history is one of only eight weeks. Although the precise origin of the growth cannot be stated, it is certain that the cancer has an extrinsic origin. The voice is only affected by the bulky presence of a large mass of growth above the cords. The neoplasm rises high up towards the upper pharynx, and from here a piece was very easily snared for the purpose of microscopical section.

The case is shown for its short history, and its very active and malignant character.

Sir WILLIAM MILLIGAN (President) said he did not suppose much could be done in that case except by symptomatic treatment, including insufflations of charcoal, to absorb the bad odours, which were quite noticeable in this patient.

ABSTRACTS

EAR.

The Diagnosis and Treatment of Empyema of the Mastoid Cells occurring during Acute Middle Ear Suppuration. SCHEIBE, Erlangen. (*Münch. Med. Wochen.*, Nr. 10, Jahr. 69.)

In this article, which is written for the guidance of the general practitioner, the author states that mastoid empyemata occur more often in cases of genuine middle ear suppuration than in those which are of secondary origin. Empyema is found to be three times more frequent in the male sex. This is attributed to the more strenuous bodily and mental exertions of the male, to alcohol, and perhaps also to the greater development of the mastoid process in this sex.

The type of bacterial infection does not appear to play a predominant rôle, though attention is drawn to the relatively greater frequency with which the streptococcus mucosus is found in cases of empyema. Swelling and tenderness to pressure are, when present, valuable aids to diagnosis, but both may be absent in the more dangerous and deeply seated latent empyemata. The temperature may, in these cases, be normal or only slightly elevated even in children; the hearing may have almost returned to the normal, and it should be noted that the suppuration of itself does not excite pain. An important indication in such latent or doubtful cases is the duration of the suppuration. In the genuine forms it should always excite suspicion if the suppuration has existed for more than two weeks. Another important point is, that so long as an empyema exists in even a single cell the appearance of the tympanic membrane makes no progress towards a return to the normal. The writer lays stress on

the continuation in such latent cases of the disturbing throbbing in the head which is rather heard than felt by the patient. This pulsation, which is synchronous with the pulse, may only be elicited by questioning the patient; it is invariably present, and is intensified when the head is lowered, after taking alcohol, or after a full meal. The ear discharge is characterised by its excessive quantity and by its creamy consistence. It must, however, be remembered that an ear discharge is not a necessary accompaniment of mastoid empyema.

The conservative treatment adopted consists in the thorough cleansing of the ear, the insufflation of boric acid and the air douche. An ice bag is applied to the mastoid process, the strictest bodily and mental rest is enjoined, and the head is kept high.

If, in spite of this treatment, any or all of the symptoms increase in severity, or there is even a slight rise of temperature, a mastoid operation is performed. Swelling and tenderness are always to be looked upon as definite indications for operative intervention. It is necessary in doubtful cases to make a daily minute investigation of the patient's symptoms.

Whilst admitting that the operation is usually simple and devoid of risk, the writer points out that the anatomical conditions prevailing and the situation of the empyema may render its detection and evacuation a matter of difficulty or impossibility even in the hands of an expert.

The author holds that the mortality in cases treated early amounts at the highest to 1 per cent.

JAMES B. HORGAN.

Bilateral Mastoid Operation in Cases of Bilateral Acute Middle Ear Suppuration. HOLGER MYGIND. (*Acta Oto-Laryngologica*, Vol. iii., fasc. 1 to 2. Stockholm, 1921.)

The material referred to consisted of 909 operations performed on 817 patients, the operation being bilateral in 92 of these. In addition, there were 65 other patients, where, though the middle ear suppuration was bilateral, the operation was only performed on one side.

In investigating this material, Professor Mygind arrived at the following conclusions:—

In the course of a bilateral acute middle ear suppuration, children, far more than adults, are liable to develop a mastoiditis; children, however, do not develop bilateral mastoiditis more often than adults.

In more than half the total number of patients who were operated upon on both sides, there was no mastoid swelling, and yet pus was found at the operation in all cases except one.

