

## ABSTRACTS

### E.A.R.

*Some Notes on the Etiology and Treatment of Tinnitus Aurium.*

J. A. BABBITT. (*Annals of O.R.L.*, 1932, Vol. xli., No. 1.)

The author gives a brief but comprehensive survey of the various factors which may be a cause of tinnitus aurium, and the treatment which may be tried. In particular, he quotes one case of extremely severe tinnitus occurring in his own practice, which was completely relieved by section of the stapedius and tensor tympani muscles, after all other forms of treatment, short of destruction of the cochlea (which the author considers both dangerous and unreliable), had failed.

His ultimate conclusions are:—

- (1) The syndrome of tinnitus aurium is too complex to justify any conventional routine treatment.
- (2) In the absence of cochlear degeneration or loss of function in the eighth nerve, the tympanic cavity offers a promising surgical field for the relief of tinnitus.
- (3) The assumption of memory tinnitus without demonstrable labyrinthine or eighth nerve involvement, is unwarranted.

E. J. GILROY GLASS.

*A Clinical Study on Positional Nystagmus in cases of Brain Tumour.*

C. O. NYLÉN (Stockholm). (*Acta Oto-laryngologica*, 1931, Supplementum xv., p. 113.)

At the First International Congress of Oto-Laryngology at Copenhagen in 1928, Nylén read a preliminary paper on this subject (vide *Journ. Laryngol.*, 1929, xliv., 485). In this article the work is carried a stage further, and the findings in a series of 150 cases of tumour of the brain treated between 1923 and 1930 are reviewed. Between 1930 and the date of publication 75 more cases have been examined, but these have not been included in the figures.

In all cases except one the diagnosis was checked by operation or autopsy. In this one case the diagnosis was confirmed by a skiagram, which showed a calcified tumour in the tentorium.

In the description of the examination a point is made that is too often ignored—the head must be in the long axis of the body, which should be in the horizontal position, at the beginning of each test. Then when the whole body has been turned to one side or the other, the head may be rotated, flexed, etc. The author is constructing a special table for carrying out the tests. In cases in which the “counter-rolling” (compensatory positions) of the eyes were examined, both Bárány’s and Benjamin’s instruments were used.

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Of the 150 cases examined, in 64 a tumour was present in the posterior fossa, in 75 in the anterior or middle fossa or spinal cord, and in eleven, tumours were present in both the middle or the anterior and posterior fossa.

Of these three groups, in the first, 89 per cent. of patients had nystagmus, 80 per cent. a nystagmus affected by the position of the head, and 9 per cent. a nystagmus not so affected.

Of the second group 9 per cent. showed nystagmus and only 4 per cent. a nystagmus affected by position.

In the third group, in which tumours were present above and below the tentorium, ten patients out of eleven showed nystagmus (91 per cent.), and of these ten, nine showed a nystagmus affected by position (81 per cent.).

Nylén remarks that the usual estimate is 50 to 60 per cent. of nystagmus cases for all cases of posterior fossa tumour, and attributes his higher figures to the routine examination with the head in different positions.

These signs were frequently found to be associated with abnormalities of the other vestibular tests.

In 36 cases in which a posterior fossa tumour was present there were abnormalities in the caloric responses. The weakening of vertical canal reaction on the sound side, described by Eagleton and Jones, was not often noticed in this series of cases. The author found that the rotatory reactions were also affected. On the whole, in the posterior fossa group, he found that the rotatory nystagmus was affected before the horizontal, but he did not find much support for the views of Eagleton and Jones as to the distribution and course of the canal fibres, and advises caution in attempting to determine the position of the tumour from the results of the rotation tests.

He distinguishes two principal "types" of nystagmus:—

Type I, "in which the direction changes when the position of the head is reversed."

Type II, "in which the direction does not change with changes in the position of the head. Certain positions of the head produce nystagmus, or chiefly influence the intensity of the symptom."

His conclusions may be stated thus:—

1. The presence of positional nystagmus, especially a nystagmus of Type I, makes it "highly probable" that there is a posterior fossa tumour if, on other signs, there is evidence of the existence of any intracranial tumour.
2. Type II, nystagmus is more common in tumours of the cerebello-pontine angle, Type I in tumours of the pons and cerebellum.
3. Vertical nystagmus suggests a tumour high up in the posterior fossa (region of the incisura).

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In addition he makes the following suggestions:—

- (a) "The mechanism of positional nystagmus may often be explained in cases of brain tumour by mechanical changes in the region of the vestibular nuclei and the substantia reticularis or passages closely connected with these centres (perhaps up to the thalamus); these mechanical changes are produced directly or indirectly by the tumour.
- (b) The function of the labyrinths and the vestibular ganglia is probably not a necessary factor in the production of positional nystagmus in cases of tumour.
- (c) It is not yet possible to be quite sure whether the vestibular systems (otoliths and ampullae) play different parts in the production of this symptom."

The paper ends with full case records and a good bibliography.

F. W. WATKYN-THOMAS.

*The Surgical Treatment of Otospongiosis: General Principles, Results and Mechanism. Operation Indications.* MAURICE SOURDILLE (Nantes). (*Revue de Laryngologie*, 1932, liii.)

In this memoir of 29 pages Professor Sourdille summarises his experiences of four and a half years practice of the operation known in this country by his name. The operation has already been described in this *Journal* (1930, xlv., 601) and may be summarised thus:—

1. The epitympano-mastoid, with formation of a plastic flap from the posterior meatal wall and tympanic membrane.
2. An interval for healing.
3. Fenestration of the external canal, mobilisation of the flaps, and closure of the fenestra with it.

In paying generous tribute to the earlier work done by Passow, Bárány, Holmgren and Jenkins he recapitulates the difficulties to be overcome.

