Abstracts

The handle of the Jackson laryngoscope is used, with the corresponding distal lighting arrangement; the light is on the left side so as to avoid shadows in using instruments through the slot on the right. An anæsthetic tube is built into the main tube. For examining the post-cricoid region a series of slots in the front of the beak allows respiration and anæsthetisation without change of instrument; if it is desired to work without these, they can be covered with a strip of strapping.

Œsophageal Speculum.—V. E. NEGUS, M.S.

The instrument has been so designed that a bright light is thrown ahead without any obstruction to the lumen. Laryngoscopes have been made on the same principle.

ABSTRACTS

EAR

Pathogenesis of Cholesteatoma of the Middle Ear. W. ALBRECHT (Tübingen). (*Collegium Oto-Rhino-Laryngologicum*, 4th Annual Meeting. *Acta Oto-Laryngologica*, 1931, Vol. xv., fasc. 2-4.)

There are two classes of cholesteatomata:—

(1) Secondary to middle-ear suppuration.
(2) Spontaneous.

The author upholds the view that in either form, cholesteatomata are due to the stratified epithelium of the meatus invading the middle ear, and undermining and replacing the ciliated epithelium. The post-suppurative process is best seen in scarlet fever otitis, with osteitis and loosening of the mucous membrane lining the tympanum and attic. In some cases the stratified epithelium pushes in between the mucous membrane and the bone, and uproots the mucosa. This may occur in temporal bones of any type, but it is more often found in the less pneumatised bones, the absence of pneumatic cells being evidence of a less vigorous and resistant lining mucous membrane.

The spontaneous cholesteatoma is almost confined to non-pneumatised temporal bones (diplöetic type). In these the mucous membrane retains its infantile structure, and the epitympanic space is filled up with loose embryonic tissue. As this absorbs, the stratified epithelium invades the epitympanic recess, either as a carpet covering a depression in the membrana flaccida, or by sending actual "roots," or prolongations, deep into the structure of the embryonic mass. The invading stratified epithelium gives rise to cholesteatoma of the epitympanic recess. Albrecht found a compact mastoid in 83 per cent. of spontaneous cholesteatoma cases. G. WILKINSON.

Ear

The Cause of New Bone Formation in Otosclerosis. OTTO MAYER (Vienna). (*Collegium Oto-Rhino-Laryngologicum*, 4th Annual Meeting. *Acta Oto-Laryngologica*, 1931, Vol. xv., fasc. 2-4.)

The writer believes that the capsule of the labyrinth, in spite of the density of its structure, is subject to great physiological strain, and is liable to spontaneous fracture. The points of least resistance, at which these fractures most frequently occur, are the windows, the internal auditory meatus and the semicircular canals. It is here that foci of new bone formation, which are of the nature of callus, are found.

In the discussion this view was severely criticised by Wittmaack. In the very large amount of material examined in his laboratory (Hamburg), he had been unable to find any single example of spontaneous fracture, nor did he see in what manner a degree of strain sufficient to cause such fractures could arise. The cancellous bone replacing the lamellar bone of the labyrinth capsule in the so-called otosclerotic foci had none of the characteristics of callus formation. O. Mayer's theory was also adversely criticised by Nager, Eckert-Möbius, Mygind and others. G. WILKINSON.

Review of the Recent Work on the Sense of Hearing in Fish. Professor DENKER (Munich). (*Collegium Oto-Rhino-Laryngologicum*, 4th Annual Meeting. *Acta Oto-Laryngologica*, 1931, Vol. xv., fasc. 2-4.)

Evidence has been accumulating in recent years which tends to prove that certain fish react to sound stimuli, and that the receptor for such stimuli is in the labyrinth, at all events for the upper and middle tones of the scale. The fact that fish do not possess those parts of the hearing organ which are always present in animals which are known to possess the sense of hearing (amphibia, sauropsidae, birds, and mammals), viz., the outer and middle ear, the cochlea and papilla basilaris, has always been regarded as constituting a *prima facie* improbability for the supposed hearing of fish, though this view has been stoutly maintained by some authorities, and the controversy has excited intermittent interest for centuries.

New light on the problem in recent times has been gained by the application of Pavlov's method of association building, or the "conditioned reflex." Disregarding the numerous investigations yielding negative results, the following have succeeded in obtaining reactions in fish to sound signals in association with the provision of food. M. Meyer, in 1909, established an associated reflex in goldfish, after three months' education. The food was supplied in two different troughs, a high pitched sound being used as a signal for food being placed in one trough, and a low pitched sound for the

other. The fish learned to distinguish the sounds of different pitches, and to look for the food in the appropriate receptacles. In 1922 H. M'Donald and F. Westerfield obtained similar results in various dogfish and carp. By using musical tones the fish were educated to distinguish between the vibration of two strings d^1 and a^1, with a musical interval of a fifth. K. v. Frisch, a naturalist of Munich, began his investigations on dwarf shad. Haempel had previously used this fish, amongst others, and found that it was the only one in which he was able to obtain recognisable reactions to sound stimuli. v. Frisch removed the eyes of the fish several days before beginning the experiments. The animal took up its haunt in a tube which had been introduced into the aquarium, from which it would emerge when whistled to, and would seek food in the accustomed place. A second fish was educated in a similar manner.

