

THE GENUS *ELASMOPUS* ON THE COAST
OF BRAZIL

WITH DESCRIPTION OF *Elasmopus besnardi* n. sp.,
and *E. fusimanus* n. sp.

(CRUSTACEA, AMPHIPODA)

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In the following paper we discuss the *Elasmopus* species represented in the collections of the Instituto Oswaldo Cruz; to one of which, taken on the Island of Trindade, we have the honour to give the name of Prof. Wladimir Besnard. This paper is in some way a contribution to the results of the 1950 Expedition of the ship "Baependi".

FAMILY GAMMARIDAE

GENUS *ELASMOPUS* Costa

KEY TO THE SPECIES OF *ELASMOPUS*

(Adapted from Stebbing, 1906 and from Barnard, 1940, p. 523)

- 1 — One or more of the segments dorsally dentate 2
- None of the segments dorsally dentate 3
- 2 — Several species, for instance: *E. subcarinatus* (Hasw.), in the South Pacific, New Zealand; *E. diemensis* (Hasw.), a Tasmanian species; *E. japonicus* Stephesen, (Africa and Japan), etc.
- 3 — Gnathopod 2, 6th. joint fringed with long setae 4
- Gnathopod 2, 6th. joint not fringed with very long setae .. 6
- 4 — Superior antennae scarcely the half the length of the animal, flagellum as long as the peduncle, peduncle with three joints sub-equal: *E. pectenirus* (Bate); Indian Sea, East Indies, West Indies, Still Bay Guinea.

(*) Work of the Hydro-Biological Station of the Institute Oswaldo Cruz, Rio de Janeiro.

- Superior antennae generally longer than the half of the length of the animal, and flagella longer than the peduncle, peduncle with the three joints not sub-equal 5
- 5 — the 1st., 2nd., 3th., and 4th. side-plates with relatively long setae: *E. ecuadoriensis* Schellenberg (Pacific Ocean)
- the 1st., 2nd., 3th., and 4 th. side-plates with not long setae; the 6th. joint of the second gnathopod of the male bears a tubercle with 7 teeth on its distal margin and a separate row of seven teeth on its surface, near to the tubercle: *Elasmopus brasiliensis* when it is very old, or a tubercle with only a tooth and a separate row of seven to four little teeth on its surface: *E. brasiliensis* (Dana) in the male but not in old ones.
- 6 (3) — Gnathopod 2, 6th. joint with cup-like hollow: *E. poecillimanus* (Bate) — Mediterranean, North-Atlantic.
- Gnathopod 2 without the cup-like hollow 7
- 7 (6) — Uropod 3, rami broad and obtusely lanceolated: *E. de la plata* Stebb. (Montevideo, Depth 1130 m).
- 8 (7) — antennae with short accessory flagella 8
- antennae with accessory flagella well developed with 4-8 joints: *E. viridis* (Hasw.) South Pacific, New Zealand; *E. boeckeri* (Hasw.) East Australia.
- 9 (8) — (Group *rapax*): 10
- 10 — Large eyes, flagellum of 1st. antenna a little shorter than the peduncle 11
- Small eyes, flagellum of 1st. antenna the same length as the peduncle *E. besnardi* n. sp.
- 11(10) — 3rd. segment of pleon with sub-quadrate angles. Palm of 2nd. gnathopod of the male having a dentate lobe near the articulation of the finger: *E. rapax* (Costa) not of Brazil.
- 3rd. segment of pleon having acute angles; palm of 2nd. gnathopod of the male lacking dentate projections, propodus with the anterior and posterior margins slightly convex, almost parallel; 2 denticles on the palmar lobe near the articulation of dactylus: 1st. uropod with a scimitarspine: *E. fusimanus* n. sp.

ELASMOPUS BRASILIENSIS (Dana) Stebbing.

(Plate I-IV, fig. 1-30)

Gammarus brasiliensis — Dana — 1853, vol. 13, p. 956, pl. 65, fig. 10.

Gammarella brasiliensis — Bate — 1862, p. 180, pl. 32, fig. 9.

- Moera brasiliensis* — Kosmann — 1880, vol. 21, p. 132.
Gammarus brasiliensis, *Elasmopus* (part ?) — Stebbing — 1888, vol. 29, p. 267, 516.
Gammarus brasiliensis — Della Valle — 1893, vol. 20, p. 737, 927.
Elasmopus brasiliensis — Stebbing — 1906, vol. 21, p. 443, n.º 4.
Elasmopus brasiliensis — Chevreux — 1911, vol. 23, p. 225, 222; fig. 12, pl. XV, fig. 14-20.
Elasmopus brasiliensis — Schellenberg — 1936, vol. 116, p. 153.
Elasmopus brasiliensis — Oliveira — 1940, vol. 35, p. 346.

Body smooth. The first four side-plates are of similar depth; the fifth, sixth and seventh are half the depth of the others; the fifth has the anterior lobe larger than the posterior. Ellipsoid eyes, twice as long as broad and as long as the first and second joints of the second antenna, dark colored, ocelli small and numerous; the eye is situated near the lobe between the two antennae. Upper antenna longer than the lower, first joint not longer than the second, but twice as broad, with few slender setae at lower margin; the second joint longer than the first by $13/12$, with six rows of several setae on the lower side surface; the third joint is longer than the first by $8/12$; four rows of setae on the lower surface; the 24 remaining joints of the broken flagellum totalled about $4/3$ the length of the peduncle; accessory flagellum $3/12$ the length of the peduncular first joint, four jointed, tipped with setae, the last joint rudimentary. Lower antenna: peduncles and flagellum respectively shorter and thinner than those of upper, the length of the lower peduncle is about double the length of the first joint of the upper; the lower antenna with the second joint decurrent, with the gland cone well developed, two small spines above the possibly coalesced joints, the third joint rather smaller than the first; the fourth joint about three times the length of the 2nd. and 3rd. joints, with setae; the fifth joint smaller by $7/8$ than the fourth, both carrying numerous groups of setae on the margin and surface, but no spines; the flagellum $3/4$ of its peduncle, having nine joints, the first joint being the longest. Mandibles (fig. 24): one of the mandibles has the cutting edge bi-dentate; a large portion of the plate has four teeth and a row of four denticulate spines, the molar tubercle is very robust with two plumose setae; palp strong, and longer than the other portions of the mandible, the third joint being the longest and sickle shaped. The outer curve and the proximal inner curve of the blade are smooth, while the distal inner curve bears a long row of setae and spinules, about 8 spinules and 35 setae (fig. 26), the six apical setae are very much longer than the fringe of others. Lower lips (fig. 15) principal lobes rather dehiscent, the margins thickly furred, with a shorter inner spine; the external portion acute. First maxilla (fig. 8): outer plate with seven spines on the oblique truncate apex, being — the first outer with a denticle, as a dart spine; the second single, the third and the fourth with a denticle, the fifth and the sixth pectinate with two and three denticles, the seventh with 7 denticles; the palp has three