All these observers have obtained considerable improvement in hearing in cases of otosclerosis by opening the labyrinth. Unfortunately in all their cases the improvement has been only temporary, and it is generally admitted that the regression of hearing was due to closure of the artificial labyrinthine fenestra by the formation of new bone. But it is also generally admitted that the fenestra must be closed in some way in order to prevent infection from the middle ear, which would certainly be fatal to the hearing and might be dangerous to life.

It is essential then that the material used must close the fenestra adequately, but the covering must be thin and flexible to permit the passage of sound waves, and it must not contain any bone-forming

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elements. For these reasons Sourdille rejected the fat-graft, which was used by Bárány, and the periosteal flap used by Jenkins and used instead a flap of the skin of the deep meatus and of the tympanic membrane. Further, in order that sound waves should reach the new fenestra by the shortest route, Sourdille chose Jenkins' attack on the external canal rather than the posterior (Bárány) or the superior (Holmgren). The first method of all, an opening on the promontory as suggested by Passow, is inadvisable, because of the risk of sepsis and also because it necessitates damage to the middle ear.

In addition to the fenestration and plastic operation on the canal, Sourdille has practised certain "modifications" of the ossicular chain which will be discussed later.

The results are of the greatest interest. Thirty-five patients were operated on for the clinical syndrome—progressive deafness, normal drumhead, negative Rinne and lengthened Schwabach. The degree of deafness varied from total bilateral deafness for the shouted voice to deafness for a low voice at 50 cm. In every case, provided bone conduction remains, there is an improvement in hearing when the labyrinth is opened, an improvement varying according to the previous degree of deafness, the apparent lengthening of bone conduction and the degree of alteration of the high and low limits. After a time this gain may be lost, may improve, or may remain stationary, and this state will depend not only on the condition of the fenestra but also on the condition of the ossicles. The results were as follows:—

*A.* Removal of incus with preservation of the malleus as well as labyrinth fenestration—five cases:—

1. Hearing increased from O.M. 20 cm. before operation, 2 M. 50 cm. on opening labyrinth—6 to 8 metres three months later.
1. Hearing from nil to 1 metre and maintained at 30 cm.
3. With no improvement.

*B.* Removal of incus and head of malleus and fenestration unsatisfactory—only 10 or 20 per cent. of the immediate improvement is maintained.

*C.* Resection of the head of the malleus with preservation of the incus and fenestration. Sixteen cases operated on. In twelve an excellent result, never less than a ten times increase of hearing distance compared to that before the operation, and doubling or even trebling of the immediate gain on fenestration. In two cases no improvement, in two slight improvement. After the first six months there seems little change, good or bad. In three cases, operated on two years ago, there has been no deterioration and two continue to improve slightly.

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*The Mechanism Involved.*—In the first place Sourdille's results seem to confirm his view that the immediate improvement is due to the impact of the sound-waves on the perilymph exposed in the fistula. As soon as the flap is turned over the fenestra the hearing diminishes. It is improved if the paraffined gauze used to pack the wound is placed in contact with the flap; it disappears temporarily if the wound is closed and the meatus packed without such contact.

Hearing is maintained by vibration transmitted to the flap over the fenestra through the ossicles, and the nearer the fenestra is to the ossicles the less chance there is of the flap becoming immobilised by adhesions to the bone, and the greater will be the stimulus.

On these results and considerations the author bases his operative indications:—

1. There must be a negative Rinne and a prolonged Schwabach. Even total deafness to the raised voice can be improved if a fork of 128 d.v. normally heard for 20 seconds can be heard for 25.30 seconds.
2. The middle ear must be healthy enough for a plastic operation. The membrane and incus must be intact. If the Eustachian tube is patent the results are better.
3. The degree of deafness taken as an indication is when the whispered voice cannot be heard at more than 50 cm. and before labyrinthine deafness appears.

Professor Sourdille makes no exaggerated claims; he admits that had it not been for the success of his earlier cases he would never have persevered in his task, and he does not minimise the technical difficulties and the unforeseen factors which make so essentially simple a conception so difficult of execution. F. W. WATKYN-THOMAS.

*Permanent Loss of Function of the Labyrinth with Intact Galvanic Reaction in Pigeons.* E. HUIZINGA. (*Acta Oto-laryngologica*, Vol. xvii., Fasc. 2-3.)

After bilateral labyrinth extirpation in pigeons the galvanic reaction at first remains, but vanishes gradually. The explanation for this has been found to be a progressive degeneration of the vestibular nerve. When the labyrinth is opened in different places a permanent loss of function can be caused. All labyrinth reactions are absent and the symptoms resulting from the bilateral operation resemble those of bilateral extirpation. Only the galvanic reaction remains normal. Microscopic investigation of these cases, even after a year has elapsed, shows no degeneration of the nerve.

From the microscopical examination of the labyrinth it is to be concluded that restoration of the endolymphatic space is always established, usually with a dilatation. The epithelium is almost normal.

The degeneration of the nerves and the disappearance of the

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galvanic reaction is the result of the removal of neuro-epithelium together with the finest nerve-endings. This fact will probably give an explanation of the different results which the galvanic reaction shows in the labyrinth-pathology in Man. AUTHOR'S ABSTRACT.

*Further Investigations on the Chemical Diagnosis of Cholesteatoma of the Middle-Ear.* A. REJTÖ. (*Acta Oto-laryngologica*, Vol. xvii., Fasc. 2-3.)

The author has reported on his method of a chemical diagnosis of middle-ear cholesteatoma at last year's meeting. Recently he has obtained a further experience of the same through the simultaneous examination of the cholesterin-index of the blood with that of the pus. The systematic examination of the blood in cholesteatoma, which is the first within the knowledge of the author, was executed according to Dr Acel's method.

The normal cholesterin-index of the blood (130-170 mgrs. per cent.) rose in all cases of extensive cholesteatoma of the ear to 190-220 mgrs. per cent., making an allowance of course for nutriment and constitutional illness.

The most troublesome part of the examination, the constant indicator, has been simplified.

