IX. FORMATION OF DOLOMITE, OR MAGNESIAN CARBONATE OF LIME.

Analyses of the coral limestone of the elevated coral island Matea, by Prof. B. Silliman, junr., have determined the singular fact that, although the corals themselves contain very little carbonate of magnesia, magnesia is largely present in some specimens of the rock. The rock is hard (H. = 4), and splintery in fracture, with a specific gravity 2·690. It affords on analysis, 38·07 per cent. carbonate of magnesia, and hence, only 61·93 of carbonate of lime.

Another specimen from the same island, having the specific gravity 2·646, afforded 5·29 per cent. of carbonate of magnesia.

The former was a compact homogeneous specimen, and the latter was partly fragmentary. Recent examinations of coral sand and coral mud from the islands give no different composition as regards the magnesia from that for corals, which, as the analyses on page 75 show, contain very little or no magnesia. The coral sand from the Straits of Balabac, afforded Prof. Silliman carbonate of lime 98·26, carbonate of magnesia 1·38, alumina 0·24, phosphoric acid and silica *a trace*.

This introduction of magnesia into the consolidating under-water coral sand or mud has apparently taken place (1) in sea-waters at the ordinary temperature; and (2) without the agency of any mineral waters except the ocean. But the sand or mud may have been that of a contracting and evaporating lagoon, in which the magnesian and other salts of the ocean were in a concentrated state. It has been already observed (p. 300), that this was probably the actual condition of the elevated portion of the island of Matea, everything about it looking as if it corresponded to the lagoon part of the old atoll; and also that the idea of the existence of mineral springs there has no support in known facts.