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REPORTS ON THE COLLECTIONS OBTAINED BY THE FIRST
JOHNSON-SMITHSONIAN DEEP-SEA EXPEDITION
TO THE PUERTO RICAN DEEP

NEW SPECIES OF HYDROIDS FROM
THE PUERTO RICAN REGION

(WITH TWO PLATES)

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NEW SPECIES OF HYDROIDS FROM THE PUERTO RICAN REGION

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(WITH TWO PLATES)

Through the kindness of the United States National Museum, an opportunity has been afforded to examine the hydroid material collected by the First Johnson-Smithsonian Deep-Sea Expedition, in February and March 1933, at several dredging stations, all in the vicinity of Puerto Rico, in latitude $18^{\circ}11'55''$ to $19^{\circ}10'25''$ N., and longitude $64^{\circ}33'$ to $69^{\circ}20'45''$ W., in depths from 9 to 300 fathoms.

The collection is of considerable interest because, although there was noticeable activity in hydroid collecting in this general region in the latter portion of the last century, there has been little of it since. Many of the species obtained have not been reported for 40, 50, or 60 years, and, in some instances, the species now appear for the first time since they were originally described. So much is this the case that the best single reference paper is Allman's "Report on the Hydroida Collected During the Exploration of the Gulf Stream by L. F. Pourtales, Assistant United States Coast Survey", published in 1877 in the *Memoirs of the Museum of Comparative Zoology* at Harvard College, volume 5, no. 2.

My sincere thanks are due to the United States National Museum for the opportunity of examining this collection. For the drawings I am indebted to Miss Ursula Dale, an Honours student in zoology at the University of British Columbia.

In all, 42 species were obtained in the collection of which 9, here described, appear to be new.

The gonangium of *Halicornaria longicauda* Nutting also is here described for the first time.

CLYTIA LAXA, n. sp.

Plate 1, fig. 1

Trophosome.—Colony up to 5 cm in height, never entirely erect; main stem stout, fascicled, irregularly and loosely branched; branches

slender and lax, often again branched, giving a flaccid appearance to the whole colony. Hydrothecae irregularly arranged, with long, slender pedicels, somewhat geniculate at the origin, irregularly annulated; there are always annulations at the base of the hydrotheca; they may appear at any other place on the pedicel, but the pedicel is never annulated throughout; hydrothecae, 0.5 to 0.7 mm in length, regularly campanulate, with eight rather sharp, deeply cut teeth on the margin.

Gonosome.—Gonangia, 0.7 to 0.9 mm in length, extensively distributed, directly on the main fascicled stem, near the base of the main branches, or in the axils of the smaller branches or pedicels; sessile, or almost so, smooth, oblong or slightly obovate, sometimes narrowing slightly just below the rim.

Holotype.—U.S.N.M. no. 43285.

Distribution.—East coast of Haiti, lat. $19^{\circ}10'35''$ N., long. $69^{\circ}20'45''$ W.; 15 fathoms.

SYNTHECIUM GRACILE, n. sp.

Plate 1, fig. 2

Trophosome.—Colony unbranched, 10 mm high; internodes short, divided by slightly oblique nodes; one hydrotheca to each internode. Hydrothecae alternate, adherent for about one-third of the length, the basal portion gradually narrowing proximally; distal portion turning outward at an angle of $35-40^{\circ}$, tubular. Length of hydrotheca, 0.5 to 0.6 mm, greatest diameter 0.2 mm.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43286.

Distribution.—North of Puerto Rico, lat. $18^{\circ}30'30''$ N., long. $66^{\circ}23'5''$ W.; 40 fathoms.

SERTULARELLA ORNATA, n. sp.

