

materials of these mountains were accumulating, as beds of clay and gravel, in the sea bottom. These were buried under great depths of newer deposits, and were folded and crumpled by lateral pressure, baked and metamorphosed into their present crystalline condition.¹ Again heaved above the sea level, they were hewn by the action of the waves to some degree into their present forms, and constituted part of the nucleus of the American continent in the later Tertiary period, when they were probably higher than now. They were again, with all the surrounding land, depressed under the sea in the Pleistocene period, and in the Post-glacial or modern, slowly upheaved again to their present height. These last changes are those that concern their present flora, and their relations to it are well stated by Sir C. Lyell in the following passages from his interesting account of his ascent of Mount Washington in 1840.

“If we attempt to speculate on the manner in which the peculiar species of plants now established on the highest summits of the White Mountains were enabled to reach those isolated spots, while none of them are met with in the lower lands around, or for a great distance to the north, we shall find ourselves trying to solve a philosophical problem which requires the aid, not of botany alone, but of geology, or a knowledge of the geographical changes which immediately preceded the present state of the earth's surface. We have to explain how an Arctic flora, consisting of plants specifically identical with those which inhabit lands bordering the sea in the extreme north of America, Europe and Asia, could get to the top of Mount Washington. Now geology teaches us that the species living at present on the earth are older than many parts of our existing continents ; that is to say, they were created before a large portion of the existing mountains, valleys, plains, lakes,

¹ While the mass of the White Mountains is probably older than the Silurian, there are beds of mica schist which contain corals of the genus *Halysites*, and stems of large crinoids.