and lumbar puncture was impossible, a suboccipital puncture was performed, which revealed a normal clear fluid with no culturable content. Recovery followed slowly, but suddenly the temperature rose again. This, however, was found to be due to infection of scarlet fever, for which the child was transferred to the Isolation Hospital, in spite of which and in spite of diphtheritic infection of the wound, healing took place.

The Exhibitor drew attention to the fact that this was a case of definite meningitis, due to *Streptococcus Mucosus* as confirmed by the bacteriological examination. The recovery of these cases was uncommon. It was also of interest that after an apparently complete convalescence and discharge from the hospital, a recurrence with disturbing neurological and general symptoms had occurred, first in the ear upon which no extensive operation had been performed and, secondly, on the other side which had been submitted to the " meningitis " operation.

ABSTRACTS

EAR

On cases of Fractured Base of the Skull in which the Petrous Bone is involved. H. BIECHELE. (*Z. Laryng.*, 1933, xxiv., 293-314.)

During the last four years seventy-four such cases were treated at the Würzburg Clinic. In a lengthy article the author analyses this clinical material and discusses all the important points. Fractures of the petrous are divided into two main groups :

1. *Longitudinal fractures*, which are the most common (forty-one cases among seventy-four, or 55 per cent.). The typical fracture line runs from the squamous portion of the temporal bone across the tegmen tympani to the anterior edge of the petrous pyramid and ends in one of the foramina of the middle cranial fossa. The tympanic membrane is generally torn, but not necessarily ; the labyrinth, as a rule, escapes injury.

2. *Transverse fractures*, in which the break in the bone is at right angles to the long axis of the petrous and crosses the inner ear, with more or less extensive injury of the bony and membranous labyrinth (twenty-seven cases among seventy-four). In Group 2, the middle ear and the tympanic membrane remain intact and there is no hæmorrhage from the meatus.

3. A *mixed group* in which the two types of injury are combined.

Voss advises early antrotomy in all cases of fractured base which are complicated by an otitis. In the Würzburg Clinic, under

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Professor Marx, operations are much less often performed. One indication would be a profuse otorrhœa complicating an extensive fracture usually of the " mixed " type. Sometimes a chronic otitis has been known to exist before the skull injury occurred. In these cases it is usually necessary to perform a radical mastoid operation as a precaution against an extension of the infection to the meninges.

The facial nerve is seldom injured in longitudinal fractures. There is often a definite interval between the injury and the onset of the facial paresis due to a secondary neuritis, and recovery is nearly always complete. In the 2nd and 3rd groups the facial nerve is much more often damaged, but recovery of the nerve function can also be anticipated.

Many interesting cases are described in detail and there are several excellent X-ray photographs in the text showing typical fracture lines.

J. A. KEEN.

Studies on the changes in the ear organ, particularly disturbances of the inner ear function, following skull injuries with or without fracture of the temporal bone. J. KOCH. (*Arch. Ohr-, u.s.w., Heilk.*, 1933, cxxxvii., 105-60.)

The author examined 146 patients who had sustained head injuries. Both the cochlear and vestibular functions were carefully investigated, the tests being done repeatedly at intervals of three to six months. The cases and tests are described and the results are analysed in a lengthy article with full references. Koch divides his cases into the following main groups :

1. Fractured skull with proved damage to the temporal bones, eighty-five cases. Eighty of these were longitudinal fractures with middle-ear injury, five were transverse fractures across the labyrinth.

2. Fractured skull without obvious injury to the temporal bones, fourteen cases.

3. Skull trauma without fracture (" commotio cerebri et labyrinthi "), forty-seven cases.

In *Group* 1 hearing was impaired in all the cases : total deafness nineteen times (unilateral), inner ear deafness fourteen times, middle-ear deafness thirty-two times, mixed deafness twenty times. In *Group* 2 some deafness, ranging from total to slight impairment, in twelve cases (out of fourteen). In *Group* 3 impairment of cochlear function thirty-nine times (out of forty-seven), including total deafness seven times.

