states that meat, which permits of considerable toxin formation, has a bad effect. Alcohol, tobacco, strong coffee and tea are also unfavourable. The injurious effect of pregnancy and the puerperium have been rather overestimated. Gray gives some very interesting case histories showing the results of his treatment, but it is best to allow the reader to absorb this for himself. Dieting, laxatives, intestinal antiseptics, the elimination of septic foci, vaccine treatment, are all dealt with. Gray holds that we can do something better than merely tell the patient to learn lip-reading or to use an artificial aid to hearing. The value of the former has been considerably exaggerated. He holds that Heath's method of applying blistering agents to the tympanic membrane is not based on any definitely known facts of the morbid anatomy of the disease. Gray has treated twelve cases according to Heath's method. In not a single instance was there any improvement in the hearing at any time. After the discharge and reaction which result from the blistering have ceased, a number of the patients are convinced that they hear better. Tests, however, show that there is no real improvement, and that, when the reaction subsides, the hearing only returns to its former condition. In one case the drumhead became perforated under treatment, and the patient has since suffered from short attacks of otorrhœa. Several of Gray's patients have also been treated by the Zund-Burguet method but not by Gray himself. None of these patients were benefited either as regards hearing or tinnitus. As Gray remarks, the great majority of people suffering from deafness can be "easily persuaded that they hear better as the result of treatment of any kind directed to the ear." Gray has tried a method of his own, which consists in inserting small pellets of compressed cotton-wool into the meatus up to the drumhead. When the meatus is almost full, an india-rubber cork is inserted tightly, so that as the cotton-wool expands, the drumhead along with the ossicles are gradually pressed inwards. Of six patients treated in this way four stated that the hearing was distinctly better. The remaining two said they were not improved. Hearing tests, however, showed that *no change had taken place in any of them.* Finally, Gray suggests that any aurist who wishes to establish a claim as to a new method should first submit the patients to inspection by unprejudiced observers, and then, after treatment, again have them examined by those who had made the preliminary inspection. One wishes that everybody would take this scientific and straightforward advice.

Abstracts.

EAR.

The Organ of Hearing in War.—Prof. E. J. Moure and P. Pietri. "Revue de Laryngologie," April, 1917.

Cerebral Deafness.—The condition thus defined by the authors is a psychosis. The following are the salient points of the article, which is lengthy.

Functional tests enable us to decide between an affection of the cochlea, or vestibule, or both. If there be disagreement between the various tests, the factor of exaggeration may be responsible.

The literature gives no idea of any symptom-complex characteristic of auditory psychoses. But the patient, whom the authors designate as

"cerebral," shows a hebetude, apathy, indifference to his surroundings, disinclination to be questioned, or to assist the expert in examining him. Whereas the truly deaf man attends to the facial expression of his interlocutor, tries to lip-read, holds forward an ear to listen. In contrast with both the two preceding types, the exaggerator shows a striking discrepancy in hearing-tests if these be repeated several times, avoids the examiner's eye, and in some way, as by blushing or confusion, shows self-consciousness if personal remarks are made about him.

Clinical Signs.—Increased, diminished, or total loss of hearing. Anæsthesia of membrana tympani—partial only, never absolute. Hyperæsthesia of the skin of pinna and mastoid occur; but may disappear while the patient's attenaion is directed to something else which interests him. Before labelling such cases "hysterical," we must construct a more complete syndrome by finding characteristic stigmata of vision, smell, and neural function.

Menière's triad may be found; in such cases it is fortunate that the vertigo, which most distresses the patient, disappears earlier than the tinnitus and deafness, which he finds more easy to bear.

In prognosis, the most important factor is the near or remote prospect of return to the Front.

Treatment is by rest, sedatives, tonics, mastoid counter-irritants, and auditory re-education.

Among tests for simulated deafness, Dundas Grant's is most useful. The patient's pupils, after a brief contraction, dilate if he really hears a sound—such as a whistle.

