

and to have undergone no alteration in their nature and qualities; but to have been submitted at their creation to the self same laws that regulate their actual condition, and to have continued subject to these laws during every succeeding period of geological change. The same elements also which enter the composition of existing animals and plants, appear to have performed similar functions in the economy of many successive animal and vegetable creations.

In tracing the history of these natural phenomena we enter at once into the consideration of Geological Dynamics, including the nature and mode of operation of all kinds of physical agents, that have at any time, and in any manner, affected the surface and interior of the earth. In the foremost rank of these agents, we find Fire and Water,—those two universal and mighty antagonizing forces, which have most materially influenced the condition of the globe; and which man also has converted into the most efficient instruments of his power, and obedient auxiliaries of his mechanical and chemical and culinary operations.

The state of the ingredients of crystalline rocks has, in a great degree, been influenced by chemical and electro-magnetic forces; whilst that of stratified sedimentary deposits has resulted chiefly from the mechanical action of moving water, and has occasionally been modi-