

**PHYLLOPHORUS (PHYLLOPHORELLA) PARVIPEDES CLARK  
(HOLOTHUROIDEA), A NEW RECORD TO THE INDIAN SEAS\***

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*Phyllophorus (Phyllophorella) parvipedes* Clark (Holothuroidea) was described from Broome (Western Australia) by Clark (1938) and from Singapore by Heding and Panning (1954). While examining a shore siene collection at Vedalai (09° 15' N., 79° 07' E.) on the Gulf of Mannar on 27-3-1965, the author came across a single specimen (Pl. I) of this species measuring 65 mm. in length, thus extending its distribution from the west coast of Australia and Singapore to the south-east coast of India. As earlier descriptions of this species (Clark, 1938; Heding and Panning, 1954) do not appear to be adequate and since this is the first record of this species from this region, a detailed description is given below.

DESCRIPTION

The body (Fig. I, A) is cylindrical with the posterior end tapering more than the anterior end. The tubefeet are scattered all over the surface of the body. Twenty tentacles are arranged in two circles at the anterior end. The outer circle consists of fifteen tentacles each of about 12 mm. in length and the inner circle of five tentacles each of about 4 mm. in length.

The calcareous ring (Fig. I, B) is compact, short and broad. The radials are larger than the interradials, the posterior ends of the former concave and those of the latter straight. Each radial has two short posterior prolongations consisting of five pieces. The interradials are oval in shape with their anterior ends drawn into pointed prolongations. The alimentary canal is a straight tube, with an enlargement at the anterior region which corresponds to the stomach. It opens at the posterior end into an enlarged cloaca which is supported by suspensors. The anus is surrounded by minute papillae. A single polian vesicle of 8 mm. length and a single stone canal are present. The posterior two-thirds of the coelome is occupied by fine gonadial tubules of light purple colour (preserved in rectified spirit). The two respiratory trees are of equal length and are sparsely branched. Longitudinal muscle bands are single.

• Calcareous deposits of the following types are present :

(i) *Tables* : These are present both in the anterior and the posterior portions of the body wall (Fig. I, D). The margins of the discs are wavy to spinous. The number of spines round the disc varies from twelve to sixteen. The large peripheral

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holes of the disc vary in number from four to nine, the common number being eight. The spire is short and supported by four rods at the base of each of which a hole is present. The spines may be short or long. In some cases they are so long that they even cross the margin of the disc. The usual number of spines on the top of each spire is six. The diameter of the discs of tables varies from 0.059 to 0.091 mm.

(ii) *Supporting plates* : These are found in the tubefeet (Fig. I, E). Broad plates are present at the anterior region whereas both broad and narrow plates are found at the posterior region. The plates have wavy to spinous margins and are provided with numerous holes. The holes at the central portion are few and large whereas those at either end are many and small. Some plates are dumb-bell shaped. The length of the plates varies from 0.070 to 0.100 mm. and breadth from 0.010 to 0.077 mm.

(iii) *Miliary granules* : These are mostly found in the introvert and a few in the posterior region of the body (Fig. I, C). They are more or less oval in shape with a rough surface because of the presence of small knobs. Their length varies from 0.017 to 0.056 mm. and the breadth from 0.014 to 0.280 mm.

(iv) *End plates* : These are found at the tip of the tubefeet (Fig. I, F). They are circular in shape with numerous holes, those at the centre being smaller than those at the margin. The diameter of an end plate is about 0.264 mm.

*Colour* : In life, creamy-white in colour with light black patches scattered over the body. The body is translucent with five white lines corresponding to the longitudinal muscle bands visible in the fully expanded condition.

*Remarks* : In recording a single specimen of *Phyllophorus* sp. collected from Shingle Island (Gulf of Mannar) Gravely (1927) has stated as follows : 'It is of a dark purplish brown colour above, paler beneath. The tentacles of the inner ring are much smaller than those of the outer. Very occasionally one end of a spicule is knobbed (like a pin) or provided with three recurved teeth. Such of the latter as have been seen all appear to be broken, so it is impossible to say what the other end was like. These and many others appear to have a hollow axis.' It may be remarked here in this connection that the spicules of the type described above are not seen in any holothurian. This view has already been expressed by Pearson (vide, Gravely, *op. cit.*) who examined the specimen and suggested that the spicules referred to by Gravely may belong to a Tetractinellid sponge. It is possible that an accidental mixing of the spicules of a sponge with those of the holothurian could have resulted in this confusion. However, from the description it appears that the specimen described by Gravely is no doubt a phyllophorid because of the presence of two circlets of tentacles but precise identity could not be fixed due to lack of details of the calcareous ring and the true spicules.

Earlier authors (Clark, 1938; Heding and Panning, 1954) described the colour of this species as white or pale gray tinted yellow brown with reddish brown or blackish brown blotches or dirty light brown. The present specimen is creamy-white in colour with light black patches scattered over the body. Gravely (*op. cit.*) described the colour of *Phyllophorus* sp. as dark purplish brown above and paler beneath. From the above it would appear that the colour of the species is variable probably depending on size and locality.



