

ABSTRACTS

NOSE

The Pathogenesis of Atrophic Rhinitis from the Standpoint of the Pneumatization Question. L. PESTI, Budapest. *Monatsschrift für Ohrenheilkunde*, 1948, lxxxii, 151.

This paper is based on skull measurements and on observations made in the course of performing the Hinsberg premaxillary operation for ozaena. The author demonstrates that the large nasal fossae in ozaena are widened only relatively, this widening being at the expense of a small, undeveloped antrum. Poor pneumatization of the antra is always present in this condition, and is probably the decisive factor in the pathogenesis of the disease.

In the light of his investigations, the writer agrees with Wittmaack in regarding pneumatization as a process dependent on mucosal and connective tissue activity.

DEREK BROWN KELLY.

pH of Nasal Secretion in Situ in Infants and in Children: the Effect of Hyperventilation and Crying. NOAH D. FABRICANT and M. A. PERLSTEIN, Chicago. *Archives of Otolaryngology*, 1948, lxxviii, 67.

The pH of nasal secretion *in situ* in the clinically normal nasal passages of infants and children has been found to range within levels (5.0 to 6.7) indicating a slightly acid state of the secretion. In this investigation the effect of hyperventilation and crying on the pH of nasal secretion *in situ* was studied in a group of thirty-nine infants and children; thirteen children engaged in experimental hyperventilation, while twenty-six infants and children had their nasal pH recorded while they were crying. Of the thirteen children instructed to hyperventilate, six were found to show a measurable trend toward nasal alkalosis, and 7 showed no appreciable variation in nasal state as indicated in pH. In twenty-three of twenty-six infants and young children engaged in crying, the dominant finding was the establishment of an alkaline nasal state.

R. B. LUMSDEN.

Our Experiences with Beck's Puncture (Frontal Sinus). H. BRÄUNER. *Monatsschrift für Ohrenheilkunde*, 1949, lxxxiii, 117.

The author describes a method for treating frontal sinusitis by means of a modified Beck's technique. An incision, 5 mm. long, is made at the medial end of the superciliary ridge, the periosteum elevated, and the sinus opened with a special electrically driven trephine. A small, glass, self-retaining drainage tube is then inserted. The history, indications, and dangers of the method are discussed. Out of thirty-five cases, twenty-eight were cured. Of these twenty-two were acute, and six chronic. Radical operation was necessary in seven instances.

DEREK BROWN KELLY.

Abstracts

EAR

Lempert Endaural Subcortical Mastoido-Tympanectomy for the Cure of Chronic Persistent Suppurative Otitis Media. JULIUS LEMPert, New York. *Archives of Otolaryngology*, 1949, xlix, 20.

In order to obtain a permanently dry middle ear and to avoid the possibility of future intracranial extension of the infection of the middle ear, it is absolutely essential that all the existing pathologic contents and tissues within the mastoid process and tympanic spaces should be removed. The hope of accomplishing complete removal of the pathologic process rests on the thoroughness of the search for, and exploration of, the existing pathologic involvements.

The author's technique is described in detail and there are thirteen illustrations.

R. B. LUMSDEN.

Ménière's Symptom Complex. Its Relation to Chemistry; an Etiological Study. GRANT SELFRIDGE, San Francisco. *Archives of Otolaryngology*, 1949, xlix, 1.

The purpose of this paper is to attempt to relate the disease to disturbances of nutrition and thus to body chemistry. A review of the recent literature gives the impression that the most favourable results have followed the use of several of the vitamins. Apparently, since the use of electrolytes, vitamins or endocrine substances began, surgical intervention has lost its popularity. Since the vitamins and the endocrine substances are so closely allied, as shown by their chemical formulas, it hardly seems preposterous to make the claim that Ménière's disease is a chemical problem still requiring further study if and when more is known of the rare minerals and the recent, almost unknown factors added to the list of vitamins, and that it is related to nutritional and environmental factors.

R. B. LUMSDEN.

Effect of Pregnancy on Otosclerosis. HAL WAUGH SMITH, New York. *Archives of Otolaryngology*, 1948, xlvi, 159.

Reports in the literature since July, 1938, that are reviewed, show that the effect of pregnancy on otosclerosis and its incidence, as well as the hereditary influences involved, are variable and unpredictable. Of seventy-three otosclerotic women studied at the New York Eye and Ear Infirmary, 29 per cent. had a history of familial deafness. The weight of evidence in the literature reviewed and the results of the study presented agree that eugenic measures are ineffective in the prophylaxis of otosclerosis. The author concludes that heredity plays little or no part in the effect of pregnancy on otosclerosis, and that abortion and sterilization are not indicated in the average case of otosclerosis complicated with pregnancy.

R. B. LUMSDEN.

The Microtic Ear. EDGAR M. HOLMES, Boston. *Archives of Otolaryngology*, 1949, xlix, 243.