In 1924 F. B. Manning (continuing the investigations of Parker) was able to determine the receptor organs for different tones in goldfish. The tones of a series of pipes extending over seven octaves (F^1 to f^4) were conducted to the water of the aquarium by means of an immersed telephone receiver. The normal animal reacted to the tones of the whole seven octaves. After removal of the labyrinths only the reactions to F^1 and F remained. When only the utricle and ampullae of the semicircular canals were removed, reactions to f^1 and f^2 disappeared, and after removal of the saccule and lagena, that to f^3 and f^4. v. Frisch carried experiments on these lines further. In one minnow he carefully removed the saccule and lagena with a fine dental drill, and in another the utricle and ampullae. There was no loss of equilibration after removal of the saccule and lagena, even when the fish was blinded, and swimming movements were executed normally, but all response to the upper four octaves (f^1 to f^4) was lost. On the other hand, the fish deprived of utricle and ampullae was completely disoriented, and lay on its side, back, or belly, at the bottom of the tank. Nevertheless, it continued to respond to sound stimuli of all pitches. v. Frisch was unable to observe any gaps in its tone scale, such as had been found by Manning in a similar subject. These experiments not only provide strong evidence of the receptivity of fish to sound stimuli, but they also point to a difference in function of the saccule and utricle. The conclusions arrived at may be summarised as follows:—

(1) Compensatory vertical deviation of the eyes does not depend on the saccule.

(2) After extirpation of the saccule, equilibration is not affected either at rest or in motion.

(3) After total extirpation of the labyrinth on one side, rotation around the long axis occurs towards the operated side.

v. Frisch has had a series of films prepared illustrating the reactions detailed above.

H. Stetter has carried these observations even further. *Upper tone limit.* This varies in different species and individuals. Minnow, d^5 to g^5; loach, c^4 to g^4; shad, over g^6. *Lower tone limit* in a minnow C – ″(= 16 d.v. per sec.).

The fineness of perception in minnows and shad for tones in the middle of the scale is not much less than in man. The smallest tone interval which Stetter could educate a minnow to distinguish was a minor third.

Denker repeated some of the above experiments. He was unable to establish any reaction to sound in rainbow trout or perch, but succeeded readily with goldfish and minnows. Denker comments on the fact that sound is apparently not, under ordinary conditions, a stimulus of biological value to fish, and he regards the faculty of "hearing" as latent, and requiring to be elicited by education. If this be so the education of certain species of fish by means of "association building" is remarkably rapid. G. WILKINSON.

Unlocking of the Petrous Pyramid for Localised Bulbar (Pontine) Meningitis secondary to Suppuration of the Petrous Apex. WELLS P. EAGLETON. (*Archives of Oto-Laryngology*, March 1931, Vol. xiii., pp. 386-422.)

From a physiological point of view the temporal bone consists of three parts:—

(1) An external protective part, consisting of the squama, tympanic ring and mastoid with its air cells. This portion contains no true bone marrow.

(2) The middle third, containing the functioning portion, the labyrinth, which is already of full adult size at birth.

(3) The inner third, which includes the petrous apex, contains blood-forming marrow substance, and is unique in containing islands of cartilage cells which do not become ossified. The petrous apex continues to grow until late in life, and can be easily disarticulated or "unlocked" from the base of the skull.

Osteomyelitis of the petrous apex resembles osteomyelitis of the growing end of a long bone, the blood supply being similar in its arrangement. The amount of pus formation is small, but a cavity is formed, which contains granulation tissue with areas of pus. A sequestrum is rare.

Acute osteomyelitis of the petrous bone is rare. The patient is usually a child, and if a sequestrum forms, it may include the bony labyrinth. The mortality is high. In chronic osteomyelitis, infection has

reached the petrous apex (1) by the perilabyrinthine veins, (2) through the labyrinth, or (3) by way of the pneumatic cells around the labyrinth.

As regards the clinical manifestations of osteomyelitis of the petrous apex, it may in infants give rise to (*a*) retropharyngeal abscess; (*b*) lateral pharyngeal abscess has also been described, and the writer has seen two cases in adults in which there was a fistulous tract from the abscess to the middle ear; (*c*) intermedullary infection of the petrous bone may occur, and is confined to the apex, which does not unite with the basisphenoid until very late in life.

