

**AMPHIPODS OF THE GENERA *MAERA* LEACH AND
ELASMOPUS COSTA FROM THE EAST COAST OF INDIA**

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INTRODUCTION

THE present paper deals with the amphipod crustaceans belonging to the genera *Maera* Leach and *Elasmopus* Costa, based on collections made by the author from the east coast of India. The two genera were reviewed by Schellenberg (1938) who found that the only character distinguishing the two genera was the mandibular palp, while other characters used to separate them such as the slender or robust condition of body, the accessory flagellum of antenna 1, the 4th side plate, the pereopods 3-5, the 3rd uropods etc. were found in varying degrees in both the genera. He assigned the species with a slender mandibular palp, the 3rd joint of which is straight, rodlike and tipped only with a few setae to the genus *Maera*, and those with robust mandibular palp, the 3rd joint of which is falcate and with a comblike row of setae to the genus *Elasmopus*. Following this review, several species of *Elasmopus* were transferred to the genus *Maera* (Schellenberg, 1938; Barnard, K. H., 1940)

A synopsis of the species of *Maera* was made by Barnard, J. L. (1958) and that of *Elasmopus* by Barnard, J. L. (1958) and Ruffo (1959). According to these and subsequent works (Barnard, J. L., 1959), there are 33 valid species of *Maera* and 34 valid species of *Elasmopus*. In the present paper, two new species of *Maera* and a new species of *Elasmopus* which are distinct from other known species, have been described. Two species of *Elasmopus*, viz. *E. sokotrae* Walker and Scott and *E. latibrachium* Walker, have been transferred to the genus *Maera*, as they have the mandibular palp characteristic of the latter genus. Further, 3 species of *Maera* and 2 species of *Elasmopus* have been recorded for the first time from India.

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SYSTEMATIC ACCOUNT

Family GAMMARIDAE

Genus *Maera* Leach

***Maera inaequipes inaequipes* (Costa)**

Maera inaequipes Stebbing, 1906, p. 435.

Barnard, K. H., 1916, p. 193.

Schellenberg, 1938, p. 40.

Maera inaequipes inaequipes Sivaprakasam, 1967, p. 100.

Material : Gulf of Mannar : Several specimens from Pamban, Kilakkarai and Appa I. Length 7.0 mm.

Distribution : Cosmopolitan in tropical and temperate seas.

***Maera inaequipes serrata* Schellenberg**

Maera inaequipes serrata Schellenberg, 1938, p. 41, fig. 18.

Sivaprakasam, 1967, p. 100.

Material : Gulf of Mannar : Several specimens from Cape Comorin, Kilakkarai, Pamban, Mandapam, Rameswaram, Vaalai I. and Appa I. Length 8.0 mm.

Distribution : South Pacific Ocean and India.

***Maera pacifica* Schellenberg**

Maera pacifica Schellenberg, 1938, p. 42, figs. 19-20.

Sivaprakasam, 1967, p. 101.

Material : Gulf of Mannar : 9 specimens from Pamban. Length 7.0 mm.

Distribution : South Pacific Ocean and India.

***Maera quadrimana* (Dana)**

Maera quadrimana Stebbing, 1906, p. 434.

Schellenberg, 1938, p. 45, figs. 21-22.

Sivaprakasam, 1967, p. 101.

Material : Gulf of Mannar : 2 males from Pamban ; 2 males from Kilakkarai ; 3 males from Appa I. ; 2 males from Vaalai I. Madras coast : Several males and females from Royapuram beach, Madras. Length 6.0 mm.

Distribution : Tropical Pacific Ocean and India.

***Maera othonides* Walker**

Maera othonides Walker, 1904, p. 271, pl. 5, fig. 29.

Chilton, 1921, p. 535, fig. 5.

Barnard, K. H., 1935, p. 285, fig. 5.

Sivaprakasam, 1967, p. 102.

Material : Gulf of Mannar : 1 male and 1 female from Tambraparani estuary, Pinnakayal. Palk Bay : 2 males and 1 female from Tondi. Madras coast : 2 males and 2 females from Ennore estuary, near Madras ; 1 male from Irakam I., Pulicat lake. Length 9.0 mm.

Distribution : Ceylon, Maldives and India.

Maera mastersi (Haswell) (Fig. 1 A-G)*Maera mastersi* Stebbing, 1906, p. 642.

Barnard, K. H., 1916, p. 195.

Sheard, 1936, p. 177, fig. 3.

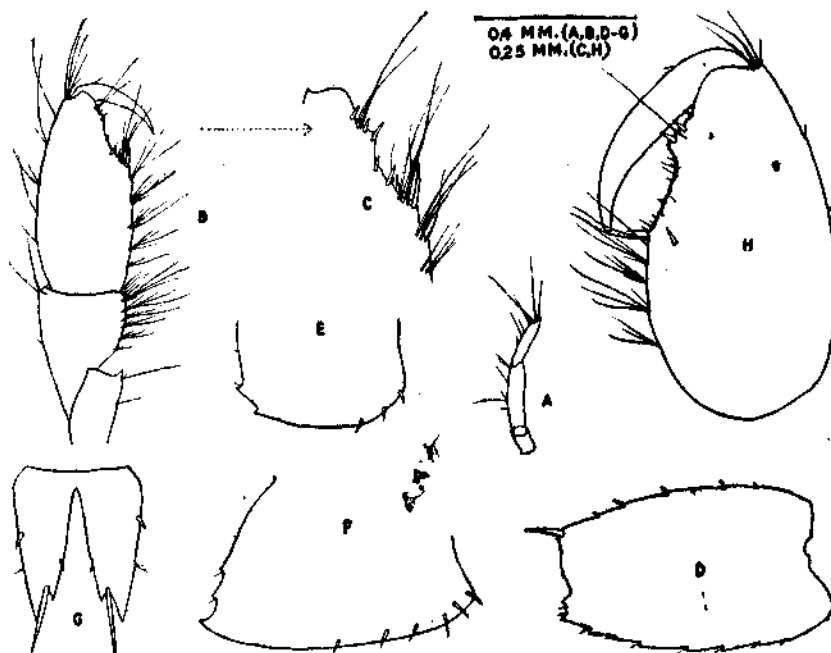


FIG. 1.—*Maera mastersi* (Haswell). Male: A, mandibular palp; B, gnathopod 2; C, palm of gnathopod 2 magnified; D, 2nd joint of pereopod 5; E, epimeral plate 2; F, epimeral plate 3; G, telson; H, *Maera insignis* (Chevreux), gnathopod 2 of young male.

Material: Gulf of Mannar: 1 male from Vaalai I. Length 5.5 mm.

Remarks: This single male agrees well with the description and figures given by Sheard (1936), but differs in the following features. Hind margin of 3rd epimeral plate has only 3 teeth. Palm of gnathopod 2 is more concave, with a distinct spinose process near hinge of dactylus.

Distribution: Australia, New Zealand, Abrolhos Is. and east coast of Africa. This species is recorded here for the first time from India.

Maera octodens sp. nov. (Fig. 2)

Material: Gulf of Mannar: 1 male from Appa I. Length 5.0 mm.

Type: This single male has been deposited as the holotype in the National Zoological Collections, Zoological Survey of India, Calcutta.

Description of the male: Body smooth with short setules on dorsal surface. Head as long as 1st mesosome segment. Lateral lobes broadly rounded. Eyes small

dark and oval. Side plates as described below. Epimeral plates 1-2 with a small tooth at postero-lateral corner and a larger one above this on hind margin. Epimeral plate 3 with postero-lateral corner produced into a blunt, upturned tooth and 3 setiferous notches above this on hind margin. Branchiae large and oval.

