

the new territory, in the struggle for life, abundant opportunity of developing themselves peculiarly, and of forming new species. This formation of new species has evidently taken place pre-eminently during these intermediate periods, of which, unfortunately, no petrifications could be preserved, whereas, on the contrary, during the slow sinking of the ground there was more chance of numerous species dying out, and of a retrogression into fewer specific forms. The intermediate forms between the old and the newly-forming species must also have lived during the periods of elevation, and consequently could likewise leave no fossil remains.

In addition to the great and deplorable gaps in the palæontological records of creation—which are caused by the periods of elevation—there are, unfortunately, many other circumstances which immensely diminish their value. I must mention here especially the *metamorphic state of the most ancient formations*, of those strata which contain the remains of the most ancient flora and fauna, the original forms of all subsequent organisms, and which, therefore, would be of especial interest. It is just these rocks—and, indeed, the greater part of the primordial, or archilithic strata, almost the whole of the Laurentian, and a large part of the Cambrian systems—which no longer contain any recognizable remains, and for the simple reason that these strata have been subsequently changed or metamorphosed by the influence of the fiery fluid interior of the earth. These deepest neptunic strata of the crust have been completely changed from their original condition by the heat of the glowing nucleus of the earth, and have assumed a crystalline state. In this process, however, the form of