EAR.

Gradenigo (Turin).—*A New Form of Osteo-Tympanal Acoumeter.* "Zeitschrift für Ohrenheilk.," Dec., 1892.

THIS consists of several coils of isolated wire connected by screw terminals with the wires from a faradic battery with interrupted current. It is placed in contact with the bones of the head, and the intensity of the sound transmitted can be varied from zero to a maximum of one hundred by means of an inner iron cylinder, marked with the appropriate graduations and capable of being moved in or out till the minimum volume of sound audible to the patient is found. The pitch depends on the frequency of interruption of the current. With this instrument Gradenigo found evidence of the diminution of bone conduction with increase of age. In cases in which the tuning-fork on the vertex was heard better in the affected ear, this acoumeter was heard better in the unaffected one. He infers from this that the effect in case of the tuning-fork is not due to increase of conduction, but to the increased resonance called forth by a sufficiently loud tone in most cases of disease of the middle-ear. [We confess an inability to appreciate at present the exact force of the arguments we have endeavoured here to reproduce, but, doubtless, a practical trial of the instrument would render its value more evident.—ED.] In all cases of middle-ear disease he found the osteo-tympanal conduction lowered as tested by means of the *minimal* sound perceived. *Dundas Grant.*

Lowe, T. Pagan (Bath). — *A New Method of Inflating the Tympanum.* "Brit. Med. Journ.," Feb. 25, 1893.

THIS consists in applying the air douche in the usual way as the patient holds his breath at the end of a deep inspiration. *Wm. Robertson.*

Bronner, A. (Bradford). "Brit. Med. Journ.," Mar. 11, 1893.

SHOWED specimens demonstrating the anatomical relations of the lateral sinus, mastoid cells, attic, and middle ear. *Wm. Robertson.*

Harris, A. B. (London).—*On a new Micro-Organism of Spreading Œdema.* "Journ. of Path. and Bact.," Feb., 1893.

THIS forms the subject of the Liston medal, the research being undertaken at the suggestion of Prof. Horsley, who was struck by the vomer-like appearance of the abscess in the temporo-sphenoidal lobe, arising from otitis media, in a case worth mentioning. The tissues in question (abscess walls) were found to contain two kinds of micro-organisms: one, which formed a buff colony of fair-sized diplococci, and was pathogenic; the other, a pink non-pathogenic organism. About half the recorded cases of otitis media purulenta have been due to pyogenic micro-organisms, strepto- and staphylococci; two cases to Fränkel's

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pneumococcus, two cases to Friedlander's pneumo-bacillus. In children the lesions are largely tubercular, while lately, as has been noted in these pages, influenza is not an uncommon antecedent of otitis media. When the membrana tympani is unimpaired then infection spreads per tubam.

The case referred to was that of a female, aged thirty-eight, married, who four months before admission (when she was semi-conscious) had an attack of influenza, leaving her with a discharge from the right ear. This occasioned pain in the same side of the head, and shortly afterwards the face was drawn to the right, while the left side of the body became weak. Vomiting set in without nausea, and after taking to bed she became drowsy, stupid, and finally delirious. On admission she was hemiplegic on the left, with paralysis of the left side of the face. No marked optic neuritis. Mr. Horsley trephined behind and on a level with the upper border of the right squamous suture. Pus was found in a downward direction, and another trephine opening was made further forwards and lower down. Tubes were introduced, cerebral tension was relieved, and paralysis of the left arm became less, while the rigidity had disappeared. Two days later, on laying the right mastoid antrum open, it was found diseased; the tegmen tympani necrosed, causing a communication between the cranial cavity and middle ear. Twenty-eight days after this, the paralytic condition becoming worse, Mr. Horsley trephined behind the first opening, thus freely draining the abscess. The following day the temperature reached 105, when the patient died. The *post-mortem* showed a round hole in the tegmen, where the dura was wanting, but adherent around; no meningitis. The hole communicated with an extensive abscess burrowing under the cortex of the temporo-sphenoidal lobe, which abscess was marked by a border five or six millimètres in thickness, of solid œdematous tissue. Pieces of this œdematous tissue placed under the skin of guinea pigs gave rise in a few days to brawny purulent phlegmon, which, on being laid open, displayed a cavity filled with pus. Encapsuled diplococci were found throughout the tissues similar to those found in the original abscess wall in the brain of the patient. *Wm. Robertson.*

Gradenigo (Turin).—*The Clinical Evidences of Affections of the Auditory Nerve.* "Zeitschrift für Ohrenheilk.," Dec., 1892.

