

characteristic plants, have been traced into the British territory north of the forty-ninth parallel, and it has been shown that their fossils are identical with those of the McKenzie River Valley, described by Heer as Miocene, and probably also with those of Alaska, referred to the same age.¹ Now this truly Eocene flora of the temperate and northern parts of America has so many species in common with that called Miocene in Greenland, that its identity can scarcely be doubted. These facts have led me to doubt the Miocene age of the upper plant-bearing beds of Greenland, and more recently Mr. J. Starkie Gardner has shown from comparison with the Eocene flora of England and other considerations, that they are really of that earlier date.²

In looking at these details, we might perhaps suppose that no conditions of climate could permit the vegetation of the neighbourhood of Disco in Greenland to be identical with that of Colorado and Missouri, at a time when little difference of level existed in the two regions. Either the southern flora migrated north in consequence of a greater amelioration of climate, or the northern flora moved southward as the climate became colder. The same argument, as Gardner has ably shown, applies to the similarity of the Tertiary plants of temperate Europe to those of Greenland. If Greenland required a temperature of about 50° , as Heer calculates, to maintain its "Miocene" flora, the temperature of England must have been at least 70° , and that of the south-western States still warmer. It is to be observed, however, that the geographical arrange-

¹ G. M. Dawson, Report on the Geology of the Forty-ninth Parallel, 1875, where full details on these points may be found.

² *Nature*, Dec. 12th, 1878; Publications Palæontographical Society; Reports to British Association. It seems certain that the so-called Miocene of Bovey Tracey in Devon, and of Mull in Scotland, is really Eocene. The Tertiary plant-bearing beds of Greenland are said by Nathorst to rest unconformably on the Cretaceous, and are characterized by *M'Clintockia* and other forms known in the Eocene of Great Britain and Ireland.