In testing the vestibular functions the author relied mainly on the double caloric method (Ruttin) in which both ears are syringed simultaneously, with either hot or cold water. In the normal

subject no nystagmus occurs under those conditions. The rotation and galvanic methods were also used. The results of these vestibular tests are grouped and analysed in the same manner as the disturbances of the cochlear function.

Further, the author discusses the pathology of these labyrinth injuries, especially in those interesting cases in which no fracture of the skull had taken place. In the main he accepts Wittmaack's explanation of " commotio labyrinthi ". The degeneration which chiefly affects the organ of Corti is due to the sudden compression of this sense organ by the labyrinth fluid connected with the shock of the injury. In order to produce typical " commotio labyrinthi " the impact on the skull has to be somewhere in the neighbourhood of the ear.

Many of the patients were kept under observation during a period of four years or longer. The hearing recovered to a large extent in those cases in which the lesion was mainly confined to the middle ear. The deafness connected with fractures across the labyrinth and the inner ear deafness due to simple concussion were usually permanent.

The vestibular functions also recovered in many instances. This question is very thoroughly dealt with. There are tables showing the gradual lengthening of the post-rotatory nystagmus, expressed in seconds, as the patients were tested soon after the injury, then three, six, nine months, etc. later. Disturbances of the sense of balance may persist for three years or longer after a skull injury. This fact must be recognised in compensation cases.

J. A. KEEN.

Lesions of the Ear in Caisson Disease. JOHANNA KORTE. (*Z. Laryng.*, 1933, xxiv., 349-58.)

Dr. Korte reviews the literature on the subject and describes a typical case. Caisson disease affects the ear in two ways:

1. Mechanical disturbances of the middle ear during too rapid compression or decompression. The symptoms depend on badly functioning Eustachian tubes which do not adjust the air pressures in the middle ear to the surrounding atmosphere quickly enough. Patients with perforations in the tympanic membranes do not suffer from these pressure effects and are therefore specially suitable for working in caissons.

2. Disturbances connected with the formation of gas emboli which may lead to permanent damage to the inner ear. The symptoms resemble an acute Ménière attack and arise suddenly after a latent period of five to thirty minutes following decompression. Deafness and tinnitus may persist.

J. A. KEEN.

Abstracts

Tympanic Plexus Neuralgia. FREDERICK LEET REICHERT. (*Jour. A.M.A.*, June 8th, 1933.)

The writer reports the case of a woman, aged 31, who complained of a cold in the head, followed after two days by sharp stabbing pains in the left ear. The attacks came on frequently each day and were accompanied by aching pains in the left side of the face, nose, eyeball and parieto-occipital area. At times there was an itching of the upper anterior wall of the external auditory meatus. There was injection and swelling of the posterior superior wall of the canal, but no herpetic lesions. Nothing in particular induced the attacks. Injection of the sphenopalatine ganglion with procaine hydrochloride gave relief for twelve days. The attacks returned, and further injection of the ganglion with procaine and alcohol was of no help. Sedatives and galvanism failed to give relief, as also did the injection of the left sympathetic chain at the seventh cervical and first and second thoracic vertebrae with procaine. Having endured the paroxysms for three months, the patient begged for relief, so permission was asked to cut the seventh and eighth nerves in an effort to identify and cut the pars intermedia of the seventh. Under local anæsthesia the eighth, ninth and tenth nerves were identified. When the bundle of seventh and eight nerve fibres was touched the patient stated that she felt pain in the auditory canal but that it was not the tic pain. Every time the ninth nerve was touched the patient shrieked with pain and stated that this was the tic pain. The glossopharyngeal nerve was then cut and there has been no neuralgic pain since the operation (four months). Sensation was lost over the left soft palate, the pharyngeal wall from 2 cm. within the Eustachian tube to the tip of the epiglottis, and over the posterior third of the tongue, where taste was also absent. From a subsequent study of the patient's salivary secretion the writer concluded that the secretory fibres of the sublingual and the submaxillary glands accompany both the seventh and ninth nerves. It was also concluded that the patient had a tic douloureux of the tympanic branch of the glossopharyngeus (Jacobson's nerve).

