times passing, resulted in all the cases. Older patients did better than young ones. *Waggett.*

EAR.

Baratoux (Paris).—*On a Unit of Measure for the Examination of the Hearing with the Tuning-fork. Normal Series of Tuning-forks. Result of the Examination of a Patient.* "La Pratique Médicale," No. 9, 1897.

THE author has been able to prove from experiments with fifty-eight tuning-forks obtained from different sources, that they do not always give comparable results when bone and air conduction are considered. For acoustic researches it is necessary to obtain a series of instruments of superior quality as made by Koenig, Appunn, or Edelmann.

Our present method of expressing the results obtained by the tuning-fork tests gives only a vague idea of the auditory function as compared with the normal, and when a patient who has been thus tested returns after a considerable interval one cannot satisfy himself as to whether the disease is stationary or advancing without having recourse to the voice, watch, or acoumeter. If, on the contrary, a unit of measure were employed, every aurist would be able to determine the patient's condition. The author even maintains that the use of certain tuning-forks may mislead in the investigation of lesions of the internal ear. He illustrates his remarks by the report of a case in which the diagnosis was carefully worked out by means of a series of tuning-forks. *A. B. Kelly.*

Barling, Gilbert.—*Three Cases of Otitis Media with Brain Abscess.* "Brit. Med. Journ.," June 12, 1897.

Case I. *Otitis Media, Extradural Suppuration, Cerebellar Abscess, Hernia Cerebelli; Recovery.*

THE patient, a boy aged fourteen, was admitted into hospital complaining of extreme pain upon the left side of his head. The pupils were dilated and equal and early optic neuritis was present. The head was much retracted upon the neck. From an incision behind the left ear pus was discharging; there was also pus in the ear, and several enlarged cervical glands were found. The temperature was about 100° Fahr. and the pulse 76 and irregular. The mastoid antrum was first opened, and after that the bone over the sigmoid sinus and the adjacent parts was chiselled away. A considerable quantity of pus was found in the posterior fossa between the dura and the bone. The lateral sinus was not thrombosed. On pressing the neck pus passed up by the side of the jugular foramen. The parts were now thoroughly cleansed after free drainage had been established. For some days there was considerable improvement, and the retraction of the neck nearly disappeared. On the fourth day after the operation, however, the temperature rose to 101·2° Fahr. and the pulse to 120. There was slow horizontal nystagmus of both eyes, and internal strabismus of the left eye. The cerebellar lobe was accordingly exposed and opened, and an abscess containing about three drachms of pus discovered. A few days afterwards restlessness and headache returned, and a hernia cerebelli was seen to be forming. The hernia gradually attained the size of a large orange, but finally disappeared and complete recovery ensued.

Case II. *Otitis Media, Cerebellar Abscess, Trephining, Death. A Second Abscess found at the Necropsy.*

In this case the patient, a female aged forty-four, had suffered since childhood

from purulent middle-ear disease. When admitted to hospital the patient lay in a semi-unconscious condition. There was a little pus in the right ear, and tenderness over the right mastoid process. There was slight horizontal nystagmus, the temperature was 98·2° Fahr., the pulse 84. The antrum was first opened, and then the temporo-sphenoidal lobe was explored. No pus was found, and so the right lobe of the cerebellum was investigated. An abscess containing a drachm and a half of fœtid pus was evacuated at the depth of one inch. For some days afterwards the patient was restless and had a quickened pulse. Five days after the operation twitching of the left arm and leg was noticed, and the temperature rose to 102° Fahr. Several rigors followed, ending in death. At the necropsy an abscess was found at the surface of the cerebellum close to the tentorium, to which the right cerebellar lobe was adherent. This abscess was well above the abscess which had previously been opened. The right lateral sinus was thrombosed, but it was merely an adherent organizing clot.

Case III. *Otitis Media, Cerebral Abscess, Recovery.*

In this case the patient, a female, aged thirty, had for some years suffered from right-sided purulent middle ear disease. When first seen by the author she lay in bed, supine and indifferent. The temperature was 98° Fahr., the pulse 52. A little fœtid pus lay in the right ear, but there was no swelling, redness, or œdema in the mastoid, nor any thickening over the jugular vein. The antrum was first exposed, but no perforation was found in its roof. The temporo-sphenoidal lobe was now examined, and an abscess, containing about an ounce of fœtid pus and sloughs of brain tissue, was discovered. An india-rubber drainage tube was placed *in situ*. Recovery was uninterrupted.

The author says that he accepts the rule first laid down by MacEwen, viz., to first of all open the mastoid antrum, and to explore its walls for perforations through which suppuration may have extended to the inside of the cranium. Should any localizing symptoms be present they will naturally form a guide as to which lobe of the cerebellum should be explored. Failing any such indications, the writer advises the suggestion first made by Percy Dean to continue the mastoid incision into a scalp-flap, covering a portion of the temporo-sphenoidal lobe, the lateral sinus, and the cerebellum.

