

McKenzie River valley, described by Heer as Miocene, and probably also with those of Alaska, referred to the same age.* 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 to scepticism as to the Miocene age of the upper plant-bearing beds of Greenland, and more especially Mr. J. Starkie Gardner has ably argued, from comparison with the Eocene flora of England and other considerations, that they are really of that earlier date.†

In looking at this question, we may fairly assume that no climate, however equable, could permit the vegetation of the neighbourhood of Disco in Greenland to be exactly 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 Eocene flora, the temperature of England and that of the Southwestern States must have been higher, though probably more equable, than at present.

We cannot certainly affirm anything respecting the migrations of these floras, but there are some probabilities which deserve attention. The ferns and cycads of the so-called Lower Cretaceous of Greenland are nothing but a continuation of the previous Jurassic flora. Now this was established at an equally early date in the Queen

* G. M. Dawson, "Report on the Geology of the Forty-ninth Parallel," where full details on these points may be found. "Transactions of the Royal Society of Canada," vol. iv.

† "Nature," December 12, 1878.