Western Gulf border. — In Texas, and to the north and northeast in Indian Territory and Kansas, west and northwest in New Mexico, and west and southwest in Mexico, the Lower Cretaceous beds are mainly marine. They are the *Comanche series* of R. T. Hill. They have fresh-water beds at bottom, but consist above largely of thick limestones, which are partly chalk. They abound in fossils, and indicate, for the most part, the presence of pure subtropical oceanic waters. The thickness is 1000 to 2000 feet in central Texas, and 5000 feet on the Rio Grande.

The subdivisions adopted by Hill (on which the division of the Lower Cretaceous into epochs is based) are as follows: —

3. WASHITA EPOCH. — Washita group.
   4. *Shoal Creek limestone.*
   3. *Denison beds*, sands, clays, limestones; Exogyra arietina clays.
   2. *Fort Worth*, or *Washita*, limestone.
   1. *Preston beds*, Duck Creek chalk, Kiamitia clays.

2. FREDERICKSBURG EPOCH. — Fredericksburg group.
   3. *Caprina limestone*, Austin marble.
   2. *Comanche Peak chalk.*
   1. *Walnut clays*, with Exogyra Texana and Gryphæa Pitcheri of Rœmer (G. mucronata of Gabb).

1. TRINITY EPOCH. — Trinity group.
   3. *Paluxy sands.*
   2. *Glen Rose beds*, sandy below, calcareous above, containing marine fossils and some vegetable and Reptilian remains.
   1. *Trinity sands*, with fossil leaves and lignite.

As above indicated, the Cretaceous limestones of Texas are partly chalk, like the Cretaceous of southern England; and the chalk contains flint. Chalk, as already explained, is made from sea-bottom accumulations consisting largely of the minute shells of Rhizopods, corresponding to the Globigerina ooze of modern seas; and flint, from the siliceous spicules of sponges and siliceous shells of Diatoms or Radiolarians that may exist in the same calcareous deposits. Chalk is supposed to show therefore that the seas in which it was formed had a depth of at least some hundreds of feet. The various fossils in the beds are also evidence of deep water. The beds continue to be thick over the Indian Territory, but thin out in Kansas. The Ouachita Mountain range was emerged land, and the Cretaceous sea, as Hill observes, had a shore line at its base.

In Mexico, the Lower Cretaceous, on the map of Castillo (1891), extends nearly to the city of Mexico; and it is continued beyond to the southward and westward, in isolated patches. According to Hill (1893), all, except a small portion to the northeast, is a continuation of the Comanche group of Texas, but with less distinct subdivisions; and he concludes further that