To effect this the trephine should be applied one inch and a quarter behind the external auditory meatus, and a quarter of an inch above the centre of that canal. By enlarging the opening slightly upwards the parts above the tentorium can be explored; by enlarging it downwards the cerebellum is accessible, and at the same time the lateral sinus is exposed, and its condition can be determined.

W. Milligan.

Blake, Clarence (Boston).—*Intratympanic Disease as a Factor in the Causation of Aural Vertigo.* "Boston Med. and Surg. Journ.," July 1st, 1897.

THE author states that he purposes in this paper to draw attention to such gross interferences with the peripheral organ of equilibration as may serve to explain, in a minor degree, the simplest form of causation of a complex of symptoms which are found in varying extent throughout the whole class of vertiginous cases in which the ear plays a part.

He points out that it stands to reason that if the deviation from a line of equilibrium of a ciliate body projecting into the lumen of a semicircular canal, produced by the inertia of a body of fluid from three to five millimètres in length, and less than half a millimètre in diameter, can cause distinct symptoms incident to the sense of motion, that a permanent deviation of a ciliary body from its normal position, as a result of pressure upon the body of the fluid into which it projects, would bring about a sense of motion, the permanency of which would be

dependent upon the continuance of the pressure or the sensory adaptation to the abnormal condition. He draws attention to the fact that, from clinical observation of cases of distinctly aural vertigo, first, the sense of degree of disturbance of equilibration is, all other things being equal, in definite relationship to the degree of fluid displacement induced by mechanical causes; and, secondly, that the auditory nerve offers no exception to the general rule of acquired toleration of a disturbing influence of a degree within the possible limits of compensation.

The author mentions two cases to illustrate what he terms the grosser forms of mechanical disturbance: one where a granulomatous mass, pressing on the stapes and causing vertigo, was removed by the process of morcellation, with almost immediate relief; and the other when the removal of a cholesteatomatous mass from the upper and posterior portion of the epitympanum gave distinct relief to the symptoms of pressure and vertigo present. *StGeorge Reid.*

Bronner, Adolph.—*A Case of Abscess of the Temporo-sphenoidal Lobe Opened and Drained through the Osseous Auditory Meatus.* "Brit. Med. Journ.," Aug. 21, 1897.

THE patient, a male aged twenty-eight, had suffered from chronic suppurative middle ear disease for five years. Suddenly he was taken ill in his office, and was removed to his home. When seen by the author three days afterwards he was semi-comatose, but complained of intense and unbearable pain in the head; the pulse was 60, the temperature 104° F., and the optic discs were inflamed and their edges blurred. A large incision was made around the left auricle, the cutaneous auditory meatus was cut through, and the auricle drawn downwards. The remains of the membrane and of the ossicles were removed. With a sharp chisel the upper wall of the osseous auditory meatus was removed, and afterwards the root of the zygoma, in this way opening up the cerebral cavity.

The dura mater was incised, and a MacEwen's pus searcher passed upwards and inwards for about one inch. A large abscess cavity was in this way discovered. The attic and adjoining mastoid cells were freely opened and freely scraped. The cutaneous auditory meatus was slit open so as easily to admit a finger, and its upper and posterior parts were excised. A rubber drainage tube was now passed through the upper wound above the ear into the abscess cavity, and the wound plugged with gauze and iodoform. During the first ten days the drainage was conducted through the upper wound, after which the ear was drawn up and the tube passed through the enlarged cutaneous auditory meatus. The abscess cavity was never syringed, but insufflations of boric acid and iodoform were used. The advantages of this method of operating are—

1. Good and efficient drainage from below.
2. The easy maintenance of the drainage tube *in situ* for long periods without any inconvenience.
3. The ease with which the diseased attic and antrum can at the same time be treated.
4. The fact that only one incision and one operation are necessary.

W. Milligan.

Dalby, Sir W.—*A Note as to when Incision of the Tympanic Membrane should be Performed in Acute Inflammation of the Middle Ear.* "Brit. Med. Journ.," July 24, 1897.

THE writer takes exception to a recently published statement by Mr. G. Field (*see* abstract, page 579), who says: "I feel confident that every year, owing simply to the non-discovery of pent-up pus in the tympanic cavity, scores of children die or fall victims to chronic hydrocephalus or complete idiocy." The writer remarks that

he cannot recall a single instance in which inflammation of the tympanic cavity has produced either hydrocephalus or idiocy. He also adds that the physical appearances of acute inflammation of the membrane in infants are usually of no help, for they are frequently absent, and as frequently as not the most that can be seen to be abnormal are the appearances which show a closed Eustachian tube, and perhaps some congestion of the vessels. The main symptoms we have to rely upon are pain and restlessness. In many cases the use of leeches and hot fomentations will cut short inflammations of the tympanic cavity, and, where they fail, a vertical incision should be made in the posterior segment of the membrane. Even if no pus be present the incision will do no harm, and where it is present the relief afforded is marvellous. In adults the presence of fluid in the middle ear can, as a rule, be easily determined, either by ocular inspection, or by the passage of the Eustachian catheter, when the characteristic moist *râle* indicative of secretion will be heard. *W. Milligan.*

Dench, Edward (New York).—*The Operative Treatment of Suppurative and Non-Suppurative Middle Ear Inflammations.* "Medical News," July 3rd, 1897.

