glass, steel, and the metallic alloys, are good conductors. It is, however, always necessary that the conducting body should be homogeneous, or the sound is interrupted; and the same result is obtained if the parts be imperfectly joined.

The manner in which sound is conducted from the sonorous body to the ear cannot be perfectly understood without reference to a mathematical reasoning, which would be obviously unfit for these pages. We may, however, convey some idea of the means by a brief verbal description. When a body is in the act of sounding, it is observed to be in a state of vibration. A string may be seen to vibrate from one side to the other, and the vibration of bodies, when not seen, may be frequently felt. These vibrations are communicated to the air, and by it conveyed to the ear. But every vibratory motion produced in the air is not the source of sound; it must be occasioned by an elastic substance. Newton was the first who investigated the process by which these vibrations are produced, that is to say, by an alternate condensation and rarefaction of the air in contact with the vibrating body. We may conceive the effect produced on the air as resembling that which is occasioned by throwing a pebble into still water.

Whenever a sound is conveyed to the ear, it is occasioned by a vibration produced in the atmosphere. But a sound may be either a noise, or a musical note, the latter being the result of a regularly and uniformly repeated succession of vibrations.

ECHOES.

There is one other subject of inquiry connected with the atmosphere as a conductor of sound that seems worthy of notice in this place; and that is, the circumstance under which echoes are produced. An echo is produced whenever sound meets with an obstacle of sufficient regularity to reflect it. The laws by which the reflection of sound is governed are the same as those that influence light under the same circumstances; if it be obstructed by a plane surface, the direction will be changed, but the paths will be parallel; if by a concave, it will converge; if by a convex, it will diverge. A wall, or the sides and ceiling of a room or public building, may occasion echoes; but as sound travels with a great velocity, and as it takes no perceptible time in moving