joints, the third reaching the outer plate, having round its dentate margins about fourteen thin setae. Second maxilla (fig. 11 and 22) the plates elongate, the outer narrower and a little longer than the inner, both fringed with spines, but five spines on the inner are plumose. Maxilliped (fig. 12): the inner plates not reaching so far as the distal end of the first joint of the palp, carrying a row of twelve plumose setae; the outer plate reaching halfway up the second joint of palp, with nine biserrate spines along the inner margin, followed by four on the apical border, and by three plumose spines; the second joint of the palp is about twice the length of the first, fringed along the inner margin with eleven rows of setae; the third joint of palp with a process in its apex thickly furred with ciliae; the finger with a nail, is smooth and has a dorsal cilium. First gnathopod of the male (fig. 1 and 9) shorter than the second, the second joint with two groups of setae on the hind margin; the third rhomboidal, fringed with about seven setae; the fourth joint parallelogramic, the distal margin with setae, the fifth joint about as long as the sixth with numerous rows of long setae obliquely disposed at the apex, on the anterior margin and on its surface, and many groups along the lobed projection of the posterior margin; the sixth joint oblong with long setae as in the 5th joint, arranged in nine on the serrate anterior margin, and about four groups on the posterior margin; the palm with a spine at the angle and nine small articular spines; the finger with five spines on inner margin and a dorsal cilium. First gnathopod of the female (fig. 3) smaller than the second, both are sub-chelate, the second joint of the first gnathopod is much longer than broad, with setae on the posterior apex; third and fourth joint similar in length, they are square-shaped but the fourth has a different disposition of spines; the fifth joint as long as the sixth, with plumose setae on the lobed projection; the sixth joint or hand almost trapeziform, few groups of spines, about four along the faintly serrate posterior margin, the front margin weakly concave, also having short setae; the palm makes an angle of 120° with the hind margin and at its vertex there is a larger spine, the finger fits the palm margin. Second gnathopod of the male (fig. 10) the second joint broader distally, the third joint oblong, a small group of setae on the hind margin; the fourth joint short, rather rectangular; the length of 5th joint a (third) $1/3$ of its breadth, the anterior margin convex with few setae on the apex, the hind margin fringed with a brush of long plumose setae and with a lobe also with plumose setae; the sixth joint or hand has a lobe posteriorly near the wrist with setae, in the type (or neotype n. 1021) we find a line (lin., fig. i, plate II) which we think perhaps a moulting stage line, because we do not find it in the other specimens; the posterior margin has a toothed angle with four spines on the palm, which makes an angle of about 80° with the anterior margin. On the palm of the male Cat. 2611 there is a tubercle with seven spines (fig. 6, plate I) which are on the margin three larger and on the surface four smaller curved spines. Many rows of plumose setae are present on the margins

and surfaces of the hand. The finger does not close, is smooth, lies perpendicular with the axis of the hand, and is $\frac{2}{3}$ the length of the latter. Second gnathopod of the female (fig. 4): the third joint with few setae on the lower posterior apex which is rather prominent; the fourth joint is rectangular; the fifth joint or wrist is shorter, broader than long, on the hind margin is a lobe with many pectinate spines; the 6th joint or hand is the largest of the joints, sub-ellipsoid, with several (about 7) rows of spines — long and slender in the hind margin, shorter and thicker in the front margin; small groups of spines on its surface, in oblique rows; the palm is straight, and has two rows of little conical spines and a long spine near the joint of the finger; two slender setae cross the finger. The finger is quite smooth, and does not close the palm. Peraeopods (pl. 1: fig. 1, pl. 4; fig. 25; fig. 27-30). The first is similar to the second in shape and in size: the third peraeopod is about the same length as the two preceding and has the same form as the two last, the second joint being sub-oval and the broadest of the joints; the peraeopods increase in size posteriorly and proportionally — the last being larger by $\frac{3}{2}$ than the third. The first peraeopod (fig. 25) the second joint long and narrow; anterior margin having an apical tuft of 3 setae preceded by a few scattered setae; posterior margin having setae at intervals. The third joint short and narrower than the 2nd., bearing one group of setae on the posterior apex; this joint acts as a knee-joint. The fourth joint narrow proximally, broadening distally to almost twice the breadth of the 3rd.; the anterior margin bears only one group of setae and one group apically; the posterior margin has 4 group of setae. The fifth joint a little shorter than the 4th. and much narrower than its distal end, its margins almost parallel; the anterior margin having 3 setae, at the posterior margin having 8 spines at the intervals and several setae at the apex. The sixth joint as long as the 5th. and a little narrower; the anterior margin smooth and slightly convex with 3 small setae; the posterior margin bearing spines at regular intervals. The dactylus bears a tooth on its posterior margin with a cilium. The second peraeopod (fig. 27): the second joint elongate and rather narrow, with the posterior margin slightly dentate proximally, one group of setae distally, and one group apically; the anterior margin as the posterior but with no dentate area. The third joint short, a little narrower than the 2nd. joint and bearing a group of setae on its prominent posterior apex. The fourth joint as broad as the second but shorter; its anterior margin with 3 groups of setae equally spaced; its posterior margin with 3 groups of setae distally. The fifth joint shorter and narrower than the fourth; its anterior margin with 2 isolated setae and an apical one; its posterior margin with 9 equally spaced groups of spines and setae. The sixth joint somewhat similar to the 5th. but slightly longer and narrower; on the anterior margin one median and one apical pair of spines; on the posterior margin, a row of double spines 7 in number. The dactylus bears on its posterior margin a tooth, with 3 cilia distal to it, 2 paired and the proximal one stout. The third peraeopod (fig. 28): the second joint large and sub-

ellipsoid; the anterior margins bears a series of rows of spines and a tuft of spines and setae on its apex: the posterior margin is flanged, and with cilia regularly disposed. The third joint small, broader than long, with a single group of spines and setae on its anterior apex. The fourth joint about twice as long as the 3rd. and broader; its anterior margin has 4 groups of spines and a group of spines and setae on its prominent apex; the posterior margin has 2 groups of paired spines and an apical tuft of spines. The fifth joint about as long as the 4th. but narrower, bearing on its anterior margin 2 groups of spines (1 apical) and on its posterior margin 2 groups of paired spines and an apical tuft of spines; these latter have slightly incurved apices each bearing a cilium. The sixth joint about twice as long as the 5th. and about one half as broad; the anterior margin having 6 groups of paired spines, the posterior margin smooth with an apical tuft of spines and setae similar to those of the apex of the 5th. joint. The dactylus bears a tooth on its anterior margin, followed by 2 cilia. The 4th. pereopod (fig. 29): the second joint sub-ellipsoid broad, and narrowing distally; its posterior margin pectinate distally, before terminating in a right-angle apex; its anterior margin having groups of spines, varying in number between two and four, lengthening distally, and terminating in a large tuft of spines and setae in the apex. The third joint short, broader than long, bearing a group of setae on the apex. The fourth joint long, and broader than the 3rd., 5th. and 6th. joints; its anterior margins bears 4 groups of setae and spines, one of which on the prominent apex; the posterior margin has also a larger apical group and 3 other groups. The fifth joint a little shorter and narrower than the 4th.; a median group of spines on the anterior margin, and an apical; three groups of spines on the posterior margin and an apical group. The sixth joint nearly twice as long as the 5th. and about one half as broad; on its anterior margin 6 groups of paired spines, one apical, and on the posterior margin one pair of spines and an apical tuft of spines and setae. The dactylus bears a tooth on its anterior margin followed by two cilia. The fifth pereopod (fig. 30): the second joint very broad with ellipsoid anterior and posterior margins; the posterior margin slightly serrated, with a single row of small cilia; the anterior margin with groups of spines and setae at many points, and an apical tuft of setae and spines. The third joint short, broader than long, with a group of setae on its apex. The fourth joint long, and broader than the 3rd., 5th. and 6th. joints; the anterior margin has three groups of spines and setae and a prominent apex also having a similar group; the posterior margin has 4 groups of spines which have slightly incurved apices. The fifth joint shorter than the fourth and narrower; the anterior margin has 2 groups of long spines and a longer group at its apex; the posterior margin has 3 groups of paired spines and a tuft of long spines. The 6th. joint as nearly twice as long as the 5th. joint and a little more than 1/2 as narrow; it bears on its anterior margin one large tuft of setae and spines and lateral two groups of long spines. The dactylus has the same form than that of the 3rd. and 4th.

peraeopod. First uropod (fig. 16): larger than the second and the third; peduncles of the first uropod a little longer than the rami, with five margin spines and two groups of two apical larger spines; the outer rami about the same length as the inner, both with 5 spines on the inner margin and with two larger apical spines and three smaller spines. The second uropod (fig. 17): with its peduncle shorter than that of the first with two small lateral and one apical spine; the outer ramus shorter than the inner with six marginal spines, two surface spines, four apical spines; the inner ramus longer with four marginal spines and 3 apical spines. The third uropod (fig. 18): shorter and broader than the others; with the outer ramus longer than the inner, foliaceous, similar, but not exactly so in male and female: that of the male is with one proximal marginal spine a group of three spines at the middle of the margin, another group of four at the distal 1/4 of its outer margin, which is stepped twice, the apex is truncate with spines of about the same size; two rows of 3 spines on the surface; inner margin smooth. The foliaceous inner ramus 2/3 of the length of the first ramus; with 1-1-2 marginal spines, on the truncate apex five spines of various length in a row. The third uropod in the female (fig. 5): the outer ramus with a pair of spines on the middle of the outer margin; the truncate apex has a large bunch of spines. The inner ramus only half as short as the outer, with 3 spines apically. Telson: in the male (fig. 19): is similar broad as long, medianly cleft to about 2/3 of its length but not dehiscent, both lobes bear four spines at the apex. Telson of the female (fig. 7): cleft nearly to the base as long as broad, the two lobes widely dehiscent, the right lobe with 2 large five small spines, the left lobe with three large and two small spines. Also in the female we see some thing which may be a spine in the middle of the inner margin of each lobe.

