A NEW GENUS AND SPECIES OF MULTIBRACHIATE OPHIURAN OF THE FAMILY GORGONOCEPHALIDAE FROM THE CARIBBEAN SEA.

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While in certain localities in the north Atlantic and Arctic Oceans and over considerable areas in the north Pacific basket-fish are abundant and easily collected, they are as a rule but rarely found in other portions of the world, though they exist everywhere. In the tropics especially their habit of clinging most tenaciously to strongly rooted gorgonians renders their capture either by the dredge or by the fisherman's hook quite a matter of accident.

For this reason the numerous species have been, and still are, very poorly represented in even the largest museums of the world. The inevitable result of this has been to discourage intensive work upon the group, and until the last ten years our knowledge of the interrelationships of the various forms has remained where it was left by Lyman, most naturalists contenting themselves with assigning the species to one or other of the two genera *Astrophyton* and *Gorgonocephalus*, which in reality are synonymous terms.

But recently the group has been thoroughly and most carefully revised by Professor Döderlein, and the species distributed among no less than fourteen genera, *Astrindia*, *Astroboa*, *Astrochalcis*, *Astrocladus*, *Astroconus*, *Astrocyclus*, *Astrodactylus*, *Astrodendrum*, *Astrogordius*, *Astrophytum*, *Astrorhaphis*, *Astrospartus*, *Conocladus*, and *Gorgonocephalus*, by which their interrelationships have finally been made more intelligible.

The remarkable type herein described belongs to a peculiar group, including *Astrodactylus* from the East Indies and *Astrogordius* and *Astrocyclus* from the Caribbean Sea, which is characterized by the presence of a madreporic plate in each interradius. In the development of the tentacle papillae it is intermediate between the first and the two last, but in the development of articulated spinelets or teeth

on the dorsal side of the disk and to the exclusion of the characteristic hooks on the dorsal side of the arms as far as the seventh branching it is absolutely unique.

ASTROCYNODUS, new genus.

Genotype—Astrocynodus herrerai, new species.

Diagnosis.—Five madreporic plates, one in the innermost corner of each interradius; tentacle papillae present from the second arm branch onward; eight or nine arm divisions; each arm segment as far as the seventh fork bears a conspicuous transverse band of closely appressed tubercles, each carrying an articulated conical tooth; the ribs of the disk bear numerous similar transverse bands; from the seventh fork onward each arm segment bears a double transverse row of closely appressed tubercles, each carrying a slender very strongly recurved glassy hook without accessory prongs; teeth, tooth papillae and mouth papillae very long, subequal.

Distribution.—Only known from the Caribbean Sea.

Depth.—Shallow water.

Included species.—Astrocynodus herrerai.

For the privilege of making known to science the following remarkable new species the museum is indebted to the kindness and generosity of Prof. A. L. Herrera, the director of the National Museum of Mexico:

ASTROCYNODUS HERRERAI, new species.

Plate 96.

Description.—The disk, 52 mm. in diameter, is rather deeply incised interradially. There is no peripheral girdle of plates. The ten radial ribs stand out prominently.

Aborally the disk is entirely covered with extremely small grains, very closely crowded, which become larger toward the periphery and are largest on the outer half of the ribs. In their inner halves the ribs bear about 10 more or less regular cross bands, each consisting of a single row of closely crowded and regular tubercles, considerably larger than the adjacent grains, each of which carries a short stout blunt conical spinelet or tooth attached to it by a movable articulation. On the outer half of the ribs these cross bands become somewhat more separated and irregular, breaking up into sections or running diagonally across the rib, and the conical articulated teeth which they bear become longer and more sharply pointed, though never exceeding half a millimeter in length. The ends of the ribs are occupied by an oval shield about twice as broad as long, covered with finer grains than those on the adjoining body surface. Between the ribs there are a few irregular patches of enlarged grains, and in the

outer half of the disk scattering straight lines, running parallel to the periphery, of from 3 to 12 (usually from 6 to 12) closely appressed tubercles, some of which usually carry conical teeth similar to those borne by the transverse lines on the ribs. These lines become increasingly common outwardly.

Orally the interradial portions of the body are covered with very fine grains, among which are numerous larger and lighter-colored grains grouped in such a way as to form a close-meshed marbling or reticulation.

The entire under surface of the arms is covered with a uniform investment of fine grains, which become coarser proximally and largest beneath the disk, where, on account of their increased convexity, they are especially prominent in the interradial angles.

The five madreporic plates, which are short and broad and more or less reniform or crescentic, lie in the adoral angles of the interradial areas.

The teeth, tooth papillae, and mouth papillae are all very long, and do not differ greatly in length. The teeth distally become broadened and flattened, with chisel-like ends.

The genital slits are short, 3 mm. to 5 mm. in length, not more than one-fourth of the distance from the arm base to the adoral interradial angles in length.

The arms divide eight or nine times, the first fork being beneath the disk, and the second on its border. In the second division the outer branch is shorter, but stouter, than the inner; it consists of 6 or 7 segments, while the inner consists of about 10. In the third division the inner branches are longer and somewhat stouter than the outer, though both consist of 8, more rarely of 9, segments. The following divisions to the arm tips all consist of 8 or 9, more rarely of 10, 11, or 12, segments, and in each case the inner branch (in reference to the preceding division) is slightly stouter than the other.

