

(5) *Internal Meatus*.—The eighth nerve has unfortunately been torn out in the removal of the specimen. The seventh nerve appears to be normal.

Summary.

There are slight evidences of an inflammatory change in the marrow spaces in the roof of the Eustachian tube and also in the mucosa lining the niche of the oval window. Elsewhere the middle-ear structures are normal. The stapes is ankylosed to the anterior margin of the oval window, and the bone in this region shows marked osteoporosis which extends forward for a slight distance into the capsule of the cochlea. Considering the age of the patient, the nerve structures of the inner ear may be considered to be practically normal.

(*To be continued.*)

Abstracts.

PHARYNX AND NASO-PHARYNX.

Cartilage and Bone in Tonsils.—Grove, W. E. "Annals of Otology, etc.," xxv, 417.

According to the author, the occurrence of cartilage and bone in the tonsil is not uncommon. It is always near the capsule or in the connective tissue framework and never invades the lymphoid tissue. He is inclined to think that bone found is never true osseous tissue, but due to calcification of pre-existing cartilage. Discussing the origin of these abnormal finds, Grove considers it more logical to explain them as a metaplasia or metamorphosis of connective tissue, due to inflammatory hypertrophic or atrophic regressive changes in the tonsil.

Macleod Yearsley.

The Correlated Action of the Pharynx and Soft Palate, and its Effects upon Post-nasal Diagnosis.—Greenfield Sluder. "Annals of Otology, etc.," xxiv, p. 134.

The effect of "gagging" in distributing the secretions in the nose and naso-pharynx is the object of the thoughtful paper, which requires to be read in the original. The practical application of the author's observations lies in the way in which gagging may deceive the surgeon in his examination.

Macleod Yearsley.

NOSE.

Air and Rhinitis.—Wurtz, W. J. "Annals of Otology, etc.," xxv, 425.

Discusses the influence of hygiene—of body, home, schools, and other public buildings—in the ætiology of "cold in the head." Whilst going into temperature, humidity, *et hoc genus omne*, the author appears completely to ignore the occurrence of infection, and one cannot but admire the complete and skilful way in which he has all mention of bacterial sources of rhinitis.

Macleod Yearsley.

A Contribution to the Bacteriology of the so-called Coccobacillus Fetidus Ozenæ (Perez), with Additional Notes on the Treatment of Clinical Ozena by Means of Polyvalent Vaccines made from the same Organism.—Horne, H., and Victors, E. A. "Annals of Otology, etc.," xxv, p. 253.

In this paper the authors point out that some characteristics of coccobacillus fetidus ozenæ (Perez) have been erroneously described, in that the organism is motile, may ferment carbohydrates and may produce acid. It is a distinct bacterial entity from Abel's bacillus. There is a startling similarity between it and *B. bronchisepticus* (the specific organism of canine distemper). The coccobacillus fetidus ozenæ group is made up of many subvarieties or strains. The C.F.O. is probably the specific organism of typical fetid ozena in man, and it is suggested that the name of the organism should be changed to "bacillus rhinosepticus." The conclusions reached in the authors' preliminary report still stand, with certain exceptions. *Macleod Yearsley.*

ŒSOPHAGUS.

Bronchoscopic and Œsophagosopic Postulates.—Jackson, Chevalier. "Annals of Otology, etc.," xxv, 414.

This short paper cannot be abstracted, but the attention of all who practise bronchoscopy and œsophagoscopy is drawn to it for the admirable and concise advice it contains. *Macleod Yearsley.*

EAR.

Tuberculosis of the Middle Ear.—Graham, H. B. "Annals of Otology, etc.," xxv, p. 105.

Details are given of eleven cases, with good micro-photographs. They are useful additions to the already voluminous literature of the disease. *Macleod Yearsley.*

An Improved Method for Draining the Tympanic Cavity in Purulent Otitis Media.—Gutman, J. "Annals of Otology, etc.," xv, 389.

This consists in "trephining" the inferior posterior quadrant, irrespective of the bulging part of the membrane, with a special instrument. The method is not really new. *Macleod Yearsley.*

The Diagnosis of Otitic Cerebellar Abscess.—Braun, Alfred. "Annals of Otology, etc.," xxv, p. 1.

