

SIX NEW SPECIES OF BOPYRID ISOPODS PARASITIC
ON GALATHEID CRABS OF THE GENUS *MUNIDA*
IN THE WESTERN ATLANTIC¹

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ABSTRACT

Study of seven species of the genus *Munida* in the western Atlantic has revealed six species of bopyrid isopod parasites, all of which were undescribed. *Bonnieria americana*, n. sp., infests *Munida microphthalma* A. Milne Edwards; *Anuropodione carolinensis*, n. sp., infests *Munida iris iris* A. Milne Edwards; *Anuropodione megacephalon*, n. sp., infests *Munida pusilla* Benedict; *Balanopleon tortuganus*, n. gen., n. sp., infests *Munida simplex* Benedict; *Aporobopyrina anomala*, n. sp., infests *Munida valida* Smith; and *Pleurocryptella fimbriata*, n. sp., infests *Munida constricta* A. Milne Edwards and *M. miles* A. Milne Edwards. In addition, a pair of bopyrids was found infesting a specimen of *Munida irrasa* A. Milne Edwards, but, since the female appears to be damaged and the male immature, these are not described or named.

INTRODUCTION

Examination of several species of *Munida* of the western Atlantic for parasitization by bopyrids has produced a few perviously described species of parasites and a large number of undescribed ones. Many of these parasites belong to the genera *Pseudione* Kossmann and *Munidion* Hansen and will, where new, be described in subsequent papers. Six parasites on seven different species of *Munida*, however, belong to other genera. Three of these genera were heretofore monotypic, one had two species, and another is herein described as new. A seventh parasite on another species of *Munida* appears new, but is unsuitable for describing. Holotypes are in the collection of the National Museum of Natural History, Smithsonian Institution (denoted USNM); while other specimens have been placed there and in the collections of the Rosenstiel School of Marine and Atmospheric Science, University of Miami (UMML); the Museum of Comparative Zoology, Harvard University (MCZ); and the Peabody Museum of Natural History, Yale University (YPM). Most of the material in this report came from cruises of the University of Miami's Research

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Vessels GERDA and JOHN ELLIOTT PILLSBURY, with supplemental collections from the United States Bureau of Commercial Fisheries vessels ALBATROSS and R/V OREGON II, Texas A&M University's R/V ALAMINOS, and the University of North Carolina's R/V EASTWARD.

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Bonnieria Nierstrasz & Brender à Brandis, 1923

Type-species.—By monotypy, *Bonnieria indica* Nierstrasz & Brender à Brandis, 1923.

Bonnieria americana, n. sp.

Figs. 1-4

Material Examined.—Holotype ♀ (USNM 141592), allotype ♂ (USNM 141593) from ♂ *Munida microphthalma* A. Milne Edwards of carapace length (CL) 12.1 mm; paratype ♀ and ♂ (USNM 141594) from ♂ *M. microphthalma* of CL 11.7 mm. Both from PILLSBURY Sta. P-689: 08°40'N, 57°38'W; 1220-1440 m; 15 July 1968; hard brown mud bottom; 41-foot otter trawl.

Description, Holotype Female (Figs. 1, 2).—Length 8.62 mm, maximal width 5.18 mm, head length 1.31 mm, abdomen length 2.07 mm. Distortion, head-pereon 24°, pereon-abdomen, reverse 17°.

Body nearly oval in outline, both ends reflexed dorsally, body axis bent twice, so axes of head and abdomen nearly parallel. All segments rather clearly defined (Fig. 1,A,B).

Head oblong except posterior edge slightly concave. Well-developed frontal lamina. No eyes. Antenna 1 (Fig. 2,A) 3-jointed; distal segment much smaller than others, none bearing evident setae; antenna 2 of five obscurely defined segments, distal one with a few short setae. Maxilliped (Fig. 2,B) roughly ovate. Ventral posterior border (Fig. 2,C) with one lateral digitate process on each side, central border produced into three flatly rounded projections.

