When the river-water was low, only the most buoyant plant detritus could be floated across the bar; when the water level was high, sand and pebbles were also carried into the basin of deposit (*ante*, p. 220).

Lake-deposits of siliceous earth ("kieselguhr") were discovered by Ehrenberg in 1837 to be composed of the silicified valves or fragments of valves belonging to unicellular plants of microscopic size, the Diatomaceæ. These plants exist both in fresh and salt water, and their remains have gathered on the floor both of inland lakes and the ocean. Ehrenberg first demonstrated the presence of diatom remains in the ground of Berlin, in the peat-mosses of the Lüneburg heath, afterwards in samples of pelagic deposits, and in the "kieselguhr" and "tripoli powder" of Bilin in Bohemia, Richmond in Virginia, and other places. The explorations of the *Challenger* Expedition proved that extensive areas of the ocean-floor were covered by the skeletons and fragmentary *débris* of diatoms. In 1889, Weed found that the separation of silica from the hot springs and geysers of the Yellowstone Park was largely accomplished by diatoms.

More important is the assistance rendered by certain plants to the elaboration of limestone. It has long been known that the formation of calcareous tufa is promoted by the growth of moss, rushes, and certain algæ. On the other hand, it was discovered comparatively late in the history of research that marine limestones sometimes attaining great thicknesses owe their origin to algal organisms. Philippi was the first to recognise, in 1837, that the pelagic Nullipores previously regarded as polyps or Bryozoa belonged to the group of Calcareous Algæ. The name of Nullipores was changed to Lithothamnia and Melobesia, and Unger in 1858 demonstrated the important part such organisms had played in the construction of the Leitha limestone in the Vienna basin during the Miocene period. Two important works on the subject were contributed and laid before the Bavarian Academy of Sciences by Gümbel in 1871 and 1872. These works not only added to the microscopic knowledge of the skeletal structures of the Lithothamnian group, but also proved that other skeletal remains widely distributed in the Alpine limestones, and which had been referred by Schafhäutl to the Bryozoa under the name of Diplopores, agreed with the structure of the Dactylopores.