To evoke reflexes by the sudden dropping of a heavy weight is an unreliable test, for we know that the absolutely deaf may have a heightened appreciation of vibration, so that, for instance, they are quick to recognise the step of anyone marching at their side.

Lombard's use of Bárány's noise-apparatus is commended as a test.

If a patient suffers from unilateral cochlear or cerebral deafness, a tuning-fork on the vertex is referred to the healthy side; if the meatus be closed, the sound will be intensified. A malingerer will imagine that by closing the meatus of the only side with which he claims to hear, he should be made totally deaf; he will fall into the trap by saying that now he does not hear at all (Moure).

Other well-known tests with tuning-forks, auscultation-tube, and clothes-brush are described.

The authors point out that a man who is truly deaf and has learned to lip-read, can do so equally well with a noise-apparatus working in his ear, whereas the malingerer appears to learn lip-reading, but is helpless when the noise-apparatus is applied. *H. Lawson Whale.*

The X-ray Diagnosis of Mastoiditis.—Amberg. "Laryngoscope," 1916, p. 7.

The author reports a case in which the diagnosis between furunculosis and mastoiditis was very difficult until the Röntgenologist reported the mastoid intact. Under gas anæsthesia Amberg liberated a teaspoonful of pus, and the patient promptly recovered. The writer also records several cases of acute suppurative otitis media with slight tenderness over the mastoid, in which X-ray examination showed a healthy mastoid, and in consequence operation was not performed. In addition, Amberg mentions cases in which the radiogram showed that operation was advisable, and in which the operative findings confirmed the Röntgenologist's.

Amberg even goes so far as to suggest that people should have an X-ray record of their mastoids in health (presumably with a view to the development of future disease). The writer maintains that the X rays may enable us to diagnose a tumour affecting the temporal bone when this is not possible by other methods. He mentions Cheatle's work and reminds us that out of 120 pairs of temporal bones 82 were symmetrical and 38 asymmetrical. Amberg quotes with approval the conclusions of Leidler and Schueller regarding radiograms of the ear: The mastoid process is always distinctly recognisable. We can see its shape, whether long or short, broad or narrow—whether it is diploetic, pneumatic, or mixed. We can judge the size and arrangement of the cells. A terminal cell, if present, is most plainly visible, We also note the shape, size, and position of the external meatus, which appears as a round or oval lighter area in which one sees the details of the internal auditory meatus and sometimes also of the cochlea. The petrous bone presents itself as a triangle, sometimes long and narrow, sometimes short and broad. In children the pyramid forms an oblong, narrow triangle. The vestibule and canals can be made out much less often than the cochlea. The vestibulum always borders posteriorly and upwardly upon the inner auditory canal. In the radiogram the vestibule appears behind and above the internal meatus, while the cochlea is seen below and in front. The size of the clear area which represents the internal meatus is at most one-third the size of that representing the external meatus. The cochlea and semi-circular canals, which are plainly visible in temporal bones of children, can be seen in adults only imperfectly. The posterior semi-circular canal is most easily seen. Occasionally the thickness and position of the tegmen can be determined directly (frequently in children). The antrum is most plainly visible in young children, forming a well outlined, lighter area within the pyramid, behind and above the outer external canal. The antrum is much more clearly visible in pneumatic types of bone. Though one cannot be sure about its depth, the sinus is plainly visible in all specimens. The jugular bulb is frequently visible as a more or less plain lighter field in the spongiosa of the pyramid in the posterior part. The emissary vein is always plainly visible. Amberg's article would be greatly improved if legends had been attached to the reproductions of his radiograms (Abs.). *J. S. F.*

NOSE.

Texas Screw Worm Infection of the Nose, Accessory Sinuses, and Throat —Sidney Israel. "The Laryngoscope," September, 1915.