The most important result of the present investigation seems to be the conclusion that when in cases of acute bilateral middle ear

suppuration there is an indication for operating on one side, an operation ought as a rule to be performed on the other side as well, even if there are no mastoid changes there, *unless* a decrease of the suppuration or a clearing up of the otoscopic conditions, possibly in connection with an improved hearing, shows that the affection on this side is on its way to recovery. AUTHOR'S ABSTRACT.

Secondary Suture after Simple Mastoid Operation. HOLGER MYGIND. (*Acta Oto-Laryngologica*, Vol. iii., fasc. 1 to 2. Stockholm, 1921.)

Mygind's method, which consists in filling the wound cavity in the mastoid process with a blood-clot ten to twelve days after the operation, and afterwards suturing the skin, has now been carried out in the Kommune Hospital in 313 cases.

The oldest patient who recovered *per primam* was 81 years of age, the youngest 2 months old.

In 81 per cent. of the cases there followed recovery *per primam*, though in some of these there was a rupture of the epidermis or small focal suppurations round Michel's clips, which were always used. In 19 per cent. the clot broke down and suppurated.

The most frequent reason for the suppuration was a fresh outburst of the primary acute middle ear suppuration; and the cases where in the primary operation streptococci had been found, were more apt to fail than those with other kinds of bacteria.

AUTHOR'S ABSTRACT.

Fistula of the Parotid Gland after Mastoid Operation. A. BINNERTS. (*Acta Oto-Laryngologica*, Vol. iii., fasc. 4.)

The Author adds a case of this condition to the very few which have been recorded. It occurs only if (1) the parotid gland is abnormally large, physiologically or pathologically; (2) the operation wound is deep and well forward; and (3) a large duct of the gland is injured. The fistula may be closed by cauterisation with Silver Nitrate, injection of Tincture of Iodine, or failing this by excision.

THOMAS GUTHRIE.

Affections of the Middle-Ear in Lupus Vulgaris. AAGE PLUM. (*Acta Oto-Laryngologica*, Vol. iv., fasc. 1.)

The Author examined at the Institut Photothérapique de Finsen in Copenhagen the ears of 278 patients under treatment for lupus. 28.4 per cent. of the ears were normal, 36.7 per cent. showed slight catarrhal changes, 4.5 per cent. acute and 8.1 per cent. chronic suppurative otitis media, 9.8 per cent. residua of chronic suppurative otitis media, 9.7 per cent. chronic middle-ear catarrh and 2.5 per cent. nerve deafness.

Ear

Among those with normal ears there was a slight preponderance of patients with skin affection only, while acute suppurative otitis media and chronic middle-ear catarrh were found twice as often in cases with lupus of the mucous membranes as they were in those with skin disease alone. Similarly among cases with chronic suppurative otitis media and its residua there was a relatively considerable majority of patients with lupus of the mucous membranes. In only three of the cases of chronic suppurative otitis media was the disease certainly tuberculous. THOMAS GUTHRIE.

Zinc Ionization as a Disinfectant in Local Sepsis illustrated by its Use in Chronic Otorrhœa in Children. A. R. FRIEL. (*Brit. Med. Journ.*, 8th July 1922.)

Suitable cases for the Ionization treatment are said to be those in which "the sepsis is confined to the Tympanum and does not involve the Attic or Mastoid, and the perforation of the drum is large enough to allow fluid such as Zinc solution to enter the ear."

Polypi must be removed if present, and adenoids, rhinitis, sinusitis, or pyorrhœa should be attended to.

Rapid and complete cessation of the discharge is claimed in over 80 per cent. of cases. T. RITCHIE RODGER.

A Case of Lateral Intracranial Abscess associated with Double Acute Mastoiditis. M. VLASTO and S. A. OWEN. (*Lancet*, Vol. i., 1922, p. 992).