An abstract of the embryological development of the ear is presented. The congenitally microtic ear occurs about once in 20,000 births and varies from the mildly deformed ear to one which is practically absent and has no external

Ear

auditory meatus. When a patient has one normal hearing ear, it is not advisable to attempt to create a canal to the middle ear on the abnormal side, as the prospect of improving the hearing to a useful level is not good and the risk of injuring an abnormally placed facial nerve is greater than in a normally developed ear. In a case of bilaterally stenosed canals, an attempt to improve the hearing should be made. The procedure makes an opening through the mastoid to the antrum where the incus is removed. When a girl is encountered who has a microtic ear, it seems prudent to advise her to cover the deformity with her hair, as the visible scarring made necessary by the reconstruction of the auricle offsets any possible improvement of the ear. The various types of cases encountered are presented together with the surgical procedures to correct them. Regardless of what technique is employed, or what tissues are used, the reconstructed ear cannot take the place of a normally developed ear and will never be inconspicuous.

R. B. LUMSDEN.

Otosclerosis Associated with Osteoporosis and Labyrinthitis Chronica Ossificans.

HANS BRUNNER, Newark, N.J. *Archives of Otolaryngology*, 1949, xlix, 184.

The outstanding features of a reported case were: (1) otosclerosis, (2) osteoporosis, (3) hyperostoses at the posterior surface of the petrous bone and (4) labyrinthitis chronica ossificans. The significance of the associated histological findings is discussed and the following conclusions are presented: (1) Hyperostoses of the petrous bone in diffuse otosclerosis may be caused by an increase in the diameter of the petrous bone which, in turn, is caused by excess formation of pathologic bone in the core of the pyramid. (2) Osteoporosis apparently does not exert much influence on the progress of otosclerosis but it may delay the formation of lamellar bone. The formation of weblike bone, even in excess, caused by otosclerosis, is not counteracted by an osteoporosis of the capsule of the labyrinth. (3) Labyrinthitis chronica ossificans must be considered as purely coincidental to otosclerosis. (4) Deafness in otosclerosis is not necessarily caused by otosclerosis; it may be caused by a disease of the internal ear coincidental to otosclerosis, e.g. labyrinthitis chronica ossificans.

R. B. LUMSDEN.

Ménière's Syndrome: Observations on Vitamin Deficiency as the Causative Factor. (1) The Vestibular Disturbance. MILES ATKINSON, New York. *Archives of Otolaryngology*, 1949, xlix, 151.

The present investigation has brought out the following points:—(1) Subjects of Ménière's syndrome experience two distinct types of vertigo, rotational and positional, which have been found to be associated with different and specific vitamin deficiencies. (2) Those patients who experience rotational vertigo alone, show signs of nicotinic acid deficiency in the tongue, give a small response to histamine injected intradermally and can be relieved of their attacks with nicotinic acid. (3) Those patients who experience positional vertigo alone show signs of riboflavin deficiency in the tongue, the eyes and the skin, give a large response to histamine injected intradermally and can be relieved of their attacks with riboflavin. (4) Those patients, the majority, who

Abstracts

experience both kinds of vertigo, show signs of a deficiency of both fractions, give an intermediate response to histamine injected intradermally and can be relieved of their attacks only if both fractions are exhibited. (5) Other symptoms common in patients with Ménière's syndrome can be related to other deficiencies, such as the fatigue, irritability and palpitations associated with thiamine deficiency, and can be relieved by administration of the appropriate vitamin. (6) Successful therapeutic results depend on a method of treatment and a level of dosage such as have been described. (Author's Summary.)

Surgery of the Chronically Discharging Ear. HOWARD P. HOUSE, Los Angeles. *Archives of Otolaryngology*, 1949, xlix, 135.

A few points in the technique of endaural bone surgery which have proved beneficial in operating for the chronically discharging ear are described. Adequate illumination, proper magnification and the maintenance of a dry surgical field are of paramount importance if the desired results are to be obtained.

R. B. LUMSDEN.

Round Window Membrane of the Cochlea: Experiments Demonstrating its Physical Responses. H. G. KOBRAK, Chicago. *Archives of Otolaryngology*, 1949, xlix, 36.

Experimental evidence is brought forward which shows the response of the cochlea to sound entering the cochlea through the round window membrane. A quantitative comparison between meatal and fenestral sound conduction is given.

R. B. LUMSDEN.

The Middle Ear in Sound Conduction. ERNEST GLEN WEVER, MERLE LAWRENCE and KENDON R. SMITH, Princeton, N.J. *Archives of Otolaryngology*, 1948, xlviii, 19.

These experiments show in quantitative terms the service of the middle ear in aiding the reception of sounds. The drum and the ossicles operate as a mechanical transformer to match the impedances of air and cochlear fluid and thus facilitate the transfer of acoustic energy. The efficiency gained thereby is demonstrated in three series of experiments on cats in which the electrical potentials of the cochlea are measured before and after the normal mechanism has been subjected to various kinds of surgical interventions. The results throw light not only on the normal mechanism but also on its pathologic modifications and impairments. When the ossicular chain is broken at the joint between the incus and the stapes, but the drum membrane and the outer ossicles remain in place, the loss of sensitivity is profound. It amounts to 60 decibels in the middle range of tonal frequencies and a little less for higher and lower frequencies. The loss is moderated when the drum membrane and ossicles are removed, because these useless parts have obstructed the entrance of the sound waves. Now the loss is around 45 decibels in the middle range and 35 to 40 decibels elsewhere. If the superficial parts of the meatus and the outer tympanic wall are removed, so that the cavity is obliterated, and the

Ear

sound presented directly to the stapes, the loss is reduced further, to 33 decibels in the middle range and to an over-all average of 28 decibels.

