

small size—forerunners of those monstrous Saurians which make their appearance in the Secondary epoch.

The vegetation of the Primary epoch is chiefly of inferior organisation. With a few plants of a higher order, that is to say, Dicotyledons, Calamites, Sigillarias, it was the Cryptogamia (also several species of Ferns, the Lepidodendra, Lycopodiaceæ, and the Equisetaceæ, and some doubtfully allied forms, termed Nöggerathia), then at their maximum of development, which formed the great mass of the vegetation.

Let us also consider, in this short analysis, that during the epoch under consideration, what we call *climate* may not have existed. The same animals and the same plants then lived in the polar regions as at the equator. Since we find, in the Primary formations of the icy regions of Spitzbergen and Melville Islands, nearly the same fossils which we meet with in these same rocks in the torrid zone, we must conclude that the temperature at this epoch was uniform all over the globe, and that the heat of the earth itself was sufficiently high to render inappreciable the calorific influence of the sun.

During this same period the progressive cooling of the earth occasioned frequent ruptures and dislocations of the ground ; the terrestrial crust, in opening, afforded a passage for the rocks called *igneous*, such as granite, afterwards to the porphyries and syenites, which poured slowly through these immense fissures, and formed mountains of granite and porphyry, or simple clefts, which subsequently became filled with oxides and metallic sulphides, forming what are now designated metallic veins. The great mountain-range of Ben Nevis offers a striking example of the first of these phenomena ; through the granite base a distinct natural section can be traced of porphyry ejected through the granite, and of syenite through the porphyry. These geological commotions (which occasioned, not over the whole extent of the earth, but only in certain places, great movements of the surface) would appear to have been more frequent at the close of the Primary epoch ; during the interval which forms the passage between the Primary and Secondary epochs ; that is to say, between the Permian and the Triassic periods. The phenomena of eruptions, and the character of the rocks called eruptive, are treated of in a former chapter.

The convulsions and disturbances by which the surface of the earth was agitated did not extend, let it be noted, over the whole of its circumference ; the effects were partial and local. It would, then, be wrong to affirm, as is asserted by many modern geologists, that the dislocations of the crust and the agitations of the surface of the globe