The author employs 10 c.cm. of a  $\text{CCl}_4$  solution for therapeutic purposes, applied under high pressure once or twice a week.

Those cases of cholesteatoma in which, notwithstanding the positive pus-reaction, the cholesterin-index of the blood has not increased are suitable for conservative treatment, when the clinical symptoms do not demand an operation. AUTHOR'S ABSTRACT.

*The Ear, and Death by Drowning.* K. ULRICH. (*Acta Oto-laryngologica*, Supplement xvi.)

1. The current notion of death by drowning comprises three possibilities: (a) typical death by drowning, (b) accidental death in the water, (c) submersion. By "submersion" we understand death from unknown causes in the water, the crux of the whole problem treated here.

The results of our work are based on the examination of 22 series of os petrosum sections taken from 14 freshly drowned subjects. The principle on which these were divided into drowned and submerged was that the first group comprised only non-swimmers who got out of their depth, the second swimmers who sank without a sound in the vicinity of the shore.

2. Dry perforations of the drum or chronic suppuration of the

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middle-ear were found only exceptionally among the drowned (1:14). Our researches show also that death by drowning rarely takes place as a result of recent ruptures of the drum. As a general rule, therefore, the theory of labyrinth vertigo cannot be regarded as the solution of the enigma of sudden death by drowning.

3. The Wreden-Wendt ear test is of no practical value, since foreign bodies in the ear were found only in a negligible number of cases of recent drowning.

4. In the majority of our cases, more or less extensive hæmorrhages in the middle-ear are present, in some cases also in the external auditory meatus, and in the cortical marrow. As a general rule, extensive hæmorrhages are observed in death by drowning, but these are slight or even absent in submersion.

5. These auricular hæmorrhages (or their absence) prove on the one hand that the subject sank below the surface of the water in a lowered condition—*i.e.*, collapsed—while on the other hand the examination of the state of the ears of the drowned enables us to obtain important evidence as to whether the subject was really drowned or merely submerged.

6. As a rule no asphyxial hæmorrhages are present in the inner ear. In the water of our lakes the membranous labyrinth perishes certainly not more quickly, and perhaps even more slowly, than in the air.

7. Sudden heart-failure in cases of previous heart-trouble (*mesa-ortitis leuetica*) is not seldom a cause of submersion.

8. General post-mortem examination shows that, in all cases of submersion, not only was acute digestive hyperæmia present, but that its highest stages are to be observed here. The intensity of the digestive hyperæmia may be objectively determined by the measurements of the spleen.

9. On the basis of the results of the general post-mortem (acute digestive hyperæmia) and of the microscopic examination (relative absence of asphyxial hæmorrhages) we arrive at the conclusion that, in the ætiology of submersion, digestive hyperæmia must rank before all other possibilities (including labyrinth vertigo and accidental death in the water).

10. If the large number of deaths in bathing and competitive swimming is to be reduced, it is of prime importance not only that those suffering from ear or heart troubles should be warned, but that first and foremost the public should be enlightened as to the dangerous effect of a full stomach on the organs of the bather.

11. Respiratory compression as a cause of submersion was rejected on the basis of the hospital and post-mortem reports.

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*The Question of Degenerative Atrophy of the Inner Ear in Tumours situated at a Distance.* HANS BRUNNER (Vienna). (*Zeitschrift für Hals-, Nasen- und Ohrenheilkunde*, Band xxx., Heft 4, p. 443.)

Démétríades, among others, has investigated the condition of the inner ear in cases of tumours at a distance, especially carcinomata. The symptoms were progressive dullness of hearing, which began with a shortening of perception of deep tones, and which eventually showed diminished reaction to the caloric test. Neuritis and serous labyrinthitis forming the anatomical substratum of the changes were attributed to the toxins given off by the tumour. Brunner describes a case of adenocarcinoma of the pylorus with a high degree of cachexia. Subsequently severe vomiting came on and paresis of the sixth nerve was found on both sides with nystagmic twitchings on looking towards either side. The left facial nerve was rather weaker than the right, and on the left side there was bradyteleokinesis; the patellar and Achilles reflexes were absent. These symptoms suggested a metastasis, probably in the left cerebellum, with pressure on the sixth nerve. There was sufficient deafness to suggest that there was disease of the internal ear on both sides, though the patient's condition was too poor for it to be tested. There was horizontal spontaneous nystagmus which changed in intensity and direction and was probably due to the paresis of the sixth nerve. The caloric reflex, both with minimal and maximal syringing, was completely absent. On post-mortem examination no visible changes were seen in the brain or membranes. Microscopical examination of the temporal bone showed a high degree of atrophy of the spiral nerves and ganglion in the region of the basal and vestibular whorls, degeneration of the nerve in the apical part of the cochlea and slight atrophy of the nerve in the cristae. The question arose as to whether the changes in the labyrinth were due to the toxic effect resulting from the carcinoma, or to the general cachexia of the patient. It is suggested that the cachexia would account for the loss of the patellar and Achilles reactions, and that as the caloric reaction was also a reflex it might reasonably be attributed to the cachexia, either in part or entirely, rather than to the toxin. JAMES DUNDAS-GRANT.

*Degeneration of the Labyrinth following Trauma of the Skull.*  
K. WITTMACK. (*Arch. Ohr., u.s.w., Heilk.*, 1932, Band cxxxi., pp. 59-124.)

When symptoms of inner ear lesions have followed head injuries, the changes in the labyrinth have been explained up to the present as follows (Nager, Lange, Manassé, Alexander): A blood effusion occurs, chiefly into the perilymph spaces, either with or without fracture of the inner ear capsule. Fibrous tissue forms in these spaces and, as a late result, the organ of Corti and the eighth nerve ganglia atrophy. The



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process closely resembles the late effects of inflammatory disease, e.g. in cerebrospinal fever. Professor Wittmaack believes that this view of the pathology is fundamentally wrong, and in the present lengthy and important article he gives an entirely new explanation of the effect of skull trauma on the cochlea.

