pelagic life. (See further, page 143.) The stratified limestones and other rocks of North America have no true deep-water characteristics. Wyville Thomson gave this as his general conclusion for all continents.

3. Deposits made by Continental Species.

1. SILICEOUS DEPOSITS.

Conferva-like Algæ, having columnar, vase-shaped and furze-like forms, grow in the hot geyser waters of the Yellowstone Park, which secrete opal-silica freely throughout the plant, as first reported by W. H. Weed. They cause the deposition of the silica from the waters in a gelatinous form, making the geyserite basins and the wide-spread geyserite deposits. These siliceous plants are described as growing an inch upward in 10 weeks.

Diatoms make beds in shallow ponds over the continents, and thick deposits of them are common beneath the peat of ordinary marshes. Such ponds have only the gentlest of waves; but sufficient to break into pieces most of the infinitesimal shells.

Diatoms are especially abundant in the warm waters of the Yellowstone Park, where the beds made from them cover many square miles in the vicinity of active and extinct hot springs, and vary from three to six feet in depth. Near Monterey, Cal., there is a Diatom bed 50 feet thick. Others occur in Nevada, where, according to Ring, they alternate with beds of tufa; and some are 200 or 300 feet thick. The material of the beds looks like chalk, but it often becomes partially solidified to opal, of a brown, yellowish, or greenish color.

2. CALCAREOUS DEPOSITS.

1. The shells of terrestrial and freshwater Mollusks are mostly thin and fragile, especially the Gastropods, breaking easily under the gentlest wave action. Limestones with unbroken shells as fossils are of rare occurrence and small extent, forming only in bodies of water too shallow for wind-waves. The more common genera are *Sphærium*, *Limnæa*, *Physa*, *Planorbis*, *Paludina*, and *Pupa*. The deposits over the bottoms of small ponds are usually accumulations of pulverized shells, and have a chalky aspect. The earthy and clayey beds of river valleys ordinarily contain nothing of the shells of the valley except minute grains from their wear, or calcareous concretions made from the grains. The fine earthy lœss of large valleys is remarkable for the number of its freshwater shells (Gastropods), its strongly calcareous character, and its calcareous concretions, and bears evidence thus of the sublacustrine and shallow conditions attending its deposition.

2. Loosely textured calcareous rock, called tufa because of its appearance, is formed from the confervoid Algæ of the Yellowstone Park and other regions. It is an aggregation of the algoid growths, some of which resemble somewhat the concretionary forms represented in Fig. 137 on page 132.