A boy, 8 years, seen 29th Aug., ailing six days with pains in head and vomiting for three days. Delirious. Temp. 102.4°. Pulse 140. Profuse diarrhœa. Pupils equal. Neck rigid, head retraction, Kernig's sign. Tenderness behind both ears. Double Schwarzte operation and lumbar puncture (slightly turbid fluid under pressure —sterile). Condition same for nine days; five days after operation, erysipelas spread from left mastoid wound. Incontinence of urine and fæces, coma. Eighth day, 10 c.cm. of antistreptococcic serum given. Eight days later, improved. Several superficial abscesses. 30th Sept., headache and vomiting, with subnormal temperature appeared, and a week later he was lethargic and wasting. Both middle fossæ were explored without result, but patient greatly improved. On 12th Nov., there was a further relapse, with vomiting and severe frontal headache. On the 18th he was drowsy and the left upper limb showed clonic movements. Both cerebellar fossæ were explored through an inverted U-shaped incision. No abscess was found. The boy recovered from the operation, but died suddenly two days later. *Post mortem*—The meninges anterior to the right decompression wound

were fused together to form part of the wall of a very large collection of pus, situated in the right middle and anterior fossæ. There was over half a pint of pus in the cavity. Culture showed gram + diplococci and staphylococci. MACLEOD YEARSLEY.

Spontaneous Escape of Cerebro-spinal Fluid from the Ear. Dr D. VAN CANEGHEM BRUGES. (*Bulletin d'Oto-Rhino-Laryngologie*, Paris, September 1921.)

The author draws attention to the rarity of this condition without any precedent cause. The patient, a woman of 72, had had otorrhœa thirty years before, but certainly no discharge for twenty-five years. She was blind in the right eye from optic neuritis, but had fair vision in the left; no syphilitic history; Wassermann negative.

In March 1920, she complained of impaired hearing in the right ear; some flakes of epidermis were removed and relief obtained. In May 1920, a sudden rushing noise was heard while out walking; this attracted little attention, but next day the pillow was soaked, and advice sought for a discharge from the right ear. On examination a small central perforation of the tympanum was seen, through which a clear fluid escaped, synchronously with the pulse. Analysis showed that this was normal cerebro-spinal fluid. No pain or vertigo was observed; a whisper was just heard in the right ear. Since then the discharge has continued quite regularly, increasing on lowering the head. Two measurements showed rates of 288 c.c. per diem and 384 c.c. per diem. There was no evidence of trauma or infection. The case has been observed fourteen months without change, mental and bodily functions remaining unimpaired, a slight headache being noticed occasionally. The author can suggest no explanation of the condition. E. WATSON-WILLIAMS.

A Contribution to the Theory of Chronic Catarrh of the Middle Ear. J. HABERMANN. (With two illustrations. *Archiv. für Ohren- Nasen- und Kehlkopfheilkunde*, April 1922.)

Chronic catarrh of the middle ear played a more important rôle in otology formerly than at the present day, modern methods having established as separate entities various affections previously regarded as identical. There is still some divergence of opinion on the subject, probably because material for histological study is seldom available.

Habermann describes the microscopic appearances of the temporal bone of a woman, the subject of chronic catarrh of the middle ear, who died of pernicious anæmia at the age of 64. The normal longitudinal folds of the Eustachian tube were exaggerated, appearing in transverse section as high papillary outgrowths covered with tall

cylindrical epithelium. The lumen of the tube and the interior of the tympanic cavity were filled with glairy mucus, traversed by lacunæ caused by the action of the fixative. The drumhead was much retracted, nearly touching the hypertrophied mucous membrane of the promontory. Other abnormal appearances, described in detail, included some localised hæmorrhages into the internal auditory meatus, in which the blood corpuscles showed the characteristics of pernicious anæmia.

Habermann compares this state of affairs to that found by Brock in three cases of obliteration of the Eustachian tube by malignant tumours of the naso-pharynx. Here there was serous exudation into the tympanic cavity and its adnexa, attributable to *hydrops ex vacuo* rather than to inflammation. He also alludes to the work of Karl Beck of Heidelberg who, experimenting with dogs, closed the Eustachian tube with wooden plugs, or as was found more effective, with the thermo-cautery. After killing the animals, microscopic examination revealed hypertrophy and cellular infiltration of the mucous membrane, some bony thickening, and a sterile exudate containing polymorphs and lymphocytes. This research had the drawback that the tube was obliterated only for a comparatively brief period.

