great sensitiveness and injection, slight swelling of the mucous membrane and no catarrh (laryngitis rheumatica simplex—Inglas, Thorner, etc.). (2) Form with infiltration (laryngitis rheumatica nodosa, *sui generis*—Uchermann). (3) Laryngitis rheumatica œdematosa. This form can only be diagnosed from infectious œdematous laryngitis by the history and the rapid improvement with anti-rheumatic remedies. These forms also occur in the pharynx. *Guild.*

E A R.

Cozzolino, Prof. (Naples).—*On some Operations for Primary Thrombo-Phlebitis of the Jugular and Transverse Sinuses, and for Otitic Extra-Dural Cerebral and Cerebellar Abscesses.* "Bolletino delle Malattie dell' Orecchio della Gola e del Naso," Florence, September and October, 1898.

Professor Cozzolino gives a summary of thirty-six cases in which mastoidotomy was performed with success for the cure of pyogenic processes in the cavities connected with the tympanum, and details of six cases in which, owing to extension of the infection, aural surgery had to be supplemented by endocranial measures.

The following is a brief summary of the leading features of these cases and of the operator's remarks:

Case I. *Primary Thrombo-Phlebitis, or rather Acute Streptococcic Phlebitis from Circumscribed Osteomyelitis of Portion of the Walls of the Tympanum and Mastoid.*—The patient, a carpenter, aged thirty, underwent myringotomy for acute phlegmonous median otitis, but the pain and fever continuing, with signs of endo-mastoiditis, antrotomy was performed next day, evacuating pus which, like that from the myringotomy, yielded a pure culture of streptococcus. The fever persisting, some small cells were laid open, and perfect drainage established through the tympanum. During this operation the patient developed remarkable hyperæsthesia of the right cervico-lateral region, slight friction producing contractions of the muscles of the neck and limbs of that side. Pain, increasing from below upwards, was elicited along the anterior margin of the sterno-mastoid, and though there were no rigors and no other local symptoms, primary phlebitis of the bulb of the jugular was diagnosed. Next day, as there was some paresis of the right arm, the jugular and some of its affluents were ligatured. No thrombi were found, but they were choked with pus which yielded a pure culture of streptococcus of unusual virulence. The transverse sinus was normal in appearance and movement and the blood, removed by exploratory puncture, normal. Temperature fell next day to 38° C., but fever persisted to the seventh day from ligature, when it rose to over 40° C., preceded by rigors. No signs of metastasis, but the patient died two days later, having been unconscious for twenty-four hours.

Post-mortem.—Remarkable inflammatory thickening of the walls of the bulb, which did not, however, extend below the resected portion of the vein; some affluents of the jugular also infected. None of the paired or unpaired sinuses of the dura-mater were involved, and the walls of the sigmoid sinus were unaffected as far as their passage through the foramen lacerum. On the other hand, the cerebral symptoms were explained by a purulent lepto-meningitis of the convexity of the right anterior cerebral lobe, and of part of the left

posterior lobe, *i.e.*, the side opposite the affected ear and site of operation.

This purulent arachnoiditis of the convexity, especially on the left side (the diagnosis of which, according to Gowers, presents the greatest difficulty, even at an advanced period, and which is often associated with streptococcic toxin infection), explains the hyperæsthesia, muscular spasm, subsequent paresis, and the headache increasing in intensity, passing into the coma which prevailed towards the end. In 1872, Prof. Schwarze, of Halle, had already observed similar convulsive spasms of the limbs.

With the present knowledge of cerebral localization the sensory and motor disturbances in the limbs on the side of the affected ear are explained by the cross action of the centres and the inflammation of the ascending parietal and occipital convolutions on the left side as shown by the autopsy. This case was in conformity with recent statistics, which show that primary thrombosis of the jugular bulb is relatively more frequent than was believed five years ago, and hence the pathological axiom, that this affection must always be looked on as secondary or cotemporary to that of the transverse sinus, is no longer exact; nor is it any longer statistically correct to place it after that of those paired sinuses—transverse, sup. and infr. petrosal, cavernous carotid, etc.—which are ordinarily involved in otitic infections. It seems, however, to be demonstrated that thrombo-phlebitis of the transverse sinus, etc., sometimes follows that of the jugular by infection ascending against the blood stream.

