

We can hardly wonder at the ancients bending the knee to such a god as this, on which they were so dependent, even though ignorant of the greatness of that dependence.

Let us look now more closely into some of these phenomena that we have here enumerated.

The sun, we said, draws the earth toward it, and the earth draws the moon, and the moon the earth to such an extent that the water on account of its movable nature is attracted into an immense tidal wave. These bodies possess power, they overcome resistance, and are capable of doing work,—in other words, *they possess energy*. The moving wind does work, it overcomes the resistance of the sails, so we say the wind possesses energy. The coal that drives our engines does work, it also possesses energy. The rays of light are able to decompose the carbonic acid gas, cause the water to evaporate, expand the air and do work in various other ways, so that the rays of the sun also possess energy, and this energy is termed radiant energy. The clouds are capable of doing work, for when circumstances are favorable the cloud will fall in the form of rain and work will be done, so that the cloud also possesses energy. From these examples you will readily see what is meant by the scientific term energy—it is the power of doing work, of overcoming resistance in any and in every form.

We said that rain possesses energy, and that a cloud also possesses energy. They are quite different examples—the rain is in motion while the cloud in all probability is at rest, and is therefore not actually doing any visible work as is the rain, but they are both said to possess energy. Suppose there is a weight upon this table: I shove it off and it falls to the floor, and as it falls it is able to do work, and therefore possesses energy; but as it lay upon the table it possessed energy as well; action and reaction being always equal and opposite, it required the upward pressure of the table to keep it in its place, and when this upward pressure was removed it shewed its energy as it fell. This energy possessed by a body while in actual motion is called kinetic energy, while the energy due to a favorable