MEASUREMENTS — *Elasmopus brasiliensis* which was described by Dana, in 1851, from Rio de Janeiro, measures 8-9 mm. We now find, 100 years after the Dana publication the same species measuring up to 16-17 mm.

RANGE — Rio de Janeiro (Dana, 1851); Mediterranean — Tunisia and Algeria — Material collected on board the yacht Melita I, Melita II: Cherschell, 1885; Cape Bone Coast of Sida-Aissa, 1889; La Calle 1900; Herbillon: (Chevreux 1910).

MATERIAL EXAMINED — Rio de Janeiro, Baia de Guanabara, Catalão Island, 22 FEB. 1948 — this specimen was dissected and its parts are on the following slides: 1020-033. Cat. N. 1138 — Sepetiba Lagoon, 1949, collected by Mr. Devoto, of the School of Agriculture, 1 male specimen dissected in the slide 3013. Cat. N. 2331 — Catalão Island, 23 JUL. 1948 — 1 male specimen. Cat. N. 2611 — Guanabara Bay, Urca Beach, 10 JUN. 1949. Several specimens 2612. Cat. 2649 — Arpoador Beach, in Rio de Janeiro, 20 OCT. 1949. One male and one female taken in seaweed;

slides N. 2650, 3012. Cat. N. Cape Frio, Angel Creek, Village of Cape-Frio; Collectors Dr. Luiza Krau and Sr. J. Porsino da Silva, 6 ABR. 1951.

ELASMOPUS FUSIMANUS n. sp. (1)

(Plate V-VII)

Body smooth, with the back evenly rounded, and smooth throughout. Head fully as long as the first two segments of the pereion combined, lateral corners broadly rounded. Anterior pairs of side-plates fully as deep as the corresponding segments, 1st. pair angularly produced in front, 4th pair the largest. Side-plates 5 excavated, 5 and 7 shallowest. Eyes rather large and oval in shape, pigment very dark. Upper antenna about as long as the head with the first 4 segments of pereion, peduncle rather longer than the flagellum, the first joint a little longer and broader than the 2nd. joint; the 3rd. joint half as long as the 1st. and thinner than the 2nd.; flagellum composed of numerous (17) short articulations, the accessory flagellum as long as the 3 joints of the principal flagellum and 3 articulate; several groups of setae are in the margins and on the apex of the perpendicular joints. Lower antenna considerably shorter and reaching to the middle of the 3rd. joint of the peduncle of the first antenna, the 1st. 2 joints of the peduncle nearly equal; the flagellum 8 jointed. Mandible (fig. 43): the cutting edge of the mandible is furnished with 2 stout teeth, and the region surmounted by a row of 4 spines; the accessory incisive process bears two teeth; the palp is 3-jointed, the 1st. joint short squarish and naked; the 2nd. joint about 3 times as long as the 1st., broadening distally on inner margin and narrowing again; this margin bears setae distally, at first short, then terminates with 3 very long ones; the inner margin is almost straight and smooth; the 3rd. joint narrow at first, broadening on its inner side to a maximum at about 1/3 of its total length, then narrowing again to a truncated apex; the outer margin is convex and smooth; the inner margin smooth proximally, then a fringe of setae, and at the apex a row of very long setae. First maxillae (fig. 41): the inner plate small, with two apical setae, it is about half the length of the outer plate, minus the setae length, with certainly five spines, perhaps more on the distal margin — two with two terminal denticles, and two with three lateral denticles, and one with a series of lateral denticles; on the outer surface is to be found a spine with two larger denticles and one or more smaller denticles. The second maxillae (fig. 42): consist of two plates with rounded distal margins — the outer plate is broad with a fringe of plain setae along its distal margin; the setae are less than the one-half the total length of the plate; the inner plate is as long as the inner, but only 1/2 as broad, and has as fringe of similar setae on its distal and outer margins.

(1) *Fusus*, *i* spindle, any axis of revolution; *Manus*, *us* — hand.

Maxillipeds (fig. 40): the outer plate reaches near to the middle of second plate, its distal margin has seven plumose setae, diminishing in size, towards the inner margin, where appear to begin a series of clubs or setae, also diminishing in size towards the proximal portion; in the surface of this inner margin there are about four pairs of setae. The first gnathopod of the male (fig. 34): shorter than the second, the second joint is the longest, with anterior margin straight and smooth, the posterior margin almost parallel to the anterior, but thickening proximally with a long seta; 3rd. joint short, trapezoid, fringed with setae in the postero-distal corner; 4th. joint rectangular fringed with setae postero-distally, anteriorly its distal half is fused with the 5th. joint which is as broad as the 6th.; its anterior margin is slightly convex and its posterior margin with a broad lobe fringed with setae; its surface has several rows of slender setae; the 6th. joint is subtrapezoid in shape and 1/10th. longer than the 5th.; its anterior margin almost regularly convex and with 5 rows of setae; palm straight and with small setae, posterior margin almost straight, with several rows of setae. The dactylus is smooth, curved, and about the same length as the palm. Second gnathopod (fig. 35) larger than the first, the 3rd. and the 4th. joints of similar size and shape, the 5th. joint or wrist makes a right-angle joint with the anterior and distal margins of the merus; the anterior margin of the wrist goes from almost the 3rd. joint to the anterior margin of the propodus in a convex curve; there is a portion of the wrist compressed between the 6th. and the 4th. joints, which has the distal and proximal margin parallel and it is armed with brush setae. The 6th. joint is sub-parallelogramic in shape, with the anterior margin shorter than the posterior and the palm with a semicircular lobe armed with 2 teeth near the hinge of the finger which is strong, arched and smooth. On the surface of the propodus anteriorly are 7 rows of setae, diminishing in number proximally, while posteriorly many rows of shortish setae are set close together. First pereopod: second joint long, terminated by rounded apices bearing setae; 3rd. joint small and squarish, devoid of setae and spines; 4th. joint about 3 times as long as the 3rd. and narrow at first but broadening much distally; its anterior margin 3 setae at intervals, its posterior only two; 5th. joint a little shorter than the 4th. and narrower; its anterior margin being naked, its posterior margin bearing 4 setae at intervals; the 6th. joint very similar to the 5th. and rather longer, and having 5 setae on the posterior margin together with an apical spine; dactylus bears a cilium posteriorly. The second pereopod: second joint long, comparatively narrow; on its anterior margin one apical seta, on its posterior margin one long and one short seta proximally, and a few apically; 3rd. joint small, squarish, naked; 4th. joint similar to that of the 1st. pereopod, but longer and on its posterior margin 3 setae at intervals; 5th. joint as that of the 1st. pereopod, similarly parallelogramic; anterior margin having one median seta and one apical; posterior margin with 4 setae at intervals; 6th. joint as that of the 1st. pereopod, but having 7 setae arranged along its

