

**SCAMBICORNUS BRACHYSETOSUS N.SP., (COPEPODA :
LICHOMOLGIDAE) FROM A HOLOTHURIAN IN THE GULF OF
MANNAR**

By K. REDDIAH

Zoological Survey of India, Southern Regional Station, Madras-4

STOCK (1964) synonymised the genus *Preherrmannella* Sewell 1949 with *Scambicornus* Heegaard (1944) erecting *S. hamatus* as its lectotype and declared 19 other species as belonging to this genus. I have no comments to offer on this for the present and, following Stock, one more new species described below, is included in *Scambicornus*.

***Scambicornus brachysetosus* n. sp.**

Material : About 20 females, 9 males and 3 immature females collected from about 20 sea cucumbers, *Holothuria atra* Jäger on 31st December 1964, at Kilakarai (Ramnad District, Madras State) by Mr. T. E. Sivaprakasam and Mr. M. A. Mammen, Zoological Survey of India, Madras.

Types : 1 female (holotype), 1 male (allotype), and 13 females, 6 males and 3 immature females (paratypes) have been deposited in the National Collections of the Zoological Survey of India, Calcutta.

Description of the adult female : Length of the body excluding the caudal setae 0.6 mm. and width 0.3 mm. based on the average measurement of 14 specimens. The body form (fig 1a) is cyclopoid and robust, and is considerably expanded. The prosome, cephalosome and the urosome are of equal lengths. The 2nd and 3rd pedigerous segments possess free lateral tergites. The 4th pedigerous segment has a rounded lateral outline. The urosome is 5-segmented. The genital segment is wider than long and appears similar to that of *S. tuberosus* (Humes and Cressey). There is an oblong ovisac on either side of the genital segment reaching up to the level of the caudal rami. The 3rd postgenital segment equals the length of the caudal ramus but is slightly smaller than each of the preceding two which are about equal. The caudal ramus is short, bearing 4 terminal, 1 sub-terminal, and one lateral, setae. Of the 4 terminal setae, the second (from inside) is the longest measuring twice the length of the 3rd seta.

The antennule (Fig. 2 1) is 7-segmented. The 2nd segment is the longest and 7th the smallest. The segments measure (from proximal to distal) in the ratio of 1.5 : 4.5 : 1.3 : 2.5 : 1.5 : 1 : 0.9. The number of setae on the antennule are relatively few and the segments 1 to 7 (proximal to distal) contain 1, 7, 3, 2, 4, 0, 6, setae successively. The two setae on the 4th segment and one of the terminal setae on the 7th segment are long and of equal lengths.

The antenna (1 d) is 4-segmented of which the 2nd is the longest. The first segment is wider than the other three and bears one dorsal seta. The long second

segment possesses a deep notch within its proximal one-third and free of ornamentation. The third segment is narrow proximally and almost twice wider distally. The outer margin is sharply undulating while the inner margin is only slightly wavy bearing two small lateral setae. The fourth segment is the smallest but wider than

