



Title	Three Species of Marine Harpacticoid Copepods from Amakusa, Kyushu (With 8 Text-figures)
Author(s)	ITÔ, Tatsunori
Citation	北海道大學理學部紀要, 18(4), 516-531
Issue Date	1973-04
Doc URL	<a href="https://hdl.handle.net/2115/27547">https://hdl.handle.net/2115/27547</a>
Type	departmental bulletin paper
File Information	18(4)_P516-531.pdf



# Three Species of Marine Harpacticoid Copepods from Amakusa, Kyushu<sup>1)</sup>

By

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(With 8 Text-figures)

According to Kikuchi (1968) many benthic harpacticoid copepods were collected from Amakusa, though no suitable study on this group has been so far done in this area and the vicinity. The present paper deals with three species of marine harpacticoid copepods among the samples collected from several different substrata in Amakusa. The species are: *Longipedia weberi* A. Scott (Longipediidae), *Halectinosoma arenicola* (Rouch) (Ectinosomidae) and *Paramenophia platysoma* (Thompson et A. Scott) (Thalestridae). The former two species are new to Japan, and are fully redescribed.

All the materials were collected by the author during his short visit to the Amakusa Marine Biological Laboratory of Kyushu University, Amakusa in May 1971. Before going further the author expresses his sincere thanks to Professor Mayumi Yamada of Hokkaido University for his critical reading the manuscript. Grateful thanks are also due to Professor Taiji Kikuchi of Amakusa Marine Biological Laboratory, who kindly facilitated the author's staying at Amakusa for this study.

## *Longipedia weberi* A. Scott

(Figs. 1-4)

*Longipedia weberi* A. Scott 1909, p. 196, pl. 59, figs. 9-12; *Longipedia coronata* Claus: Gurney 1927, p. 482, fig. 122; *Longipedia weberi*: Monard 1928, p. 287, fig. 1; *Longipedia longispina* Monard 1928, p. 288, fig. 2; *Longipedia weberi*: Monard 1935, p. 8, fig. 1; Sewell 1940, p. 131, fig. 1; Roe 1958, p. 225, fig. 99; *Longipedia weberi* (?): Wells 1964, p. 454, fig. 1.

*Female*. Body (Fig. 1-1) about 1.0 mm in length, rostrum and furcal setae excluded; nearly transparent and colourless. Nauplius eye present. Cephalothoracic segment about as long as succeeding three thoracic segments combined.

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1) Contributions from the Amakusa Marine Biological Laboratory, Kyushu University, No. 223.

*Jour. Fac. Sci. Hokkaido Univ. Ser. VI, Zool. 18 (4), 1973.*

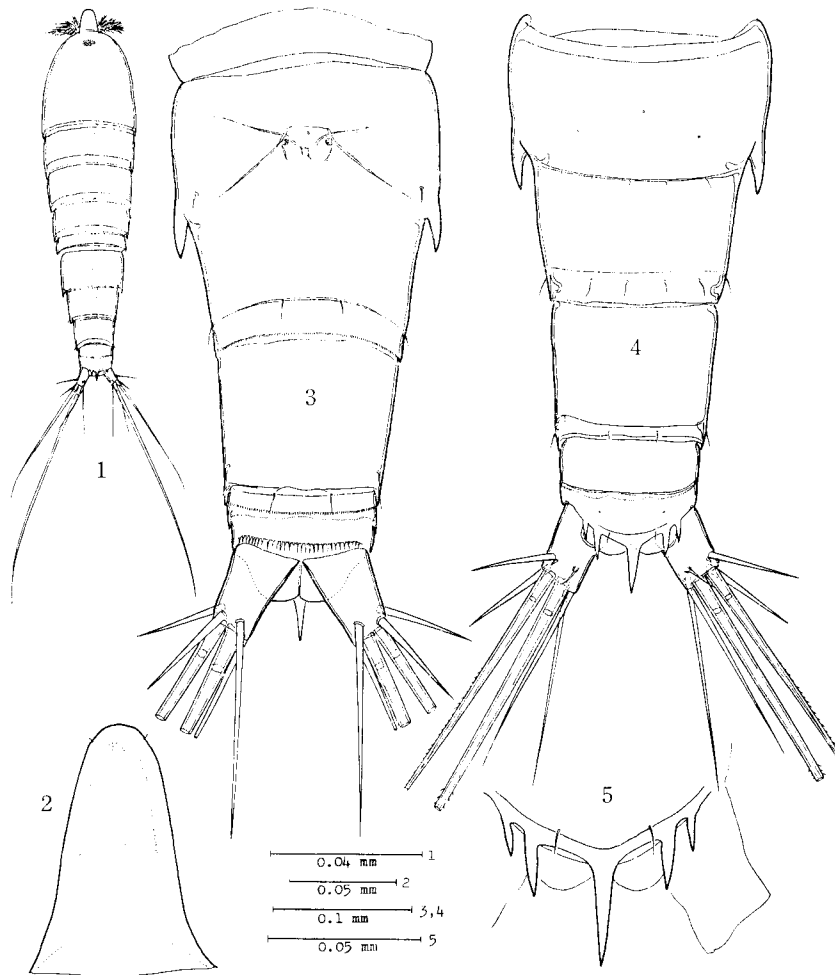


Fig. 1. *Longipedia weberi*. 1. ♀, dorsal; 2. ♀, rostrum; 3. ♀, abdomen, ventral; 4. ♀, abdomen, dorsal; 5. ♀, anal operculum.

