In the opinion of the exhibitor by this method a good view was obtained of the operation field. The most important advantage in the operation was the cosmetic effect and the simple after-treatment. He considered that the operation could be recommended for every uncomplicated case of mastoiditis. On the other hand, he found that the technique of the operation was more difficult and necessitated a special instrumentarium and assistant trained for this particular procedure.

Complete Mastoidectomy by Intra-Meatal Approach. (Simple Sub-Cortical Mastoidectomy).—JULIUS LEMPERT, New York.—The demonstrator showed a film descriptive of the various stages of the operation, stating that he had now operated on 558 cases with 11 deaths—that is a mortality of about 2 per cent.

In the discussion which followed, the method was subjected to severe if very tolerant and courteous criticism. The consensus of opinion was that such a method of approach could not be accepted as at any rate a correct alternative in every case—that it must always entail a more difficult technique associated with certain risks which were more easily avoided by the more ordinary post-aural method of approach—whilst the advantage claimed that it avoided a post-aural scar, was not held to be sufficient inducement to abandon the usual methods.

ABSTRACTS

EAR.

Changes in the Temporal Bone in Ochronosis. HANS BRUNNER. (*Monatsschrift f. Ohrenheilkunde*, October 1929.)

With a short historical survey of this little-known condition, first described in 1886 by Virchow, who then regarded the black discoloration found in the neighbourhood of the costo-cartilage joints as a manifestation of senility, the author draws attention to the two main subdivisions of this ailment: the "endogenous" form, a condition beginning in early life and characterised by the presence of alkaptonuria; the "exogenous" form, associated with the continued misuse of such bodies as carbolic acid.

Following with a note on the production of these manifestations he points out that, for otologists, the interest in the disease is usually only in relation to the black discoloration which occurs in the auricle, and quotes a detailed examination of such by Ubermuth.

The main subject of the article, however, is based on a case which came under the author's own care, and in which he had the opportunity of examining the *whole* temporal bone.

Ear

The specimen was taken from a man aged 54 (a book-keeper), who sought relief for cardiac distress and pain around the large joints on the 25th May 1928. Since birth the urine had always become dark on exposure; the sclerotics and auricles had been pigmented for ten years, and the skin of the face had shown a similar condition for the last five years. On examination the main lesion was a mitral stenosis and insufficiency with marked changes in the joints. The urine contained a trace of albumin; indican test was slightly positive; homogenistic acid present.

The patient was admitted to hospital, and under treatment some improvement took place, so that he could be discharged in June 1928. The cardiac distress, however, recurred and it was again necessary to admit him to hospital on the 31st January 1929, when re-examination revealed the same cardiac and other conditions as before, though increased in severity, and an aural examination showed an indrawn membrane with normal condition of the inner ear.

With increasing cardiac distress the patient died on the 7th March 1929. Report on the post-mortem examination was as follows:— "Stenosis ostii venosi sinistri gravis. Hypertrophia excentrica ventriculi dextri cordis. Concretio cordis cum pericardio. Dilatatio et thrombosis atrii sinistri. Atherosclerosis aortæ et arteriarum. Hæmochromatosis pulmonum. Cicatrix apicis pulmonis utriusque. Erysipelas faciei et phlegmone cutis colli et thoracis. Cicatrix ventriculi ex ulcere sanato. Spondylitis deformans. Ochronosis."

The otological interest was dependent on the further examination by the author of the temporal bone, of which he gives a detailed account, supplemented by microscopic illustrations and summarised as follows:—

1. Enlargement of the internal auditory meatus.
2. Loss of substance and atypical structure of the modiolus.
3. Occupation of the aquæductus cochleæ with fibrous tissue.
4. Areas of otosclerosis around the windows.
5. Arterio-sclerotic changes in the vessels of the inner ear and the carotid.
6. Chronic adhesive processes in the middle ear.
7. Abnormal development of the vessels in the body of the incus.
8. Pneumatisation of the floor of the external auditory meatus.
9. Slight arrest of pneumatisation of the mastoid process.
10. Abnormal pigmentation of the temporal bone.

The author emphasises the fact that, whilst in the other parts of the body the pigmentation was chiefly found in cartilage and fibrous tissue, and only here and there in isolated osteocytes (and these latter only in the neighbourhood of the joint cartilages), in this case, as

regards the temporal bone, almost no pigmentation was found in the cartilaginous tissue, whilst the bone tissue and the membraneous portion of the inner ear showed a marked deposit of pigment.

In further discussion of this last point, Brunner first refers to the pigmented areas of the inner ear as found in normal conditions, and the parts which normally are found non-pigmented. He then contrasts such normal conditions with the distribution of pigment in this case. He draws particular attention to the fact that, in this case, the areas of otosclerosis themselves were for the most part non-pigmented, although pigmentation occurred in their neighbourhood.

