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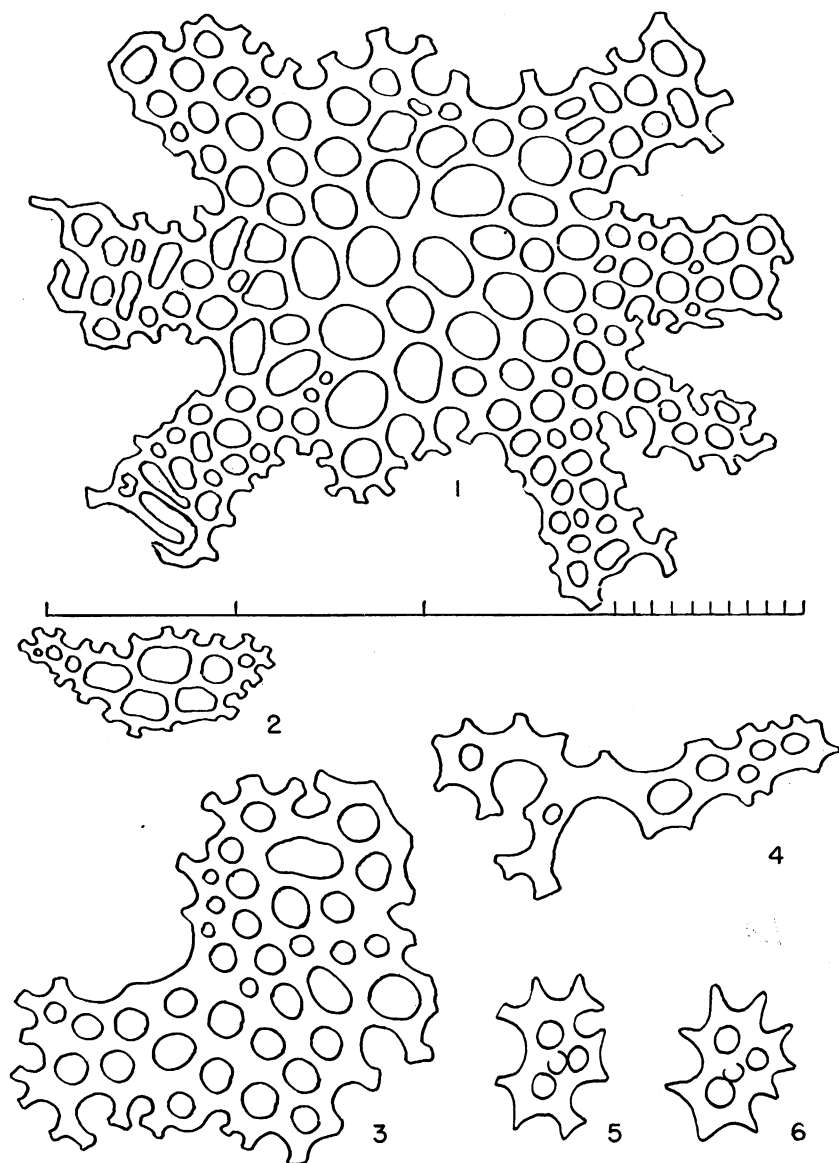
THE REDISCOVERY OF THE HOLOTHURIAN *HOLOTHURIA PERUVIANA* LESSON

BY ELISABETH DEICHMANN

When the report on the Hancock Expeditions dendrochirote holothurians was published in 1941, only three dubious species remained out of the total of 46 listed from the Panamanian region. Of these the most notable was Lesson's *Holothuria peruviana*, an animal which has haunted the holothurian literature for more than a hundred years. It was, however, included in the report as *Anaperus peruviana*, reconstructed as well as it could be done from the literature, in the absence of any material; but it was tacitly assumed that it would turn out to be identical with one of Selenka's phyllophorids, and if that was true, there would be no end of trouble as far as nomenclature was concerned.

It was therefore an unusually great pleasure to receive from the American Museum of Natural History an unidentified holothurian, not represented in the Hancock Collections and definitely fitting into the niche which has been left open for it in the 1941 report.