Rostrum (Fig. 1-2) very prominent, gradually tapering anteriorly, with a delicate sensory hair on both sides of round apex, and with several spinules on ventral surface between a pair of sensory hairs. Abdomen (Figs. 1-3 and 4) slightly tapering posteriorly. Genital double-somite almost as long as wide, clearly subdivided dorsally by a chitinous suture with some hairs; both lateral horns well-developed; one hair arising from a minor pit located on ventral surface near basal part of each lateral horn; dorsal surface of anterior subdivision with three minor pits as shown in the figure; ventral half of hyaline frill delicately serrate. Ante-

penultimate somite about as long as wide, with some hairs along posterior edge; ventral half of hyaline frill serrate. Penultimate somite much shorter than preceding one, and with no hair; posterior margin serrate. Anal segment furnished with a transverse row of spinules on ventral surface (Fig. 1-3). Anal operculum (Fig. 1-5) well-developed, with five spiniform projections, median terminal one longest and not extending beyond distal end of furcal ramus. Furcal rami closely meeting together ventrally; each ramus a little longer than wide, with a setula arising from a small protuberance on dorsal surface, a pair of sharp spines near posterior lateral edge, one long slender seta on ventral surface near distal end and on innermost terminal corner; a pair of principal terminal setae less hairy.

*Antennule* (Fig. 2-1) five-segmented, rather shorter and thicker in appearance; second and third (or fourth ?) segments, each with one thick aesthetasc; second one with at least four spinulose spines; last one with a pair of rather small aesthetascs on distal end. *Antenna* (Figs. 2-2 and 3). Coxa small. Basis longer than coxa, about as long as wide. Exopodite eight-segmented, second segment shortest; apical one with four spinulose setae terminally, and all other segments each with one seta. Endopodite three-segmented; first segment about twice as long as greatest width, with two bare setae near distal end; second one much shorter than first, with four spinulose or hairy setae distally; third one more than two times as long as second, with six spinulose setae on distal end. *Mandible* (Figs. 2-4 and 5). Cutting edge of praecoxa is so complicated that the exact number of dents is uncertain. Inner margin of coxa-basis with some long hairs, and with three setae near base of exopodite. Exopodite two-segmented; first segment about as long as coxa-basis, slightly widened distally, with two spinulose and one bare setae on inner distal corner; second one about half as long as first, rather ovoid in shape, with one spinulose, two bare and two hairy setae terminally or subterminally. Endopodite a little shorter than exopodite, indistinctly three-segmented; proximal two segments with one plumose thick seta on each inner edge; third one with two juxtaposed plumose setae terminally and one plumose seta on inner distal corner. *Maxillula* (Fig. 2-6). Arthrite of praecoxa with five claws, dorsalmost one bifurcated apically, one arched spine, one spinulose seta along inner edge, and two bare setulae near inner dorsal edge. Coxa with two spinulose thick setae, one bare setula and two hairy setae on inner cylindrical protuberance; epipodite represented by five plumose setae. Inner edge of basis rather complicated, with eight setae, one of which is clearly spinulose while all the others are more or less plumose. Exopodite very indistinctly two-segmented; first segment about as long as wide, with one short outer and two inner marginal setae; second one very short, with four long setae; all setae plumose. Endopodite consisting of two parts; proximal part with four inner setae and much wider than distal part with five apical setae. *Maxilla* (Fig. 2-7). Praecoxa about 1.5 times as long as greatest width, furnished with two juxtaposed endites; proximal endite slightly widened distally, with five hairy setae; second one with three spinulose thick setae.



Fig. 2. *Longipedia weberi*. 1. ♀, antennule; 2. ♀, antenna; 3. ♀, first three exopodite-segments of antenna; 4. ♀, mandible; 5. ♀, cutting edge of mandible; 6. ♀, maxillula; 7. ♀, maxilla; 8. ♀, maxillipede.

Coxa much shorter than praecoxa, furnished with two far separate endites, each endite with three spinulose setae. Basis furnished with one strong pectinate claw which is accompanied with four setae on or near dorsal base. Endopodite thick,

three-segmented; separation between first segment and basis rather obscure; first segment with two plumose setae; second one very short and with one bare seta and one long spiniform seta; third one with one spiniform seta on inner subproximal edge, one slender and two spiniform strong setae on distal end and one slender hairy seta near outer distal corner. *Maxillipede* (Fig. 2-8). Coxa about twice as long as greatest width, furnished with eight hairy setae along distal half of inner margin, and with one well-developed plumose seta on an inner distal protuberance which is directed ventrally. Outer margin of basis slightly curved, with some long hairs; two hairy setae on inner margin. Endopodite about as long as basis, somewhat tapering distally, furnished with one strong plumose seta on outer proximal edge, two rather slender plumose setae terminally, and eight hairy or spinulose setae along inner margin.

