

ABSTRACTS

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Experiments on the Utricle. W. J. McNALLY. (*Laryngoscope*, 1934, xliv., 50.)

These experiments were made on frogs. By a new technique McNally has succeeded in dividing separately some or all the labyrinthine branches of the eighth nerve. The experiments were in two groups.

In the first group all the labyrinthine nerves except those to the utricles were divided. Therefore any surviving labyrinth reactions must have been true utricular effects.

In the second group the utricular branches were divided and the rest of the labyrinth was left intact.

His conclusions are as follows:—

1. The utricles in the frog are not an essential part of the righting mechanism.

2. They are necessary for sustained forward progression.

3. The adequate stimulus of the utricular macula is probably not the pull or pressure of its otolith, but rather some slight displacement of the otolith.

4. The utricle is stimulated by any sudden tipping movement and the reaction elicited may be described as negative, or opposite to true compensation.

5. The negative reaction and the existence of pendulation in the frog with only utricles intact suggest that normally these reactions must be checked by the canals.

6. The unduly strong reactions from the vertical canals of the de-utriculated frog to sudden tilting suggest a regulating influence of the utricles over the canals in the normal frog.

7. Since the reactions of the utricle or of a canal to a quick tilt in a certain direction are oppositely directed, it is probable that in the normal animal the utricle and the canal oppose each other, the canal effect predominating, so that just the exact amount of compensation is rapidly effected.

McNally notices that the "two-utricle" frog without canals reacts to the slow tilt by interrupted shifts, and from this he deduces that the utricular macula is stimulated only by displacement of the otolith, it is not "constantly signalling". If this deduction is correct the utricle, unlike the ampullary cristae, is not in constant tonic activity.

Further, he suggests that the principal effect of the utricle is on the vertical canals of the opposite side, a point which is not quite clearly made in his summary. He draws an ingenious parallel

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between the action of the utricle and that of the cerebellum. The dysmetria of cerebellar injury due to cerebral over-action is comparable to the over-action of the vertical canals in the absence of the utricle.

A further and more complete account of the experiments is promised.

F. W. WATKYN-THOMAS.

Experiments following the method of Wever and Bray after damage to the Cochlea. P. H. G. VAN GILSE. (*Acta Oto-Laryngologica*, xx., 1-2.)

The cat, under ether anæsthesia, is placed lying on its back, and the bulla ossea is opened with a dental drill. The hole is then enlarged with forceps. The cochlear wall is then perforated with a drill. Just a trace of fluid may be seen after this puncture, but no blood. The wound is closed and healing is satisfactory.

Only in the case of the second cat in the experiments described was it possible to demonstrate the absence of vestibular function. After a period of three months the animals were examined according to the method of Wever and Bray, tuning forks were used as the source of sound and the results were registered by the string galvanometer. After the experiments had been concluded the organs of hearing were fixed in Wittmaack's solution. The cochlear lesions are described, and are illustrated by microphotographs. The writer agrees with Crowe's opinion that the reaction received from the auditory nerve is not the result of magnetic or electrostatic or other interference complicating the experiments.

In one of the animals the experimental injury had attacked the central part of the cochlea but the remaining portion of the spiral ganglion with its nerve filaments served to transmit vibrations, though rather feebly. These findings are compared to the capricious phenomena noticed in patients who have suffered fractures of the petrous in cranial injuries.

H. V. FORSTER.

Operations on the Cervical Sympathetic in some Aural Syndromes. FEDERICO BRUNETTI. (*Acta Oto-Laryngologica*, xx., 1-2.)

The author reviews the work of a number of observers in the department of surgery of the vegetative nervous system, particularly that in which the interest is otological. He refers to a case of Brünings' who suffered from tinnitus, in which relief was given by resection of the cervical sympathetic as far as the superior cervical ganglion. Brünings had carried out the operation according to the theories of Politzer, Alexander and others that otosclerosis was concerned with a vasomotor labyrinth disturbance. He also records an operation by his senior colleague, Professor Gherardo Ferreri who, as early as 1903, extirpated the superior cervical

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ganglion on both sides in a severe case of tinnitus aurium with excellent results. Ferreri had been inspired by the attempts to relieve glaucoma by neuro-vegetative surgery. He refers to the observation of Terracol and Portmann that section of the sympathetic cervical ganglion results in hypo-excitability to the cold caloric test in the ear on the same side, but he does not appear to have found this to be a constant result in his own cases, and describes an example of the opposite effect, hyper-excitability.

He discusses the problems and difficulties surrounding sympathiectomy about the vertebral artery, and the methods of approach to the main cervical sympathetic are discussed. The results of these operations may be encouraging but do not give lasting results. In fact this instability of success is one of the characteristics throughout the field of surgery of the vegetative nervous system.