The screw worm is chiefly found in the tropical and subtropical regions of North and South America. It attacks cattle and various lower animals. Screw worm infection has been known to cause death. The infection is produced by flies, which deposit their eggs in an open wound or foul-smelling discharge. The eggs hatch rapidly, and the young maggots invade the tissue. Complete growth of the maggots occurs in five or six days, after which comes the pupa stage, and the flies are developed from four to fourteen days later. In Israel's cases there was syphilitic infection of the nose with the usual offensive odour. Israel holds that a chloroform spray applied directly to the involved area gives the best results, and only causes slight injury to the mucosa. After the region has been thoroughly sprayed the worms are removed by

intranasal forceps only, to avoid injuring the mucosa. The following case is recorded: Male, aged thirty, a heavy drinker and smoker. The patient had syphilis seven years ago, and three years ago suffered from nasal obstruction, which he tried to relieve by inserting a hairpin. Sense of smell and taste diminished. On June 28, 1914, patient fell asleep under a tree, and two days later complained that his face was swollen. He became delirious. His wife stated that three worms came away from the right side of the nose On admission to hospital the temperature was subnormal, pulse 132. A cadaveric odour was present, and the patient appeared about to die. It was found that the nasal septum had entirely disappeared, and that the bridge of the nose had collapsed. The nasal cavity was filled with screw worms. The inner wall of the maxillary antra had disappeared, and these cavities were also filled with worms. The same conditions obtained in the frontal and sphenoidal sinuses. The hard palate was perforated, and the pharynx and tonsils also contained worms. A chloroform spray was used, and most of the worms came away easily, but in some regions the worms were very tenacious, and had to be cut out with a knife. The chloroform spray was repeated every two hours. Delirium continued for three days, and a week later there was severe exophthalmos of the right eye due to retrobulbar abscess, which was evacuated. Four days later there was swelling of the right temporal region due to partial necrosis of the frontal bone, while later still an abscess formed at the angle of the lower jaw. Cultures from these abscesses showed *Staphylococcus aureus*, and accordingly a vaccine was administered. Three weeks after admission to hospital salvarsan was injected. Good recovery. *J. S. Fraser.*

ŒSOPHAGUS.

Cancer of the Œsophagus developing in a Scar.—Drouin and Georges Canuyt. "Rev. de Laryngol. d'Otol., et de Rhinol.," May 15, 1917.

In this remarkable case, related in detail, the patient died of a sudden violent hæmorrhage. And the autopsy revealed a broncho-œsophageal fistula and a perforation of the aorta.

The salient points are as follows:

(1) The bronchial perforation was 4 c.m. in diameter, and had the appearance of being old. Yet auscultation had at no time revealed anything abnormal, beyond a generalised bronchitis.

(2) Although it is easy to trace cases of perforation of either the aorta or a bronchus by a similar growth, this appears to be the only recorded case in which both of these structures were perforated.

(3) Œsophagoscopy, carefully performed three times, never revealed more than a stenosis.

(4) *Post-mortem*, the aortic wall limiting the perforation was found to be very thin. Yet neither three œsophagoscopies, nor the repeated passage of sounds up to 33 mm. diameter, had ever resulted in accident. The fatal hæmorrhage was spontaneous.

The authors sum up their attitude in the controversy as to the use and abuse of gastrostomy, by saying that it is a humanitarian operation which permits a patient to die of cancer instead of inanition.

This case should be read in the original report.

H. Lawson Whale.

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Malformation of the Œsophagus.—Edmund Cautley. "British Journal of Children's Diseases," vol. xiv, Nos. 157–159, January–March, 1917.

Cautley states that malformations of the œsophagus are of sufficient rarity to make each case worth recording. He classifies the various types as follows: (i) Complete absence; (ii) double œsophagus; (iii) diverticula or pouches; (iv) cysts; (v) tracheo-œsophageal fistula; (vi) congenital dilatation; (vii) atresia without fistulous communication with the trachea; (viii) atresia with the lower end of the œsophagus opening into the trachea, or very rarely into a bronchus.