Pereon broadest across pereomere 4. All pereomeres bearing coxal plates which cover lateral edges. Slightly foliaceous tergal projections along short side of body on all seven pereomeres. Oöstegites reduced,

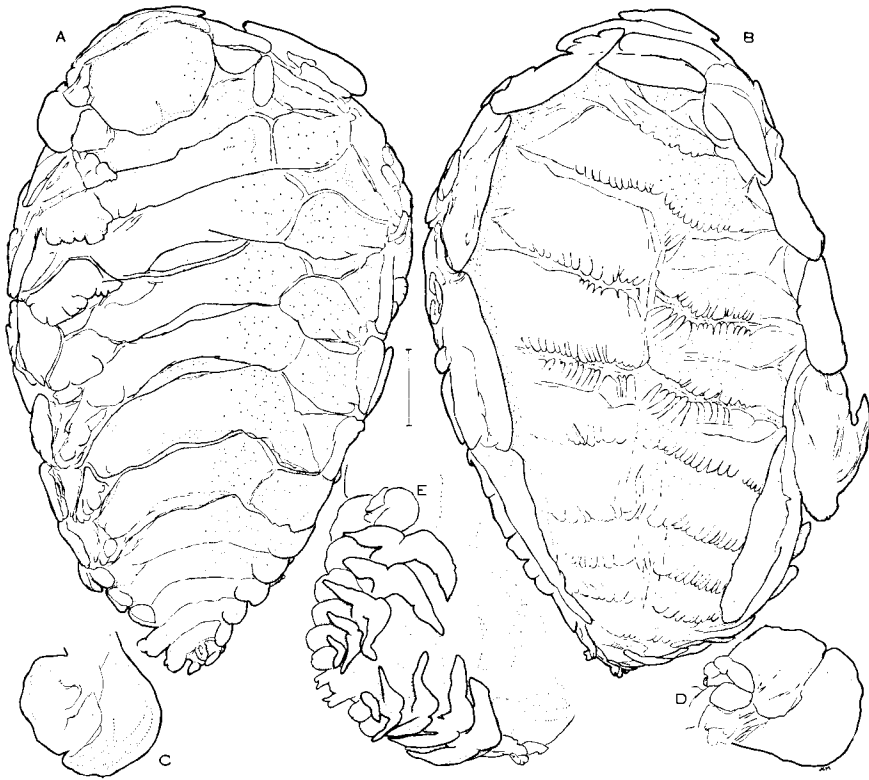


FIGURE 1. *Bonnieria americana*, n. sp., holotype female: A, dorsal view; B, ventral view; C, right oostegite 1, internal view; D, same, external view; E, abdomen, ventral view. Scale line equals 1.0 mm.

surrounding marsupium but not enclosing it; oostegite 1 (Fig. 1,C,D) nearly circular, lacking posterior point. Pereopods (Fig. 2,D,E) isomorphic, all equally developed and essentially of same size.

Abdomen (Fig. 1,A,E) about $\frac{1}{3}$ as long as broad, rounded posteriorly, of six distinct segments. Each of first five pleomeres with ovoid lateral plate extending to each side. Pair of biramous pleopods (Fig. 2,F,G) on each of first five pleomeres, consisting of pointed flat endopodite extending medially and smaller pointed flat exopodite extending laterally. Posterior pleopods and lateral plates progressively smaller. Pleomere 6 lacking pleopods and lateral plates but bearing a pair of posteriorly projecting biramous uropods; endopodites of uropods slightly narrower and longer than exopodites, neither branch bearing any ornamentation. Anus in center of prominent dorsal tubercle.