He concludes that the pigmentation of ochronosis represents a "normal" feature of alkaptonuria, which latter is the result of a constitutional anomaly, "an inborn error of metabolism" (Garrod), and which must have pre-existed the development of otosclerosis. He does *not* consider that between the ochronosis and otosclerosis there was any causal relation, except so far as the ochronosis, like other similar constitutional anomalies, possibly produced a condition which *predisposed* towards the development of otosclerosis.

ALEX. TWEEDIE.

Progress in the Prevention of Deafness through the Use of the Audiometer in the Public Schools. HORACE NEWHART, Minneapolis. (*Journ. Amer. Med. Assoc.*, 12th October 1929, Vol. iii., No. 15.)

The movement to secure periodic hearing tests in school children having been largely instigated by the deafened themselves, the author endeavoured to determine the extent and effectiveness of these tests. Questionnaires were sent out to eighty-one users of 4-A audiometer. Thirty-four useful replies were received. In these thirty-four cities, in 1928-29, 225,263 pupils were tested. Unsuspected loss of hearing was found in many thousands of children, and hundreds who were considered stupid and backward in their classes had defective hearing. A wide variation in the incidence of deafness was found in different communities. These differences were considered to be climatic, seasonal, or due to lack of standardisation of technique. Although the 4-A audiometer is not an instrument of precision, it is very useful in detecting deafness in a practical way among large groups. Periodic testing of hearing acuity is the initial step towards prevention of deafness. The greatest need is the active co-operation of the physician, especially the oto-laryngologist. It is recommended that some national organisation such as the American Medical Association should direct a campaign of publicity in favour of periodic hearing tests and the possible prevention of deafness.

ANGUS A. CAMPBELL.

Ear

Otitis Media and its Relation to Gastro-Enteritis. A. Graeme Mitchell, Merrick F. M'Carthy, Frank Seinsheimer. Cincinnati. (*Journ. Amer. Med. Assoc.*, 23rd March 1929, Vol. xcii., No. 12.)

In recent years the impression has been created in medical literature that many cases of summer diarrhœa are secondary to otitis media and mastoiditis. A study of gastro-enteritis in infants under two years of age, and its relation to otitis media, has been carried out over a period of two years. Collaborating in this study were otologists, bacteriologists and pediatricians. They were not impressed with the improvement in the intestinal symptoms after myringotomy or mastoidotomy. In 232 consecutive cases of otitis media there were only 58 cases that developed subsequent gastro-enteritis. In 209 cases of gastro-enteritis only 77 showed evidence of purulent middle-ear disease, and many of these patients did not have otitis media at the onset of intestinal disease. In comparing the seasonal incidence it was noted that gastro-enteritis was commoner in summer and otitis media in winter. The drainage of the pus from the middle ear and mastoid seldom had any effect on clearing up gastro-intestinal symptoms. They believe that opening of the mastoid in patients who have severe gastro-enteritis does not materially increase the mortality risk and should always be done when indicated.

ANGUS A. CAMPBELL.

The Importance of Mechanical Initiation as an Ætiological Factor in the Pathogenesis of Otosclerosis. F. LEIRI. (*Acta Oto-Laryngologica*, Vol. xiii. (Fasc. 3.)

According to Mayer the changes in the bone in otosclerosis present a picture so similar to those in Paget's disease (osteitis fibrosa) that they must be regarded as the outcome of analogous histological processes. In the opinion of Recklinghausen there are, in addition to osteitis fibrosa, a number of other tumour-forming bone diseases, such as epulis, myeloid sarcoma, etc., which should be grouped together as metaplastic osteomalacias. Moreover, he believes that various mechanical factors, such as pressure, traction and tension, play an important part in the causation of these benign tumours of bone.

It is the aim of the author of this paper to show that the mechanical conditions in the labyrinth are such that, in predisposed persons, they may be a causal factor in the new bone formation which occurs in otosclerosis. He deals in order with each of the five points in the labyrinth capsule at which the characteristic bony deposits are usually found in otosclerosis, showing how each of these regions is subjected to particular mechanical stress—above all the basal turn of the cochlea, where the bony deposits are so apt to occur at an early stage of the disease.

Although the author thus regards mechanical influences as of the greatest importance in the origin, and especially in the localisation, of the deposits in otosclerosis, he does not claim that they are more than a contributory factor in the causation of the disease, just as they may be in the metaplastic osteomalacias. The real cause of the disease still remains obscure. THOMAS GUTHRIE.

The Treatment of Ménière's Disease and the so-called Otolith Vertigo. KLAUS VOGEL. (*Acta Oto-Laryngologica*, Vol. xiii., Fasc. 3.)