As distinguished from diseases of the labyrinth, these are characterized by *diminished perception chiefly of the tones in the middle* of the range, and sometimes even by their entire loss when tested by tuning-forks (without overtones), not by other instruments or the watch. Another characteristic is an *extreme degree of functional fatigability* of the nerve. This rarely occurs in middle-ear disease or in neurasthenia, and with comparative frequency in disease of the internal ear, but it is only in affections of the nervus acousticus that it is very marked. He has observed this symptom in neuritis and in tabes dorsalis. Hysterical deafness is distinguished from this by the equal diminution of perception for all the notes of the scale, and also by absence of vertiginous attacks. In cases of commencing auditory neuritis electrical stimulation reveals increased excitability of the nerve. *Dundas Grant.*

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Baber, Cresswell.—*Auditory Nerve Deafness treated with Pilocarpin.* "Brit. Med. Journ.," Feb. 25, 1893.

IN this case—an unmarried female, aged thirty—deafness came on suddenly eighteen months before admission. Tuning-fork A was not heard on the mastoids or near the auricles. Voice heard only through a powerful speaking-tube. Membrana tympani entire, pale, and slightly retracted. No sign of syphilis. After the first four injections of one-eighth of a grain of pilocarpin the tuning-fork was heard on the mastoids and near the auricles. Rinné's test negative. Twenty-three more one-sixth of a grain pilocarpin injections were given without much benefit in advance of above. Mr. Baber refers this case to the category of those of internal ear trouble remediable by pilocarpin. In this case the nerve deafness was complicated with middle-ear disease, which remained unaltered by the treatment; as the nerve lesion improved the tuning-fork test altered. *Wm. Robertson.*

Gradenigo (Turin).—*Monauricular Diplacusis.* "Zeitschrift für Ohrenheilk.," Dec., 1892.

DIPLACUSIS or double hearing may be binauricular or monauricular. In binauricular diplacusis the false tone may be out of tune with the objective (true) one. The interval between them is then usually quite a small one—one-third or one-half to one tone higher or lower. In these *dysharmonic* cases the lesion is a slight affection of the internal ear, accompanying an acute attack of middle-ear inflammation, or an acute recrudescence of chronic inflammation, or else a primary commencing internal ear disease. In other cases the diplacusis is *harmonic*, the false tone is an overtone of the objective one—an octave, fourth, fifth or sixth—above or below the latter. The occurrence is due to the reinforcement of the overtone to the detriment of the fundamental one through alteration in the resonance of the ear cavity produced by middle-ear disease, the internal ear being ordinarily intact. Monauricular diplacusis is analogous to the harmonic binauricular form, the false tone being an harmonic overtone and due to changes in the conducting apparatus. An instance of it in a violinist with unilateral middle-ear catarrh is described. A tuning-fork was held before his ear, and as the tone began to die away it was accompanied by another, an overtone. Another was in a non-musical patient with bilateral middle-ear catarrh and some involvement of the internal ear. Gradenigo could not exclude the possibility of the cause being some increased irritability of the group of labyrinthine elements corresponding to the false tone. *Dundas Grant.*

Kosegarten (Kiel).—*Disease of the Ear in Influenza.* "Zeitschrift für Ohrenheilk.," Dec., 1892.

OUT of about 2000 cases of ear disease 97 were attributed by the patients to influenza. In only three were the symptoms very severe, and hæmorrhages into the membrana tympani were never present. The "attic" was exclusively or chiefly affected in a remarkable number of cases. In those cases in which the inflammation was confined to the attic the membrane of Shrapnell was intensely congested and swollen and some-

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times bulging in a saccular form. The congestion extended to the neighbouring part of the upper meatal wall; the malleal vessels were moderately injected, but the rest of the membrane was normal, with the exception of a slight loss of lustre. Puncture of the membrane of Shrapnell evacuated a quantity of somewhat viscous and usually sanguineous fluid. ***Dundas Grant.***

X.—*Suppurative Median Otitis, with Multiple Nuclei of Suppuration from Staphylococci.* "Annales de la Soc. Medico-Chirurg. de Liege," Sep., 1892.

THE patient complained of pains in the tibiæ. The diagnosis could not be made sufficiently accurate to justify surgical operation. However, an abundant bilateral otorrhœa occurred, without premonitory symptoms, showing by cultivation a pure cultivation of staphylococcus pyogenes albus, elucidating the condition. Some days afterwards death occurred, and the diagnosis of infectious osteo-myelitis was confirmed. The femurs, tibiæ, and fibulæ were filled with pus, which was merely a pure culture of staphylococcus pyogenes albus, as determined by the researches of Dr. Mulvoz. ***Hicguet.***

Schleicher.—*Severe Operations for Osseous Otitis.* "Ann. de la Soc. de Med. d'Anvers," April, 1892.

THE author reports eleven cases of opening of the mastoid apophysis. ***Hicguet.***

Koerner and **Wild** (Frankfort). — *Percussion of the Mastoid Process, along with the Communication of a New Case of Diabetic Caries of this Bone.* "Zeitschrift fur Ohrenheilk.," Dec., 1892.