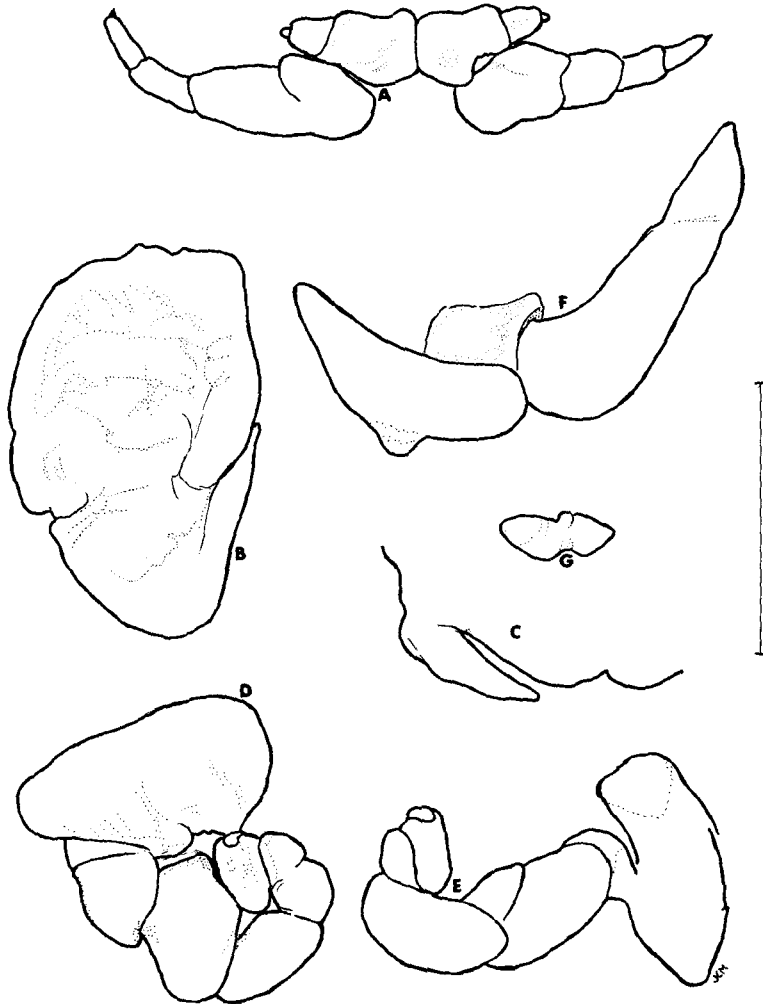


FIGURE 2. *Bonnieria americana*, n. sp., holotype female: A, antennae; B, right maxilliped, external view; C, posterior ventral view of head; D, right pereopod 1; E, left pereopod 6; F, left pleopod 1; G, left pleopod 5. Scale line equals 1.0 mm.

The paratype female is essentially identical with the holotype in all respects.

Description, Allotype Male (Figs. 3, 4).—Length 3.02 mm, maximal width 1.27 mm, head length 0.44 mm, abdomen length 0.71 mm.

