

The harbor of Vera Cruz is an area of luxuriant coral growth, madrepores and brain corals being especially abundant.¹ No holothurians were collected here, but on the other hand two species of ophiurans were obtained. The forms from this locality are the following: *Diadema setosum*, *Echinometra subangularis*, *Mellita pentaporus*, *Thyraster serpentarius*, *Astropecten articulatus*, *Ophiura cinerea* and *Ophiothrix angulata*.

After the detailed account of the species collected which follows, in which they are separated into the two regions from which they were obtained, I have advanced some general considerations based upon their geographical distribution. A chronological list of all the important memoirs dealing with the Echinoderms of the West Indian region, has also been compiled which I believe will be of use in the future study of this area.

YUCATAN.

Holothuria Heilprini, n. sp. Pl. VIII, figs. 1-6.

Body cylindrical, narrowed toward the anterior end. Specimen very much contracted, probably to half the length of its extended condition. Anus round.

A few large wart-like prominences scattered over the dorsal surface, each surmounted by a papilla containing a rudimentary terminal plate and smooth rib-like rods with the ends enlarged and perforated. Pedicels present upon the dorsal and ventral surfaces: upon the dorsal surface they are evenly distributed and are slightly smaller than those of the ventral surface. The ventral pedicels are very numerous and closely approximated. In the specimen collected there is no trace of a linear arrangement.

The specimen obtained has ten tentacles, the most ventral of which is much smaller than the rest.

The body wall is very thick in the much contracted example.

The calcareous ring is very similar to the figure of that of *Holothuria Floridana* given by Selenka² in his "Beiträge."

There are two bundles of short madreporic canals attached to the dorsal surface of the œsophagus on the right and left sides respectively of the dorsal mesentery. In the specimen obtained there are twenty canals on the right side and nineteen on the left.

¹ See Professor Heilprin's Report upon "The Corals and Coral Reefs of the Western Waters of the Gulf of Mexico" in this volume, p. 303.

² Zeit. wiss. Zool. Bd. xvii, pl. xviii, fig. 47.

The distal portions of the canals are enlarged, so as to form elongated heads. Two of the canals on the left side are branched, thus possessing two heads.

A single long and slender Polian vesicle exists, which is more than half the length of the animal, and terminates in a vesicular enlargement of considerable size.

Cuverian organs are not present.

In the walls of the dorsal pedicels are tables of the ordinary type described below, and a few rosettes. Around the terminal disks there are also tables which lack disks, the four rods bending inwards and uniting at the point where they meet. The ventral pedicels occasionally possess a few diskless tables around the edge of the terminal disk similar to those of the dorsal pedicels, and their walls contain a few rosettes. The calcareous deposits of the body-wall are collected into heaps which give its surface a granulated appearance. They consist principally of rosettes which occur in great abundance. They are usually about .015 mm. in diameter. The branches of the rosettes, in rare instances, coalesce to form irregular perforated plates. On the dorsal surface the accumulations of rosettes are accompanied by a number of tables, which possess well developed disks and are of the *Holothuria atra* type, usually with a hole at the base of each rod. Exceptionally the hole is absent or it may be represented by two or three similar holes. The rods are connected by a single cross-bar. Each of the rods is surmounted by three prominent teeth, two horizontal and one vertical. The height of the tables and the diameter of their disks is about .1 mm. The tables are almost entirely absent from the accumulations of the ventral surface.

The color in alcohol, of the granulated portion of the body is a dirty olive green; the portions free from deposits are slate-color with a purplish tinge; the sides of the pedicels grayish and their disks straw-color; tentacles very light straw-color.

Length of the much contracted specimen about 80 mm.

Collected among the wet seaweed of the beach at the Port of Silam.

I have named this species after Professor Angelo Heilprin, the Director and promoter of the expedition.

This form is related to *Holothuria atra* of Jæger. The most prominent difference is the arrangement of the calcareous deposits into heaps in *Holothuria Heilprini*, producing an appearance of