ANGUS A. CAMPBELL.

Cod Liver Oil Concentrate (Concentrated Vitamins A and D): Ineffectiveness of large doses in the prophylaxis of Otitis Media complicating Scarlet Fever. W. D. SUTLIFFE, EDWIN H. PLACE and SAMUEL H. SEGOOL. (*Jour. A.M.A.*, March 11th, 1933.)

The study was made in the South Department of the Boston City Hospital. During the five months, December, 1928 to April, 1929, 343 scarlet fever patients were admitted of whom 11·3 per cent. developed acute otitis media. This group was used as a control. During the same months of 1930 and 1931, 509 cases of

scarlet fever were admitted. To each patient in this latter group a daily dose of 100 minims of cod liver oil concentrate was administered, either in capsules morning and evening, or as 50 minims in orange juice morning and evening for the first ten days in hospital. The concentrate used gave a reading of 30,800 "blue units" per c.cm., which is about twenty-five times the "blue units" found in a good sample of cod liver oil. The incidence of otitis media in this group was almost the same as in the former, 9·4 per cent. The writers conclude that the use of cod liver oil concentrate in such dosage has apparently no effect on the liability of scarlet fever patients to develop acute otitis media.

The article has three tables and a bibliography.

ANGUS A. CAMPBELL.

Otogenic Cerebral Abscess in the Left Temporal Lobe. DR. JIRO YOSHIDA and DR. T. KAMIMURA. (*Oto-Rhino-Laryngologia Monats.*, 1933, vi., 991.)

A peasant, aged 21, with chronic suppuration in the left middle ear, acquired fresh severe pains in the head and swelling in the right (*sic*) temporal region, along with an acute exacerbation of the trouble in the left ear. Incision of a retro-auricular abscess gave no relief and meningeal symptoms developed. On radical operation and trephining of the temporal bone, the authors found a reddish swelling of the dura mater of the middle fossa and, by means of aspiratory puncture, a large abscess in the temporal lobe was discovered; the abscess cavity was syringed out with a solution of Rivanol and for a time the meningeal symptoms and the amnesic aphasia improved, but one month after the operation the meningeal symptoms again presented themselves and it was not until after cleansing and continuous drainage of the cerebrospinal fluid that recovery was brought about.

JAMES DUNDAS-GRANT.

Acute Mastoiditis with Congenital Spontaneous Nystagmus. DR. M. KUBOTA (*Oto-Rhino-Laryngologia Monats.*, 1933, vi., 1000.)

A peasant, aged 21, complained of severe pain on the left side of the head, and otorrhœa with rigors, giddiness, and vomiting. On account of the disturbance of consciousness the acoustic and equilibrial tests could not be carried out, but there was a spontaneous active horizontal nystagmus towards the diseased side. In spite of thorough investigation through an operative opening, no communication of the diseased focus with the interior of the skull could be made out. Recovery took place after the operation, but the spontaneous nystagmus continued as before, and the author looked upon it as congenital.

JAMES DUNDAS-GRANT.

Abstracts

Otogenous Sepsis in Childhood. RUDOLF LEIDLER. (*Wiener Klin, Wochenschrift*, Nr. 37, Jahr. 46.)

The most characteristic sign of otogenous sepsis is intermittent pyrexia, even though the latter may not be at all marked. The general condition of the child likewise varies rapidly from one of general well-being to one of profound apathy. Rigors, which are unusual, may occasion severe collapse, and be accompanied by subnormal temperature and vomiting. Pallor is common, the skin is dry and may show fleeting erythema or, more rarely, petechiae, the oral mucosa is dry. The pulse shows considerable increase in frequency, though in all but the worst cases it follows the temperature. There is a leucocytosis, mostly neutrophiles, of 20,000 or more, and the spleen may be enlarged. Marked local symptoms may or may not be present. The presence of enlarged painful or painless lymph glands behind the angle of the jaw on the ipsolateral side is a suspicious sign, especially of bulbar thrombosis. In infancy sinus thrombosis is uncommon, though a septic course may be run without change in the sinus (osteophlebitic pyæmia, Korner). Bacteriæmia may or may not be demonstrable.

