

masses a yard in diameter; to fine ash rocks, and appears at the junction to blend completely with the next overlying subdivision. These beds are generally felspathic, and often more or less distinctly porphyritic.

At the eastern margin of the formation the rocks lie at low angles, but become more disturbed as they approach the mountainous axis of the Islands, showing eventually in some cases overturned dips. It is in this disturbed region that the anthracite coal has been found, and from the condition of included woody fragments in the eastern portion of the area it is probable that any coal seams discovered there would be bituminous, like those of Vancouver Island.

Though it was originally supposed that the anthracite occurred in several beds, it has, I believe, now been shown* that this appearance is due to the folding of a single seam which immediately overlies the agglomerate beds of subdivision D. The coal is associated with carbonaceous shales holding a species of *Unio*, but is succeeded, in ascending order, by beds charged with marine fossils, and fresh-water conditions are not known to have recurred at other horizons. It was where opened nearly vertical, and after about 800 tons of anthracite had been obtained the mine was abandoned; the locality, however, still appears worthy of further and closer examination.†

In regard to the geological horizon of the different Cretaceous areas above described, the most complete information has been obtained for the Nanaimo and Comox basins. Large collections made by Mr. Richardson, in connection with the work of the Geological Survey, have been described by Mr. J. F. Whiteaves.‡

These fossils are all from the lower portion of the formation, which is conclusively shown to represent the Chico group of the Californian geologists, which, with the locally developed Martinez group, is considered to be equivalent to the Lower and Upper Chalk of Europe. The highest subdivision of the Californian Cretaceous, the Tejon group, is supposed to represent the Maestricht, and in the absence of fossils from the upper portion of the Vancouver Island formation, it is possible that it may be equally young. The flora of the Vancouver Cretaceous consists largely of modern angiospermous and gymnospermous genera, such as *Quercus*, *Platanus*, *Populus* and *Sequoia*: several of the genera and a few of the species being common to it and to the Dakota group of the Middle Cretaceous of the interior region of the continent.

* Report of Progress, Geological Survey of Canada, 1878-79, p. 72 B.

† For further information on the Cretaceous rocks of the coast, see Dr. Hector's report in Paliser's Exploration in North America, and Quart. Journ. Geol. Soc., vol. xvii., p. 428. Reports of Progress, Geological Survey of Canada, 1871-72, p. 75; 1872-73, p. 32; 1873-74, p. 94; 1874-75, p. 82; 1876-77, p. 160; the last reference being Mr. Richardson's complete report on the Nanaimo and Comox Basins,—also pp. 119 and 144, 1878-79, p. 63a, a detailed report on Queen Charlotte Islands by the writer.

‡ Mesozoic Fossils, vol. i., part ii.