H. V. FORSTER.

Function of the Utricular Maculae in a Frog. W. J. McNALLY and J. TATE. (*Acta Oto-Laryngologica*, xx., 1-2.)

During recent years the opinion has gradually developed that the utricular maculae are concerned mainly with static posture, but apparently they are not so much concerned with the actual maintenance of posture, and this is shown in the delabyrinthized frog. The muscle receptors of this animal appear to suffice for the holding of a given posture.

The utricular maculae do not signal when the body is at rest ; but when effective displacement of the head has taken place they then dissolve, as it were, the original postural set to reimpose a different type of body-taxis.

The utricular maculae are subject to two different kinds of stimulation, for example the stimulus of slow movement of the head and quick movement of the head. Ordinary compensatory gravity reactions follow the former, but the anti-compensatory reactions which follow quick movements are antagonized by the vertical canals, and so physiological balance is preserved. The two vertical canals work in antagonistic association with the utricular maculae of the opposite side and *vice versa*, but the external canals are not concerned in the association.

H. V. FORSTER.

On the Increased Incidence of Mucosus-Infection, together with a discussion on Mucosus-Infection of the Nasal Sinuses. P. OHNACKER. (*Z. Laryng.*, 1934, xxv., 252-65.)

At a Clinic in Magdeburg there were fifty cases of operations for mastoid abscess during a period of twelve months (February, 1933 to February, 1934). Among these fifty cases, seventeen were instances of infection by the mucosus organism. Further, there were three cases of nasal sinus infection due to the same cause.

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For some unexplained reason this marked increase in the incidence of mucosus-infections occurred during that period. The increase could not be accounted for on the grounds of a more careful bacteriological examination, as the laboratory technique had not changed in any way.

The more interesting part of the article concerns mucosus-infection of the nasal sinuses. Such cases are comparatively seldom reported, and the author could find only twelve cases in the literature. To some extent this is due to the fact that in nasal sinus work bacteriological examination has not yet become the routine that it apparently is in operations on the mastoid.

Of the three cases of nasal infection, the first one occurred in a boy, aged 8, and was of traumatic origin. The boy fell on his face and sustained a fractured septum. Eight days later fluctuating swellings on the septum and on the skin over the nasal bones had to be incised, and the pus gave a pure culture of *streptococcus mucosus*. Healing took place normally.

The other two cases were more serious. In Case II there was a *streptococcus mucosus* infection of the left frontal, ethmoid and sphenoidal sinuses and the patient died from a basal meningitis. In Case III there was a mucosus infection of all the sinuses on the left side, necessitating a very radical operation on the maxillary sinus with complete clearance of the ethmoid and sphenoidal sinuses and removal of the orbital wall. The patient recovered.

In connection with Case II the author makes the interesting suggestion that a symptomless basal meningitis may exist for many days, the condition being diagnosed as septicæmia. Cerebral symptoms may show themselves quite suddenly a few hours before death. At the *post mortem* one finds an advanced basal meningitis which could not have developed in such a short period. Whether the meningitis is a direct spread to the meninges from the infected nasal sinuses, or whether it is a secondary manifestation of the septicæmia, as is generally assumed by pathologists, cannot be decided at the present time.

J. A. KEEN.

On the Size, Shape and Mobility of the Cupula in the Semicircular Canals of the Human Labyrinth. G. WILL. (*Z. Laryng.*, 1934, xxv., 293-304.)

An investigation of this delicate end-organ presents special difficulties. Steinhausen has described a method of examination of the cupula in freshly-killed pikes, and later he also used the method for the study of the end-organ in the living fish. With certain modifications the author has adapted Steinhausen's technique to the study of the human cupula, using as his material fetuses from the fourth month onwards and temporal bones obtained from the heads of executed criminals. The essential condition is

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that the labyrinths should be obtained practically immediately after death.

The technique and instruments required for this very delicate dissection are described in detail and illustrated. When the membranous canal has been exposed the cupula cannot be seen unless it is rendered visible by a stain. For this purpose a minute quantity of dilute Indian ink ("Pelikantusche") is blown gently into the lumen of the semicircular canal. If this operation is not done extremely carefully the cupula is torn off.

Such a preparation is examined under a microscope giving about twenty times magnification and the size and shape of the crista and the movements of the cupula are easily observed. Several microphotographs appear in the text. In the fresh condition the cupula in the human ampulla reaches from the top of the crista to the roof of the ampulla, and during its movements it does not lose contact with the wall of the ampulla.