The specimen was collected by the Askoy Expedition in the Pearl Islands, Bay of Panama, at Askoy Station 7 in 15 fathoms. This gives a clue to why it has eluded collectors for more than a century, for it is evidently a form which only in exceptional cases is taken at tide mark and on the other hand never goes down so far that it is taken by the dredge, which one rarely dares use close to a rocky coast. There are, however, two other specimens in existence in a museum, likewise taken at some fathoms' depth off the Pearl Islands. These specimens were collected by Dr. Th. Mortensen on his large Pacific Expedition in 1914-1916, and probably he used his dredge from a rowboat with more daring close to the rocks than most collectors have done. About 30 years ago I



FIGS. 1-6. *Anaperus peruviana* (Lesson). 1. Star-shaped supporting plate from ventral tube foot. 2. Small plate from margin of disk of tube foot. 3. Reduced supporting plate from dorsal papilliform tube foot. 4. Rod from dorsal papilliform tube foot. 5-6. Reduced tables from introvert. Scale, 1/100 mm.

had occasion to examine these specimens and had the common sense not to name them; it would have been sheer luck had I stumbled over the correct name. But now having examined almost all the dendrochirotes known from the Panamanian region and also having learned to take much of what is written in the literature with a "grain of salt," I have no hesitations in pinning the name *Anaperus peruviana* (Lesson) on the specimen I have before me.

As for the generic name *Anaperus* Troschel, its status was reviewed in 1941. It was established in 1846 by Troschel for four species, of which only Lesson's species remains. The diagnosis given appears to have been based on two species, namely, Lesson's *Holothuria peruviana*, which Troschel possibly knew only from the description; and some material of *Thyone briareus* (Lesueur), which erroneously must have received the label Peru. This is according to Selenka, who saw Troschel's material of "*peruanus*" in Berlin and lumped it with the two Atlantic species, *Anaperus tenella* Selenka and *A. carolinus* Troschel [both *Thyone briareus* (Lesueur)].

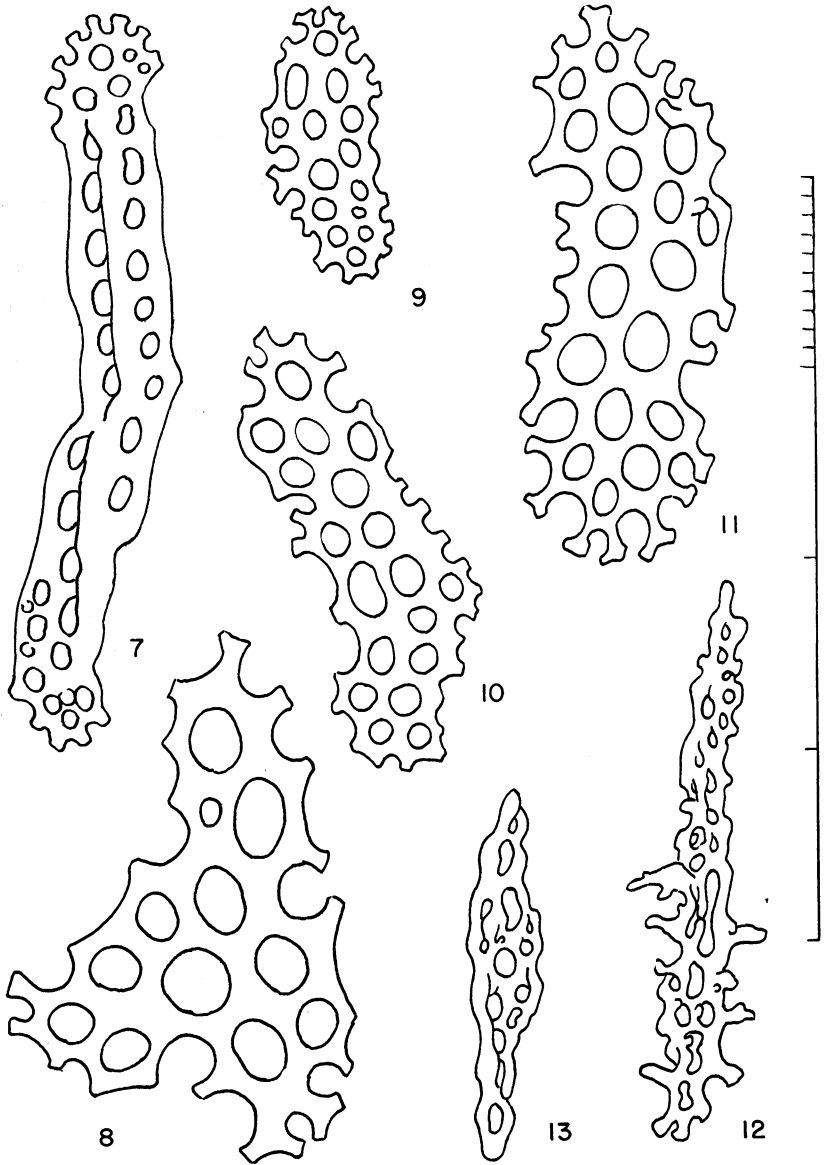
One might decide to reject *Anaperus* completely, or choose to modify the diagnosis so that it satisfies the species for which it was originally intended. The latter course has been taken here, in order not to burden the literature with a new name, and the generic name, the anagram of *peruana*, has now finally been reinstated where it properly belongs.

