

vention of any other formation,* are beds rich in plants of much more modern appearance, and referred by Heer to the Miocene period, a reference, as we have seen, not warranted by comparison with the Tertiary plants of Europe or of America. Still farther north this so-called Miocene assemblage of plants appears in Spitzbergen and Grinnell Land; but there, owing to the predominance of trees allied to the spruces, it has a decidedly more boreal character than in Greenland, as might be anticipated from its nearer approach to the pole.†

If now we turn to the Cretaceous and Tertiary floras of western America, as described by Lesquereux, Newberry, and others, we find in the lowest Cretaceous rocks there known—those of the Dakota group—which may be in the lower part of the Middle Cretaceous, a series of plants‡ essentially similar to those of the so-called Upper Cretaceous of Greenland. They occur in beds indicating land and fresh-water conditions as prevalent at the time over great areas of the interior of America. But overlying this plant-bearing formation we have an oceanic limestone (the Niobrara), corresponding in many respects to the European chalk, and extending far north into the British territory,* indicating that the land of the Lower Cretaceous was replaced by a vast Mediterranean Sea, filled with warm water from the equatorial currents, and not invaded by cold waters from the north. This is succeeded by thick Upper Cretaceous deposits of clay and sandstone, with marine remains, though very sparsely

* Nordenskiöld, "Expedition to Greenland," "Geological Magazine," 1872.

† Yet even here the bald cypress (*Taxodium distichum*), or a tree nearly allied to it, is found, though this species is now limited to the Southern States. Fielden and De Rance, "Journal of the Geological Society," 1878.

‡ Lesquereux, "Report on Cretaceous Flora."

* G. M. Dawson, "Report on Forty-ninth Parallel."