A typical case is first of all described. Woman, aged 30, who died of scarlet fever. At the age of 14 she had been hit by a hard snowball behind the left ear. The history of the accident was very definite. No unconsciousness followed, there was no bleeding from the external auditory meatus or subsequent discharge. From the time of the accident deafness was noticed on the injured side, also tinnitus and occasional attacks of vertigo. The histological examination of the ear organ sixteen years after the accident showed a normal middle ear, no sign of old fracture of the labyrinth capsule, nothing abnormal in the perilymph spaces, but a very marked and characteristic lesion of the cochlear canal, viz., an almost *complete disappearance of the organ of Corti in all the coils* (see illustration in text). The sacculus end-organ has also disappeared, but the utriculus and the other vestibular end-organs are unchanged. The cochlear ganglion in the spiral lamina shows a marked diminution in the number of cells and the cochlear nerve is also atrophied.

The analysis of the case seems to leave no doubt that the changes in the cochlear canal are the direct result of the head injury, and that they cannot be explained as a secondary result of blood effusion or of inflammatory changes in the perilymph spaces. The author's explanation of the pathology is bound up with his theory of the hydrostatic pressure conditions in the endolymph (Tonuslehre). The endolymph canal cannot be looked upon as a uniform space with equal pressure in all parts. Immediately surrounding each end-organ there is a jelly-like mass held in a fine network and with a fluid pressure which is to some extent independent of the pressure in the remaining part of the endolymph. The canals which establish a communication between the two systems of pressure are extraordinarily minute and a sudden compression shock cannot be corrected easily by the yielding of fluid. When such a compression-shock on the endolymph, transmitted through the bones of the skull, attains a high degree the protoplasmic contents of the organ of Corti are crushed between these two independent systems of pressure, and the whole end-organ may be very suddenly and completely destroyed.

In a third part of the paper the author describes a series of animal experiments which do not take the usual course of injuring the skull and examining the labyrinth after a suitable interval. In order to imitate more closely the effect of a sudden compression of the endolymph system, Professor Wittmaack devised a special technique. In rabbits the inner tympanic wall is exposed and the stapes is pushed in

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through the oval window. A 2 c.c. record syringe with a rubber disc 3 mm. from the needle point is fitted tightly into the fenestra ovalis; the syringe has previously been filled with physiological saline at body temperature and momentary pressure is made on the piston of the syringe. A diagram makes this quite clear.

Certain nystagmoid movements of the eyeballs show whether the experiment has been successful. Degenerative changes in the organ of Corti can be seen already, a very few days after the experimental injury. After two weeks there is a complete atrophy of the cochlear ganglion. Other signs are tearing of Reissner's membrane, fracture of the lamina spiralis ossea, etc. (see illustrations in text). The sacculus end-organ is also destroyed, but the utricle and cristae of the ampullae show very little change (compare above clinical case).

Control experiments were necessary in order to determine to what extent the operation on the middle-ear, which was required to expose the oval window and the pushing-in of the stapes, could be responsible for the changes noticed. In these control animals blood effusions were sometimes found in the perilymph spaces, but the organ of Corti never showed the characteristic changes.

It is important to realise that changes in the cochlear canal, which may result from a possible serous labyrinthitis, do not come into question in these experiments as the organ of Corti is destroyed long before fibrous tissue organisation can occur.

In all cases of head injury in which an opportunity of examining the inner ear arises later on, one should first of all see whether the organ of Corti has disappeared in the manner described. Authors have often hesitated to pronounce on this point, as post-mortem alterations set in so rapidly. The present research shows that the degeneration of the cochlea which may follow head injuries is absolutely characteristic and that it can always be distinguished from post-mortem alterations.

The post-mortem changes always proceed along certain definite lines; in every case, however advanced these changes may be, one should be able to determine whether the cochlear canal was in a normal state before death or not.

Head injuries, especially blows in the occipital region from falls, may cause a complete nerve deafness on one or both sides *without* concussion or fracture of the base. The *type* of trauma is more important than its severity. The sacculus end-organ often shares in the effect of such trauma but not the utricle, as has been shown. In spite of the sacculus injury the vestibular functions may be quite normal clinically. On account of the normal vestibular reactions observers have been inclined to diagnose in such cases a *degeneration of the cochlear nerve alone* with an intact labyrinth. In the future such a diagnosis will no longer be justified.

J. A. KEEN.

# Nose and Accessory Sinuses

## NOSE AND ACCESSORY SINUSES.

*The Diagnosis of Maxillary Sinus Polyposis.* LOUIS H. LEROUX.  
(*Les Annales d'Oto-Laryngologie*, January 1932.)

The relative frequency of polypoid disease of the maxillary antrum is not sufficiently appreciated. These maxillary polypi, when present, are identical in appearance and histologically with those found in connection with ethmoiditis. They are sessile, non-pedunculated and very adherent to the antral wall. They are connected particularly with the antral floor and its inner wall in the neighbourhood of the ostium. The party-wall is often partly absorbed, and the gap is replaced by the œdematous growths. An important point is the absence of suppuration in the antrum affected, and when this occurs (only 3 times in 40 cases) the author believes that it is due to secondary infection and disagrees with the accepted view that polypoid disease of the antrum is associated with chronic suppuration. Another important point is that the condition is bilateral (44 times in 50 cases).

*Diagnosis.*—The presence of polypi in the nasal fossa is suggested by (1) the facility with which a probe can be made to pass through a gap in the neighbourhood of the ostium maxillare, (2) the elastic resistance which is felt on probing, (3) the fact that exploratory puncture fails to overcome the resistance from the antrum. These are the physical signs which are caused by polypoid disease of the antrum. Radiography is not of much assistance. This is not the case, however, when radiography is carried out in conjunction with the injection of lipiodol into the maxillary sinus. The technique of injection and the inferences that can be drawn therefrom are described in detail. Photographs help to elucidate the text. Once the diagnosis of polyposis of the antrum is made, the correct treatment is to operate on the antrum and to remove the contents. M. VLASTO.