This thrombo-phlebitis is the gravest of all in view of the larger calibre of the vessel and the closer proximity of the thrombus to the heart. Deaths from pyæmia and metastasis in jugular thrombosis averaged 76·5 per cent., in that of the transverse sinus 36·5 per cent., and in that of the inferior petrosal 30 per cent.; no deaths from pyæmia in that of the cavernous sinus. In acute and chronic osteomyelitis of the walls of the middle ear primary thrombosis is easily accounted for by the opening into the bulb of the jugular of the tympanic and antral veins, some of which also pass directly into the transverse sinus.*

Case II. *Thrombo-Phlebitis of the Right Transverse Sinus from Infection of the Emissary Veins of Santorini in Pan-Mastoiditis.*—The patient, a coachman, was first operated on by opening all the mastoid cavities visibly infected. Some weeks later he developed an extradural abscess, on account of which the mastoid apex was removed. When the abscess was nearly cured he had rigors with fever (39·5° to 40° C.) for two days. There was some oozing of pus, and to discover its source a diverticulum of aberrant mastoid cells was demolished in the postero-superior angle of the cortical region beyond the edge of the sigmoid sulcus and of the masto-occipital suture. It was found that pus issued also from the emissary veins of the transverse sinus which had its mastoid foramen amongst these suppurating cells of the masto-occipital suture. Thus were explained the febrile symptoms and the consecutive thrombo-phlebitis of the transverse sinus.

On the next day double ligature of the jugular, high up, with resection of a portion which was found full of pus, was performed, and then the transverse sinus was exposed as far as the torcular, and was found almost entirely thrombous. It was opened and curetted in its entire

* A diagram representing these relations appears on p. 552 of Chipault's "Chirurgie Cranio-Cérébrale." Paris, 1894.

length and then packed with iodoform gauze. The pyæmic symptoms disappeared, but the fever, though reduced, persisted, and on the morrow the patient complained of pain below the clavicle and in the axilla, with symptoms of metastatic abscess in the liver and spleen, and died four days after the last operation. The pus from the thrombus and the veins of Santorini yielded a streptococcus of moderate virulence.

This case in the immediate pathogenesis of the thrombo-phlebitis differs remarkably from the preceding, and shows that one can never sufficiently urge the demolition of all the mastoid cavities and the immediate exploration of the whole external surface of the mastoid by means of a horizontal incision through the soft tissues, *à la* Zaufal. This is specially necessary in mastoids like that in this case, which are more or less completely pneumatic and more likely to have hidden diverticoli in the sutures, the infection of which by continuity or contiguity may risk the life of a patient operated on by mastoidotomy, as shown in Case VI.

Case III. *Thrombo-Phlebitis of the Transverse Sinus in its Sigmoid Portion, with Diffuse Jugular Periphlebitis from Subacute Endo-Mastoiditis with Circumscribed Necrosis in the Sigmoid Sulcus.*—The patient was seen during an attack of pyæmic fever, being the fourth or fifth he had within a week. Griesinger and Gherardt's two well-known symptoms of obstructed venous circulation were absent, but there was pain along the retromastoid region as well as lateral cephalalgia, photophobia, and the general symptoms of depression with vomiting, etc. He was at once operated on by demolition of the external wall of the mastoid antrum. Pus was not found, though it was certainly from here that the diffusion of the intra-cranial infection had taken place, causing the thrombo-phlebitis. Next day the cerebellar wall of the mastoid cavity was completely removed, and the entire sigmoid portion of the transverse sinus was laid bare and found motionless and thrombous, the dura-mater having distinct signs of pachymeningitis. The sinus was opened in its length, and was curetted as far as possible in both directions. Having been well disinfected with a weak solution of corrosive sublimate, it was packed with strips of iodoform gauze. Next day the general condition of the patient was better, but on removing the dressing on the third day there was a welling up of fœtid sero-sanguineous fluid in considerable quantity, which was increased by pressure from below upwards along the posterior border of the sterno-mastoid. It was then easy to recognise a diffuse jugular periphlebitis, which by involving the loop that turns round the cervical nervo-vascular sheath caused the pain complained of, especially on moving the neck. In order to lay bare the fistulous track by which this fœtid fluid had found its way into the cervico-lateral region the incision was extended 3 cm. lower, the mastoid tubercle laid open together with the remainder of the sigmoid sulcus co-terminating with the outlet of the transverse sinus in the jugular bulb. Adequate drainage was established with careful antiseptic medication.