Habermann maintains that chronic catarrh of the middle ear differs alike from *hydrops ex vacuo*, from adhesive processes, and from the residues of suppuration, and that the proliferative changes in the mucosa exactly correspond with those found in chronic nasal catarrh. WM. OLIVER LODGE.

Otosclerosis. Dr A. A. GRAY. (*Laryngoscope*, Vol. xxxi., No. 7, p. 422.)

A short review on the present knowledge of otosclerosis. "The cause of otosclerosis, that is, the condition without which the disease cannot occur, is to be found in the organ of hearing itself, and further, this condition exists in the organ of hearing of certain individuals and in these individuals only." The disease is idiopathic and occurs in those with an inborn tendency to it.

The pathological changes are: (1) Absorption of old bone followed by deposition of new bone; (2) absorption of bone without deposition of new bone; (3) absorption and deposition; but the second is the more rapid, so that rarefaction takes place leaving an area with only a few fine trabeculæ of bone, the large spaces being filled with marrow.

In an early case of otosclerosis osteoclasts are abundantly present along the line of demarcation. In old cases when staining is faint, no osteoclasts are found but no absorption is taking place. No new facts are known of tinnitus and paracusis.

Abstracts

Fröschel's test of the sensitiveness of the tympanic membrane to touch with a feather is useful, but to establish a standard is difficult. The meatus and membrane are less sensitive in otosclerosis.

ANDREW CAMPBELL.

Otosclerosis and Tetany. E. ROCH. (*Zeitschr. f. Ohrenheilk.*, 1920, Band 80, Heft 1-2.)

With reference to the possible connection between otosclerosis and disturbances of the ductless glands, more especially of the parathyroids, Mayer had examined the parathyroids in 6 cases of otosclerosis in which no changes were found. Frey and Orzechowski, on the other hand, had examined 5 cases of undoubted otosclerosis and found in all of them symptoms of latent tetany. With a view to ascertaining the facts of the case, Roch examined 16 typical cases of undoubted otosclerosis. He found symptoms of latent tetany in none of them. There were no cramps. The cardinal symptom of latent tetany, namely, the increase in the galvanic excitability of the nerves, was present in not a single case. Further, there was no increase in the mechanical excitability of the motor nerves. He concludes that the cases of Frey and Orzechowski were a purely accidental combination of otosclerosis and latent tetany in a region where the latter was very prevalent. He concludes from his own investigations that there is no connection between these two conditions.

J. K. MILNE DICKIE.

The Mechanism of Cold Water Nystagmus in Rabbits. A. DE KLEYN und W. STORM VAN LEEUVEN. (Albrecht von Graefe's *Archiv. für Ophthalmologie.* Sonderabdruck aus Band 107, Heft 2-3.)

The interpretation of nystagmus, induced by cold-water irrigation, depends principally on two theories.

Bárány holds that as the result of the local cooling of the labyrinth wall, convection currents are induced in one or more of the semi-circular canals, and that, according to the relative positions of the ampulla and the portion of the semi-circular canal thus cooled, a current is induced in the endolymph either towards or from the ampulla. Nystagmus so induced is directed towards the contra lateral side.

Bartels holds the view that cold water acts as a depressant agent on the labyrinth. so that the resulting nystagmus is comparable to that which follows a unilateral labyrinthectomy; whilst he suggests that irrigation with hot water constitutes a stimulation of the vestibular nerve of the same side.

With Bartels' theory, prior to their investigations, the authors were unable to agree; since, if this theory were correct, no nystagmus

could be induced by irrigation of the intact ear by cold water after a labyrinthectomy of the opposite side, a result which previous observers have found to be incorrect.

