

1. *Echinocucumis asperrima* Theél. (Pl. 16, figs. 1-7.)

This extraordinary holothurian is 1 or 2 inches long, including the long neck and slender, tapering tail. It has been recorded from only the Caribbean Sea, and there only in deep water.

There is one specimen of this species dredged at station 6066, in 170 fathoms of water. It is just 24 mm. long, and the delicacy and glassiness of its appearance make it an object of unusual interest. The species was first described by Theél, in 1886, from specimens collected in the vicinity of Jamaica and Cuba, at depths of 150 fathoms or over. As he published no figures of the species, it seems worth while to give with this report some illustrations of such a noteworthy form. The tentacles (fig. 4) are apparently only eight in number, and differ from the tentacles of all other pedate holothurians in being perfectly simple, without branches of any kind. The calcareous ring (fig. 2) is very small; no stone canal or Polian vessel found. Genital filaments few, but thick. Respiratory trees very delicate. No Cuvier's organs. Respiratory trees and intestine with numerous brownish spherical bodies in their walls, possibly waste matter. Intestine very long and much coiled. Pedicels very scarce, almost wanting, except near head and tail. Body-wall (fig. 3) very hard and firm, as though matted, pure white. It is composed of more or less regular polygonal plates, each of which bears a single, long, stout and sharp spine. Calcareous bodies (figs. 6 and 7) consisting of irregular plates with numerous holes, very abundant, especially in and near the tentacles.

2. *Stichopus moebii* Semper.

A common species and very interesting on account of the great variety in the color, shape, appearance, and number of tentacles. It reaches a length of 300 mm. or so. The body-wall contains numerous tables and C-shaped bodies; the former with well-developed disk and numerous teeth at top. Known from Bermuda and the West Indies. There are 8 specimens of *Stichopus* in the *Fish Hawk* collection, varying in size from 90 to 220 mm. Though differing somewhat in color, they all show the light background with large dark spots and blotches. The number of tentacles varies from 16 to 20, there being 1 with 16, 1 with 17, 2 with 18, 1 with 19, and 3 with 20. It is worthy of note that the two largest specimens have 20 tentacles and the two smallest have 18 and 16, respectively. This species was collected at Boqueron Bay, San Juan, and Mayaguez, and these specimens agree in all essentials with those from Jamaica and Bermuda.

3. *Holothuria captiva* Ludwig.

This little holothurian rarely reaches a length of 100 mm. It is rich brown in color, somewhat paler below. On the back are rather numerous papillae. The body-wall contains numerous tables, with many teeth at the apex, and buttons with 3 pairs of holes. The species is known only from Bermuda and the West Indies. There are only two specimens from Porto Rico, and both are very small, 12 and 15 mm. in length. They were collected at Hucares. The skin is very delicate, almost without pigment, but the deposits are numerous, full size, and perfectly formed. Color in alcohol dirty-brown. Cuvier's organs very noticeable; in one specimen their bulk is fully one-tenth of the whole animal.

The arrangement of pedicels, papillae, and tentacles is of interest.

Specimens.	Pedicels.	Papillae.	Tentacles.
Smaller specimen .....	16 in a row; a single row on each side, a double row in middle of ventral surface.	Six longitudinal rows with 6 papillae in a row.	10
Larger specimen .....	18 in a row; rows as above.....	Six rows with 10 in a row ..	14

4. *Holothuria densipedes*, nov. sp. (Pl. 17, fig. 1.)

There is a single specimen, from the light-house reef at Playa de Ponce, of a holothurian unlike any yet described. On account of the very numerous and crowded pedicels, I have given to it the name *densipedes*. It is 88 mm. long and about 20 mm. in diameter. The color is brown, with a few scattered dull purple or blackish blotches. The papillae have a reddish tinge, while the pedicels are much lighter, with a touch of yellow. The pedicels are crowded on the ventral surface, and are

numerous, though somewhat smaller, dorsally. The papillae are numerous and confined to the dorsal surface. There is no sign of arrangement in rows of either the pedicels or papillae. Tentacles very small and pale, apparently 20. Polian vessel 1. Stone canal 1. Water-ring with many small bead-like bodies on it. Cuvier's organs present; small, greenish. Genital glands with numerous infrequently branched filaments. The calcareous deposits consist of tables and smooth buttons, with numerous supporting rods in pedicels, papillae, and tentacles. The buttons usually have three pairs of holes, but not infrequently there are only 3 or 4 holes. The tables have the disk with 4 large central holes or a single deeply 4-lobed hole, surrounded by a circle of smaller holes, 4 larger alternating with 4 smaller, to complete the circle. The spire is comparatively low, with only 1 crossbeam and few (not more than 10 or 12) teeth. The tables of the pedicels are usually much reduced.

