Article IV.—NOTICE OF A NEW SPONGE FROM BERMUDA AND OF SOME OTHER FORMS FROM THE BAHAMAS.

By R. P. WHITFIELD.

WITH PLATES I–V.

Siphonochalina stolonifera *Whitf.*, sp. nov.

PLATES I, II, AND III.

Among a large number of sponges obtained from Bermuda, there is one of a very peculiar character related to the monactinal tube sponge, *Siphonochalina papyracea* Schum., as labeled by Prof. A. E. Verrill in the Museum collection, which is somewhat common in the Bermuda waters, but it presents an entirely different habit of growth from that and differs materially in structure, texture, and color from any of the many specimens of that species obtained or examined. That species is usually grayish or yellowish gray in color, or variously tinted with yellow or bluish white, while this, when living and obtained, was of a pale yellow-pink tint. It was very delicate and was growing pendent on the side of the submerged cliff among the sea-weeds and other forms of marine life, while *S. papyracea* is found almost exclusively on the bottom, or if it is on the top or sides of the reefs it is rigid and erect.

The specimen described consists of a number of tubes growing erect or laterally from an attachment on the rock. These throw out innumerable ramifications in the form of stolons, or root-like bifurcations, which divide and afterwards anchylose with the tubes or with each other, wherever they touch or come in contact while living. The tubes are smaller than those of *S. papyracea*, smooth exteriorly, of fine texture, and are coronated at the top by a circle of tooth-like projections in a single or double row. These projections are 5 or 6 mm. or more in length and number from fifteen to thirty or more on the largest tubes. The root-like ramifications, except the larger ones, are not tubular or are only partly so, but they have a dense or semisolid axis extending to

the extreme point. This axis and the axis of the tooth-like points forming the corona of the main tubes and the rib-like ridges which serve to strengthen and give rigidity to the tubes, and which are the axes of previous coronal teeth, are all composed of bundles of a denser part of the skeleton fibers of the sponge. These are filled with a greater number of spicules than are the fibers of the outer or more delicate portion of the skeleton and are readily seen through its substance as dark lines.

The general surface of the sponge skeleton is of very fine, rather smooth texture throughout, much more so than that of *S. papyracea*, and in color it is a very pale horn-color, fading to a very light gray.

The spicules are very slender, cylindrical, very slightly curved, and very sparingly distributed along the fibers throughout the outer portion of the skeleton. They become more densely arranged toward the axial portions of the root-like stolons and in the ribs and tooth-like projections of the tubes and of the coronas, as well as in the few spine-like processes on the main tubes, where such exist. In these parts the skeleton fibers are sometimes almost entirely filled with spicules to the number of six or eight and perhaps more, side by side along the axis. The spicules have a length of from four to seven and a half hundredths of a millimeter, the diameter being about .005 mm.

The spicules of *Siphonochalina papyracea* have the same general form and are of about the same size as those of this species, but are differently distributed, and in the axes of the spines they are not arranged in such numbers. The fibers of the skeleton, furthermore, are grouped in knots entirely different from those of the new species and the spicules become crowded only in the knots formed at the junction of several branching fibers of the skeleton.

Among the sponges obtained from the waters around Nassau there are several that cannot be placed under any of the species known, and a number of them probably deserve to be ranked as new species. There are two, however, that deserve particular notice and which might be placed as varieties under *Hircinia acuta* Hyatt, but I think that they fully deserve to rank as distinct species.

EXPLANATION OF PLATE I.

Siphonochalina stolonifera Whitf., page 47.

Lateral view of the sponge skeleton, one-third natural size.

NEW SPONGE.

THE HELIOTYPE PRINTING CO., BOSTON.

EXPLANATION OF PLATE II.

Siphonochalina stolonifera Whitf., page 47.

Front view of the sponge skeleton, one-third natural size.

NEW SPONGE.

THE HELIOTYPE PRINTING CO., BOSTON.