The author has previously reported on the treatment of twelve cases of otolith vertigo and 7 cases of Ménière's disease by subcutaneous injection of 0·3 to 0·5 c.c. of a 1-1000 solution of adrenalin chloride. Further experience has confirmed his favourable impressions of the method. Of 74 cases, 27 were cured, 16 improved, 4 doubtful, 24 unaffected and 3 temporarily worse. Among the cured and improved were cases of old standing which had resisted treatment by almost all other known methods. The improvement did not occur together with the well-known general disturbances (tremor, pallor, palpitation) which follow adrenalin injection, but some ten to twenty hours later. In some cases a single injection was sufficient to abolish permanently the vertigo, nausea, postural nystagmus, etc.; in others second or third injections, after intervals of several weeks, were again immediately successful. In almost one half of the cases, however, the treatment completely failed, and the author accordingly sought for other means of influencing labyrinthine vertigo. He now believes that he has found what is required in euphyllin, which is recognised as a very efficient vaso-dilator and has been used with good results in angina pectoris and in cases with Cheyne-Stokes breathing. The fact that it causes a rapid reduction of high blood-pressure suggested to the author that it might be useful in cases of aural vertigo which did not respond to adrenalin. He has employed it in 12 cases in which adrenalin had failed, and in 7 of these obtained rapid and definite results. Euphyllin is given intravenously in doses of 0·48 c.c., the injection being made very slowly in order to avoid a too sudden fall of blood-pressure. The improvement did not occur until the following day, and in the successful cases was as striking as with adrenalin. There still remain, however, more than a third of all cases which are influenced by neither adrenalin or euphyllin. THOMAS GUTHRIE.

An Apparatus for Measuring the Air-Pressure exerted in Performing the Fistula Test. A. BLUMENTHAL. (*Zeitschr. f. Laryngologie, Rhinologie, etc.*, Bd. 19, November 1929.)

It is desirable to know exactly what pressure is being made on the labyrinth fistula when performing the above test. If the pressure be very gradually raised, one can determine the minimum point at

which nystagmus begins. The simple apparatus, made by Pfau in Berlin, consists of a rubber tube with a double bulb at one end for raising the pressure and an olive at the other end for the meatus, where an air-tight fit can be made with some vaseline. A T-shaped metal junction connects the rubber tube with a manometer, on which the pressure readings are made.

If the air does not escape through the Eustachian tube, the pressure in the meatus and in the tympanum will be the same as that shown on the manometer. But it is known that a fairly high pressure is required before the tympanic end of the Eustachian tube opens, a pressure in the neighbourhood of 275 to 300. The same pressure exerted by a Politzer bag through the nose would readily open the tube. It appears that it is easier to blow air through from the larger pharyngeal to the smaller tympanic opening than in the opposite direction.

With a labyrinth fistula signs of irritation occur with pressure readings of about 50—sometimes 20 to 25. The pressure need never exceed 120 in this test, and it is clear that the pressures which produce the fistula sign are well within the range of the force required to open the Eustachian tube. The figures which appear in the text presumably refer to mm. heights of a mercury column, but this is not stated.

J. A. KEEN.

Mastoiditis in Acute Nutritional Disturbance. LYMAN RICHARDS. (*Archives of Surgery*, 1929, Vol. xviii., p. 1774.)

Some three years ago it was suggested that the group of "summer diarrhœa" cases that are not due to improper feeding or true enteric infection but rather to para-enteral infection produced by a focus outside the tract might be caused by infection from the middle ear or mastoid. The author obtained the following results in a group of 100 infants admitted for acute nutritional disturbance—31 recovered and 69 died.

Of the 31 who recovered there were 14 with normal drums, 15 with redness or congestion, and 2 with bulging. Of the 69 who died, 29 had normal drums, 20 showed congestion, 7 bulging, and 8 discharge. These were the conditions on admission. In the group that recovered the bulging drums and 75 per cent. of the congested drums were incised. Richards is doubtful whether this incision was really necessary in many cases. He points out that only in 8 of these 100 cases was any discharge already present. Among the children who died every membrane that showed redness or bulging was incised but, in spite of this, no improvement was obtained. The total figures show that in 44 patients who had incisions there was a mortality of 66 per cent.; in those who did not there was a mortality of 60 per cent.

Secondary incisions of the drum proved useless. Twelve mastoid operations were done. Three of these patients recovered. The author believes that a simple incision of the membrane would have been sufficient in these cases, so slight were the changes found at operation. He points out, too, that not one of the children treated either in the out-patients' clinic or in the wards for all degrees of otitis media has yet shown any signs approaching those of acute nutritional disturbance. It is difficult to reconcile this observation with the belief that otitis media is a primary focus in these acute nutritional disturbances. Taken over a wide series of figures, the infections of the middle ear discovered post-mortem in children with acute nutritional disturbance were only ten per cent. more than those discovered in children dying from a wide range of other diseases. F. W. WATKYN-THOMAS.

Anatomic Changes in the Labyrinth secondary to Cerebello-Pontine and Brain-Stem Tumours. S. J. CROWE. (*Zent. f. Hals-, Nasen- und Ohrenheilkunde*, 1929, Vol. xiv., p. 378, and *Archives of Surgery*, 1929, Vol. xviii., p. 982.)

