ABSTRACTS

EAR.

Some Notes on Audiometry. A. BRONZINI. (*Archivio Italiano di Otologia, etc.*, September 1930.)

The author discusses various methods of making quantitative estimations of hearing. The voice varies with every observer and cannot be calibrated. Watches again are variable and the results of testing with them are not comparable. Tuning forks are useful and more reliable, but patients sometimes find difficulty in appreciating the changes of intensity. He discusses the earlier electrical instruments, the telephone of Gradenigo, the alternating pendulum with varying resistance of Stefanini.

These instruments have been improved and elaborated but they have two main objections, a limited range and a limited number of notes that can be emitted.

The author has constructed instruments with thermionic valves and is able to produce a long gradation of notes from 16 to 20,000 double vibrations per second.

The author feels the need for some international "unit of hearing" which could be accepted by all otologists.

He thinks the unit devised by the American workers is a move in the right direction. F. C. ORMEROD.

Mastoid Fistulæ. Prof. D'ONOFRIO. (*Archivio Italiano di Otologia, etc.*, October 1930.)

Professor D'Onofrio, in a description of the development and anatomy of the mastoid process, recalls that the cells form two groups, the squamo-mastoid and the petro-mastoid. The first roughly includes the anterior, external and inferior parts of the process, the latter the posterior, superior and internal portions. The antrum is formed from both parts and sometimes shows a ridge or lamina indicating the line of division.

He has investigated 373 cases of mastoiditis occurring in his clinic in one year. Of these 210 were acute and 163 chronic. There were altogether 147 cases with fistulæ of the process (40 per cent.). Of these 69 were in acute and 78 in chronic cases. Thus 48 per cent. of chronic and 33 per cent. of acute cases showed fistulæ.

Of the acute cases, in 30 the fistulæ opened on the outer face of the mastoid process; 12 of these found their way along a persistent petro-mastoid suture.

In the chronic cases there were 32 fistulæ opening on the outer

face, mostly in cases of pneumatic mastoids with chronic suppuration or even cholesteatomatous formations. There were perforations of the tip of the mastoid in 17 acute and 4 chronic cases.

The tip is described as the inferior face of the mastoid process, and perforations in this region usually give rise to abscesses in the soft parts of the neck, Bezold's abscess or Citelli's abscess.

Fistulæ of the anterior wall of the mastoid process occurred in 19 chronic and 12 acute cases, opening into the external auditory meatus in some cases. In 2 acute and 4 chronic cases this was complicated by paralysis of the facial nerve.

If the fistula passes inwards instead of outwards, intracranial or intralabyrinthine complications are likely to follow. Four cases were seen with fistulæ of the roof of the antrum (all acute) and with fistulæ leading to the sinus and posterior fossa in 6 acute and 11 chronic cases.

There was one case of fistula of the external semicircular canal and this showed neither hypo- nor hyper-excitability of the labyrinth.

F. C. ORMEROD.

Atypical Mastoiditis. ANGUS A. CAMPBELL, M.D., Toronto, Ont.

The author reports a group of cases seen during the influenza epidemic in the winter and spring of 1928-29, when many severe and unusual infections of the ear were seen.

Summary.

1. Extensive mastoid disease may occur without any obvious middle-ear suppuration.

2. Pain, the most reliable of mastoid symptoms, may be absent.

3. There may be complete absence of tenderness, swelling, or fever, even in the presence of extensive necrosis.

4. Every patient complained of deafness.

5. We must always be on the alert for cases of atypical mastoiditis if we are to avoid its dangerous complications.

KEITH HUTCHISON.

Otitis Media and Disease of the Mastoid: Early Involvement of the Blood Stream. HAROLD I. LILLIE, Rochester, Minn. (*Journ. Amer. Med. Assoc.*, 22nd February 1930, Vol. xciv., No. 8.)

The author stated in 1927 that a certain group of cases of early involvement of the blood stream from otitis media and disease of the mastoid could be treated satisfactorily by removal of the diseased process without interfering with the sigmoid sinus or jugular vein. Since that time five other similar cases have been observed and treated with satisfactory results according to the accompanying table.