The first two series of experiments correspond to clinical conditions that sometimes are met with. The last shows specifically the transformer action of the middle ear. The over-all average of 28 decibels closely approaches the value calculated for an ideal transformer action, which is 30 decibels. The differences observed between the "reduced" ear and the normal ear give the sensitivity characteristic for the middle ear. An examination is made of the particular means by which the transformer action is achieved. The evidence does not favour a lever mechanism of the drum that Helmholtz proposed, and is inconclusive regarding a lever mechanism of the ossicular chain that he favoured also. His third suggestion of a hydraulic mechanism provided by the larger area of the drum membrane in relation to the stapedial footplate is substantiated. This hydraulic ratio, according to our calculations, will account for a gain of sensitivity of 27.4 decibels—almost the whole of that which the tests demonstrate. Cavity effects are of importance, as shown by the difference of 10 to 15 decibels between the second and the third procedure mentioned. Opening the auditory bulla when the system remains otherwise intact has only a minor effect.

The experiments show further that when the middle-ear mechanism is absent the cochlea is stimulated almost as readily by way of the round window as by the way of the oval window. This observation is relevant to conceptions of the fundamental action of the cochlea, and rules out certain of the wave theories that depend on a specific mode of application of the sound energy. The results apply to the problem of the manner of stimulation of the ear in otosclerosis and after the fenestration operation. (Authors' Summary.)

Herpes Zoster Oticus ("Ramsay Hunt Syndrome"). Report of a Case. LEIGHTON JOHNSON and BERNARD ZONDERMAN, Boston. *Archives of Otolaryngology*, 1948, xlviii, 1.

The purpose of this paper is to present a severe case of herpes zoster oticus with complete paralysis of the facial nerve, involvement of both the vestibular and the cochlear branches of the VIIIth nerve and unusual findings in the cerebrospinal fluid. The relevant literature is briefly reviewed. It is emphasized that the terms "Hunt syndrome" or "geniculate zoster" should be restricted to cases showing definite involvement of the geniculate ganglion as evidenced by histopathologic study of topognostic analysis. The value of lumbar puncture in cases of herpes zoster is stressed. R. B. LUMSDEN.

Auditory Nerve in Multiple Sclerosis. HANS VON LEDEN and BAYARD T. HORTON, Rochester, Minn. *Archives of Otolaryngology*, 1948, lxxviii, 51.

This study indicates that defects of the auditory field comparable to defects in the perimetric field, occur in cases of multiple sclerosis. The study further demonstrates the destructive effect of multiple sclerosis on the VIIIth cranial nerve and its associated nuclei. A thorough search of the literature did not reveal any similar studies and observations. R. B. LUMSDEN.

Abstracts

Electro-coagulation of the Membranous Labyrinth. LEROY A. SCHALL and J. H. TOM RAMBO. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 590.

Seven ears in five monkeys were operated on according to Day's procedure, exposing the lateral canal inserting a needle through a trephine and destroying the contents of the vestibule by coagulating current. Histological studies were made ten to forty days after operation. In four cases the membranous labyrinth was completely destroyed, in the fifth, where a less current had been used, the utricle and saccule were incompletely destroyed, and the semi-circular canals were not damaged. There was no significant pattern in the amount of cochlea damage which varied from normal to extensive damage, and it would appear that retention of useful hearing following the operation is improbable. Complete labyrinthine destruction is, however, predictable and uniform results may be anticipated in the treatment of Ménière's disease by this method.

E. J. GILROY GLASS.

The Development of the Auditory Ossicles, the Otic Capsule and the Extracapsular Tissues. BARRY J. ANSON, THEODORE H. BAST and EARL W. CAULDWELL, Chicago. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 603.

A study based on the examination of 300 series of sections. The authors describe the development of the otic capsule, the extracapsular layer of bone and the auditory ossicles, the text being supported by diagrams and micro-photographs. A detailed comparison with the conventional development of a typical long bone is made and the differences illustrated. A detailed paper which does not lend itself to brief abstract. Those interested in the subject will find the original of interest.

E. J. GILROY GLASS.

Treatment of Certain Types of Deafness by Roentgen Ray Therapy. NELSON A. YOUNGS and PHILIP H. WOUTAT, Grand Forks, North Dakota. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 984.

A series of 116 cases selected because of middle-ear changes, such as a retracted membrane, presence of fluid in the middle ear, suppurative otitis media or a history of repeated attacks, and in whom there was demonstrable lymphoid obstruction of the eustachian orifices were treated by deep X-ray therapy. Each treatment consisted of a dose of 125 to 150 r. to each of two ports, one on each side of the face, repeated weekly for four weeks. Restoration of hearing or marked improvement was obtained in 70 per cent. in the 3-15 age group, and 44 per cent. in those over 15. In cases of otitis media healing was obtained in 60 per cent.

E. J. GILROY GLASS.

LABYRINTH

Streptomycin Toxicity to the Labyrinth. LT.-COL. O. P. MOFFITT, Randolph Field, Texas, and CAPT. WAYMAN B. NORMAN, Fort Crook, Nebraska. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 999.