The paper is illustrated with drawings to show the site of this type of disease, the necrosis perforating the cortex of the petrous tip in both the middle and posterior fossae.

Details are given of six personally observed cases. In five of these the bone was invaded by way of the blood stream. The osteomyelitis and localised meningitis are present for some time before general leptomeningitis appears.

The clinical picture is characteristic. The patient has an otitis and a mastoid operation from which he does not fully recover. There is severe headache, pain behind the eyes, and often paralysis of the external rectus. But, unlike the usual case of Gradenigo's syndrome, there is slight rise of temperature at night, perspiration, and a slightly stiff neck. Lumbar puncture reveals clear sterile fluid. Then suddenly the temperature rises, the patient becomes delirious, then unconscious. The cerebrospinal fluid contains streptococci, the symptoms are characteristic of a pontine cisterna meningitis and death occurs in a few days.

The operation advised by the writer consists in "unlocking" the petrous pyramid. The outer third of the temporal bone is Nature's protector of the more deeply placed neural structures, the labyrinth and facial nerve. Functionally this superstructure is unimportant and may be freely divided and partly removed in order to provide access to the petrous apex. After the posterior buttress, formed by the junction of superior and posterior surfaces of the petrous pyramid, has been removed, and a V-shaped wedge from the anterior buttress (anterior meatal wall) removed, the petrous bone may be loosened from its dovetailed position and drawn slightly outward.

The operative technique is described in detail.

DOUGLAS GUTHRIE.

Deafness with Trichinosis. HANS BOSCH. (*Münch. Med. Wochenschrift*, 1931, Nr. 11, p. 436.)

Bosch reports on a case of trichinosis in a woman, aged 51, who had eaten infected ham on 4th March 1930. He saw her on the 27th of that month when in addition to the usual symptoms, which

were severe, she had somnolence, deafness, pains in her muscles, rigidity and eosinophilia with isolated trichinae in her blood. Her hearing rapidly depreciated until, at the end of March and the beginning of April, she had all the symptoms of total deafness in each ear. Functional tests and physical examination showed that the deafness was due to a toxic acoustic neuritis analogous to that which occurs in other infective diseases. Ultimately a very slight recovery of hearing occurred. J. B. HORGAN.

The Explanation of Paracusis Willisii. HEINZ DIEHL. (*Münch. Med. Wochenschrift*, 1931, Nr. 30, p. 857.)

The simple explanation offered by the author is based on the physical fact (not recognised by medical writers) that the intensity of sound in a gaseous medium is, other conditions being equal, proportionate to the square of its period of vibration. For example, a tone with a vibration period of 100 must have an amplitude one hundred times greater than a tone with a vibration period of 10,000 if the intensity of both tones is to remain the same.

In disease of the sound conduction apparatus the amplitude of vibration of the middle-ear structures is diminished and the latter is therefore unable to transmit sufficient intensity of sound to the auditory nerve endings. In this way it is possible to explain the diminished receptive power for low tones in the disease of the middle ear and of high tones in disease of the inner ear. In a railway carriage the person with normal hearing hears the loud deep rolling sound. He converses (for the most part unconsciously) much louder than usual in order to make his speech audible to himself and to his listener. The abnormal noise in the carriage is composed of sounds which for the most part have a vibration period of less than 100. Now a patient with middle-ear disease hears such low sounds either very badly or not at all, whereas he naturally hears better the unconsciously raised voice of the normal hearing person who is addressing him. He does not, however, hear better in the medical sense or in the sense commonly understood as paracusis Willisii. Under such conditions the patient may also hear many sounds which have a higher vibration period, such as the ticking of a watch, even better than others because he is uninfluenced by the deeper sounds.

J. B. HORGAN.

New Principles in the Treatment of Cholesteatoma. Attempts to Prove its Presence by Clinical Means. ALEX. REJTÖ. (*Münch. Med. Wochenschrift*, 1931, Nr. 20, p. 836.)

Biological experiment shows that the epidermis develops normally in dry airy surroundings but that it degenerates and tends to

matrix-formation when it is situated in a moist and ill-ventilated locality.

A suppurating middle-ear cavity therefore requires to be kept as dry and as well oxygenated as possible. If cholesteatoma exists we must try to effect its disintegration and removal piecemeal. Rejtö has found that the best way to bring this about is by dissolving out the cholesterin from the matrix by means of carbon tetrachloride (CCl_4). It is not stated whether this cheap tar product is used pure or in dilution. If it causes dermal irritation the meatal skin should be protected by some suitable ointment. Olive oil may also be used to dissolve the cholesterin but the author prefers carbon tetrachloride because by simple chemical tests (which are described) he is able to verify not only the existence but the amount of cholesterin present in the wash out. J. B. HORGAN.

