

STUDIES ON INDIAN ECHINODERMS—2. THE HOLOTHURIAN
STOLUS BUCCALIS (STIMPSON) WITH NOTES ON ITS
SYSTEMATIC POSITION*

By D. B. JAMES

Central Marine Fisheries Research Institute, Mandapam Camp.

WHILE collecting echinoderms in the Palk Bay and Gulf of Mannar the author found five specimens of holothurians, two at Rameswaram (9° 17' N., 79° 22' E.) and three at Mandapam (9° 15' N., 79° 09' E.), which should be referred to *Stolus buccalis* (Stimpson) (Pl. I). This species has been reported earlier from the Indian region by Gravely (1927, 1941) under the name *Thyone sacellus* but since this name no longer holds good and since no adequate description is available it is felt necessary to describe the specimens collected.

Stolus buccalis (Stimpson)

Thyone buccalis Stimpson, 1855, p. 386.

Theel, 1886, p. 136.

H. L. Clark, 1946, p. 401.

Stolus sacellus Selenka, 1867, p. 355.

Panning, 1949, p. 462.

Cherbonnier, 1955, p. 167.

Thyone rigida Semper, 1868, p. 66.

Steroderma murrayi Bell, 1883, p. 61.

Thyone sacellus Ekman, 1918, p. 42.

Gravely, 1927, p. 166.

Gravely, 1941, p. 91.

?*Thyone sacellus* Pearson, 1903, p. 192.

Thyone buccalis lourdesae Domantay, 1961, p. 101.

Distribution : Bohol, Japan, Torres Strait, Aden, Zanzibar, Mozambique, Port Jackson, Port Rockhampton, Port Mackay, Port Denison, Philippines, Karachi, Australia, Krusadai and Madras.

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DESCRIPTION

Tentacle length ranges from 127 to 156 mm. Skin thick and rigid. Colour in life light purple; white in alcohol. Introvert (Fig. 1, A) semi-transparent lighter in colour than body with a crown of ten dark tentacles of which ventral pair is small. Tube-feet not confined to radii but scattered over entire body surface.

Calcareous ring (Fig. 1, B) complex, composed of a number of pieces. Radials large, each with a notch at anterior end and two long posterior processes. Digestive tract a simple coiled tube without any differentiation into parts (measures 372 mm. in a specimen of 103 mm. length). In a specimen collected on 7th June, 1963 gonadial tubules well developed, occupying whole length of body cavity. Both branches of respiratory trees of equal size, sparsely branched, arising from posterior portion of rectum. Cloacal retractors well developed. Paired radial muscles narrow, retractors well developed.

Of the two specimens dissected, one had two polian vesicles (9 and 34 mm. in length) and 4 small stone canals; the other had three polian vesicles (12, 14 and 21 mm. in length) and 5 stone canals.

Four types of calcareous deposits present in different parts of skin. (i) Small rods (Fig. 1, C) with expanded ends each end with a hole at the centre, such rods are found in the tentacles, length varies from 0.031 to 0.066 mm. (ii) Large oval buttons (Fig. 1, D) with twelve knobs and four holes thickly packed throughout body wall. Buttons have two handles, one on either side, thus appearing bulged in lateral view. Length of buttons varies from 0.049 to 0.063 mm.; breadth varies from 0.038 to 0.052 mm. (iii) Irregular thin buttons with four to many holes found both in tentacles and introvert (Fig. 1, E). Length of buttons varies from 0.047 to 0.062 mm. whereas breadth is 0.031 mm. (iv) Large supporting plates (Fig. 1, F) found in tube-feet. These are fusiform, usually with four holes in centre and one to five holes on either side. Length varies from 0.188 to 0.298 mm. and breadth from 0.047 to 0.078 mm.

DISCUSSION

The subfamily Thyoninae according to Panning (1949) is characterised by a calcareous ring composed of a complex mosaic of minute pieces with long posterior processes. Under this subfamily seven genera have been recognised by him. The diagnostic characters of the genus *Stolus* as opposed to genus *Thyone* include thick and rigid body wall, presence of only buttons in the body wall and retractile tube-feet. According to the above definition the specimens under the present study should be referred to genus *Stolus* and not to *Thyone* as done by earlier authors.

