

like a common watch, but one of them performed a revolution every second, and might be made to touch the dial-plate at any time without stopping, and being supplied with a kind of dotting pen furnished with printer's ink, left an impression to be read off at leisure.

By these experiments it was discovered, that when air is dry, and at the freezing temperature, it will conduct sound at the rate of 1,090 feet in a second.

Other gases have the property of conducting sound, but they do so with different velocities, and, what is still more singular, the intensity also varies with the medium. In hydrogen gas the sound is scarcely louder than in a vacuum; in carbonic acid and oxygen it is louder than in air. When hydrogen is breathed, which it may be for a short time, though not without danger, the voice is enfeebled but shrill. When equal quantities of this gas and of common air are mixed together, the intensity of a sound is not greater than it would be in a receiver, the contained air having not more than half its common density. This circumstance arises from the great difference in the velocity of sound in the two gases. One propagates it more rapidly than the other, and as the particles of both are diffused throughout the whole space, they hinder and stifle the sound, in the same manner as aqueous vapour diffused through the atmosphere during a fog. But atmospheric air is itself a mixture of gases, yet the velocities with which sounds are conducted in them are so nearly alike that little or no obstruction is produced. This fact gives us a new and very interesting proof of the great adaptation of the atmospheric constitution to the wants of animated beings.

It must not be imagined, from the foregoing remarks, that an elastic fluidity is essentially necessary for the proper conduction of sound. Both liquids and solids possess this capability in a variable degree. It has been proved by many experiments, made in various manners, that sound is audibly conducted by water. Fishes certainly possess the sense of hearing, and divers have an accurate impression of sounds produced in water, although the sounds that are excited in the atmosphere are enfeebled by their passage into a new medium. From the experiments made by M. Colladon, on the velocity of sound in water, it appears to travel at the rate of 4,708 feet in a second. All elastic solid bodies also, such as