Plate 1, fig. 3

Trophosome.—Stem simple, unbranched, 3 mm high or less, slightly geniculate, divided into regular internodes by rather faint, oblique nodes, each of which bears a hydrotheca; hydrothecae alternate, turned well outward, adnate for a very small portion at the base, cylindrical, or narrowing slightly toward the distal end, with characteristic, strongly crested, transverse rugosities, as many as seven of them; margin with four low but sharp teeth; operculum of four flaps.

Gonosome.—Gonangia borne singly, just below the base of one of the proximal hydrothecae, broadly oval, but somewhat distorted, with

rugosities of the same type as those on the hydrothecae, but more numerous, corresponding to the larger size of the gonangium. Margin with four teeth.

Holotype.—U.S.N.M. no. 43287.

Distribution.—West of Puerto Rico, lat. $18^{\circ}11'55''$ N., long. $67^{\circ}42'50''$ W.; 180 fathoms.

SERTULARIA SUBTILIS, n. sp.

Plate 1, fig. 4

Trophosome.—Colony consisting of a single, slender, erect, unbranched stem, 3 mm; the basal portion, nearly one-half, without hydrothecae, smooth, or with one or two annulations; the distal portion is divided into regular internodes, each of which bears a pair of opposite hydrothecae at its distal end (4 pairs of hydrothecae in specimen described); hydrothecae in the pair adnate at the base and then turning gradually outward, so that the distal portion is almost at right angles to the stem. The surface is provided with closely placed, crested annuli. Margin with two strong teeth; operculum of two flaps.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43288.

Distribution.—North of Puerto Rico, lat. $18^{\circ}23'35''$ N., long. $65^{\circ}37'10''$ W.; 10 fathoms.

AGLAOPHENIA CURVIDENS, n. sp.

Plate 1, fig. 5

Trophosome.—Colony reaching a height of 6 cm, sparingly branched; the principal portion of the main stem and of the branches, fascicled. The simple portion is divided into regular internodes, with a hydrocladium from each; the hydrocladia alternate from left to right. The hydrothecae are closely placed on the hydrocladium, adnate throughout, rather stout for their depth, with a definite intrathecal ridge about one fourth of the distance from base to margin, reaching entirely across the hydrotheca; margin with seven teeth that are strongly curved inward; the point of the tooth is acute but the tooth is curved in so much that, from the lateral view, it appears rounded or emarginate. The median nematophore is adherent at the base to such an extent that the free portion starts more than halfway up the face of the hydrotheca; it reaches nearly to the margin of the hydrotheca and has an opening at the base of the free portion as well as

one at the end. The supracalycine nematophores are large, reaching for nearly half their length above the margin of the hydrotheca. On the regular, cauline internodes, there are two large cup-shaped nematophores.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43289.

Distribution.—North of Puerto Rico, lat. $18^{\circ}27'35''$ N., long. $65^{\circ}33'35''$ W.; 26 fathoms.

AGLAOPHENIA MEGANEMA, n. sp.

Plate 1, fig. 6

Trophosome.—Colony rather minute, up to 15 mm, simple, unbranched. The basal portion of the stem is divided into irregular internodes by transverse nodes, but just below the first hydrocladium it seems to have a distinct torsion, with two oblique nodes appearing in the torsion. The hydrocladial portion of the stem is divided into regular internodes by transverse nodes, each bearing a hydrocladium from its face; the hydrocladia alternate to one side and the other, but the bases are not far from being in line; the hydrocladia are short, with as many as five hydrothecae, closely placed. The hydrotheca is approximately two-thirds as wide as it is deep, almost completely adherent, with seven rounded, nearly equal teeth on the margin, the median tooth being slightly retrorse and slenderer than the others; there is a definite intrathecal ridge. The median nematophore is long, sometimes overtopping the hydrotheca; the supracalycine nematophores are very pronounced, as they seem to pass right across the hydrocladium to curve upward, reaching higher than the margin of the hydrotheca. The cauline nematophores are of the regular, somewhat triangular type, one at the base of the hydrocladial process and one near the proximal end of the internode.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43290.

