

is correlated with the Upper Chalk or Lower Chalk and, it is thought, may prove to be the equivalent of both, is said to include all the known Cretaceous of Oregon and of the extreme northern part of California and the coal-bearing beds of Vancouver island; and the Shasta group, provisionally formed to include a series of beds of different ages below the Chico. According to Whitney "it contains fossils, seemingly representing ages from the Gault to the Necoman, inclusive. . . . Few or none of its fossils are known to extend upward into the Chico group."

Work of the Canadian Geological Survey.—In 1871 the geological survey of Canada began the work in British Columbia which has contributed greatly to our knowledge of the Mesozoic formations of the Pacific coast. It is beyond the scope of this paper to consider the detailed geologic description of the Cretaceous on Vancouver and Queen Charlotte islands and the mainland of British Columbia, as given by Mr James Richardson* and Dr George M. Dawson.†

These reports have shown that the Cretaceous attains thicknesses of over 5,000 feet on Vancouver island and of about 13,000 feet on Queen Charlotte islands. The invertebrate fossils from both these areas have been described and fully discussed by Mr J. F. Whiteaves.‡ The most recently published conclusions of this author are that the larger part (divisions C, D, and E) of the Queen Charlotte islands section is the equivalent of the Shasta formation, and that the same horizon is represented in the northern part of Vancouver island and at several localities on the mainland of British Columbia; that the beds of the Nanaimo and Comox coal fields on the eastern coast of Vancouver island are more recent and referable to the Chico formation, and that none of these beds are older than the Gault. Previously Mr Whiteaves had expressed the opinion that the Shasta formation and its equivalents in British Columbia should be separated into two formations, referring the older beds, which are especially characterized by an abundance of *Aucella*, to the Necoman and the upper portion to the Gault; but additional collections showed such a blending of the faunas that they could not be separated and this view was abandoned.

* Report on the coal fields of the east coast of Vancouver island: Geol. Surv. Canada, Rept. of Prog. 1871-72, pp. 73-100; Rept. on the coal fields of Vancouver and Queen Charlotte Islands: Ibid., 1872-73, pp. 32-65.

† For example—Report on the Queen Charlotte Islands: Ibid., 1878-79, pp. 1-101 B; On a Geological Examination of the northern Part of Vancouver Island: Ann. Rept. Geol. Survey Canada, 1886, pp. 1-107 B; On the earlier Cretaceous Rocks of the northwestern Portion of the Dominion of Canada: Ann. Jour. Sci., vol. xxxviii, 1889, pp. 120-127.

‡ Geol. Survey Can.: Mesozoic Fossils, vol. i, pt. 1, Invertebrates from Queen Charlotte Islands, 1876; pt. 2, Fossils of the Cretaceous Rocks of Vancouver, 1879; pt. 3, Fossils of the coal-bearing deposits of Queen Charlotte Islands, 1881. See also Trans. Roy. Soc. Canada, vol. i, 1882, sec. iv, pp. 81-86, and Cont. to Canadian Paleont., vol. i, pt. 2, 1889.