posterior margin; the dactylus also bears a cilium posteriorly. The third peraeopod: 2nd. joint large, sub-ellipsoid, naked posteriorly but bearing 4 spines disposed distally on its anterior margin; 3rd. joint small, broader than long, having an apical tuft of setae; 4th. joint narrow proximally, broadening distally to twice its width; anterior margin has two spines and another group on its prominent apex; posterior margin has 1 median seta and an apical group of 3 spines; 5th. joint rather rectangular, its anterior margin similar to the posterior, in having one group of spines medianly and one apically; 6th. joint twice as long as 5th. and half as broad, but broadening slightly distally; anterior margin with 5 tufts of setae, the last being apical and bearing a spine; posterior margin smooth but with a pair of apical spines; the dactylus bears a cilium anteriorly. The fourth peraeopod: 2nd. joint large but slightly smaller than that of the third peraeopod; its anterior margin ellipsoid, bearing at intervals paired spines increasing in size distally and terminating in a large spine among a group of setae; posterior margin almost straight, and smooth but for a distal row of spinules; 3rd. joint small and very short, having only an apical tuft of setae; 4th. joint similar in shape to that of 3rd. peraeopod, with very prominent anterior apex bearing 1 spine, preceeded by two other spines at anterior margin; posterior margin has two spines and an apical one which is very large and dagger shaped; 5th. joint rather shorter and narrower than the 4th., having only one median spine on both anterior and posterior margins together with apical groups, the posterior one being adorned with a large dagger spine as in the preceeding joint; 6th. joint about twice as long as the 5th. and narrow; ist anterior margin has 4 groups of paired spines, its posterior only two small spines and an apical group of spines and setae; the dactylus has a cilium on its anterior margin. The fifth peraeopod: 2nd. joint large, sub-ovoid, anterior margin bearing short spines at intervals on its whole length, the apex rather prominent and with one larger spine, posterior margin smooth proximally, a comb of spinules distally, and a rounded apex with two small spines; 3rd. joint small, broader than long, with only an apical pair of spines; 4th. joint narrow proximally, broadening to twice this width, anterior margin has several single spines and a prominent apex bearing one spine, and posterior margin with an apical group of setae and one spine preceeded by 2 setae; 5th. joint a little narrower and shorter than 4th., and rather rectangular, anterior margin bears two spines and a prominent spined apex, and posteriorly, 2 spines marginally and one with setae apically; 6th. joint, nearly twice as long as the 5th. and narrower, its anterior margin having 5 groups of paired spines, the posterior having a single spine rather distally and an apical group of spines; the dactylus bears a tooth and a cilium anteriorly. The first uropod (fig. 36): with the peduncle and the rami longer than those of the other uropods; peduncle with the outer distal corner having 2 spines, also, another spine between the rami and, a short inner spine; between the rami and, a short inner spine; the rami of almost the same size, each has 3 short spines and one dagger spine apically but the spines of

the inner ramus are a little shorter than those of the outer ramus. The second uropod (fig. 37): the rami a little shorter than that of the 2nd. uropod, the outer ramus is the longer and broader, with both margins smooth and straight, and having only apical spines: 3 small and 2 large; the outer margin of the inner ramus has 2 spines, and its apex has a large spine with curved point, as in the previous large apical spines, and 3 smaller spines. The last pair of uropods projecting very little beyond the others; the outer ramus somewhat larger than the inner, and provided on the outer edge with a dagger spine and a fascicle of 3 spines, the tip of the ramus having 5 spines of several sizes; the interior margin smooth; the inner ramus $\frac{2}{3}$ the length of the outer, with a spine in the middle of the inner margin, and 3 apical spines. The telson is cleft, and bears 2 larger and 3 smaller spines on each truncate apex.

MEASUREMENTS — Head to the telson: 6.3 mm; The first antenna: 2.3 mm; total — 8.6 mm.

RANGE — Brasil, Ilha Grande: lat. 23°07' S.; long. 44°11' W. Greenw.; 1 fathom deep.

MATERIAL EXAMINED — Only an animal, in the slides Cat. 2579-2582; Enseada da Estrela, da Ilha Grande, 15th. JUN., 1948.

ELASMOPUS BESNARDI new species.

(Plate n.º VIII, IX)

No rostrum, lateral lobes of the head with flattened curves, first, second and third segments of the pleon with the postero-lateral corners not very sharp; no serration. Eyes rather small, oval, placed near the antennal peduncles, black in the preserved specimen, the ocelli small. Upper antenna (fig. 49): with the peduncles and flagella respectively much longer than those of the lower pair; first joint elongate carrying a spine distally and few setae, second joint as long as the first, but not so wide, carrying several groups of setae on its posterior margin; third joint shorter $\frac{3}{5}$ th. than the second, carrying several groups of setae; the flagellum longer than the peduncle, of 19 joints the last tipped with setae; the accessory flagellum slender, consisting of two joints the tip of which reaches the end of the third joint of the primary flagellum. Lower antenna (fig. 50): shorter than the upper, 2nd. joint short with an acute lobe bearing the opening of the gland-cone; third joint with a spine on its side, and 2 setae on the lower margins; 4th. joint longer than the preceeding one, with 10 groups of setae; 5 groups on the upper margin 3 groups on the surface, 2 groups on the under side; 5th. joint as long as the 4th. but narrower, with several groups of setae; the flagellum 8-jointed, together not longer than the 3rd. joint of the peduncle

tipped with several setae. Upper lip — the distal margin convex almost semi-circular; the cilia are directed, from either side towards the centre. Mandibles (fig. 66): the cutting edge of the left mandible with two strong teeth, and 10 other larger teeth in a cutting plate; the secondary plate with 10 teeth and 2 small plumose setae. The second joint of the palp is longer than the first with 6 setae, and the third is the largest and falcate with a row of pectinate spines fringing the concave portion of the joints. Lower lips (fig. 52): the principal lobes rather broad distally with margin ciliated, spiniform tubercle inwardly and the lobes are ciliated. The mandibular process acute, and in a straight margin the margin of the principal lobe. First maxilla (fig. 68): the inner plate about half the length of outer plate with two bi-plumose setae on the apex and small cilia on its surface. The outer plate broad, having a distal margin with 8 denticulate spines, of which one is simply forked, three with 5-denticles on the margin the rest comb-like with 10 or more denticles on the margin but stopping short of the apex; the palp longer than the plates; the base of the palp longer than the 1st. joint with three spines on the side, the 2nd. joint with 6 to 8 spines on and near the apex. Second maxillae — the inner plate shorter than the outer and on both a series of plumose setae. Maxillipeds (fig. 67): the inner plates oblong, reaching the apex of the first joint of the palp; a series of plumose setae beginning near the middle of the inner margin passes across the inner surface towards the apex; the slightly corner distal margin undulates at the roots of its 6 short spines; the outer plates no narrower than the inner, reaching the middle of the palp's second joint, apically rounded, having numerous long spines increasing in length distally; in the middle of the inner margin there are 9 lancet-spines; near the inner margin in the inner surface there are apparently 8 series of 3 spines; the first joint of the palp is short and has a particularly shorter inner margin, the second joint about twice as long as the first, with both margins slightly convex, the inner margin having on it or near it many slender spines; the 3rd. joint $\frac{3}{5}$ as long as the 2nd. the 4th. joint $\frac{2}{3}$ as long as the 3rd., and slightly curved and tapering to a blunt end, with a unguis spine. First gnathopod (Fig. 54): is smaller than the second, sub-chelate; the second joint the same length as the first joint of the first antenna and smooth posteriorly, with 2 short setae anteriorly; 3rd. joint $\frac{1}{5}$ as long as the 2nd., and having a tuft of setae on the postero-distal corner; the 4th. joint twice the length of the 3rd., triangulate and having a lobe on its carpal-articulation. Carpus (5th. joint) trapezoidal, its distal and posterior margin with setae, a little shorter than the oval propodus, and each of these joints is as long as the 3rd. and 4th. joint combined. The propodus ellipsoid, and on its anterior margin a few separate setae, the posterior margin continues the palm; a short almost straight dactylus, smooth, and not closing to the palm. Second gnathopod (fig. 55): resembling the first one but rather longer and larger; its second joint is $\frac{7}{6}$ th. longer than that of the first gnathopod; with few setae on its anterior margin; the 3rd. joint short

