

is a member, emanating from, or influenced by, the orb of day, and flowing, as it were, from a centre to the very boundaries of its acknowledged attractive influence. But although this principle is so widely distributed, and exerts so important an influence upon living animals and vegetables, we can only form conjectures upon its nature, our observations and experiments being confined to its influence on bodies, and the laws by which it is governed under particular circumstances.

NATURE OF LIGHT.

Two theories have been proposed to explain the nature of light, and it may be necessary to mention them. One of these was advanced by Newton, who supposes light to be a material substance, emitted in extremely minute particles from all luminous bodies; these particles, impinging upon the retina of the eye, produce the sensation of light. This theory readily explains the greater number of luminous appearances, but there are some of which it does not offer a very ready explanation. For a long time it was universally adopted, and is still acknowledged by many philosophers, though it has been greatly superseded by the doctrine of undulations.

It has been long known that sound is occasioned by undulations excited in atmospheric air, or some other conducting medium, by a vibrating body; and, in consequence of this, probably, it was suggested by Des Cartes that light also might be produced by the undulations excited in an ether of extreme rarity filling all space. This hypothesis, however, is due to Aristotle, who supposed light to result from the motion of a pure, subtile, homogeneous medium, or ether, excited by the solar rays. But it owes its present form to the successful labours of Euler, Young, and Fresnel. According to this theory, the elastic medium pervades not only all space, but all substances, and is excited in the solar system by some undefined action of the sun. Professor Airy has supported the hypothesis with the most refined analysis; and if we did not know that many things pronounced mathematically certain have been found experimentally false, we could not withhold our belief in the doctrine; but it is always difficult to speculate upon the nature of occult agents, and it may be doubted whether the question proposed in Milton's beautiful apostrophe to light has been or ever will be answered:—