*Leg 1* (Fig. 3-1). Intercoxal plate wide and low. Coxa with a longitudinal row of some spinules directed ventrally just inside of outer margin and two arched rows of minute spinules obliquely on anterior surface; one slender seta, which is furnished with some delicate hairs on distal part, on inner distal corner. Basis much shorter than coxa, with some hairs on outer proximal margin; one hairy strong outer spine extending far beyond to second exopodite-segment, and one ciliate spine near inner distal corner. Exopodite a little shorter than basal two segments combined; first segment with less number of spinules on outer edge, one short spine on about middle outer edge, and one slender hairy inner seta; second one about as long as first, with one ciliate longer spine on outer distal corner and one hairy inner seta; third one a little longer than second, with three bare outer spines, one spinulose spine and one hairy seta terminally and one hairy inner seta on just middle edge. Endopodite slightly longer than exopodite-segment and tapering distally, first segment with one stronger plumose seta on about one-third the length of inner margin, and with one hairy spiniform projection near base of inner seta described above; second one fringed with some spinules along outer margin, many hairs along inner margin and one plumose seta on a small concavity at about middle outer edge, one distal outer spine, one long spinulose spiniform and one hairy setae on distal end, and one plumose slender seta on two-thirds the length of hairy inner margin. *Leg 2* (Fig. 3-2). Intercoxal plate well-developed, deeply concave. Coxa about as long as greatest width, tapering distally, with a longitudinal spinular row near middle part of outer margin, and a row of less number of spinules on about middle anterior surface and with one hairy seta just inside of middle inner edge near intercoxal plate. Basis much shorter than coxa, with one spinulose outer seta; one spiniform protuberance between both rami; some spinules on inner distal edge along base of endopodite. Exopodite longer than basal two segments combined; first segment with one ciliate outer spine and one hairy seta directed outwards on middle inner edge; outer distal edge with a spiniform protuberance; an oblique spinular row near outer proximal edge; inner margin hairy; second one furnished with one sharp spiniform protuberance on outer distal end, one bare outer spine, several spinules along outer margin, one well-

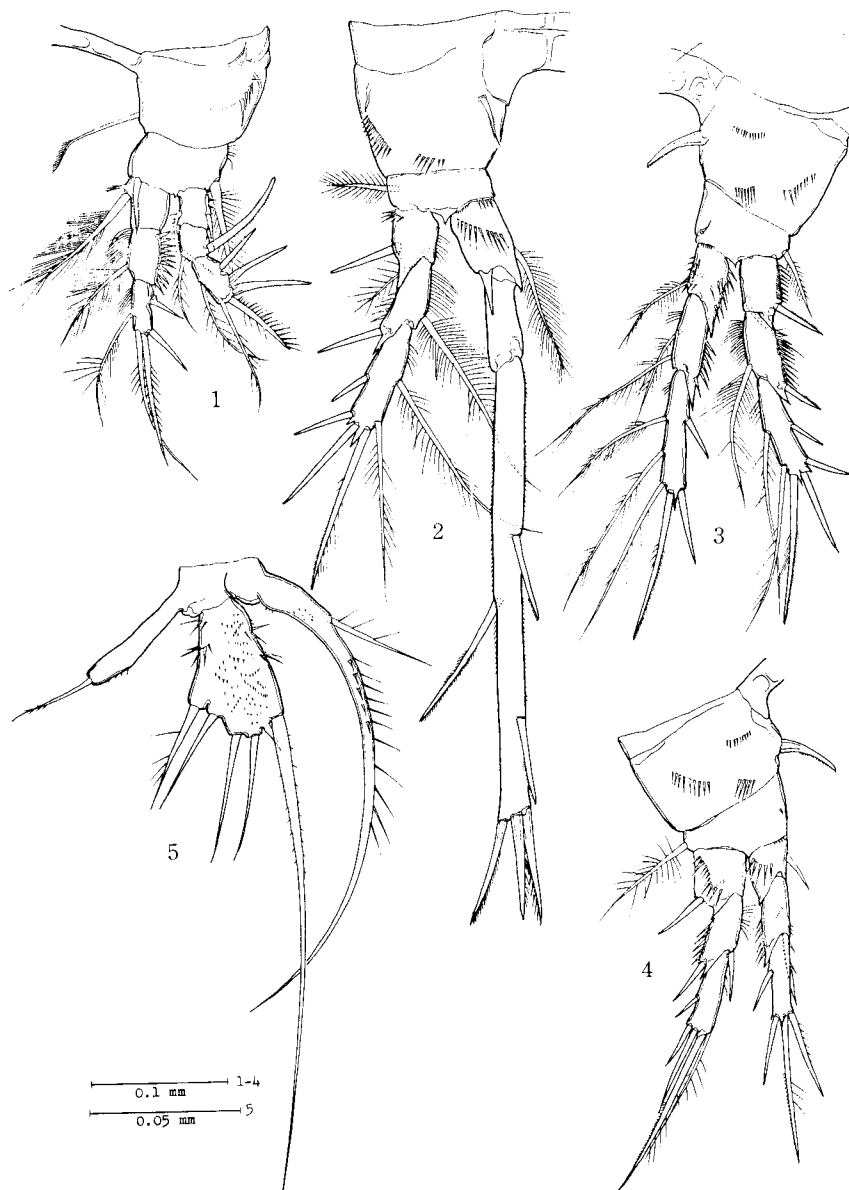


Fig. 3. *Longipedia weberi*. 1. ♀, leg 1; 2. ♀, leg 2; 3. ♀, leg 3; 4. ♀, leg 4; 5. ♀, leg 5.