Antennae long and slender. Antenna 1 about 2/3 as long as body. Length of peduncular joints in the ratio 14 : 16 : 5. Flagellum 4-jointed and reaches 2nd flagellar joint. Antenna 2 reaches 7th flagellar joint of antenna 1. 4th joint of peduncle one and a third as long as 5th. Flagellum 6-jointed.

Mouth parts typical of the genus. Mandible with slender, rodlike palp. 1st joint half as long as 2nd. 3rd joint subequal to 2nd and apically with 5 long setae. Maxilla 1 with 3 apical setae on inner plate.

Gnathopod 1 slender. Side plate with front margin concave, antero-inferior angle acute and lower margin with a setiferous notch near anterior and posterior corners. 2nd joint much longer than side plate. 4th joint apically with a circlet of setae. 5th joint 1½ times as long as 6th and much wider. Front and hind margins setose. 6th joint oblong, setose on front and hind margins. Palm narrow, oblique and with short setules. Dactylus slender and curved. Gnathopod 2 unequally developed, the right one being large and well-developed and the left one under-developed. Right side : Side plate oblong with rounded corners. 2nd joint stout. 5th joint short and cuplike. 6th joint very large and as long as joints 1-5 combined and twice as long as broad. The joint is almost naked except for a few setae on front and hind margins. Palm very oblique, ¾ as long as hind margin, elegantly cut into 8 teeth increasing in size proximally and with a seta in each notch. The defining tooth is large, with a concavity on inner aspect in which lies the tip of dactylus. Dactylus stout, scimitar-shaped and ending abruptly. Left side : Slender and more setose. 5th joint much longer than 6th. Palm half as long as hind margin, undefined and with 2 granular prominences.

Peraeopods 1 and 2 identical, with slender and long joints. Side plate quadrate. Dactylus nearly straight, with a spine-seta on inner margin. Peraeopods 3-5 similar but increasing in length. 2nd joint oblong with widely spaced serrations on hind margin and its distal lobe pointed. Joints 4-6 very long, and with long, filiform spines. Dactylus nearly straight with a spine-seta on inner margin.

Pleopods normal with peduncle shorter than rami and the latter with 6-8 joints. Uropods with fewer spines. Length of peduncle, inner and outer rami as follows : 20 : 17 : 15 for uropod 1, 35 : 35 : 16 for uropod 2 and 6 : 11 : 12 for uropod 3. Telson deeply cleft. Lobes narrowing distally and apically notched with a long spine. Inner margin with a spiniferous notch near the middle and outer margin with a setule near distal end.

Female : Not known.

Remarks : *M. octodens* sp. nov. is closely related to *M. hamigera* (Haswell) and derives its specific name from the 8-toothed palm of gnathopod 2. It differs from the latter species in the following respects : (1) the remarkable difference in length (*M. hamigera* reaches a length of 18 mm.); (2) the flagellum of antenna 2 with fewer joints; (3) gnathopod 1 with 4th joint not apically acute; (4) gnathopod 2 on both sides of different form and structure; (5) hind margin of 3rd epimeral plate with fewer serrations; and (6) telson with single spine at the apex and on inner margin.

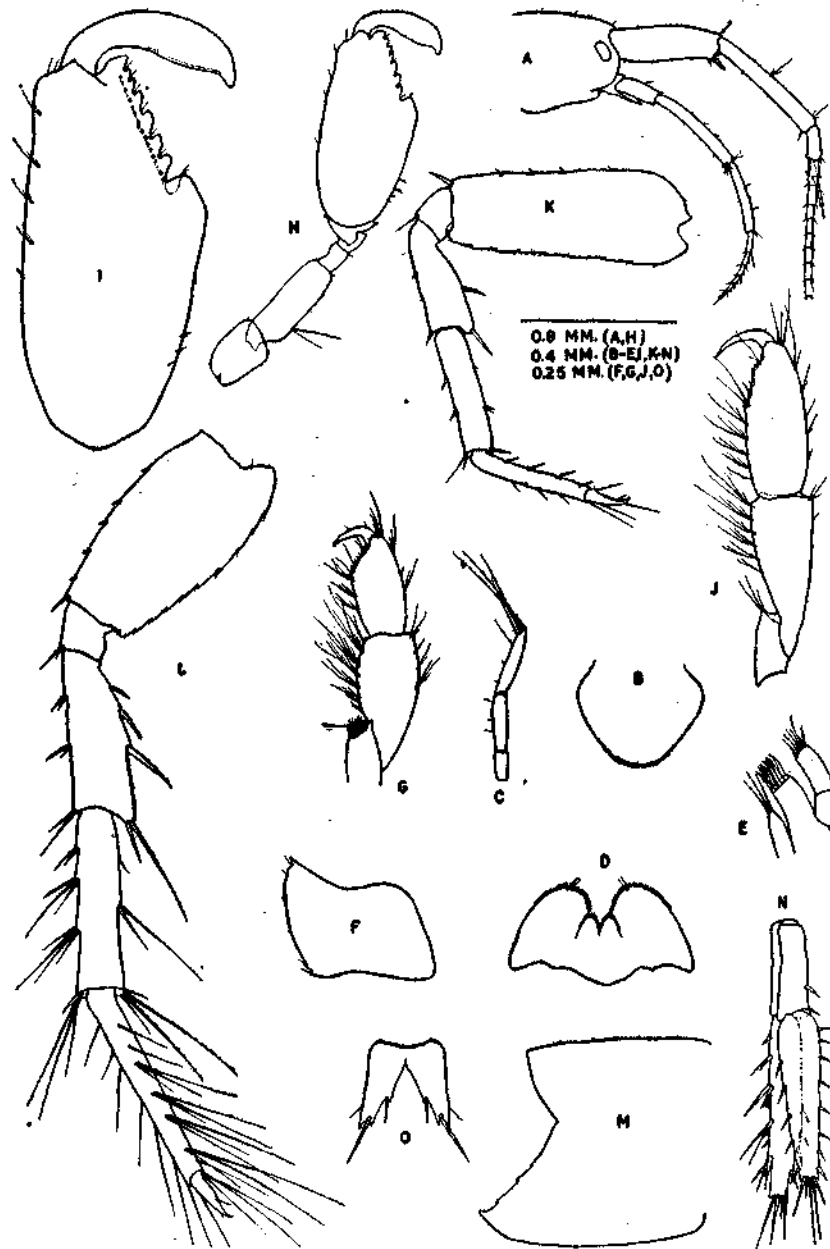


FIG. 2—*Maera octodens* sp. nov. Male: A, head; B, upper lip; C, mandibular palp; D, lower lip; E, maxilla 1; F, side plate of gnathopod 1; G, gnathopod 1; H, right gnathopod 2; I, joints 6-7 of right gnathopod 2 magnified; J, left gnathopod 2; K, peraeopod 3; L, peraeopod 5; M, epimeral plate 3; N, uropod 3; O, telson.

***Maera subcarinata* (Haswell)**

Elasmopus subcarinatus Walker, 1904, p. 275, pl. 5, fig. 34.

Stebbing, 1906, p. 441.

Chilton, 1915, p. 321, figs. 1-6.

Pirlot, 1936, p. 317, figs. 136-145.

Maera subcarinata Barnard, K. H., 1940, p. 460, fig. 26.

Hurley, 1954, p. 603.