The author's case, the son of Belgian refugees, was of the latter variety. The anatomical condition proved to be a *cul-de-sac* ending about 1½ in. above the bifurcation, the posterior wall of the œsophagus blending with that of the trachea.

Cautley states that the symptoms are characteristic and the diagnosis easy. On account of the obstruction, fluids by mouth are regurgitated through the mouth and nose. The accumulated mucus and saliva trickle from the mouth and nose, and appear as a bubbly secretion at the exterior nares from being mixed with air from the lungs. Attacks of suffocation and cyanosis occur, probably as the result chiefly of the regurgitation of fluids from the stomach into the trachea, and sometimes from fluid passing from the mouth through the glottis. The passage of a catheter reveals obstruction—in the common type at a distance of 10–12 cm. from the gums. In type viii the stomach may be distended with air, passing into it from the trachea, and stand out as a prominent swelling in the upper half of the abdomen, the lower half being retracted and empty. Bronchitis or broncho-pneumonia is often present. Death ensues in a few days, usually four to five, but life has been prolonged by gastrostomy for fourteen days. Cautley does not consider operation justifiable except for simple stenosis. The treatment consists in dilatation by graduated bougies. *J. B. Horgan.*

MISCELLANEOUS.

Leucoplakia Buccalis et Lingualis.—Robert Levy. "The Laryngoscope," August, 1915, p. 539.

Levy states that the essentials leading to a practical understanding of leucoplakia are still unsettled. He records the following case: Male, aged seventy, was a non-smoker and denied syphilis. One brother had died of cancer of the stomach. Eight years before admission the patient first noticed pain in his mouth after the extraction of a tooth. This was followed by painful ulceration. Levy found plaques of irregular outline on the right cheek and on the gums of the lower jaw. Bacteriological examination were unsatisfactory, all sorts of organisms being found. Treatment was continued for two years, but did no good, and the disease became more extensive. A general surgeon was, therefore, consulted. The latter found an indurated mass involving the alveolar process at the angle of the right lower jaw. Microscopic examination confirmed the diagnosis of cancer. The right common carotid was ligatured, and the right half of the inferior maxilla resected. The growth had extended into the muscles, which were removed, together with the parotid gland. On discharge no areas of leucoplakia remained. The patient remained well for three years, but then noticed a return of white spots, and

a papilloma was found inside the right angle of the mouth. The growth was removed, and, on microscopic examination, showed no signs of malignancy. One year later a tumour in the mouth was treated by fulguration, which did good, but caused great pain. The patient declined further treatment.

Levy goes into the pathology of leucoplakia, and states that, according to Shoemaker, the condition is essentially a chronic inflammation of the mucous membrane with infiltration, localised cellular hyperplasia and keratinisation of the epithelial layer. The following varieties have been described: (1) Idiopathic, (2) syphilitic, (3) arthritic, (4) smoker's leucoplakia, (5) glass-blowers, (6) the variety due to wearing dental plates, (7) mixed cases. Leucoplakia has been reported in the following regions: Faucial pillars, tonsil, epiglottis, arytenoids, in addition to the usual situations on the cheeks, gums, tongue and palate. Barker has found it on the prepuce and anus, while Butlin has reported it on the vulva. Lecene has noted a case in the pelvis of the kidney.

Ætiology.—In some individuals the mucous membrane of the mouth is more susceptible to irritants than in others, but the two most important ætiological factors are syphilis and tobacco, indeed, Landousy states that the former is indispensable, while the latter is a valuable contributary agency. Joseph has never seen a case where the patient had not been a heavy smoker, and believes that the condition has nothing to do with syphilis, except in so far as the latter may be a predisposing cause in smokers. Guerini holds that, when leucoplakia is due to syphilis, it occurs on the tongue, when due to tobacco it occurs on the lips or cheeks.

