

BACTERIOLOGY.—Recent investigations, especially by Löwenberg, Netter, Zangal and Moss show that otorrhoea may be due to or at least be associated with certain micro-organisms acting either through the eustachian tube or the external auditory meatus. The chief organisms are:—

- (1) *Streptococcus pyogenes* ;
- (2) *Staphylococcus pyogenes albus* and *aureus* ;
- (3) Frankel's pneumonococcus ;
- (4) Friedlanders' pneumo-bacillus ;
- (5) Tubercle bacillus.

Division.—**Acute**—during first three months of the discharge.
Chronic—after three months. This is an arbitrary division but a practical one.

SYMPTOMS :—

I. Acute suppurative catarrh of the middle ear.

- (a) A sense of fulness and pressure in the ear.
- (b) Pain varying in severity from a slight discomfort to a distracting agony which may mask the ear affection entirely, especially in children.

Pain, however, may be entirely absent and nothing but a feeling of fullness and discomfort is noticed.

- (c) Various disturbances of the digestive, and circulatory centres.

- (d) Presence of discharge, usually bloody at first and followed by almost immediate relief of pain.

II. Symptoms of the chronic form.

The marked characteristic in this division is the almost entire absence of symptoms other than the presence of discharge which may be markedly intermittent and of varying consistency, and have an odor of all degrees up to a terrible stench. There are, however, symptoms for which the patient seeks relief other than the discharge.

- (1) Impairment of hearing. This varies greatly. The amount of discharge and its duration does not give any accurate data from which we can say the amount of hearing our patient has.

- (2) Tinnitus—A very annoying symptom but fortunately not nearly so frequent as in non-suppurative cases. Very frequently, however, tinnitus comes on permanently after the discharge has stopped and the membrane has closed up.

- (3) Cerebral disturbances,—headache, nausea, giddiness or hemiplegia owing to intra cranial involvement.

- (4) Pain—intermittent attacks of neuralgic pain over the corresponding side of the head owing to various degrees of mastoiditis.

- (5) Facial paralysis—owing to carious involvement of the bony canal which carries the facial nerve.

COURSE.—This running ear may get well in a few days and the mucous membrane of the tympanic cavity be completely regenerated or it may within one week involve the mastoid cells and meninges. Fortunately, however, it most frequently stops short of the mastoid and leads to chronic thickening of the tympanic mucous membrane, destruction of the drum-head, caries and disintegration of one or more of the ossicles,