*Surgical Treatment of Certain Unusual Conditions of the Frontal Sinus.*

HAROLD I. LILLIE, M.D. (*Annals of O.R.L.*, Vol. xli.,  
March 1932, No. 1.)

The author summarises as follows:—

“Seven case-histories of patients presenting interesting problems in the surgical treatment of unusual diseases of the frontal sinus are described. Even though the clinical and physical data might be similar, it was found that they did not respond to the same type of surgical interference. It is evident that the time-honoured surgical axiom that the operation must be adapted to the pathological condition rather than the pathological condition to the operation holds good in this group of cases.”

E. J. GILROY GLASS.

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*The Physiology of Drainage of Nasal Mucus: II. Cilia and Mucin in the Mechanical Defence of the Nasal Mucosa: A Motion Picture Demonstration.* A. HILDING. (*Annals of Otology etc.*, 1932, 41. 36.)

A description of the ciliary reaction of the mucous membrane of the nose is given. The view is expressed that in the anterior part of the nose, in which the rate of flow over the mucous membrane is much slower than the posterior part, "presumably, cilia are lacking and the drainage takes place by means of traction on the mucin contained in the secretion. That is, the film of secretion is drawn backwards by the power of the active cilia in the posterior two-thirds of the nose."

An interesting description of some experimental work on the drainage of the frontal sinus of a dog is given.

Hydrokollog was used as an indicator and it was shown that the flow takes a very definitely spiral route in the sinus and that there are bands in which the rate of flow is much more rapid than in others. The intervening portions of the mucous membranes appear to drain into these bands. No inactive area was found and the speed of flow increased as the ostium was approached. The direction of flow is shown to be independent of gravity, and indeed, the greatest speed was at times found to be directly against gravity.

Injections of laboratory strains of streptococci, cultures of streptococci from victims of respiratory infections, pneumococci, mixed growths, pus from various infections, and fresh nasal secretion from a patient suffering from a cold, were injected into the sinuses. When the sinuses were opened twenty-four hours after these injections, the mucous membrane was found to be unaltered, and it was quite impossible to produce an infection artificially.

E. J. GILROY GLASS.

*Pulsating Exophthalmos due to Sphenoidal Sinus Mucocele.* H. V. O'SHEA. (*Lancet*, 1932, i. 1253.)

The history is given in detail of a man, aged 32, extending over eight years. The author diagnosed mucocele of a posterior orbito-ethmoidal cell or sphenoidal cell on the following grounds:—

1. Long history.
2. Absence of inflammatory symptoms or signs.
3. The very great extent to which the eyeball was pushed forwards, with absence of supraorbital swelling.
4. Slight dimness of vision.
5. Previous discharge of thick, brown, viscid fluid from the left nostril.

The ethmoidal and sphenoidal regions were explored endonasally. A small amount of thick brown fluid was evacuated from the sphenoidal

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sinus, followed by slight discharge for ten or twelve days. After very slight improvement the man became much worse, and further operation through an external incision was at once performed, of which full details are given. It was found that the roof of the left sphenoidal cavity and posterior part of the orbit had been absorbed and a large part of the dura exposed. The contents of the mucocele had spread into the posterior part of the orbital cavity and passed backwards beneath the dura to the base of the brain. Recovery (save for temperature of 103° F. for a week), after the third day, appears to have been uneventful. The rarity of sphenoidal mucocele is commented upon.

MACLEOD YEARSLEY.

### LARYNX.

*Indications and Technique of Total Laryngectomy by the method of Tapia.*

J. DUCUING. (*Les Annales d'Oto-Laryngologie*, March 1932.)

Owing to the unsatisfactory results of the radium treatment of laryngeal cancer, the author wished to revert to laryngectomy, which he had abandoned for some years in favour of treatment by physical agents. He therefore decided to visit Tapia's clinique at Madrid. This article is a summary of the indications, technique and after-care incidental to the operation of complete laryngectomy as carried out by the Gluck-Tapia method.

*Indications.*—These are very simple. (1) All cases of laryngeal cancer should be treated by surgery. Only those cases should be treated by radium or deep ray therapy which are either too advanced for operation or in which the patient refuses surgical removal after due warning has been given him of the unsatisfactory results of radiation treatment. (2) The particular operation to be performed depends on the type of laryngeal cancer. Laryngofissure should be performed in cases in which the growth is limited to the central part of a vocal cord. When the anterior commissure is involved, the type of operation should be that of lateral hemilaryngectomy by Gluck's method. And all more advanced cases—and these are in the majority—should be treated by total laryngectomy. There follows a detailed account with illustrations of Tapia's operation.

M. VLASTO.

*Early Intrinsic Cancer of the Larynx, Diagnosis and Treatment: Observations on Laryngofissure as a Method of Treatment in a Series of Cases.* GABRIEL TUCKER (Philadelphia). (*Annals of Otology, Rhinology, and Laryngology*, March 1932, Vol. xli., No. 1.)

In this paper, which was read before the American Academy of Ophthalmology and Oto-Laryngology, a review of thirty cases of early carcinoma of the larynx is given. The area which the author finds

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most commonly involved is the anterior two-thirds of the vocal cord and adjacent portion of the ventricular band and anterior commissure (the "anterior-intrinsic area" of Jackson).

In the diagnosis, the author insists on direct laryngoscopy and biopsy in the final stage of every case. He refutes any possibility of production of metastasis by biopsy, the more so, as a report can be obtained and further operation performed within 48 hours.

The Broder classification is not emphasised and he advises operation irrespective of the grade of malignancy, if the tumour is in a favourable situation.

