

gravitation has for a stone lying upon the surface of the earth. It requires energy to raise the stone from the surface of the earth to some fixed, elevated position. It requires energy, also, to overcome the attraction of cohesion by separating molecule from molecule; and it just as truly requires energy to overcome the attraction of chemical affinity and thereby rend atom from atom as they are related to each other in a molecule of any substance. If we apply heat to water, a portion of that heat is made sensible in the water by an increased action of its ultimate particles, the intensity of which may be measured by a thermometer, while another portion of the heat is expended in a rearrangement of the molecules when it passes into a state of vapor.

Another and a vastly greater amount of heat is again absorbed in the internal work of breaking up the water molecule and converting it into its constituent gases, oxygen and hydrogen. We now have Stored Energy (or energy of position) existing in these gases by the act of chemical separation, just as truly as we have Potential Energy stored in a weight that has been elevated from the surface of the earth, which we may call mechanical separation.

We have spoken of the analogy or likeness existing between the atoms of oxygen and