Experimental Studies of the Mechanism giving rise to Sea-sickness. A. A. SJÖBERG. (*Acta Oto-Laryngologica*, Supp. xiv.)

This communication extends to 136 pages and includes a number of diagrams and illustrations, also 130 references to the literature. It is based on experiments carried out on dogs, and also on hydro-mechanical studies and experiments conducted on models and on anatomical preparations. The author gives the following summary of his results:—

(1) There is every probability that the symptoms of sea-sickness are not induced by angle-acceleration, or the compound screwing motion in the general ship's movement, but that the symptom-complex is produced by the space movement (composed of plunging plus harmonic swinging movement, both in the vertical and horizontal planes, in rolling or pitching), and in small vessels possibly combined with the progressive, irregularly accelerated horizontal movement.

(2) In a normal-sized passenger vessel in a high sea the maximum acceleration values for the accelerated ship's movements in a horizontal direction are considerably higher than the corresponding values for the movements of a railway-train, but the maximum acceleration values for the movements in a vertical direction are in about the same order of magnitude as the corresponding values for elevators in general.

(3) The symptoms of experimental sea-sickness (elevator sickness) in human beings correspond exactly with those of sea-sickness.

(4) Deaf-mutes with reactionless labyrinths are not affected by elevator movements.

(5) Experimental sea-sickness with dogs can be easily provoked when the animals are exposed to rapid movements up and down in a crane.

(6) The clinical aspect of experimental sea-sickness in dogs is

characterised by greatly increased salivation, polypnœa, diarrhœa, polyuria, great agitation in the beginning and, when the symptoms are fully developed, apathy leading to asthenia, and usually vomiting.

(7) All the animals upon which investigations were carried out showed symptoms of experimental sea-sickness.

(8) With repeated experiments the animals became somewhat inured to the elevator movements.

(9) Puppies are immune to elevator movements.

(10) Labyrinths which are capable of functioning must exist for symptoms of sea-sickness to appear.

(11) Optical and kinæsthetic impulses will not be necessary for the symptoms of sea-sickness to appear, but these impulses together facilitate and promote the appearance of the symptoms from the vestibular apparatus which is capable of functioning. Possibly optical impressions facilitate the symptoms to a greater extent than do the kinæsthetic impressions.

(12) When a person is exposed to rectilinear horizontal and vertical movements with varying accelerations, or to the movements of a ship in a high sea, pressure variations with the accompanying displacements and currents in both the perilymph and the endolymph must make their appearance at every point of the contents of the labyrinth, both in the fluids and, particularly, in the walls of the labyrinth.

(13) These pressure variations affect both labyrinths at the same time, but the momentary pressure in the corresponding points of the two labyrinths will seldom be exactly the same during the motions of a ship in a high sea.

(14) It seems very probable that the pressure variations in labyrinths in rectilinearly accelerated vertical movements, and the combined pressure variations in the movements of a ship in a high sea, with the intralabyrinthine physical phenomena caused by them, are of such an order of magnitude that they irritate the sensory epithelium so intensely that fully typical symptoms of sea-sickness supervene.

(15) It thus seems justifiable to presume that the complex of sea-sickness symptoms arises from the whole vestibular apparatus, both from the semi-circular canal system and the otolith apparatus.

(16) The adequate means for irritation of the sensory epithelium is thus thought to be, firstly, the pressure variations with their currents and displacements within the fluids of the labyrinth, and secondly, the pressure variations and displacements in the nerve-end areas themselves within the vestibular apparatus.

(17) It is extremely probable that small reflex eye movements, invisible to the naked eye, occur in the case of rectilinearly accelerated vertical movements.

(18) There is a great probability that during the movements of a ship in a high sea similar small eye movements occur, although they cannot be observed by ordinary macroscopic observation.

(19) Headache and some of the psychic symptoms accompanying sea-sickness may largely be due to the intracranial pressure variations caused by the movements of a ship, which affect the brain and its various centres. THOMAS GUTHRIE.

A Case of Labyrinthitis with Bilateral Sinus Thrombosis and unusual Anatomical Relations. BERNHARD LANGENBECK (Leipzig). (*Zeitschrift für Hals- Nasen- und Ohrenheilkunde*, Vol. xxvi., Part 3, p. 280.)