developed plumose seta on inner subdistal corner and some longer hairs along inner margin; third one a little longer than second, with one rather shorter spine on middle outer edge, one spine on outer distal corner, one longer spine between two rather small spiniform protuberances on terminal edge, one hairy spiniform seta on inner distal edge, one hairy seta on inner subdistal corner, one well-developed plumose seta on middle inner edge, and less number of hairs along proximal part of inner margin. Endopodite about 1.8 times as long as three exopodite-segments combined, first segment with an oblique row of long spinules extending from outer proximal corner to middle outer edge on anterior surface, one strong spine directed ventrally on outer distal corner, and with one plumose seta on about middle inner edge; second one about as long as first and with no ornamentation; third one about 2.8 times as long as first two endopodite-segments combined, delicately ciliated along both margins, and furnished with one longer spinulose spine on middle outer edge, three spinulose spines terminally and two delicately spinulose inner spines, each situated on two-fifths the length and on four-fifths the length. *Leg 3* (Fig. 3-3). Coxa with three arched spinular rows on anterior surface and one pectinate claw on inner edge near ventral end of intercoxal plate. Basis with one hairy outer seta and several spinules along base of endopodite. Ornamentation of exopodite almost same as in leg 2. Endopodite little shorter than three exopodite-segments combined; first segment with one plumose seta just inside of middle inner edge, an oblique row of less number of spinules on anterior surface near outer edge, and some spinules along both margins; second one with two plumose inner setae; third one a little longer and slender than preceding segment, with one shorter outer spine on about middle edge, a short spiniform protuberance between two terminal spines and three plumose inner marginal setae. *Leg 4* (Fig. 3-4). Coxa same as in leg 3. Outer seta of basis with rather longer hairs. Exopodite a little longer than basal two segments combined; first segment rather wide and short, with a setula on near central posterior surface and no inner seta; inner distal corner of second segment with one bare spine; third one with two shorter outer spines, one spine and one spiniform seta terminally, and one very slender hairy seta on inner distal corner. Endopodite as long as three exopodite-segments combined; first segment with one spine on inner subproximal edge; second one with a setula just inside of middle inner edge on posterior surface and one spinulose spine on inner distal end; third one with one small spine on middle outer edge, and one spine on both sides of terminal spiniform seta. *Leg 5* (Fig. 3-5). Outer part of basoendopodite forming into a well-developed cylindrical process with one hairy terminal seta and some hairs on ventral edge; inner expansion strikingly developed, whip-shaped, about four times as long as exopodite-segment, and with one spinulose seta on a seventh the length of inner margin, several spinules on anterior surface of basal thickening, some slender spinules along inner margin and about five spinules on just inside of inner margin. Exopodite about 3.5 times and 1.5 times as long as basal width and greatest width at a level of proximalmost outer seta, respectively; many

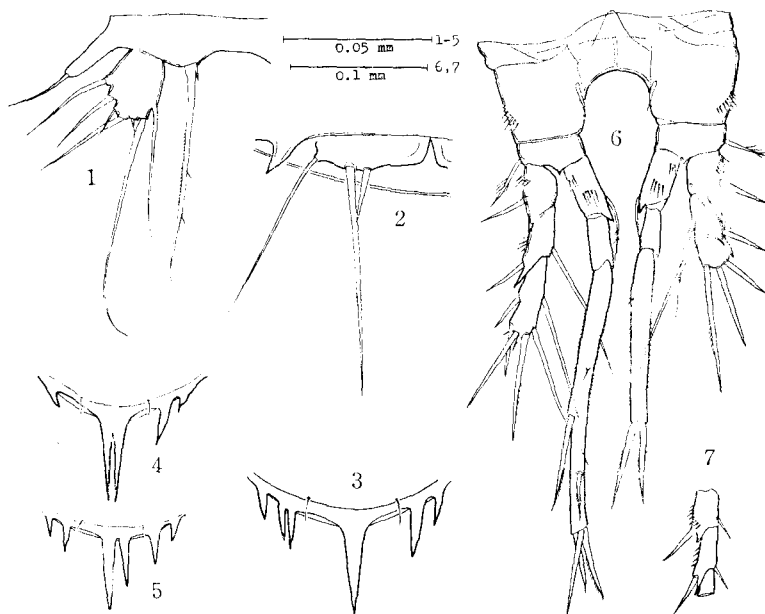


Fig. 4. *Longipedia weberi*. 1. ♂, leg 5; 2. ♂, leg 6. 3-7. Aberrant structures. 3. ♀, anal operculum; 4 and 5. ♂, anal operculum; 6. ♂, leg 2; 7. ♂, first two exopodite-segments of leg 4.

delicate spinules scattering on anterior surface; a pair of spinular groups on both edges; outer distal half slightly four-lobular, each lobule with one seta, proximal-most one apparently hairy, inner distal seta hairy and 1.6 times as long as exopodite-segment; one spiniform protuberance between inner distal seta and terminal seta.