J. A. KEEN.

NOSE AND ACCESSORY SINUSES

On Primary Papilloma of the Maxillary Sinus. L. RIEGELE.
(*Z. Laryng.*, 1934, xv., 267-71.)

Papillomata growing from the ethmoids or beginning in other parts of the nasal cavity are not very uncommon, but primary papillomata starting in the antrum are decidedly rare, only eight cases being reported in the literature. The author describes a typical case and discusses the pathology and clinical features of the condition. Papilloma of the antrum is seldom diagnosed before operation, when the tumour is discovered accidentally. Excessive bleeding when doing a proof-puncture may suggest the diagnosis. The antrum as a rule shows the usual signs of chronic suppuration, and polypoid changes of the mucosa may be present in addition to the neoplasm.

In the author's patient, a man aged 62, the papillomatous mass filled the whole right antrum. Serial sections showed that the columnar ciliated epithelium characteristic of papilloma had undergone metaplasia into stratified epithelium in many places.

According to Saxén, papillomata of the antrum are on the borderline between benign and malignant tumours. One has always to bear in mind that they may take on a malignant character. Papillomata in this region respond well to radium, another feature which suggests a malignant rather than a benign neoplasm.

J. A. KEEN.

The Regeneration of Atrophic Nasopharyngeal Mucous Membrane.

N. A. PUTSCHKOWSKAJA. (*Acta Oto-Laryngologica*, xxi., 2-3.)

Until lately it has been supposed that the well-known pathological changes in the mucous membrane of the nasal cavities and

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nasopharynx characteristic of atrophic rhinitis were necessarily permanent, and that the mucous membrane could never regain its normal state.

At the recent (1933) International Oto-Laryngological Congress in Madrid, however, numerous examples were brought forward by Blau and Halle, not only of complete restitution to normal of the nasal mucous membrane, but even of the subsequent development of marked hypertrophy.

Unfortunately all these observations concerned, almost exclusively, regeneration of the *nasal* mucous membrane, and the author therefore decided to determine whether this occurs also in the mucous membrane of the nasopharynx. He accordingly removed specimens from a number of patients, aged from 7 to 60 years, both before the beginning of their treatment, during its progress, and from 5 to 8 months after its completion.

He found no evidence of regeneration or return to normal in the nasopharyngeal mucous membrane of persons of advanced or middle age. In patients of between 17 and 50 years of age there was not complete regeneration, but only a relative diminution of the atrophic processes. In children and young persons, on the other hand, regeneration often did occur, the return to normal being more complete the younger the patient and the better his general health.

THOMAS GUTHRIE.

The Effect of the Absence of Nasal Respiration on the Structure of the Nasal Mucous Membrane. A. G. FETISSOW. (*Acta Oto-Laryngologica*, xxi., 2-3.)

Interference with or complete absence of nasal respiration leads, especially in early life, to a number of disturbances, not only in the nasal cavities, but also in neighbouring and even in distant organs. Experimental research on the effect of preventing nasal breathing in dogs and rabbits has been carried out by Saratow, and the author of the present paper has himself confirmed Saratow's results, and has shown that, when both nostrils have been closed by operation in these animals, death occurs in a few days or weeks in consequence of difficulty in taking nourishment. After exclusion of nasal breathing by the performance of tracheotomy, rabbits die in a short time from inflammatory trouble in the lungs; full grown tracheotomized dogs, on the other hand, do not suffer any marked interference with their general health in spite of the inspiration of unfiltered air.

Man is able to adapt himself to complete absence of nose-breathing, except in early infancy, when death may result from inability to suck.

A priori it might be expected that the prolonged absence of nasal respiration would have an unfavourable influence on the

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structure and function of the ciliated epithelium of the nasal mucous membrane. In three patients, however, with complete absence of nasal breathing of from three to six years' duration, due in two to adhesion of the soft palate to the posterior pharyngeal wall, and in the third to cicatricial closure of the nostrils, the ciliated epithelium of the nasal mucous membrane was found to be perfectly normal.

THOMAS GUTHRIE.

Epistaxis in Constitutional Syndromes of the Venules.
PROF. C. A. TORRIGIANI (Florence). (*Acta Oto-Laryngologica*,
XX., 1-2.)

The various so-called hæmorrhagic states are reviewed. The anaphylactic group of Schönlein, the constitutional thrombopathy of Willebrand, the constitutional thrombo-asthenia of Glanzmann, the condition called Werlhof's disease and, finally, the state of fibrinopœnia of true hæmophilia, but the specialty of rhinology is mainly interested in bleeding due to the fragility of small vessels and, further, the syndromes of capillary weakness are more likely to interest the dermatologist and the internist.