A locomotive driver who suffered from chronic suppuration in both ears since the war (in 1916-17), received a slight injury to the head in March 1928. There were no symptoms of any cerebral disturbance. In the left ear there was a cholesteatoma in the attic. Radical mastoid operation was carried out. There was no severe reaction, nothing of significance in the cerebrospinal fluid, but nephritis with glycosuria developed. After an interval, evidence of labyrinthitis led to operation but no pus was found in the labyrinth. Meningitis supervened and the patient died. There was found post-mortem among other lesions a transverse fissure in the left petrous bone and purulent sinus thrombosis on both sides. The question arose as to whether the fissure in the bone was caused by the injury or took place at the radical operation. In view of the slightness of the injury and the presence of an old-standing cholesteatoma, the author considers it occurred during the operation. The injury may have roused the cholesteatoma into activity and the hyperglycæmia may have weakened the powers of resistance and so produced a fatal result. The occurrence of thrombosis on the opposite (right side) was favoured by an anatomical peculiarity, namely an extraordinary expansion of the jugular bulb forming an area of stagnation ("Totwassergebiete") very favourable to the development of thrombosis. JAMES DUNDAS-GRANT.

NOSE AND ACCESSORY SINUSES

Chronic Inflammation of the Maxillary Antrum in Children from Three to Ten Years Old. Professor ESCH, Leipzig. (*Zeitschrift für Hals- Nasen- und Ohrenheilkunde*, Band xxv., Heft 4, p. 364.)

According to clinical observation chronic inflammation in children is quite rare, but post-mortem examinations have shown it to be comparatively frequent. The chief symptom is persistent catarrh with mucus filling the whole nasal cavity of the affected side rather than pus in the middle meatus. Röntgen examination is not to be relied on, the

only satisfactory evidence being the result of washing out the antrum. In cases of persistent nasal catarrh in children the removal of adenoids is often insufficient and it is to be noted that antral inflammation is often unaccompanied by adenoids. In the majority of cases a few irrigations are followed by recovery. JAMES DUNDAS-GRANT.

Abscess of the Nasal Septum originating from a Tooth. P. MANGABEIRA-ALBERNAZ. (*Les Annales d'Oto-Laryngologie*, March 1931.)

The following classification of abscesses of the septum nasi is given:

- Traumatic . . { Traumatic. / Accidental.
- Non-Traumatic { Direct { (*a*) Secondary to rhinopharynx. / (*b*) Of sinus origin. / (*c*) Of nasal origin. / (*d*) Of cutaneous origin. / (*e*) Of dental origin. } / Indirect or metastatic. }

Examples of septal abscesses due to each of the above causes are given, but the basis of the present article is a study of septal abscesses of dental origin. These are very rare, and the author believes that many rhinologists are unaware of this complication. The scanty literature on the subject is summarised, and the author proceeds to detail a case of his own, the ætiology of which was entirely unsuspected. It concerned a child of ten years old in whom a septal abscess was found and drained. It was only later that a further collection of offensive pus was opened subperiosteally in the region of the right central incisor and the correct ætiological factor was revealed. The cure was followed, however, by considerable deformity of the nose.

M. VLASTO.

Chronic Maxillary Sinusitis: An Analysis of 192 Cases that came to Operation. WALTER STEVENSON. (*Archives of Oto-Laryngology*, April 1931, Vol. xiii., No. 4, pp. 506-531.)

In spite of the voluminous literature dealing with the nasal sinuses (about 150 to 200 articles yearly) there is in many quarters a pessimistic attitude towards operation on the sinuses. This fact led the writer to investigate his cases of chronic maxillary sinusitis in which operation was necessary. He notes the age (average 35 years) and sex incidence (equal M. and F.), and remarks that the etiology is an unsolved problem. Poor drainage and infection do not explain all cases.

As regards symptoms, the majority of the patients complained of frequent colds. Pain was a common symptom. The disease followed

extraction of teeth in 16 per cent. of the cases, and in 7 per cent. there was a persistent fistula leading from the alveolus to the antrum; in several of those cases curettage of the fistula had caused the opening to become larger.

The writer considers that transillumination is as valuable as radiography in diagnosis, although, of course, puncture and lavage is the crucial test.

The operation of intranasal drainage was sufficient in all but 21 cases, and in these the radical (Caldwell-Luc) operation was performed.

In after-treatment irrigation should be avoided.

In 25 cases of the series ethmoiditis was also present (this disappeared after antral drainage), and in 22 cases chronic tonsillitis was noted.

Postoperative complications included acute tonsillitis (10 cases) and acute otitis media (6 cases).

Secondary hæmorrhage caused trouble in 2 cases.

In all but 9 cases the disease was entirely cured.

Ten patients with "rheumatism" were cured, and 6 were improved.

Two patients with tachycardia, 2 with persistent rise of temperature and 2 with acute nephritis were all cured, while 2 cases of chronic bronchitis were much improved.

The author (like Hirsch) is convinced that nasal polypi are more frequently associated with maxillary sinus suppuration than with disease of any other sinus; and he finds that the polypi disappear when the sinus is drained.