Sivaprakasam, 1967, p. 102.

Material: Gulf of Mannar : Several specimens from Vaalai I., Appa I., and Pamban. Palk Bay : 4 males from Tondi. Length 7.0 mm.

Distribution: Australia, New Zealand, Ceylon, India, Indian Ocean, South Africa and Mediterranean.

***Maera sokotrae* (Walker and Scott)**

Elasmopus sokotrae Walker and Scott, 1903, p. 223, pl. 14B, fig. 1.

Sivaprakasam, 1967, p. 107, fig. 10.

Material: Gulf of Mannar : 2 males and 3 females from Cape Comorin ; 1 male from Appa I. Length 8.0 mm.

Remarks: This species is transferred from the genus *Elasmopus* to *Maera* on account of its slender, rodlike palp of mandible which is characteristic of the latter genus.

It is probable that this species is identical with *M. insignis* (Chevreux), from which it was separated by its authors by the sculpture and comparative nudity of the posterior margin of 6th joint of male gnathopod 2 and by the absence of teeth on 1st urosome of female. The first character could be due to smaller size or immature condition and the latter condition is rather improbable.

Distribution: Abd-el-Kuri (Sokotra) and India.

***Maera insignis* (Chevreux) (Fig. 1 H)**

Elasmopus insignis Chevreux, 1901, p. 406, figs. 24-31.

Maera insignis Schellenberg, 1938, p. 50, fig. 24.

Barnard, J. L., 1955, p. 12.

Material: Gulf of Mannar : 3 males and 1 female from Cape Comorin. Length 4.5 mm.

Remarks: These young specimens closely agree with the description and figures given by Schellenberg (1938).

Distribution: Tropical Pacific and Indian Ocean. This is the first record of this species from India.

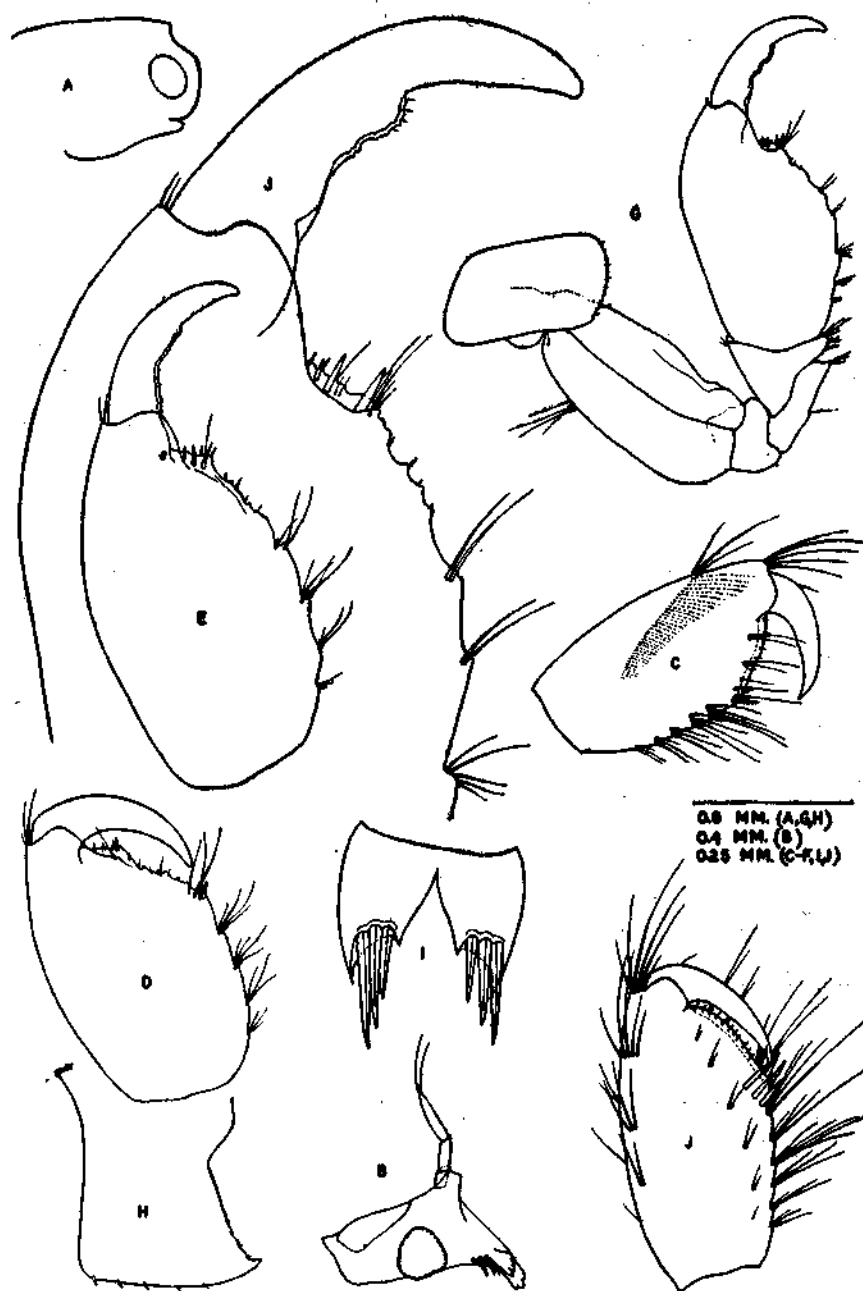


FIG. 3—*Maera latibrachium* (Walker). Male : A, head ; B, mandible ; C, gnathopod 1 ; D, E, F, joints 6-7 of gnathopod 2 of males 4.5, 5.7, 9.0 mm. in length ; G, gnathopod 2 (magnified in fig. F) ; H, epimeral plate 3 ; I, telson ; Female : J, gnathopod 2.

***Maera latibrachium* (Walker) (Fig. 3)**

Elasmopus latibrachium Walker, 1905, p. 928, pl. 88, figs. 6-10.

Elasmopus odontoplax Pirlot, 1936, p. 326, fig. 146.

Pareiasmopus suluensis Nayar, 1966, p. 153, fig. 11 a-c (non Dana).

Nec *Elasmopus latibrachium* Sivaprakasam, 1967, p. 106, fig. 9.

Material : Gulf of Mannar : 1 male from each of Vaalai I., Mandapam and Pamban. Palk Bay : Several males and females from Rameswaram. Length 9.0 mm.

Remarks : It has been noticed that there occur two closely related species with markedly wide 2nd joint in male gnathopod 2. The author (1968), while recording this species, pointed out some differences from Walker's (1905) description. This record has now been found to be a new species which is described below. The present material closely agrees with the description and figures given by Walker (1905) and Pirlot (1936). Nayar's (1966) record of *Pareiasmopus suluensis* appears to belong to this species, based on the figures given by him.

The following description and figures will serve to distinguish this species from others : Lateral lobes of head flattened in front. Side plates 1-3 with a tooth near postero-inferior angle. Postero-lateral corner of 3rd epimeral plate produced into slightly upturned tooth and the hind margin with 3-4 faint teeth. Mandibular palp straight, with the lengths of joints 1-3 in the ratio 3 : 5 : 6 and the terminal joint with 2 apical setae. Gnathopod 1 of male with 6th joint oblong and twice as long as broad. Palm half as long as hind margin and defined by a pair of spines. Gnathopod 2 of male undergoes considerable changes with age, which are figured. In the adult, 2nd joint is very wide and nearly as long as 6th, 3-ribbed, widest near the middle and with a depression on front margin near the distal end. 6th joint elongate-oval, front margin produced like a hump in the distal half and hind margin with the setiferous notches angular. Palm $\frac{2}{3}$ as long as hind margin. Spinose process near hinge of dactylus tubercular and with 3 pairs of spines and the rest of the palm tubercular with a few spinules. Dactylus stout, with a tubercular rounded prominence in the middle of inner margin. Peraeopods 3-5 with hind margin of 2nd joint closely serrate and the distal lobe broadly rounded. Telson lobes deeply notched apically and with 3 stout spines.