Barker divides the pathology into three stages: (1) Slight thickening of the epithelium, (2) greater thickening with a horny change in the cells and an exudation of leucocytes in the papillary layer, (3) thick horny plaques with atrophy of the papilla. The place of the latter is taken by inflammatory exudate. Beffel considers leucoplakia a benign epithelial growth usually confined to the tissue external to the basement membrane. In advanced cases it penetrates this membrane and invades the connective-tissue—thus becoming an epithelioma. Vilanova speaks of two forms of degeneration: (1) papillomatous (benign form) and (2) epithelioma (malignant). Joseph states that the spectre of cancer stands in the background of every case of leucoplakia, though the malignant degeneration may take thirty years to develop. When involving the tongue cancerous degeneration occurs more frequently, more constantly, and earlier than in leucoplakia elsewhere. Mantilla has collected 556 cases, of which 158 (31 per cent.) developed epithelioma, and Barker states that those who are predisposed to cancer by birth or surroundings offer a suitable soil for leucoplakia. The proliferation of the younger cells takes place under the horny layer, and, as they cannot be thrown off, they burrow under the papillary stratum to form a cancerous nodule. According to Leloir epitheliomatous degeneration begins either at an ulcerated surface, or, more commonly, at a fissure. With regard to the relationship between trauma and cancer, Levy states that no one has yet succeeded in producing cancer experimentally in animals by trauma, though none can deny the frequent occurrence of cancer in spots subject to long-continued irritation. With regard to the clinical manifestations indicating cancer, Marie holds that pain radiating to the ears, enlargement of the submaxillary glands, and induration of the plaques are of great importance, while Barnard is of opinion that wart formation, ulceration, fissuring and nodule formation are signs of malignant degeneration.

Treatment is unsatisfactory. Dittirch has obtained a cure with the actual cautery, while others resort to excision. Vilanova uses the knife or radium. Gaucher and Barber have reported two cures by mercurial treatment. All are agreed on the importance of oral hygiene, the use of mouth washes, and the removal of all sources of irritation. Levy himself recommends high frequency currents. *J. S. Fraser.*

The Effect of Various Atmospheric Conditions upon the Upper Respiratory Tract. — Gerhard H. Cocks. "The Laryngoscope," September, 1915, p. 603.

Cocks holds that we may discard the chemical constituents of the air as of no great importance. The effects of poor ventilation can no longer be explained by the presence of volatile organic poison in the air. The principal factors are humidity and air movements. Hermans was the first to suggest that the bad effects of poor ventilation are due to the inability of the body to cool itself because of the increased temperature and moisture of the surrounding air. The capacity for heat regulation depends largely upon the vaso-motor system and the sweat-glands. The amount of heat lost from the surface of the body by radiation and conduction depends upon the temperature of the surrounding air, the amount of heat lost by evaporation upon the humidity. Resistance to infection is supposed to be influenced by cold. Pasteur found that, although the common fowl is not susceptible to anthrax, it becomes susceptible when made to stand overnight with feet in cold water. Rabbits and guinea-pigs chilled in various ways are much more susceptible to inoculation with bacteria than control animals. Vaso-motor contraction of the skin-vessels due to cold is accomplished by reflex dilatation of vessels in other parts of the body. Severe muscular exertion in hot, bad air leads to active dilatation of the vessels of the respiratory mucous membrane, and if there now follows a sudden exposure to cold a condition predisposing to catarrhal inflammation is produced. Leonard Hill has observed that the nasal mucosa became swollen and red in warm, moist air, accompanied by a marked increase in the secretions. Warm, dry air produces less swelling and secretion. On passing from warm to cold air Hill found that the nasal mucous membranes became paler but still remained swollen—a condition which predisposes to disease because the defensive mechanism of the blood (the immunising properties of the plasma, the cleansing action of the cilia, and the phagocytic action of the white blood-cells) are all diminished by cold. Mueller has noted vascular stasis in an exposed part subjected to severe cold, and found that the blood undergoes chemical changes, resulting in the disseminating of poisonous products. Cocks has experimented with two rooms so arranged that any desired degree of temperature and humidity could be secured. Cocks considers the normal temperature of a room to be 68° F., normal relative humidity 50 per cent.; cold room, temperature 50° F., relative humidity 50 per cent.; hot, dry room, temperature 80° to 86° F., relative humidity 20 to 30 per cent.; hot, moist room, temperature 80° to 86° F., relative humidity 80 per cent. Cocks has used his modification of the Glatzel mirror to test the condition of the nasal passages. He found that a large proportion of workers in hot, moist room (steam laundries) suffered from atrophic rhinitis. In passing from a normal or a cold room into a hot room there usually results an increase in colour, moisture and size of the inferior turbinates and of the nasal mucosa generally. Conversely, on going from a hot or normal room into a cold one there is a decrease. The second series of experiments were made to demonstrate