(0.3 3/10ths. the length of the second), with two setae on apex; 4th. joint rectangular about the same length as the 3rd. Carpus triangulate, smooth, 1/2 as long as the second joint, the 5th. joint penetrates half-way into the postero-proximal corner of the carpus; together the propodus and carpus are spindle-shaped, the propodus about twice the length of the carpus; the palm is very slightly oblique to the posterior margin. Several setae are spread on margins and surface of the propodus, but it is not hairy. Dactylus almost straight and does not close to the palm (0.48t the length of the propodus). Peraeopods: The first two are similar but the first somewhat long than the second; the 3rd., 4th. and 5th. are similar in form but increasing in size respectively. The first peraeopod of normal *Elasmopus* form; 5th. joint fairly short and having on its posterior margin two groups of 3 spines which are slightly hooked; 6th. joint longer than the 5th. by 1/4th. and bearing posteriorly 6 groups of spines (1.1.1.1.2.2); the dactylus has a small spine anteriorly, followed by a short cilia. The 2nd. peraeopod: all joints shorter than these of the 1st.; on the posterior margin of the 4th. joint medianly 1 spine and distally 2 spines; 5th. joint narrower than that of the 1st. peraeopods and having 5 spines anteriorly (1.1.3) and 1 anteriorly, instead of setae as on corresponding joint of 1st. peraeopod; 6th. joint naked except for 6 groups of paired spines posteriorly. Dactylus similar to that of 1st. peraeopod and also to those of those of 3rd., 4th. and 5th. The 2nd. joint of 3rd., 4th. and 5th. peraeopod similar in shape and adornment; 7 groups of paired spines anteriorly and an apical groups; posterior margin more convex than the anterior, and bearing 10-12 minute spines; 3rd. joint in all short, with apex bearing a group of spines and setae; 4th. joint widening distally to 2 prominent spinous apices, on the 4th. peraeopod each apex has one hooked spine. The anterior margins have 2 groups of spines in the 3rd. and 3 groups of paired spines on the 4th. and 5th., while posteriorly they bear spines as follows respectively (2.1), (1.1.2.1.), and (1.1.1.). 5th. joint in all is shorter than the 4th. joint, having the posterior apex much more heavily spined than the anterior one, and one spine in each of these groups is stout and hooked; anterior margins bear spines in groups (4), (2.2.), and (2.6) respectively; posterior margins spined as follows: (1), (1.1), and (1.2). The 6th. joints are long and narrow, the posterior margins smooth, but apices heavily armed with spines, some of which are hooked, and apparently mingled with setae in the 4th. peraeopod. The 3rd. peraeopod has in the anterior margin of this joint 5 groups of 3 spines; the 4th. has 6 groups (1.3.3.3.3.2.) and the 5th. has 6 groups of paired spines; and on its surface, 2 groups (3.4). The first uropod: peduncle has 4 spines on inner margin and a very stout scimitar spine, half as long as the peduncle. Outer ramus narrower rather short than the inner; its inner margin has 5 spines, two being broad. Ramus is obliquely truncate and apex bears 2 small marginal spines and 3 large slightly hooked spines. Inner ramus with 3 marginal and 3 apical spines the latter being 2 shorter and 1 long and similar to those of the outer ramus.

2nd. uropod; shorter than the 1st., distal margin of the peduncle has 3 groups of short paired spines, 1 outer, 1 inner, and 1 median. Rami foliaceus; inner ramus $1/5$ th. longer than the outer, and bearing on its slightly stepped inner margin stout spines in groups (2.4). Its apex with 3 spines 1 short, 2 long. Outer ramus: inner margin with 2 groups of spines (1.3); outer margin similarly (1.2); both margins slightly stepped; its apex has 3 long spines. The 3rd. uropod projects beyond the second; inner ramus $1/5$ longer than the outer; both margins slightly convex, the inner having 4 spines, the outer 3 spines, and the apex with 2 stout and 3 smaller spines; outer ramus with slightly convex smooth margins, 3 small surface spines and 2 short and 3 small spines apically. Telson whole cleft, each side bearing on its apex 1 stout hooked spine between 2 shorter spines.

SUMÁRIO

Neste trabalho apresentamos os anfípodos do gênero *Elasmopus*, que são representados na coleção da Estação de Hidrobiologia do Instituto Oswaldo Cruz, e entre eles temos a honra de dedicar uma espécie ao Prof. W. Besnard. Assim este trabalho representa, de certo modo, uma contribuição aos resultados da Expedição do navio 'Baependi', realizada em 1950, à Ilha da Trindade.

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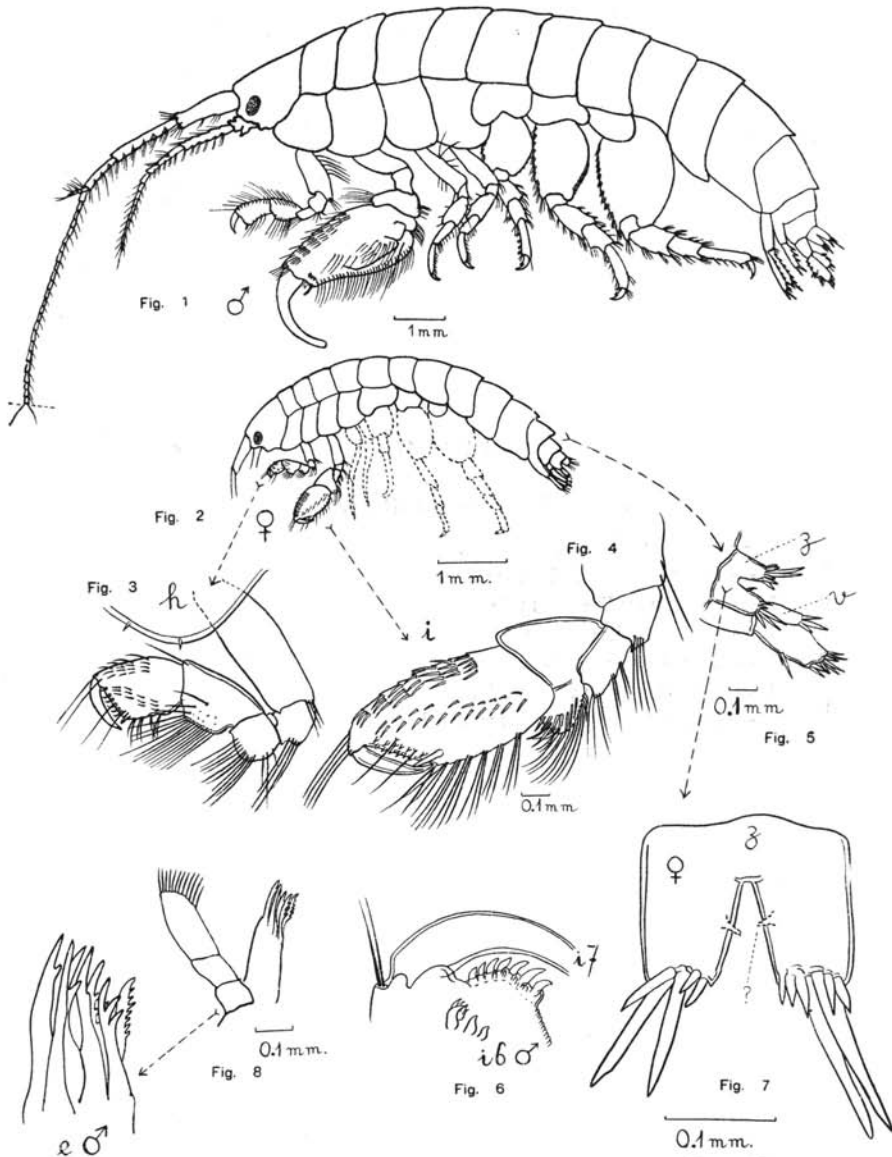
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PLATE I

Elasmopus brasiliensis

- Fig. 1 — Male.
" 2 — Female.
" 3 — h, I gnathopod of female.
" 4 — i, II gnathopod of female.
" 5 — v, III uropod, and z: telson of female.
" 6 — i6: 6th. segment of II gnathopod of male (Cat. n.º 2.611).
" 7 — z: telson of female.
" 8 — e: maxilla of male.



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PLATE II

Elasmopus brasiliensis

- Fig. 9 — h: I gnathopod of male.
" 10 — i: II gnathopod of male.
" 11 — f: II maxilla of male.
" 12 — g: maxilliped of male.
" 13 — z: telson of male.
" 14 — v: III uropod of male.
" 15 — lab. inf.: inferior labrum of male.