The treatment should consist in the early removal of the infective focus by surgical means. If the symptoms of septic absorption occur at the onset, it may be better to wait for a few days, especially in children under three years of age, free discharge having been assured by paracentesis. In cases of chronic otitis no delay is permissible. Leidler ligatures the internal jugular at once, if there is macroscopic evidence of sinus thrombosis at operation. If the pathological changes are entirely extra-mural (exploratory venous puncture) he ligatures the vein only when metastases occur or the course of the disease becomes protracted. He warns one against attempting to influence the infection by vaccines, protein therapy, and the too numerous antiseptic remedies which are advocated.

J. B. HORGAN.

Cerebral Hemiatrophy with Homolateral Hypertrophy of the Skull and Sinuses. CORNELIUS G. DYKE, LEO M. DAVIDOFF and CLEMENT B. MASSON. (*Surg., Gyn. and Obst.*, Nov., 1933, Vol. lvii., No. 5.)

Nine cases of infantile hemiplegia are described in which radiographic examination of the skull shows marked thickening of the vault of the skull on the same side as the cerebral lesion, in association with over-development of the frontal and ethmoidal sinuses and of the air cells of the petrous portion of the temporal bone. Encephalography shows an enlargement of the lateral ventricle on the side of the lesion and sometimes of the third ventricle as well, both these structures being displaced towards the side of the lesion. In

addition to the changes in the vault and the sinuses, the absence of any increased intracranial pressure helps to differentiate the displacement from that caused by tumour.

The cases in this series were due to difficult birth, infection, and injury after birth, and one case was of the pre-natal type. The symptoms usually develop some time after the initial trauma or infection.

The skull and sinus changes are sufficiently constant to enable a diagnosis of cerebral hypoplasia to be made without the aid of encephalography.

SIDNEY BERNSTEIN.

Toxic Diseases of the Organ of Hearing. ERNST URBANTSCHITSCH. (*Wiener Klin. Wochenschrift,* Nr. 43, Jahr. 46.)

The writer enumerates the various endogenous and exogenous forms of auditory intoxication and discusses the potential sites of the lesion.

He describes in detail the case of a woman, aged 28, who suddenly developed symptoms of severe labyrinthine and cochlear injury at the immediate conclusion of a peritonsillar injection of tutocain for anæsthetic purposes. Fourteen c.cm. of a 2 per cent. solution of tutocain had been injected into the peritonsillar tissues on each side. The patient experienced increasing vertigo during the injection, so much so that, before its conclusion, she had to be supported on the chair. There was spontaneous nystagmus (grade III) to the left, with a tendency to past-point and fall to the right. There was an inclination to vomit and right-sided tinnitus. The tonsils were removed. That afternoon there was marked depreciation of hearing on the right side with intensive vertigo and vomiting. A record of the symptoms during the following two months is given. By that time there still remained a feeling of pressure, and tinnitus persisted in the right ear. A loud whisper was heard at 6 metres in that ear and there was vertigo upon sudden stooping.

Allusion is made to the unusual onset of toxic symptoms in the labyrinth and to the fact that from the moment of its inception, the nystagmus was directed to the contra-lateral side. This is at variance with the accepted notion that labyrinthine destruction must be preceded by labyrinthine irritation and this latter must induce, for however short a period, a homo-lateral nystagmus.

The suddenness of onset is ascribed to the direct incorporation of the drug with the blood. The unilaterality of the lesion is ascribed to some favourable predisposing factor in one ear, such as may occur in mumps. The most probable explanation is that a hæmorrhage of toxic origin occurred in the right ear.

J. B. HORGAN.

Abstracts

NASO-PHARYNX

Diseases of the Naso-Pharynx. SIEGFRIED GRÄFF. (*Munch. Med. Wochenschrift*, Nr. 15, Jahr. 80.)