The patient, a boy of sixteen, a month after the operation is almost free from pyæmic attacks, and there are hopes he may be cured, as the sanious fluid, which yielded a pure culture of streptococcus, changed in a few days to healthy pus, and there is no other external or cervical purulent focus. However, some signs of metastasis in the lungs with hæmoptysis give cause for anxiety (pulmonary form of McEwan).

James Donelan.

(*To be continued.*)

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Dunn, J. (Richmond, Va.).—*Purulent Mastoiditis complicated by Epidural, Subpetrous, and Post-Œsophageal Abscesses. Death presumably from Internal Hæmorrhage.* "Archives of Otology," December, 1898.

An instructive case is narrated in which the symptoms were local pain of five weeks' duration, with fever, but no known discharge from the ear. There was tenderness over the mastoid, most marked at the tip, and a swelling of the posterior wall of the meatus. On mastoid operation the bone was found infiltrated with pus and granulations, but there was no pus in the antrum. Very little relief followed, and subsequent operations revealed pus in the groove for the sinus. In a later operation a probe passed through the meatus into an abscess of some size, presumably arising in the attic. Difficulty in swallowing and pain behind the larynx led to the discovery of another collection of pus on the under-surface of the temporal bone. The mouth could not be opened, so that the pharynx was inaccessible to examination. Local improvement took place, but the general condition remained unsatisfactory. Some hæmorrhage from the bowel (attributed to the exhibition of turpentine) occurred, and, later, death ensued. The case was one of Bezold's mastoiditis of unusual complexity. (The detailed description of the difficulties which present themselves in such a case as this is most instructive, and must appeal to all those whose experience has been at all extensive.—D. G.) *Dundas Grant.*

Dunn, J. (Richmond, Va.)—*Purulent Thrombosis of the Lateral Sinus Epidural Abscess. Extensive Subperiosteal Abscess with Œdema of the Scalp, Face, and Neck. Operation. Recovery.* "Archives of Otology," December, 1898.

A case is narrated in which the subject of repeated purulent otitis had a pyæmic temperature, and extreme cellulitis of the scalp. When operation was performed the mastoid was found to be transformed into a cheesy mass, and to communicate with an epidural abscess and the interior of the lateral sinus. The latter was scraped out with a spoon, in the direction of the bulb, till free flow of blood took place. No attempt was made to ligature the internal jugular. There was temporary paralysis of the external rectus. Recovery eventually took place. *Dundas Grant.*

Goldstein.—*The Modern Therapy of Suppurative Otitis Media.* "Laryngoscope," December, 1898.

The author, discussing the advantages and disadvantages of dry treatment and irrigation or syringing respectively, says that when the pus is copious, thick and ropy, syringing gently with a mild, warm, antiseptic fluid is advocated to clear the canal to the surface of the membrana tympani, but in most cases of purulent otitis he finds dry cleansing more useful, and the small tuft of sterilized cotton on a probe is more effective than a large current of antiseptic fluid. Where the perforation is large, irrigation may force infection into previously healthy points, and possibly is frequently responsible for mastoid infection.

Dry treatment prevents infiltration and softening of the mucous membrane, a condition invariably produced by frequent irrigation of a pathologic mucous membrane. This stimulation and irritation by

fluids causes granulations and polypus formation—a tendency reduced by dry treatment to a minimum.

The author first cleanses the canal thoroughly with a mop. If there is a small perforation and no pain, he frequently uses the Eustachian catheter in conjunction with a Globe nebulizer, with iodine 3 grs., carbolic acid 4 grs., and benzoinol 1 oz., and by steady inflation frequently succeeds in forcing the residue of secretion through the perforation, and at the same time in applying the antiseptic to the mucous membrane. In addition, suction by Siegle's speculum may be used if there is but little apparent congestion. After each cleansing, the author applies nosophen in preference to boracic acid or iodoform. He refers to the advantages possessed by nosophen.

Where there are large perforations he has used successfully the dry-gauze tampon, as advocated by Dr. Alice Ewing.

The only fluid medications he has used liberally are saturated solution of boracic acid in absolute alcohol, and hydrozone. The former reduces small granulations in chronic middle-ear suppuration, and the latter (hydrozone) reaches pus-pockets which neither the mop nor syringe can reach. These are applied with the medicine-dropper in preference to the syringe.