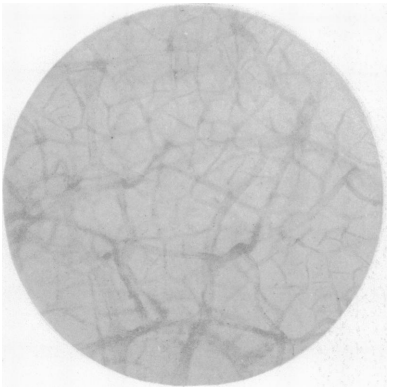
EXPLANATION OF PLATE III.

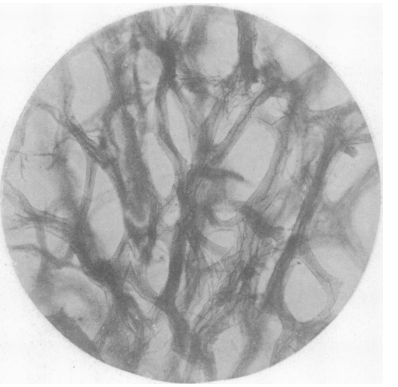
Siphonochalina stolonifera Whitf., page 47.

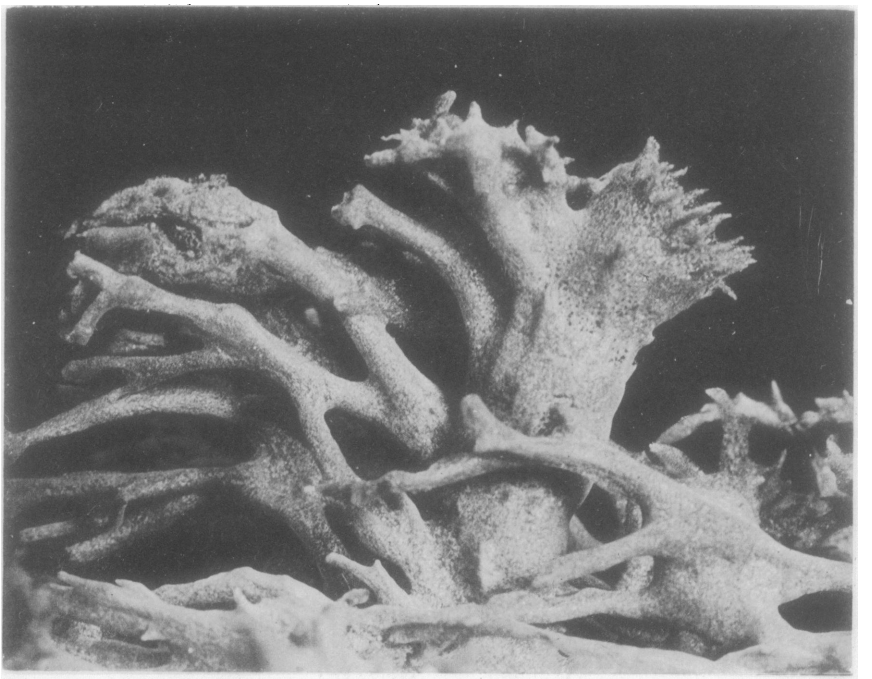
Fig. 1. View, natural size, of the largest coronated tube, showing the stolons, or root-like appendages, with their frequent ramifications and blendings, one with another.

Fig. 2. Enlargement to 52 diameters of a fragment of the skeleton from the surface of one of the root-like branches.

Fig. 3. Enlargement to 52 diameters of the skeleton axis of an appendage showing the arrangement of the spicules as they appear in all the axes and spines of the tubes and coronas.