After a further discussion of these theories, the authors describe in detail the experiments which they have carried out on rabbits to test the value of the same.

Summary:—

(1) Bárány's theory was confirmed. Bartels' theory was disproved.
(2) The determining factor in the nystagmus, induced by cold-water irrigation, is the cooling of the horizontal semi-circular canal; although in most instances the vertical canal must also contribute a small influence.
(3) As their previous experiments on cats showed, Magnus and de Kleyn determined that cold-water irrigation of the external auditory meatus induced a definite cooling of the labyrinth wall.
(4) Variations of the position of the head in space induce a compensatory position of the eyeballs, which must also be taken into account in investigation of the resulting nystagmus from cold-water irrigation.

ALEX. R. TWEEDIE.

Researches on the Quick Component of Vestibular Nystagmus in Rabbits. A. DE KLEYN. (Albrecht von Graefes' *Archiv. für Ophthalmologie.* Sonderabdruck aus Band 107, Heft 4.)

The origin of the quick component of vestibular nystagmus has attracted the attention of the author, as many theories have been propounded on the subject and little experimental work done. It is only, however, with the object of testing Bartels' theory that this account deals.

Bartels considered that the quick component is entirely to be referred to a peripheral origin, and that when nystagmus is induced by stimulation of the labyrinth, contraction takes place in definite eye-muscles, whilst their antagonistic group are relaxed.

Bartels later modified his original idea that contraction of the orbital muscles, during the slow phase, affected the terminations of the fifth nerve in the orbit, and thus stimulated the reflex for the quick phase; he did so in accordance with the results found by Tozer and Sherrington in their experiments, which indicated that the reflex-origin for the quick phase of the nystagmus lay in the terminations of the proprioceptive nerve-endings.

Conclusions.—1. Experimental research on rabbits does not support the opinion of Bartels that the quick phase of vestibular nystagmus is

caused by stimulations of the proprioceptive nerve-endings in the eye-muscles during the slow phase.

After injection of a weak concentration of novocain in an isolated *M. rectus externus*, with its Abducens nerve remaining intact, and with the division of all the remaining oculo-motor nerves, no change is caused in the nystagmus. With stronger concentrations which lead to a gradual paralysis of these motor nerve endings as well, the quick phase is still demonstrable until the muscles become paralysed.

2. The quick phase of vestibular nystagmus must therefore have a central and not peripheral origin.

3. A normal vestibular nystagmus towards either side can be induced in rabbits if:—

(*a*) The cerebrum is removed (Högyes, Bauer, and Leidler).

(*b*) The cerebellum is removed (de Kleyn and Magnus).

(*c*) All the occulo-motor nerves (with the exception of one abducens) and both trigeminal nerves are divided.

(*d*) Both oculo-motor nuclei and both trochlear nuclei are removed.

(*e*) After a transverse division of the medulla at about the level of the lower border of the nuclei of the 8th nerves (Högyes).

ALEX. R. TWEEDIE.

Clinical Contribution on the Question of Amusia. HANS BRUNNER. (*Archiv. für Ohren-, Nasen- und Kehlkopfheilkunde*, Jan. 1922.)

Loss of ability to produce tuneful, musical, or rhythmical sounds is a rare sequel to injury or disease of the brain, hence the two cases of amusia which Brunner describes have much intrinsic interest, though neither throws any great light upon the cerebral mechanism which subserves this faculty, nor probes to any extent the function of those parts of the brain known as "silent areas."

The first patient (Ullrich) was a man of 35 who, having had a running ear for twelve months, was admitted to the Polyclinic at Vienna, with headache, vomiting, hyperæmia of the right optic papilla, and Kernig's sign. After an exploratory mastoid operation he did well for a time, but was re-admitted seven weeks later with the classical symptoms of right temporo-sphenoidal abscess, including left hemiparesis and hemianopsia. After drainage of the abscess all went well until two years later, when the patient commenced to have epileptic fits, which were preceded by an olfactory and gustatory aura. His memory was poor, words did not come to him readily, and his articulation was imperfect. The movements of the left hand were clumsy—he was right-handed in most actions.