The deductions arrived at are based upon the actual *post mortem* examination of the naso-pharynx in 18,000 cases. Diagnostic and photographic illustrations of the method of section used to explore the naso-pharynx are given.

As regards the development of Waldeyer's ring, Gräff concludes that in the majority of cases this takes place in a cranial-caudal direction and that the physiological involution of the composite lymphatic structures does likewise. In diphtheria the naso-pharynx, in a great number of cases, showed the most and the earliest macroscopic evidence of the disease. The clinically nasal diphtheria of infants is primarily a diphtheria of the naso-pharyngeal tonsil. With increasing age the site of incidence tends towards the faucial tonsils. The conclusion is drawn that a smear taken early in the disease is more apt to be positive if taken from the naso- rather than from the oro-pharynx.

In 118 cases of open cavernous pulmonary tuberculosis there was macroscopic evidence of tuberculous ulceration in the epi-pharynx in forty-three cases (36 per cent.), whilst in a further series of forty-three cases of cavernous pulmonary tuberculosis, though macroscopic evidence was absent, microscopic examination of the prepared naso-pharyngeal tissues revealed the presence of fresh or absolute tuberculous foci in thirty-seven cases (82 per cent.). The very important prognostic fact emerges that 89 per cent. of the cases of cavernous pulmonary tuberculosis examined had a concomitant tuberculosis in the naso-pharynx. A co-existent laryngeal tuberculosis existed in 50 per cent. of these cases.

A reference is made to the danger of tuberculous infection lurking in the folds of a still existing adenoidal mass. Two cases of primary carcinoma of the naso-pharyngeal tonsil were observed. In neither case had the growth attained a size to cause clinical symptoms referable to the site of the growth. They had been recognised as malignant cases through their metastases alone. The pathological anatomist can draw attention to the many sided possibilities which until now have either been unobserved or unknown, the clinicians in their turn must devote more attention to the naso-pharynx in order to estimate how far the symptoms complained of *in vivo* may be attributed to the state of development of the naso-pharynx or to the pathological changes which are described. J. B. HORGAN.

Primary Chondro-sarcoma of the Soft Palate. DR. A. YAMAWAKI. (*Oto-Rhino-Laryngologia Monats.*, 1933, vi., 1013.)

A man, aged 78, had for three years a tumour of the size of the tip of the little finger in the soft palate. It got gradually larger

without causing discomfort, but for the last two weeks he complained of a rapid growth of the mass with interference with speech ; there were no glandular swellings in the neck ; the Wassermann reaction was negative. The mass resembled a date and was elastic, firm, smooth and circumscribed. It was removed by operation and was found to consist of soft irregular lobules which contained, for the most part, cartilaginous cells, but here and there round or spindle-shaped cells. It was attributed to wandering of mesenchymatous cells and consequent anomaly in their development.

JAMES DUNDAS-GRANT.

NOSE AND ACCESSORY SINUSES

Insidious Orbital Complications in cases of isolated Chronic Nasal Sinus Inflammation. SIEGFRIED UNTERBERGER. (*Münch. Med. Wochenschrift*, No. 34, Jahr. 80.)

The detailed record of four cases of latent, and one case of manifest infection of the sphenoid or ethmoidal sinuses, which had unsuspectedly, and for various periods, induced ocular or orbital complications, is given. These include paralysis of one or more ocular muscles, exophthalmos (afebrile), papillitis, severe loss of vision, ptosis, etc., and were for the most part quickly relieved by exploration and surgical drainage of the sinus found to be at fault.

J. B. HORGAN.

Ear, Nose and Throat Sepsis in Mental Disease. T. A. CLARKE. *With a Bacteriological Study of the Paranasal Sinuses* by A. K. MCCOWAN. (*Journal of Mental Science*, July, 1932.)

The various possible ways in which ear, nose and throat sepsis may influence the mental functions are considered in this paper. They are stated to fall for the most part into four classes. 1. Direct passage of organisms or toxins to the brain. 2. Circulation in the blood of toxins, specific or non-specific, acting directly on the cerebrum or affecting the endocrine system. 3. Sensory disturbances. 4. Obstruction of respiration, producing chronic slight anoxæmia.

