

erates formed out of various older stratified rocks, some identified as Carboniferous by their fossils. The occurrence of eruptive debris in the Laramie beds of other regions has been regarded as a probable sign of Denver age. The plants include species not found for the most part in the Lower Laramie. The Denver group has afforded Horned Dinosaurs (Ceratopsids) and other kinds, showing their Mesozoic relations. Ordinary Mammals are absent, and all other evidence of a Tertiary fauna.

To the Upper Laramie are referred, by Cross, — on the ground of the plants (studied by Knowlton) as well as the eruptive conglomerates and unconformity at base chiefly by erosion, — beds in the Middle Park, and at other localities, from Greeley, Col., to the Raton Mountains in New Mexico; and beds about Livingston, in Central Montana, called by W. H. Weed the Livingston beds (*U. S. G. S. Bulletin*, No. 105, 1893). The latter, as described, have a thickness of 7000 feet, and rest over 1000 feet of Laramie beds, but were deposited, like the Denver, after a time of extensive erosion, and therefore the conformability is not perfect. The group, however, according to Weed, has a brackish-water, oyster-bearing layer, which is well packed with oyster shells, Laramie-like, at a height of 200 feet above its base, that is, above the plane of extensive erosion.

In southern Wyoming, along Bitter Creek, in the vicinity of the Union Pacific Railway, near Hallville, Black Butte, Point of Rocks, Rock Spring, and elsewhere, the Laramie contains a number of coal-beds. South of Black Butte there are nine or more distinct coal-beds; and between two of them were obtained remains of a Horned Dinosaur (*Agathaumas* of Cope).

Beds in eastern Wyoming, called by Marsh the "Ceratops beds," are referred, with a query, by Cross to the Upper Laramie, because of the presence of *Ceratopsids* in both; but to the Lower, by Marsh. They rest on 400 feet of sandstone conformably, and the sandstone directly on Fox Hills beds, and contain no eruptive debris. Besides Horned Dinosaurs of several species, the beds have afforded remains of other Dinosaurs related to the *Iguanodon* and *Megalosaurs*, and of Marsupial and Oviparous Mammals. Above the stratum containing the fossils there is a bed of coal, the Shawnee coal-bed, 10 inches thick.

"Judith River" beds in northern Montana, first described by Hayden and Meek, afford Dinosaurs of the same genera, according to Marsh, as the Ceratops beds, besides many others, including *Plesiosaurids*; and also remains of Sharks, *Chimæroids*, *Ganoids*, and, as other evidence of brackish-water conditions, shells of *Ostrea*, *Anomia*, *Corbicula*, *Corbula*, and *Goniobasis*.

The Fort Union beds, near the border of North Dakota and Montana, have been referred to the Upper Laramie and also to the Tertiary. They are of doubtful relations.

The most eastern "Lignitic" beds referred to the Laramie are those of South Dakota, near Moreau River, west of the Missouri, in 101° W., where remains of two *Plesiosaurids* have been found, *Plesiosaurus occidentalis*, and