as impalpable and homogeneous in texture as the old limestones of our continents. There are also other regions where the corals in the rock retain the original position of growth. But the rock in general consists of the *débris* of the coral fields, consolidated by a calcareous cement ; and the great abundance of the finer variety of rock indicates that much of it has originated from coral sand or mud. Wherever broken, it usually presents the character here described, a texture indicating a detrital or conglomeritic origin. Such a reef-rock is formed in the midst of the waves ; and to this fact it owes many of its peculiarities. Reef-rocks made of corals in the position of growth are formed about the outer reefs wherever the corals grow undisturbed.

Besides corals, the shells of the seas contribute to it, and it sometimes contains them as fossils, along with bones of fishes, exuvia of crabs, spines and fragments of echini, orbitolites (disc-shaped foraminifers), and other remains of organic life inhabiting reef-grounds.

III. FORMATIONS IN THE SEA OUTSIDE OF THE BARRIER REEFS.

While barrier reefs are mostly made up of coarse coral material, owing to the rough action of the waves, the region immediately outside of the breakers, where of much width, is, to a depth of 100 feet, one of growing patches of coral and extended surfaces of coral sands.

Isolated islets of reef-rock are not however of common occurrence in the middle Pacific, though occurring in large groups like the Feejees. They are most likely to occur where there are great regions of shallow water extending outward from the barrier, and where the tides are not heavy or there is partial protection from them. In some seas, such isolated patches are shaped somewhat like a great mushroom—having a narrow trunk or column below, supporting a broad shelf of reef above. Mr. J. A. Whipple, in his Journal, referred to on page 99, figures and describes one of these "coral heads" standing in water fifty feet deep, near Turk's Island. Its trunk, which made up