In the otological research laboratory which was established four years ago at the Johns Hopkins University over 11,000 pairs of temporal bones have been examined and serial sections cut. The author, who has eleven salaried assistants, examines every patient who comes into hospital and seems at all likely to die there. By this means he has been able to study the otological accompaniments of cerebral arteriosclerosis, hyper- and hypotension, renal, blood and endocrine disorders, and diseases of the central nervous system. It has thus been possible in many cases to correlate the functional changes with the microscopic. Three cases appear to be of particular interest. One, reported by Bunch (*Jour. Amer. Med. Assoc.*, 1928, Vol. xc., p. 2102) showed complete absence of disturbance in perception of pure tones and spoken words after excision of the right cerebral hemisphere.

A second case, metastatic carcinoma of the 8th nerve in the right internal auditory meatus, showed loss of all tones above 128 d.v. It was found that some fibres to the apical coil of the cochlea had escaped destruction. This result is of great importance, as it supplements experiments on animals which showed a selective degeneration of basal nerve endings under the influence of continuous high-pitched noise.

In the third case, a child had an inoperable glioma of the right cerebellar hemisphere extending to the mid-brain, but without any growth in the cerebello-pontine angle. Extensive degeneration was found in the organ of Corti, with atrophy of the cochlear nerve and nearly complete disappearance of the spiral ganglion. It would seem

from this that the cochlear nerve offers an exception to the Wallerian law of degeneration, although the vestibular nerve conforms to it. Wittmaack's experiments showed the division of the auditory nerve in the internal meatus is followed by atrophy of the cochlear branch up to the hair cells, but the peripheral vestibular fibres and end organs do not degenerate. F. W. WATKYN-THOMAS.

Muscle Tone in Decerebrate Rigidity. LOYAL DAVIS. (*Archives of Surgery*, 1929, Vol. xviii., p. 1687.)

The author practises a method of decerebration which he has described with L. J. Pollock (*Arch. Neurol. and Psychiat.*, 1923-24). This method is ligation of both carotid arteries, and of the basilar artery at any given level. His conclusions are as follows:—

1. The pattern of rigidity following decerebration depends on the level of section of the brain-stem and on the influence of other reflex activities.

2. The pattern and degree of rigidity in a decerebrate animal are not changed by removal of the cerebellum.

3. Lasting patterns of rigidity in flexion occur in decerebrate animals in which the labyrinth has been destroyed, and are unchanged by removal of the cerebellum.

4. Co-existing normally distributed tone, patterns of rigidity in extension and flexion, crawling, climbing and springing, are produced in animals in which a segment of the basilar artery has been isolated between two ligatures some distance apart, and in animals decerebrated at a relatively high level. Removal of the cerebellum does not affect the pattern or degree of these activities.

5. The cerebellum as a whole inhibits, in a general way, the tonic labyrinthine reflexes.

6. Removal of the cerebellum permits the regular and forceful occurrence of rhythmic reflexes in a decerebrate animal.

7. Tonic labyrinthine reflexes produce a change in the physical property of muscle which permits it to be purely mechanically stretched while other reflex adaptions occur.

8. Muscle tone may be produced by reflexes other than stretching.

F. W. WATKYN-THOMAS.

Treatment of Hydrocephalus. L. M. DAVIDOFF. (*Archives of Surgery*, 1929, Vol. xviii., p. 1737.)

After a brief historical review Davidoff refers at some length to the method of drainage of the spinal subarachnoid space into the peritoneal cavity. The difficulty in the past has been to maintain the communication. An ordinary drainage tube is a foreign body and

as such, an irritant. Davidoff uses an epithelium-lined tube, which is prepared in the following way:—

A strip of skin is buried under the rectus fascia, and stitched to the muscle by close sutures, maintaining the normal tensions of the skin. The fascia is then sewn over it with a double overlap, and the wound closed. In about twenty days the epidermis has grown out from all sides of the strip of buried skin and covered the overlying double layer of fascia. The result is an epidermis-lined tube with thick strong walls. A tube prepared by this method gives a permanent communication. F. W. WATKYN-THOMAS.

NOSE AND ACCESSORY SINUSES.

Simplified Investigation of the Sphenoidal Sinus. M. C. MYERSON. (*Archives of Oto-Laryngology*, December 1929, Vol. x., No 6.)

The writer describes his method of exploring the sphenoidal sinus, a procedure demanded in two groups of cases. First, those in which local symptoms can be traced directly to the sinus; and second, cases of general sepsis or of meningitis of doubtful origin. In 75 per cent. of sphenoids a probe may be passed into the ostium, and if this is not possible, the anterior wall is readily pierced. After withdrawing the probe, a cannula is passed along the same route and the sinus is aspirated, or washed out with saline. Bleeding is avoided by the preliminary use of the probe. It must be remembered that the posterior wall of the sinus is quite thin and may be penetrated if care is not taken. Another possible danger is penetration of the cribriform plate, but this can only occur if considerable force is exerted. Preliminary removal of the middle turbinate is unnecessary. The author discusses and criticises other methods of investigating the sphenoidal sinus. DOUGLAS GUTHRIE.

The Nasal Factor in the Treatment of Asthma. Sir JAMES DUNDAS-GRANT, K.B.E., F.R.C.S., London. (*The Practitioner*, July 1929, p. 18.)

