Inflammatory conditions in the labyrinth are due to the same variety of organisms that are found in middle ear suppuration. When it is a very virulent infection, the germ is usually the streptococcus pyogenes. Cholesteatomatous conditions are occasionally met with in the labyrinth, and tubercular labyrinthitis is fairly common in tuberculous suppuration of the middle ear. Caries and necrosis follow labyrinthitis, depending on the acuteness of the inflammation. Sequestra sometimes form, the cochlea may form one, but the vestibule usually goes with the semicircular canals. Death in labyrinthitis is due to intracranial complications—either meningitis or abscess of the brain. The tract of infection is usually along the filaments of the auditory nerve, and in this way the subarachnoidal space becomes infected. Hezold has estimated that labyrinthitis occurs in 1 in 500 cases of chronic suppuration of the middle ear. This seems a very small percentage, but this may be accounted for in that the cases most frequently occur in children, and as the symptoms are very vague at best, they are especially so in young children. In children the bone separating the labyrinth from the middle ear is thinner and less dense than in adults, thus explaining why labyrinthitis is more common in the first decade of life. In children with acute otitis media, you may suspect labyrinthitis when there is marked systemic infection.

Symptoms.—It is impossible to definitely diagnose labyrinthitis before operation. Symptoms which we consider point to labyrinthine involvement may be well marked, and yet when we do a radical mastoid operation, the labyrinth is found perfectly intact. On the other hand, fistulous openings may be found in the labyrinth when we least expect them. It is a serious matter to explore a healthy labyrinth in an infective area, such as in a mastoid operation. So it is good practice not to open a labyrinth that shows no external signs of disease. When doing a radical mastoid operation, the external wall of the labyrinth should always be carefully searched for fistulae. The use of adrenalin greatly facilitates a good view being obtained of the field of operation. A strip of gauze, previously soaked in adrenalin, and then packed in the tympanum and mastoid cavity, and left there three minutes will blanch the parts thoroughly. Carefully examine with a probe the foramina ovale and rotundum, also the promontory. The external semicircular canal, just opposite the aditus, is a common seat of a fistulous opening.

Symptoms which are useful in labyrinthine diagnosis are nystagmus, vertigo and disturbances in equilibrium.