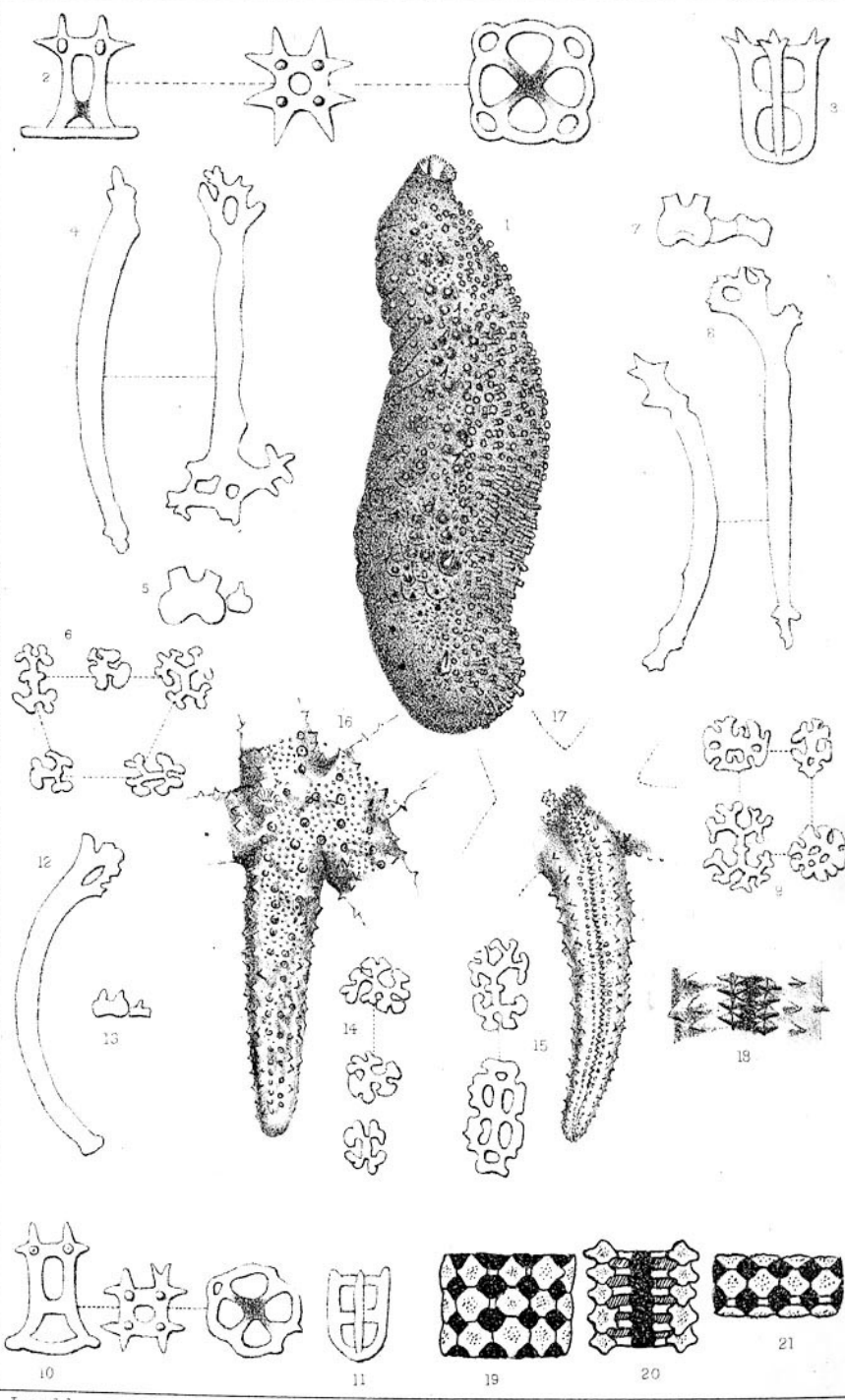
granulation over the surface of the body. The branches of the rosettes also, in this species, very rarely coalesce to form plates, and the wart-like prominences sparsely scattered over the dorsal surface are also a distinguishing feature. True papillæ are confined to the summits of these prominences, and the remainder of the dorsal surface is evenly covered with pedicels only slightly smaller than those of the ventral surface. In the superficial appearance of granulation it resembles *Holothuria grisea* of Selenka, but the deposits of this species are collected into circles, and not heaps. It also differs from *Holothuria grisea* in the fact that the disks of the tables have a hole at the base of each rod and are not provided with spines, and that there are two well developed bundles of madreporic canals, instead of a single free canal.

Holothuria Silamensis, n. sp. Pl. VIII, figs. 7-9.

Body cylindrical, equally rounded at both ends, about three times as long as broad. Anus round, not stellate. Surface smooth to the touch. Dorsal and ventral surfaces possessing pedicels of small size, more numerous upon the ventral than upon the dorsal surface, but not crowded. The ventral pedicels show an imperfect arrangement in three rows, of which the middle row is the widest. A few papillæ are scattered amongst the dorsal pedicels.

The pedicels possess a well developed terminal disk. In two out of many pedicels that I examined I found extremely rudimentary tables around the edge of the disks. The tables are apparently of the type which is found in its perfect form in *Holothuria atra*.

In the one case there were two present and in the other, one. These must be regarded as exceptional structures as I did not find any trace of tables elsewhere in the specimen. Probably they are rudimentary structures derived from an ancestor possessing tables. The walls of the pedicels are free from deposits. The papillæ contain a rudimentary terminal disk and several smooth rib-like rods with perforated ends, such as are characteristic of them. The calcareous deposits of the body-wall are not numerous and consist entirely of small, irregular, perforated plates, which are formed by the coalescence of the branches of rosettes. They usually have one diameter longer than the other; the long diameter being about .03 mm. and the short diameter, .02 mm. They occur in small heaps, but the heaps are not sufficiently large or numerous to produce the granulated appearance, which is possessed by the previous species.



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IVES, MEXICAN ECHINODERMS.