In twenty-five cases, over one year has elapsed since operation, and in this group there was no operative mortality, but two cases recurred; one nine months after laryngofissure, and the second, one year and five months later.

In the first half of the series, general anæsthesia was employed, and in the second half, local anæsthesia.

A review of the operative technique and post-operative treatment is given. This appears to follow the usual procedure adopted in this country.

E. J. GILROY GLASS.

*The Treatment of Laryngeal Cancer.* FUMIO TANAKA (Okayama).  
(*Oto-Rhino-Laryngologia*, Vol. v., No. 6, p. 538.)

The treatment of laryngeal cancer takes two directions—operation or radium. The three operative measures are endolaryngeal extirpation, excision by laryngofissure, and complete laryngectomy. Tanaka recommends removal by laryngofissure if early diagnosis is made. For inoperable carcinoma he prefers radium treatment.

Two cases are described, one of typical epithelioma of the vocal cord removed by laryngofissure, and one of advanced carcinoma of the epiglottis. The latter was treated by the insertion of radium needles after splitting the thyro-hyoid membrane; after irradiation to the extent of 3068 mgm.-hours the tumour disappeared completely.

JAMES DUNDAS-GRANT.

### TONSIL AND PHARYNX.

*Suspension Method of Tonsillectomy in Eight Thousand Tonsillectomies.*  
ELMER L. WHITNEY, Detroit. (*Journ. Amer. Med. Assoc.*,  
15th August 1931, Vol. xcvi., No. 7.)

The method is advised for patients of any age when general anæsthesia is used. Suspension is furnished by hooking the ordinary laryngeal suspension apparatus to the Crowe mouth-gag. By this method the operator has complete control of the patient's throat, the

## Tonsil and Pharynx

glottis is always in view, the tonsils are well defined, and the tongue is automatically held out of the way. The adenoids are removed first and the tonsils are enucleated later by dissection and snare. Suction is of immense value. It is claimed that this method is safe for beginners and aspiration is avoided. No case of lung abscess occurred in the whole series.

The article occupies two columns and is illustrated.

ANGUS A. CAMPBELL.

*The Body Changes in the Adenoid Child.* DOTT. ALFONSO TRIMARCHI.  
(*Collana del "Valsalva,"* 1932, No. 4.)

Dr. Trimarchi has investigated some hundreds of children who suffered from enlargement of adenoid tissue of the nasopharynx and pharynx.

He investigated, by means of anthropometric measurements and by radiography, the changes in growth of the skeletal structures, and the development of the respiratory apparatus. He also investigated the changes in the heart and in its various cavities. Lastly, he investigated the size and shape of the pituitary fossa in these children.

As a result of these investigations he has found that the bodily measurements of the adenoid child were usually below normal and that the length of the limbs was increased relatively to the antero-posterior diameter of the chest, which was reduced.

There appeared to be a disposition towards tuberculosis in the patients with large adenoid masses.

Measurement of the heart suggests that in a large proportion of cases the heart is smaller than normal and that this affects the left ventricle more than the right.

The pituitary fossa was found to be deeper than normal in comparison to its antero-posterior diameter. The author does not suggest that there is any hyperpituitarism in these cases but rather, from the skeletal features, a hypopituitarism, and he considers that the size of the fossa has no connection with the function of the gland.

F. C. ORMEROD.

*Malignant Tumours of the Nasopharynx, with involvement of the Nervous System.* FRENCH K. HANSEL. (*Annals of O.R.L.,* March 1932, Vol. xli., No. 1.)

This paper is based on nine cases of malignant tumour of the nasopharynx, showing involvement of the nervous system, and drawn from a series of seventeen tumours in this situation.

The tumour was most commonly found in the fossa of Rosenmüller or in the vault, and extended to the adjacent structures, the Eustachian tube, cranial nerves, and bony structures of the region. Although the

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dura was reached in some cases, and even elevated from the bone, it was never penetrated. In six of the cases there were no symptoms referable to the nasopharynx.

Pain in the eye, side of the face, and in the ear were the most common complaints. Deafness and tinnitus, from involvement of the Eustachian tube, were present in six cases. Symptoms referable to the eye, such as blindness, ptosis, or diplopia, were present in eight cases. Fifth nerve involvement was apparent in four cases, and seventh nerve paralysis in two cases. The nerves passing through the jugular foramen were affected in three cases, and in one other the twelfth nerve alone was affected.

Histologically, five of these tumours were carcinoma, three squamous epithelioma, and one lymphosarcoma. There was a striking lack of differentiation in cells in each case, so that exact classification was rather difficult.

A complete record of the individual cases is given, of which the following table is a summary:—

Case.	Age.	Sex.	Type of Tumour.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.	Ninth.	Tenth.	Eleventh.	Twelfth.
1. R. W. . .	39	M.	Ca.	...	...	...	...	...	...	...	•	×	×	×	×
2. C. C. M.	54	M.	Lym.	...	...	...	...	...	×	...	•	×	×	×	×
3. J. R. G.	53	M.	Ca.	...	...	...	...	×	×	...	•	...	...	...	×
4. A. B. . .	44	M.	Ca.	...	...	...	...	...	×	×	...	...	...	...	×
5. H. R. . .	24	M.	Ca.	×	...	...	×	...	...	×	•	...	...	...	×
6. F. S. . .	42	M.	Ca.	×	×	..	×	×	×	...	...	...	...	...	...
7. A. B. . .	50	M.	Sq. Ca.	...	×	...	...	...	...	...	•	...	...	...	...
8. N. L. . .	17	M.	Sq. Ca.	...	×	...	...	×	...	...	...	...	...	...	...
9. S. A. . .	42	F.	Sq. Ca.	×	×	×	...	×	×	×	•	×	×	×	×

E. J. GILROY GLASS.

*Mediastinal Abscess following Peritonsillar Infection.* W. MEYER.  
(*Arch. Ohr., u.s.w., Heilk.*, 1932, Band cxxxi., pp. 125-129.)