In the present series the middle meatus was filled with polypi in 22 cases, and in 10 cases these extended into the choana.

Cytological examination of the antral washing by the method of Sewall of San Francisco was found of value in diagnosis and prognosis.

The operation of choice was the Krause operation, performed under procaine anæsthesia. It was unnecessary to remove any portion of the turbinate, but this structure was displaced inwards so that a large window might be resected in the naso-antral wall.

In 10 cases submucous resection of the septum to ensure nasal drainage was necessary.

The paper concludes with a bibliography of over fifty references.

DOUGLAS GUTHRIE.

Considerations on Nose and Mouth Breathing. JOSEF TREER. (*Wiener Klin. Wochenschrift*, 1931, Nr. 20, p. 640.)

An exhaustive survey of the physiology and histology of the nose in relation to the respiratory act. The various views held by German writers as to the etiology of contracted palate are summarised and

criticised. Though not referred to by the writer his deductions offer a fertile field for contemplation to those who advocate or practise destruction or removal of healthy turbinal tissue as a means to an end. The article is lengthy (seven columns) and does not lend itself to abstracting. J. B. HORGAN.

The Pathogenesis of Osteomas in the Nasal Accessory Sinuses. A. G. FETISSOF (Tomsk). (*Acta Oto-Laryngologica*, Vol. XV., fasc. 1.)

Two main theories are advanced to explain the pathogenesis of osteomas. (1) The theory of origin in remnants of the embryonal cartilage. (2) That of their origin in the periosteum.

It is thought that an osteoma may originate from remnants of cartilage remaining unossified in the ethmoid, and when it occurs in the frontal sinus it is in the portion bordering on the ethmoid.

This is the view of Arnold in support of the cartilage theory. The theory of their origin from the periosteum was supported by the French school, though most of the authors did not distinguish between osteophytes, exostoses and osteomas.

The writer describes an interesting case of osteoma of the right frontal sinus with recurrence after operation. Four micro-photographs of the tissue removed at operation are reproduced. He gives a considerable number of references to the literature on the subject, and concludes with the following remarks:—

1. The ossificatory process in osteomas in the nasal accessory sinuses may occur: (*a*) at the expense of the activity of the osteoblasts of the periosteum; (*b*) through metaplasia of the fibrous tissue into bony tissue; (*c*) in a manner similar to the embryonal development of bone from the connective tissue.

2. Along with the ossificatory process, the process of resorption of the bone, due to the activity of the osteoclasts, is observed in osteomas at the stage of their intensive growth.

3. The theory of the periosteal origin of osteomas has recently received a series of histological proofs in its favour.

4. The relapse of an osteoma may arise not only because of an insufficient removal of tumoral pedicle, but also because of tearing off and displacement of the ossificatory elements of periosteum at the time of operation. H. V. FORSTER.

Abstracts

LARYNX

Tracheotomy by Stages in Debilitated Patients. A. HAUTANT. (*Les Annales d'Oto-Laryngologie*, February 1931.)

The danger of performing tracheotomy on old people or on those debilitated by progressive stenosis is well known. Fatalities have been ascribed to exposure of the lungs to the air and to hæmorrhage into the lower respiratory tract. The author suggests another explanation. He adduces clinical evidence in support of his contention that immediate tracheotomy may be followed by massive infection of the lower respiratory tract. He states that in certain morbid laryngeal conditions and in cases where the operative technique has been suitably modified, "slowed down" as it were, a relative degree of auto-vaccination to mild infection takes place and the operation loses its terrors. He instances the technique of Crile and New, in the United States, who make a practice of refraining from performing a tracheotomy at one sitting. Acting on the above premises, the author is in the habit of modifying his technique in the following manner:—

(*a*) In cases of imminent asphyxia he first divides the isthmus of the thyroid and exposes the trachea. Next he excises a thin bar from the middle of the trachea. A silk suture is then passed through the cutaneo-muscular layer of each side, and gentle traction is maintained by tying the two sutures round the neck. Finally, the wound is loosely packed with sterile gauze. It is not until the fourth or fifth day that the tube is inserted. The wound is carefully inspected daily to see that the tracheal respiration is adequate.

(*b*) When the stridor is not too marked, but when the broncho-pulmonary condition gives rise to anxiety, he first skeletonises the trachea. The trachea is incised vertically on the fourth or fifth day as described above, and the cannula is inserted three or four days later. M. VLASTO.

Lateral Tracheal Displacement. J. E. G. MCGIBBON. (*Lancet*, 1931, Vol. i., p. 1399.)