The musical disability became manifest three years after operation. Before the illness the patient often sang in company; now, when asked to sing some favourite ballad, the words and the rhythm were

correct but all the notes were false. Neither could he imitate the pitch of a sound nor sing a scale.

The second patient, a man of 30, had been musical up to twelve months after a shrapnel wound of the head in 1914. In 1920, he was unable to tune his violin, and on attempting the gamut sang up to G correctly, then suddenly wavered and stopped. There was no corresponding lack of tone perception, and he could whistle relatively well. He had slight sensory aphasia, and his writing was full of mistakes. Beyond a depressed scar in the left frontal region there were no other physical signs. He was right-handed.

Henschen, Edgren, and Mendel are more or less agreed that the cortical centres for perception of music and rhythm are in the anterior third of the first convolution of the temporo-sphenoidal lobe of the dominant side of the brain; that is, the left in right-handed persons. Pfeiffer postulates a psychical centre in the radiations leading from this cortical area, destruction of which results in amusia in spite of preservation of continuous tone perception by the centre of the opposite side; and he has also ascertained that the cortical representation of high tones is dorsal to that of low tones.

The existence of a separate motor centre for singing is doubtful, though patients with aphemia may be able to sing. Henschen believes, with Horsley and Vogt, that it is in the left hemisphere adjacent to Broca's convolution, but Mendel, Mann, and others place it in the second right frontal convolution. The vocal cords appear to have a bilateral innervation. In the internal capsule the phonatory fibres are deep and anterior to the pharyngo-linguo-facial fibres.

Brunner argues that his two cases cannot be explained by any single lesion. Probably the amusia was due to the epileptic disturbance in the first case and to neurasthenia in the second.

WM. OLIVER LODGE.

LARYNX.

Treatment of Tuberculous Laryngitis by Salts of the Rare Metals of the Cerium Group. GEORGES PORTMANN, Bordeaux (*La Presse Medicale*, 18th February 1922).

Grenet and Drouin, applying to man the work done by Frouin on animals, investigated the effect on tuberculosis of intravenous injections of these salts. They gave twenty injections of a 2-per-cent. solution didymium sulphate, and found that this produced some interesting blood changes consisting mainly in (1) a leucocytosis (50,000 per c.mm.) in which the mononuclear cells preponderated; (2) an increase in the total number of red cells; and (3) an alteration in the albumin content of the serum and the physical properties of the clot. The tubercle bacilli themselves showed morphological evidence of attenuation and

the sputum became innocuous to guinea-pigs. The writer investigated the effect of similar treatment on twenty-one cases of tuberculous laryngitis at different stages in the disease, giving a series of twenty daily injections of 4 to 10 centigrammes (in 2-per-cent. aqueous solution) of the sulphates of neodymium, praseodymium, samarium and lanthanum. Their report is not enthusiastic, and the benefit in their cases, though marked, was confined to the earliest (*i.e.* catarrhal) stage. They find the treatment contraindicated when there is œdema and ulceration of the larynx, or where there is fever present. They condemn without qualification intratracheal injections (which they used in oily solution), and intra-muscular or subcutaneous injections (used in lipoid solution). The article contains a full series of references to the recent French literature on the subject. F. J. CLEMINSON.

Ventriculo-Cordectomy. CHEVALIER JACKSON. *Archives of Surgery*, March 1922.

The writer has applied this name to an operation which he believes to be the ideal treatment of laryngeal stenosis when such stenosis is due solely to paralysis and when no cicatricial contraction exists. The majority of cases of bilateral laryngeal paralysis thus treated (seven of which are reported in detail) were the result of goitre and illustrate the necessity for laryngeal examination before thyroidectomy.

On account of the possibility of spontaneous recovery it is unwise to perform ventriculo-cordectomy until the abductor paralysis has been established for a year, and during this waiting period the patient may require the relief afforded by a low tracheotomy. High tracheotomy must be condemned and division of the cricoid cartilage may cause hopeless stenosis.