Gnathopod 2 of female with 2nd joint not widened. 6th joint $1\frac{1}{2}$ times as long as 5th and twice as long as wide. Palm $\frac{2}{3}$ as long as hind margin, slightly convex with a row of spinules and defined by an angle with 3 pairs of stout spines.

Distribution : Minikoi I., Hulule I. and Isles of Paternoster. This species is now recorded for the first time from Indian mainland.

***Maera latibrachioides* sp. nov. (Figs. 4-5)**

Elasmopus latibrachium Sivaprakasam, 1967, p. 106, fig. 9 (non Walker)

Material : Gulf of Mannar : 2 males and 1 female from Nallathanni I., Several males and females from Appa I., 2 males and 2 females from Kilakkarai. Palk Bay : 1 male and 2 females from Nambuthalai; 14 males and females from Tondi ; 3 females from Rameswaram. Length 3.0 to 8.0 mm.

Types : Male holotype, 7.7 mm. in length, female allotype, 7.5 mm. in length and 5 paratypes (3 males and 2 females), all collected from Appa I., have been deposited in the National Zoological Collections, Zoological Survey of India, Calcutta.

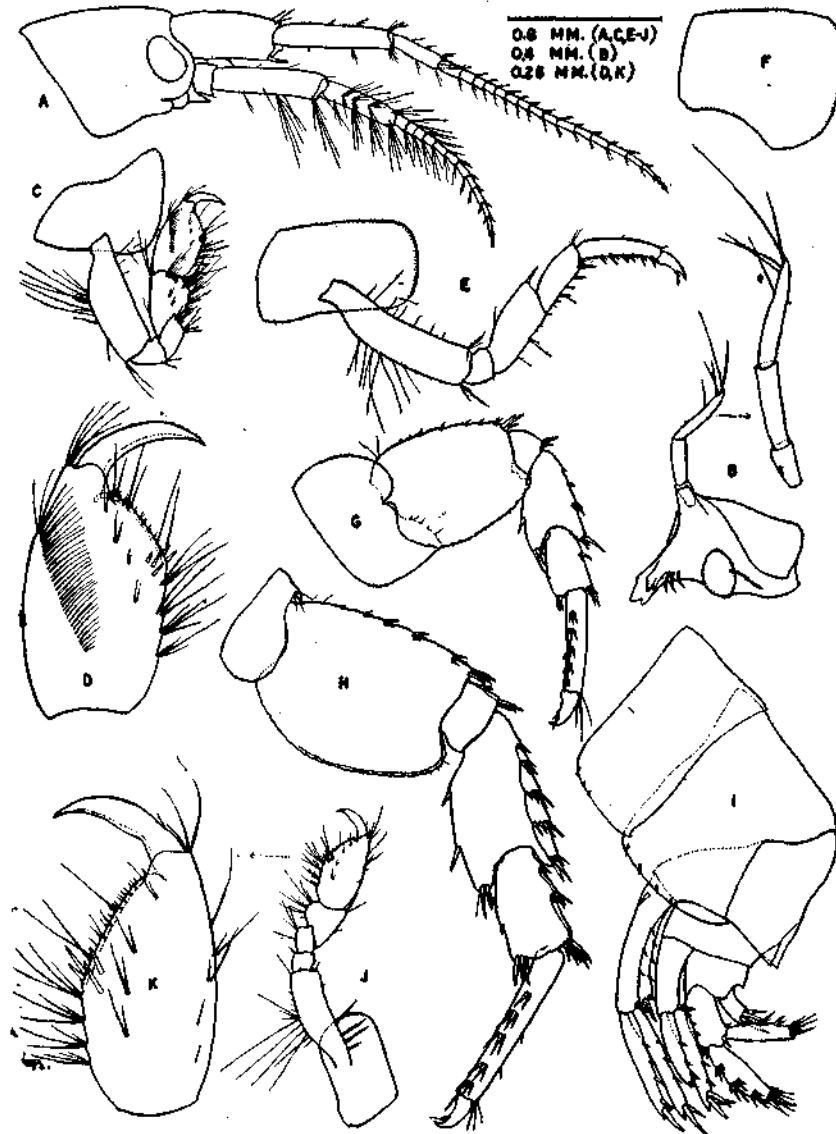


FIG. 4—*Maera latibrachioides* sp. nov. Male ; A, head ; B, mandible ; C, gnathopod 1 ; D, joints 6-7 of gnathopod 1 magnified ; E, peraeopod 1 ; F, peraeopod 2, side plate ; G, peraeopod 3 ; H, peraeopod 5 ; I, pleon and urus ; Female : J, gnathopod 2 ; K, joints 6-7 of gnathopod 2 magnified.

Description of the male : Head as long as first two segments. Lateral lobes broadly rounded. Eyes dark and oval. 1st urosome with a pair of low dorsal

carinae. Epimeral plates with a small pointed tooth at postero-lateral corner and hind margin smooth. Branchiae elongate-oval.

Antenna 1 more than $\frac{1}{4}$ body length. Peduncle a little shorter than flagellum and length of its joints 1-3 in the ratio 7 : 8 : 4. Flagellum with 16-20 joints and the accessory flagellum with 3 joints. Antenna 2 reaches middle of flagellum of antenna 1. 4th joint of peduncle much longer than 5th and both with tufts of long setae. Flagellum 12-jointed.

Mouth parts typical of the genus, with following remarks. Upper lip semi-circular. Palp of mandible slender and rodlike and length of joints 1-3 in the ratio 3 : 7 : 9. 3rd joint with 5 long setae distally. Lower lip with the mandibular process acute. Maxilla 1 with 2 plumose setae at apex of inner plate. Outer plate with 7 serrate spines. 2nd joint of palp apically rounded with a parallel row of 9 spine-setae. Maxilla 2 as usual. Maxilliped well-developed.

Gnathopod 1 with side plate produced forwards into conically rounded lobe. 2nd joint stout, with long setae on hind margin. 5th joint shorter than 6th and densely setose on hind margin. 6th joint one and two-thirds as long as broad and setae as figured. Palm $\frac{2}{3}$ as long as hind margin, slightly convex with short setules and defined by 2 pairs of spines. Dactylus slender and curved. Gnathopod 2 large, almost naked and undergoes considerable changes with age, which are figured. In the adult, the side plate is oblong and rounded below. 2nd joint very stout, as long as and a little narrower than 6th, and widest near the distal end. 3rd joint as wide as the length of 4th. 5th joint short, hind lobe narrow and front margin with 2 spines. 6th joint large, elongate-oval and with front and hind margins evenly convex. Palm as long as hind margin and evenly convex. Spinose process near hinge of dactylus prominent, cuplike with paired row of 4-5 tubercular spines at the apex and separated from the rest of the palm by a deep, rounded constriction. This is followed by two longitudinal tubercular ridges with a few spinules and ending in 2 pairs of tubercles which define the palm. Dactylus stout, as long as palm, blunt-tipped and with a few tubercles on inner margin near the base.