*Male* much smaller than female. *Antennule* chilocer. Outer distal corner of first endopodite-segment of leg 2 not ornamented. *Leg 5* (Fig. 4-1). A pair of basoendopodites entirely confluent; inner expansion represented by a slight projection with one hairy long seta. Exopodite about as long as greatest width, with three outer, one terminal and two longer inner setae; one spiniform protuberance between terminal seta and distal inner seta. *Leg 6* (Fig. 4-2) consisting of a wide distinct plate with one bare outer seta and two spines, outer one much longer than inner.

*Variability*. In the three females and the four males dissected, the anal opercula of the one female and of the two males were remarkably asymmetrical in the ornamentation. In the female the anal operculum (Fig. 4-3) has an additional shorter spine. In the male it (Fig. 4-4) has a bifurcated median spine instead of the single spine and only one spine on the left margin instead of two, and in another male it (Fig. 4-5) has an additional spine on just right side of the

median spine. No noticeable variability of anal operculum was recognized in all the other specimens. In the former male described several aberrant structures were noticed in the leg 2 (Fig. 4-6) and the leg 4 (Fig. 4-7); third endopodite-segment of left leg 2 furnished with a setula instead of a spine; both rami of right leg 2 very unique, exopodite consisting of only two segments, second segment with one outer spine near base of a spiniform process on middle edge, three terminal or subterminal spines, and two slender inner setae; third endopodite-segment much shorter than usual and with one setula on about a third the length of inner margin and two spinulose spines terminally; first exopodite-segment of leg 4 with one short spine near inner distal corner.

*Remarks.* All the present female specimens examined well agree with the original description and figures given by A. Scott (1909) based on a sole specimen from Anchorage off Pulu Jedan, East West of Aru Island, particularly in the leg 5 and the anal operculum. Several authors (Gurney, 1927, and Wells, 1963) have so far put in a claim for making a study to decide the validity of this species in the connection with *Longipedia coronata* Claus. Gurney who reported both sexes under the name of *L. coronata* from the Suez Canal stressed that his specimens were very variable in the body size and in the length of the median spine of anal operculum, and further the two species, *L. coronata* and *L. weberi*, were difficult to distinguish from each other. His species was already treated as a synonym of *L. weberi* by Lang (1948). The median spine in *L. coronata* apparently far exceeds to the distal end of furcal ramus (A. Scott, op. cit., and Nicholls, 1941) and is much thicker than in *L. weberi* (A. Scott, op. cit., and Lang, op. cit.). Although the present author has not so far examined any specimens of *L. coronata*, the specimens from Amakusa seem to be not difficult in distinguishing them from *L. coronata* as far as comparing with those appeared in the literature.

The female leg 5 as well as the anal operculum illustrated by Gurney quite agrees with that of *L. weberi*. Gurney also reported the male of *L. coronata*, of which the setation of leg 5 is very unique. If the figure of the leg 5 is quite correct, the specimens reported by Gurney are different from *L. coronata* by Sars (1903) and also from the present specimens. The males of *L. weberi* reported by Roe (1958) from Dalkey area, Dalkey, and by Wells (1964) from the Dale Fort, Pembrokeshire, have the leg 5 with six setae (a small spine probably overlooked in both the authors) nearly as in the present specimens (Fig. 4-1), though with eight setae in the Gurney's figure.

*Specimens examined.* Three adult females and four adult males collected from washings of sandy mud, Tomoe Cove (25-V-'71). Numerous younger copepodids were also collected, but were not examined.

### *Halectinosoma arenicola* (Rouch)

(Figs. 5-7)

*Ectinosoma* (*Halectinosoma*) *arenicola* Rouch 1962, p. 241, figs. 1-8; *Halectinosoma arenicola* (Rouch) Lang 1965, p. 34.

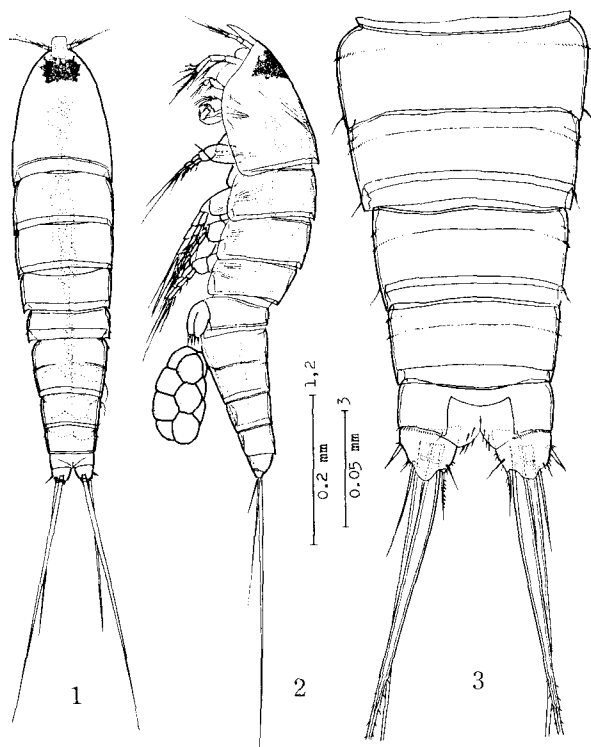


Fig. 5. *Halectinosoma arenicola*. 1. ♀, dorsal; 2. ♀, lateral; 3. ♀, abdomen, dorsal.