All other causes of sudden change in the clinical course, including tonsillitis, adenitis, pyelitis, and pneumonia must be excluded. The hæmorrhagic type of mastoid disease is considered much more serious. Three illustrative cases are mentioned in detail. The author concludes that in early well-chosen cases which have early blood-stream infection a complete mastoid operation will be sufficient.

ANGUS A. CAMPBELL.

Unilateral Disorder in the Inner Ear of a Luetic Patient struck by Lightning. VLADMIR HLAVÁCEK. (*Oto-Laryngologia Slavica*, August 1930, Vol. ii., Fasc. 3.)

A case is described of a male patient aged 56 who, though his Wassermann reaction was positive, had never suffered from any other serious illness, and whose hearing, prior to his being struck by lightning, was normal. (Apparently on both sides.—E. J. G. G.)

After being struck he was unconscious for a few seconds, and was taken to hospital, but had apparently no serious injury. Three days later he had loss of hearing and tinnitus in his right ear, and on walking was "pulled" to the left side.

On examination a fortnight later the appearance of the tympanic membranes and the nose was normal but there was some chronic pharyngitis. Hearing in the left ear was normal but he could only hear "a humming" with the strongest stimulation in the right.

The vestibular tests showed an asymmetry to rotation and a loss of the caloric response in both ears (although there was a suspicion of a reaction on the left side). The neurological investigation showed no organic signs of cerebellar or other lesion apart from a prevalence of functional symptoms.

The author concludes "that the lightning was the agent inducing the changes in an organ exposed already to the action of luetic infection and therefore less resistant. Later on the changes were followed by a complete loss of cochlear function, and by considerably reduced function of the vestibule. Pathologically, we can characterise the last-mentioned changes as a degenerative process in the neuro-epithelium."

E. J. GILROY GLASS.

NOSE AND ACCESSORY SINUSES.

Primary Malignant Tumours of the Ethmoid. JOSE BARAJOS Y DE VILCHES. (*Revista Española y Americana.* March 1930, p. 193.)

The author presents a useful compilation of the pathology, symptoms, diagnosis and treatment of ethmoidal carcinoma. This does not lend itself to analysis, but at the end two cases, which

occurred in the practice of the author, are related in detail. The first was treated by the application of radium and the second by lateral rhinotomy followed by electro-coagulation. Both cases were treated afterwards by deep X-ray therapy, and although this was done by a skilled operator, the disease was immediately aggravated and a fatal issue followed rapidly. L. COLLEDGE.

Infection of Accessory Sinuses and Upper Respiratory Tract in Vitamin A Deficiency. BURT R. SHURLY and R. G. TURNER, Detroit. (*Journ. Amer. Med. Assoc.*, 22nd February 1930, Vol. xciv., No. 8.)

The Detroit Board of Education and the Council appropriated $25,000 to equip a laboratory and begin the study of the pathogenicity of certain bacterial organisms isolated from infections and suppurations of the nasal cavities and middle ear in albino rats deprived of vitamin A. Two methods were employed for testing the virulence of the organisms. The first consisted of injecting intravenously 4 c.c. of a forty-eight-hour dextrose broth culture in the marginal vein of a well-grown young rabbit. The second consisted of making a standardised vaccine for inoculation. Vaccines made from young cultures were found to be of greater toxicity than those made from old ones. The most consistent results were obtained from forty-eight-hour broths. Organisms isolated from the suppurations of the upper respiratory tract and middle ear in albino rats suffering from lack of vitamin A, morphologically appearing as Gram-negative cocci and classified as such by their fermentative powers, may produce a fatal toxæmia in rabbits. The poisonous effect is produced by an endotoxin and not by a toxic substance secreted by the organism. The toxicity of Gram-positive organisms (*Staphylococcus aureus*) compares favourably with the toxicity of known strains of *Staphylococcus aureus*. Organisms classified as Friedlander-like, other than indol-producing strains, appear to be avirulent.

The article occupies seven columns, is illustrated, and has four tables. ANGUS A. CAMPBELL.