Gives an analysis of 86 cases, 85 of which were due to ear disease. Discussing symptoms, the author points out that in 10 per cent. of cases death occurs before any signs of intracranial involvement appear, whilst in 14 per cent. they are obscured by other otitic complications. A study of the anatomy and physiology of the cerebellum is very helpful, and the results are carefully discussed, with reference to actual cases, under the headings of: (1) Hypermetria. (2) Cerebellar Asynergy. (3) Adiadokokinesis. (4) Tremor. (5) Disturbances in Writing. (6) Disturbances of Speech. (7) Atony or Hypotony. (8) Cerebellar Catalepsy. (9) Spontaneous Deviation of the Extremities, and Loss of Reaction Movements. (10) Spontaneous Falling and Reaction Movements of the Trunk. (11) Hemiparesis. (12) Fixed Attitude of Head. (12) Vertigo. (13) Under estimation of Weights. (14) Changes in the Reflexes. (15) Headache, Vomiting, Drowsiness, Slow Pulse. (16)

Optic Nerve Changes. (17) Facial Paralysis or Paresis. (18) Temperature. (19) Blood and Cerebro-spinal Fluid Changes. The paper is a valuable and exhaustive one and requires study in its entirety.

Macleod Yearsley.

The Education of the Deaf.—Baldwin, R. N. The "Laryngoscope," 1915, p. 193.

Responsibilities of the Community.—R. N. Baldwin stated that they were establishing an instruction of the deaf which would enable them to compete on more or less equal terms with their neighbours. Some people thought that it was hardly worth while to spend so much money and time in the struggle to bring the abnormal child into nearly normal ways of life, but one such successful case as that of Helen K—— was worth all the time and trouble.

With regard to *medical co-operation*, M. A. Goldstein remarked that for many years a few otologists had endeavoured to stimulate the interests of the medical profession in the cause of the deaf, but so far they had not met with much success. The education of the deaf child was as distinctly an obligation on the community as the training of the normal child. Judging by the statistics obtained from the census, and also from school records, deafness appeared to be increasing in a rather alarming manner. At any rate there was a constantly growing demand for teachers of the aural method.

Practical demonstration with pupils of the Central Institute for the Deaf. Ethel M. Hilliard explained that they based their phonetic work on the system of "visible speech" invented by Alexander Bell. Dumbness was merely the result of deafness. A little hearing child listened for the first year of its life and then began to imitate sounds, words, and final y sentences. With the deaf child who never hears speech the case is very different. The deaf child had the same organs of speech as the normal child, but he did not learn to use them because he did not hear the speech of others, and hence could not imitate it. A means of communication had to be established between the teacher and the deaf child, whereas the hearing child already had speech and language fairly well developed before he came to school. A child's mind developed in the same way whether hearing was present or not, but the difference became marked when the hearing child began to reach out for information by asking questions. For this reason it was most important to give the deaf child a means of communication with the world as early as possible. The instinct for speech developed in the second and third year of the ordinary child's life, and it was much easier to acquire it at this period than later. The deaf child should be talked to all the time. It was surprising what it was possible to do with deaf children of two years of age in the way of teaching them lip-reading and speech. An uneducated deaf child of five or six years did not know the meaning of speech and language. He did not know that objects had names and was puzzled by what he saw other people doing with their lips. Heretofore he had been able to communicate with others only by means of gesture—an inadequate method of expression. Normal people learnt their speech sound by sound as hearing babies, they then combined their sounds and babbled in syllables before they attempted words. The same process had to be followed by the deaf child, except that the deaf child had not the ear to guide it and so had to be taught to imitate the positions of the organ of speech, and for this he had to use his eyes and his sense of touch. In fact the other senses of the deaf child had to take the place of hearing. These other

senses must be thoroughly educated. (Illustrations are given to show how the sense of touch is educated by the handling of various objects while the child is blindfolded, and how rhythm and accent are learnt by musical vibration and also by the child placing her hand on the chest and neck of her teacher. In some respects the teachers of the deaf follow out the Montessori system.) At last a stage is reached at which the child has perceived the vibration in the teacher's throat and is ready by imitation to reproduce the vibrations itself, with his lips, tongue, and palate in a position indicated by the teacher. Thus he acquires his first vowel sound. Consonants and vowels are soon combined into syllables, and then the young pupil begins to make words and sentences. In the meantime lip-reading has been going far ahead of speech. Nouns are learnt first, then verbs. The order of proceeding being lip-reading, speech, writing. In the Barry "five-slate" system the blackboard is divided by vertical lines into five columns. The name of the actor is written in the first (or subject) column, and the verb, which tells what is done, in the second (or predicate) column. The third column is reserved for the object, the person or thing receiving the act; the fourth for the preposition, and the fifth for the object of the preposition. The purpose of the first year's work is to give the child expression for the experiences of everyday life, but the result is largely dependent on the ability of the individual child. In the second year's work the vocabulary is rapidly built up, and new tense forms are given (originally deaf children are always taught the past tense, because when the child is ready to tell what he has done the action is already completed). In the second year, also, there is some branching out into fields of thought outside the knowledge gained through the senses, and the pupil is encouraged to ask questions. The piano is of great use in cultivating the voices of deaf children. The aim is to banish from their speech the deadly monotony which characterises the voices of people who cannot hear their own tones. The piano is also used for giving correct accent. Rhythm, taught by means of vibrations felt through the piano case, and also through the floor, gives the idea of the regular beat in musical measures, and the perception of the accented beat forms the basis for accent in words. The pleasure derived by the deaf child from musical vibration and rhythm is very evident. If a deaf child is asked to pronounce such a word as "capitulate," she at first gives the same value to each syllable, but when she is given the cords on the piano, one of which is accentuated to correspond with the proper accent of the word, she immediately gives the word its correct pronunciation. It is most important to conserve any residual hearing that may be present, and for this purpose elementary sounds are first spoken in clear tones, and later words and sentences are taught. Further on the deaf children study history, geography, arithmetic, just as hearing children do.

