

fissures, filling them up, and forming in the rocky crust those long narrow lines of foreign substances which we call *dikes*.

Finally, it would occasionally happen, that in place of molten matter, such as granite or metalliferous compounds, escaping through these fractures and fissures in the globe, actual rivers of boiling water, abundantly charged with various mineral salts (that is to say, with silicates, and with calcareous and magnesian compounds), would also escape, since the elements of water would be abundant in the incandescent mass. Added to these the chemical and mechanical action of the atmosphere, of rain, rivers, and the sea, have all a tendency to destroy the hardest rocks. The mineral salts and other foreign substances, entering into combination with those already present in the waters of the sea, and separating at a subsequent period from these waters, would be thrown down, and thus constitute extensive deposits—that is to say, *sedimentary formations*. These became, on consolidation, the *sedimentary rocks*.

The furrows, corrugations, and fractures in the terrestrial crust, which so changed the aspect of the surface, and for the time displaced the sea-basins, would be followed by periods of calm. During these periods, the débris, torn by the movement of the waters from certain points of the land, would be transported to other parts of the globe by the oceanic currents. These accumulated heterogeneous materials, when deposited at a later period, would ultimately constitute formations—that is, *transported or drifted rocks*.

We have ventured to explain some of the theories by which it is sought to explain the cosmography of the world. But our readers must understand that all such speculations are, of necessity, purely hypothetical.

In conformity with the preceding considerations we shall divide the mineral substances of which the earth is composed into three general groups, under the following heads:—

1. *Eruptive Rocks*.—Crystalline, like the second, but formed at all geological periods by the irruption or intrusion of the liquid matter occupying the interior of our globe through all the pre-existing rocks.

2. *Crystalline Rocks*.—That portion of the terrestrial crust which was primarily liquid, owing to the heat of the globe, but which solidified at the period of its first cooling down; forming the masses known as Fundamental Gneiss, and Laurentian, &c.

3. *Sedimentary Rocks*.—Consisting of various mineral substances deposited by the water of the sea, such as silica, the carbonates of lime and magnesia, &c.