The nasopharynx should be carefully cleansed and antisepticized in the treatment of suppurative otitis media. *R. M. Fenn.*

Krebs, G. (Hildesheim).—*The Weighing of Indications for the Radical Operation in Chronic Suppurative Otitis.* "Monatschrift für Ohrenheilkunde," September, 1898.

"Otherwise incurable suppuration of the attic, aditus, or antrum," said Stacke. The whole thing turns upon what is "otherwise incurable."

To determine whether the attic and antrum are diseased in cases in which the membrane and ossicles are destroyed, Krebs gives the following "wrinkle": Pack a strip of gauze in against the promontory, and fill the meatus with it. When this is removed in a simple case the parts are left clean and dry, but if the attic or antrum is diseased, a drop of pus will be seen at the entrance of the affected cavity—*i.e.*, above and in front in the case of the attic, above and behind in the case of the antrum. Often a drop of pus may be seen in both situations, separated by a clean part of the inner wall above the promontory.

Stacke recommends his operation in the following cases:

(1) Old suppuration, with destruction of deeper part of upper and posterior wall of meatus, so that a probe can be passed round into the antrum, and bare bone felt. Nature has already opened up the attic and antrum, and, according to Krebs, the free use of a sharp spoon is often all that is necessary.

(2) Cases of fœtid suppuration, with an adherent scar over the mastoid. This group must be subdivided: (*a*) Those with good hearing should be operated on at once; (*b*) those whose hearing is bad or gone may be submitted to conservative treatment with fair hope of success.

William Lamb.

Lewis, R. (New York).—*Two Cases of Mastoid Disease of an Uncommon Character.* "Arch. of Otol.," October, 1898.

The first was a case of cholesteatoma, which manifested itself in an old-standing suppurative otitis as an abscess below the mastoid. It was successfully treated by the "radical" operation. A curious com-

plication was the extrusion through a submastoid abscess of a pin which the patient had swallowed seven years before. The subsequent abscess pointed at the same side.

The second case is described as one of tuberculous extra-dural abscess. This was revealed on the performance of the mastoid operation, and was very thoroughly evacuated, with temporary relief. Two days later drowsiness came on, and after another twenty-four hours it was decided to explore the brain for a possible abscess. At the beginning of this operation the patient ceased breathing; the cerebrum was rapidly explored—not the cerebellum—and in spite of artificial respiration, strychnine, atropine, and faradism, death ensued. Unfortunately, no post-mortem was obtained. [In a case of the abstractor's, in which the signs appeared to point unmistakably to a temporo-sphenoidal abscess, exploration of the cerebellum was unfortunately postponed till the next day. The patient died almost suddenly in the interval from cessation of respiration. Post-mortem examination revealed an abscess in the cerebellum. He determined that for the future he would never postpone the exploration of the cerebellum, and that cessation of respiration would be a reason the more for hurrying on that exploration, artificial respiration being practised as required. He would suggest a similar explanation—subtentorial disease—in Dr. Lewis's instructive case.—D. G.] *Dundas Grant.*

Löhnberg, Dr. (Zwittau).—*An Apparatus for Vibratory Massage of the Ear and Nose suitable for Use by the Patient.* "Monatschrift für Ohrenheilkunde," August, 1898.

The apparatus was designed by Dr. Noebel, and can be fitted to any ordinary treadle sewing-machine.

To the axle of the self-winder is clamped a small crank, which is attached to the piston-rod of a little cylinder, such as one sees in toy engines. The cylinder is fixed to the stand of the sewing-machine, and from the cylinder an india-rubber tube leads to the ear- or nose-piece. The ear-piece is an olive-shaped nozzle, open at the end, and intended to fit the meatus exactly. The nose-piece is a little round rubber ball (closed), which is lubricated with menthol-oil, and introduced into the nasal cavity.

When the treadle is worked moderately fast, the piston delivers about 600 strokes per minute, and these strokes are, of course, transmitted along the air-tube leading from the cylinder to the ear- or nose-piece. Two to five minutes three times a day is sufficient.

Löwe, Bauzenstrasse 4, Zwittau, is the maker. *William Lamb.*

Lubarsch, O. (Rostock).—*Chloroma in the Temporal Region.* "Archives of Otology," October, 1898.

(This is the detailed account of the tumour the history of which was abstracted from Professor Körner's report in the *Journal of Laryngology*, vol. iii.)