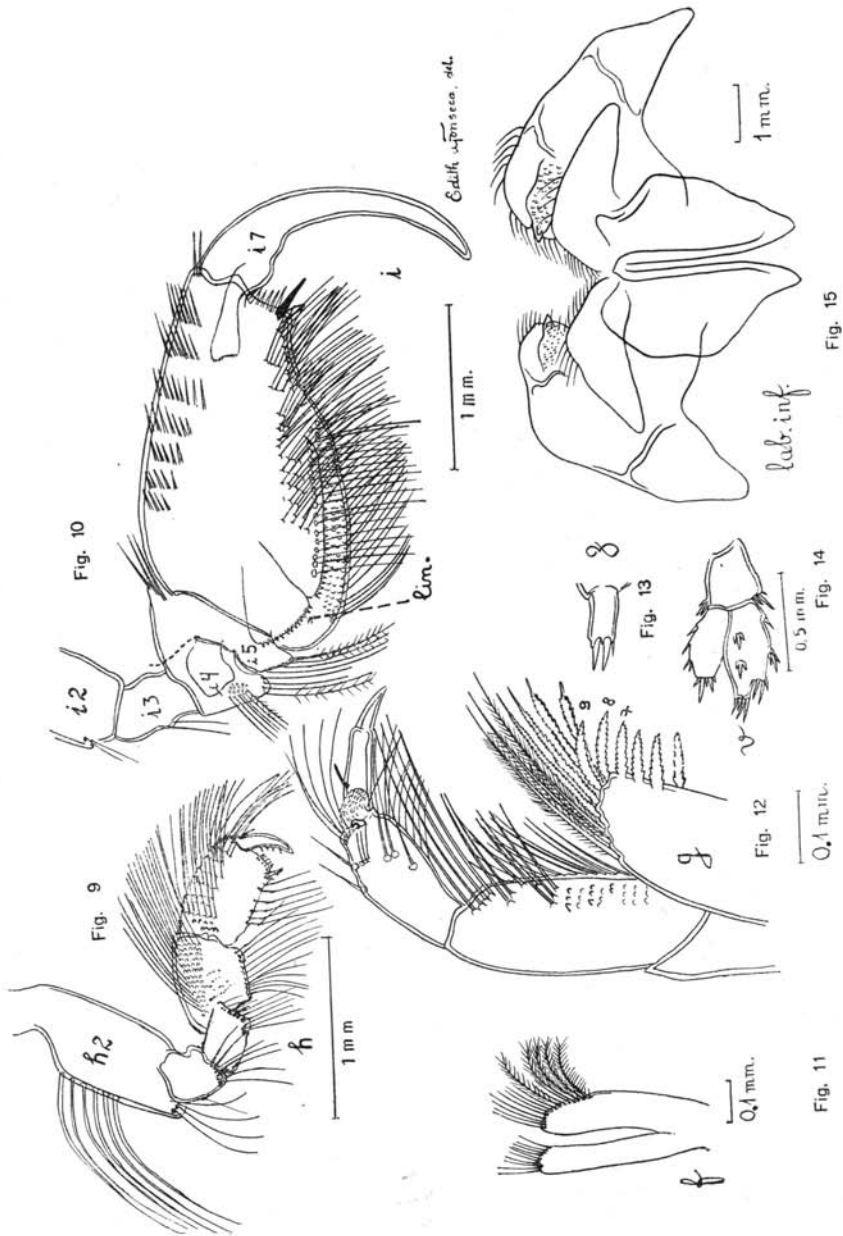


PLATE III

Elasmopus brasiliensis
(male)

- Fig. 16 — s: I uropod.
- " 17 — t: II uropod.
- " 18 — v: III uropod.
- " 19 — z: telson,
- " 20 — r: 2nd. pleiopod.
- " 21 — q: 1rst. pleiopod.
- " 22 — f: 2nd. pleiopod.

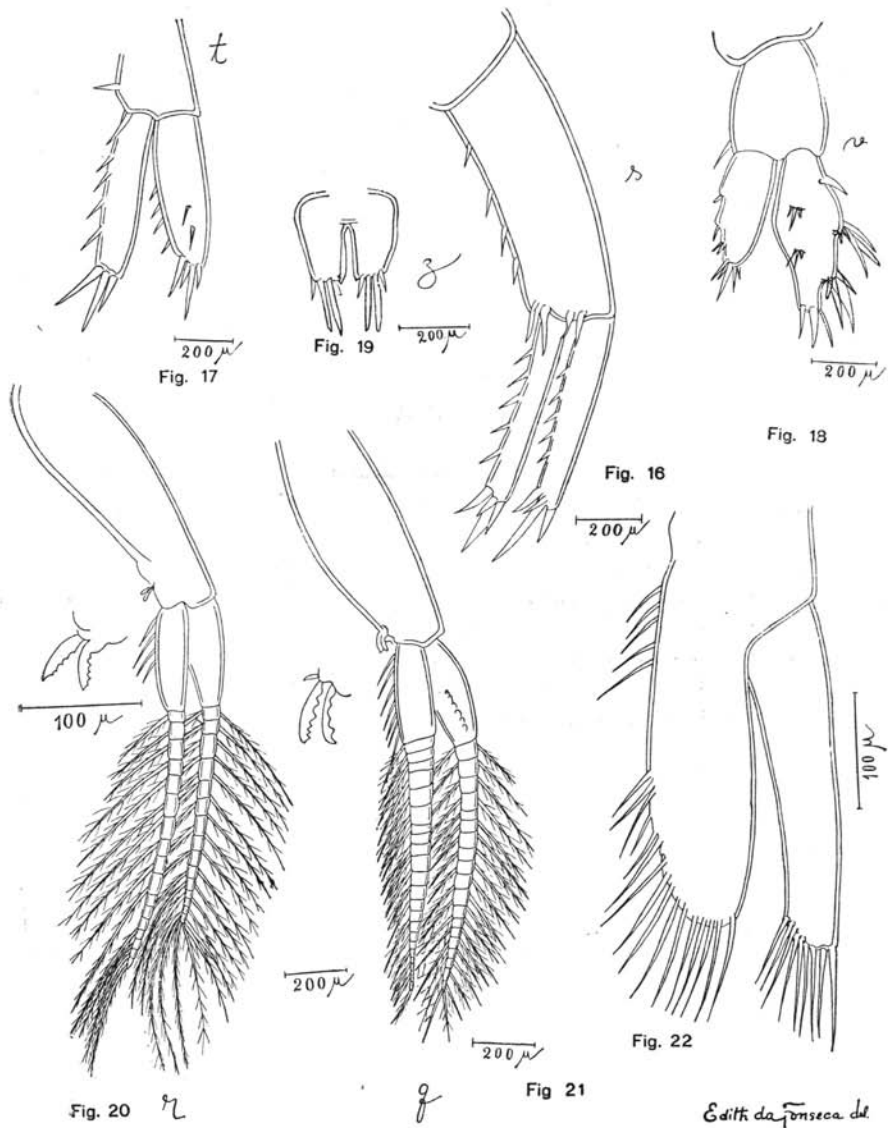


PLATE IV

Elasmopus brasiliensis

- Fig. 23 — t: 2nd. uropod; s: 1rst. uropod.
" 24 — d: mandible.
" 25 — h: 1rst. pereopod.
" 26 — d: mandible, palp.
" 27 — 1:nd. pereopod of male.
" 28 — m: 3rd. pereopod of male.
" 29 — n: 4th. pereopod of male.
" 30 — o: 5th. pereopod of male.