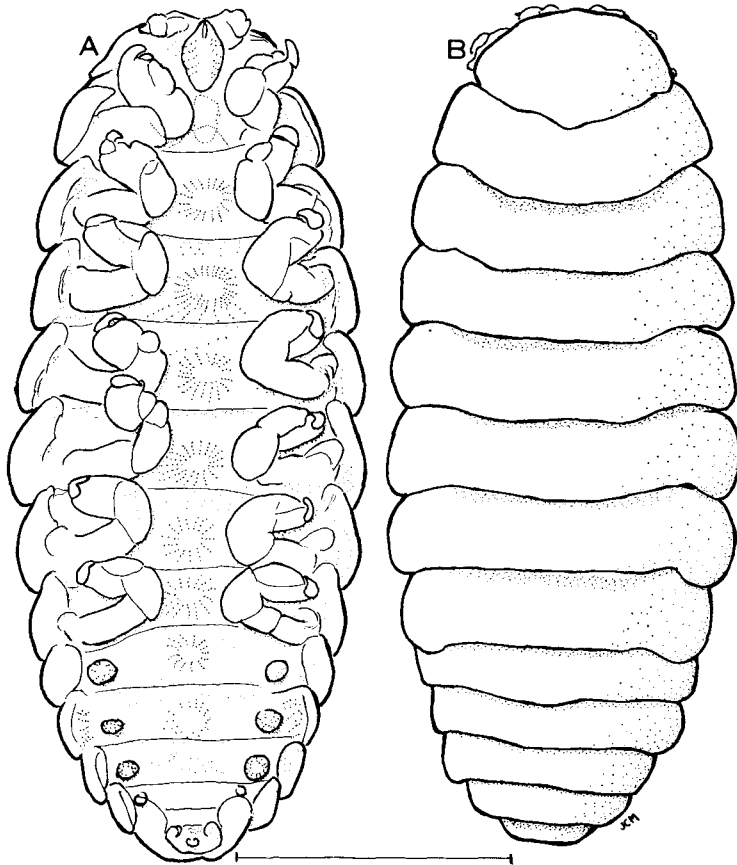


FIGURE 3. *Bonnieria americana*, n. sp., allotype male: A, ventral view; B, dorsal view. Scale line equals 1.0 mm.

Body ellipsoid (Fig. 3), both ends smoothly rounded, with no abrupt changes in width. Abdomen reflexed ventrally.

Head rounded except for marked central convexity posteriorly. Antenna 1 (Fig. 4,A) of three segments; terminal one smallest, which eight apical setae; middle segment considerably longer; basal one much longer yet. Antenna 2 (Fig. 4,B) of four segments; terminal one nearly triangular, with ten apical setae. Lateral margins of both antennae, especially first, densely covered with fine setae. Eyes lacking.

Pereon broadest across pereomere 5. All pereomeres with slightly rounded lateral edges. Pereopods (Fig. 4,C,D) essentially of same size



FIGURE 4. *Bonnieria americana*, n. sp., allotype male: A, right antenna 1; B, right antenna 2; C, right pereopod 1; D, right pereopod 7; E, terminal pleomere. Scale line equals 0.1 mm for A-D; 0.05 mm for E.

and shape, but dactyli progressively smaller posteriorly; each pereopod with several fine setae along lateral edge of propodus, distal tuft of large setae on carpus, notch in proximal border of basis. Broad, low tubercle on medial ventral surface of each pleomere.

Abdomen of six pleomeres. Lateral sides of first five produced into small ventral-curving lateral plates. Medioventral tubercles on pleomeres

1 and 2 like those on pereomeres. Pleopods 1-5 in form of buttonlike tubercles. Terminal (sixth) pleomere surrounded by fifth, with pair of tuberculiform uniramous uropods (Fig. 4,E). Fringe of sparse setae on posterior border of abdomen and uropods.

The paratype male differs slightly from the allotype in having a more broadly convex head which bears colorless eyes; pleomere 6 extends straight back rather than being enclosed by pleomere 5.

Discussion.—The type-species, *Bonnieria indica*, which Nierstrasz & Brender à Brandis (1923) recorded as a parasite of *Munida militaris* Henderson from the East Indies, was hitherto the only known member of the genus. The description by these authors, while adequate to characterize their new genus, indicates nothing by which *B. indica* may be distinguished from *B. americana*. However, from the fine illustrations which they published, it is possible to state the following distinctions: The female of *B. americana* has antennal segments which are differently proportioned and possibly fewer in number, its tergal projections are more crenulate, its oöstegites are relatively much smaller, its pleopods are relatively longer-branched, and its final pleomere is less deeply embedded in the preceding one. The male of *B. americana* has a head more rounded anteriorly and is broadest across pereomere 5, while the male of *B. indica* is broadest across pereomere 4.

Nierstrasz & Brender à Brandis (1923) gave a very brief generic diagnosis for each sex, which can now be enlarged in view of the information available from two species. *Female*: Body roughly ovate, longer than broad, only slightly distorted. All segments distinct. Eyes absent. Coxal plates on all pereomeres; pereopods of essentially same size; oöstegites fringing ventral side but not covering marsupium. Abdomen six-segmented; pleopods each of two flat, simple branches pressed tightly against ventral surface of abdomen; pleomere 6 embedded in pleomere 5, bearing a pair of terminal biramous uropods; lateral regions of pleomeres 1-5 produced into small lateral plates. *Male*: Body about 2.5 times as long as broad; all segments and body regions demarcated. Head slightly set into pereon; eyes absent or indistinct. Abdomen of six segments, first five bearing tuberculiform uniramous pleopods, sixth with pair of similar tuberculiform uropods.

