

97. Three parts are to be distinguished in the labyrinth, namely, the *vestibule*, which is the part at the entrance of the cavity; the *semicircular canals*, (*d*,) which occupy its upper part, in the form of three arched tubes; and the *cochlea*, which is a narrow canal placed beneath, at the lower part of the vestibule, having exactly the form of a snail-shell, (*e*.) The entire labyrinth is filled with a watery fluid, in which membranous sacs or pouches float. Within these sacs, the auditory nerve (*f*) terminates. These pouches, therefore, are the actual seat of hearing, and the most essential parts of the ear. The auditory nerve is admitted to them by a long passage, the *internal auditory canal*.

98. By this mechanism, the vibrations of the air are first collected by the external ear, whence they are conveyed along the auditory passage, at the bottom of which is the tympanum. The tympanum, by its delicate elasticity, augments the vibrations, and transmits them to the internal ear, partly by means of the little bones in the chamber, which are disposed in such a manner that the stapes exactly fits the oval aperture, (*foramen ovale*;) and partly by means of the air which strikes the membrane covering the round aperture, (*g*,) and produces vibrations there, corresponding to those of the tympanum. After all these modifications, the sonorous vibrations at last arrive at the labyrinth and the auditory nerve, which transmits the impression to the brain.

99. But the mechanism of hearing is not so complicated in all classes of animals, and is found to be more and more simplified as we descend the series. In birds, the middle and interior ears are constructed on the same plans as in the mammals; but the outer ear no longer exists, and the auditory passage, opening on a level with the surface of the head behind the eyes, is merely surrounded by a circle of peculiarly formed feathers. The bones of the middle ear are also less numerous, there being generally but one.