Peraeopods 1 and 2 stout and normal. Side plate oblong in the former and $1\frac{1}{2}$ times broader with hind margin excavate in the latter. Dactylus with 2 spine-setae on inner margin. Peraeopods 3-5 robust with broad and spinous joints and increasing in length. Peraeopod 3 with front lobe of side plate rounded and hind lobe angular. 2nd joint oblong-oval in form, broadest near the base and hind margin serrate with angular distal lobe. Peraeopod 4 intermediate between 3rd and 5th. Peraeopod 5 with hind margin of 2nd joint convex, serrate and the distal lobe slightly rounded. Joints 4-5 broad, with spines on front margin arranged between 2 longitudinal ridges. In some old specimens, joints 5-6 were very short, apparently being regenerated after some damage.

Pleopods normal. Peduncle $\frac{2}{3}$ as long as inner ramus and with plumose setae on inner margin. Rami with about 13 joints.

Uropods stout and spinuous. Length of peduncle, inner and outer rami of uropods 1-3 as follows : 19 : 16 : 14, 11 : 14 : 10 and 8 : 9 : 10. Uropod 3 extends only a little beyond others.

Telson as figured for *M. latibrachium* (Walker).

Description of the female: Females differ from the males only in gnathopod 2 which is a little larger than gnathopod 1. Side plate oblong and rounded below. 2nd joint not widened. 5th joint $\frac{2}{3}$ as long as 6th, with hind margin rounded

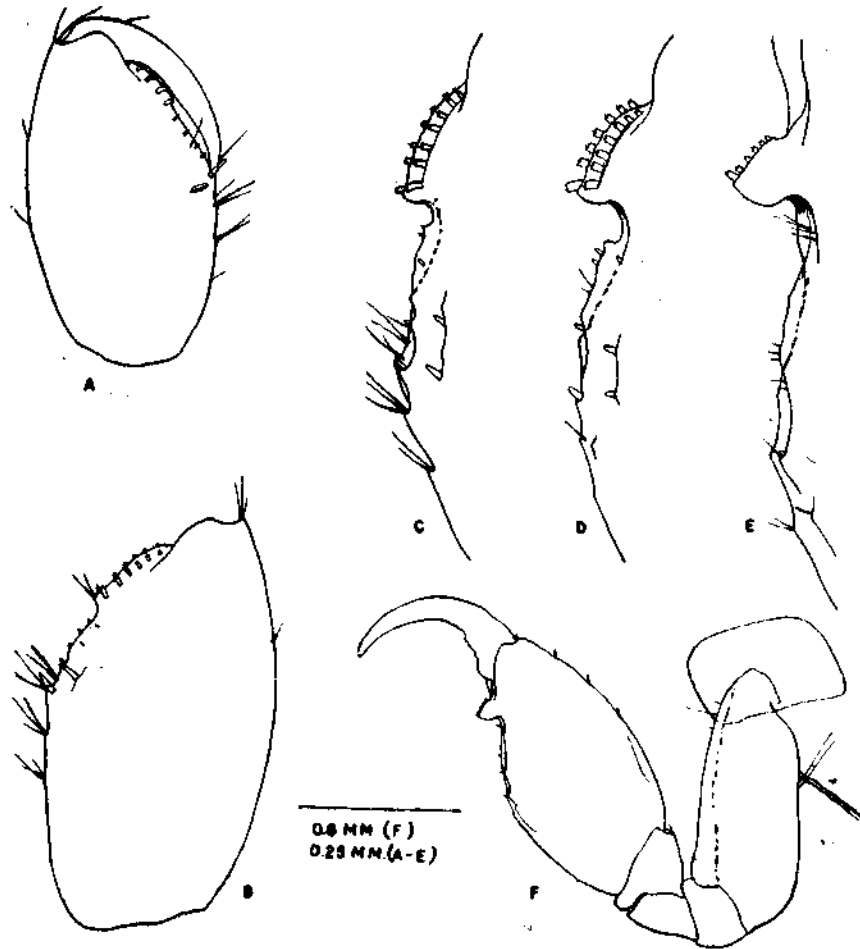


FIG. 5—*Maera latibrachtioides* sp. nov. Male: A, gnathopod 2 of male 5.0 mm. in length; B, 6th joint of gnathopod 2 of male 5.5 mm. in length; C, D, E, palm of gnathopod 2 of males 6.5, 7.5, 7.7 mm. in length; F, gnathopod 2 of male 7.7 mm. in length (magnified in fig. E).

and setose. 6th joint oval, widest near the middle and narrowing distally. Palm as long as hind margin, very oblique, nearly straight with short setules and defined by 2 pairs of spines. Dactylus acute-tipped and thickened in the middle. Incubatory lamellae ribbonlike.

Remarks: *M. latibrachtioides* sp. nov. derives its specific name on account of its close resemblance to *M. latibrachium* (Walker) from which it differs in the following respects: (1) the broadly rounded lateral lobes; (2) side plates 1-3 without a tooth on lower margin; (3) antenna 2 with profuse setae on distal part of peduncle; (4) 3rd joint of mandibular palp with more setae; (5) male gnathopod 1 with

6th joint relatively wider ; (6) male gnathopod 2 different even from young stage, and in the adult with 2nd joint widest near distal end, 6th joint evenly oval, with characteristic spinose process, followed by a constriction, and dactylus without prominent tooth on inner margin ; (7) female gnathopod 2 with 6th joint of different form and structure ; and (8) posterior pereopods very robust with hind margin of 2nd joint not broadly rounded and distal lobe angular.

The author's record (1968) of *E. latibrachium* (non Walker) belongs to this new species.

Genus *Elasmopus* Costa

Elasmopus rapax Costa (Fig. 6 A)

Elasmopus rapax Barnard, J. L., 1955, p. 10, fig. 5 (literature).

Material : Gulf of Mannar : 1 male and 1 female from Appa I.; 1 male from Kilakkarai. Length 6.0 mm.

Distribution : Cosmopolitan in tropical and temperate seas. This is the first record of this species from the Indian mainland.

Elasmopus pecteniscus (Bate) (Fig. 6 B-C)

Elasmopus pecteniscus Barnard, J. L., 1955, p. 8, fig. 4 (literature).

Sivaprakasam, 1967, p. 103.

Material : Numerous specimens from several localities in the Gulf of Mannar, Palk Bay, Madras coast and Andhra coast. Length 10.0 mm.

Remarks : These specimens closely agree with the earlier descriptions of the species, but in the male gnathopod 2 there is a longitudinal ridge on inner aspect along the palm which seems to have been overlooked by previous authors. This ridge, in the young male appears as a flat-topped tooth and in the adult becomes separated into 3-4 teeth as figured.

Distribution : Cosmopolitan in tropical and temperate seas.

Elasmopus spinibasis sp. nov. (Figs. 7-8)

Material : Gulf of Mannar : 24 males and 17 females collected from Pamban. Length 3.0-10.0 mm.

Types : Male holotype, 10 mm. in length, female allotype, 7.5 mm. in length and 4 paratypes (2 males and 2 females) have been deposited in the National Zoological Collections, Zoological Survey of India, Calcutta.

Description of the male : Head slightly shorter than first two mesosome segments. Lateral lobes rounded and slightly flattened in front. Eyes medium-sized, dark and oval. Body smooth with short setules on dorsal surface. Side plates 1-4 with long setae on lower margin. Epimeral plates 1-3 with small pointed tooth at pos-

tero-lateral corner, followed by nearly straight hind margin with 5-6 setules. Branchiae elongate-oval.