The growth occupied, among other parts, the internal auditory meatus, the petrous bone, the sigmoid sinus, and the temporal muscles. The cervical lymphatic glands were much enlarged. The pigment did not, in the author's opinion, depend on the presence of fat granules, nor did it arise from hæmorrhage. He considered it more analogous to the parenchymatous pigmentation associated with green pus, and to the green discoloration sometimes observed in leucæmic tumours. The

nature of the growth was more lymphoid than sarcomatous. Nine references are appended. *Dundas Grant.*

Manasse, P. (Strasburg).—*On Cartilaginous Interglobular Cavities in the Capsule of the Human Labyrinth.* "Archives of Otology," October, 1898.

THE writer observed in the cochlear capsule of a pathological labyrinth numerous peculiar large ramifying cavities, firmly imbedded in the bone, always in the vicinity of the cochlear turn, and filled throughout with hyaline cartilage. Further investigation led him to the conclusion that these are interglobular spaces which, in other bony structures, are only met with in the bones of the fœtus or very young child, but which in the labyrinthine capsule persist until late in life. *Dundas Grant.*

Morf, J. (Winterthur).—*The Affections of the Ear in Acute and Chronic Bright's Disease.* "Archives of Otology," October, 1898.

THE author has collected 53 cases from literature and added 3 of his own. He divides cases into two groups—those in which there are evidences of pathological changes in the ear, as revealed by macroscopic, microscopic, or functional examination, and those in which no tissue-changes can be found. Inflammatory and hæmorrhagic conditions are sometimes evident, but frequently the proximate nature of the cause of the symptoms is a matter for conjecture, such as increased pressure from arterial tension, œdema, or uræmic poison. The author is in favour of the last, and considers dulness of hearing a symptom of approaching uræmia analogous to amblyopia. In the 56 cases collected the forms of nephritis as diagnosed were as follows:

Acute nephritis	4	times.
Chronic parenchymatous	9	,,
Chronic interstitial	11	,,
"Chronic nephritis"	32	,,

The deafness usually follows an exacerbation of the kidney, and is said by some to be most marked on the side on which the facial œdema is the greater. A late form of scarlatinal otitis is, according to Voss, attributable to the nephritis more than to the fever. In many cases the renal symptoms are so marked that the diagnosis is obvious, but in others they are so inconspicuous that the deafness may be the only symptom. In the cases in which there is no objective aural lesion, the auditory nerve in its peripheral and central distribution seems to be the seat of the affection. Such cases improve as the nephritis improves, and treatment is to be directed towards the combating of the renal and the aural disease simultaneously. (Among the symptoms the vertigo, which is sometimes very marked, is not referred to. In the light of this important paper the duty of examining the urine in all disturbances of the auditory organ without known cause is obviously imperative.—D. G.) *Dundas Grant.*

Preysing, H. (Rostock).—*Two Cases of Pachymeningitis Externa and Extra-dural Abscess occurring in Acute Mastoid Disease.* "Archives of Otology," October, 1898.

THESE were cases of acute median otitis. Paracentesis gave vent to a serous discharge, which soon became purulent. The symptoms called for operation on the mastoid process, during which the cranial cavity

was entered, pus escaping in considerable quantity. The antrum was not opened. Recovery took place. The author considers these to be cases of acute inflammation of the compact osseous portion of the mastoid process. *Dundas Grant.*

Pritchard, U., and Cheatle, A. (London).—*The Onset of Inherited Syphilitic Deafness.* "Archives of Otology," October, 1898.

THE typical mode of onset is a rapidly developed nerve deafness without giddiness, generally preceded, but occasionally followed, by interstitial keratitis, and accompanied by the characteristic teeth. In such cases, which are by far the most common, the probability is that there is periostitic or ostitic thickening of the bony structures of the labyrinth. In rare cases the disease is ushered in by attacks of giddiness of the Ménière type, and may run an acute, subacute, or chronic course. In the acute form the deafness is due to an immediate destruction of the labyrinth and nerve-endings by pressure of exudation alone; in the subacute and chronic cases to a constantly recurring increase of tension, and to changes in the exudation itself acting on the labyrinth and nerve-endings. The cases without giddiness are due to changes analogous to those of tertiary syphilis, whereas the others are very comparable to the lesions of the secondary period. This interesting paper is accompanied by illustrative cases. *Dundas Grant.*

Snow, S. F.—*Modern Possibilities in Chronic Catarrhal Deafness.* "The Laryngoscope," December, 1898.