The findings in the ear, nose and throat after systematic examination of some 800 cases are recorded, and tables given show the incidence of infection in the individual mental diseases and, in the case of tonsillitis and sinusitis, an attempt is made to associate the presence of infection with the mental prognosis. The authors recognise that their figures are small, and they do not attach conclusive importance to the results obtained. The paper is rather to be regarded as an interim report.

A conservative attitude has been adopted in diagnosing tonsillar sepsis which, however, excluding minor cases, was found in 24 per

cent. of cases. Chronic nasal sinus infection, with suppuration and/or polyp formation was diagnosed in 9·4 per cent. of patients. This was based upon ordinary rhinological observation, confirmed in many cases by suction-exploration by the Watson-Williams method. The presence of traces of mucus, of blood, or of bacteria in a clear fluid was not accepted as indicating the presence of sinusitis.

In all, suction-exploration was carried out in 177 sinuses, on 390 occasions. Control experiments satisfied the authors that bacteria found in the return fluid were not normally due to contamination. Two hundred fluids were found to be sterile, 190 gave organisms, in many cases staphylococci, and of doubtful pathogenicity.

Chronic suppurative otitis media was found in 4 per cent. of patients, and scarred drums and other residua of suppurative otitis occurred in more than 7 per cent. of patients.

The authors have endeavoured to keep open minds on the subject. No operation has been performed, even in cases of proved sepsis, unless it has become evident that mental recovery is unlikely without some such treatment ; similarly no operation has been done in cases in which the outlook is certainly hopeless. They admit that they started the investigation distinctly prejudiced against the suggestion, made in some quarters, that ear, nose and throat sepsis was present, and at least partly causative, in nearly all cases of mental disease. They are satisfied in their own cases that this is not true, but they have found infection present in a fair proportion of cases, and in some patients it would appear to be a factor of considerable importance in the mental disease. The investigation is being continued.

AUTHOR'S ABSTRACT.

On the Ætiology of Osteomyelitis of the Sphenoid Bone. W. HESSE. (*Arch. Ohr-, u.s.w., Heilk.*, 1933, cxxxvii., 94-104.)

The author describes seven cases of osteomyelitis of the sphenoid, all of which ended fatally. Histological examination of the affected parts was carried out in several instances. The ætiology was different to some extent from case to case, and the cases form an interesting clinical group.

In Cases 1 and 2 the cause of a cavernous sinus thrombosis and meningitis was found to be an osteomyelitis of the sphenoid bone secondary to an infection of one sphenoidal sinus. In Case 3 the clinical signs pointed to a meningitis of aural origin, but the *post mortem* showed a sphenoidal sinus infection with an osteomyelitis of the sphenoid and an intracranial extension from that region.

In Cases 4 and 5 the osteomyelitis of the sphenoid was secondary to an infection of the petrous bone. The osteomyelitis had spread

across from the tip of the petrous. In Case 6 the sphenoidal sinuses were healthy and it was assumed that the cavernous sinus thrombosis was a complication of middle-ear suppuration. However, the *post mortem* showed that the real cause was trauma; there was a suppurating hæmatoma in the roof of the orbit around the bony fragments of a small fracture. The child had knocked his head against a stair-rod a few days before the onset of the illness. From the roof of the orbit an osteomyelitis had spread to the tip of the petrous and the right half of the sphenoid bone. Case 7 was less clear: the osteomyelitis of the sphenoid was either a sequel of a generalised septicæmia or it was an ascending infection from a parapharyngeal abscess.

J. A. KEEN.

Local Agents that increase Tissue Immunity in Sinus Mucosa. RALPH A. FENTON. (*Jour. A.M.A.*, December 31st, 1932.)