Jackson is of opinion that after his operation, as after removal of a cord by laryngo-fissure, the lateral crico-arytenoid muscle continues to function, and drags out an adventitious cord from the scar tissue.

Ventriculo-cordectomy consists in the removal of the vocal cord and floor of the ventricle by punch forceps introduced through the direct laryngoscope. In all cases the operation is performed on one side and then, after healing is complete, on the other. In children (one case of congenital laryngeal stridor due to paralysis is described) no anæsthetic is used, in adults local anæsthesia only. The arytenoid cartilage must be carefully preserved. No after-treatment is required and healing is complete within three weeks. The lumen of the tracheotomy tube may now be gradually diminished by partial corking and should not be removed until a "full cork" has been worn day and night for a month. It may be necessary to close the trachea by dissecting out the fistula in tube form, ligating and dividing it, and then closing the wound over the stump. DOUGLAS GUTHRIE.

Miscellaneous

MISCELLANEOUS.

The Treatment of Cocaine Poisoning. K. MAYER. (*Zeitschrift für Ohrenheilkunde*, 82 Bd, p. 42, 1922.)

It has been shown experimentally that when a given dose of cocaine is well diluted, it is three or four times less toxic to rabbits than the same dose in concentrated form. Kochmann and Zorn, in 1913, found that the addition of salts of potassium greatly increased the anæsthetic action of the cocaine, and Hirsch, following this up, found that a 3 per cent. solution with 2 per cent. potassium sulphate had as great an effect as 10 per cent. cocaine without the potash salts. However, it was found that the weak solution of cocaine with potash was just as toxic as the stronger solution of cocaine alone. Some highly toxic compound is evidently formed, as controls with cocaine alone and others with potash alone did not show the toxic effects. The addition of potash salts increases the toxicity of cocaine seven times.

The symptoms of cocaine poisoning vary considerably in man. The mildest cases show a tendency to fainting, precordial discomfort, nausea, and rapid pulse. Psychic exaltation, talkativeness, etc., may be noted. Severer cases show epileptiform convulsions with unconsciousness, pallor, and dilated pupils. A paralytic stage follows and death occurs from paralysis of the respiratory centres.

As antidotes ether, chloroform, or morphia have been recommended. Morphia has the very serious drawback that it also is a drug, with a tendency to cause respiratory paralysis, and hence when the irritative stage is over the morphia and the cocaine act together as respiratory depressants. Mayer, in a series of experiments on frogs, found that when $\frac{1}{6}$ or $\frac{1}{4}$ of the lethal dose of cocaine was injected along with a small dose of morphia, which would otherwise have been harmless, the animals died. Control animals with cocaine alone or morphia alone did not die. Hofvendahl, in 1921, had the same results in dogs and rabbits, and concluded that the administration of morphia in cocaine poisoning was useless, and even harmful. It does not follow from this that all combinations of morphia and cocaine must be avoided. The administration of morphia beforehand allows one to be more sparing in the use of cocaine, and hence a toxic dose is less likely to be reached. However, morphia must never be given when there is already any symptom, however slight, of cocaine poisoning. Amyl nitrite acts only symptomatically. Pilocarpin has been reported as bringing about a rapid recovery in a case of cocaine poisoning, but this result was not confirmed in animal experiments. Other narcotics, such as veronal, chloral hydrate, etc., are open to the same objections as morphia. A drug is required which does not depress but stimulates the respiratory centres. Strychnine is unsuitable as it is itself apt to produce cramps and convulsions. In calcium chloride, however,

we possess a remedy which stimulates the respiratory centre without these drawbacks, as was shown by Auer and Meltzer in 1906. Mayer found that a severely poisoned frog's heart could be brought back to normal with calcium chloride. A previous dose of calcium chloride either prevents or greatly diminishes the action of the cocaine. Similar results were obtained with guinea-pig uterus. This pharmacological antagonism was further proved on animals. That it was not due to slowing of absorption was shown by the fact that the paralytic symptoms came on at the same time in the animal with cocaine alone as in that with cocaine and calcium. Even when the calcium chloride was given ten minutes after the cocaine, *i.e.*, when the paralytic symptoms were already present, a speedy recovery was produced.

