

AIR A CONDUCTOR OF SOUND.

There is yet another adaptation of the atmosphere to the wants of man that deserves notice. Air is a conductor of sound. The sense of hearing is not so excursive as that of sight, but it is highly important to animals as affording a lively gratification, a means of detecting approaching danger, and a capability of communicating thought and feeling. It is by habit that we obtain the power of distinguishing places and things by sound, a capability that is acquired by animals as well as by men. This is no mean acquisition to beings who, by reason of their power of locomotion, have many more chances of destruction or injury than those which are almost or entirely fixed to the same spot. It is not a mere speculative opinion, but the result of constant observation, that the quickness of sensation, whether of hearing, seeing, or otherwise, is proportioned to the wants and enemies of the animal; but of all the senses, seeing and hearing are the most important for the independent preservation of life; and if that of sight be the most universal, that of hearing is best able to supply its place.

Three things are necessary for the production of the sensation of sound: a sounding body, an organ of hearing, and a medium by which the sound may be transmitted from one to the other. It is to the latter that our attention is particularly directed. Air is the ordinary, but not the only, conductor of sound. Hauksbee discovered that in a vacuum no sound could be produced; for having suspended a bell in the receiver of an airpump, he found that the sound became less and less intense as the air was rarefied, and was at last altogether inappreciable. But, on the other hand, when air is condensed into a receiver, the intensity of the sound is greater than in air having that density usual upon the surface of the earth, a circumstance well known to those who have descended in a diving-bell.

These facts will explain a phenomenon familiar to those who have visited mountainous regions. In consequence of the increasing rarefaction of the atmosphere, in proportion to the elevation above the surface, sound must necessarily, if the statements just made be true, become less intense in proportion to the elevation above the level of the ocean. Saussure relates that a pistol fired upon the summit of Mont