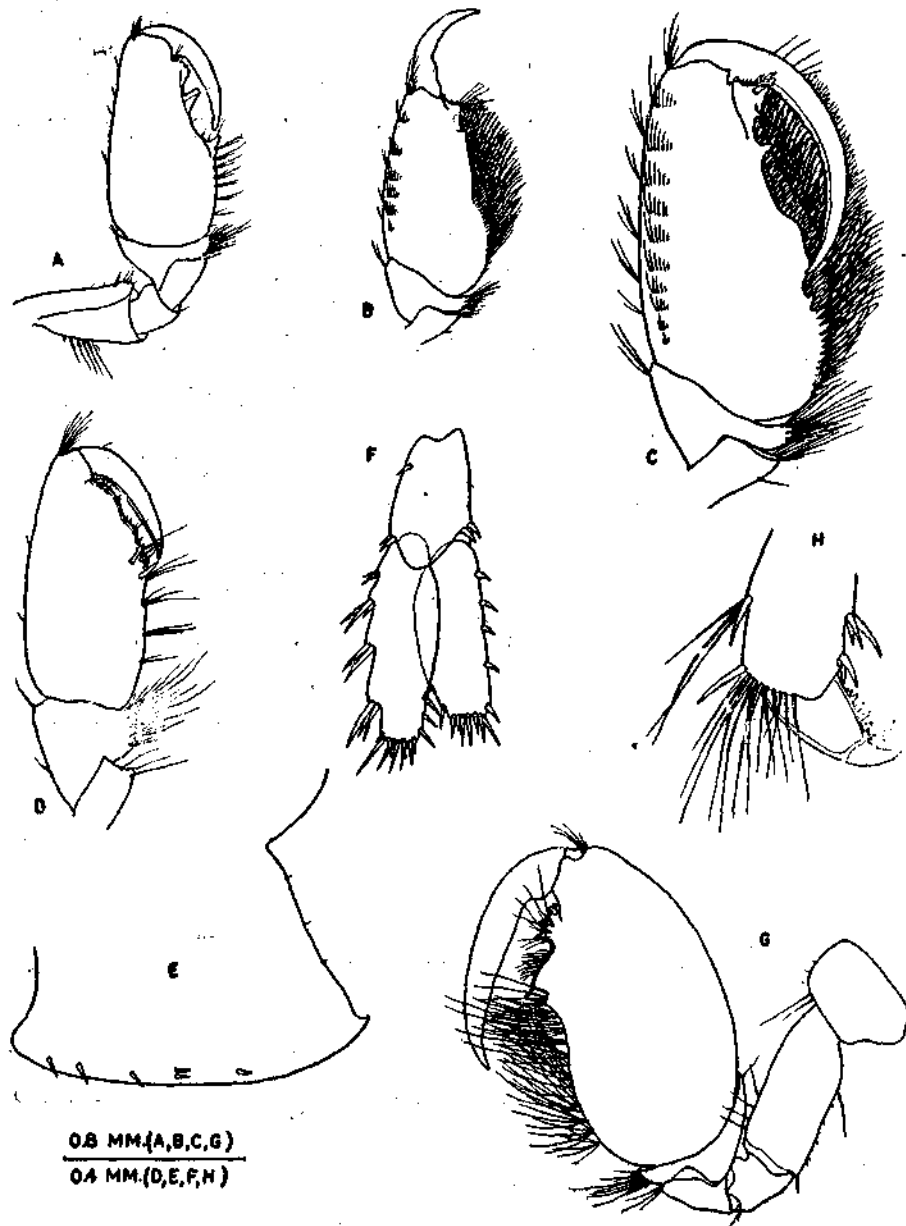


FIG. 6—A, *Elasmopus rapax* Costa, male gnathopod 2; B-C, *Elasmopus pectenicrus* (Bate), gnathopod 2 of males 4.0 and 10 mm. in length; D-F, *Elasmopus erythraeus* (Kossmann); D, male gnathopod 2; E, epimeral plate 3; F, uropod 3; G-H, *Elasmopus spinidactylus* Chevreux; G, male gnathopod 2; H, end of pereopod 5.

Antennae stout, with stiff setae. Antenna 1 with peduncle a little longer than flagellum. Length of peduncular joints 1-3 in the ratio 7 : 7 : 4. Flagellum stout, with 18-25 joints which are short and broad. Accessory flagellum 3-jointed and reaches middle of 2nd flagellar joint. Antenna 2 reaches 5th joint of flagellum of antenna 1. Peduncle $1\frac{1}{2}$ times as long as flagellum which has 9-10 joints.

Mouth parts typical of the genus. Mandible with primary and accessory cutting plates tridentate. Spine row with 5 spines. Palp robust, 1st joint small, 2nd joint $\frac{2}{3}$ as long as 3rd and the latter strongly falcate with comblike setae on inner margin and 3 long setae distally. Maxilla 1 with inner plate half as long as outer and apically with 2 long plumose setae. Maxilla 2 densely setose at apex of plates. Maxilliped robust and well-developed.

Gnathopod 1 with side plate produced forwards into rounded lobe. 2nd joint stout, with profuse setae on hind margin. 5th and 6th joints densely setose on front and hind margins. 6th joint much longer than 5th. Palm $\frac{2}{3}$ as long as hind margin, slightly oblique, convex and defined by 2 spines. Dactylus slender and as long as palm. Gnathopod 2 very large. Side plate suboblong. 2nd joint $\frac{2}{3}$ as long as 6th. 3rd and 4th joints subequal in length. 5th joint $\frac{2}{3}$ as long as 6th, cuplike and densely setose on hind lobe. 6th joint large, elongate-oval, narrowing distally and twice as long as broadest part. Palm undefined and continuous with hind margin, the entire margin beset with long, dense and pectinate setae. There is a rectangular process near hinge of dactylus, flat at the top, with a row of 6 spinules on distal margin and a few long setae on outer surface. This is followed by a deep curvature and broadly rounded posterior margin. Dactylus stout, $\frac{2}{3}$ as long as 6th joint, broadly curved and acute-tipped.

Peraeopods 1 and 2 stout and spinuous. Side plate rectangular in the former and broader with hind margin slightly excavate in the latter. Dactylus stout, with a spine and a seta on inner margin. Peraeopods 3-5 robust, with 2nd joint markedly large. Peraeopod 3 with large, bilobed side plate. 2nd joint oblong-oval, with hind margin faintly serrate and its distal lobe rounded. Peraeopod 4 with a few spines on front and hind lobes of side plate. 2nd joint oblong, with hind margin serrate and its distal lobe angularly rounded. Peraeopod 5 with 2nd joint very large and oval. Hind margin broadly rounded, with 3 curved spines on proximal lobe, proximal $\frac{1}{3}$ of the margin faintly serrate and the rest of the margin elegantly cut into narrow and flat-topped teeth. Other joints broad and spinuous.

Pleopods normal. Peduncle shorter than outer ramus and with plumose setae on outer margin. Inner ramus longer than outer and each with 11-14 joints.

Uropods robust and very spinuous. Length of peduncle, inner and outer rami of uropods 1-3 as follows : 18 : 15 : 14, 16 : 19 : 16 and 8 : 7 : 10. Uropod 3 extends a little beyond others.

Telson broader than long and deeply cleft. Each lobe apically flat with 4 spines and a spinule in the middle of outer margin.