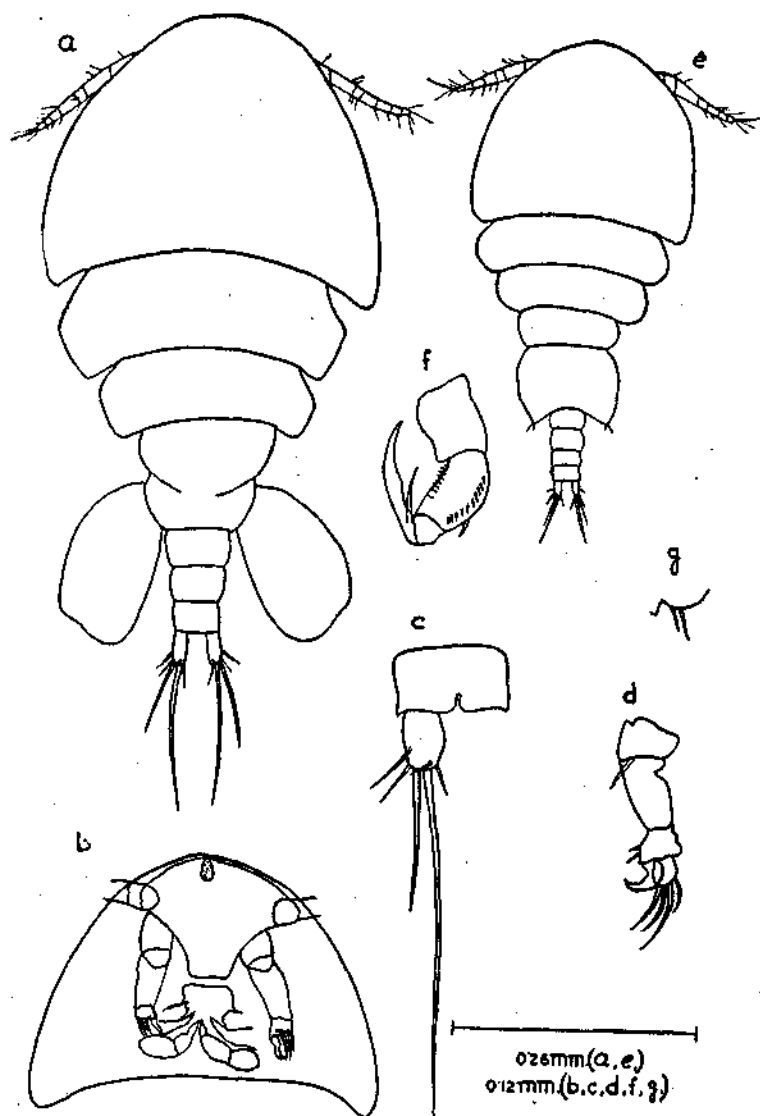


FIG. 1. *Scambicornus brachysetosus* n. sp. adult female: a, dorsal view; [b, ventral view of cephalosoma; c, anal segment and caudal ramus; d, antenna; adult male: e, dorsal view; f, maxilliped; g, 6th legs.

the base of the claw in this species and bears 3 terminal and 1 subterminal, setae. The claw arises from the same axis as that of the fourth segment and is strongly recurved with a somewhat blunt end.

TABLE I

	Protopod				Endopod						Exopod								
	Si	Se	Si	Se	Si	Se	Si	Se	Si	St	Se	Si	Se	Si	Se	Si	St	Se	
P1	..	1	0	0	1	1	0	1	0	2	2	II	0	I	1	I	4	I*	II
P2	..	1	0	0	1	1	0	2	0	3	1	II	0	I	1	I	4	II	III
P3	..	1	0	0	1	1	0	2	0	3	I	II	0	I	1	I	5	I*	III
P4	..	1	0	0	1	1	0	1	0	2	1	II	0	I	1	I	5	I*	II

* Articulated processes (spines and setae) on the swimming legs of *Scambicornus brachysetosus* n. sp. Spines are denoted by Roman, Setae by Arabic numerals. P1-P4: 1st-4th swimming legs. Si, St and Se, inner; terminal and outer margins of segments. Numerals marked* include one process intermediate between a spine and a seta.

The maxillule (Fig. 2 j) is a small flattened segment possessing 3 small terminal spines or setae and a moderately long plumose seta.

The maxilla (Fig. 2 i) is 2-segmented with a broad basal segment and a narrow distal segment. The distal segment terminates in a short lash bearing three prominent spinules on the outer margin of the lash.

The mandible (Fig. 2k) is a long and curved segment. The convex face of the distal curve which is also called the blade of the mandible is blunt and appears similar in shape to that of the lectoholotype, *S. hamatus*. No distinct armature is found on the inner margin of the blade. The position of the maxillule in relation to the mandible is shown in the figure.

The maxilliped (Fig. 2h) is 3-segmented. The basal segment is large and possesses a short thick spine on its outer distal corner. The distal segment has a swollen inner lateral margin and terminates in a stout and pointed spine. There is a short and thick spine at the base of this terminal spine.

The four swimming legs (Fig. m-p), each consists of a 2-segmented protopod (coxa and basis), a 3-segmented exopod and a 3-segmented endopod of similar lengths. The distribution of articulated spines and setae are given in Table 1. The articulated spines are all sheathed and the setae plumose except for that on the outer margin of the basis of each leg. A process situated terminally on the exopod of legs 1, 3 and 4 and the endopod of leg 3 has an outer sheath and an inner row of setules which are noted with an asterisk in the table. The spines on the endopod of leg 4 have been reduced to short thin spines as in *S. tuberatus* and *S. companulipes*.