THE author regrets the dismal prognosis usually given in cases of chronic catarrhal deafness, and believes that in a good percentage of cases there may be happy results, if not a complete cure, by *thorough removal* of pathological conditions within the nose and adjacent cavities, followed by the use of proper stimulating sprays to the nasal membranes, and vapours to the Eustachian tube, from month to month and, if necessary, from year to year. He objects to the shortness of the six weeks' trial usually recommended in these cases. He believes, too, that diminished bone conduction is not always unfavourable. He selects three cases, and describes them. The first is Miss M——, aged twenty-four, with much deafness in right ear, six years; in left, three years. After three years and nine months of treatment, with varying regularity, the left ear had gained 12 inches for whispered and 16 inches for spoken voice; the right ear 14 inches for whispered and 24 inches for spoken voice.

Prof. C——, forty years of age, had been thirteen years deaf. Temporarily relieved by Valsalva's inflation. After two and a half years of treatment there was a gain for whispered voice, right ear 50 inches and left ear 115 inches.

Mrs. A——, aged fifty-three; deafness both ears, right for fifteen years. After four and a quarter years there was a gain for the spoken voice of right ear 44 inches and left ear 23 feet.

Each case presented well-marked pathological conditions within the nose, and in all three cases the usual method of inflation and vaporizing, etc., had been tried for two months without material benefit. The first case showed much improvement, obtained in five weeks from daily treatment.

The author refers to various points of interest in each case, and suggests that the question in prognosis is not so much whether an atrophic or hypertrophic condition exists, but whether the deafness primarily

occurred as a catarrhal inflammation, or whether there is so much fixation of the ossicles as to *preclude* a possibility of relief except through operative procedures.

The treatment of catarrhal deafness may be divided into three stages: (1) The stage in which the necessary operations are done; (2) the stage in which we await the result on nasal and post-nasal membranes of operative work; (3) the stage in which the membranes have acquired an inherent power to throw off inflammations. In the first two stages but little improvement can be expected.

There is nothing particularly new in the methods employed. The use of iodol and ether spray, and of the vapour of camphor and iodine for injection through the Eustachian tube, appears to be serviceable.

R. M. Fenn.

Stankowski, Dr. (Freiburg).—*On Bilateral Rupture of the Membrana Tympani.* "Monatschrift für Ohrenheilkunde," August, 1898.

He includes only ruptures which are practically simultaneous, occurring on the same occasion and from the same cause.

They may be spontaneous or traumatic, and the latter may be direct, as when the membrane is actually struck, or indirect, as when the rupture is produced by alterations of air-pressure or from head injury.

Bilateral Spontaneous Rupture has only once been recorded. It occurred during a paroxysm of coughing in a man with emphysema. There was bleeding from both ears, followed by deafness and some tinnitus. Sneezing, whooping-cough, etc., probably sometimes cause rupture, but not in healthy membranes.

Most Bilateral Ruptures arise from Compression of the Air in the External Meatus.—Four cases have been recorded:

(1) Moos's case, caused by an explosion of gas. Recovery was incomplete; some tinnitus persisted, and there was probably labyrinthine disease.

(2) Keller's case followed a boiler explosion. The ruptures healed, but the hearing was much impaired, both as regards air and bone conduction. The labyrinthine symptoms did not as usual appear at once, but after a time, whence he concludes that the original injury to the labyrinth was hæmorrhage, followed by inflammation and exudation, damaging the nerve-endings.

(3) and (4) Beinert's and Colles's cases were caused by explosions. They were not exactly observed. Stankowski has observed one case due to the bursting of a boiler, and two cases caused by a box on the ear. He concludes as follows: A box on the ear acts generally by compressing the air in the external meatus; but if violent, the concussion may be so severe as to cause rupture of the membrana tympani of the opposite side, the vibration reaching the membrane through the annulus tympanicus. Such ruptures—unilateral or bilateral—may occur either with or without fracture of the skull. Ruptures from communicated vibration, with or without fracture, are generally situated near the circumference of the membrane, while ruptures from compression of the air are generally found near the centre of the membrane.

Bilateral rupture without fracture of the temporal bone or meatus is certainly very rare.