ANAPERUS TROSCHER, 1846

Anaperus TROSCHER, 1846, p. 60 (*partim*). DEICHMANN, 1941, p. 120.

DIAGNOSIS: Large dendrochirote with numerous tube feet, especially ventrally, more scattered and mostly papilliform on the dorsum. Ten tentacles of equal size, bushy. Calcareous ring well developed, simple, with long anterior tooth on the radials, and heart-shaped inter-radials with a fairly long, slender, anterior tooth. One Polian vesicle, one stone canal with furrowed head; gonads arising from a short stolon a little anterior to the middle of the body, forming two tufts of relatively short slender tubules.

Spicules reduced in older individuals. Ventral tube feet with large end plate; dorsal papillae with plate reduced. Irregular rods and plates around the anal area and in the papillae. Introvert, with small disk-shaped bodies with spinous margin and a central knob, possibly reduced tables. Tentacles with large, heavy,



FIGS. 7-13. *Anaperus peruviana* (Lesson). 7. Small thick rod from stem of tentacle (the larger ones are of the same type). 8-11. Perforated plates and rods from branches of tentacles. 12-13. Rods from wall of gonadial tubes. Scale, 1/100 mm.

perforated rods in the stem and smaller rods and plates in the branches.

Color of animal deep reddish purple, fading to dull brown. The red pigment is gradually dissolved in the alcohol.

TYPE SPECIES: *Holothuria peruviana* Lesson, 1830.

REMARKS: Of the four species that Troschel referred to his genus, only the type species remains, and that only partly so, as some of the material examined by Troschel (or possibly all of it) is identical with one of his other species, according to Selenka, and that in turn represents *Thyone briareus* (Lesueur). The third, Müller's *T. fusus*, is the type species of *Thyone*, *sensu stricto*, while the fourth, *A. cigaro* Troschel, from Labrador, cannot be recognized but most likely is a poorly preserved *Thyonidium pellucidum*.

***Anaperus peruviana* (Lesson)**

Holothuria peruviana LESSON, 1830, p. 124, pl. 46, fig. 1.

Anaperus peruviana, DEICHMAN, 1941, p. 120 (list of references and diagnosis).

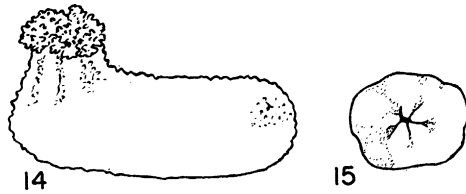
DIAGNOSIS: As for the genus.