*Female.* Body (Figs. 5-1 and 2) about 0.55 mm in length, nearly transparent and colourless except for anterior dorsal part of cephalic segment, which is tinged with bright red as shown in the figure; greatest body width located on first free thoracic segment, and gradually tapering posteriorly. Rostrum (Fig. 6-1) well-developed, rectangular in shape, 1.7 times as long as basal width; a delicate sensory hair at about a third the length of each lateral edge. Some delicate hairs scattered on surface of cephalothorax. Ventral posterior corner of each first to third free thoracic segment slightly produced posteriorly. Egg sac single. Genital double-somite (Figs. 5-3 and 6-7) subdivided by a chitinous suture dorsally and ventrally into two segments; genital area as shown in the figure (Fig. 6-7); anterior segment with a transverse spinular row on dorso-lateral surface near anterior end, and with several hairs on lateral surface near posterior end; posterior segment with two transverse spinular rows on lateral surface, hyaline frill along posterior edge well-developed. Abdomen slightly depressed dorso-ventrally. Anal segment with some spinules around anus, and many delicate spinules along basal edge of both furcal rami; anal operculum very obscure, slightly rounded and with no

ornamentation. Furcal ramus, dorsal hyaline lappet excluded, much shorter than width; proximal part of inner principal terminal seta apparently swollen; one spine on middle outer edge, one shorter seta accompanied with several spinules basally on outer distal corner, one slender bare seta on just outside of outer principal terminal seta, one hairy short seta on inner distal corner, several spinules and a setula along inner edge.

*Antennule* (Fig. 6-1) rather moderate and less setigerous, six-segmented; first segment with one short hairy seta on anterior distal corner; second one a little shorter than first; third one about as long as first two segments combined, with several setae along anterior edge and one aesthetasc; apical three consecutive segments, each small and with less number of setae; sixth segment with one longer aesthetasc. *Antenna* (Fig. 6-2). Coxa very short. Basis about 1.5 times as long as greatest width, with two remarkably slender setae on two-thirds the length of anterior margin. Exopodite three-segmented; first segment with several spinules on middle edge; second one very small, with one spinulose spine; third one longer than first, with two longer spinulose spiniform setae terminally. Endopodite two-segmented; first segment about as long as basal two segments combined, with several spinules on distal edge; second one shorter than first, with two spinulose spines on a corner at a third the length of anterior edge, a transverse row of some spinules on outer subdistal surface, one bifurcate seta on posterior subdistal corner, two short spinulose spines and three longer spinulose spiniform seta on distal end. *Mandible* (Fig. 6-3). Praecoxa well chitinous, furnished with several claws along cutting edge and less number of spinules on inner dorsal edge. No good preparation of the other segments was unfortunately obtained. *Maxillula* (Fig. 6-4). Arthrite of praecoxa furnished with three strong pectinate claws, middle one of which has several spinules near base in a transverse row, and with a pair of parallel setae on surface. Coxa absent? Basis with three inner setae, shortest one hairy and others bare. Exopodite small, with two longer terminal setae, inner one plumose. Endopodite a little longer than wide, with two juxtaposed setae on middle inner corner, and four setae on distal end. *Maxilla* (Fig. 6-5). Syncoxa longer than wide, with two oblique spinular rows on surface, and furnished with three endites; proximal endite rather wide, with three spinulose thick setae; middle one slender, with two hairy or spinulose juxtaposed setae; distal one irregular in form and slightly bilobular, with one thick spinulose seta on proximal lobule and two spinulose setae on distal lobule. Basis gradually widened distally, about as long as syncoxa, and with three juxtaposed setae, middle one very short and spinulose, and one separate seta on and near inner edge. Basis consisting of three geniculate spiniform setae, middle one of which is distinctly spinulose along middle edge, and with one bare setula. *Maxillipede* (Fig. 6-6). Basis a little shorter than long, with one longer bare seta, and several hairs along margin. First endopodite-segment remarkably broadened in proximal part, about 2.5 times as long as greatest width, with numerous longer hairs along both margins; second segment much shorter than first, with one spinulose seta on both lateral