A person with healthy sinuses needs no artificial immunisation against colds. Local measures used in the treatment of sinus disease are roughly divided into physical and chemical. Cold applied locally, such as ice bags, etc., has definite antiphlogistic effects, especially where the ethmoidal or frontal sinuses are threatening orbital invasion, although many patients complain bitterly of increased neuralgic pain. Heat applied externally has the opposite effect and, by its congestive action, increases pain and hinders drainage. Diathermy directed towards these membranes within bony walls may cause swelling and obstructive empyema of severe degree. X-ray must be used with great caution for the same reason. The writer feels irradiation may be destructive rather than constructive. Sodium chloride, potassium chloride, and calcium chloride solutions of definite strengths are helpful, especially in the larger cavities. Colloidal solutions are irritating to the sinus mucosa and such solutions as mercurochrome and metaphen are useful only for two or three washings at the most. Sluder's oil-phenol formula has been found very helpful. Mass vaccines, on account of dangerous negative-phase symptoms, must be used with great care and are hardly to be recommended. It is necessary to study the patient as a whole to ascertain whether he is suffering from an acid or alkaline excess. Unless the general or constitutional health is improved, purely local measures, whether medical or surgical, are not to be relied upon. As a general rule those substances which are not destructive to newly activated cells by excessive concentration, and which favour tissue growth rather than bacterial growth, and which are astringent rather than irritant, demulcent rather than caustic, do most towards increasing local immunity in the accessory sinuses.

ANGUS A. CAMPBELL.

Abstracts

MISCELLANEOUS

Neu-Psikain—a valuable Cocaine Substitute. (*Münch. Med. Wochenschrift*, Nr. 16, Jahr. 80.)

The writer enumerates the desirable qualities of such an anæsthetic and gives the relative toxicity to guinea-pigs of cocaine and of its various substitutes. He states factors which may cause the marked variations in the reactions of human beings to these drugs. Neu-Psikain is more than four times as toxic as cocaine and twice as toxic as Psikain-Alt, but it is effective in a strength of one-tenth as compared with the latter. It readily combines with adrenalin and causes no injury to the tissues. Leschke has used Neu-Psikain in 1,000 operative cases. For surface anæsthesia he employs a 1 per cent. solution, whilst for infiltration (tonsillectomy, etc.) he employs a solution of 1 to 1·50 per 1,000. A 3 per cent. solution is used to anæsthetise the larynx. The drug has proved to be a very reliable local anæsthetic and an advance on the other cocaine substitutes.

J. B. HORGAN.

The Treatment of Suppurative Meningitis. OSKAR ZELLER. (*Wiener Klin. Wochenschrift*, Nr. 27, Jahr. 46.) (Remarks on the work of Professor Otto Mayer which appeared in the same Journal, Nr. 6, 1933.)

Zeller published in Bier's "Festschrift" in 1931 the description of a method of treatment of suppurative meningitis, which essentially resembles the method now advocated by Mayer. He differs from Mayer in that he removes *as much as possible* of the infected spinal fluid, and subsequently carries out intra-thecal inflation with acetylene gas, which is non-irritating, is absorbed very rapidly, and exerts a bactericidal action. The neck is constricted and hypertonic saline solution is injected intravenously to accelerate the re-secretion of cerebrospinal fluid.

Zeller suggests the possible utility of intra-thecal injections of solutions of digestive ferments, especially of Papam (Ochsner and Earl Garside) in solutions of 1 : 400,000 to at the highest 1 : 50,000), which are harmless to the living cells of the serous membranes. It would be especially indicated when the spinal fluid is thick or gummy. The injection should be made across the orbital cavity (orbitalstich), or by ventricular puncture. Experiments are in progress.

The author recounts successes by his method in two cases of epidemic meningitis, a case of severe traumatic meningitis, and in a case of otitic meningitis. He has lately had three successive successes in conjunction with Jaurneck, at the latter's Otological Clinic at Neukolln. In one of these cases, in which the general

symptoms were exceptionally bad and the prognosis correspondingly grave, a small amount of the abstracted fluid was injected intramuscularly. Zeller is not prepared to say to what extent this active immunisation was responsible for the speedy recovery which ensued.

The radical subarachnoid drainage and inflation is carried out daily by one or more spinal punctures. The quantity or the density of gas are not mentioned.