The writer refers to the experimental results obtained by Dixon, Brodie and Ransom to the effect that stimulation of the mucous membrane of the nasal septum, especially its upper and back part, can cause a contraction of the bronchial muscle. He pleads for special attention to that region of the nose in all cases of spasmodic asthma, especially those which prove intractable under other methods of treatment. The removal of polypi or the anterior portion of an hypertrophied middle turbinal is often required. Such conditions are sometimes present in the absence of asthma and the writer presumes therefore that an asthmatic "constitution" of some sort is requisite. In children suffering from asthma, not relieved by removal of adenoids,

there are often hypertrophied middle turbinals, and the removal of the redundant portion of these is followed by freedom from further attacks. In a consecutive series of 15 non-hospital cases, recovery followed intra-nasal treatment in 9, great improvement in 3, and considerable relief in 1, the treatment in the two last cases being still incomplete. An ointment containing anæsthesin and adrenalin sometimes gave so much relief that more radical nasal treatment was deferred or refused. The special precautions called for in operating on the middle turbinals of young children under a general anæsthetic are indicated.

AUTHOR'S ABSTRACT.

Regeneration of the Nasal Mucous Membrane after Operative Interference. D. N. MATWEJEW. (*Monatsschrift für Ohrenheilkunde*, December 1929.)

In order to determine how far permanent damage resulted from destruction of the nasal mucous membrane even after minor operative interference, the author undertook investigations on patients who had been treated with the cautery, or chromic acid, or who had been subjected to the intranasal use of the conchotome, scissors, etc. The results of his investigations and the moral he deduces therefrom are summarised as follows:—

1. The greatest possible care should be observed at every operation involving the nasal mucous membrane in order to preserve the physiological function.
2. Treatment by the cautery or acids prevents regeneration of the mucous membrane and contributes to the development of chronic catarrhal conditions.
3. Treatment with the cautery and acids should therefore be restricted to cases in which the previous pathological processes have destroyed the normal mucous membrane.
4. After treatment with the conchotome a small scar results, similar to that in healing by primary intention elsewhere, such scar being bounded by completely normal nasal mucous membrane.
5. The use of the conchotome is to be preferred to the cautery in all cases where it is important to preserve the physiological function of the nasal mucous membrane.

ALEX. R. TWEEDIE.

Vidian Neuralgia from Disease of the Sphenoidal Sinuses. H. H. VAIL. (*Archives of Surgery*, 1929, Vol. xviii., p. 1247.)

The author reports a case in which the infection of an extremely pneumatised sphenoidal sinus, with extensions into the pterygoid processes, produced intense neuralgia with all the signs attributed to Meckel's ganglion neuralgia. It was shown that this condition was

entirely due to a neuritis of the vidian nerve. Stimulation of the nerve in its canal caused all the signs, not only of the vidian distribution as described by Sluder (pain in ear, mastoid, occiput, neck, arm and hand), but also pain in the upper teeth, with reddening of the conjunctiva, pain in the eye, and irregular contraction of the pupil. The condition cleared up completely with the cure of the sphenoidal suppuration. F. W. WATKYN-THOMAS.

A Study of Naso-pharyngeal Fibromata. VL. HLAVÁCEK. (*Oto-Laryngologica Slavica*, December 1929.)

In this paper the writer describes the cellular morphology and histogenesis of the tumour, and his findings can be briefly summarised as follows:—

The cell picture in different parts of the tumour varies in character, but nowhere does it show the malignant characteristics of a sarcoma.

The peduncle is mainly formed of undifferentiated connective tissue which resembles in appearance a spindle-celled sarcoma, but towards the periphery the tissue matures and is formed into definite fibrous tissue. The surface parts show added inflammatory, necrotic and degenerative elements. There is often a thick layer of plasma cells and leucocytes under the epithelium and along the line of the vessels, as a result of inflammation.

The vessels of the structure vary from capillaries to wide blood sinuses with thin epithelial walls. Those in the mature tissue may show hyalinisation in their walls and may contain hyaline thrombi. This does not necessarily mean retrogression.

The epithelium is cylindrical in the nasal aspect but not defined on the oral surface. It may be hypertrophied and invade the tissue of the tumour. The glandules are frequently hypertrophied.

In the peduncle the tumour is apparently aggressive and may invade the bone, but is non-aggressive in the more distal parts.

The origin must be sought in the persistence of the primary connective tissue casing the cephalic end of the dorsal cord. The growth of presupposed remnants of young connective tissue may be influenced by tension during growth of the skull or irritation from the adeno-hypophyseal system. E. J. GILROY GLASS.

LARYNX.

Cancer of the Larynx. J. E. MACKENTY. (*Archives of Oto-Laryngology*, December 1929, Vol. x., No. 6.)

MacKenty describes four unusual cases of cancer of the larynx, treated by laryngectomy.