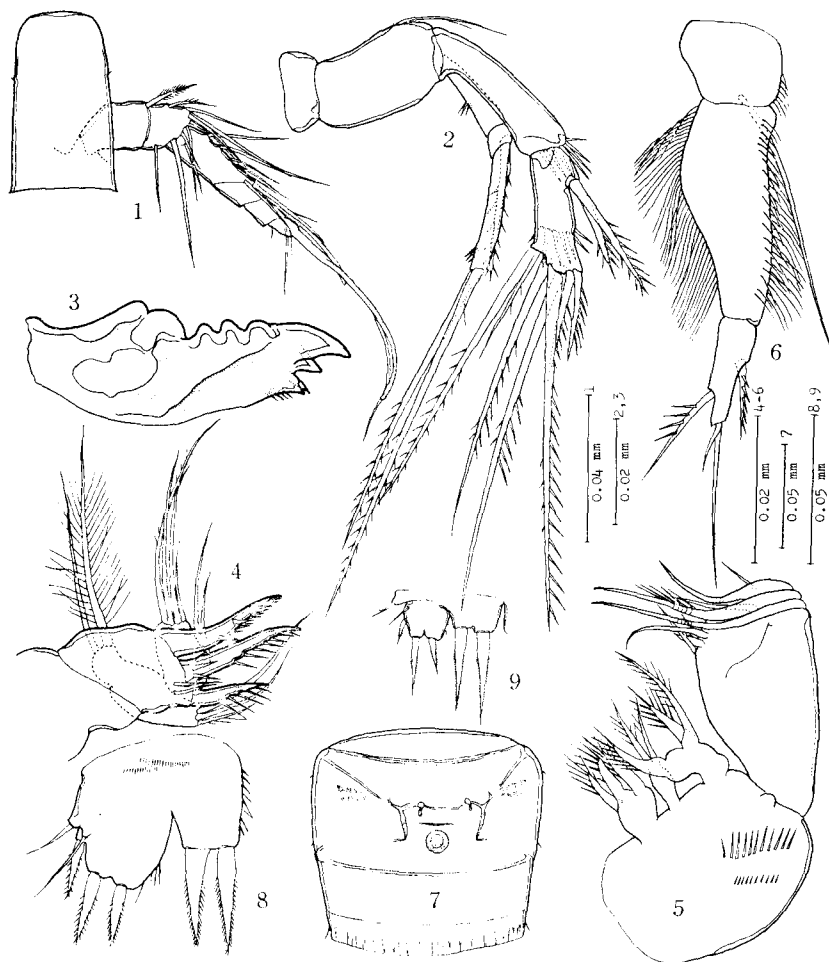


Fig. 6. *Halectinosoma arenicola*. 1. ♀, rostrum and antennule; 2. ♀, antenna; 3. ♀, praecoxa of mandible; 4. ♀, maxillula; 5. ♀, maxilla; 6. ♀, maxillipede; 7. ♀, genital double-somite, ventral; 8. ♀, leg 5; 9. ♂, leg 5.

edges and two juxtaposed terminal setae, longer one straight and shorter one slightly arched.

*Leg 1* (Fig. 7-1). Middle ventral edge of intercoxal plate sharply hollowed. Coxa with no ornamentation. Basis small, with one bare outer seta accompanied with several spinules near base, and one spinulose longer spine near middle inner edge. Exopodite-segment about as long as basal two segments combined; each segment of approximately equal length; first segment with one spinulose outer spine, several juxtaposed spinules on middle inner edge, some spinules along outer

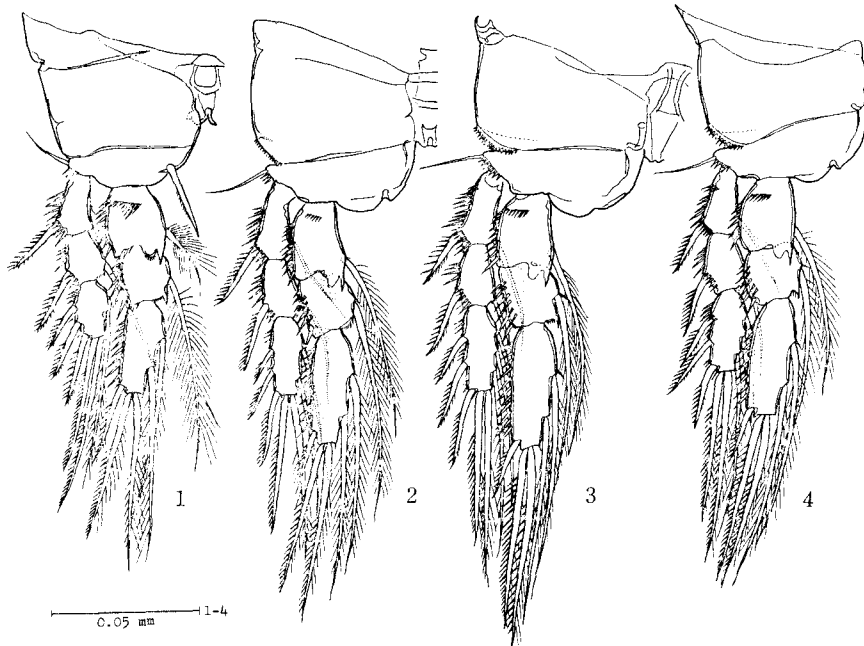


Fig. 7. *Halectinosoma arenicola*. 1. ♀, leg 1; 2. ♀, leg 2; 3. ♀, leg 3; 4. ♀, leg 4.