Distribution.—North of Puerto Rico, lat. $18^{\circ}24'30''$ N., long. $65^{\circ}38'30''$ W.; 9 fathoms.

ANTENNELLA CURVITHECA, n. sp.

Plate 2, fig. 7

Trophosome.—Colony small and slender, 2.5 mm high, representing a single hydrocladium with 5 or 6 hydrothecae. The basal portion has two or more transverse nodes with no nematophores on the inter-

nodes, or at most one on each. The remainder of the hydrocladium is divided into internodes by alternate transverse and oblique nodes, the internodes being alternately thecate and nonthecate; the thecate internode has an oblique node proximally and a transverse node distally, the nonthecate internode with a transverse node proximally and an oblique node distally. Hydrotheca nearly equal in depth and breadth; the abaxial border is regularly convex but the adaxial border has a distinct concavity. Margin entire. There is a median nematophore at the base of the hydrotheca, one near the distal end of the thecate internode and one on the nonthecate internode; there is a pair of supracalcine nematophores, the end of each fitting into the concavity of the superior border of the hydrotheca.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43291.

Distribution.—North of Puerto Rico, lat. $18^{\circ}24'30''$ N., long. $65^{\circ}38'30''$ W.; 9 fathoms.

HALICORNARIA LONGICAUDA Nutting

Plate 2, fig. 8

Halicornaria longicauda NUTTING, American hydroids, U. S. Nat. Mus. Special Bull. 4, pt. 1, p. 127, 1900.

Trophosome.—See Nutting's description.

Gonosome.—Gonangia arising from the face of the cauline internodes, just below the hydrocladial processes; sessile, truncated-oval, with a smooth surface. No special protective structures.

Distribution.—North of Puerto Rico, lat. $18^{\circ}24'30''$ N., long. $65^{\circ}38'30''$ W.; 9 fathoms. North of Culebra island, lat. $18^{\circ}19'10''$ N., long. $65^{\circ}19'40''$ W.; 10 fathoms.

HIPPURELLA ELEGANS, n. sp.

Plate 2, fig. 9

Trophosome.—Colony 35 cm high; stem fascicled throughout the greater portion of its length; 15 cm or more of the basal portion is without branches or hydrocladia; then long slender branches are given off, usually in nearly opposite pairs but sometimes singly, no two, or two pairs, in succession, being in the same plane; the whole distal portion, therefore, has a graceful, bushy appearance. There is no indication of nodes in the stem or in the proximal portion of the branches and but little in the distal portion. The hydrocladia are arranged regularly alternately on the branches, making an angle of

about 60° with the branch; they are all in the same plane. Each hydrocladium arises from a prominent process of the branch and this has a distinct prominence in its axil. In the proximal portion, the nodes are commonly very faint, but they are quite distinct in the distal portion; the internodes are long, each with one hydrotheca near its proximal end. The hydrothecae are long, about twice the width, tubular, or with the sides slightly curved. Margin entire. There are numerous nematophores on the stem and the fascicled portion of the branches; on the simple portion of the branches, there is one on the prominence on the hydrocladial process, another placed laterally and one on the branch where the process joins it; there are two nematophores between two successive hydrocladial processes, in line with these processes; on each internode of the hydrocladium, there is a median nematophore at the base of the hydrotheca, two supracalycine nematophores, projecting well outward, and one median, some distance above the margin of the hydrotheca.

Gonosome.—The distal portion of some of the branches become very much modified in connection with the development of the gonangia. In place of the regular hydrocladia, whorls of six, slender, tapering processes, without nodes, appear. These processes curve outward and upward, so that the distal portion is parallel to the branch; there are several nematophores, up to 8, on the adcauline side of each process. The gonangia, singly or in pairs, are placed in the axils of the whorls; they are regularly elliptical, 1.0 mm long and 0.3 mm in diameter, smooth, with little or no pedicel.