The syndromes which interest rhinologists are those which have their pathological basis in the fragility of venules of the size and kind whose walls are made up of adventitia and endothelium and where the fundamental symptom is epistaxis.

The name of Legg of London is mentioned amongst those earlier observers who demonstrated cases of familial epistaxis, but Osler in 1901 first published case records of patients with serious epistaxis and who exhibited numerous telangiectases of the face, the mouth, the hands, and other parts of the body.

Epistaxis is the most common symptom. Examination of the blood condition has given no clue to the fundamental cause. A number of observers have published records of affected families and recently Goldstein has collected many from the literature.

In the author's clinic Lunedei has studied a number of cases of a different kind; these have shown epistaxis in infancy and, since infancy, a tendency to bruising. Nasal varicosities are seen which do not contract under the influence of adrenalin, and there is a maternal hereditary factor. The cases are mostly females, whereas in the Osler type of case both sexes are affected. Epistaxis is not so common and occurs in infancy and youth in this condition, but in the Osler type when the patients are of more certain age, the term *Ecchymitico-telangiectasia* is suggested.

Another group of cases is said to be found in which these symptoms come on intermittently. This is a passing fragility of venules without a blood dyscrasia.

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A family showing examples of hereditary bleeding defect of venular type is described, and the variations of the constitutional vein syndrome are set out in graphic form at the conclusion of the article.

H. V. FORSTER.

Carcinoma of the Maxilla and Ethmoid. A Survey of the Notes of Fifty Cases. EDWARD D. D. DAVIS. (*B.M.J.*, January 13th, 1934.)

The cases are divided into two groups: lower, in which the growth (squamous epithelioma) arises in the alveolus or hard palate in the region of the molar teeth—nine cases; upper, in which the growth arises in the upper part of the nose—forty-one cases.

Sections of the tumours in the latter were variously described but all were rapidly growing malignant epithelial tumours.

The most frequent first symptom is a persistent pain in the cheek, radiating to the forehead or temporal region, and accompanied by a blood-stained discharge from one nostril in a patient of cancer age. Chronic sinus suppuration accompanied by severe pain, which persists after the sinuses have been drained by operation, demands a search for a tumour. If there is any doubt as to the presence of a tumour after such signs, exploration of the antrum through the canine fossa, with preparation for a more extensive operation, is advisable.

All nine patients in the first group were submitted to operation. In one case complete destruction of the tumour was impossible and there was a recurrence within twelve months. It was considered that a complete destruction of the growth by diathermy had been obtained in the remaining eight cases, but a recurrence appeared in five at the end of twelve months and in three at the end of two years. Radium was implanted in three instances with no beneficial result. The growth was well established in all cases when first seen.

Of the forty-one cases in the second group, seven were obviously inoperable and they died in an average of three months after their first visit and six months from the apparent onset of symptoms. Radium was implanted in two of these with no beneficial result. Six patients only, out of the thirty-four, were free from recurrence for more than two years. Two of these had endotheliomata.

The author's operative procedure in both groups is described but the following were the underlying principles:—

- (1) A thorough exposure of the neoplasm to ascertain its limits, as far as possible, and
- (2) Complete excision, followed by diathermy: the orthodox anatomical operation of excision of the upper jaw was

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discarded. The external carotid was ligatured in two instances only.

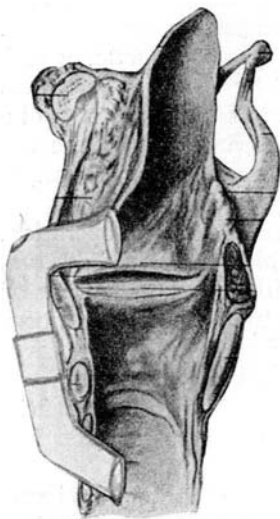
Radium therapy is discussed but the results from this method of treatment up to the present have been disappointing.

R. R. SIMPSON.

LARYNX AND TRACHEA

The Establishment of a Laryngeal By-pass. H. P. PICKERILL.
(*British Journal of Surgery*, xxii., No. 86, October, 1934.)

A young lady, aged 25, underwent partial thyroidectomy, which was followed by increasing dyspnoea. Laryngoscopy revealed double abductor paralysis and tracheotomy was performed. After eighteen months the patient was most anxious to dispense with the tube, but declined any operation which might adversely affect her



The illustration (reproduced by courtesy of the publishers, Messrs. J. Wright & Sons Ltd.) shows the by-pass tube in position.

voice. The writer therefore decided to construct an airway which would pass under the skin, but outside the laryngeal cartilages, from the tracheotomy opening to a point in the larynx above the vocal cords. He began by inserting two angled silver tubes united in the middle by a sliding collar. The lower tube acted as a tracheotomy tube, while the upper tube passed through an artificial opening in the thyro-hyoid membrane and entered the larynx below the cushion of the epiglottis and just above the ventricular bands. It was retained in position by a flange. The tubes were left open for a few days and were then united by the sliding collar. Apparently the by-pass functioned well, as dyspnoea was relieved, the voice was stronger and deglutition was normal.

