

*Holothuria subverta*¹ sp. nov.

(Plate 38, Figures 25 to 32.)

Length about 100 mm.; breadth 23 mm.; vertical diameter about 12 mm. Body notably depressed, widest posterior to middle and narrowed towards each end, well covered with papillæ and pedicels; no hard-and-fast line can be drawn between these two sorts of appendages as occurring in *subverta*; true pedicels (simple cylindrical, truncate outgrowths) are relatively rare, but true papillæ (elongatedly conical, pointed outgrowths) are also rare; most of the appendages are conical for the basal half and cylindrical and truncate distally; ventrally they are mostly about 2 mm. long, in 8 to 10 irregular series, the outermost series on each side being situated on the well-marked margin between the dorsal and ventral surfaces; among these longer papillæ-pedicels are scattered a few small pedicels which lack the conical base; dorsally the appendages are smaller (as a rule), more numerous and much less evidently in series; many are more pointed distally; the ventral surface is quite clean, but the dorsal surface seems to have much fine dirt adherent to it. Tentacles 20, small and very short. Calcareous ring rather stout; radial pieces deeply forked anteriorly, about 2 mm. high by 1.75 mm. wide; interradial pieces much smaller, with an anterior pointed projection, 1.2 mm. wide, 0.70 mm. high at the sides, and 1 mm. at the center; neither radial nor interradial pieces are markedly concave posteriorly. Polian vessels 2, 7 to 8 mm. long. Madreporic canal single, free, 7 to 8 mm. long. Cuvier's organs very well developed, forming a compact tuft of thick whitish tubules at the base of the respiratory tree.

Calcareous particles in tentacles, papillæ, and body-wall exceedingly numerous, and while they are easily grouped as supporting rods, buttons, and tables, they are very variable indeed. Tables 0.035 to 0.100 mm. across the disk, with spires 0.040 to 0.140 mm. high and 0.025 to 0.030 mm. square at top; disk (pl. 38, fig. 27) squarish, with smooth margins, a large central hole and about 8 marginal perforations, of which the 4 corner ones are smaller than the 4 which lie between them; spire (pl. 38, fig. 26) with 1 to 6 cross-bars, but usually with several; only a few small, stumpy tables (pl. 38, fig. 30) have but a single cross-bar; the tables form a single layer all over the animal; they are lower and more stumpy dorsally than ventrally, and are highest (pl. 38, fig. 29) and most slender in the papillæ. Buttons 0.030 to 0.080 mm. long, with the width half as much or less; typically there are 3 pairs of perforations of approximately equal size (pl. 38, fig. 31), but sometimes the pair at each end of the button is greatly reduced, leaving a large perforation on each side at the middle of the button, and 2 little round holes near each end; on the other hand, buttons occur with small holes at each end in addition to the usual 6 large perforations (pl. 38, fig. 32); buttons smooth or knobbed, but usually with 12 to 16 knobs on each surface; sometimes on the smallest plates only 2 distinct knobs are present on each side, these being at the ends of the bar separating the median pair of perforations; ventrally there are few knobs on the buttons, commonly none along the margins, but the dorsal buttons are usually very fully knobbed. Supporting rods of pedicels (pl. 38, fig. 25), typically about 0.150 mm. long, expanded and with 1 to 4 perforations at each end, and also expanded at the middle with 1 or 2 relatively large perforations there, on each side of the long axis; such rods intergrade, however, especially near base of pedicels, with the true buttons. Supporting rods of tentacles simply smooth, slightly curved rods, with the ends neither expanded nor branched; they are 0.075 to 0.125 mm. long. Terminal plates well developed in pedicels, while at the tips of some of the more pointed dorsal papillæ are minute, reticulated spheres, one sphere to each papilla, apparently a modified terminal plate. Color dull gray, brownish dorsally because of dirt; pedicel-papillæ white or whitish, ventrally contrasting evidently with the ground-color but dorsally obscured by dirt; tentacles very light.

¹*Subvertus* = upside-down, in reference to the ease with which the lower surface may be mistaken for the upper.

Holotype: M. C. Z. No. 1062; on under side of rock, reef-flat, Mer, Murray Islands, Torres Strait. F. A. Potts, collector.

This is unquestionably the most remarkable holothurian we found at Mer, and it is to be regretted that only a single one was seen. The dorsal surface looks so much like the ventral, and *vice versa*, that it is difficult to believe one's eyes when dissection shows the attachment of the dorsal mesentery, the position of the madreporic canal, etc. The mouth, too, indicates the ventral surface, as it is not terminal but evidently on the lower side. The animal was exceedingly sluggish, and as it failed to eject any Cuvier's organs when handled they were supposed to be wanting; but dissection shows them well developed. I know of no species to which *subverta* is closely related, and it will probably become the type of a separate genus when *Holothuria* is finally broken up into its component parts.

