



II.—*On the Cretaceous and Tertiary Floras of British Columbia and the North-West Territory.* By J. W. DAWSON, C.M.G., LL.D., F.R.S.

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I.—GENERAL NOTES.

Collections of the Cretaceous fossil plants of Vancouver Island were made many years ago by Prof. Dana, when geologist to the United States Exploring Expedition under Commander Wilkes, and by Dr. John Evans, geologist of the Territory of Oregon. The collections of Prof. Dana were noticed by him in the report of the Expedition, and those by Dr. Evans were described by Mr. Lesquereux in the American Journal of Science for 1859. Prof. Heer, of Zurich, afterwards examined specimens from British Columbia, and in a letter to Lesquereux, and also in his memoir, entitled, "Flora of Vancouver," described and figured some of them. These botanists had in their hands, however, plants from two distinct horizons,—the Cretaceous coal measures of Vancouver Island, and Tertiary formations occurring at Bellingham Bay and elsewhere on the southern coast of the mainland of British Columbia; and as at that time such plants were not known to occur in the Cretaceous elsewhere, it was natural that they should refer the whole to the Tertiary.

In 1863 Dr. Newberry examined the collections of fossils made by the Boundary Commission in Vancouver Island, and ascertained the fact that the fossil flora of that island occurs in a formation characterized by marine Cretaceous animal remains and described the plants then in his hands as Cretaceous.

The labors of the Canadian Geological Survey since 1871 have enabled the ages of these beds and those of other parts of British Columbia to be more fully defined, and their distribution marked out. The details on these points are given in the reports of Dr. Selwyn, Mr. Richardson and Dr. G. M. Dawson for 1872 and following years. The animal fossils have also been reported on by the late Mr. Billings, and have been more fully described and figured by his successor, Mr. Whiteaves.

It is now certain that the beds containing the anthracite of the Queen Charlotte Islands with which fossil plants are associated (Series C of the general section),* are Middle Cretaceous, probably very near the horizon of the Gault, and equivalent to the upper portion of the Shasta group of the Californian geologists. The beds of the Nanaimo and Comox basins of Vancouver Island are Upper Cretaceous, and equivalent to the Chico and Tejon groups of California and to the Upper Senonian or Danien of the French. In the northern part of Vancouver Island beds of upper Neocomian age occur. These have not yet been found to hold fossil plants, but it is possible that the plant-bearing formation of Beaver Harbor is of this age.

The Queen Charlotte Island beds contain, so far as known, a strictly Mesozoic flora of Cycads and Conifers, while the Vancouver Island beds abound in leaves and wood of exo-

* See comparative Table, infra.

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