The genus *Paragigantione* Barnard, known only from a single pair of individuals of the type-species, *P. papillosa* Barnard, which Barnard (1920) recorded from South Africa on *Munida sanctipauli* Henderson, is quite similar to *Bonnieria* in several respects. In the females of both, all segments are distinctly separated, the body is only slightly distorted, eyes are lacking, the oöstegites are reduced, the pleopods and uropods are biramous, and the lateral plates are reduced. In the males of both genera, all segments are distinct, the pereomeres bear medioventral tubercles (these are not recorded in *Bonnieria indica*, but may exist), and the pleopods and uropods

are represented by tubercles. The female of *Paragigantione* differs from those of *Bonnieria* in that its head is more trapezoidal, it evidently lacks coxal plates, and its terminal pleomere is produced into a prominent pleotelson. The male of *Paragigantione*, in contrast with those of *Bonnieria*, has more prominent antennae, the body relatively narrower with more nearly parallel sides, all of its segments more distinctly separated laterally, and its pereomeres produced into sharper points.

The paratype male was very unusually attached to its mate. Rather than clinging to the abdomen of the female, it was attached to the dorsal surface of the pereon with its head pressed against the female's head.

Anuropodione Bourdon, 1967

Type-Species.—By monotypy, *Anuropodione senegalensis* Bourdon, 1967.

***Anuropodione carolinensis*, n. sp.**

Figs. 5-8

Anuropodione sp., Williams & Brown, 1972: 307.

Material Examined.—Holotype ♀ (USNM 141582), allotype ♂ (USNM 141583), three other pairs and an immature ♀ (USNM 141584) from specimens of *Munida iris iris* A. Milne Edwards. All from EASTWARD Otter Trawl Sta. 9888: 35°05'N, 75°11.5'W; 220-260 m; 28 June 1968.

Description, Holotype Female (Figs. 5, 6).—Length 11.9 mm, maximal width 7.1 mm, head length 2.3 mm, abdomen length 3.1 mm. Distortion 6°.

Body roughly ovate in outline, all segments and body regions distinct (Fig. 5).

Head with fairly large frontal lamina, which is produced into points beside head. Anterior margin smoothly rounded, posterior somewhat pointed. No eyes. Antennae (Fig. 6,A) reduced, each of two stubby proximal segments and tiny pointed distal segment. Maxillipeds (Fig. 6,B) with undulate lateral edges. Ventral posterior border (Fig. 6,B) with two long processes on each side, central margin straight except for bluntly rounded central point.

Pereon with well-defined segments. Coxal plates on all lateral margins, covering them almost completely. Greatest width across pereomere 3. Dorsal surface with central ridge which narrows posteriorly. Dorsal bosses prominent on pleomeres 1-4, obscure on others. Oöstegites overlapping and completely enclosing marsupium. Oöstegite 1 (Fig. 6,C) with posterolateral corner which extends only slightly beyond posterior border; internal ridge with a few irregular denticles. Pereopods (Fig. 6,D,E) nearly doubling in size from first to seventh; prominent blunt carina on basis of each.