The 5th leg (Fig. 2q) consists of a single segment bearing terminally a strong and blunt spine and a thin seta which is only slightly shorter than the spine. The 5th pedigerous segment at the point of attachment of the 5th leg bears a thin seta which is a little longer than the 5th leg segment.

The 6th legs are represented by two small setae attached to the postero-lateral corner of the genital segment, on either side.

Description of the adult male: Length of the body 0.4 mm. and width 0.2 mm. based on 7 specimens. The body shape (Fig. 1 e) is similar but smaller than the female. The pedigerous segments show rounded lateral outlines. It differs from the female in having one more post-genital segment, in the structure of the maxilliped and in the shape of the genital segment. The genital segment is large with convex lateral margins and a concave distal margin. The postero-lateral corners of the genital segment bears two sub-equal setae on either side, representing the 6th legs (Fig. 1 g). The maxilliped (Fig. 1 f) is 3-segmented. The basal segment is a little shorter but wider than the 2nd segment and is free of ornamentation. The second segment bears two rows of spinules dorsally and a prominent spine on its outer lateral margin. The third segment is short bearing a stout claw distally. There is a long seta arising from about the point of origin of the claw. The claw is blunt and tapering while its concave inner margin has a projection in the middle.

The endopods of the 1st and 2nd legs show a 2-segmented condition.

Remarks: Among the twenty species that Stock included in *Scambicornus* *S. propinquus*, (Nicholls), *S. armoricanus* (Bocquet, Stock and Kleeton) *S. finmarchicus*

(T. Scott) *S. tenuicaudis* (Sars) and *S. brevicauda* (Sewell) have the structure and ornamentation of the 3rd and 4th segments of the antenna in quite a different

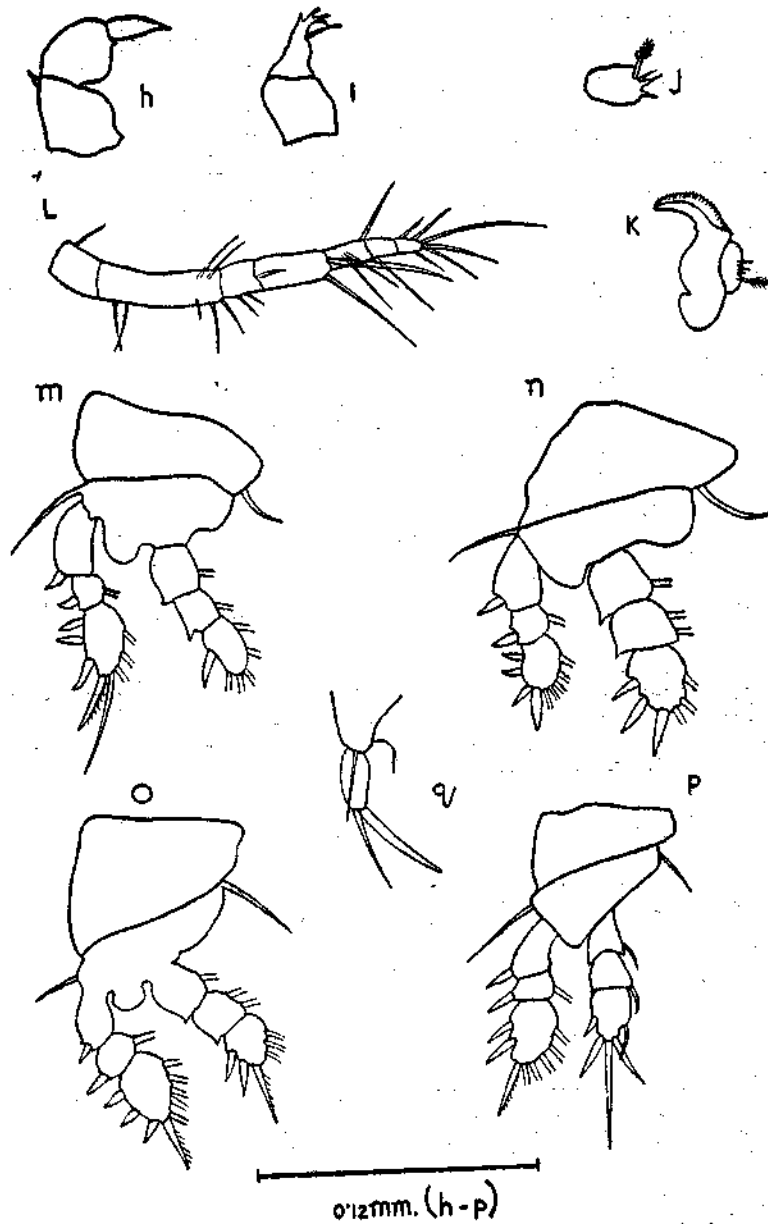


FIG. 2. *Scambicornus brachysetosus* n. sp. adult female: h, maxilliped; i, maxilla; j, maxillule; k, mandible; l, antenna; m-p, 1 to 4th legs; q, 5th leg.

