

Isocardia Washita Marcou, *Inoceramus*, *Terebratula Choctawensis* Shum. (3) The *Fort Worth* or *Washita* limestone: with *Terebratula Wacoensis* R., *Cidaris Texana* R., *Leiocidaris hemigranosa* Shum., *Holctypus planatus* R., *Epiaster elegans* Shum., *Holaster simplex* Shum., *Ostrea carinata* Lam., *Ecogyra sinuata* Marcou, *Gryphæa Pitcheri* Morton, *Janira Wrightii* Shum., *Plicatula placunea* d'Orb., *Pleurotomaria Austinensis* Shum., *Lima Kimballi* Gabb, *Nautilus elegans* Shum., *Ammonites (Mortonicerus) Leonensis* Con., *Turrilites Brazoensis* R. (4) The *Denison Beds* of clays and limestone: having at base *Ecogyra arietina* R., *Ostrea quadruplicata* Shum., *Gryphæa Pitcheri* R. (not Morton, which is *G. mucronata* Gabb), the Ammonites *Buchiceras inæquiplicatum* Shum., *Hoplites Deshayesi* Leym., and many other species. *Turbinolia Texana* is abundant in the western exposures of the Denison beds, and the Rhizopod, *Nodosaria Texana* Con., occurs throughout them.

Hill concludes from the fossils that the Trinity group is closely related in age to the Wealden of Europe, and the Washita to the Lower Greensand or Gault.

The *Horsetown beds* of California have afforded many species, described chiefly by Gabb and Trask. Among them are: *Pecten operculiformis*, *Pleuromya lævigata*, *Nemodon Vancouverensis*, *Nerita deformis*, *Nerinea dispar*, *Neithea grandicostata*, *Lima Shastaensis*, and the Ammonites *Desmoceras Breweri*, *Lytoceras Batesii*, *Pachydiscus Whitneyi*, *Olcostephanus Traskii*, *Ancyloceras Remondi*, etc. The first three Ammonites occur in the Queen Charlotte group, according to Whiteaves.

The *Knoxville beds* are characterized, according to the latest researches of Hyatt, Stanton, and Diller, by its Aucella, Ammonites, and a few other fossils, which show close relations to the Horsetown beds and a wide divergence from the Mariposa beds.

The *Potomac beds* have afforded a few rare marine shells. Whitfield mentions *Astarte veta*, *Ambonicardia Cookii*, *Corbicula emacerata*, *C. annosa* (*Astarte annosa* Conrad), and *Gnathodon tenuides*, besides 6 species of *Unio* and *Anodonta*.

2. UPPER CRETACEOUS.

PLANTS. — In the Upper Cretaceous, leaves of Cycads are comparatively rare, while those of Angiosperms are of great variety; and to these are added the leaves or fronds of Palms.

Some of the prominent kinds in the new flora were species of *Sassafras*, *Laurus*, *Liriodendron* (Tulip Tree), *Magnolia*, *Aralia*, *Cinnamomum*, *Sequoia*, the Poplar, Willow, Maple, Birch, Chestnut, Alder, Beech, Elm, etc. A leaf of a Palm (*Sabal*) from Vancouver Island is described by Newberry as 8 to 10 feet in diameter. Dawson gives an interesting review of the *Sequoias* in his *Geological History of Plants* — a genus of many species then, but now of only 2, and these exclusively North American.

The leaves of Angiosperms, here figured, are all from the Dakota beds, or their probable equivalent, on the Atlantic border, the Raritan clays of New Jersey, Martha's Vineyard, and Long Island. Fig. 1369 represents a leaf of *Sassafras Cretaceum* Newb., of the Dakota group; 1370, the leaf of a Tulip Tree, *Liriodendron Meekii* Heer, from Greenland (Atané group) and the Dakota; 1371, *L. simplex* Newb., from the Amboy clays of New Jersey, Long Island, and Gay Head, Martha's Vineyard, — the figure from a leaf of the latter locality; 1372, an *Andromeda*, from Gay Head, a kind found also in Greenland and the Dakota group; 1373, a *Myrsine* of Gay Head, and likewise a Greenland species; 1374, a Willow, *Salix Meekii* Newb., of the Dakota;