*Phyllophorus (Phyllophorella) parvipedes* Clark (Photograph by S. P. D. Ghanshani.)

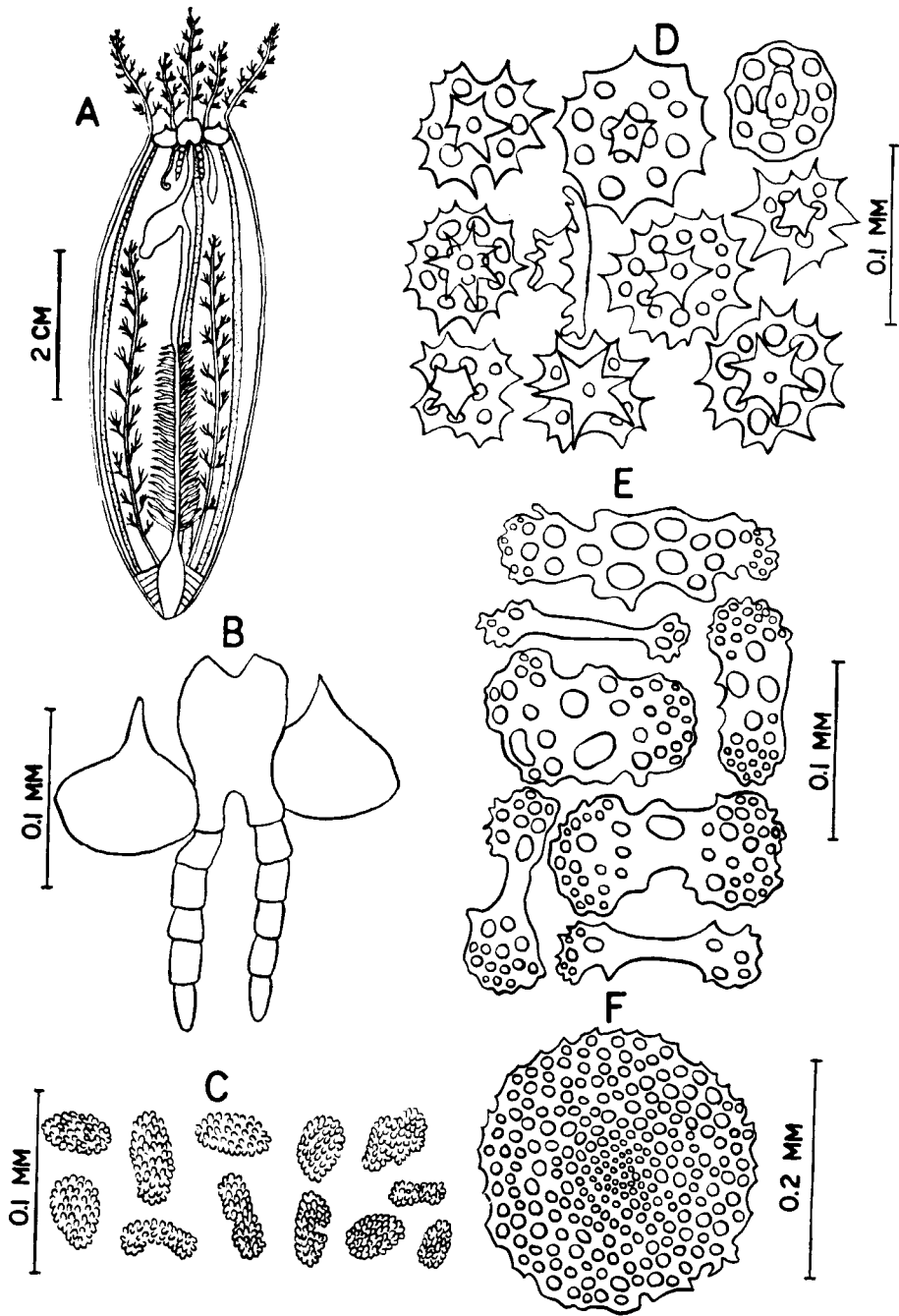


FIG. 1. *Phylloporus (Phyllophorella) parvipedes*. A. Internal anatomy of adult. B. Radial and two interradials of calcarious ring. C. Miliary granules. D. Tables. E. Supporting Plates. F. End plate.

## SUMMARY

*Phyllophorus (Phyllophorella) parvipedes* Clark is reported for the first time from the Indian Seas. A detailed description of the same is given.

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## REFERENCES

- CLARK, H. L. 1938. Echinoderms from Australia. *Mem. Mus. Comp. Zool. Harv.*, **55** : 1-597.
- . 1946. Echinoderm fauna of Australia, its composition and its origin. *Carnegie Inst. Washington*, **566** : 1-523.
- GRAVELY, F. H. 1927. Littoral fauna of Krusadai Island in the Gulf of Mannar. Echinodermata. *Bull. Madras Govt. Mus. (nat. hist.)* **1**(1) : 163-173.
- HEDING, S. G. AND PANNING, A. 1954. Phyllophoridae. Eine Bearbeitung der Polytentaculen Holothurien des Zoologischen Museums in Kopenhagen. *Spolia Zool. Mus. Hauniensis*, **13** : 1-209.