arrangement from the new species, *S. brachysetosus*. The 4th segment and the claw of the antenna in the new species show some resemblances to 15 other species mentioned below.

The females of *S. poculiferus* (Humes and Cressey), *S. adduensis* (Humes and Cressey), *S. nicobaricus* (Sewell), *S. changeuxi* Stock and Kleeton possess an unusually long end segment to the antenna which in the new species and 7 other species mentioned below is remarkably small.

The new species differs from the females of the type species *S. hamatus* in the body shape, antennule, maxillule and in the ornamentation of the 4th segment of the antenna. The new species also differs from the females of *S. idoneus* (Humes and Cressey) in the size of the caudal ramus and in the shape of the genital segment; from *S. subgrandis* (Humes and Cressey) and *S. modestus* (Humes and Cressey) in the shape of the genital segment, in the body size, and in the male maxilliped; from *S. subtilis* (Humes and Cressey) in the body size, in the shape of the 5th leg and the claw of the male maxilliped. *S. tuberaus* (Humes and Cressey) possess some resemblances in the 4th endopod but differs in body size, in the size of spines and setae on the 5th and 6th legs. *S. petiti* (Stock and Kleeton) differs from the new species in the shape of the genital segment and in the length of the caudal ramus. The new species differs from the females of *S. robustus* (Thompson and A. Scott) in the size of the post-genital segments, ovisacs, and the mandible and from the females of *S. serendibicus* (Thompson and A. Scott) in the shape of the genital segment, caudal rami and in the size of the 4th segment of the antenna. The new species differs from *S. companulipes* (Humes and Cressey) in the shape of the 5th leg and from *S. prehensilis* (Sars) in the structure of antenna.

The setae on the 5th and 6th legs of the new species are very much shortened to which the specific name '*brachysetosus*' refers.

SUMMARY

Scambicornus brachysetosus n.sp., collected from a holothurian, *Holothuria atra* Jäger in the Gulf of Mannar is described and compared with the other species of the genus.

REFERENCES

- BOCQUET, C., J. H. STOCK & KLEETON, G. 1963. Copepodes parasites d'Invertébrés des côtes de la Manche, X. Cyclopoïdes pœcilostomes associés aux Annélides polychètes. *Arch. Zool. exp. gen.*, 102 (1) : 20-40.
- HUMES, A. G. AND CRESSEY, R. F. 1961. Copépodes Cyclopoïdes du genre *Preherrmannella* parasites d'Holothuries et d'un oursin à Madagascar. *Mem. Inst. Sci. Madagascar*, (F) 3, (1959) : 25-65.
- SARS, G. O. 1918. An account of the Crustacea of Norway, 6. Copepoda Cyclopoida, 13-14. (Cammarmeyers', Christiania).
- SEWELL, R. B. SEYMOUR. 1949. The littoral and semi-parasitic Cyclopoida, the Monstrilloïda and Notodelphyoida. *John Murray Exp., Sci. Repts.*, 9 (2) : 17-199.
- STOCK, J. H. AND KLEETON, G. 1963. Copépodes associés aux Invertébrés des côtes du Roussillon, I. Cyclopoïdes associés aux Holothuries—Vie et Milieu, 13 (4) : 681-702.
- STOCK, J. H. 1964. On *Scambicornus* Heegaard, 1944, a senior synonym of *Preherrmannella* Seymour Sewell, 1949 (Copepoda, Cyclopoida). *Beaufortia*, 10, (123) : 183-192.
- THOMPSON, I. C. AND SCOTT, A. 1903. Report on the Copepoda collected by Professor Herdman, at Ceylon, in 1902. *Ceylon Pearl Oyster Fish.*, 1 (suppl. Repts., 7) : 227-307.