J. B. HORGAN.

Fatal Fusospirochetal Angina. LEON GOLDMAN and HERMAN E. KULLY. (*Jour. A.M.A.*, July 29th, 1933.)

The writers use the above name which they consider more descriptive than " Vincent's angina ". From 1929 to 1932 twenty-one patients were admitted to the Cincinnati General Hospital with fusospirochetal angina, of which seven cases were fatal. The fatal cases were all in negroes and are reported in considerable detail. The patients were all seriously ill on admission, with extensive ulceration, except case number 4 in which œdema and septicæmia played important rôles. Syphilis was only an associated factor in two cases and neither of these had mercurial therapy. The Wassermann test for fusospirochetal angina *per se* is not positive. Six of the patients had extensive chronic dental infection, showing that neglect was an important factor. Routine blood studies were negative except in case number 7 in which a definite secondary anæmia and malignant leukopænia were found. The diagnosis was made from positive smears taken from the deeper tissues. The usual treatment was used, including hydrogen dioxide, potassium chlorate and potassium permanganate locally, and injections of neoarsphenamine.

Fusospirochetal angina may be a dangerous disease and death can occur from extensive spread in the mouth and adjacent structures offering a portal of entry for mixed infection, with laryngeal œdema and severe general toxæmia.

ANGUS A. CAMPBELL.

Treatment of Localised Staphylococcic Infections with Staphylococcus Toxoid. C. E. DOLMAN. (*Jour. A.M.A.*, April 1st, 1933.)

Staphylococcus strains isolated from infected human patients produce, under appropriate conditions, a true exotoxin having characteristic destructive effects on the cells and tissues of experimental animals. Staphylotoxin can rapidly be detoxicated by the addition of 0·3 per cent. solution of formaldehyde (U.S.P.) yielding a highly antigenic toxoid which may safely be injected subcutaneously into human patients. A few small subcutaneous

injections of staphylococcus toxoid given at intervals of from five to seven days will rapidly provoke an increased amount of circulating staphylococcus antitoxin both in experimental animals and in man. The content of staphylococcus antitoxin in any serum may easily be estimated by titrating its anti-hæmolytic power against a staphylotoxin of known hæmolytic unit, using as an indicator a 1 per cent. suspension of "packed" rabbit erythrocytes in a physiological solution of sodium chloride. Twenty-eight patients suffering from intractable persistent or recurrent staphylococcal infection, including sixteen severe cases of boils, received a series of injections of a toxoid prepared from several strains selected for their high toxigenicity. Alleviation, and then apparent cure, of their infections occurred soon after the commencement of the treatment in each case and could be correlated with an increased titre of circulating antitoxin.

ANGUS A. CAMPBELL.

LETTERS TO THE EDITOR

TO THE EDITOR,

The Journal of Laryngology and Otology.

DEAR SIR,—In his article entitled "Malignant Diseases of the Bronchus" (*The Journal of Laryngology and Otology*, 1933, XLVIII., 733), Mr. F. C. Ormerod stated that "The bronchial mucous membrane consists of a single layer of ciliated columnar cells supported by a layer, one or two cells deep, of smaller ovoid cells." "It is suggested," further wrote Mr. Ormerod, "that the different types of carcinoma arise from the layer of small ovoid cells."

Carcinoma originating primarily in the lungs was traced, up to recent years, to three different sources: 1. The ciliated columnar epithelium of the bronchial mucosa. 2. The bronchial mucous glands. 3. The cells lining the wall of the air sacs.

The subject was investigated by me clinically and experimentally and reported in some detail in 1929, and again in my monograph on *Primary Carcinoma of the Lungs* (Baillière, Tindall & Cox, London, 1932) in which my findings were summarised (p. 46) as follows:

1. Carcinoma originating primarily in the lungs is bronchiogenic.

2. There is evidence that when the disease is found in the lungs it results from a pathological (excessive) regeneration following chronic inflammation of the bronchial tree.

3. Of the three varieties of cells lining the bronchial mucosa, that is, the ciliated columnar epithelium, the goblet cells and the