Case 1.—Intrinsic basal cell epithelioma in a woman aged 20. At first limited to anterior half of left cord. Treated by large doses

of X-rays for three months, in spite of which the growth spread rapidly. The skin became tanned and adherent, the arytenoids were œdematous, and the larynx filled with neoplastic tissue. Laryngectomy was performed and healing was slow, the wound ultimately closing two and a half months after operation. Commenting on the case, MacKenty remarks that the Roëntgen irradiation was useless. It delayed the operation and almost prevented healing of the wound. "The more I see of radium-burned tissue, the less I think of radium, and the X-rays are just as lethal to tissue as the radium ray."

Case 2.—A man, aged 66, had suffered from pulmonary tuberculosis for six years and from chronic hoarseness for several years, accompanied by pain and dysphagia. The left side of the larynx was occupied by a smooth congested swelling and diagnosis was doubtful. Biopsy revealed squamous epithelioma and also tuberculosis. Following laryngectomy convalescence was delayed by an œsophageal fistula. This was treated by an ingenious artificial œsophagus, which the writer describes and illustrates. This protected the tracheal opening from the entrance of food or saliva.

Case 3.—This patient, a man aged 67, was under observation for five years prior to operation, the localised thickening of the left cord being regarded as a chronic inflammatory lesion. A series of 16 drawings illustrates the condition of the larynx during the "premalignant" stage. Ultimately the cancerous nature of the lesion became rapidly apparent. One year after the laryngectomy the patient died of cancer of the neck. "Certain appearances in the larynx suggest malignant disease to the experienced clinician long before the disease can be demonstrated clinically or biologically."

Case 4.—A typical squamous cell carcinoma of the left cord in a man, aged 60, who at first refused laryngectomy and was treated by radium for two years. The opposite cord became involved and the larynx filled with cancerous tissue. Laryngectomy was difficult, as even the muscles were converted into fibrous tissue by the radium. In consequence sloughing was extensive, but a plastic operation and the use of the artificial œsophagus rendered the patient more comfortable, although he died from recurrence eight months later.

"Treatment with radium converted the condition from an almost benign, easily curable disease in 1925 to a hopeless one in 1927."

DOUGLAS GUTHRIE.

Sensory Innervation of the Human Larynx. GUSTAV HOFER. (*Monatsschrift für Ohrenheilkunde*, December 1929.)

Feeling that the experimental research in this direction was incomplete, largely from the fact that it had been carried out on dogs, and that this did not represent a reliable estimate of the conditions in

man, the author undertook some further investigations. For this purpose a very suitable opportunity offered in connection with a large series of cases of malignant disease of the larynx, for which laryngectomy was necessary.

In Hajek's clinic, where this work was carried out, it was customary to deal with these cases in two stages, the first consisting in tracheotomy and removal of glands and the second, some weeks later, in removal of larynx.

Hofer took advantage of this procedure to divide one or more of the superior and inferior laryngeal nerves at the first operation, and when the patient had sufficiently recovered, compared the results on the intralaryngeal sensation with that determined previous to the operation.

The various points in the technique are described at length and the accounts of eight cases are given.

Broadly speaking, as a result of this investigation, he concludes that :—

Section of the Superior Laryngeal Nerve results in an anæsthesia of the same side from the upper opening of the larynx to just below the vocal cord. Later this anæsthesia is replaced by hypoæsthesia, whilst in the middle line a strip about 1 cm. broad recovers full sensibility.

Section of both Superior Laryngeal Nerves induces the same anæsthesia on each side, but reaching downward as far as the third ring of the trachea. Later this becomes a marked hypoæsthesia limited below by the lower margin of the cords.

Section of the Superior and Inferior Nerve on the same side produces an anæsthesia of the corresponding half of the larynx from the aditus to the third or fourth ring of the trachea. Later a strip 1 cm. broad towards the middle line recovers its sensibility.

Section of both Inferior Laryngeal Nerves causes an anæsthesia of the subglottic region to the fourth ring of the trachea, but partial sensation is shortly regained in the region of the cricoid and first two tracheal rings.

Section of all four Nerves at one time causes anæsthesia of the larynx from the aditus to the fourth ring of the trachea, but later sensation over the third and fourth tracheal rings is recovered.

He thus concludes that the nerve supply of both sides overlaps in the middle line, and that the inferior laryngeal nerve is not a purely motor nerve.

He does not, however, consider that these investigations have

completely cleared up the problem, and thinks that further research on these lines should be undertaken.

The article is well supplied with graphic diagrammatic illustrations, and is supported by a historical account of the work carried out in this direction from the year 1838 up to date.

ALEX. R. TWEEDIE.

Some Considerations in the Diagnosis and Operative Technique in Cancer of the Larynx. R. GRAHAM-BROWN. (*Journal of the College of Surgeons of Australia*, 1929, Vol. ii., p. 93.)

Owing to the comparatively small population of Australia carcinoma of the larynx is rarely seen. The author states that it is the usual experience of surgeons in the Commonwealth that cases are seldom seen where the removal of one cord would be adequate treatment. He urges the necessity of laryngological examination of all patients with chronic hoarseness.

