

dency to vary, and none to adapt themselves to new forms in the sunny plains below. This is especially noteworthy on Mount Washington and the neighbouring peaks, because the soil of these is the same with that of the valleys. Several of the plants peculiar to these hills, as the black crowberry (*Empetrum nigrum*), for instance, even when other conditions are favourable, shun rich calcareous soils, and affect those of granitic origin. In many cases the difference in soil is a sufficient reason for the non-occurrence of such plants, except on certain hills. At Murray Bay, and on the shores of Lake Superior, the plant above named occurs only on the Laurentian gneiss. In Nova Scotia, its relative, *Corema Conradi*, is confined to the granite barrens of the south coast. Many such plants skirt the whole Laurentian range from Labrador to Lake Superior, but refuse to extend themselves over the calcareous plains of Canada. But in the White Hills the soil of the river alluvium is the same micaceous sand that fills the crevices of the rocks in the mountains, and hence there is no obstruction, in so far as soil is concerned, to the diffusion of plants upward and downward in the hills. In like manner there is every possible condition as to moisture and dryness, sunshine and shade, in both localities. These circumstances are of all others the most favourable to such variation as these plants are capable of undergoing. The case is the same with that which Hugh Miller so strongly puts in relation to the species of algæ that occur at different distances below high water mark on the coast of Scotland, each species there attaining a certain limit, and then, instead of changing to suit the new conditions, giving place to another. So it is on Mount Washington; and this, whether we regard the lowland plants that climb to a certain height, and there stop, the plants that are common to the base and summit, or the plants that are confined to the latter.

I have already referred to the evident struggle of the spruces and firs, and the plants associated with them, to ascend the