Suppuration in the Paranasal Sinuses as a Factor in Focal Infection. Review of Four Hundred Cases. CARL M. ANDERSON, Rochester, Minn. (*Journ. Amer. Med. Assoc.*, 14th June 1930, Vol. xciv., No. 24.)

The author states that a suppurative sinusitis is not a significant factor in focal infection. To support this conclusion he quotes the following anatomical and physiological reasons. The natural drainage is good, the lining mucous membrane is ciliated, contains fewer glands and is thinner than elsewhere in the nose. The secretions in the nose and accessory sinuses resist bacteria and toxins soluble in water.

The lymphatic nodes and vessels are comparatively few. The temperature in chronic disease is practically always normal, and in acute disease of the sinuses alone it is never high. In two hundred cases of sinusitis, without other foci of infection, there were only three cases of rheumatism and one of bronchitis, which were coincident with acute infection of the upper part of the respiratory tract. In a second group of two hundred patients who had foci in one or more regions in addition to the nasal sinuses, 26 per cent. presented complications which may have been caused by focal infection.

The Roentgen ray, while considered a valuable aid, should not be used as a positive or only means of diagnosis.

Importance of diagnosis and conservative surgical treatment are stressed. Post-nasal discharge of mucus and vaso-motor rhinitis are often diagnosed as sinusitis when no infection is present. Teeth, tonsils, prostate gland and other foci are considered of more importance than the sinuses.

The article occupies three columns and has one table.

ANGUS A. CAMPBELL.

Accessory Sinus Disease in Children. I. R. VAILLE, Toronto, Ont. (*Canadian Medical Association Journal*, February 1930.)

The author reports results in this group, and advises palliative measures in every case, first suction and argyrol, with education of children in blowing their noses, associated with infra-red radiant heat.

After two or three weeks following X-ray diagnosis of cloudy antra, under general anæsthesia opening into antral wall was made by chisel; older children were treated with 10 per cent. cocaine as local anæsthetic. A wide opening must be made if good results are to be obtained, in every case.

"In every case of sinus disease in children better results will be obtained if the attention is directed toward the sinus condition first, and only when there is considerable improvement should the tonsils and adenoids be removed." KEITH HUTCHISON.

LARYNX.

Cancer of the Larynx. A. G. TAPIA. Address to the First Meeting of the Latin Society of Oto-rhino-laryngology in Madrid, October 1929. (*Revista Española y Americana de Laringologia*, July 1930, p. 289.)

In the course of twenty-eight years Professor Tapia has seen 993 cases of cancer of the larynx; in late years the proportion of such cases amongst his patients has doubled in comparison with earlier years. The youngest patient was a youth of 24, and there were three between 75 and 80 years. There were 596 cases between 45 and

60 years and 178 between 35 and 45 years. There were only six cases in women amongst the total of 993, that is 0.6 per cent. or 1 woman to 165 men, a much smaller proportion than is given by other writers.

Tobacco is, in the opinion of Professor Tapia, the most important etiological factor. The rarity of cancer of the larynx in women indicates that there must be some external influence acting on the male larynx, and there does not appear to be any other except tobacco, since abuse of the voice cannot be blamed, for women talk as much as or even more than men. Nor has he ever observed cancer amongst singers; as a rule singers are careful of the larynx and do not smoke. It is remarkable also that of the six women in the list four were smokers. Luciano Barajas has seen only one case in a woman and she was a smoker. Thirteen Cuban women in whom Hernando Segui (Habana) saw cancer of the larynx were all heavy smokers. In Spain women are not accustomed to smoke, and the few who do so rarely inhale the smoke. In the Tyrol where smoking is common among women there are many cases of cancer of the larynx. In order to investigate this question a special history has been taken on the case sheets. This shows that almost all the patients smoked cigarettes and that everyone who smoked them inhaled the smoke. As a rule smokers of cigars do not inhale. This explains the observation of Hernando Segui, supported by those of Prof. Tapia, that cancer occurs more frequently in smokers of cigarettes than of cigars. Experiments performed by Prof. Tapia some years ago provided no evidence that rise of temperature is the cause of the cancer, and it is suggested that, just as tar distilled from coal can produce cancer of the skin, so cancer of the larynx may be produced by an analogous product of the distillation of tobacco. Dr. Acosta and one of Prof. Tapia's sons are attempting to produce cancer of the larynx experimentally in animals by this means.

