to and fresh experiments described. The patient is required to describe his own position. He generally thinks a certain position in space to be reached sooner than is actually the case. Cold irrigation of an ear gives a sensation of leaning of the head to the opposite side; warm irrigation one of leaning to the irrigated side. If the arms are stretched symmetrically straight forward from the shoulders, inclination of the body to one side produces a higher position of the opposite arm, owing apparently to the unsymmetrical pressure of the underlying support.

The Influence of Labyrinthine Stimulation on the Blood-pressure—WOTZILKA (Aussig).—Wotzilka's previous investigations showed that after caloric or rotational stimulation of the labyrinth the blood pressure after a slight rise fell below the initial degree, and that this could be counteracted by previous injection of adrenalin. He now states that atropin has the same neutralising effect.

Cartilage Vascular Systems and Otosclerotic Foci—ECKERT-MÖBIUS (Halle).—The author indicates three factors in the evolution of the otosclerotic foci. First, a general constitutional factor consisting in disturbances in the region of the mesenchyma, probably due to inherited disturbances in the endocrine glands. Second, the occurrence between the terminal distribution of the primary cartilage vessels and the secondary bone vessels of a poorly vascularised, biologically feeble osseous tissue of unstable metabolism in the position where otosclerotic foci are usually found. Third, an exciting factor in the form of metabolic disturbances of general and perhaps also of local origin which explain the greater incidence in the female sex and the developmental years, as also the course and the injurious influence of gravidity.

The Pathology of the Vestibular Nerve in Various Diseases—O. MAUTHNER (Mähr-Ostrau).—Overexcitability of the nerve is found in many cases of anxiety-neurosis. There are cases of incongruity as between rotational and caloric excitability and as between one ear and the other. The degree of excitability may vary at different stages of a disease. In nephritis there might be bilateral overexcitability in the acute stage and underexcitability later on, ultimately when chronicity is established the excitability may be quite normal.

The Operative Treatment of Meningitis—MAX MEYER (Würzburg).—Meyer's procedure consists in first laying freely open the place where the cause lies or is suspected to lie such as a frontal sinus, a middle ear, a bruise or wound. He then punctures the dura mater on the flat, and if any abnormality in the fluid extracted exists, slits

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the dura mater and inserts an iodoform gauze drain. The next step is the treatment of the meningitis as such in which the sheet-anchor is lumbar puncture every two days, remembering the extreme moderation in quantity required if there is suspicion of cerebral abscess. He has been led to dispense with chemico-therapy in view of the contradictory results. Four cases, of which three recovered, are narrated in illustration.

On Clinical Measurement of Brain-pressure—BRÜNINGS (Greifswald).—As the pressure of the fluid shown by lumbar puncture does not give a correct indication of the cerebral pressure, Brünings has devised a method of manometric measurement by means of a tambour placed on the exposed dura mater. This exposure may be effected by means of a trephine-opening of from 1 to 2 cm. in diameter or through the opening made in aural operations. The moment when the oscillations (taken with various precautions) are at their maximum gives the required datum. This occurs when a certain degree of pressure in the tambour is attained by means of a ball-bellows. A special form of manometer (to meet the requirements of Frank and Straub) is used. Vital physiological cerebral pressure is equivalent to about 24 cm. of water. It is raised by pressure on a lateral sinus or jugular vein or by a Bier's bandage on the neck, and may reach even 70 cm., and need not produce any symptoms. Lumbar puncture generally produces lowering of the cerebral pressure but not in regular proportion. Pressure excited through the lumbar puncture may raise the cerebral pressure considerably and even cause resorption of fluid in the cranium.

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By ALEX. R. TWEEDIE, F.R.C.S.

Discussion on the Value of X-ray Examination in Diagnosis and as an Indication for the Mastoid Operation.

Dr GATSCHER in his opening remarks stressed the extreme importance of the accurate consideration of the ordinary details of clinical examination, in assessing the radiographer's report.

In the discussion which followed, the general feeling was obviously to the effect that the X-ray report should be taken with extreme caution. This attitude was further emphasised by the President, Prof. Ruttin, who quoted two cases of his own, in which the diagnosis between otitis externa and otitis media, or the combination of both, was extremely difficult to determine; in both cases, the radiographer reported pathological involve-

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