THE author upholds middle ear operation in both these forms of disease, but points out the necessity of a careful selection of cases, and that the form and extent of the operation must depend entirely on the parts implicated. He draws attention to the fact that in many instances an unfavourable result was simply due to the incompleteness of the operation, and holds that the incus is involved in eighty-five per cent. of all cases of caries of the ossicles. He deals at length with the methods of operating and operative technique, and describes the various steps in the operation for removal of the ossicles. He refers to the gratifying results sometimes obtained where the suppurative process has undergone spontaneous cure, and operative measures are adopted for the improvement of the function of the organ, and warns the surgeon against forgetting the fact that increased tension in one ear will sooner or later impair the function of the other. After referring briefly to the various forms of artificial drum and dealing with the necessity of a careful functional examination to determine the condition of the internal ear before operating, he concludes by alluding to the precautions as to dressing and drainage necessary for the success of the operation. *StGeorge Reid.*

Field, G. P.—*On some Typical Cases of Diseases of the Ear.* "Brit. Med. Journ.," June 12, 1897.

Acute Otitis Media in Young Infants, presenting symptoms simulating those of Meningitis.

IN these cases paracentesis is necessary, followed by the use of Politzer's bag, and evacuation of the pus. In infants the symptoms produced by pent-up pus in the middle ear may be very serious, and closely simulate those of posterior basic meningitis. The author quotes some valuable observations upon this point by Drs. Cheadle, Barlow, and Lees, and winds up his own remarks by saying: "To this testimony (that of the above-named gentlemen) I have to add only that I feel confident that every year, owing simply to the non-discovery of pent-up pus in the tympanic cavity, scores of children die, or fall victims to chronic hydrocephalus, or complete idiocy."

Influenza.—The author's plan if there be acute inflammation, and the pain be severe, is to leech repeatedly until all suffering has subsided, and to syringe the ear very gently six times a day with a solution of potassium permanganate. To cause healing of the perforation he uses an application of nitrate of silver (gr. xv.-ʒi.) to its edges.

Boils in the External Auditory Meatus.—For the relief of pain the author believes that nothing is better than glycerine. It acts by relieving tension, and, when used, should be mixed with an equal quantity of tincture of opium, and some boric acid, and applied on wool. Yeast taken internally is useful. Care should always be taken to ascertain that in the case of boils the *fons et origo mali* is not an escape of sewer gas. *W. Milligan.*

Lee, Charles (Liverpool).—*Two Cases of Exostosis of the External Auditory Meatus.* "Scalpel," July, 1897.

THE notes of two cases read before the Chester Medical Society. In the first case one-third of the exostosis was removed by means of burrs, which proved to be sufficient to give relief to the painful symptoms complained of. In the second case, where pain and deafness was complained of, with diminished bone conduction, the growth was removed with a mallet and chisel. The patient made a satisfactory recovery; a fortnight after the operation there was still slight discharge, but the parts seemed to be healing satisfactorily. The author does not mention the result as to the deafness. *StGeorge Reid.*

ANNOTATIONS.

ON VALVULAR ACTION OF THE EUSTACHIAN TUBE.

A CASE exhibited by Prof. Gompertz before the Austrian Otological Society (*vide* p. 562 of this number of the JOURNAL OF LARYNGOLOGY), illustrates a very important point in connection with the physiology of the Eustachian tube and tympanum. The superior half of the membrane in general, and the postero-superior quadrant in particular, bulged to a very remarkable degree. Prof. Gompertz attributes this to overfilling of the tympanum with air, owing to a pumping action of the Eustachian tube, as if by a kind of vermicular movement air was carried up the tube into the cavity of the drum. This would result from the following mechanism. If the tube, having gaped more or less in its whole extent, closed first at its pharyngeal extremity and then in the remainder of its length from within outwards, air would be carried into the tympanic cavity so as rapidly to produce over-distension. Physiologically this takes place within certain limits, and we are bound with Secchi (Roman Congress, JOURNAL OF LARYNGOLOGY, VIII., p. 405) to admit that, without some degree of distension of the tympanum, the convexity of the radial fibres of the membrane pointed out by Helmholtz cannot be explained. Under abnormal circumstances, such as the nasal disease found in Gompertz's cases, the process becomes exaggerated and a most puzzling appearance of the membrane is produced.

Dundas Grant.