He advises that in every case direct examination should be made before operation and that biopsy should be performed, so that the grading of the tumour may give some idea as to the prognosis.

A fortnight before the main operation he performs tracheotomy under local anæsthesia. At this operation he removes the thyroid isthmus and separates trachea and œsophagus with a packing of antiseptic gauze in order to shut off the mediastinum. A large window is cut in the trachea. The skin is undercut, slid inwards on either side, and approximated to the cut edges of the trachea. This gives a cleaner wound and an almost scarless tracheal opening.

All oral and nasal sepsis must be cleared up.

The author believes that, where possible, the operation should be performed under local anæsthesia. He gives two "allonal" (Roche) tablets two hours before operation, and another half-an-hour later if necessary. Three-quarters of an hour before operation one-eighth to one-quarter of a grain of morphine sulphate is given. He considers "nèocaine-surrénine" (Corbière) more effective and reliable than any other cocaine substitute.

A quadrilateral flap of skin and platysma is preferred to the usual T-shaped incision, as more likely to ensure primary wound closure.

After removal of the larynx he approximates the pharyngeal mucosa by a purse-string suture in the submucous layer. He sutures the muscles in layers—washing the tissues with carbolic lotion between stages—and closes the wound without drainage. By this means he has obtained primary union in his last three cases.

After operation the patients should be treated sitting up. It is essential that salivation be kept in check—for this he advises injections of atropine. No food should be given by mouth for the first forty-

eight hours. Feeding may then be carried out for some days with a small-calibre, well lubricated catheter. After seven days (in the last three cases after three days) the patient should be able to swallow liquids.

In the author's experience patients do not often become despondent after laryngectomy, and most of them develop useful lip or œsophageal speech. W. A. MILL.

PHARYNX.

Stenosis of the Nasopharynx. FREDERICK A. FIGI. (*Archives of Oto-laryngology*, November 1929, Vol. x., No. 5.)

The writer gives details of 18 cases which had been observed in the Mayo Clinic. He classifies the causes as follows: tonsillectomy and adenectomy, four; tonsillectomy alone, two; hereditary syphilis, three; acquired syphilis, two; indeterminate inflammatory process, two; rhinoscleroma, two; diphtheria, one; caustic (sulphuric acid), one, and congenital abnormality, one.

The trauma caused by removal of tonsils and adenoids appears, therefore, to be the most common cause, and although there may be some doubt between the relation of the operation and the stenosis, no other cause can be determined in the cases here related.

In 40 per cent. of the cases the trouble developed during the first decade of life, and in over 50 per cent. the onset was before the age of 20. The youngest patient was 7 years old, the oldest 58; 12 were males and 5 females. The longest period over which the symptoms had persisted was 17 years — in a case of hereditary syphilis.

The size of the nasopharyngeal opening varied considerably. In four cases there was complete atresia. This is not in accordance with the general experience, as complete atresia of the nasopharynx is said to be extremely rare. In two of the cases the complete atresia was due to syphilis, in one to diphtheria, and in another the cause was indeterminate.

The symptoms of the nasopharyngeal stenosis are primarily those of nasal obstruction. The voice loses its resonance, and irritation of the pharynx and larynx may follow the continuous mouth breathing.

Dealing with treatment, the writer states that in congenital stenosis simple incision and dilation prove successful. In cicatricial stenosis, however, this procedure invariably fails. A great variety of operations have been described. Diathermy is sometimes successful, and numerous plastic operations have been advised from time to time. The simplest, and probably the most successful procedure, is that advised by Nichols. Nichols stated that the reason why the opening

made by incision invariably contracted was because the healing always started at the apices of the wound and proceeded towards the median line. "Drawing an analogy from cases of syndactylism, treated by inserting a seton at the base of the web until cicatrisation took place, and then incising to this point, he inserted a silk suture through the small nasopharyngeal opening, well into the lateral extent of the region of scarring. This suture was tied and left in place until a cicatrised tract developed. The posterior border of the soft palate was then freed from its attachment to the pharyngeal wall out to this point."

This procedure has been adopted at the Mayo Clinic with uniform success. Instead of tying the suture, however, a small lead weight is clamped over each end; the suture cuts through of itself in a week or two and is invariably swallowed.

The prognosis in such cases has, in consequence of this procedure, passed from one of decided pessimism to one reasonably optimistic. The average period of observation and treatment has been a little over three months, depending upon the degree of stenosis and the density of the scar. DOUGLAS GUTHRIE.

The Treatment of Cancer of the Tonsil. G. CANUYT. *Annales des Mal. de l'Oreille, etc.*, July 1929.)

The following is a resumé of the writer's conclusions on the technique of treatment of cancer of the tonsil:—

I. TUMOURS OF EPITHELIAL ORIGIN.

Epitheliomata—*First Stage.*—Under local anæsthesia an extensive removal of the tumour *per vias naturales.*

Second Stage.—Under local and regional anæsthesia systematic exploratory exposure of the cervical compartment on the side of the tonsillar tumour. This exploration is necessary whether or no glands are perceptible in the clinical examination. If affected glands are found at the operation, total extirpation is advised.