A group of streptomycin-treated tuberculosis cases have been reviewed for evaluation of the incidence and nature of streptomycin toxicity. The following

Larynx

findings are presented:—(1) While the 2 and 3 gm. dosages of streptomycin per day produced vestibular toxicity in almost all cases treated for one month or more, the 1 gm. per day dosage produced a low incidence of toxicity (only 4 per cent. of any degree of severity) in a similar period of time. The neurotoxic effect on the labyrinth produced by the lower dosage appears more gradually and has been demonstrated as reversible in some cases by physiologic testing. (2) Vestibular depression as a result of streptomycin toxicity is symmetrical between the two labyrinths and without irritative phenomena in the form of hyper-irritable labyrinthine response or acute imbalance. (3) While the nature of the vertigo produced by streptomycin toxicity resembles that attributable to central disease in previous clinical experience, uniform symmetrical depression of both labyrinths peripherally may account for the vertigo observed. Variations in galvanic and caloric vestibular testing results may suggest peripheral labyrinthine dysfunction as a manifestation of streptomycin toxicity for the labyrinth. (4) Changes in the auditory function of the VIIIth nerve have not been observed on 2 gm. and 1 gm. per day dosage of streptomycin in the absence of other neurologic disease. (Authors' Summary.)

LARYNX

The "Reverse King Operation": a Surgical Procedure for Restoration of Phonation in Cases of Aphonia due to Unilateral Vocal Cord Paralysis.

LEWIS F. MORRISON, San Francisco. *Annals of Otolaryngology and Rhinology*, 1948, lvii, 945.

This paper describes an operation suggested by King for improvement of the voice in cases of aphonia due to paralysis of the vocal cord in the abducted position, or to fixation of the arytenoid in the abducted position—the case described was of the latter nature. The operation is illustrated and is described in detail. Briefly the steps were as follows:—(1) Crico-arytenoid articulation exposed as for King's operation. (2) Articular surfaces of joint exposed by dividing the capsule. (3) Fibres of crico-arytenoideus posticus and major fibres of crico-arytenoideus lateralis divided. Fibres of arytenoideus not severed. (4) Thin shaving of articular surface of arytenoid removed. (5) 1½ to 2 mm. of upper margin of cricoid removed from medial border of articular surface to midline. (6) Arytenoid shifted medially to lie over area removed from cricoid cartilage and fixed by suture closure. (7) The end result was a vocal cord fixed in the midline, a satisfactory voice and adequate airway.

E. J. GILROY GLASS.

An Anatomical Reason for the Various Behaviours of Paralysed Vocal Cords.

BRIEN T. KING and RALPH L. GREGG, Seattle, Washington. *Annals of Otolaryngology and Rhinology*, 1948, lvii, 925.

The failure of all paralysed vocal cords to behave in the same way has caused much confusion. The authors believe that they can offer an explanation for these variations arising from injuries to the trunk of the recurrent nerve, or to the anterior and posterior rami of the nerve. In a series of dissections the ultimate distribution of the nerve was the same in all cases, and there was no reason to suppose that the inter-arytenoideus and aryepiglottic muscles ever

Abstracts

derived their nerve supply from any other source than the recurrent nerve. Not only has it been possible in every case to trace the nerve to these muscles, but in every case in which the common trunk of the nerve was injured there existed hemi-paralysis of these two muscles in addition to the abductors and adductors of the cord. The cricothyroid muscle, being supplied by the superior laryngeal nerve, alone escapes.

The recurrent nerve divides into two main branches, one supplies the crico-arytenoideus, inter-arytenoideus and aryepiglottis, the other, the anterior ramus, supplies the thyro-arytenoideus, epiglotticus and crico-arytenoideus. This division is, as a rule, at or near the lower border of the cricoid cartilage, behind and medial to the inferior cornu of the thyroid cartilage. In some cases the nerve division takes place at a lower level, within the "danger area" of thyroid surgery. Although previously recognized anatomically, the clinical significance of this lower division has been missed yet it offers the only rational explanation of the differences in the behaviour of the cord in cases of laryngeal paralysis following thyroid surgery.

In thirty-two dissections of the nerve, the division in eight cases was sufficiently low that it would have been possible to injure one trunk without damage to the other in the course of a goitre operation. In two cases the division was below the level of the inferior thyroid artery. In one of these one trunk passed medial and one lateral to the artery with a full quarter inch separation at that point. In the other instances, branches of the inferior thyroid artery passed between the trunks at a higher level. Thus it would be easily understood how one trunk could be injured and the other escape. If the division supplying the abductors be injured the cord will be paralysed in adduction and *vice-versa*. If both trunks are paralysed, as is the usual case in the predominant anatomical type, both abductors and adductors are paralysed leaving the cord in the flaccid cadaveric position. The paralysed cord in the "cadaveric" position usually follows the definite pattern of all nerve paralysis—flaccid paralysis, muscular atrophy, fibrosis and contracture. As a result there is a gradual shift from the "cadaveric" position to a contracted state in the midline position. Paralysis in the true cadaveric position is only seen in a recent case, or in rare cases where the cricothyroid is simultaneously paralysed from injury of the superior laryngeal nerve. The author has never seen a case paralysed in the midline shift outward or one paralysed in extreme abduction shift medially. The explanation is that in one case the abduction muscles, and in the other the adduction muscles only are paralysed. In order to confirm the conclusions arrived at from human anatomical dissections, experiments were conducted on dogs. It has been possible to produce at will abductor, adductor or complete vocal cord paralysis by division of the branches of the nerve or its main trunk. The paper is illustrated by diagrams of the dissections and by one photograph.

