

## CHAPTER VIII.

### GENERAL LAWS OF ORIGIN AND MIGRATIONS OF PLANTS. —RELATIONS OF RECENT AND FOSSIL FLORAS.

THE origination of the successive floras which have occupied the northern hemisphere in geological time, not, as one might at first sight suppose, in the sunny climes of the south, but under the arctic skies, is a fact long known or suspected. It is proved by the occurrence of fossil plants in Greenland, in Spitzbergen, and in Grinnell Land, under circumstances which show that these were their primal homes. The fact bristles with physical difficulties, yet is fertile of the most interesting theoretical deductions, to reach which we may well be content to wade through some intricate questions. Though not at all a new fact, its full significance seems only recently to have dawned on the minds of geologists, and within the last few years it has produced a number of memoirs and addresses to learned societies, besides many less formal notices.\*

The earliest suggestion on the subject known to the writer is that of Prof. Asa Gray, in 1867, with reference to the probable northern source of the related floras of North America and eastern Asia. With the aid of the new facts disclosed by Heer and Lesquereux, Gray re-

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\* Saporta, "Ancienne Végétation Polaire"; Hooker, "Presidential Address to Royal Society," 1878; Thistleton Dyer, "Lecture on Plant Distribution"; Mr. Starkie Gardner, "Letters in 'Nature,'" 1878, &c. The basis of most of these brochures is to be found in Heer's "Flora Fossilis Arctica."