PERCUSSION is practised, as described by Lücke ("Centralbl. fur Chir.," 1876, page 673, and "Archiv für Klin. Chir.," 1877, vol. xxi., page 838), for the various bones of the body. A hammer, with a long, springy whale-bone handle, and a steel head, covered at the striking part with hard rubber, is employed for percussing a small area limited above by the linea temporalis, below by the attachment of the sterno-mastoid, in front by the posterior border of the auricle, behind by the hairy part of the scalp. The process is only of use when the soft parts over the mastoid are normal, the slightest thickening—even from the application of iodine, collodion, or the use of chloride of ethyl—being sufficient to alter the resonance. The presence of a perforation of the drumhead with pus in the tympanum does not affect the percussion-sound.

In experiments on the dead body it was found that the resonance was unaltered when the brain was removed, when holes were bored into the antrum through its tegmen, or when paraffin was poured through these holes into the cavities. There was *comparative dulness when the whole interior of the mastoid was cleared out from within*, and a shell of only a few millimètres in thickness left, the dulness disappearing when the cavity was filled with paraffin. Therefore *disease of the bone itself, and not solidification of its cavities, is indicated by diminution of the normal resonance on percussion.*

In a case of severe deep-seated mastoid pain without external signs, and without rise of temperature, resisting all treatment for nineteen days,

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there was found abnormal dulness on percussion. The urine contained sugar, and a diagnosis of acute central ostitis of the mastoid of diabetic origin was made. This was confirmed by operation, almost complete breaking-down of the bone being found at a depth of about three millimètres, the dura of the posterior fossa and the lateral sinus being laid bare. [Kirchner and Koerner have already published cases of severe disease of the ear complicating diabetes. The results of examination of the urine is most important in the prognosis of suppurative otitis.—ED.]

Dundas Grant.

Bresgen (Frankfurt-a-M.).—*What are the Causes giving rise to Inflammations of the Ear or the Neighbouring Parts after Operations upon the Nose and Naso-Pharynx?* "Wiener Med. Woch.," 1892, Nos. 45, 46 and 47.

THE author recommends that patients suffering from catarrhs or other affections of the nose, or after operations, should sniff with great care, so that no mucus may enter the nose. During sniffing one nasal meatus should be closed, and the mucus be removed through the other. Inflammations of the upper regions of the nose may be propagated by the lymph channels, and also by suppuration of the surface. The first condition is realized if the discharge of the pus is prevented by swelling of the mucous membrane; the second if the nose is free so that the pus can enter the naso-pharyngeal space. The consequences of operations may be prevented by careful operation and after-treatment, especially by the employment of pyoktanin. *Michael.*

Braislin, W. C.—*Otitis Media Purulenta following Amputation of the Uvula.* "New York Med. Journ.," Mar. 4, 1893.

IN this case the patient, a man aged fifty-five, suffered from pulmonary phthisis. He was troubled by a most distressing cough, which was considered by the author to be aggravated by an elongated uvula. The elongated portion was accordingly removed. Severe pain which was felt at the time of its amputation lasted for several days. The patient was seen three months later, and then stated that his right ear had been discharging for six weeks. The membrane was found thickened and opaque, and perforated in two places. The discharge was thin and watery, and almost without odour. The author inclines to the view that the middle-ear disease was a consequence of the operation upon the uvula, and also that it was of a tubercular nature, for the following reasons: (1) the absence of pain at the time the discharge from the ear appeared; (2) the resistance of the disease to all forms of treatment; (3) the marked tenderness on the application of any remedial measure; (4) the existence of extensive tubercular lesions in the lungs.

[*It is to be regretted that in this case no examination of the aural discharge for tubercle bacilli was made. Many chronic middle-ear lesions, according to the abstractor's experience, are of a tubercular nature, and in suspected cases it is advisable to examine the discharges (or granulation tissue if present) for bacilli. In tubercular ear lesions there is, as a rule, early involvement of bone; hence a somewhat more heroic line of treatment is indicated than in those cases of non-tubercular origin.*—ABSTRACTOR.] *W. Milligan.*

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Koerner (Frankfort).—*The Extension of Diseases of the Tympanum along the Carotid Canal into the Cranial Cavity.* "Zeitschrift für Ohrenheilk.," vol. xxiii., Dec., 1892.