So far, the by-pass tube lay external to the skin and, in order to cover it, a Thiersch-lined tube-graft was fashioned from the chest and its lower end was swung to a prepared bed under and around the exposed portion of the tube. The tube was thus entirely covered and the only disadvantage was the difficulty of keeping the tube clean. A small hole was therefore drilled in the upper part of the tube and fitted with a screw plug, which the patient could remove and then clean the tube with pipe-cleaners. The

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stud was hidden by a piece of jewellery. It remains to be seen whether, ultimately, it will be possible to graft in cartilage rings to maintain patency and to dispense with the silver tube. In the meantime the patient is well satisfied with the result as she can lead a normal life and can even surf-bathe. It would appear that a laryngeal by-pass is anatomically, physiologically and surgically possible.

DOUGLAS GUTHRIE.

Evolution of Vertebrate Voice. J. TATE. (*Acta Oto-Laryngologica*, xx., 1-2.)

The writer does not believe that the respiratory apparatus was developed for respiratory uses alone, and then came to be used for the production of voice as an afterthought, but that the vocal requirements played, throughout, an important rôle in the construction of the respiratory mechanism. Ewald found that when the labyrinths of the frog are removed it is especially prone to croak, and if pushed under water the delabyrinthized animal may be kept croaking under proper stimulation for half an hour or more. The air within its lungs is shifted to its mouth and the lateral mouth sacs; not a bubble escapes from its nostrils.

Then the air is silently placed in its lungs again to be of further use for voice production. The delabyrinthized animal will croak just as well under water as when it floats on the surface. If a hydrophone is used to detect the underwater sounds the reception is unpleasantly loud. The writer describes an experiment which leads him to believe that the mouth sacs of the frog are sound amplifiers. The frog's croak is a sexual signal designed for use in water, though we only hear it normally when the animals float on the surface.

In the air bladder of the dipnoi or lung fishes the writer considers that the apparatus is one for voice rather than respiration. (In the report of the discussion which followed this paper some interesting remarks were made by Negus who states that his idea of the evolution of the larynx might be upset if what Professor Tate brought forward was true.)

H. V. FORSTER.

TONSIL AND PHARYNX

Muscle Fibres in the Tonsils. H. DREESKAMP. (*Z. Laryng.*, 1934, xxv., 273-80.)

The occurrence of striated muscle fibres in the substance of the tonsils has always been considered an extremely rare finding. The author examined the microscopical preparations of tonsils in 260 cases from this point of view. He discovered isolated muscle fibres in a surprisingly large number (6.9 per cent.).

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The muscle fibres, when present, are seen to lie in the septa between the lymphatic nodules ; very occasionally they lie also in the lymphatic stroma. In the latter case they are not well-defined muscle fibres but only " sarcolytes ", a product of degeneration of striated muscle tissue.

With the help of diagrams the author explains how muscle fibres may come to be included in the trabeculae of the tonsils. In the embryonic state the primitive collection of lymphoid cells is closed in on the outside by a fibrous layer ; immediately outside the fibrous layer is a layer of muscle fibres. As the folding of the epithelial and lymphatic layers proceed to form the tonsils, fibrous partitions derived from the primitive fibrous layer penetrate to support the folds. One can easily understand how an occasional muscle fibre derived from the primitive layer can be drawn in together with a fibrous partition.

J. A. KEEN.

ŒSOPHAGUS AND ENDOSCOPY

An Unusual Variety of Œsophageal Fistula. NICOLAS CAUBARRERE.
(*Annales d'Oto-Rino-Laringologia del Uruguay*, iv., Part 2,
July, 1934.)

The patient gave a clinical history of empyema which had been surgically treated. Six days after the operation it was noticed that food was issuing from the wound, and by radiography the existence of a connection between the œsophagus and pleural cavity was demonstrated. The series of six radiograms which illustrate the paper show the gradual spontaneous closure of the fistula. The interesting question is raised as to whether the purulent pleurisy opened into the œsophagus, or whether the original lesion was a mediastinal abscess which ruptured simultaneously into the pleura and the œsophagus. No special treatment was employed in this case and the healing was entirely spontaneous.

DOUGLAS GUTHRIE.