Statistics show that about 20 per cent. of all pupils in the public elementary schools have more or less defective hearing. By means of lip-reading, which trains the eye to assist the ear and thus relieves the strain on mind and nerves caused by defective hearing, the task of learning becomes a vastly easier matter.

J. S. Fraser.

MISCELLANEOUS.

Treatment of Hæmorrhage with Normal Blood-serum.—Forbes, H. H.
 "Annals of Otology, etc.," xxv, p. 145.

In this paper a strong recommendation is made for the use of normal blood-serum in the treatment of non-operative hæmorrhage. The

method is some twenty years old, and its progress is briefly reviewed. According to the author, the evidence collected from the literature and his personal experience of three cases, is predominatingly in favour of ero-therapy.

Macleod Yearsley.

Stock-brainedness, the Causative Factor in the so-called "Crossed Aphasias."—Kennedy, F. (New York).

In the controversy arising from the attack of Marie and Moutier on the classical theory of Broca concerning the positions of the centres governing speech, what appears at first sight to be irrefragible evidence can be produced by both groups of protagonists; by Moutier, for example, the case of Levi, in which Broca's area was destroyed by a neoplasm in a right-handed man without any aphasic symptoms having been produced; and, on the contrary, by the upholders of the classical theory, a large number of carefully observed cases of complete motor aphasia following destruction of the left third frontal convolution in right-handed persons. The strongest evidence at Moutier's disposal consists in certain cases of so-called "crossed aphasia"—combinations of right hemiplegia with aphasia in left-handed individuals, or left-sided palsy with aphasia in right-handed persons. These cases were used by Moutier to disprove the validity of Broca's area as a special speech centre, but in reality they only impugned the theory of constant conjunction in any one subject of right-brainedness and left-handedness, or left-brainedness and right-handedness. It is suggested by the author that the simple statement made by writers on this topic, that a given patient is right-handed or left-handed is not adequate in the light of certain cases which he mentions. Of these there are six, the first three cases were all those of left-handed persons, and in two of them a sudden and severe left-sided hemiplegia was unassociated with any disturbance of speech, while in the third a right-sided hemiplegia was accompanied by aphasia. The second group of three cases were those of right-handed individuals in two of whom left hemiplegia was associated with aphasia, while in the third complete aphasia followed operation on the right Rolandic area for glioma.

The point of special interest on which the author desires to lay stress is that in the first three cases, although the persons were definitely left-handed, in none of them could it be discovered that there was any hereditary tendency to this condition, that is, they came of an exclusively right-handed stock. In the second group of three cases, on the other hand, although the patients were right-handed, there was in each of their families a strong tendency to left-handedness; one of them had both parents left-handed, another, two brothers left-handed, and the third a mother, brother, and daughter all left-handed.

The percentage of cases in which a left-handed trend is present in the stock must be very much larger than can easily be proved by direct statistics. Stier found among 5000 soldiers only 4.6 per cent. left-handed, but in over 60 per cent. of these there was obtained a very definite history of a sinistral tendency in the stock of each individual examined.

It would appear, then, from the cases reported that this trend, when present in the stock, may produce in the few right-handed individuals of the sinistral stock a condition of brain similar to that of their collaterals or ancestors, with the result that the speech area in such persons

becomes developed in an ectopic situation. Likewise a left-handed person occurring eccentrically in a right-handed stock is dominated by the trend of that stock rather than by his own individual peculiarities.

Thomas Guthrie.

The Possible Functions of the Cerebro-spinal Fluid.—Halliburton, W. D.
"British Medical Journal," November 4th, 1916, p. 609.

The author first outlines a brief summary of the present state of our knowledge with regard to the cerebro-spinal fluid, and then proceeds to the main object of his address, which is, to discuss the meaning and functions of the fluid. As to the first part of the address, the essential ascertained facts are stated as follows:

(1) The normal fluid contains in solution inorganic salts similar to those in the blood plasma, a trace of coagulable protein, and a certain amount of a reducing substance which has now been definitely proved to be glucose.