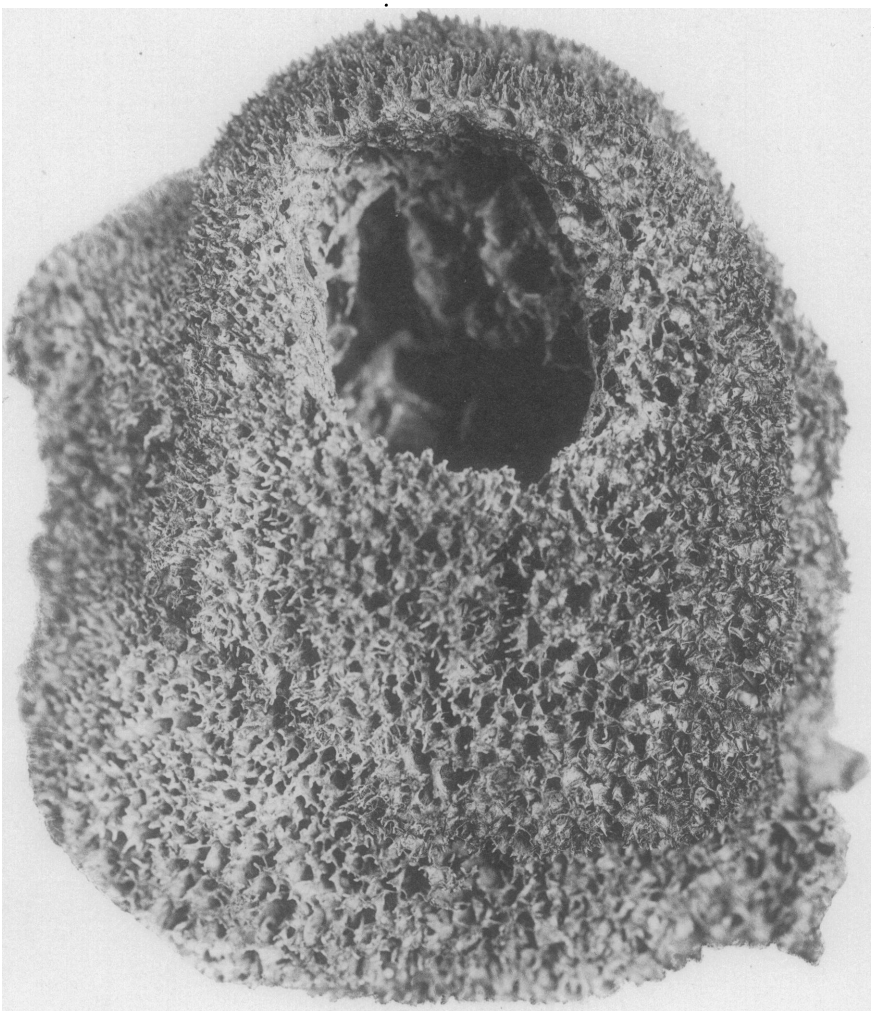


NEW SPONGE.

EXPLANATION OF PLATE IV.

Hircinia purpurea Whitf., page 49.

View of the upper front side of the type specimen reduced to four-fifths natural size.