THE internal carotid in its canal gives off arteries, which supply the tympanum. These pass through minute canals in the intervening bony wall. Similarly veins pass back into a venous plexus surrounding the artery and communicating with the cavernous sinus, and lymphatic vessels from the eye, accompanying the ophthalmic artery, are continued along the carotid. The bony wall is often very thin, and sometimes incomplete, and in some cases the carotid may be punctured during paracentesis. In simple middle-ear suppuration pus has been frequently found in the carotid canal. The lymphatics may be thrombosed, and swelling of the optic disc occur without intra-cranial complication. So also the venous plexus may be infected, and disease of the cavernous sinus result. This last condition would be indicated by pyæmic symptoms, combined with same-sided paralysis of the abducent nerve, and both-sided optic neuritis. The carotid may be eroded through disease of its walls, and fatal hæmorrhage result. Tuberculous disease of the tympanum may extend along the vessel to the pia mater. Cerebral embolism may result from carotid thrombosis in middle-ear suppuration, with caries of the petrous bone, as in cases observed by Gairdner and Barr ("Glasgow Med. Journ.," Oct., 1887), and by Causit.

Many references are given in the original paper, showing the interest and importance attaching to diseases of this region. *Dundas Grant.*

Jones, Hugh Ed.—*Cases of Intra-Cranial Abscess, with Remarks.* "Liverpool Med. Chir. Journ.," Jan., 1893.

IN this interesting and important communication the author lays stress upon the following important proposition: *that until the so-called mastoid antrum, the attic of the tympanum, the anterior surface of the petrous bone, and (in cases of suspected cerebellar abscess) the sulcus lateralis have been thoroughly explored for pus, it should not be assumed that a temporo-sphenoidal or cerebellar abscess exists, or at least no operation should be undertaken to relieve the last two conditions which does not in its preliminary part satisfactorily dispose of the others.*

In the first case, the patient, a boy aged twelve, had suffered from an offensive purulent discharge from the left ear for three or four years. Three days before admission the discharge became markedly diminished, and severe pain in the head was complained of. The following day the left facial nerve was found paralysed. During the following few days the temperature varied from 102·8° F. to 99·8° F., and the pulse from 72 to 56. The patient was drowsy and complained of always feeling tired. He answered questions rationally but very slowly. An attack of aphasia was noticed at one time which lasted for an hour. Double optic neuritis and slight divergent squint of the left eye were observed. Tâche cerebrale could easily be elicited. There was no particularly tender spot over the mastoid or temporal area of the skull. A disc of bone was removed one inch above and half an inch behind the osseous meatus (borders). The dura was noticed to bulge slightly. A grooved needle was pushed inwards into the

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substance of the temporo-sphenoidal lobe, and greenish fœtid pus mixed with small shreds of solid matter (quantity six to eight drachms) trickled out. The cavity was washed out with warm boracic lotion. A few days after the operation drainage was found somewhat imperfect. It was also noticed that *some kind of communication existed between the abscess cavity and the cavity of the tympanum.* The patient was put under chloroform again, the abscess cavity reopened, and a No. 12 gum elastic catheter placed *in situ*. The patient made an excellent recovery.

In the second case the symptoms pointed to the presence of a cerebellar abscess. On exploration no pus, however, was found. The author thinks it probable that a subdural abscess with meningitis existed, which discharged through the tympanic cavity.

The patient, a man aged twenty-eight, had had left-sided middle-ear disease for from sixteen to seventeen years. On September 28th he was found to have left facial paralysis with acute pain over the mastoid process. An operation was undertaken (with probable injury to the lateral sinus), which gave temporary relief. On November 6th the headache returned. During the next few days vomiting and cold shivering attacks were frequent. On admission to hospital patient complained of great headache, had a staggering gait, but no giddiness. There was no mastoid œdema, and no optic neuritis. The tympanic cavity was first cleared out, and then the mastoid antrum was opened, but was found to contain no pus. The headache now disappeared for two days and then returned. The temperature, pulse, and respirations were subnormal. Commencing optic neuritis was also found. It was decided to explore the cerebellum. This was accordingly done, but no pus was found. Two days after this second operation a copious discharge of pus from the meatus took place. After this the patient gradually recovered and left the hospital in apparently perfect health.

[The author appends in a tabular form the leading symptoms met with in intra-cranial lesions following ear disease. Those interested in this subject would do well to refer to the original paper.]

W. Milligan.

ASSOCIATION MEETING.

PARISIAN SOCIETY OF LARYNGOLOGY, RHINOLOGY, ETC.

Phonetic Rôle of the Trachea or "Porte Vent." By Dr. MOURA.

§ I. LENGTH.

AFTER quoting other authors (Galien, Dodart, Muller, P. Koch) Dr. Moura goes on to remark that the vibrations of the glottis and of the wall of the tracheo-bronchial tree are not of the same order, the one being direct, and others indirect, or, so to speak, second-hand. The tracheo-bronchial tree being during life in a state of tension (the isolated trachea after death removed from the body shortening ten, fifteen, twenty millimetres) permits respiration to fulfil in part the conditions of rigid tubes of musical instruments, *e.g.*, the hautboy and flute, and gives it a resistance

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