The tentacle papillae appear immediately, or very shortly, after the second forking. At first they are one, or (usually) two, in number, and small and inconspicuous, but after the third fork they become longer and more prominent and the number increases to three, which seems to be the ultimate number. These tentacle papillae are almost identical in size and in appearance with the jointed conical teeth which extend in transverse bands across each arm segment, and merely form the ventral terminal portions of these bands. On a superficial examination it is impossible to differentiate them.

The dorsal and lateral surface of the arms is covered with a pavement of thickly set granules, which pass over uninterruptedly into the similar granules of the ventral surface.

Up to the seventh fork each brachial segment carries a very conspicuous transverse band, consisting of a single regular line of usually about 25 low closely appressed tubercles, each one of which bears a conical articulated tooth similar to those on the cross bands of the ribs, which may be slightly compressed in its outer portion, with a chisel-shaped tip.

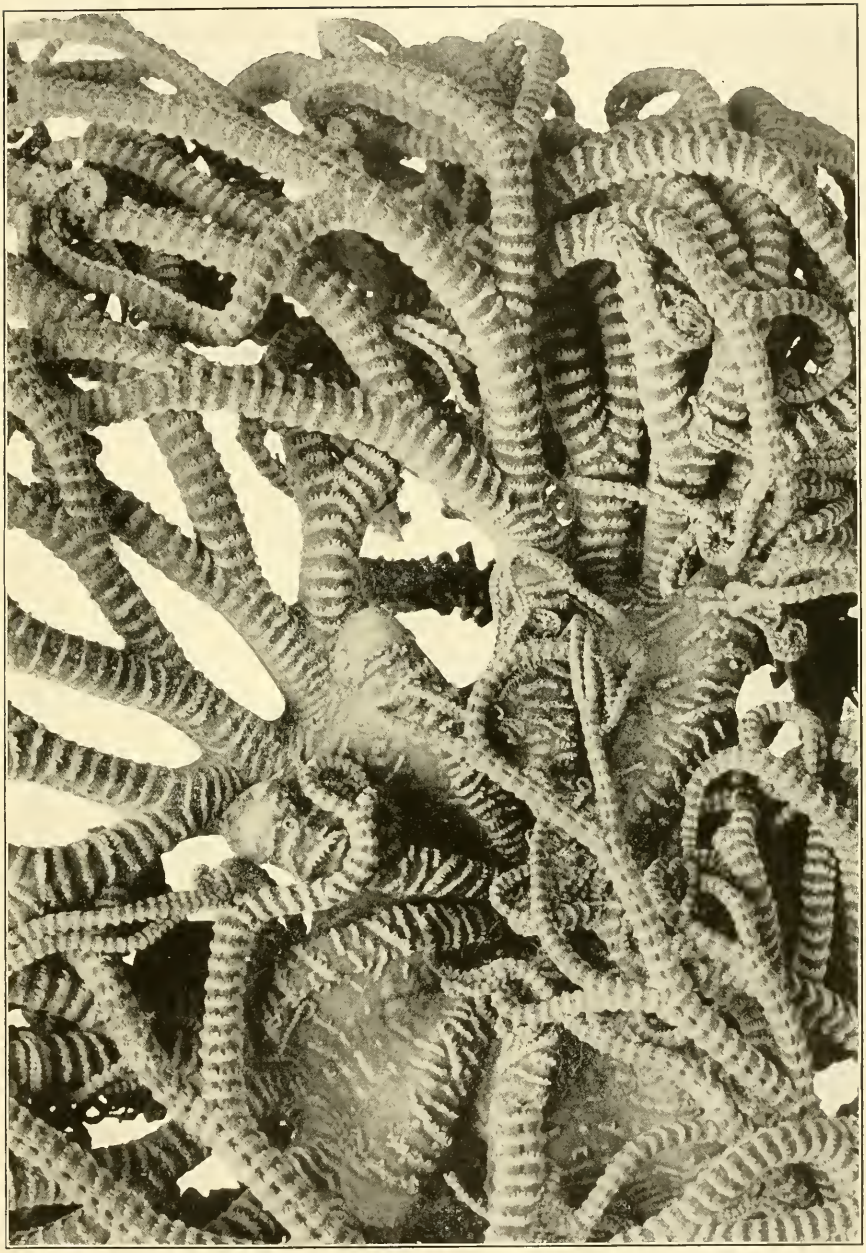
Beyond the seventh fork, instead of these transverse bands of articulated teeth, the segments each bear a prominent and regular double row of tubercles carrying rather slender strongly curved hooks without supplementary prongs, resembling those of *Astrocyclus caecilia*.

Color (dry) yellowish brown, ventrally lighter and more grayish, the transverse bands of tubercles on the arms and disk, the groups of enlarged granules on the latter, and the terminal shields of the radial ribs, yellowish white.

Locality.—Yucatan.

EXPLANATION OF PLATE 96.

Abactinal (dorsal) view of *Astrocynodus herrerai*, × 2.



ASTROCYNODUS HERRERAI, NEW SPECIES

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