The only method of making a certain diagnosis is by biopsy, and therefore it should be done in all advanced cases before subjecting the patient to a severe operation, and also to ascertain the histological character of the growth. One case is mentioned in which all the appearances were those of cancer and an urgent tracheotomy was required. Biopsy revealed an amyloid tumour, and the patient who was about to undergo laryngectomy was cured by laryngofissure. There is no reason for biopsy if the patient has refused operation, or if no operation is contemplated. In some cases biopsy has revealed cancer and tuberculosis together. In early cases the history and laryngoscopic signs generally suffice for a certain diagnosis. Nevertheless a negative biopsy must not be disregarded in a suspected case. The dangers of biopsy have been much exaggerated, but there are cases without ulceration which, after biopsy, show enlargement of glands in the neck or have unpleasant symptoms in the throat or

an increase in the growth. The patient will have no hesitation in assigning the blame for this, therefore it is wise not to perform biopsy unless the patient has consented to immediate operation. The value of biopsy is indisputable, but to get certain results the excision must be well done, and the pathologist must be familiar with the work. The sections must be cut perpendicular to the mucous surface. A case is mentioned of a woman, aged 32, in whom repeated biopsy revealed an unexpected epithelioma of the right cord. She had denied smoking but her mother confessed that she smoked cigarettes and swallowed the smoke. She was cured by laryngofissure. In rare cases biopsy fails and the histological examination must be made during the course of an exploratory thyrotomy.

The histological examinations have been made by Dr. Rodriguez Illera, who calls attention to the morphological variations of cancer cells and especially of their nuclei; differences in size of the cells, lack of morphological uniformity and size of the nuclei and hyperchromatic changes are important. There is also mitotic and amitotic multiplication of the cells, but Dr. Illera insists that, if sad mistakes are to be avoided, it is necessary before making a diagnosis of epithelioma to demonstrate the infiltrating and destructive character of the cellular new formation.

Mysterious as the genesis of cancer continues to be, it is beyond dispute that in the beginning the process is purely local and therefore extirpation can effect a permanent cure. The ideal treatment by biochemical or physical agents may be realised in the future, but actually it is of more consequence to save the life of the patient than his larynx. At the present time the chief objective is to employ conservative surgery as little mutilating as possible; unfortunately there is a variety of circumstances which cause the favourable moment for such intervention to be lost. Early diagnosis has provided many brilliant results, but in Spain the patients generally allow the lesion to become so advanced that only total laryngectomy is possible. Consequently Professor Tapia has performed 190 total extirpations but only 47 partial operations, which include 22 thyrotomies, 5 subhyoid pharyngotomies and 20 hemilaryngectomies. The surgeon must accommodate himself to the demand of each case and perform an appropriate operation, a rule which Professor Tapia follows, and he takes the opportunity of refuting the erroneous statement which has been made about him that he performs total laryngectomy in every case of cancer of the larynx. He cannot conceive any surgeon holding a point of view which would lead to the absurd practice of performing either always a total or always a partial extirpation. Although from the nature and situation of laryngeal cancer partial operations give good results, nevertheless when in doubt as to which operation is needed it is a good rule to perform the greater.

Professor Tapia refers to cases in support of this, especially some occurring in young people between 25 and 35 years of age.

The usual indications for thyrotomy are followed, but in quite early cases no tracheotomy is performed. In more advanced cases the tracheotomy tube is sometimes left in place for ten or eleven days. In the twenty-two cases of thyrotomy there has been no operative death, but recurrence has taken place in seven.

Subhyoid pharyngotomy has proved disappointing, for recurrence occurred in all the five cases. It should be reserved therefore for quite circumscribed growths confined to the epiglottis, and these are rarely seen.

