gypsum, and 5·597 sulphate of magnesia, = 100. This corresponds to about 16⅓ parts of sulphate of lime to 10,000 of water.

Fluorine has also been detected in sea-water; so that all the ingredients of coral are actually contained in the waters of the ocean.

It has been common to attribute the origin of the lime of corals to the existence of carbonic-acid springs in the vicinity of coral islands. But it is an objection to such a hypothesis, that, in the first place, the facts do not require it; and, in the second, there is no foundation for it. The islands have been supposed to rest on volcanic summits, thus making one hypothesis the basis of another. Carbonic-acid springs are by no means a universal attendant on volcanic action. The Pacific affords no one fact in support of such an opinion. There are none on Hawaii, where are the most active fires in Polynesia; and the many explorations of the Society and Navigator Islands have brought none to light. Some of the largest reefs of the Pacific, those of Australia and New Caledonia, occur where there is no evidence of former volcanic action.

The currents of the Pacific are constantly bringing new supplies of water over the growing coral beds, and the whole ocean is thus engaged in contributing to their nutriment. Fish, mollusks, and zoöphytes are thus provided with earthy ingredients for their calcareous secretions, if their food fails of giving the necessary amount; and, by means of the powers of animal life, bones, shells, and corals alike are formed.

The origin of the lime in solution throughout the ocean is an inquiry foreign to our present subject. It is sufficient here to show that this lime, whatever its source, is adequate to explain all the results under consideration.

II. HYDROIDS.

The annexed sketch represents a Hydra as it often occurs attached to the under surface of a floating leaf—that of a species of Lemna. The animal is seldom over half an inch