margin, and clearly serrated at inner distal edge; second one with one outer spine and one longer inner seta; third one with three outer marginal spines, two terminal spines or spiniform setae and one hairy inner seta on middle edge. Endopodite incerted in just middle part of basis, longer than exopodite; first segment with a transverse spinular row, one plumose inner seta, and a spinous formation succeeding to a spinulose hyaline protuberance on inner distal corner; second one with two spinular rows along outer margin, and one longer inner seta; third one a little shorter than preceding two segments combined, with one outer spine on subdistal corner, two terminal spines or spiniform setae, and two longer inner marginal setae. *Leg 2* (Fig. 7-2). Outer distal margin of coxa with several delicate spinules. Inner half of basis with no spine, much swollen and clearly bilobated; both rami incerted in outer part. First exopodite-segment with one plumose inner seta; third one with two inner marginal setae. Endopodite nearly as in preceding leg. *Leg 3* (Fig. 7-3). Third exopodite-segment with three inner marginal setae. *Leg 4* (Fig. 7-4) nearly same as in leg 3. *Leg 5* (Fig. 6-8). Basoendopodite with two transverse rows of delicate spinules on anterior surface, several longer spinules along straight inner margin, one bare outer seta; inner expansion reaching to about middle part of exopodite, and with a pair of spinulose thick setae on distal end. Exopodite indistinctly separated from basal segment, with one slender bare

seta on a small protuberance on outer proximal edge; distal edge slightly bilobated, each lobe with one thick spinulose seta; distal half of inner margin with less number of slender spinules.

*Male* slightly smaller than female.

*Antennule* haplocer. *Leg 5* (Fig. 6-9). A pair of basoendopodites clearly separated from each other; inner expansion with two ciliate thick setae on distal end. Exopodite rather round, with three ciliate setae, and one bare hair-like seta on surface. *Leg 6*. A small protuberance with one hairy spine and one slender outer seta.

*Valiability*. No valiable structure was recognized in three females and two males dissected.

*Remarks*. The present specimens described fairly well coincide with the original description and figures of *Ectinosoma* (*Halectinosoma*) *arenicola* reported by Rouch (1962) from Brazil. Some minor differences, however, are recognized in the apical segment of maxillipede and the maxillula.

The apical part of cephalic segment in all the present specimens was apparently tinned with red colour. It seems to be not usual nauplius eye but other unknown frontal organ which is probably of a function as a photoreceptor.

*Specimens examined*. Three adult females, two adult males and two female copepodids were dissected. Many ovigerous and non-ovigerous females were also collected from fine sand near shore line, Siki (26-V-'71).

***Paramenophia platysoma*** (Thompson et A. Scott)

(Fig. 8)

*Dactylophus* *platysoma* Thompson et A. Scott 1903, p. 272, figs. 13-18; Lang 1948, p. 553, figs. 222 and 224; *Paramenophia platysoma* (Thompson et A. Scott) Lang 1954, p. 597; *Dactylopusia* (?) *platysoma*: Gamô 1969a, p. 354, figs. 5-7; *Paramenophia platysoma*: Gamô 1969b, p. 19, fig. 1.

This species was fully redescribed by Gamô (1969a) based on a female specimen from Tanabe Bay, Japan. Only some additional notes are here described.

*Female*. Body length 0.72 mm, furcal setae excluded (Fig. 8). Nauplius eye prominent. Nearly whole body surface reddish purple in colour except for anterior

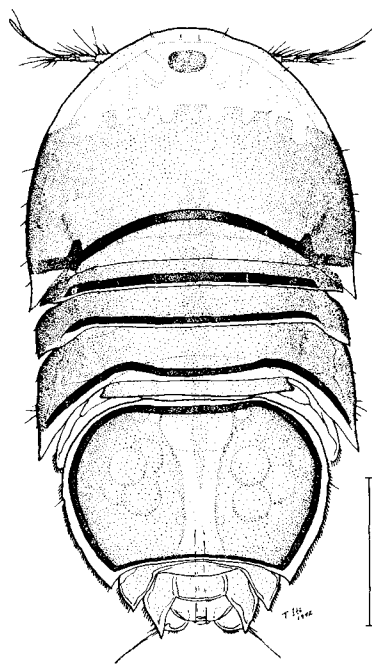


Fig. 8. *Paramenophia platysoma*.  
Ovigerous female, dorsal.

half of cephalothorax which is quite transparent and colourless. A very dark purple band located on each cephalothorax and succeeding three thoracic segments transversely, and further on circumference of genital double-somite. Ventral part of genital double-somite slightly concave on both sides of a longitudinal upheaval.

*Remarks.* The concavities of genital double-somite have several eggs, and are apparently covered with the fifth pair of legs. These spaces, therefore, seem to be a kind of egg pouches.

*Specimens examined:* Two adult females, one of which is ovigerous, collected from rinsing of shell sand near tide line, Tsuji-shima Islet (24-V-'71).

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