vestibule and semi-circular canals, the displacements of the fluids lead to restoration of the body balance. The fluids absorb mechanical shock hence protect the delicate sensory structures.

THE HEARING PROCESS

The cochlea is the structure responsible for hearing. It is a spirally shaped tube consisting of a system of canals, membranes and sensory cells. The canals are filled with endolymph and perilymph. The coiling of the cochlea offers a large surface area for attachment of the sensory cells responsible for hearing.

First, the pinna concentrates sound waves into auditory meatus. The sound waves strike the eardrum and cause it to vibrate. The vibrations are transmitted to the ear ossicles in the middle ear. From the eardrum the vibrations are picked by the first ear ossicle, the malleus, which transmits to the incus up to the stapes. The stapes passes the vibrations to the oval window from where the vibrations are transmitted to the perilymph of the cochlea.

The three ear ossicles are specially arranged to amplify the vibrations as they transmit them to the oval window. In the cochlea the vibrations stimulate the sensory hairs to generate nerve impulses which are transmitted to the brain via the external auditory nerve for interpretation. The intensity of stimulus transmitted to the brain enables the brain to interpret the impulses as sound of specific pitch and loudness.

Vibrations in the fluid of the inner ear are dissipated back into the middle ear through the round window. The ear discriminates between frequencies in that certain frequencies stimulate only specific small parts of the cochlea. The direction of sound is detected accurately as a result of both ears functioning together. When sound waves come from the front, both ears pick the waves at the same time. The intensity of the impulses by the auditory nerve will be of equal strength. The time lapse of impulses to the brain allows for the determination of direction and distance from the source of the sound.