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*Remarks on CORAL ANIMALS in the Gulf of  
St. Lawrence, by Capt. BAYFIELD, R.N.*

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THE rapid growth of Corals in Tropical climates, is a fact which has attracted the attention of naturalists in all ages, but it was not until the end of the sixteenth or beginning of the seventeenth century that their true nature appears to have been suspected. From the time of Pliny, up to the period I have mentioned, they were considered to be marine plants. A French naturalist, I believe, first observed that the various ramifications of the coral were inhabited by numerous tribes of insects or minute animals. These animals were observed to have the power of protruding themselves from, and receding into small apertures. It has also been noticed, that when first taken out of the sea, the points which are protruded are soft, and that they are filled with a milky fluid; hence it has been inferred that nature has not been deficient in this any more than in every other case with which we are acquainted, in providing these animals both with the means of subsistence, and of forming their peculiar abode in the ocean.

It will be unnecessary for me to trespass on the time of the society, by entering into a description of the stupendous operation of the coral animals in seas between, or in the vicinity of the Tropics.—They are best described in the writings of Dr. Foster, and in the voyages of Flinders and

Kotzebue ; more recently still by the French naturalists, M.M. Guoi and Gaimard. These last writers have stated that the works of these animals do not commence at such amazing depths as has been supposed, but that they carry on their operations around and on the summit of submarine rocks, generally at a depth not exceeding twenty-five or thirty feet below the surface of the sea. This depth, I have little doubt is underrated, for I have seen coral in the West Indies at much greater depths, and the specimens which I now present, were obtained from the bottom between twenty and thirty fathoms below the surface.

The various kinds of coral are now stated by naturalists to be the work of various tribes of lithophytic animals, all more or less minute, of which the different species of madrepores are by far the most numerous.

The specimen No. 1, was obtained by accident, a fish-hook having fastened in one of its cavities, by which it was drawn up from the bottom ; the depth was between twenty and thirty fathoms, and we were then off the north coast of the island of Anticosti, and within the 50th degree of north latitude. I at first imagined that it was something new to find corals in a latitude so far north, but I have now my doubts of its being anything very uncommon, from finding that Cuvier makes the following observation respecting some of the genera of lithophytes, viz.—“ It occurs most frequently in tropical climates, and decreases in number and variety as we approach the poles.”

This specimen is composed of a mass of Anticosti limestone, around the sides and upper parts of which is a sort of cement, the produce and the abode of the animals which I have next to mention.

It will readily be perceived that there are a number of

points of a dull red colour protruding from the mass.— These, when first taken out of the water, were all living, moving with a rapid vibratory motion, as if distressed by the change from their own to another element. They were then soft, to a degree sufficient to admit of bending, and the points were of a much deeper red. When touched by the finger, they instantly withdrew themselves into their apertures, emitting at the same time, a milk-like fluid, with so much force as to indicate considerable muscular power; one of them was drawn out, and appeared to be attached to the bottom of its cavity by a fibrous root.

Subsequent examination has, however, made me doubt this last inference, and I am now of opinion, that what we took for a root was the torn fragments of the animal itself, as will appear probable from the following observations:—

A piece of the coral matter was placed in muriatic acid diluted with about twice its quantity of water. The acid took up the whole of the calcareous matter.—There remained floating in the solution a mass of animal matter, gelatinous in appearance, but nevertheless possessed of considerable tenacity.

It retained in some degree its former shape, and the points still remained attached and distinct, as in the coral state.

We could not distinguish the structure of the animal, which, perhaps, could only be perceived by means of a highly magnifying power, at a time when the animal is living or very recently dead.

That these animals contain a head, muscular system, and alimentary canal, appears nearly certain from the preceding observations. I am therefore of opinion, that each of the points which has been mentioned as having the

power of protruding and withdrawing itself, and also of secreting and ejecting a milk-like fluid, apparently for the purpose of forming its habitation, is a distinct, but not a separate animal.

It is known that some of the zoophyta multiply life by throwing out animated branches, or polypes, which possess the power of spontaneous motion, and of throwing out new shoots in their turn.

These shoots, or branches, thus possessing the powers of the original animal, may be said to be distinct although not separate.

It is from a consideration of the preceding observations respecting zoophytic animals, joined to what I have observed and related respecting the animals now under consideration, that I have formed the opinion above given, viz.—that the animated points are distinct, yet not separate animals. I think that they are shoots thrown out by the original animal.—At any rate three or four of them were found united to the general animal mass, after the carbonate of lime had been separated by the process before mentioned.

One hundred grains of the coral yielded eight of animal matter when perfectly dried. Small as this quantity appears, it occupies a very large comparative space when wet, and probably also in its living state.

I regret that our engrossing duties did not admit of our examining the animals before death. They died soon after being taken from the sea, and when next looked at, which was not until some time afterwards, were found to be consolidated into their present coral state.

Besides the animals which I have been speaking of, there was a species of marine polypi on the surface of the coral

mass which, at first, we mistook for sea-weed, and were only aware of our mistake when we observed them to shrink from the touch. These were perfectly flexible, like sea-weed, and appeared to have nothing to do with the formation of coral. They have become so brittle, that they could not easily be preserved, and only one or two remained on the specimen, but several others I have placed in the accompanying scallop shell. There are also several small shells agglutinated to the coral, and one or two minute and radiated crustaceous animals.

The specimen No. 2, is a small sprig or branch of perfect coral, also from the coast of Anticosti. It was brought up from a depth exceeding twenty fathoms, sticking to the tallow at the bottom of the sounding lead.

From its radiated structure, which may be discovered by inspecting it with a lens, it was in all probability the abode and the produce of a species of madrepora.

The specimen No. 3, was submitted to my inspection by our worthy President, the Chief Justice, it was also brought up from the bottom, adhering to a sounding lead, and with the exception of the polypi at its top, appears similar to No. 1; but as I did not see it living I cannot speak particularly respecting it.

The specimen No. 4, was hooked up from a depth of thirty fathoms, in the bay of Gaspé. There are traces of coral-like conerctions on it, but I give it principally on account of the crustaceous animals which were living in its cavities, and which still remain.

In presenting these specimens and accompanying remarks to the society, I have been actuated, less by a hope of communicating a new fact, than by a conviction of the utility of putting thus upon record, the existence of coral

animals in the sea around the island of Anticosti. The species are probably far from numerous, and their operations insignificant, when compared with the labours of similar though infinitely more numerous tribes in tropical seas. Yet every thing relating to a department of Natural History, as yet only imperfectly known, must be interesting, and I am not aware that any one has before noticed the existence of corals in the Gulf of St. Lawrence.

I cannot conclude these remarks without communicating to the society, those reflections which have been forced upon my mind by the consideration of the foregoing facts.—Geology teaches us that the numerous fossil corals and remains of testaceous animals found in the limestone strata must have lived and died in ancient seas. These once submarine strata have been laid bare either by the recession of the primeval ocean, or have been upheaved by a force from beneath, which has formed our present continents and islands at some extremely remote period, probably antecedent to the creation of man.

Turning from the consideration of the past, to that of the present, do we not perceive that numerous tribes of coral animals are still existing in our present ocean—that numerous tribes of testacea and crustacea still live and die in it; all of which contribute to create, or collect together an immense quantity of calcareous matter? The rivers, too, constantly carry down to the ocean great quantities of the various earths, which are for a time held in suspension, and finally deposited at the bottom of our seas. Similar causes are therefore still at work. New strata are imperceptibly forming, and it appears to be no extravagant supposition, that they may hereafter be destined for the support of vegetable or animal life, or even that the various