The author describes the case of a boy, aged 10, with peritonsillar abscess on the right side, which was opened; there was bilateral swelling of the neck, and the general condition was bad. Twelve days later the patient vomited a large quantity of pus. This aroused the suspicion of a deep-seated abscess which had tracked downwards ("Senkungsabszess").

In order to clear up the diagnosis iodipin was allowed to run into the abscess cavity through the operation opening (25 c.c.). The X-ray photograph showed a surprising condition—an abscess cavity extending into the mediastinum down to the level of the fourth thoracic vertebra. The question of opening this mediastinal abscess *viâ* the œsophagus



# Bronchoscopy

was considered, but the plan was abandoned in the end because the X-ray suggested that a definite area of non-infected mediastinum lay between the abscess and the lumen of the œsophagus. A suitable position for drainage was adopted and nothing further was done. The X-ray showed normal conditions in the thorax after six days and recovery took place.

J. A. KEEN.

## BRONCHOSCOPY.

*Bronchoscopy as an Aid to the Diagnosis of Obscure Pulmonary Disorders.* EDWARD A. LOOPER (Baltimore). (*Journ. Amer. Med. Assoc.*, 31st October 1931, Vol. xcvi., No. 15.)

Bronchoscopy in proven tuberculous cases is not advocated, as instrumentation is liable to do harm. In many cases, however, after all other means of investigation have failed, a final diagnosis can be made only through the help of endoscopy. It is felt that the time is rapidly approaching when all chest hospitals will establish bronchoscopic clinics. Fourteen cases are reported in which bronchoscopy alone or bronchoscopy with iodised oil have proved helpful in clearing up bleeding areas in the bronchi, new growths, bronchiectasis, asthma, lung abscess and foreign body.

The article occupies six columns and is illustrated.

ANGUS A. CAMPBELL.

*Advantages of the Intubation Method of Introducing Iodised Oil for Bronchography in Children.* SAMUEL IGLAUER (Cincinnati). (*Journ. Amer. Med. Assoc.*, 21st November 1931, Vol. xcvi., No. 21.)

Bronchography is contra-indicated in the presence of high fever, dyspnoea, recent hæmoptysis, cardiac decompensation or cachexia. Lipiodol oil is preferred because it is non-toxic, easily manipulated, and very opaque to X-rays. On the evening and morning preceding bronchography the child should be given postural drainage. Breakfast should be omitted and an appropriate dose of codeine and atropine administered hypodermically one hour before the operation. In older children, as in adults, a 10 per cent. cocaine solution is applied to the interior of the larynx. A modified all-metal O'Dwyer intubation tube is used. The modification consists of the addition of a second small bore tube soldered into a groove in the posterior wall of the original intubation tube. This creates a double-barrelled tube with one channel to provide for breathing and a second to convey the oil. To the oil-conveying tube is attached a soft rubber tube about

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8 inches long. Tubes of different sizes are used according to the age of the child. In older children the intubation tube is inserted under the guidance of a mirror, but younger children must be held by a nurse. A few drops of procaine solution are slowly injected into the trachea and bronchi. From 10 to 20 c.c. of warm oil is used. The patient, preferably in the upright position, is placed behind a fluoroscope. The intubation tube is not removed until the films are made. It is advisable to use the bronchoscope before beginning treatment. In a large series of cases no bad results followed, except in the case of one girl who developed a peritracheal abscess several days after the procedure. The abscess was opened and successfully drained.

The article occupies seven columns, is illustrated and has a bibliography.

ANGUS A. CAMPBELL.

*Three Unusual Endoscopic Cases occurring consecutively.* FREDERICK T. HILL. (*Annals of O.R.L.*, March 1931, Vol. xli., No. 1.)

All three cases described were infants and all ended fatally.

CASE 1—*Congenital Œsophageal Atresia.*—In this case the Œsophagus ended in a blind pouch at the level of the third dorsal vertebra. The interesting point in diagnosis was that the lower segment communicated with the left main bronchus just below the bifurcation of the trachea, so that an X-ray demonstrated the presence of gas in the stomach and intestine—a condition rarely seen.

CASE 2—*Lye Burns of the Larynx, Trachea, Bronchi, and Œsophagus.*—A baby of eleven months accidentally swallowed some washing powder. Seven hours later there was intense dyspnoea with a temperature of 103° F. Direct laryngoscopy showed œdema of the glottis, and tracheotomy was performed. The child was rather better for two days, but after this was unable to swallow, and there was copious mucous secretion from the tracheotomy tube. A further examination revealed ulceration of the trachea, bronchi, and œsophagus. There was no tracheo-œsophageal fistula.

CASE 3—*Rupture of the Trachea at Delivery.*—A male child weighing 11 lbs. was born after a very difficult labour of 20 hours. Although the mother's measurements were essentially normal, the shoulders of the child were extremely broad, and a considerable amount of traction had to be used on the head in order to deliver them. Immediately after delivery the baby showed a great deal of difficulty in breathing and developed surgical emphysema of the neck; it was found on endoscopy that this was due to a horizontal tear of the anterior wall of the trachea at the level of the third ring. The case ended fatally in a few hours.

E. J. GILROY GLASS.

# Miscellaneous

## MISCELLANEOUS.

*A few words on Anæsthesia by Nitrous Oxide and Oxygen in Operations carried out on the Nose and Throat.* GÖSTA DOHLMAN (Lund). (*Acta Oto-Laryngologica*, Vol. xvi., fasc. 2-3.)

The use of nitrous oxide and oxygen in operations on the nose and throat is considered by the writer to be very useful, particularly in those nervous and apprehensive patients who submit with difficulty to such procedures under local anæsthesia. It should be more pleasant as regards induction and after-effects, and is without the possible toxic effects of ether and chloroform upon the liver and kidneys.