Holotype.—U.S.N.M. no. 43292.

Distribution.—North of Puerto Rico, lat. $18^\circ 33' 15''$ N., long. $65^\circ 56' 45''$ W.; 240 fathoms. Off west coast of Puerto Rico, lat. $18^\circ 24' 45''$ N., long. $67^\circ 14' 15''$ W.; 80-180 fathoms. North of Puerto Rico, lat. $18^\circ 31' 30''$ N., long. $66^\circ 18' 20''$ W.; depth not recorded.

STREPTOCAULUS GRACILIS, n. sp.

Plate 2, fig. 10

Trophosome.—Colony 8 cm in height; stem fascicled throughout much of its length, unbranched; the proximal half or more without hydrocladia; hydrocladia arranged to form a continuous spiral around the distal portion of the stem. The hydrocladia are divided into long, slender internodes, with the hydrothecae near the proximal end of the internodes; there is a double annulation at the node, which is somewhat oblique. The hydrotheca occupies about two-thirds of the length of the internode, the face of it with an urceolate curve; the

margin is curved like the margin of a pitcher, and there is a slightly curved, sharp, median tooth. There are six or seven septal ridges between the base of the hydrotheca and the base of the supracalcine nematophores; there are numerous nematophores arranged on the portion of the main stem that is free of hydrocladia, one in the axil of each hydrocladium and three others between this and the base of the next hydrocladium. On the hydrocladial internode, there is a median nematophore at the base of the hydrotheca, but free from it, two large supracalcine nematophores and one median near the distal end of the internode.

Gonosome.—Not observed.

Holotype.—U.S.N.M. no. 43293.

Distribution.—North of Puerto Rico, lat. $18^{\circ}33'15''$ N., long. $65^{\circ}56'45''$ W.; 240 fathoms.

EXPLANATION OF PLATES

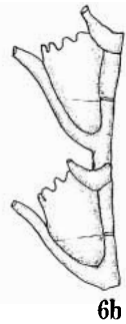
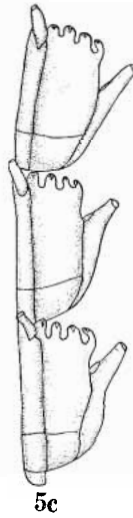
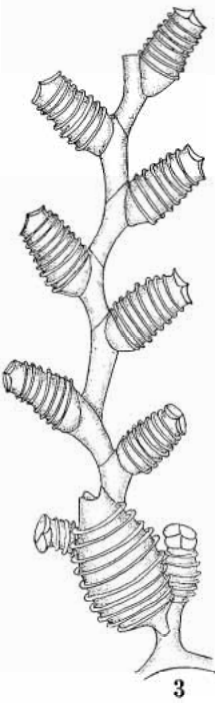
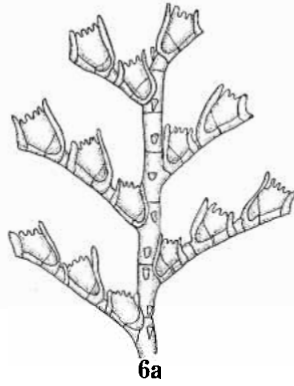
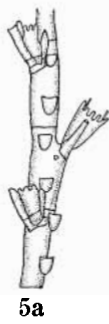
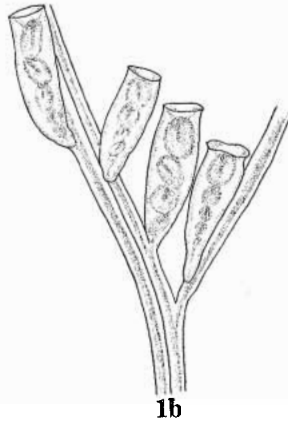
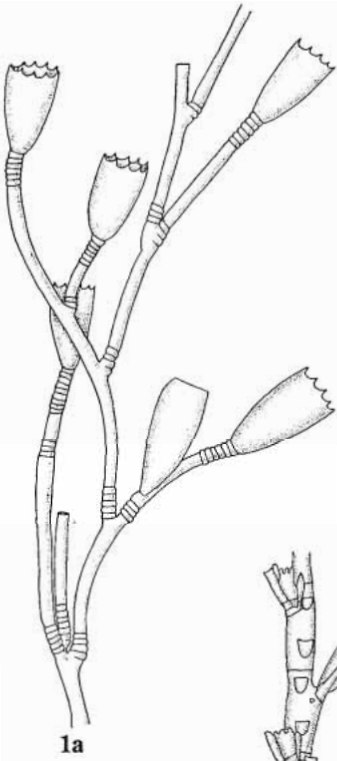
(All the figures, unless otherwise indicated, have a magnification of 20 diameters.)