Morrison Ray records a case of bilateral rupture of the membrana tympani from a fall. At first there was bleeding, but afterwards (on

the fourth day) an escape of pale straw-coloured (cerebro-spinal?) fluid. As recovery was complete, the fractures probably involved only the tegmen tympani, certainly not the labyrinth.

The *Prognosis of Double Ruptures* is not worse than that of single ones—in fact, it is often better, for they are generally the result of indirect violence, and heal without suppuration; while unilateral ruptures are frequently the result of direct violence, and as a rule suppurate. When, however, bilateral ruptures are complicated with fissures of the temporal bone and labyrinthine changes, they are of grave prognosis, both as regards hearing and life. *William Lamb.*

Stein, O. J. (Chicago).—*Vertigo; especially as related to Nasal Diseases.* "Laryngoscope," December, 1898.

Mr. F——, tailor, forty-nine years of age, consulted the author on August 1, 1897, after having undergone a variety of treatment for three months for increasing vertigo. He had from one to three attacks daily, accompanied by a distant buzzing tinnitus. He tended to fall at such times, was unable to work, but never had vomiting or paresis, or loss of consciousness. He became depressed and alarmed. He had good family and personal history. His eyes were healthy.

The nose showed hypertrophic rhinitis, especially in the right middle turbinal, septum somewhat deflected to left. The naso-pharynx was catarrhal and hypersensitive. The mucous membrane of both nares was hyperæsthetic. Examination with a probe would at certain spots elicit a spasmodic cough, and at times a sense of giddiness.

Hearing: right ear good, left ear defective; drumhead slightly retracted. The left Eustachian tube difficult to inflate as a rule. Local treatment, with iodides and bromides internally, gave but little relief. Turbinotomy of the right middle turbinal, followed by cauterizations of the inferior turbinal, caused marked cessation of vertigo. Hearing, if anything, is slightly worse; the tinnitus, quite severe of late, now responds to bromides. No vertigo now for one year.

The author then discusses the diagnosis in this case; the theory of the cause of vertigo (rejecting the teaching of Fluorens and Goltz, that the labyrinth is the seat of the organ of equilibration which regulates all our movements in space) and the question of sensitive areas in the nose. He believes that the nostrils are not endowed with any special sensitive spots, but when such a condition is manifest there exists a hypersensitive condition due to a morbid state of the nervous supply of that part, and its location may be at almost any place in the nostril.

The author enumerates eighteen pathological conditions caused by nasal irritation. He believes the mode of production of vertigo of nasal origin may be as follows: The irritant is received at the hypersensitive station in the nose, whence the impulse is sent along some branch of the trigeminus, or of Meckel's ganglion, and by connection with the sympathetic reaches the vertiginous centre or centres. The afferent impulse is reflected along a vaso-motor nerve, producing an alteration in blood-pressure in the equilibrium and co-ordination centres. This acts as an irritant to the centre, disturbing its function.

R. M. Fenn.

Tattler, R. (Cincinnati).—*A Contribution to the Surgery of the Temporal Bone.* "Archives of Otology," December, 1898.

The writer starts with an unusually detailed account of those cases to which the term "mastoid neuralgia" may be applied. He divides

them into two groups, the first being the purely neurotic, the second a smaller one in which the neurotic element is less dominant, but in which surgical treatment leads to the discovery that a former, and in most instances remote, pathological process has been present and left its traces. Of these pathological processes the following are the forms he has met with: 1. Hyperostosis or sclerosis of the cortical region of the mastoid, with partial or complete obliteration of the pneumatic spores and antrum. 2. Rarefaction of the superficial and deeper cells, with atrophy of the cortex and desiccation or atrophy of the lining membrane of the cells. 3. No apparent lesion of the cells, but the presence of desiccated bone or other products in the antrum or posterior pneumatic cells affording evidence to warrant the assumption that free communication between the superficial and deeper cells had thereby been interrupted. In this third subdivision he considers the changes so slight that they hardly account for the extreme pain, and the cases are almost on a footing with the first group or pure neuroses. All are resistant to treatment of every kind except surgery, though in the purely neurotic cases this is mainly suggestive in its action.