the effect of a current of air blown directly upon the face, *i. e.* to obtain information concerning the effects of draughts on the nasal mucosa. Most of the cases showed a reduction in size of the turbinates with decrease of secretion on passing from a normal room to a hot room in which electric fans were working. On going from a hot, dry room to a cold room in which a draught was created there was, on the other hand, an increase in the size and moisture of the nasal mucous membrane. As a result of his experiments Cocks comes to the conclusion that *the theory of bacterial infection as the sole cause of catarrhal inflammation of the upper air-passages is not tenable.* *J. S. Fraser.*

COLONEL HERBERT S. BIRKETT, C.B.

Canadian Army Medical Service.

His numerous friends in England were delighted to see Col. Herbert Birkett, of Montreal, at the last meeting of the Section of Laryngology of the Royal Society of Medicine of London. The President, Dr. Brown Kelly, welcomed him after his three years with the Army in France, and at a social gathering the same evening some forty oto-laryngologists collected to do him honour.

Dr. Birkett, after being in the Medical Service of the Canadian Militia for upwards of thirty years, was, at the outbreak of the Great War, a retired officer in the Reserve of seven years' standing; indeed, as far back as 1898 he put in a training at Aldershot, England. Although not personally affected by the mobilisation order, he nevertheless volunteered for active service, and was back in uniform within a few days of the momentous August 4, 1914. His services were at once directed to the organisation of the McGill Hospital unit, which was the first university hospital unit in the Empire to take the field. Early in 1915 he went as its Commandant to Boulogne, and there he has worked continuously until the state of his health compelled him to return to his own city.

The McGill Hospital at Boulogne contains 2100 beds; 87,000 patients have passed through it during Dr. Birkett's administration. The death-rate in that time has been 0·5 per cent., and the death-rate from operations (most of them major ones) has been 2·5 per cent. In securing this result Dr. Birkett has been fortunate in his staff of 32 doctors and 120 hospital-trained nurses. Both doctors and nurses have been what the French would call an *état-majeur d'élite.* The surgeon, the physician, and the pathologist left their professorial chairs in Montreal to do the work, and it is common knowledge that the result has been one of the show hospitals at the Front.

Needless to say, Dr. Birkett's name was well known before the war in Canada, where he has long been the leading laryngologist; in the United States, where he was a frequent and welcome visitor; and in England, where we have known him for many years. His talent for administration has been tested and developed while holding the office of Dean of the Medical Faculty of the McGill University, and it is owing to his health and the demands for his services in Montreal that he returns there, after an absence from his home of nearly three years.

We trust that the warmth of his welcome in passing through London will show how his services to the Empire are appreciated. We are proud to think that a laryngologist has so well filled these public duties, for Dr. Birkett is indeed a medical *officier de liaison* amongst the English-speaking peoples. *StClair Thomson.*