The supporting rods of the tentacles are simple, slightly rough or knobbed at ends. Those from the pedicels are usually broader and pierced by holes more or less symmetrically arranged. There are often 7 or 8 pairs of these holes. The calcareous ring is composed of 5 large radial pieces and 5 small, narrow, pointed interradial plates. The calcareous ring and the various calcareous deposits are exactly like those of *H. rothbani* Lampert, from which species this form is otherwise radically different. (See pl. 17.) It differs from its nearest allies in the crowded papillae on the dorsal surface, as well as in the detailed structure of the tables, while it differs markedly from *H. glaberrima* in the large size of the pedicels and papillae, and in their crowded arrangement. It is known as yet only from Porto Rico.

##### 5. *Holothuria glaberrima* Selenka.

Especially common in cavities in coral rocks on the reefs and along shore. It is rather short and stout, seldom more than 100 mm. long. The color varies greatly from pale yellowish brown to almost black, but is generally uniform over the body. The body-wall contains only scattered branching rods. It is found throughout the Caribbean Sea and Gulf of Mexico. Six specimens from Hucaras vary in length from 65 to 110 mm. In five the color is blackish brown, the tentacles black; the sixth is light yellowish brown, with light tentacles.

##### 6. *Holothuria grisea* Selenka.

This species reaches a length of 150 to 200 mm. The body-wall contains tables and small forked rods, the latter gathered in little circles or spots, often visible to the naked eye. It has been recorded from the West Indies, Surinam, and Brazil. Two specimens from Arroyo, 50 and 110 mm. long, and one from Hucaras 70 mm.

##### 7. *Holothuria impatiens* Forskal.

This is one of the most widely distributed of holothurians, being known from the warmer seas of all parts of the world. It reaches a length of 150 to 200 mm., and is grayish purple in color, sometimes blotched with darker. Tentacles often very light colored. The body-wall contains tables and buttons with 3 pairs of holes. From Culebra there is one typical specimen 85 mm. long, and from Ponce there are two specimens (110 to 125 mm.) which are dark gray in color with no trace of purple.

##### 8. *Holothuria mexicana* Ludwig.

This is one of the largest West Indian holothurians, often reaching a length of 450 mm. or more. The color varies greatly; some specimens, usually small ones, are light brown above and pink or flesh-color beneath, the pedicels brown; others are almost jet-black with scarcely any light below. Between these two extremes all sorts of intergradations occur. The thick, leathery body-wall, which contains simple tables and numerous perforated plates of two kinds, helps greatly to distinguish this species. Described first from the Gulf of Mexico, and known only from the West Indian region.

Of this very common species, there are some 20 specimens in the collection, from 110 to 300 mm. in length. There is great diversity in the number of tentacles and Polian vessels. Four individuals have 18 tentacles; six have 19; nine have 20; one has 21. Two individuals have 1 Polian vessel each; two have 2; five have 3; two have 4; three have 7; one has 8; one has 9. These specimens were collected at Culebra, Fajardo, Boqueron Bay, Guanica, Puerto Real, Mayaguez, and San Juan.