Certain cases of chronic empyema of the mastoid antrum are next dealt with. In one there was great surface tenderness of the auricle and region round the ear, but no redness or swelling, and no constitutional disturbance. On operation there was found a thick vascular, but rather brittle, cortex, and, what was unexpected, an enormous collection of pus. In this case there was chronic catarrh of the middle ear, with patulous Eustachian tubes, and syphilitic ulceration of the throat. Inflation had been practised, and the author believes that infective material from the throat had been blown through the Eustachian tubes into the mastoid spaces. *Dundas Grant.*

Trautmann, Dr. G. (Munich).—*Foreign Body in the Eustachian Tube.* "Münchener Medicinische Wochenschrift," No. 47, 1898.

PATIENT a year before coming under observation suddenly acquired pain on swallowing and gradual deafness; later, headache, vertigo, feeling of pressure in the right ear, and pain between the throat and ear. Three weeks afterwards acute otitis, followed by suppuration, which disappeared and then recurred along with tinnitus, especially at night, vertigo and burning feeling in the throat.

On examination the lips of the right Eustachian tube were much swollen, the orifice was closed with a mucous plug, and the mucous membrane around was intensely hyperemic and covered with a few crusts. The right auditory meatus was full of muco-purulent secretion. On syringing the patient spat out a cherry-stone, which had been forced out of the pharyngeal end. The cause of impaction was not apparent from the history. *Guild.*

Whiting, F. (New York).—*A Contribution to the Clinical Stages and to the Technique of the Operation for Sinus Thrombosis.* "Archives of Otology," December, 1898.

THE writer's views, as a progressive in the surgical treatment of sinus thrombosis, were expressed in an article in the "Archives of Otology" and abstracted in the *Journal of Laryngology*. The present paper is concerned with the clinical stages of sinus thrombosis, and with the technique of the operation for the relief of the same.

As to the clinical stages, they are three in number. In the *first*

there is the presence of a thrombus, parietal or complete, not having undergone disintegration, and accompanied by slight or moderate pyrexia, rigors being usually insignificant or absent. This is, as a rule, only recognised when the operation for mastoiditis has been performed. If recognised, operation is called for, as no phlebitic clot can, according to the author, be regarded as non-infective. The *second* stage is characterized by the presence of a thrombus which has undergone disintegration, with resulting systemic absorption, and consequent frequent signs and pronounced septico-pyæmic fluctuations of temperature. The various classical symptoms are discussed. In the *third* stage there is the presence of a thrombus, parietal or complete, which has undergone disintegration with systemic absorption, accompanied by rigors, rapid and great fluctuations of temperature, and central or peripheral embolic metastasis, terminating usually in septic pneumonia or enteritis. The lungs are attacked with a frequency 1½ times greater than the combined other structures of the body.

In regard to the operation, the sinus should, as a rule, be exposed for two inches, and as low as the jugular foramen, avoiding the posterior condylar foramen behind, and the lower third of the Fallopian canal in front. If there is an *incomplete or parietal thrombus* it should be entirely removed. Before incision the vessel is to be compressed at its lower part by means of a plug of gauze, whereas at its upper part the pressure must only be made by a small pad beneath the left index-finger of the operator. In case of a *completely obstructing thrombus* at the "knee," or in its vicinity, complete removal is also advocated. A caution is given to make a careful scrutiny for respiratory movements between the clot and the jugular bulb, as a too sudden removal of the clot may in their presence lead to suction of air into the vein. In regard to a completely obstructing thrombus extending into the bulb, or involving the jugular vein, circulation should first be established at the upper extremity, afterwards below. When the thrombus is low down in the bulb, and the sinus above is filled with fluid blood, the writer detects the obstruction by stripping back the blood in the sinus from the foramen lacerum towards the torcular, compressing the channel with the finger of one hand near the foramen, and with that of the other near the torcular. At the same time an assistant compresses the jugular in the neck, after having stripped its contents downwards. The finger at the foramen lacerum is then removed, and if the jugular bulb is free the sinus quickly fills with blood, but if this does not take place a diagnosis may be made of thrombotic occlusion of the jugular bulb. In such a case the writer ligates the jugular low down in the neck, and close up to the base of the skull, and resects the portion thus delimited. The bulb is then washed out from above, not from below. (The abstractor looks for fluctuation between one finger on the exposed sinus and another on the internal jugular vein.—D. G.) Among other practical hints are the value of intra-venous infusion of saline fluid in case of flagging of the heart, and raising of the foot of the bed to equalize the blood-pressure. Rapidity in operating is strongly insisted on. *Dundas Grant.*

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