

mountain, and the same remark applies to all the plants that one after another cease to appear at various heights from the lower valleys. One by one they become stunted and depauperated, and then cease, without any semblance of an attempt to vary into new and hardier forms. And this must have been proceeding, be it observed, from all those thousands of years that have elapsed since the elevation of the mountains out of the glacial seas. It is to be observed, also, that the new plants that occur in ascending, often belong to different genera and families from those left behind, not to closely allied species; and in the few cases in which this last kind of change occurs, there is no graduation into intermediate forms. For instance, *Solidago thyrsoidea* and *S. virga-aurea*<sup>1</sup> occur around the base of the mountain, and for some distance up its sides. At the height of four to five thousand feet the latter only remains, and this in a dwarfish condition. This corresponds to its distribution elsewhere, for, according to Richardson, it occurs in lat. 55° to 65° in Arctic America, and according to Hooker, it is found in the Rocky Mountains, while it also occurs in the hills of Scotland, and very abundantly in some parts of Norway. In the White Mountains *S. thyrsoidea* prevails toward the base, *S. virga-aurea* toward the summit; and at the top of Tuckerman's ravine I found the former of these golden rods in blossom, within a few hundred feet of the latter, each preserving its distinctive peculiarities. Much has lately been said of the appearance of specific diversity that results from the breaking up of the continuity of the geographical areas of plants by geological changes; but here we probably have the converse of this. The mountain species is no doubt a part of the older Arctic flora, the other perhaps belong to a more modern flora, and they have met on the sides of the White Hills.

<sup>1</sup> Macoun thinks that most of the specimens referred to this species belong to the allied form, *S. Mullinallata*, Ast, which is very extensively distributed on the mountains of British America and in the Arctic regions.