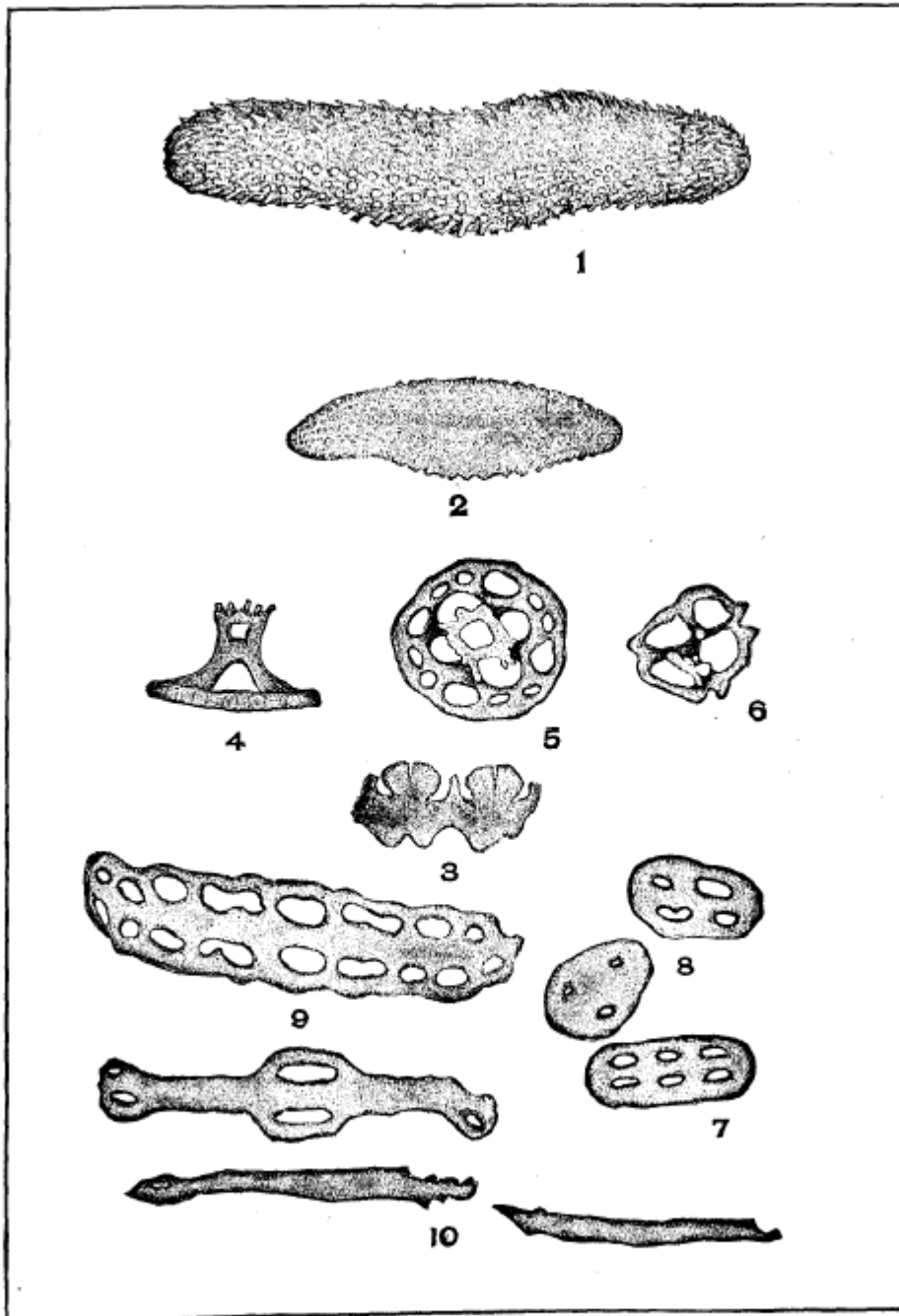


Fig. 1. *Holothuria decaispedes*, n. sp., natural size.  
 2. ? *Holothuria rubicundus* Lamour., young, natural size.  
 3. Part of the calcareous ring of *H. rubicundus*,  $\times 5$ .  
 4. Calcareous table from the skin of *H. rubicundus*, seen from the side,  $\times 450$ .  
 5. Table seen from above,  $\times 450$ .

Fig. 6. Incomplete table from pedicel,  $\times 450$ .  
 7. Normal button of *H. rubicundus*,  $\times 450$ .  
 8. Incomplete buttons,  $\times 450$ .  
 9. Supporting rods from pedicels,  $\times 450$ .  
 10. Supporting rods from tentacles,  $\times 450$ .

Figs. 9-10 would answer equally well for *Holothuria decaispedes*.