Description of the female : Females are similar to the male except in gnathopod 2 and peraeopod 5. Gnathopod 2 with 5th joint half as long as 6th and hind lobe broad and densely setose. 6th joint elongate-oval and twice as long as broad. Both margins evenly convex and setose. Palm $\frac{2}{3}$ as long as hind margin, slightly convex with a few spinules and defined by 2 spines. Dactylus slender. Peraeopod 5 with hind margin of 2nd joint cut into broad teeth and the proximal lobe with 3 spines. Incubatory lamellae ribbonlike.

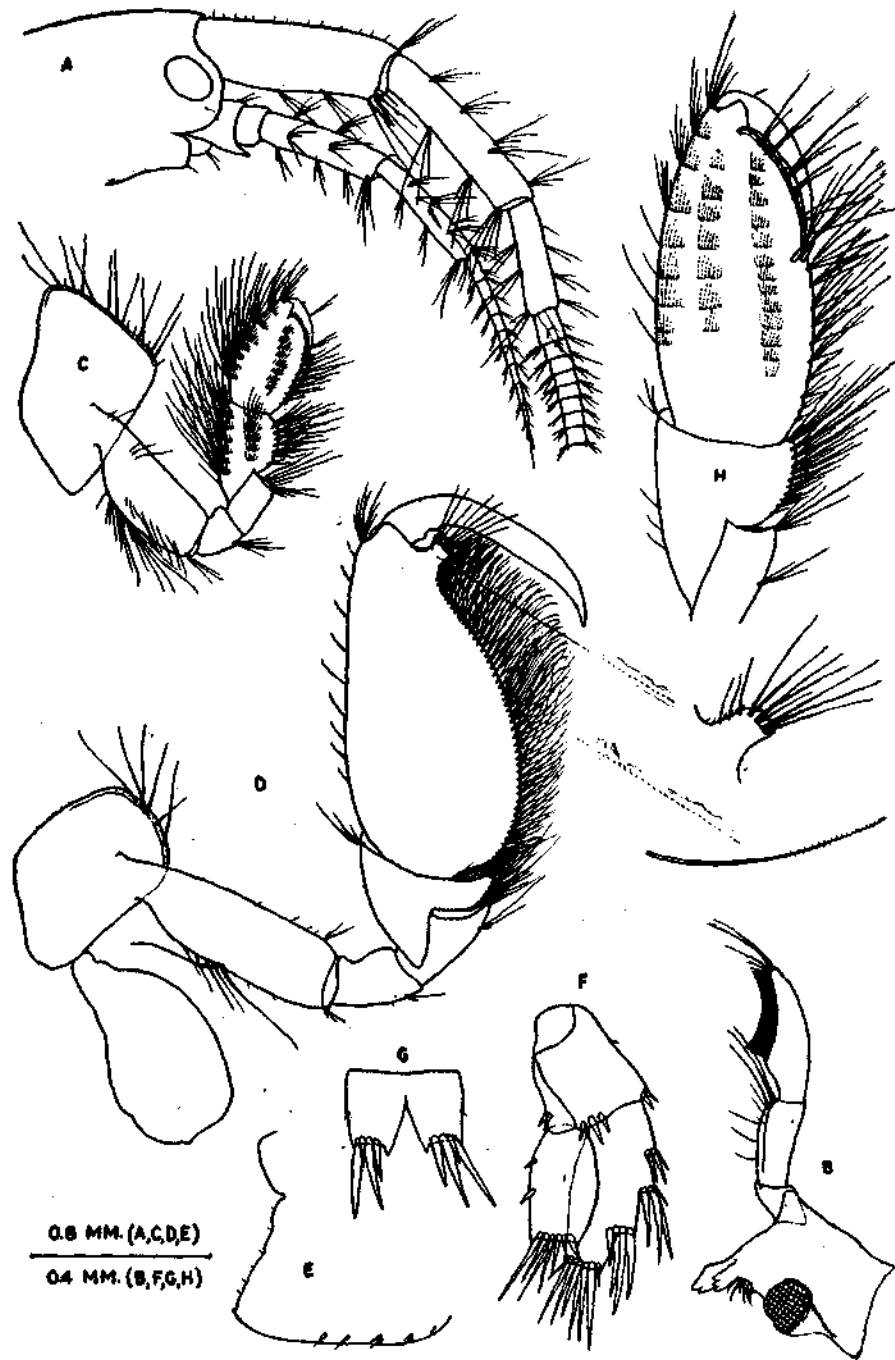


FIG. 7—*Elasmopus spinibasis* sp. nov. Male: A, head; B, mandible; C, gnathopod 1; D, gnathopod 2; E, epimeral plate 3; F, uropod 3; G, telson; Female: H, gnathopod 2.

Remarks: *E. spinibasus* sp. nov. derives its specific name from the spines on hind margin of basal joint of peraeopod 5, a feature not found in other species of the genus. The new species is closely related to *E. pectenarius* (Bate) and *E. ecuadorensis* Schellenberg (1936), but differs them in the following respects: (1) side plates 1-4 with long setae on lower margin; (2) gnathopod 1 with 5th and 6th joints densely setose and the latter much longer the former; (3) male gnathopod 2, 6th joint of different form and with flat-topped process near hinge of dactylus; (4) peraeopod 4 with hind margin of 2nd joint finely serrate and not abruptly narrowed; (5) peraeopod 5, 2nd joint with 3 spines on proximal part of hind margin and distal $\frac{1}{3}$ of the margin cut into narrow, flat-topped teeth; and (6) telson broader than long.

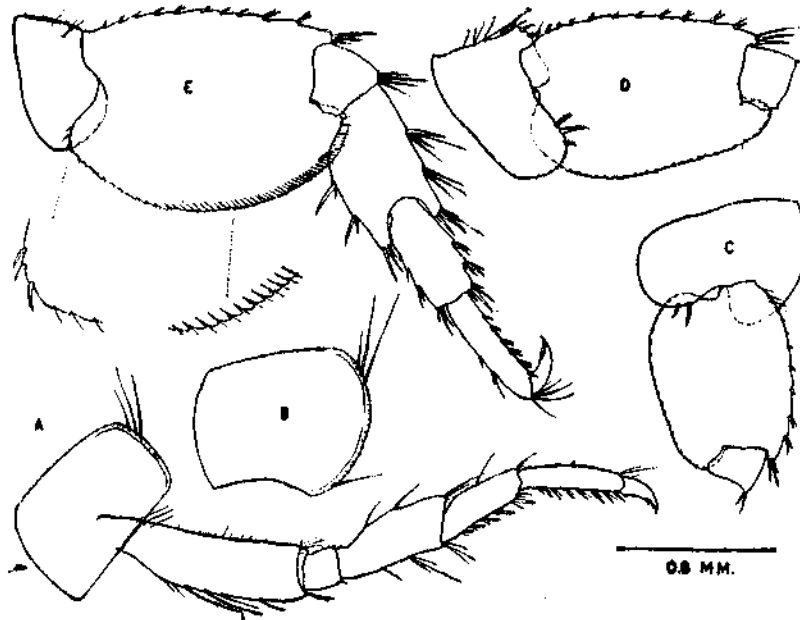


FIG. 8—*Elasmopus spinibasus* sp. nov. Male: A, peraeopod 1; B, side plate of peraeopod 2; C, D, E, peraeopods 3, 4, 5 respectively.

Several specimens (14 males and 8 females) have antenna 2 markedly short, reaching upto $\frac{1}{4}$ the length of 3rd peduncular joint of antenna 1, but otherwise agree with the above description. The significance of this feature in so many specimens of both sexes is not known.