E. J. GILROY GLASS.

Granuloma of Larynx following Endotracheal Anæsthesia: Case Report.

FREDERICK T. HILL, Waterville, Maine. *Annals of Otolaryngology, Rhinology and Laryngology*, 1948, lvii, 910.

A male patient, aged 40, was referred because of hoarseness and laryngeal obstruction noted on exertion. Five months before he had undergone a two-stage

Larynx

lumbar dorsal splanchnicectomy under endotracheal anaesthesia in another hospital. The anaesthesia time for the first stage was five hours; for the second stage, four hours. A soft rubber No. 32 catheter had been used, inserted with a stylet. Hoarseness developed two months later. I had had the opportunity of seeing this patient some time before and had found a normal larynx on routine examination. Examination now revealed the posterior portion of the glottis obstructed by what appeared to be granulomata. One sessile granuloma covered the posterior third of the right vocal cord and was superimposed upon a large, partially pedunculated mass extending forward to the middle third of the left cord. Under local anaesthesia (1 per cent. pontocaine solution) the larynx was exposed with the anterior commissure laryngoscope and the growths removed with cup forceps. The histopathological report confirmed the diagnosis of granuloma. The patient was discharged from the hospital and did not report again for three months. At this time the left cord, the site of the larger underlying tumour, was healed but a small granuloma about 2 mm. in diameter was noted on the right cord. This was removed in a manner similar to the first procedure. His subsequent course was uneventful and examination now shows a normal appearing larynx. (Author's Summary.)

Observations Based on an Experience of twenty-eight years with Laryngeal Tuberculosis. EDWARD ANDERSON LOOPER, Baltimore, and I. B. LYON, State Sanatorium, Maryland. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 754.

During the past twenty-five years much progress has been made in education, diagnosis and the treatment of tuberculosis. As laryngeal tuberculosis is always secondary to lung involvement, the disease should be treated as a laryngo-pulmonary infection. No laryngeal complication can be cured if the patient has a soft exudative lung lesion, with little resistance to overcome the general infection; therefore, every effort should first be directed to the treatment of the general disease. Pulmonary collapse has been a marked factor in reducing laryngeal complications as well as having beneficial effects on the lung lesion. These procedures lessen the chances of infected sputum being brought up and deposited on the laryngeal mucosa to cause contact invasion of tubercle bacilli. Infected sputum is the most common cause of laryngeal tuberculosis, but organisms may enter by way of the lymph and the blood streams. A thorough examination of the larynx should be made in all cases of tuberculosis, as soon as a pulmonary lesion has been discovered. Slight congestion, dryness and tickling sensations of the larynx should promptly receive attention, as such symptoms often indicate early invasion of the larynx. Laryngeal tuberculosis occurs at all ages, but the majority of cases are found between 20 and 50 years of age, with males predominating. Laryngeal tuberculosis has no relation to occupation. All pathologic conditions in the upper respiratory tract, such as deviated septum, sinusitis, hypertrophied turbinates and infected tonsils should be corrected. Non-tuberculous laryngitis, colds, tonsillitis and excessive coughs in tuberculous patients should receive prompt attention, as conditions leading to superficial loss of epithelium open the way

Abstracts

to infection by the sputum. The frequency of involvement of various parts of the larynx is directly proportional to exposure, irritation and functional activity. Laryngeal tuberculosis has never been a promising field for medicinal therapy regardless of the method of treatment. Many different drugs have been used and many local applications have been tried, most of which have been abandoned, especially caustics and irritants. However, penicillin, sulphonamides, streptomycin and newer drugs may prove to be of value.

The results of cautery used sporadically in the Maryland Tuberculosis Sanatorium until August, 1923, were so impressive and encouraging that we felt its continued and increasing use was our best form of treatment. Of all our patients with laryngeal lesions with moderate lung involvement treated by electro-cautery, 50 per cent. were improved and the lesions healed, and 58.1 per cent. with far advanced lung involvement were improved and the lesions healed. Cautery treatment in many patients exercised a favourable influence on the lungs and on the general condition. No bad results were encountered. Cauterization in all patients has been done under local anaesthesia by the indirect method at about monthly intervals. Results obtained by electric cautery treatment indicate without doubt that tuberculosis of the larynx is curable, if treatment is started reasonably early. We still feel that electric cautery continues to be the best method of treatment of laryngeal tuberculosis at the present time. In using electro-cautery, one thing should be particularly and strongly emphasized and this is the condition of the lungs. No laryngologist should undertake electro-cautery treatment without co-operating with or being guided by a clinician. Indiscriminate use of cautery in unsuitable cases will do more harm than good and the method of treatment itself will be brought into disrepute. It is encouraging to note that the number of cases requiring cauterization in the past few years has been steadily diminishing. When I first started at the State Sanatorium twenty-eight years ago, from twenty to thirty patients per month required this treatment, while to-day only four or five per month are cauterized. This is probably due to the smaller number of cases found.