The author describes three cases—the first in an early case of pulmonary tuberculosis, the second in a healed case of tuberculosis of the right lung, the third in a light degree of scoliosis. The condition is familiar to all laryngologists, but its significance as a possible indication of grave intrathoracic disease does not appear to have been emphasised. MACLEOD YEARSLEY.

Pharynx

PHARYNX

Concerning the Principal Swallowing Spot in Man. W. KRAINZ. (*Archiv. für Ohren-, Nasen- und Kehlkopfheilkunde*, 1930, Vol. cxxvi., p. 259.)

AUTHOR'S SUMMARY.

It appears then that the principal swallowing spot in man, at any rate for food in the first stage of the reflex, is situated on the posterior wall of the hypopharynx.

The glossopharyngeal is the sensory nerve conveying impulses from this region. This is, therefore, the principal nerve in the swallowing reflex in man.

The sensitivity for causing an act of swallowing, situated in the edges of the epiglottis, evidently serves as a reserve reflex, and probably functions during the swallowing of liquids.

The edge of the epiglottis would hence be described as the secondary swallowing spot in man. It is innervated by the superior laryngeal nerve, whereby this may be deemed the important accessory swallowing nerve in man. C. DE W. GIBB.

Can Joint-specific Toxins be obtained from the Tonsillar Bacteria in Rheumatic Polyarthritis? MARTHA BRANDES (Heidelberg). (*Zeitschrift für Hals-, Nasen- und Ohrenheilkunde*, Band xxvi., Heft 3, p. 318.)

Portions from the middle of the tonsils of six patients suffering from rheumatic polyarthritis were removed by means of the conchotome. Cultures from these were injected intravenously into rabbits. The cultures from acute cases produced the most severe effects. From four out of the six cases toxins were obtained which found elective localisation in the joints. The joint-changes in the animals were very similar to those occurring in man without being quite identical.

The experiments suggest the possibility that toxins from the bacteria of the tonsils—especially the hæmolytic streptococci—may play a part in the causation of articular rheumatism in man.

JAMES DUNDAS-GRANT.

Tumours of the Nasopharynx. Dr. ANTONIO E. GAY (Buenos Aires), 1930.

This little book gives an account of tumours of the nasopharynx under eight headings, which include everything from anatomy and pathology to diagnosis and treatment. The pathological side is fully described, together with the various affections of the nervous and other neighbouring structures. The real object, however, is to advocate the treatment of all such tumours by diathermy. Case

records of 13 patients thus treated are placed at the end. In nasopharyngeal fibroma, of which rare tumour no less than 9 examples are reported, the results appear to have been remarkably good, and in malignant tumours great relief was obtained.

Apart from these excellent case records, the most useful portion of the book deals with the various syndromes which are produced by pressure and extension of nasopharyngeal tumours, and a sound classification is given. This monograph is a careful compilation and forms a reliable work of reference on these tumours.

L. COLLEDGE.

Bacteriæmia and Acute Throat Infections. HOWARD C. BALLENGER (Chicago); MITCHELL I. RUBIN (Baltimore); MARIE WERNER (Chicago). (*Journ. Amer. Med. Assoc.*, 13th December 1930, Vol. xcv., No. 24.)

Blood cultures were taken from children with acute or subacute infection of the upper respiratory tract. Almost all had elevation of temperature and an increased white blood cell count. One hundred and thirty-one blood cultures were taken in sixty-three cases. In only four children was a positive blood culture obtained.

Streptococcus hæmolyticus was found in two cases and a green coccus and pneumococcus in one instance each.

In one case where streptococcus hæmolyticus was obtained from the blood the child had acute suppurative otitis media and pneumonia, and in another the bacteriæmia was confirmed by an autopsy. Where the green coccus was recovered in the blood the child died from a heart and cerebral embolism. In the pneumococcus case the organism was recovered from the blood before pneumonia was diagnosed. A bacteriæmia secondary to an acute or subacute throat infection is not easily demonstrated by bacteriological examinations of the blood. Streptococcus hæmolyticus was found in two-thirds of acutely inflamed throats. The green coccus was found in a subacutely injected throat.

The article occupies four columns. ANGUS A. CAMPBELL.

Tonsillectomy in the Treatment of Acute Cervical Adenitis in Children. HARRY L. BAUM (Denver). (*Journ. Amer. Med. Assoc.*, 13th December 1930, Vol. xcv., No. 24.)

The paper is based on forty cases considered to be sufficiently severe to justify tonsillectomy as a means of controlling adenitis while the infection was still at its height. The infection begins as a tonsillo-pharyngitis, subsiding in three or four days and followed by acute anterior cervical adenitis. The average age of the children is $3\frac{1}{2}$ years and most cases are bilateral. All cases show enlargement, soreness and tenderness of the glands, stiffness of the neck, varying degrees of prostration, high and irregular temperature, leucocytosis and decreasing

hæmoglobin. Various complications are noted such as otitis media nephritis, pyelitis and pharyngeal abscess. By the time the acute adenitis develops the preceding acute inflammation in the throat has subsided and it is safe to operate. Tonsillectomy is unhesitatingly recommended in acute anterior cervical adenitis which follows tonsillo-pharyngeal infection and which fails to show definite signs of subsiding in a week. Tonsillectomy does not confer immunity against cervical adenitis.