(2) The fluid is primarily formed by the secreting cells which are so prominently found covering the choroid plexuses in the cerebral ventricles.

(3) The fluid is normally present at a certain pressure, and this pressure is not the result of arterial pressure passively transmitted to the fluid.

(4) The true cerebro-spinal pressure is the result of the secretory pressure of the choroid epithelium cells.

(5) There are three groups of substances which promote the flow and increase the pressure.

(A) Those agents which produce an excess of CO₂ in the blood.

(B) The volatile anæsthetics, which produce their result:

(i) Possibly by operating in the same way as the A class.

(ii) Or by altering the physical conditions of secretion.

(C) Extract of the choroid gland, or of the brain.

(6) The choroid plexuses are abundantly provided with nerves, but there is no evidence that these are secretory in nature.

(7) The fluid is being continually formed. What becomes of it? The exit is by the blood-stream, and not by the lymph channels of the nerves.

(8) The diffusion process (*i. e.* for substances introduced experimentally into the cerebro-spinal spaces) is most rapid in the subcerebellar district, but is extremely slow in the spinal, especially the lower spinal region,

(9) Dyes added to the fluid travel along the course of certain cranial nerves and this is especially true for the olfactory nerve. This is not the case for the spinal nerves.

The author's own views on the meaning of cerebro-spinal fluid are then given, and his conception of its possible functions may be abstracted as follows:

(1) The mechanical function of support and pressure.

(2) Cerebro-spinal fluid is the only fluid which actually comes into contact with the tissue elements of the brain and cord. It necessarily follows that it must play the part played by lymph in other districts of the body; it must be, for example, the intermediary medium which is traversed by the oxygen on its way from blood to the tissue elements.

(3) We have evidence, supported by the fact that cerebro-spinal

fluid is rich in carbon dioxide, that the products of nerve katabolism pass into the fluid from the tissue elements as they do into ordinary lymph.

(4) The choroid plexus is a definite glandular structure whose function it is to secrete cerebro-spinal fluid. The nutritive materials the fluid contains appear to be formed in the choroid gland, and not to be merely exuded from the blood-stream.

(5) It is difficult to understand why readily diffusible drugs do not escape readily into the cerebro-spinal fluid, as they do into ordinary lymph. The choroidal epithelium must be regarded as a stalwart barrier of cells which keeps back these materials, and only allows its own normal secretion to escape.

(6) Cerebro-spinal fluid is, after all, Locke's modification of Ringer's fluid. As to the real significance of this simple composition, the author takes the following view.

The neurons must be bathed in an ideal physiological saline solution to maintain their osmotic equilibrium. The trace of protein it contains is probably quite sufficient for nutritive purposes. The sugar would serve for a supply of energy. The choroidal epithelium, in order to keep out harmful proteins, keeps back the harmless ones also, almost completely; all share the same process of exclusion. This protective action applies in addition to the majority of soluble drugs.

(7) It is quite possible that the choroidal epithelium may allow the escape of, or even actively excrete carbon dioxide.

(8) The cilia, if they are active, of the cerebro-spinal epithelium, no doubt further the flow of fluid from the cord region to the large veins at the base of the brain, where it so readily bears the subarachnoid space by entering the venous blood-stream.

Archer Ryland.

Salvarsan in the Treatment of Double Infections, Tuberculosis and Syphilis.—Potter, N. B. (New York). "Amer. Journ. Med. Sci.," December, 1916.

Reviewing the literature of the subject, the author draws attention to the remarkable frequency with which an unknown or unacknowledged syphilitic infection exists in patients with tuberculosis. It appears, indeed, that the syphilitic possesses a definitely lowered resistance to tuberculous disease. In many of these cases of double infection striking improvement has followed treatment by means of salvarsan, and the writer believes that it should be promptly employed in latent, chronic, and moderately active tuberculosis: (a) As soon as the nature of an added infection is diagnosed with reasonable probability to be syphilis; (b) whenever the history, signs, or symptoms suggest a previous luetic infection, particularly if such a patient is not improving upon the usually successful hygienic and climatic treatment for tuberculosis; but active tuberculosis, acute tuberculosis, and diffuse miliary tuberculosis are usually contra-indications, although in the first two groups many luetic patients will derive benefit from a small dose of salvarsan. The more active the tuberculosis, the smaller the initial dose, the slower its increase, and the less frequent its administration. Tuberculin-like reactions may follow the injections, and should be carefully watched for, as they may be a useful guide in the selection of the next appropriate dose or interval.

Thomas Guthrie.