Clark (1946) considered *Stolus sacellus* Selenka (1867), *Thyone rigida* Semper (1868) and *Steroderma murrayi* Bell (1888) synonyms of *Thyone buccalis* first described by Stimpson (1885) which should correctly be referred to *Stolus buccalis* based on descriptions. For the same reasons *Thyone buccalis* of Theel (1886), *Thyone sacellus* of Panning (1949) and Cherbonnier (1958) should be considered synonyms of *Stolus buccalis*.

Pearson (1903) and Gravely (1927, 1941) have reported *Thyone sacellus* from Ceylon, Krusadai and Madras. In addition to other characters given by Pearson (1903) for *Thyone sacellus* 'the presence of numerous plates having short spines on the surface' leads one to suspect the correct identity of the species described by

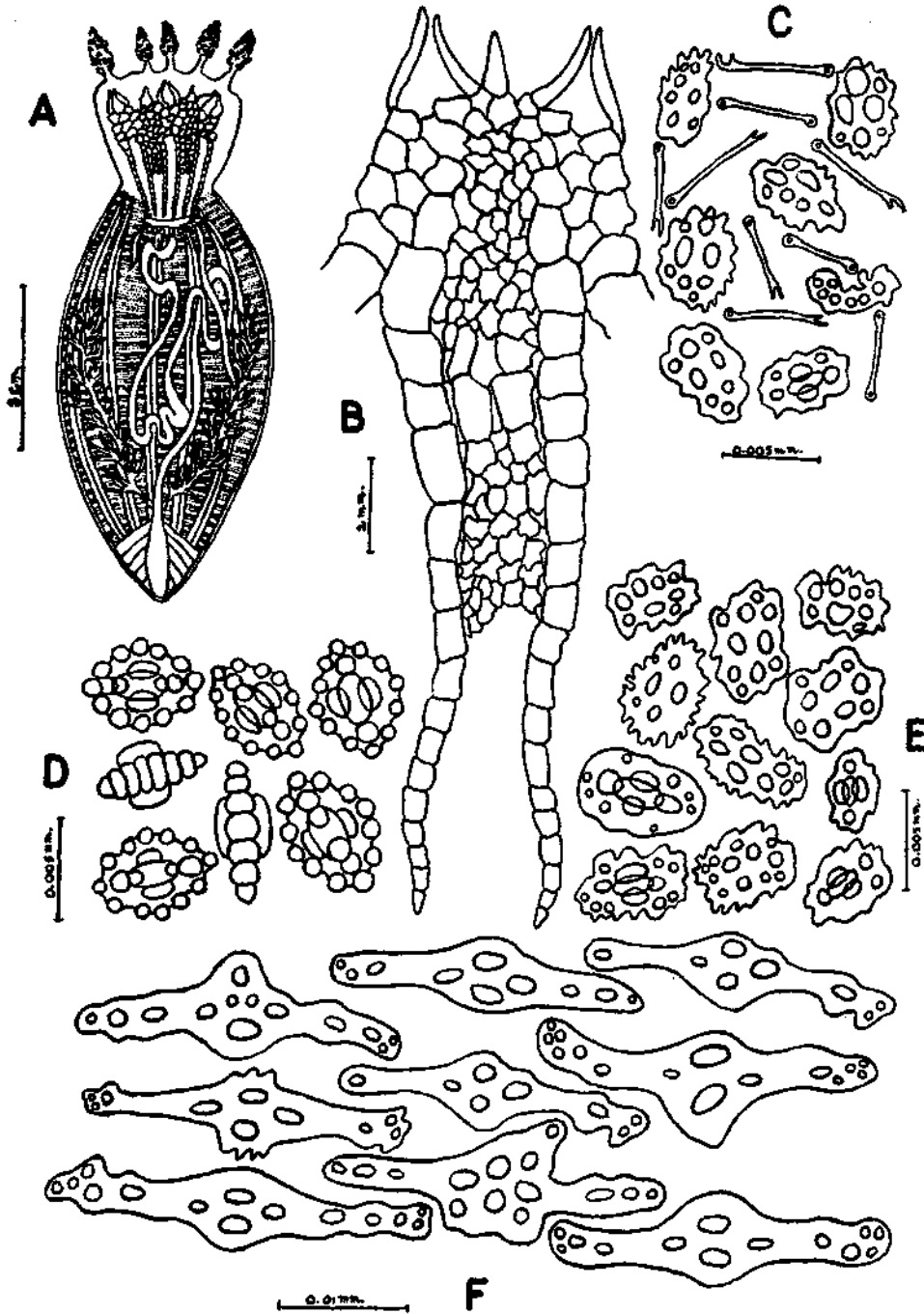


FIG. 1. A. *Stolus buccalis*. Internal anatomy of an adult dissected from dorsal side, gonadal tubules removed. B. Calcareous ring. C. Calcareous deposits from tentacles. D. Calcareous deposits from body wall. E. Calcareous deposits from introvert. F. Calcareous deposits from tube-feet.

him. Gravely (1927) also remarks that he failed to find any spicules similar to those described by Pearson. None of the other authors (Ekman, 1918; Gravely, 1927; Cherbonnier, 1955) have recorded such type of spicules for this species. The present author also failed to find any spicules of