The article occupies eight columns, has two charts and a bibliography. ANGUS A. CAMPBELL.

Case of Articular Rheumatism cured by Tonsillectomy. G. CANUYT and Dr. FROELICH (Strasbourg). (*Oto-Rhino-Laryngologia Internationale*, March 1931, Vol. xv., No. 3.)

The patient had had severe rheumatism for twelve years, undergoing periodic treatment by salicylates and heat, but unable to carry out his profession. Tonsillectomy cured him within ten months—the patient, who was a dental surgeon, being able to work all day with his hands.

E. J. GILROY GLASS.

ŒSOPHAGUS.

Cicatricial (Benign) Stricture of the Œsophagus of Unknown Origin. Report based on 40 cases. PORTER P. VINSON (Division of Medicine, The Mayo Clinic). (*Surg., Gyn. and Obst.*, May 1931, Vol. lii., No. 5.)

Benign stricture of the œsophagus may result from inflammatory reaction in or around the œsophagus, the result of caustics, infections in childhood, typhoid fever or peptic ulcer of the œsophagus.

The present report is on 40 cases in which the cause could not be determined, occurring in 243 cases of benign stricture: 17 were in males and 23 in females, while the ages ranged from 6 to 75 years. In just over half the cases (21) the stricture was situated in the lower third of the œsophagus, while the remainder were almost equally divided between the upper and middle thirds.

The main symptom is dysphagia, varying with the degree of obstruction: pain and regurgitation of blood were also present in some of the cases, the pain being due to spasm rather than any active ulceration.

The history may suggest malignant disease. A long history of dysphagia without marked progression should suggest a benign lesion, which is rendered more probable where roentgenoscopic examination fails to reveal obstruction, or shows a stricture with a smooth outline. Examination by means of the œsophagoscope shows the stricture to be short and apparently non-malignant.

Treatment consists in dilatation of the stricture, whether malignant

or benign. This ensures that all cases of benign stricture will be properly treated. The functional results of dilatation are excellent.

S. BERNSTEIN.

MISCELLANEOUS.

Diphtheritic Hypopiesia. C. FRASER BROCKINGTON. (*Lancet*, 1931, Vol. i., p. 1387.)

The author points out that towards the end of the first fortnight in diphtheria a clinical condition develops which may be fatal, and which is clearly separable from early cardiac failure and the chief feature of which is an extremely low blood pressure, an exaggeration of the fall which occurs in all grades. The fall begins after the seventh day, reaches the lowest point about the twelfth day, and rises again to normal about the twentieth day. The depth of the fall is in direct relationship to the severity of the attack. In the severest cases it may be so great as to occasion a clinical condition which in many cases is fatal. This condition, which occurs late, accounts for about 50 per cent. of the deaths during the first three weeks and is clearly distinguishable from the classical early cardiac failure. Five representative cases are described and a good analysis is presented.

MACLEOD YEARSLEY.

Unusual Complications of Diphtheria. NOBLE CHAMBERLAIN and S. ALSTEAD. (*Lancet*, 1931, Vol. i., p. 970.)

Two cases are described; one was of complete heart block persisting eighteen years after the diphtheritic infection and causing practically no symptoms. The second case was of spastic paraplegia following diphtheria and associated with mitral regurgitation. It is surmised that both the hemiplegia and the mitral regurgitation were due to an endocarditis occurring during the course of the diphtheria eleven years earlier. The cases, both females, were aged 28 and 18 respectively.

MACLEOD YEARSLEY.

Migraine: Results of Treatment by Ketogenic Diet in Fifty Cases. CLIFFORD J. BABORKA (Rochester, Minn.). (*Journ. Amer. Med. Assoc.*, 13th December 1930, Vol. xcv., No. 24.)

The cases selected in this study included only those in which there had been frequent attacks of typical migraine and those in which attacks were unusually severe. Fifty cases in all were treated with ketogenic diet. This diet is one having high fat and very low carbohydrate constituents in definite but varied proportions and it results in the excretion of ketone bodies. This form of diet influences the acid base balance and produces certain physio-chemical changes in the tissues of the body. The attacks were controlled in 14 cases, definitely improved in 25 and 11 were not benefited.

The article occupies six columns and has four tables and an extensive bibliography.

ANGUS A. CAMPBELL.