



Science and the Creator

“He That planted the ear . . .”

David Burges

OF ALL THE senses of the human body, none is more important or remarkable than our hearing. The ear, which is the organ of both hearing and balance, has an intricacy and perfection of design which has caused it to be described as “a miracle of natural engineering”,¹ and which surely affirms the hand of the Great Creator.

Like the other sense organs, it works so automatically, without requiring any conscious direction from ourselves, that it is only when something begins to go wrong, or function less perfectly, that we really appreciate its marvels. It can apparently distinguish a third of a million different tones. When working perfectly, it can register a crash of thunder or the rustle of leaves, the roar of a crowd or the sigh of a loved one. Yet the entire delicate mechanism of the inner ear would fit inside a pea!

Structure of the ear²

The ear comprises three main sections (see [Fig. 1](#)). The **outer ear**, or pinna, comprising folds of cartilage and skin, leads into the ear canal, 2.5 centimetres long. It is the receiver that collects sounds and transmits them to the middle ear via the eardrum. Sound waves of different frequencies cause the eardrum to vibrate at different speeds. To protect the outer ear, the skin of the ear canal has tiny hairs and glands which produce wax to trap dust and small foreign bodies.

The **middle ear** is a small cavity between the eardrum and the inner ear containing a chain of three tiny, linked, movable bones, the ossicles, which have names describing their shapes: the hammer, the anvil and the stirrup. The base of the stirrup fills the oval window which leads to the inner ear. The ossicles are vibrated by the drum and transmit the sound energy from the outside air (a thin medium) to the fluid in the inner ear (a thick medium). Although the mid-

dle ear is cut off from the outside by the eardrum, it is not airtight; in order to equalise the pressure on both sides of the drum it is provided with a ventilation passage, the Eustachian tube, which runs into the back of the nose and opens when we yawn or swallow.

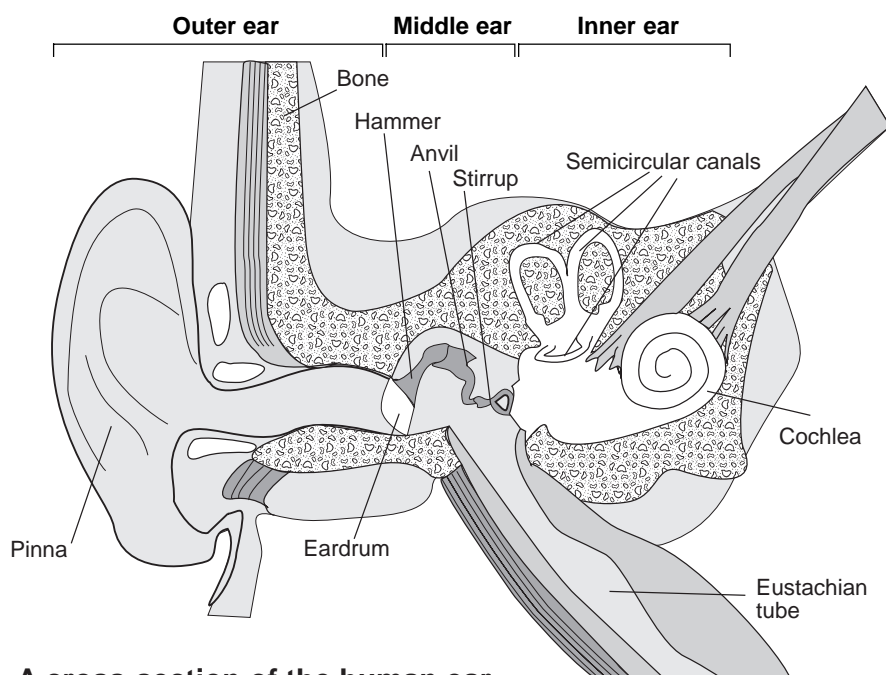
The **inner ear** is an extremely intricate set of structures deep in the bones of the skull. The front part, known as the cochlea, coiled like a small shell within the temporal bone, contains large numbers of microscopic hairs which vibrate within the cochlear fluid and stimulate nerve cells according to the frequency of the sound vibrations. Sensory impulses from these cells are sent via the auditory nerve to the brain. It is significant that the most sophisticated modern electronic hearing aids are unable to completely reproduce the performance of the ear itself, in terms of dynamic range, range of pitch, ability to distinguish sounds by type and direction, and so on. This fact alone points to the perfection of design inherent in the ear.

Deeper within the inner ear lie the three semi-circular canals, set at right angles to each other, which are concerned with balance. Again the canals contain hairs bathed in fluid, some of which are sensitive to gravity and acceleration, others to the position and movements of the head. These stimulate nerve cells which transmit information on movement and posture to the cerebellum in the brain.

The hearing ear

As amazing as the complexity of the ear's structure is, it forms only part of the story of hearing.

1. In an information leaflet by the Siemens Group advertising hearing-aid services, kindly supplied by a reader.
2. British Medical Association *Family Health Encyclopedia*, p. 383.



A cross-section of the human ear

For it is in the brain that the interpretation of the vast range of sounds that we hear takes place.³ From the cochlea, the vibrations collected by the nerve fibres pass along the auditory nerve to structures known as the medulla and the thalamus, at the base of the brain, and from there to a special area of the cortex known as the superior temporal gyrus, involved in the perception and interpretation of sound.

In ways that are still unknown, we are then able to distinguish and interpret the myriad sounds which surround us every day, including recognizing the voices of hundreds of people, as well as many types of music and musical instruments. Thus the complex structure of the ear and its connections in the brain function as an integrated system to provide hearing and balance.

Scripture is emphatic that this intricate design is the handiwork of God: "The hearing ear, and the seeing eye, the LORD hath made even both of them" (Prov. 20:12). What is most remarkable is the number of essential elements in the 'chain' of structures described above that converts sound vibrations coming from outside our heads into meaningful sounds. If any one of these structures were not present or perfectly formed, then partial or complete deafness or loss of balance would result. This in turn implies that evolution of the complete system by small chance steps, resulting from random mutations, is completely

impossible.⁴ Only a system designed as a complete whole could perform the function of hearing, which is so important for our natural lives.

The ability of the Lord Jesus Christ in his healing miracles instantly to give hearing to the deaf (for example, Mark 7:32-37) is testimony to the Creator's power exercised by His Son. And the words of the prophets give assurance that the same power will be freely exercised in the Kingdom age, for, "Then the eyes of the blind shall be opened, and the ears of the deaf shall be unstopped" (Isa. 35:5). Furthermore, hearing is used in God's Word as a powerful metaphor for men's response to the Word of God and the preaching of the gospel. The Lord Jesus had sadly to acknowledge that the ears of the nation of Israel were closed to his message; but to those who did respond he was able to say: "blessed are your eyes, for they see: and your ears, for they hear" (Mt. 13:16). The ear is just one more of the many marvels of the human frame⁵ that testify to the wisdom and power of God the Creator, "He that planted the ear" (Ps. 94:9).

3. *Ibid.*, p. 512.

4. See John Collyer, *Creation, Evolution and Science*, The Testimony, 1993, p. 59.

5. Of course, animals also have remarkable auditory systems, all carefully tuned to suit their environments and modes of life.