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Deep-sea dredgings in the region of the Gulf-stream

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fragment of the siliceous skeleton of a sponge, forming a regular network somewhat like that of *Euplectella* as figured by Bowerbank, but lacking the spines.

The soundings made during the cruise seem to indicate a kind of submarine terrace, on which the dredgings of the 24th and 29th were made. The cast of the 25th was probably made on the edge of it; and the dredge no doubt touched bottom only for a short time, after which the ship drifted off into water too deep for the line attached.—*Silliman's American Journal*, November 1868.

Deep-sea Dredgings in the region of the Gulf-Stream.

By L. F. DE POURTALES.

I sent you a few days ago a small pamphlet * containing some of the results of the deep-sea dredgings made by me in connexion with the exploration of the Gulf-stream by the Coast Survey. If you think it worthy of notice in the 'Journal of Science,' I have thought it would add to the interest to mention the much more complete results of this year's campaign, which were the subject of a brief communication I made to the late meeting of the National Academy at Northampton. As the specimens have not all been determined as yet, I can give here but a short outline.

The dredgings were made outside of the Florida reef, at the same time as the deep-sea soundings, in lines extending from the reef to a depth of about 400 to 500 fathoms, so as to develop the figure of the bottom, its formation and fauna. Six such lines were sounded out and dredged over, in the space comprised between Sand Key and Coffin's Patches. All of them agree nearly in the following particulars. From the reef to about the hundred-fathom line, four or five miles off, the bottom consists chiefly of broken shells, and very few corals, and is rather barren of life. A second region extends from the neighbourhood of the hundred-fathom line to about 300 fathoms; the slope is very gradual, particularly between 100 and 200 fathoms; the bottom is rocky and is inhabited by quite a rich fauna. The breadth of this band varies from ten to twenty miles. The third region begins between 250 and 350 fathoms, and is the great bed of Foraminifera so widely extended over the bottom of the ocean.

The second region is the most interesting, from the variety of animals inhabiting it. The bottom rock, of which many pieces were brought up, is a limestone, still in progress of formation from the débris of the shells, corals, &c. growing and dying on its surface. In this fauna the vertebrates are only represented by a very few small fishes, and those not deeper than 100 fathoms. But all the branches of invertebrates are represented; I will mention the most characteristic. Of the Mollusks, the most common is *Terebratulæ cubensis*, mihi, and a new species of *Waldheimia*, both of large size. Of the former, more than a thousand specimens, and several hundred of the latter, were collected. Gasteropods are rarer and mostly small, the largest being the *Voluta junonia*, which was

* The article above noticed.

obtained living several times, and dead frequently. Acephala are rather rare and small, but Bryozoa are abundant. Articulates (Crustacea and Annelids) are well represented. But the great richness of this region lies in the Radiata. Of Echinoderms, the most common is a *Cidaris* (nov. sp.), besides which there are several new species of Echinidæ and very interesting Asteridæ and Ophiuridæ. Holothuriæ are rather rare, except a new *Psolus*. Of corals, I have eighteen new species, belonging principally to the families of Turbinolidæ and Oculinidæ; the Eupsammidæ are also represented by two or three species, the Fungidæ (a true *Fungia*) and the Milleporidæ by one each. The Madreporidæ and Astræidæ are entirely absent. There are also two or three species of *Antipathes*, eight or nine of Gorgonidæ, several of Actinidæ (some of them very abundant), Hydroid polyps, sponges, and Foraminifera. As a general rule, everything is of small size. There are no seaweeds. Some animal remains are found whose presence is accidental, such as sharks' teeth, bills of Cephalopods, shells of Pteropods, &c., which have evidently come from near the surface, and also a considerable number of bones of the manatee, most frequently pieces of ribs; for the occurrence of the latter I am not able to account, as the manatee does not inhabit the open sea, and there are no currents to bring the floating carcasses from its usual haunts in the shallow bays.

From the third region the dredge brought up fewer though no less interesting specimens, the chief of which is a new Crinoid belonging to the genus *Bourgueticrinus* of D'Orbigny; it may even be the species named by him *B. Hotessieri*, which occurs fossil in a recent formation in Guadeloupe, but of which only small pieces of the stem are known. I obtained half a dozen specimens between 230 and 300 fathoms, unfortunately more or less injured by the dredge.

The deepest cast made was in 517 fathoms; it gave a very handsome *Mopsea*, a crab, an Ophiurian, and some annelids.

The difference of the deep-sea faunæ of the opposite coasts of Cuba and Florida is very marked, although the distance is so small; of all the corals, for instance, described by me from the coast of Cuba, only two or three, and those in fragments, were found off the Florida reef.

The descriptions of the new species, with plates, are in preparation, and will be published, by the kindness of Prof. Agassiz, in the next number of the illustrated Catalogue of the Museum of Comparative Zoology of Cambridge.

I am glad, also, to be able to say that Prof. Peirce, Superintendent of the Coast Survey, has directed me to continue these researches during the coming winter.—*Silliman's American Journal*, Nov. 1868.

Zoological Results of Dredgings in the Bay of Biscay.

By P. FISCHER.

The shore of south-western France inclines in a gentle slope towards the west, and forms a vast submarine terrace, bounded by deeps of more than 200 fathoms. The edge of this terrace, which is