

genous and endogenous trees akin to those of the Tertiary. On the west coast a considerable gap appears to exist between the middle and upper Cretaceous, and on the east side of the Rocky Mountains, where the Cretaceous reappears and occupies a great area, the middle part, the Niobrara group of the American geologists, is almost everywhere of a strictly marine character and destitute of fossil plants. The recent researches of Dr. Selwyn and Dr. G. M. Dawson have, however, shown that toward the north, in the vicinity of Peace River, in the sediment deposited along the shore of the old Niobrara Sea, there are beds rich in fossil plants belonging to a fauna older than that of Nanaimo and intermediate between it and that of the Dakota group further south, the fossil plants of which have been so well figured and described by Lesquereux.* In the Bow and Belly River region, beds of the Pierre group, or that next following the Niobrara in ascending order, have also yielded a few fossil plants.

In our Western Territories these undoubted Cretaceous beds are overlaid by a widely spread formation, holding lignite coal and fossil plants, which has been known in Canada as the Lignite Tertiary series, and in the United States as the Laramie and Fort Union groups. Its fossil plants, as they occur in the Mackenzie River district, have been described by Heer; as they occur at the Souris River, they have been described by the writer in the Reports of the Boundary Survey and the Geological Survey. The flora of these beds is undoubtedly distinct from that of the underlying Cretaceous and of later date; but the associated animal fossils have induced many geologists to include the Laramie in the upper part of the Cretaceous, while the fossil plants are of so modern aspect that they have been held to be Miocene.

The truth appears to be that they constitute a transition from the upper part of the Cretaceous to the Eocene, and that the analogies which have been sought to be established between them and European Miocene deposits are altogether fallacious, and based on the similarity of an American flora of early Eocene date with one found in Europe at a later period. This question and the bearing of it on the so-called Miocene of Greenland and other northern regions will be discussed in the sequel.

Lastly, on the mainland of British Columbia there are ancient lake basins of Tertiary and probably Miocene age, which contain a still later flora, associated with insect remains. These beds lie below extensive volcanic accumulations in many places, and are probably contemporaneous with the Truckee Miocene of King.

The whole of the specimens collected by the Geological Survey, and representing a series of consecutive floras extending from the Lower Cretaceous to the Miocene, have been placed in my hands by Dr. Selwyn, and I have been engaged for some time in a careful study of them, now nearly completed, and some portion of the results of which I propose to state in the present paper,—referring more particularly to the plants included under the following geographical heads:—

1.—*Cretaceous of the West Coast.*

In the Middle Cretaceous of the Queen Charlotte Islands, the most characteristic plant

* Cretaceous Flora; Hayden's Geological Survey of the Territories of the United States.

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