***Elasmopus erythraeus* (Kossmann) (Fig. 6 D-F)**

Elasmopus erythraeus Stebbing, 1906, p. 446.

Barnard, K. H., 1937, p. 161, fig. 10.

Ruffo, 1940, p. 166, fig. 4.

Material: Gulf of Mannar: 2 males from Vaalai I. Length 5.0 mm.

Remarks: These specimens agree well with the description and figures given by Barnard, K. H. (1937) and Ruffo (1940), but the teeth on palm of gnathopod 2 are

not well-marked due to their young condition. However, there is a rounded tooth near hinge of dactylus, followed by two other prominences indicating them and the spines on palm and the defining ones are well in agreement with their description.

Distribution: Red Sea and South Arabian Sea. This species is recorded here for the first time from India.

***Elasmopus spinidactylus* Chevreux (Fig. 6 G-H)**

Elasmopus spinidactylus Chevreux, 1907, p. 414.

Chevreux, 1908, p. 486, figs. 9-10.

Walker, 1909, p. 336.

Schellenberg, 1938, p. 55.

Shoemaker, 1942, p. 13.

Ruffo, 1954, p. 119.

Sivaprakasam, 1967, p. 104, fig. 8.

Material: Gulf of Mannar: 4 males and 3 females from Cape Comorin, 7 males and 3 females from Pamban. Length 9.5 mm.

Distribution: Paumotu, Gambier, and Tuomotu Archipelagoes, Gilbert I., Clipperton I., (Pacific Ocean), Chagos I., Egmont and Praslin reefs (Indian Ocean), India and Venezeula.

SUMMARY

The paper deals with amphipods of the genera *Maera* and *Elasmopus* occurring in Indian waters. Three new species, *Maera octodens*, *M. latibrachioides* and *Elasmopus spinibasus* are described and figured. Five species are recorded for the first time from India.

REFERENCES

- BARNARD, J. L. 1955. Gammaridean Amphipoda (Crustacea) in the collections of Bishop Museum. *Bull. Bishop Mus. Honolulu*, **215**: 1-46.
- . 1958. Index to the families, genera and species of the gammaridean Amphipoda (Crustacea). *Occ. Pap. Allan Hancock Fdn.*, **19**: 1-145.
- . 1959. Ecology of Amphipoda and Polychaeta of Newport Bay, California. Part II. Estuarine Amphipoda. *Ibid.*, **21**: 13-69.
- BARNARD, K. H. 1916. Contributions to the crustacean fauna of South Africa. 5. Amphipoda. *Ann. S. Afr. Mus.*, **15**(3): 105-302.
- . 1935. Report on some Amphipoda, Isopoda and Tanaidacea in the collections of the Indian Museum. *Rec. Indian Mus.*, **37**: 279-319.
- . 1937. Amphipoda. *John Murray Expedition, 1933-34, Sci. Rep.*, **4**(6): 131-201.
- . 1940. Contribution to the crustacean fauna of South Africa. 12. Further additions to the Tanaidacea, Isopoda and Amphipoda together with keys for the identification of hitherto recorded marine and freshwater species. *Ann. S. Afr. Mus.*, **32**(5): 381-543.

- CHEVREUX, E. 1901. Mission scientifique de M.Ch.Alluaud aux Isles Sechelles, 1892. Crustacees Amphipodes. *Mem. Soc. zool. Fr.*, **41** : 388-438.
- . 1907. Diagnoses d'Amphipodes nouveaux recueillis dans les possessions francaises de l'Oceanie, par M. L. Seurat, directeur du Laboratoire de recherches biologiques de Rikitea. *Bull. Mus. Hist. nat. Paris*, **6** : 412-417.
- . 1908. Amphipodes recueillis dans les possessions francaises de l'Oceanie par M. L. Dr. Seurat, 1902-1904. *Mem. Soc. zool. Fr.*, **20** : 470-527.
- CHILTON, C. 1915. The New Zealand species of the amphipodan genus *Elasmopus*. *Trans. N.Z. Inst.*, **47** : 320-330.
- . 1921. Fauna of the Chilka lake. Amphipoda. *Mem. Indian. Mus.*, **5** : 521-558.
- HURLEY, D. E. 1954. Studies on the New Zealand amphipodan fauna. No. 4. Fam. Gammaridae including a revision of the freshwater genus *Phreatogammarus* Stebb. *Trans. roy. Soc. N.Z.*, **81**(4) : 601-618.
- NAYAR, K. N. 1966. On the gammaridean Amphipoda of the Gulf of Mannar, with special reference to those of the pearl and chank beds. *Proc. Symp. on Crustacea*, Mar. Biol. Assn. Mandapam, **1** : 133-168.
- PIRLOT, J. M. 1936. Les amphipodes de l'Expedition du Siboga. Les amphipodes gammarides. *Siboga Expeditie*, **33** e(2) : 236-328.
- RUFFO, S. 1940. Studi sui Crostacei Anfipodi. IX. Gli Anfipodi del Red Sea. *Ann. Mus. Stor. nat. Genova*, **60** : 152-180.
- . 1954. Studi sui Crostacei Anfipodi. XL. Nuovi Anfipodi raccolti nel Venezuela dal Prof. G. Marcuzzi. *Mem. Mus. Civ. Stor. nat. Verona*, **4** : 117-125.
- . 1959. Contribution to the knowledge of the Red Sea. No. 13. Contributo alla conoscenza degli Anfipodi del Mar Rosso (Materiali raccolti a Ghardaqa nel Golfo di Aqaba). *Bull. Sea Fish. Res. Stn. Haifu*, **26** : 1-20.
- SHELLENBERG, A. 1936. Zwei neue Amphipoden des Stillen Ozeans und zwei Berichtigungen. *Zool. Anz.*, **116** : 153-156.
- . 1938. Litorale Amphipoden des Tropischen Pazifiks. *Kunigl. svenska Vetensk Akad. Handl.*, (3) **16**(6) : 1-105.
- SHEARD, K. 1936. Amphipods from a South Australian reef. Part 2. *Trans. roy. Soc. S. Austr.*, **60** : 173-179.
- SHOEMAKER, C. R. 1942. Amphipod crustaceans collected on the Presidential Cruise of 1938. *Smiths. misc. Coll.*, **101**(11) : 1-52.
- SIVAPRAKASAM, T. E. 1967. Amphipoda from the east coast of India. Part 1. Gammaridea. *J. Mar. biol. Ass. India*, **8**(1) : 82-122.
- STEBBING, T. R. R. 1906. Amphipoda I. Gammaridea. *Das Tierreich*, **21** : 1-806.
- WALKER, A. O. 1904. Report on the Amphipoda collected by Professor Herdman at Ceylon in 1902. *Rep. to Govt. of Ceylon on Pearl Oyster Fisheries in the Gulf of Mannar*, **2**(17) : 229-300.
- . 1905. Marine Crustaceans. XVI. Amphipoda. *Fauna and Geogr. of Maldives and Laccadive Archs.*, **2**(1) : 923-932.
- . 1909. Amphipoda Gammaridea from the Indian Ocean, British East Africa and the Red Sea. *Trans. Linn. Soc. Lond. (Zool.)*, (2) **12**(4) : 323-344.
- WALKER, O. A. and SCOTT, A. 1903. Decapod and sessile-eyed Crustaceans from Abd-el-Kuri. In *Forbes' Natural History of Sokotra and Abd-el-Kuri* : 216-232.