the type referred to by Pearson and therefore it seems best at present to refer *Thyone sacellus* as a doubtful synonym of *Stolus buccalis* till some specimens with similar spicules are collected and described.

Domantay (1961) described a new subspecies *lourdesae* of *Thyone buccalis* on the basis that the two specimens he collected were curved and they contained large rosettes of different pattern from those found by Selenka (1867) in his straight specimen. It is probable that Domantay's specimens became curved on preservation, a tendency already described by Ekman (1918, Pl. 2, Fig. 8). All specimens collected by the present author have also become curved in the preserved state (Pl. I). With regard to the different pattern of rosettes mentioned by Domantay (1961) in his specimens it should be pointed out that this pattern appears variable even within a single specimen. In view of the above considerations, the subspecies *lourdesae* is here relegated to the synonymy of *Stolus buccalis*.

SUMMARY

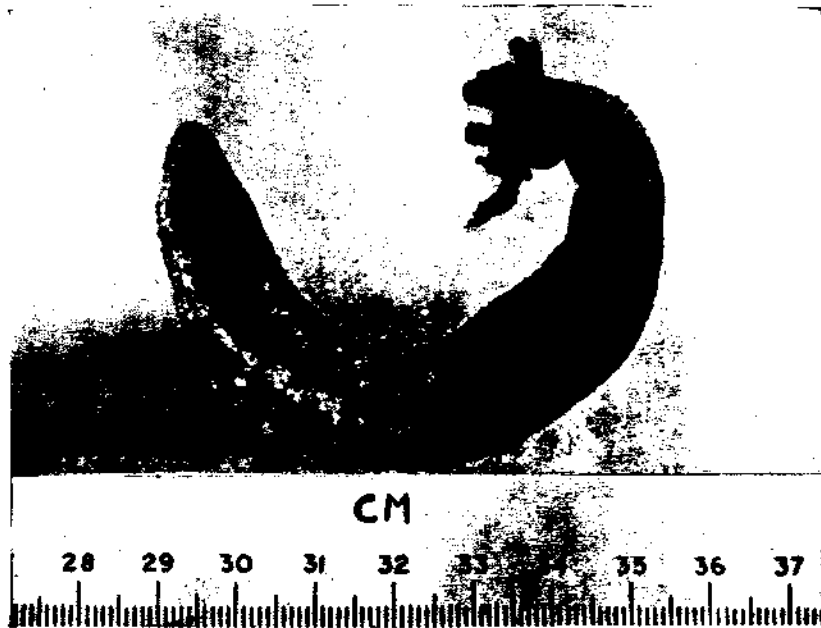
A detailed description of the holothurian, *Stolus buccalis* is given with notes on its systematic position.

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Stelus buccalis (Stimpson), lateral view.—(Photograph by Mr. K. G. Nambiar).

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* Not referred to in original.