

Wahsatch region) overlain with yellow and gray massive sandstones, sometimes with clays and seams of coal or lignite (dicotyledonous leaves in great numbers, *Inoceramus*, *Cardium*, etc.). Thickness 400 feet and upward.<sup>183</sup>

The extraordinary palæontological richness of these western Cretaceous deposits has been already referred to. They contain the earliest dicotyledonous plants yet found on this continent, upward of 100 species having been named, of which one-half were allied to living American forms. Among them are species of oak, willow, poplar, beech, elm, dogwood, maple, hickory, fig, cinnamon, laurel, smilax, tulip-tree, sassafras, sequoia, American palm (*Sabal*), and cycads.<sup>184</sup> The more characteristic marine mollusca are species of *Terebratula*, *Ostrea*, *Gryphæ*, *Exogyra*, *Inoceramus*, *Hippurites*, *Radiolites*, *Ammonites*, *Scaphites*, *Hamites*, *Baculites*, *Belemnites*, *Ancylloceras*, and *Turrilites*. Of the fishes of the Cretaceous sea, many species are known, comprising large predaceous representatives of modern or osseous types like the salmon and saury, though cestracionts and ganoids still flourished. But the most remarkable feature in the organic contents of these beds is the extraordinary number and variety of the reptilian remains, to which reference has been already made (p. 1534). Some of the early types of toothed birds also have been obtained from the same important strata (p. 1538).

No question in American geology has given rise to more controversy than the place which should be assigned to the Laramie or Lignitic group, whether in the Cretaceous or Tertiary series.<sup>185</sup> The group consists mainly of lacustrine strata, with occasional brackish-water bands. Somewhere about 140 species of mollusks have been obtained from them which are terrestrial or fresh-water forms, with a few that may be brackish-water. They include numerous species of *Ostrea*, *Anomia*, *Unio*, *Corbicula*, *Corbula*, *Limnæa*, *Planorbis*, *Physa*, *Helix*, *Pupa*, *Goniobasis*, *Hydrobia*, and

---

<sup>183</sup> Hayden's Reports of Geographical and Geological Surveys of Western Territories; King's Geological Report of Exploration of 40th Parallel, vol. i.; G. H. Eldridge, Amer. Journ. Sci. xxxviii. 1889, p. 313. J. J. Stevenson, Amer. Geologist, 1889, p. 391.

<sup>184</sup> For an account of the Laramie Flora see L. F. Ward, 6th Ann. Rep. U. S. Geol. Surv. 1885, p. 405. Bull. U. S. Geol. Surv. No. 37, 1887.

<sup>185</sup> For a résumé of the progress of opinion on this subject see Ward, 6th Ann. Rep. U. S. Geol. Surv. 1885, p. 406.