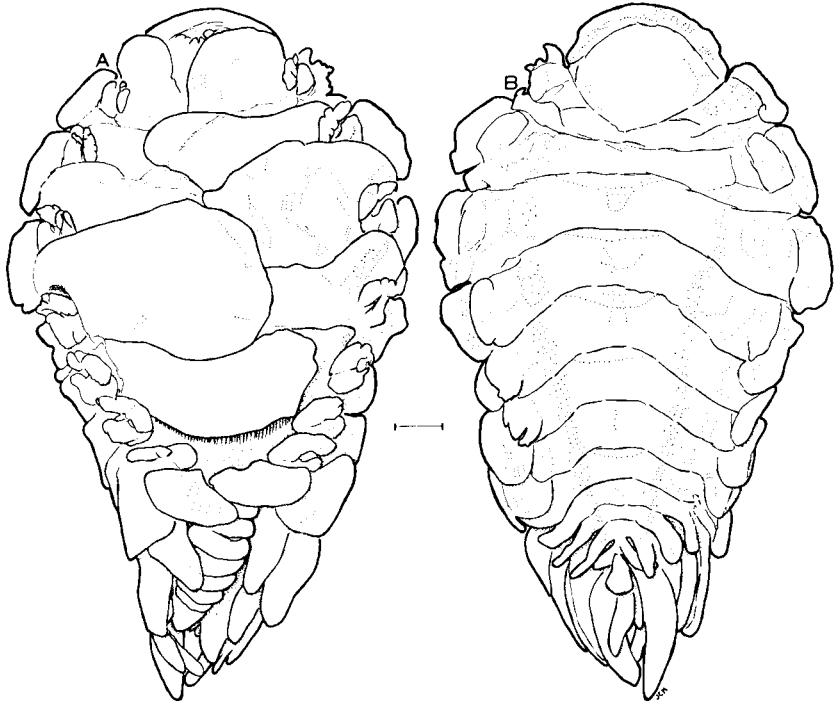


FIGURE 5. *Anuropodione carolinensis* n. sp., holotype female: A, ventral view; B, dorsal view. Scale line equals 1.0 mm.

Abdomen rapidly narrowing, of six pleomeres. Lateral edges of each pleomere produced into narrow lateral plates which extend straight out from sides. Terminal segment in form of bulbous pleotelson. Foliaceous biramous lanceolate pleopods on five pleomeres, nearly covering ventral surface of abdomen. No uropods.

Variations of Other Females.—The other four females show a number of minor variations from the holotype. These include the posterior ventral border of the head, which bears several small central points in one case, the interior of oöstegite 1, which is variously toothed, and the pleotelson, which ranges from a bulbous shape to being produced into sharp lateral points. The lengths of the five females vary from 10.5 mm to 13.5 mm. One of the females (Fig. 7) is immature, as indicated by its empty marsupium and lack of male; it has been drawn in detail for comparison with the holotype.