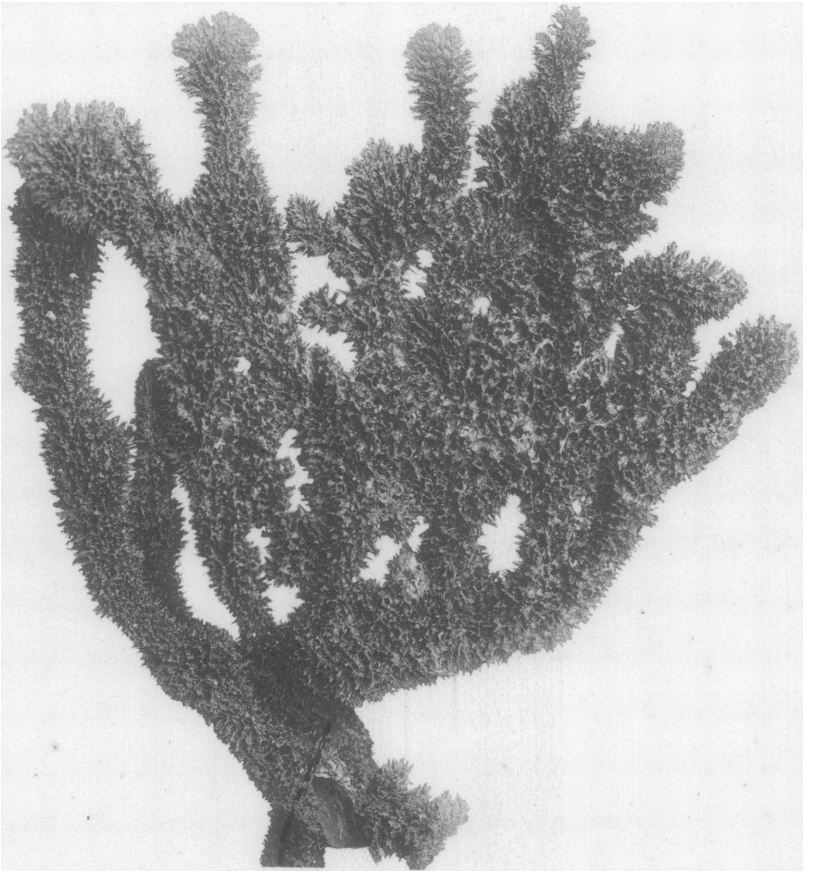
NEW SPONGE.

THE HELIOTYPE PRINTING CO., BOSTON.

EXPLANATION OF PLATE V.

Hircinia atra Whitf., page 49.

View of half of the type specimen reduced to one-half natural size.



NEW SPONGE.

THE HELIOTYPE PRINTING CO., BOSTON.

Hircinia purpurea *Whitf.*, sp. nov.

PLATE IV.

The type specimen of this form is globular, 16 centimeters (about six inches) in diameter, and nearly or quite as high. There is only one main orifice to the specimen. This is 5 by 6.5 centimeters in dimensions, is nearly in the center, and reaches far into the interior. Into it numerous spiracles of various smaller sizes open, giving the interior a very cavernous appearance. The exterior is of a close, Hircinian texture, hard and rigid in character, not soft and flexible even when living, like most other forms of the genus. The color of the living specimen was a medium dark purple. In drying this became a light purple and it remains so after more than two years' exposure to the light in the Museum cases. The specimen was obtained alive in Nassau Harbor, N. P., a few miles east of the city, beyond Quarantine Key, in March, 1898.

A dark purple form representing the common features of *H. acuta* was also obtained at Bird Key, east of Nassau, N. P., and a similar form, but soft and flexible, was collected in Harrington Sound, Bermuda, in March, 1895. The latter still retains its dark, purple-black color after three years' immersion in alcohol. This can hardly be considered as specifically identical with, or as being of the same variety as, the rigid form herein described.

Hircinia atra *Whitf.*, sp. nov.

PLATE V.

In color this form bears some resemblance to *Hircinia nigra* Hyatt, but it is profusely branched and grows to be 60 centimeters (two feet) or more in height. The branching stems are generally about two cm. in diameter, with many broader, subpalmate areas where new branches are given off. The whole forms a dendroid or bush-like mass. The general aspect is precisely that of *H. acuta*, except in the color and greater rigidity. Its color when living is a deep, shining black, which it retains in the dried state. When the sponge is fresh, however, the color is readily given off on being squeezed in water, or even on being handled, however gently.

This form is found very sparingly around Nassau, but in the harbor a little east of the lighthouse, or opposite the city, there was a small area, seventy-five or a hundred feet along the harbor near Hog island, where it was very abundant and owing to its deep black color was very conspicuous in more than twenty feet of water.

BRONZE FIGURINE FROM BRITISH COLUMBIA. (HEIGHT, 16 CM.)