PLATE I

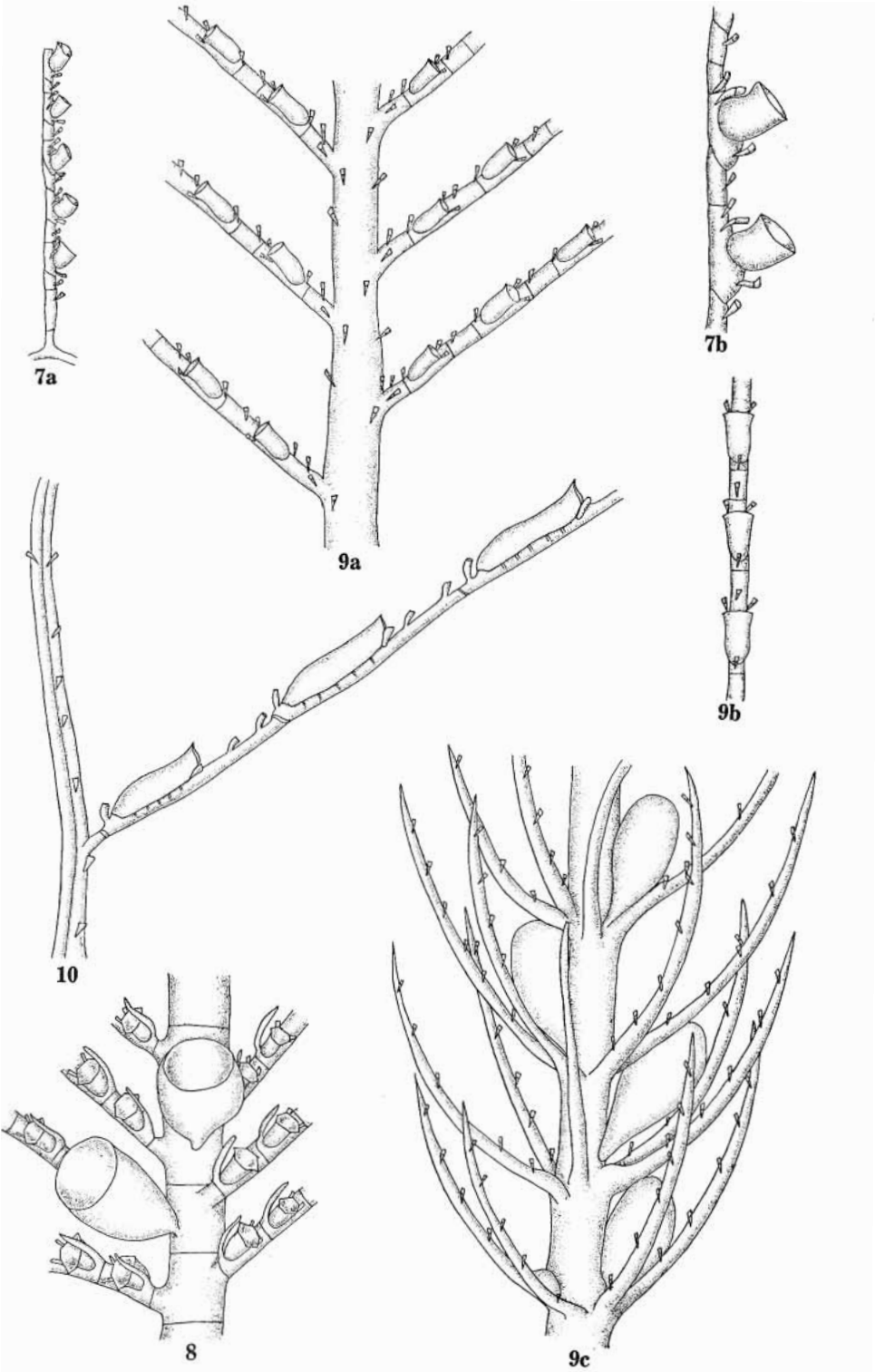
- FIG. 1. *Clytia laxa*: *a*, portion of colony showing branching, hydrothecae, and long pedicels; *b*, portion of fascicled stem with gonangia.
- FIG. 2. *Synthecium gracile*: Portion of stem showing arrangement of hydrothecae.
- FIG. 3. *Sertularella ornata*: Portion of colony showing hydrothecae and gonangium.
- FIG. 4. *Sertularia subtilis*: Portion of colony showing hydrothecae.
- FIG. 5. *Aglaophenia curvidens*: *a*, portion of stem showing internodes and origin of hydrocladia; *b*, portion of hydrocladium with hydrothecae; *c*, portion of hydrocladium further enlarged ($\times 40$).
- FIG. 6. *Aglaophenia meganema*: *a*, portion of stem with hydrocladia and hydrothecae; *b*, portion of hydrocladium with hydrothecae, further enlarged ($\times 40$).

