

SCIENTIFIC.

ON THE ORGANS OF HEARING.

WE all know what is meant by the term "hearing;" and we know that as sight is the property of the eye, so is hearing that of the ear; if asked what we hear, we say in answer, sounds; and, in the ordinary way of talking, we answer correctly enough. But the truth is, we do not hear sounds: sound is the sensation produced on certain nerves of the internal labyrinth of the ear, by the simple vibrations of the atmospheric fluid, the air. But how do we know this, it may be asked in return? By various experiments: for example:—if a bell be struck by a hammer, or its clapper, in the air, we are instantly aware of the circumstance by the tone or sound produced, or, in other words, by the vibratory action of the air upon the nerves of hearing; but, on the contrary, let the bell be struck, in a given space deprived of air, as, for example, in the exhausted receiver of an air-pump, and no sound follows the blow; and why? there is no air to receive or transmit vibrations from the metal; the hammer strikes and all is silent. The ear then is strictly an organ, constituted for feeling and appreciating the vibrations or motion among the ultimate particles of the atmospheric fluid, and this we call hearing. The loss of this sense, like that of sight, is produced by various causes, which derange mechanism, or paralyze the nerves of this delicate instrument.

Though the structure of this instrument is perfectly understood, as far as regards its various parts, still it is difficult, or perhaps impossible, to assign to each part its peculiar function; in short, we do not know why such and such parts should be constructed as they are; but even our very ignorance in this case leads to the conviction of de-

sign and wisdom extending beyond the sphere of our comprehension.

The ear may be said to consist of two portions, an external and an internal.

The external ear, or conch, varies in shape and in power of mobility, in most of the mammalia. In man, its figure is familiar; its motion in him is at most but very limited; not so in the deer, the hare, the horse, the elephant, and other animals to whom the sense of hearing is given as a warning faculty against the approach of enemies. The use of this part seems to be that of collecting and concentrating the vibrating currents of air, proceeding from certain points: hence the horse turns his ear to the side from which the noise proceeds, and so do the deer and the hare. Many animals have a very diminished conch, some none at all. In birds, the aperture is large, and protected by feathers. Fishes have no external conch, nor orifice.

The internal parts of the ear are the most important, as constituting, in truth, the essential organ; they consist, in quadrupeds, of cavities hollowed out in the substance of the hardest bone of the skeleton (the petrous portion of the temporal bone), containing a fluid (termed the water of Cotunnus), through which the minute filaments of the auditory nerve are dispersed. The auditory nerve is a branch of the seventh pair, which takes its rise from the inferior surface, or base of the fourth ventricle of the brain; it penetrates into these cavities, collectively termed the labyrinth, by traversing an innumerable multitude of perforations or foramina, which serve as channels to the minute filaments, into which it divides. This auditory branch, when ramifying through the labyrinth, becomes there soft and pulpy, instead of being in the form of a firm cord, as the other portions, of this and most other