Hemilaryngectomy is performed by the classical method of Gluck, in which one half of the cricoid plate is removed. A flap of skin is invaginated and sutured to the posterior edge of the larynx. The opening left is closed after healing by a double layer of skin flaps. The objection has been raised to this operation that the patient must wear a permanent tracheotomy cannula, but all Professor Tapia's patients have been able to discard the cannula and have preserved a fairly good voice. It has also been objected that hair grows inside the larynx and the irritation causes cough and attacks of choking. There is some substance in this objection, but the skin can be epilated first by electrolysis and also after a time the skin adapts itself to its new medium and ceases to grow hairs. It has also been objected that the mortality is greater than after total extirpation, but the results of Gluck and Soerensen and of Professor Tapia disprove this. There has only been one death from broncho-pneumonia in his series, but it is essential that the details of the technique be observed.

Professor Tapia now describes also an anterior hemilaryngectomy, which he has performed four times, the first in 1924. This can be employed for growths confined to the anterior part of the larynx even when the crico-thyroid membrane has been attacked. The front of the thyroid cartilage is removed and also if necessary the front of the cricoid ring. The cut edges of the larynx are attached to two skin flaps taken from either side, and after healing the front of the larynx is reconstructed with two layers of skin. There has been no recurrence in any of these four cases.

Total laryngectomy is subject to the usual indications, but it is also required for extensive tumours of the epiglottis even though the cords have not been reached. It is also indicated in glandular carcinoma however limited in extent. Advanced age is not of itself a contra-indication. A patient from Jerez was operated upon at the age of 79 in 1914 and lived in good health for eleven years until 1925, when he died from quite another cause. Professor Tapia remains faithful to the technique of Gluck, but does not employ the single flap

with its base above. In 190 total laryngectomies there have been twelve operative deaths, that is 6 per cent. and recurrence in 35 per cent.

Radiation has given some brilliant results, very few unfortunately, but they justify faith in the future of this branch of therapeutics. At the present moment the treatment of laryngeal cancer remains entirely surgical. For this reason radiation should be reserved—

1. For patients who absolutely refuse surgical intervention or in whom for special reasons it is contra-indicated.
2. As an adjunct to surgical treatment.
3. For inoperable cases and inoperable recurrences.

Professor Tapia ends with the promise of a work, now in preparation, on deep radiation of laryngeal cancer.

L. COLLEDGE.

Paralysis of the Recurrent Nerve in Apical Tuberculosis. Prof. LUIGI LETO. (*Bollettino delle Malattie dell' Orecchio, della Gola e del Naso*, November 1930.)

The author states that apical tuberculosis is a more frequent cause of recurrent nerve paralysis than is commonly thought. Avellis recorded one hundred and fifty cases of recurrent paralysis, and of these twelve had infiltration of the apex of the lung. The left recurrent nerve is in close relationship with the inner face of the apex of the left lung, and tuberculous infiltration is found at an earlier stage and in a more marked degree in this region. The nerve can be either compressed by a mass of infiltrated tissue, constricted by formation of cicatricial tissue, or actually invaded by the tuberculous processes. In such latter cases the nerve-fibres may be completely destroyed, but in other cases, if the disease is checked and the nerve released, the paresis or paralysis tends to recover.

The paralysis of the vocal cord usually comes on slowly but sometimes occurs during a single night. Complete immobility in the intermediate position indicates that all the fibres are involved. Any movement or immobility in a position other than the intermediate suggest that some fibres are still functioning. There are no other changes in the larynx except those of atrophy and falling forward of the arytenoid cartilage. If both cords are affected there may be danger of asphyxia; in many cases the voice will be rough and deep.

In certain cases the induction of a pneumothorax and the affection of the recurrent nerve were coincident. The author feels that the introduction of gas into the pleural cavity may cause compression of or tension on the nerve, and thus set up a paralysis or paresis that may be temporary or permanent. He considers that pneumothorax should not be induced in cases of apical phthisis with any paresis of the vocal cords.

F. C. ORMEROD.

Abstracts

PHARYNX.

Alteration in the Histo-Pathology of Tonsils cauterised during the course of Acute Inflammation. L. A. Bolotova. (*Oto-Laryngologia Slavica*, August 1930, Vol. ii., Fasc. 3.)

The author advises the galvano-cautery in the treatment of acute tonsillitis, either of the lacunar or follicular type, on the grounds that it destroys the acute infection without permitting it to become chronic and conserves the tonsil itself for future function. The cautery point is plunged into the affected crypts but details of technique are not given.