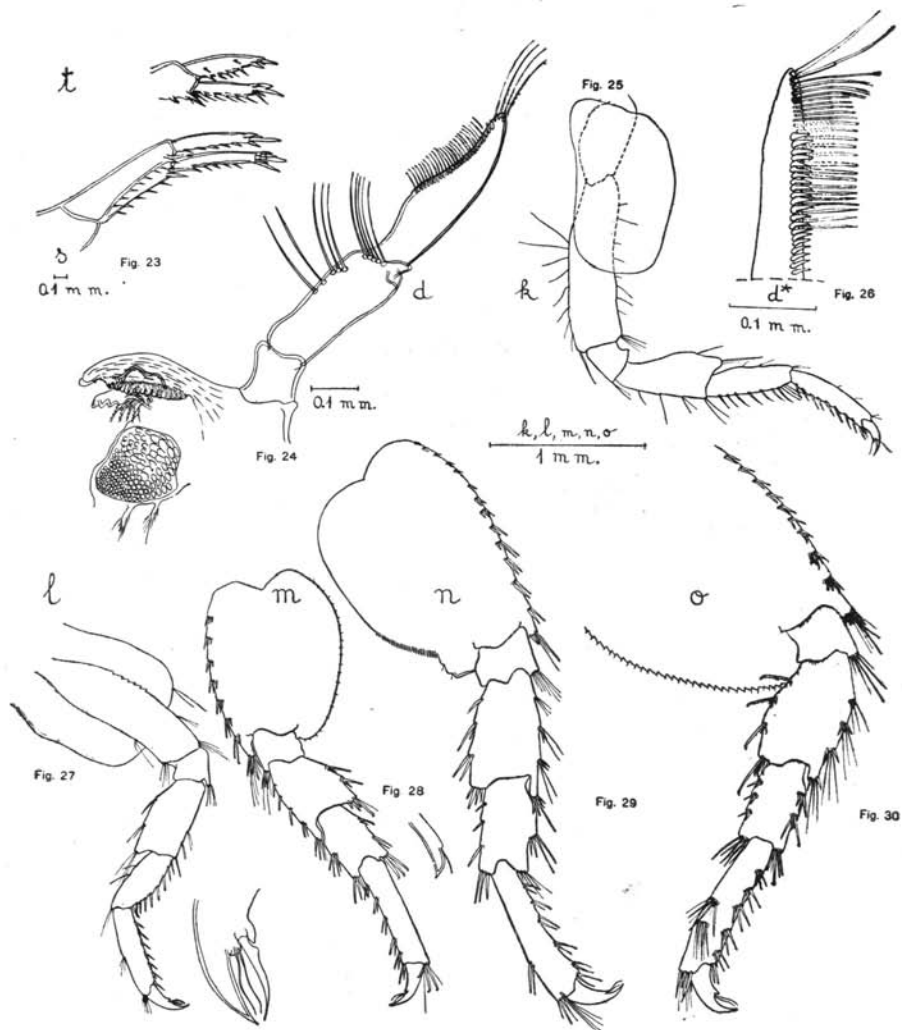


PLATE V

Elasmopus fusimanus n. sp.,

- Fig. 31 — male.
" 32 — c: II antenna.
" 33 — b: I antenna.
" 34 — h: I gnathopod.
" 35 — i: II gnathopod.

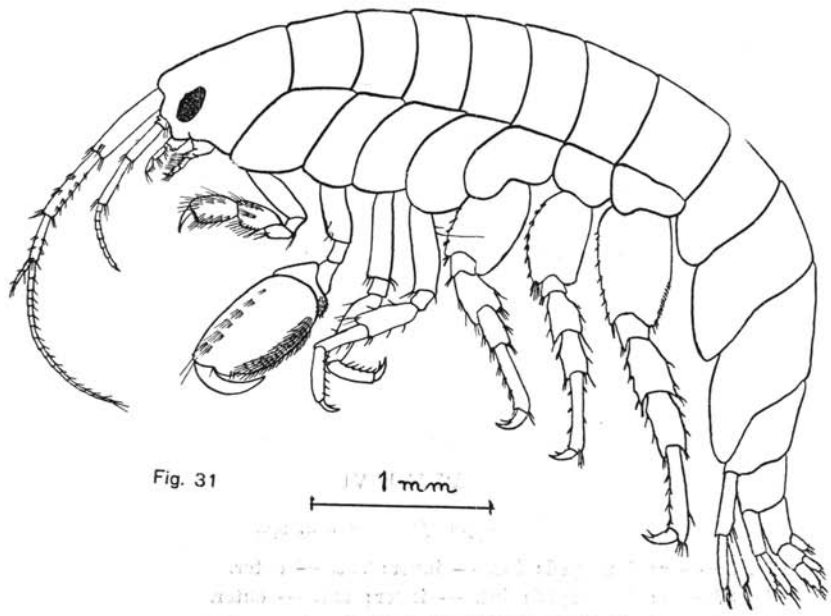


Fig. 31

1 mm



c
Fig. 32

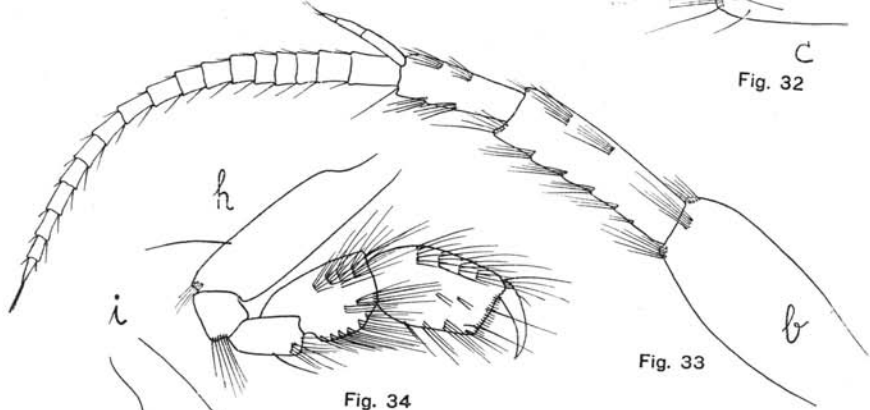


Fig. 33

Fig. 34

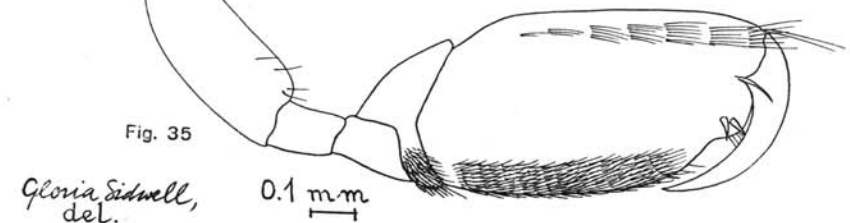


Fig. 35

0.1 mm

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del.

PLATE VI

Elasmopus fusimanus n. sp.,

- Fig. 36 — s: I uropod; int. — inner; ext. — outer.
" 37 — t: II uropod; int. — inner; ext. — outer.
" 38 — v: III uropod; int. — inner; ext. — outer.
" 39 — z: telson.

Fig. 36



Fig. 37

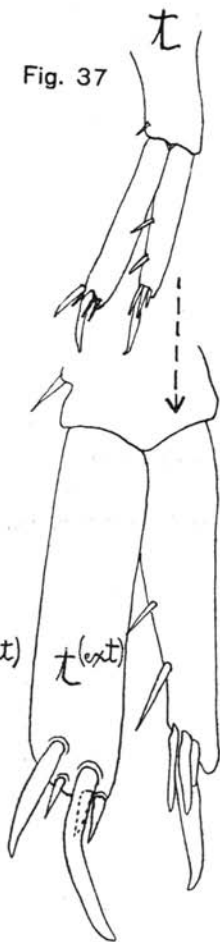
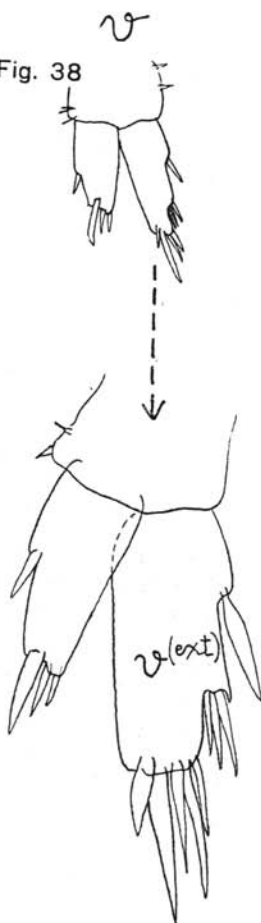
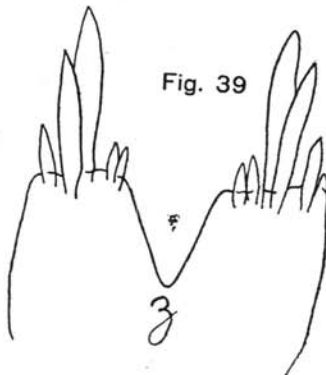


