

produce all the varieties of constitution which characterize land and water, it will be necessary to understand the formation of the elementary bodies themselves, and the laws by which their combinations with each other are produced. In the vast laboratory of the earth, these principles have been at various times so submitted to each other, as to produce the compounds which are now found in large masses, constituting rocks, and in smaller portions as mineral specimens. But all these compounds have been formed in obedience to the same general laws as now influence the union of particles and masses, and it is upon our knowledge of these laws that we must depend, for an explanation of the many difficulties that are felt in accounting for the present state of mineral and other compounds.

COHESION.

It was long supposed that matter might be divided without end, and in one sense this is true; but there can be no doubt that it consists of ultimate particles or molecules which are incapable of division or change. A knowledge of this fact is not obtained by the actual observation of the particles themselves, but is deduced from the circumstances under which the elementary principles and their compounds unite together. It is not necessary that the idea of size should be connected with our conception of ultimate particles; but, from our knowledge of the great divisibility of matter, it is certain that they are inconceivably minute, and are far beyond the limits of our senses. Whether we examine mineral, vegetable, or animal substances, we may find evidence of this fact. Animalcules have been discovered, by the aid of strong magnifying-glasses, so minute, that a million of them would not have a magnitude so great as a grain of sand; and no discovery is more calculated to convince us of the great divisibility of matter; for those creatures possess all the organs and members calculated to assist them in locomotion and in the supply of their wants, which are as real as those of larger animals. But, although they are minute, that on which they subsist must be smaller, and it is possible that animated beings, lower in the scale of existence than themselves, may be their prey, as they are the prey of larger animals. In this way we may trace matter in forms of such minuteness as to elude conception as well as sight.