In all suspicious cases we advise vocal rest or absolute silence. While active laryngeal tuberculosis does not have any tendency toward spontaneous healing, it is surprising with what rapidity some incipient lesions with slight infiltration will clear up as the result of absolute silence. Therefore, regardless of what method of treatment is added, silence is imperative in all cases. The revitalization of the tissues by induced hyperaemia and the development of granulation tissue with formation of new blood vessels account for the good results obtained by the cautery. Elevation of temperature (high degrees), marked asthenia and high blood pressure are contra-indications in using cautery, although in patients in whom serious symptoms (severe pain, difficulties of swallowing) demanded alleviation, we did use cautery to bring temporary relief.

In our recent survey, we found an incidence of only 7.7 per cent. of laryngeal complications, compared with 15.5 per cent. of our cases in 1928. Dworetzky found an incidence of 25.6 per cent. in 1914. This shows how much less these complications have become. This holds much promise for the future and we can be optimistic of continued progress in preventing these complications. (Authors' Summary.)

Bronchus

The Open Approach to Arytenoidectomy for Bilateral Abductor Paralysis, with a Report of Twenty-Three Cases. DE GRAAF WOODMAN, New York. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 695.

Technique of Operation :—If a preliminary tracheotomy has not been performed this is carried out at the commencement of the operation. (1) An incision is made along the anterior border of the sternomastoid from upper edge of thyroid to level of cricoid. (2) Sternomastoid is retracted exposing posterior edge of thyroid cartilage with the attachments of thyrohyoid and inferior constrictor muscles. The attachment of the inferior cornu to the cricoid is identified. (3) Periosteum is incised along the posterior border of thyroid cartilage and cornu, and freed backward with inferior constrictor attached. (4) The joint of inferior cornu and cricoid is separated. The incision is carried through the perichondrium of the lateral wall of the cricoid and upwards until the subperichondrial dissection of the arytenoid is accomplished. (5) The arytenoid cartilage is disarticulated, a traction ligature passed round the mid-part and the cartilage rotated laterally exposing the vocal process. (6) A submucosal suture is passed round the vocal process, after which all of the arytenoid cartilage, except the non-articular part associated with the vocal process, is removed. Suture is then drawn laterally and tied round the inferior cornu of the thyroid cartilage and anchored to the anterior edge of the sternomastoid muscle. (7) Before closing the wound the larynx is inspected by direct laryngoscopy and the position of the vocal cord noted.

Results :—In a series of fourteen cases under the author's observation there was one death. Eleven had their tracheotomy tubes removed in an average of of twenty-eight days. In the remaining two cases the patients can get about with the tubes corked, but refuse to have them removed owing to an anxiety state. Voice is improved in seven cases, adequate in five, but worse in one. In the second series of nine cases not observed by the author the results were parallel.

E. J. GILROY GLASS.

BRONCHUS

Adenoma of the Bronchus. LOUIS H. CLERF, Philadelphia. *Annals of Otology, Rhinology and Laryngology*, 1948, lvii, 869.

In 1942 the author published a series of thirty-five cases of adenoma of the bronchus (*Annals of Otology, Rhinology and Laryngology*, li, 836), and now reports an additional twenty cases along with a follow-up report on the original series nine of which remain tumour-free, although they have bronchiectasis. Of the second series ten have been treated by bronchoscopic methods only, in the remainder surgery has been necessary, although in all cases in which endoscopic methods were considered possible by diathermy, forceps removal or coring, this was done in the first place and the case reviewed. If no evidence of extra-bronchial neoplasm or of suppuration beyond the lesion was found, endoscopic methods were continued. Late bronchial obstruction may occur even in the absence of any evidence of recurrence. If accompanied by suppuration distal to the stenosis, surgery should not be long delayed. Malignant changes have occurred in only one case in the series. Surgical removal because of the risk of malignancy developing is not justified. The indications for surgery are inaccessibility, inability to obtain and maintain adequate airway, hæmorrhage

Abstracts

or bronchiectasis with pulmonary fibrosis beyond the site of the tumour. In two cases of tracheal tumour (reported in detail) surgical removal was carried out, by thoracotomy in one case, by tracheostomy and removal in the other. The defects of the tracheal wall were repaired, and the immediate result was satisfactory. In the case involving the thoracic trachea death occurred eighteen months later from tracheal obstruction. The patient in whom the growth involved the upper trachea is symptom-free sixteen months later.

E. J. GILROY GLASS.

Bronchoscopy in the Newborn: An Analysis of Fifty Cases. CLYDE A. HEATLY and ERNEST B. EMERSON, Rochester. *Annals of Otolaryngology and Laryngology*, 1948, lvii, 802.

Aeration of the lung in the newborn is a gradual process and may take two to four days in a full-term infant, and even six weeks in a premature child. The sequence of expansion is anterior portions upper lobes and finally posterior portions of the lower lobes and tissues round the hilus. Atelectasis in the immediate post-natal period, therefore, is only of clinical importance if extensive or persistent enough to produce symptoms.