After induction by the face mask, administration is continued by the rubber intra-tracheal catheter introduced in the usual way, using a direct laryngoscope, the catheter being passed through the nose when operations are to be carried out, for example, on the tonsils. Should there be difficulty in maintaining good anæsthesia in certain patients, ether vapour is introduced in sufficient quantity. Credit is given to British and American anæsthetists for their skill in the use of gas anæsthesia.

An occasional accident is reported, with no harm to patient or personnel, during the use of the diathermy knife. The knife had been applied when the admission of ether to the apparatus had been stopped but apparently when a residue of inflammatory mixture had remained in the bag and caused an explosion of it. Nitrous oxide and oxygen anæsthesia is not used in operations upon the nasal septum or turbinals.

H. V. FORSTER.

*Treatment of Malignant Tumours by means of Radium Emanation Needles.* CARL JACOBSEN and EJNAR LANGE (Aarhus). (*Acta Oto-Laryngologica*, Vol. xvi., fasc. 2-3.)

“Radio puncture with uncovered tubes according to Janeway’s method, combined with the use of X-rays, was applied in cases of cancer of the tongue, mouth, soft palate, epipharynx, tonsils, pyriform sinus and the hypopharynx.

Generally speaking, results were good and were characterised by an absence of recurrence during several years. The best result was obtained with a cancer of the pyriform sinus, the patient being alive five and a half years afterwards. In cancer of the hypopharynx, however, results were persistently bad.

The treatment, moreover, was used for advanced inoperable metastases in the adjacent glands, needles being inserted through the skin. The results were good, the gland masses disappearing without recurrence. The duration of observation, however, was only eighteen months so far.”

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The above is a translation of the author's résumé, and it may be added that the glass needles or seeds used in the above work measured 8 mm. long by about 0.6 to 0.8 mm. thick, and contained 0.65 to 1 millicurie of radium emanations. One or two needles were applied for each square centimetre of tissue.

The needles were inserted by using a cannula and stylet, but in difficult situations special instruments on the principle of laryngeal forceps were employed.

H. V. FORSTER.

*The Differential Diagnosis between Ludwig's Angina and Acute Suppurative Inflammation of the Submaxillary Salivary Gland.*  
MASAO SUGANO. (*Zeit. f. O.R.L.*, Vol. xxxiv., p. 14.)

1. In Ludwig's angina the general symptoms are much graver than in inflammation of the salivary gland, where, as a rule, the general disturbance is slight.

2. In Ludwig's angina the swelling of the side of the neck is more marked, and the spread is very rapid; the swelling may extend to the opposite side. The œdema is diffuse, and the swollen surface pits on pressure and is tender to the touch.

Inflammation of the salivary gland produces a sharply limited swelling which corresponds to the gland in shape and is adherent to the deeper structures. Sometimes the lobate surface of the swelling can be detected.

3. In Ludwig's angina there is a diffuse œdematous swelling of the oral mucosa.

In inflammation of the gland the localised swelling of the body of the gland can usually clearly be made out in the mouth.

4. In Ludwig's angina the tendency to localised abscess formation is not so great as it is in the gland infection.

5. The prognosis is far better in submaxillary suppuration than in Ludwig's angina; in Ludwig's angina the prognosis is better in those cases in which there is a definite abscess formation.

F. W. WATKYN-THOMAS.

*Ætiology of Influenza: Transmission Experiments in Chimpanzees with Filtered Material derived from Human Influenza.* PERRIN H. LONG, ELEANOR A. BLISS, and HARRIET M. CARPENTER (Baltimore). (*Journ. Amer. Med. Assoc.*, 17th October 1931, Vol. xcvi., No. 16.)

Influenza and colds are considered to be separate entities. Four young chimpanzees between two and three years of age were isolated for two months previously. No accidental infection occurred during the isolation period. White blood counts, cultures from the rhino-

## Reviews of Books

pharynx and rectal temperature were taken before inoculation. The vaccine employed was a Berkefeld W filtrate of the rhino-pharyngeal washings from an individual, ill with early uncomplicated influenza. A small amount of the filtrate was injected into each nostril and into the pharynx.

Disorders characterised by fever, prostration, and leukopænia were produced in three apes. A similar condition was produced in one other ape by using an intranasal inoculation with unfiltered influenza material which had been preserved in an icebox for 123 days. The incubation period in apes is similar to that in human beings.

The article occupies eight columns, has five charts, and a bibliography.

ANGUS A. CAMPBELL.

## REVIEWS OF BOOKS

*An Index of Prognosis.* By VARIOUS WRITERS. Edited by A. RENDLE SHORT, M.D., B.S., B.Sc. (Lond.), F.R.C.S. (Eng.), Hon. Surgeon, Bristol Royal Infirmary. Fourth Edition, fully revised. Bristol: John Wright & Sons, Ltd. London: Simpkin Marshall, Ltd. 1932. Pp. 582. Price 42s. net.

This is probably one of the most important medical books published, because it deals primarily with the results of treatment, and treatment without due regard to its results is both valueless and discrediting, yet, unfortunately, by no means unknown.

This, the fourth edition, lacks nothing that made for the popularity of its predecessors, but gains through a complete revision, made necessary by those variations in lines of treatment and results which have come about in the last nine years.

In addition to being an aid to the choice of treatment, it fills a most important function, largely neglected in many text-books, of giving the probable prognosis in all conditions, treated or untreated. This is a question which the practitioner is always being asked, and, without the assistance of this book, must find it most difficult to answer.

The book is the product of several authors, and is based on figures (given in tabular form in each case) collected from all over the world. This in no way detracts from the editor's accomplishment, and it may be added that several sections are from his pen alone. This multiplicity of authors adds to the value of the book in that, while its observations are, in every case, based on the most reliable figures obtainable, these figures and their bearing are interpreted, correlated, and commented on by the author of the section. Without this personal note the book would lose much of its value, since it is notorious how well even figures can lie.