PLATE 2

- FIG. 7. *Antennella curvitheca*: *a*, colony showing hydrothecae; *b*, portion of colony further enlarged ($\times 40$).
- FIG. 8. *Halicornaria longicauda*: Portion of colony showing internodes of stem, bases of hydrocladia and gonangia.
- FIG. 9. *Hippurella elegans*: *a*, portion of branch with proximal portion of hydrocladia; *b*, face view of a portion of a hydrocladium; *c*, portion of branch modified to protect the gonangia.
- FIG. 10. *Streptocaulus gracilis*: Portion of fascicled stem and basal portion of a hydrocladium with hydrothecae.



For explanation, see page 7.



(Continued from inside front cover)

21. FOURTEEN NEW SPECIES OF FORAMINIFERA. By Joseph A. Cushman. July 25, 1935. 9 pp., 3 pls. (Publ. 3327.)
22. TWO NEW FORAMINIFERA OF THE GENUS TEXTULARIA. By Cecil G. Lalicker. July 22, 1935. 2 pp., 1 pl. (Publ. 3328.)
23. A NEW GENUS OF OPISTHOGNATHID FISHES. By George S. Myers. Dec. 24, 1935. 5 pp., 1 fig. (Publ. 3347.)
24. FOUR NEW BRITTLESTARS FROM PUERTO RICO. By Austin H. Clark. Feb. 8, 1936. 8 pp., 3 pls. (Publ. 3378.)
25. A NEW ACTINIAN. By Oskar Carlgren. Jan. 30, 1937. 4 pp., 3 figs. (Publ. 3401.)
26. NEW SPECIES OF MYSIDACID CRUSTACEANS. By Walter M. Tattersall. May 7, 1937. 18 pp., 10 figs. (Publ. 3413.)
27. A NEW SPECIES OF DEEP-SEA FISH, ARGYROPELECUS ANTRORSOPINUS, OF THE FAMILY STERNOPTICHIDAE. By Leonard P. Schultz. July 7, 1937. 5 pp., 1 fig. (Publ. 3439.)