

The Lower Cretaceous of northern Mexico, in Chihuahua and Coahuila, was described by C. A. White in 1889, who speaks of the strata of bluish limestones as strongly upturned and flexed, and having a thickness in the Sierra San Carlos of 4000'. Felix and Lenk, in their memoir of 1890, 1891, separate from the Cretaceous of Texas a lower part, consisting of gray to black limestones having intercalated clays as the *Lower Cretaceous*, and refer the rest, which consists chiefly of whitish, somewhat cherty limestones, to the Upper. He reports the former as having nearly three fourths of its 46 species of described fossils identical with the Neocomian of Europe; and the latter as containing Radiolite-like forms, with species of *Caprina* and *Nerinea*.

The Kootanie beds of Montana, which in some places contain beds of coal 12' thick, were described by Newberry in 1887, and by H. Weed in 1872.

The Knoxville and Horsetown beds, *i.e.* the Shasta portion of the Shasta-Chico series, have a wide distribution along the Pacific coast, extending with interruptions from southern California probably to Alaska. Their greatest development, according to Diller, is upon the western border of the Sacramento valley of California, where they are composed chiefly of shales with only occasional sandstones above and many thin beds below. The beds are rarely calcareous, and where the successively newer overlapping series come in, lying unconformably on the pre-Cretaceous metamorphic rocks, local conglomerates are common. The greatest thickness of the Knoxville beds measured is nearly 20,000'. The absence of faults is not assured. The Horsetown beds have a thickness of over 6000', and overlap the Knoxville beds in all directions toward the Cretaceous shore. The conformability of the Knoxville and Horsetown beds and their detrital and faunal continuity in both California and Oregon indicate uninterrupted sedimentation; and the shoreward overlapping of the newer beds, with marked unconformity upon the pre-Cretaceous rocks, shows that upon the Pacific border the land was subsiding and the sea encroaching.

2. UPPER CRETACEOUS.

Atlantic Border.

On the Atlantic border the Upper Cretaceous formation outcrops from Martha's Vineyard, along the islands south of New England to New Jersey; thence it continues southward, in a narrow belt by the west side of the Tertiary to southern Virginia. It occurs in North and South Carolina only in small patches. Near Macon, Ga., a belt commences north of the Tertiary area, which widens westward, and, on approaching the Mississippi valley, spreads northward up its east side to the Ohio near Paducah; where it crosses the river and narrows out in an area of sandy clays and "micaceous sands" like those of the Kentucky Cretaceous beds. The rest of the Mississippi Bay of the Cretaceous Period became covered later by Tertiary beds and fluvial deposits.

The formation along the New Jersey coast includes at bottom a freshwater group, called the Raritan, and, above this, beds of greensand or marl interstratified with beds of common sand, clay, and occasionally of marine shells. Remains of Reptiles are sometimes found in the upper beds, and occasionally a complete skeleton.

The subdivisions as laid down by G. H. Cook are given in the following table; and the epochs to which they probably belong are also stated.