Mayer injected into guinea-pigs a dose of cocaine in 1 per cent. solution which definitely exceeded the lethal dose, and at the same time injected four times the amount of calcium chloride in 3 per cent. solution. The animals had severe convulsions but recovered in an hour. In other animals the injection of lethal doses of cocaine with calcium gave no toxic symptoms.

Mayer has used calcium chloride in slight cases of cocaine poisoning in the human subject with satisfactory results. He recommends 5 to 10 c.c. of a 10 per cent. solution given intravenously. If given subcutaneously a troublesome infiltration is produced. Other soluble salts of calcium may also be used as it is the calcium ion which is important. J. K. Milne Dickie.

A New Local Hæmostatic. A. Pugnat. (*L'Oto-Rhino-Laryngologie Internationale*, April 1922.)

Wooldridge and Roger have demonstrated that organic extracts shorten the normal coagulation period of the blood, and that in this respect pulmonary extract is the most powerful. Following on these researches, Pugnat has used dried and powdered pulmonary extract as a local hæmostatic in the nose. He first employed it as an insufflation during the performance of a turbinectomy to control hæmorrhage. Alypin was employed instead of cocaine as a local anæsthetic to avoid any vaso-constrictor effect, and the insufflations of pulmonary extract were found to arrest the hæmorrhage immediately. It was next employed to prevent reactional hæmorrhage after operations performed under cocaine adrenalin anæsthesia, by insufflating it over the area of operation, and here again its use proved successful. Its use in cases of spontaneous epistaxis was successful on two occasions but in a third proved ineffective. In the last case the coagulation time was much prolonged, and it is suggested that these organic extracts are only helpful when the blood constituents are normal. A. J. Wright.

Reviews of Books

The Development of the Human Dental Mechanism: the Significance of the Deciduous Teeth: Orthodontia as an Aid to Pædiatrics. W. STANLEY WILKINSON. (*Medical Journal of Australia*, 22nd July 1922, No. 4, Vol. cxvii.)

The symmetry of the facial bones is largely dependent on the correct development of the teeth.

The width of the nasal cavities and of the sphenoid bone which accommodates the *hypophysis cerebri* are both directly influenced by dental development, and by the action of muscles of mastication.

The apices of the bicuspid and molar teeth are on the same level as the floor of the nose, and expansion of any or all of them will result in nasal expansion.

Mal-position of the teeth throws the muscles of mastication out of proper alignment, hence the facial bones to which the muscles are attached are not developed on normal lines. Malformation of the facial bones, resulting in high arched palate and contracted nasal fossæ, cannot be treated satisfactorily without the co-operation of the orthodontist, who is able to expand the palate, and secure a proper apposition of the teeth.

The influence of the deciduous teeth on the development of the bones of the face is described; their injudicious extraction is to be avoided.

Modern methods apply expansion to the roots not the crowns of the teeth, and as the roots are on a level with the floor of the nose the nasal cavity is also widened. The paper is well illustrated.

A. J. BRADY.

REVIEWS OF BOOKS

The Medical Annual: A Year-Book of Treatment and Practitioner's Index for 1922 (fortieth year). Pp. 596. Bristol: JOHN WRIGHT & SONS, LTD. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. Price 20s. net.

Every year finds one more and more dependent on the row of Medical Annuals on one's bookshelves, for information not merely on our special subjects but also on general medical and surgical questions which no self-respecting specialist can afford to forget or ignore. In the present volume Mr Wright has taken up the work long carried on so well by Dr Watson Williams and Dr Fraser. He has served up a thoroughly good menu, both satisfying and digestible.

Otitis media, acute and chronic, with their complications, receive attention in well-written articles. For cavernous sinus thrombosis,