DESCRIPTION: The American Museum specimen measures $3\frac{1}{2}$ inches (about 9 cm.) with the tentacles withdrawn; hence one can estimate that the live specimen came close to Lesson's measurements of 6 inches. Also the Copenhagen specimens are of about the same size, and one of these individuals has the tentacles partly expanded. The tentacles are bushy and of equal size; in my notes I find that I had some difficulty in counting the number so I understand fully that Lesson made the mistake of figuring only eight. The tube feet are numerous; dorsally they are more scattered and contracted and appear chiefly to be papilliform. The color of the present specimen is dull brown, but the color of the alcohol shows traces of the red pigment which is so characteristic of this species, and also very pronounced in the Copenhagen individuals when I saw them.

The calcareous ring is firm, simple, with a long anterior tooth on the radials and a shorter, more delicate one on the heart-shaped inter-radials; the posterior margin of the ring is gently undulated. It is definitely of the type that has no trace of tails, but the tough whitish integument behind the ring may easily be mistaken for short tails, as I have seen done, in the literature, in other cases. There is one Polian vesicle, and a single stone canal with a meandering tube and a round head with labyrinthine grooves, somewhat

more complex than Müller figures them (1854, pl. 9, fig. 9). The retractors attach near the middle of the body, and the gonads are placed a little anterior to the insertions for the retractors. The specimen on hand is a female, and the slenderness of the comparatively short (2 cm. or less) tubules and the consistency of the not too well-preserved eggs lead me to believe that the animal is immature and probably would have been ready to spawn in about a year. The muscle stomach is short, and the third loop of the intestine is attached to a mesentery which runs along the left side of the midventral muscle band.

The spicules are almost completely absent, and what is present gives no clue to possible affinities with other known species. The ventral feet have a large, well-developed end plate, often star



FIGS. 14, 15. *Anaperus peruviana* (Lesson). 14. Outline of animal with tentacles partly expanded. Copenhagen material. 15. Anterior end of animal with tentacles withdrawn. Copenhagen material. $\times 1/2$.

shaped, with smaller plates along the edge. In the dorsal feet a reduced end plate is present, and the walls of the papillae are supported by irregular plates or rods. Similar spicules are also present in the anal region, but I have not found any larger tooth-like structures. The introvert contains a few small plates with dentate margin and a low central knob which may be considered modified tables. The stem of the tentacles is packed with large, thick, curved or straight rods, with a varying number of holes, and in the tentacle branches numerous smaller perforated plates and rods are present. In the gonads a few reticulated rods were present.

TYPE: Probably lost.

TYPE LOCALITY: Payta, Peru.

DISTRIBUTION: From Payta, Peru, to Pearl Islands, Panama.

DEPTH: At Pearl Islands taken at 15 fathoms.

REMARKS: I have no doubt that the present species is identical with the one that Lesson described and figured in 1830.

Aside from the lower number of tentacles, his figure agrees well with the specimens that I have seen, and the deep reddish color that he mentions is a most unusual feature. In the Panamanian region this color is known to occur only in two other species, namely, *Pattalus molle* Selenka and *Euthyonidium ovulum* (Selenka) (which may prove to be synonyms). Both of these have 20 tentacles and numerous stone canals and a calcareous ring of a different form. Up to the present it has generally been assumed that Lesson's 6-inch long species of deep reddish color was identical with one of Selenka's species and that Lesson merely had overlooked the inner circle of tentacles, as incidentally Selenka had done in the case of his own *ovulum*. Now that it is proved beyond doubt that a large species of deep purplish color and 10 tentacles actually exists in the Panamanian region, there is no reason for not bestowing Lesson's name on that species.

ACKNOWLEDGMENTS

It is a great pleasure for me to thank Mr. J. C. Armstrong of the American Museum of Natural History for giving me this opportunity to solve one of the mysteries in the annals of the holothurians. Likewise, I wish to thank the Zoological Museum in Copenhagen for permitting me to make use of the notes and drawings which I made in that institution years ago while I was a student there under Dr. Th. Mortensen's guidance.

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