Third Stage.—If there is the least doubt of the completeness of the surgical removal, radium puncture of the bucco-pharyngeal surface under local anæsthesia.

Fourth Stage.—External radium therapy, the collar of radium. This treatment generally lasts four weeks. Each application is given at about eight to ten days' interval.

II. TUMOURS OF CONNECTIVE TISSUE ORIGIN.

The Sarcomata.—Deep radio-therapy appears to be the best form of treatment. Total tonsillectomy after irradiation is a debatable method of treatment. Details of the writer's technique are fully described. L. GRAHAM BROWN.

Abstracts

ŒSOPHAGUS AND ENDOSCOPY.

Experimental Surgery of the Œsophagus. J. H. SAINT and F. C. MANN. (*Archives of Surgery*, 1929, Vol. xviii., pp. 2324-38.)

Operations on the œsophagus differ from those of other parts of the gastro-intestinal tract because of:—

1. Anatomical relations.
2. Lack of a true serosa.
3. Poor blood supply.
4. Respiratory movements, etc.
5. Strength and character of the propulsive movements.
6. Absence of omentum to protect the suture line.

Exposure is not difficult in the neck, but in the thorax has only been rendered practicable by the differential pressure chamber, or better, by intratracheal insufflation.

The lack of a serous covering adds greatly to the risk of infection of the fascial planes and the pleura. An additional danger to the suture line is the weakness of the walls and the pull of the diaphragm. A method of suture has already been described. (Abstract, *Journal of Laryngology*, 1930, Vol. xlv.)

In this paper the method is described in fuller detail and the authors have eliminated, to a certain extent, the danger of the respiratory pull by section of the left phrenic nerve. They have now succeeded in carrying out cervical and transthoracic resections of the œsophagus in animals. They conclude by saying, "Whether or not any portion of the technic can be adapted to human beings cannot be determined at present. Experimentally, however, section or resection of the œsophagus can be accomplished successfully."

F. W. WATKYN-THOMAS.

MISCELLANEOUS.

Is the Treatment of Speech Disorders a Medical Problem? JOHN A. GLASSBURG, New York. (*Journ. Amer. Med. Assoc.*, 23rd March 1929, Vol. xcii., No. 12.)

The author believes the treatment of speech disorders is a medical problem requiring the co-operation of teacher, psychiatrist, and rhino-laryngologist, and that the teacher should work under medical supervision. Speech disorders are classed under two headings: (1) stuttering; (2) defective phonation. Stuttering is defined as a spastic co-ordination neurosis based on mental conflict. The predisposing causes are heredity and neuropathic constitution. The exciting causes are nervous shock and psychic insult. The aggravating causes are

pathological conditions in the ear, nose, mouth, and throat, which include adenoids, abnormalities of the uvula, nasal obstructions, tongue-tie, cleft palate, and harelip, deformities of the jaw and dental arches.

Hoarseness, falsetto voice, retarded speech development, perverted speech, the speech conflict, lisping and nasality, are forms of speech disorder based on physical and mental causes, and require the attention of a medical specialist in order to overcome the disorder.

ANGUS A. CAMPBELL.

The Importance of Carbohydrate Metabolism in Hyperthyroidism. JOSEF CHARVAT. (*Oto-Laryngologica Slavica*, December 1929.)

As the result of investigation of a carbohydrate metabolism in hyperthyroid patients the author concludes that, contrary to Falta's view, there is no direct antagonism between the thyroid and the pancreas; that owing to increased sympathetic tonus the glycogenic function of the liver is upset and the liver is unable to store glycogen and the other functions of the liver are upset consequent on this.

The kidney sugar threshold is generally raised, and may even reach 3 per cent. It is probable that a certain amount of the sugar is used in hyperthyroidism without having been converted into glycogen. If there is a disproportion of insulin and carbohydrate plethora, it signifies a relative disturbance only.

He suggests that these facts should be applied clinically by increasing the carbohydrate diet in hyperthyroids and by the injection of intravenous glucose with insulin before and after operation on hyperthyroid patients, as acidosis might be prevented by thus helping the liver.

E. J. GILROY GLASS.

GENERAL NOTES

ROYAL SOCIETY OF MEDICINE.

1 *Wimpole Street, London, W.* 1.

Section of Laryngology.—The next Meeting of the Section will be held on Friday, 2nd May, at 5 P.M.

President, Dr Dan McKenzie. *Hon. Secretaries*, Mr M. E. Vlasto, 26 Wimpole Street, London, W. 1, and Mr V. E. Negus, M.S., 133 Harley Street, London, W. 1.

Section of Otology.—The next Meeting of the Section will be held on Friday, 2nd May, at 9.30 A.M.

President, Mr W. M. Mollison, M.Ch. *Secretaries*, Mr F. C. Ormerod, F.R.C.S., and Mr L. Graham-Brown, F.R.C.S., 32 Devonshire Place, London, W. 1.