The commonest causes of persistent atelectasis are an imperfectly developed or injured respiratory centre, an imperfectly developed thoracic mechanism or bronchial obstruction due to aspiration of the contents of the amniotic sac, mucus, or blood. Pneumonia resulting from unrelieved atelectasis accounts for two-third of the deaths in the neonatal period. The indications for interference are markedly diminished thoracic expansion, continued or recurrent cyanosis and suppression of breath sounds over a considerable area of one or both lungs, or coarse, moist inspiratory râles. The clinical condition of many infants is such that a full differential study of the causal factors may be impossible. Bronchoscopy, however, produces little, if any shock, and with proper sized tubes laryngeal oedema need not be feared. In the series of cases reported there were fifteen deaths; cerebral hæmorrhage (5 cases); congenital defects (3 cases); pneumonia (2 cases), and prematurity (5 cases). In the remaining thirty-five who survived, varying amounts of obstructing secretion were removed in twenty, thick plugs of secretion blocking a main bronchus were found in six practically nothing was found in 4. In one case a web was discovered almost blocking the left main bronchus, in another a thin partial subglottic diaphragm was found, complete paralysis of a vocal cord seen in one case, and in the last the obstruction was due to aspirated breast milk.

E. J. GILROY GLASS.

Syphilitic "Tumour" of the Right Bronchus: Case Report. A. R. JUDD, Hamburg. *Annals of Otolaryngology and Laryngology*, 1948, lvii, 858.

Case report of a male aged 47, giving a history of "asthma" from 1918 to 1925, with a relative intermission till six months previous to coming under observation, and slight blood streaking for one month. Clinically he had marked respiratory "wheeze", respirations were rapid and diminished breath sounds in the right chest. Wassermann positive. Bronchoscopic examination revealed a mass completely filling the right main bronchus and extending into the lower trachea, the terminal area being rather macerated and pale compared with the main mass. The main mass was removed at two sessions and the

Miscellaneous

origin found to be the medial aspect of the main bronchus just above the level of the middle lobe. Anti-syphilitic treatment was commenced. Following removal of the main mass the right lung re-aerated and there was dramatic clinical improvement. The patient is now free from pulmonary symptoms.

E. J. GILROY GLASS.

MISCELLANEOUS

Induction of Anaesthesia with Thiopental Sodium in Tonsillectomy.

J. K. M. DICKIE, Ottawa, Canada. *Archives of Otolaryngology*, 1948, xlviii, 238.

The author describes his experiences with the intravenous administration of thiopental sodium (pentothal sodium) in tonsillectomy in the past two years, and concludes that thiopental sodium in the hands of an experienced anaesthetist is a satisfactory anaesthetic for tonsillectomy, but it is not safe in inexperienced hands.

R. B. LUMSDEN.

Fractures of the Hyoid Bone. EDWIN G. OLMSTEAD, Dayton, Ohio. *Archives of Otolaryngology*, 1949, xlix, 3, 266-274.

Two cases of fracture of the hyoid bone are presented. In one case the fracture was due to trauma, and in the other it was due to muscular action. The literature is briefly reviewed and the diagnosis, treatment, complications and prognosis are discussed.

R. B. LUMSDEN.

Abscess of the Frontal Lobe Secondary to Ethmoiditis. JOSEPH H. KLER, New Brunswick, N.J. *Archives of Otolaryngology*, 1949, xlix, 125.

Abscess of the brain is an extremely rare complication of ethmoiditis. The purpose of this paper is to present the clinical picture of three cases of abscess of the frontal lobe of ethmoid origin and to emphasize the lessons learned.

R. B. LUMSDEN.

Hand-Schüller-Christian Disease and Eosinophilic Granuloma of the Skull.

HARILD F. SCHUKNECHT and HENRY B. PERLMAN. *Annals of Otolaryngology, Rhinology and Laryngology*, 1948, lvii, 643.

Eosinophilic granuloma may be regarded as a milder form of the same basic disorder as Hand-Schüller-Christian Disease. It usually manifests itself by a single, occasionally multiple, bone lesion without visceral, neural or cutaneous lesions. In the seven cases detailed in this paper the initial lesions in three cases were in the temporal bone—these cases were all classified as Hand-Schüller-Christian disease. In the remaining four cases there were solitary granulomas elsewhere in the skull. Characteristically the temporal bone lesions are painless and in their early stages silent. As the lesion grows it may perforate the external auditory meatus which it does through the canal and not through the tympanic membrane, or may erode the cortex of the mastoid process, zygoma squamous temporal area, or erode centrally to involve the labyrinth facial nerve or structure of the jugular foramen. Secondary infection may obscure the underlying pathology. Radiologically, however, the evidence of bone destruction is out of all proportion to that which would be expected from a purely infective lesion. Mastoidectomy may prove necessary because of the underlying infection, but if performed should be followed by irradiation.

Abstracts

In all cases a positive diagnosis by biopsy should precede irradiation. The seven cases described are fully illustrated by micro and X-ray photographs.

E. J. GILROY GLASS.

The Repair of large Defects of the Trachea. W. P. LONGMIRE, Baltimore.
Annals of Otology, Rhinology and Laryngology, 1948, lvii, 875.