Fig. 38



{ s, t, v
| 0,1 mm
{ s, t, v (int, ext.)
| 0,1 mm

Fig. 39

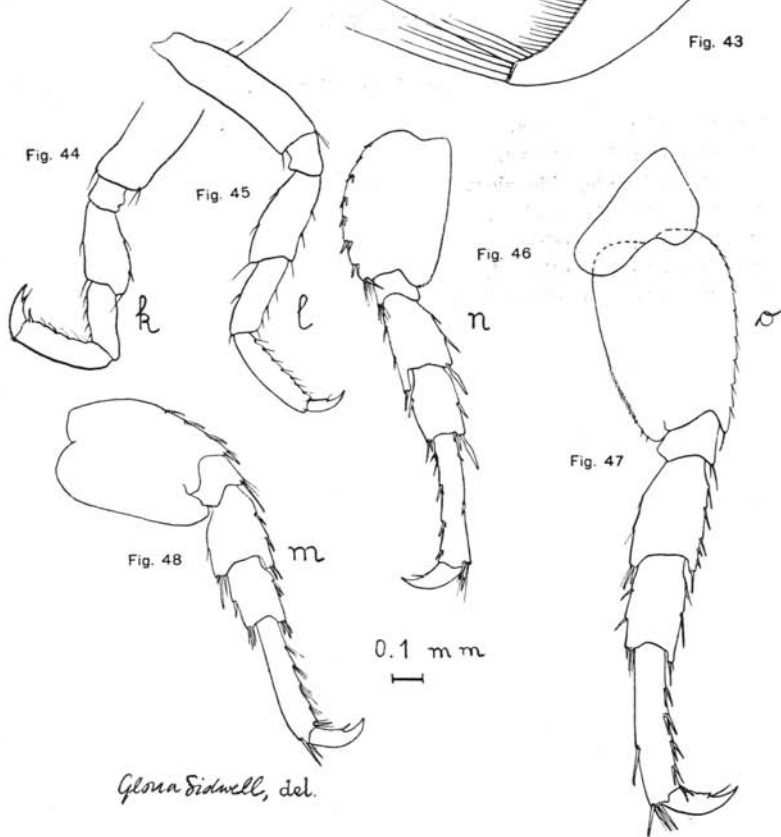
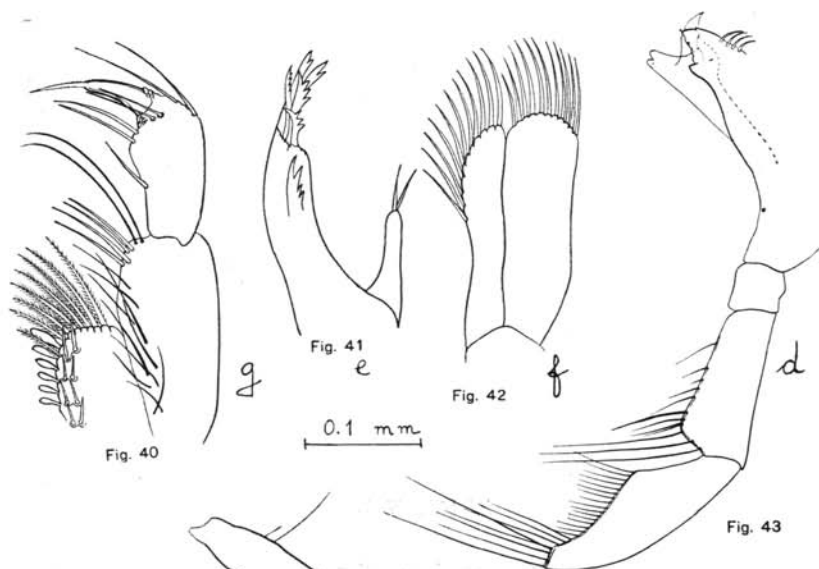


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PLATE VII

Elasmopus fusimanus n. sp.,

- Fig. 40 — g: maxilliped.
" 41 — e: I maxilla.
" 42 — f: II maxilla.
" 43 — d: mandible
" 44 — k: I pereopod.
" 45 — l: II pereopod.
" 46 — n: IV pereopod.
" 47 — o: V pereopod.
" 48 — m: III pereopod.



Glenn Sidwell, del.

PLATE VIII

Elasmopus besnardi n. sp.,

- Fig. 49 — b: I antenna.
" 50 — c: II antenna.
" 51 — female, side view.
" 52 — inferior labium.
" 53 — e: I maxilla.
" 54 — h: I gnathopod.
" 55 — i: II gnathopod.

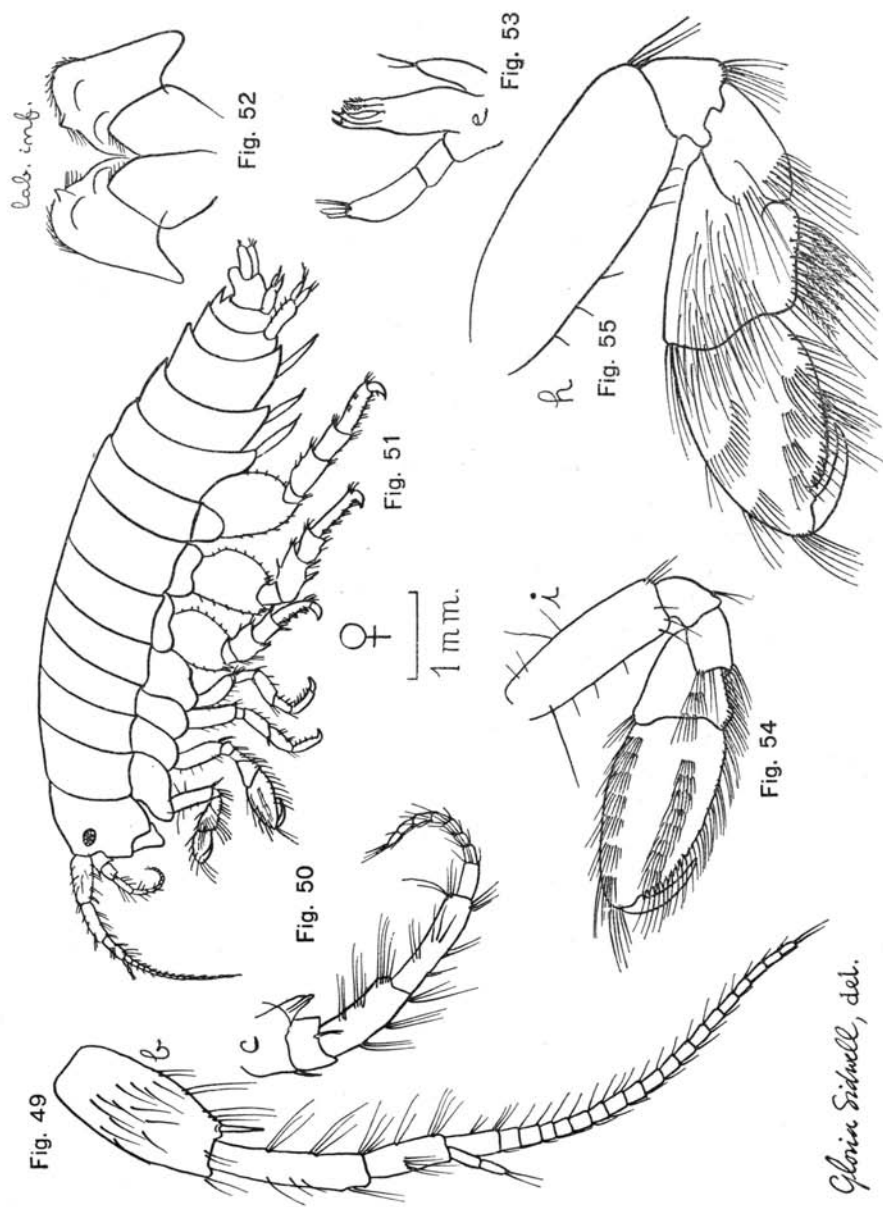


PLATE IX

Elasmopus besnardi n. sp.,

- Fig. 56 — k: I pereopod.
" 57 — l: II pereopod.
" 58 — m: III pereopod.
" 59 — n: IV pereopod.
" 60 — o: V pereopod
" 61 — s: I uropod.
" 62 — v: III uropod.
" 63 — z: telson.
" 64 — superior labium.
" 65 — t: II uropod.
" 66 — d: mandible.