It has been found that the tonsil shrinks considerably thereafter, and this is attributed by the author partly to necrosis and partly to the contraction of the scar formed.

Twenty cases were treated and none of these showed any untoward symptom or any complication. Recovery in all cases was rapid, especially in those treated on the first and second days.

Pieces for sections were removed before cauterisation and at intervals thereafter. In twenty-four hours the changes were limited to those of acute infection with the slough due to the cautery. At the end of forty-eight hours, there was evidence of commencing repair of the epithelium and elimination of slough. At the end of ninety-six hours, the repair had advanced rapidly and the epithelium was to a large extent restored, whilst at the end of a week there were practically no signs of inflammation.

The author concludes that this rapidity of restoration proves the efficacy of the cautery in acute tonsillitis.

E. J. Gilroy Glass.

MISCELLANEOUS.

A Case of Chloroleukæmia. D. Franciso Revenga. (*Revista Espanola y Americana de Laryngologia*, April 1930, p. 152.)

Only some eighty cases of chloroma have been recorded and therefore Dr. Revenga published full notes of this case. Another reason is that chloroma, although not apparently connected particularly with otology, is apt to make its appearance in such regions and to manifest such symptoms that it is incumbent upon the otologist to recognise it. The tumours of chloroma grow chiefly in the orbit, dura mater, sphenoidal sinuses, ethmoids, nose, antrum and pharynx. The blood picture is characteristic of leukæmia, usually of the myeloblastic type, and although there is no effective treatment a correct diagnosis will save useless surgical interference with local lesions.

The patient was a soldier aged 24. After showing some minor

symptoms he was taken ill with bronchopneumonia, soon followed by intense headache, abdominal pain and great restlessness with vomiting, delirium and epistaxis. There supervened deep coma, left-sided convulsions, slow full pulse, right-sided exophthalmos, bilateral contraction of the pupils, and right-sided facial palsy with otorrhœa. This state of coma lasted for five hours and occurred on the seventh day of the illness. When examined on the tenth day he answered questions slowly and incoherently. The skin and mucous membranes were intensely pale, the temperature normal and the pulse about 100. The neck was rigid, the right plantar reflex absent, and the knee jerks diminished. The right corneal reflex was also absent, with bilateral papillitis and numerous retinal hæmorrhages. Blood-stained serous discharge from the right ear was accompanied by some swelling of meatus, bulging of the postero-superior wall downwards and a postero-superior perforation with pulsating secretion. There was no nystagmus, but some pain on pressure over the right mastoid.

Râles were heard over the upper part of the right lung, and lower down the breath sounds were cut off. There was a presystolic murmur at the apex, conducted downwards and outwards. The sputum was purulent and green. A hard smooth tumour the size of a walnut was situated at the left chondrocostal articulation. The liver was enlarged and the spleen also, estimated by percussion, but it was not palpable. There were ecchymoses in various parts of the body, and symmetrical tumours on the frontal eminences and three more over the parietal region, all the size of a hazel-nut.

The blood analysis was very elaborately made. It showed less than a million red cells with a leucocytosis of sixty thousand, composed largely of lymphocytes and myelocytes. The Wassermann reaction was strongly positive both in the blood and cerebrospinal fluid.

The differential diagnosis from an acute mastoiditis with intracranial complications is discussed, the correct diagnosis being based mainly on the tumours and the blood examination. Two days later the sputum became a bright grass green and the patient died on the fifteenth day with signs of bulbar compression. At the necropsy the tumours mentioned separated from the underlying bone, none were green, and they seemed to have the character of lymphatic tissue. There was a slightly green tumour in the vertical part of the right lateral sinus and in the right antrum. Both sphenoidal sinuses and ethmoids were filled with masses of tumour; neither had a green colour. In the thorax a bright green tumour was found behind the sternum and a patch of pneumonia in the right lung surrounding a cavity which contained green fluid. The case is reported in great detail both clinically and pathologically and is accompanied by micro-photographs of the blood and the tumours. L. COLLEDGE.