Experimentally Daniels has observed that, in dogs circumferential defects of the trachea would regenerate if temporarily bridged by a glass tube. The substitute trachea was lined by flattened epithelial cells, and in certain of the animals well-developed cartilaginous rings were formed in the connective tissue surrounding. Based on these experiments an attempt has been made to develop a substitute trachea in a boy ten years of age, whose trachea from the larynx to the suprasternal notch had been avulsed two years previously. The larynx was normal. A lucit tube was inserted subcutaneously from the larynx above to the trachea below, fitting at the lower end over a tracheotomy tube. Within a few days the child was able to talk by occluding the tracheotomy tube. Four and a half months later the tube was surrounded by dense semi-rigid tissue, the voice was good and such part as could be examined appeared to be lined with epithelium. Ten and a half months afterwards the acrylic tube was removed, but the unsupported channel was not sufficiently rigid to provide an unobstructed airway during inspiration. The tube has been re-inserted for a further six months.

E. J. GILROY GLASS.

Tracheal and Bronchial Obstruction due to Congenital Cardiovascular Anomalies.

PAUL H. HOLINGER, KENNETH C. JOHNSTON and ALBERT R. ZOSS.
Annals of Otology, Rhinology and Laryngology, 1948, lvii, 808.

Outstanding achievements in cardiovascular surgery in recent years have given new impetus to the study of congenital cardiovascular anomalies. Certain of these anomalies cause disabling respiratory tract obstruction in early life and these may be divided into two major groups: (1) Malformations of the heart; these were found to be major developmental defects with chamber enlargement to cause compression of the bronchi. (2) Anomalies of the aorta and its main branches. The most common in this group were found to be the double aortic arch and the constricting ring variety of right aortic arch. Representative examples of cases of each category are presented to illustrate the diagnostic and clinical-pathological aspects of this problem.

The clinical findings are often not distinctive and differentiation of obstructing cardiovascular anomalies from other possible causes of respiratory tract obstruction usually poses a difficult problem. Current writings stress the diagnostic dependence upon roentgenography, yet routine X-ray studies may not reveal any distinctive findings. On the other hand, laryngoscopy and bronchoscopy may be most informative. In the initial phases of investigation, other common causes of tracheo-bronchial obstruction can be excluded by endoscopic examination and the exact site of compression can often be determined to lead to an early suspicion of a vascular anomaly. The indications for further, more specialized X-ray procedures may then be clarified and fulfilled. The complex nature of the disease and the serious prognosis of the patients in this group justify utilization of every diagnostic aid obtainable.

(Authors' Summary.)

Miscellaneous

Complications following Irradiation of the Thyroid Gland. R. M. LUKENS.
Annals of Otolaryngology and Rhinology, 1948, lvii, 633.

Irradiation of the thyroid gland may result in damage to the underlying larynx and trachea which is permanent and may require a life-time of treatment in addition to a constant danger from asphyxia. A series of five cases of tracheal and laryngeal damage following irradiation therapy of the thyroid are reported in detail. The symptoms were hoarseness, sensation of a lump in the throat, inspiratory dyspnoea, wheezing, dysphagia, cough, expectoration and loss of weight. The physical findings were:—congestion of the laryngeal mucosa, telangiectasis and scarring of the neck, stenosis of the larynx and trachea, telangiectasis of the vocal cords, granulation tissue in the tracheal walls, crowding inwards of the tracheal walls, viscid adherent tracheal secretion and crusting. Cicatricial lesions were uncommon, only a suggestion being found in one case. The time lag between irradiation and tracheal symptoms ranged from one to seven years, and cases have remained under continuous treatment for one to eleven years. Not only are the laryngeal and tracheal tissues damaged, but the overlying tissues are so devitalized that tracheotomy for relief of symptoms becomes hazardous owing to delayed healing and infection.

E. J. GILROY GLASS.

On the Manufacture and Usefulness of Dry Cerebrospinal Fluid Microscope Preparations. F. NEUBERGER. *Monatsschrift für Ohrenheilkunde*, 1949, 83, 97.

Various methods of making and staining dry preparations of cerebrospinal fluid for microscopical examination are described, and their usefulness in practice discussed. Special difficulties are encountered when the cell count is under 600-700 cells per cubic millimetre, and when a large mass of protein is obtained in the centrifuged deposit. An exact classification of cells is not possible, either in the fluid itself, or in the dry preparation which was devised for the purpose. This is apparently due to a reaction dependent upon the physio-chemical properties of the cerebrospinal fluid and of the cells in the lumbar theca.

D. BROWN KELLY.

On the Symptomatology of Frontal Lobe Abscess. E. H. MAJER. *Monatsschrift für Ohrenheilkunde*, 1949, 83, 109.

This paper is based on the records of 126 cases of frontal lobe abscess. Some were the result of trauma, others followed sinusitis or osteomyelitis. Due to its localization in the anterior part of the frontal lobe, and abscess may give rise to remarkably few symptoms and signs until fairly well developed. The earliest and most constant symptom noted is headaches, usually an indication that the inflammatory process is extending to the cranium. Vomiting, tenderness of the forehead to percussion, and marked bradycardia were frequently encountered. Papilloedema was observed in 9 out of a series of 54 cases. A unilateral rise in intracranial pressure may cause a homolateral mydriasis. The cerebrospinal fluid is usually under increased pressure, shows an increase in cells, but is sterile on culture. With extension of the abscess and encephalitis, signs of cortical irritation appear. The development of typical cerebellar symptoms indicates involvement of the fronto-ponto-cerebellar tract. Changes in personality are also common. There is often a marked lack of initiative. Euphoria is seen in some cases.

D. BROWN KELLY.