

VI. BEACH SAND-ROCK.

Besides the ordinary coral rock, there are also beach formations made of coral sands, worn shells, &c., thrown up by the tides and waves. Their mode of formation is like that of any sea-beach. The material is mostly like common sand in fineness, but often much coarser. When the beach is fronted by a distant barrier to shield it from the force of the waves, the material is usually sand and small pebbles; but if the reef is narrow, so that the sea breaks over it with full force, it may consist even of cobble stones, as on any other shore, and include also huge masses of coral rock.

These deposits become cemented by being alternately moistened and dried, through the action of the recurring tides and the wash of the sea on the shores. The waters take up some carbonate of lime, and this is deposited and hardens among the particles on the evaporation of the moisture at the retreat of the tides. In some places the grains are loosely coherent, and seem to be united only by the few points in contact; and with a little care the calcareous coating which caused the union may be distinctly traced out. In other cases, the sand has been consolidated into a solid limestone rock, the interstices having been filled till a compact mass was formed. Generally even the most solid varieties show evidence of a sand origin, and in this they differ from the reef rock. The pebbly beds produce a pudding stone of coral.

In most localities the rock is an oolite or oolitic limestone. The grains become coated by the agglutinating carbonate of lime, and each enlarges thus into a minute sphere—a spherical concretion; and the aggregation of these concretions makes the oolite. The grains are usually much smaller than the roe of most fishes, a resemblance which is alluded to in the name, from the Greek *oos*, *egg*.

These beach deposits consist of regular layers, commonly from a few inches to a foot in thickness, and are generally consolidated up to a line a little above high-tide mark. In all