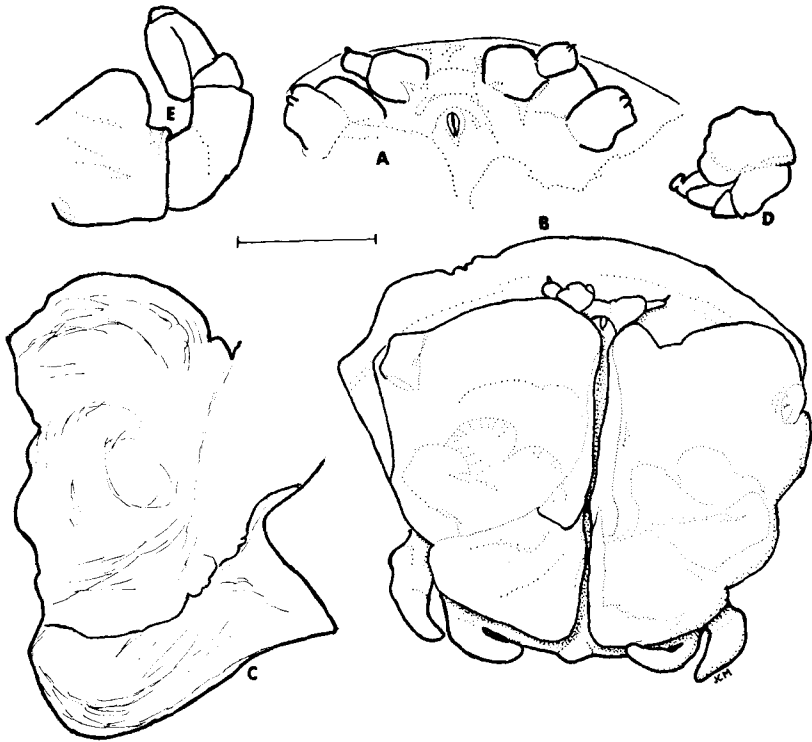


FIGURE 6. *Anuropodione carolinensis*, n. sp., holotype female: A, antennae; B, ventral view of head; C, right oostegite 1, internal view; D, left pereopod 1; E, right pereopod 7. Scale line equals 0.5 mm for A; 1.0 mm for B-E.

Description, Allotype Male (Fig. 8).—Length 3.76 mm, maximal width 1.42 mm, head length 0.26 mm, abdomen length 1.12 mm. Color of preserved specimen: chalky white except for pale grey spots along lateral dorsal margins of pereon.

Body smoothly rounded, all body regions clearly set off, pereomeres distinctly separated but abdomen a single fused piece (Fig. 8,A,B).

Head sharply bent ventrally. No eyes. Antenna 1 (Fig. 8,C) of three segments, distal one with four terminal setae, middle one with eight setae along distal edge and one subterminal seta, proximal segment with two reduced setae anterolaterally; each segment much smaller than that proximal to it. Antenna 2 (Fig. 8,D) of five segments, distal one bearing nine terminal setae, next segment with one distal seta. (The antennae of the allotype are obscured, so the foregoing description and the accompanying drawings are based on another specimen.)

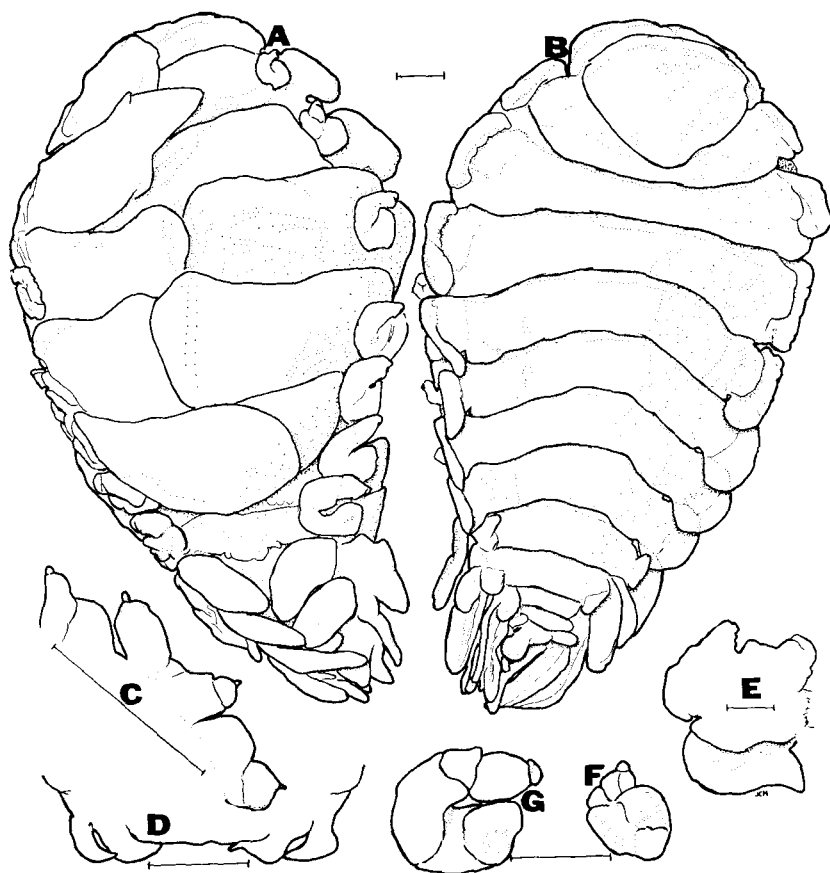


FIGURE 7. *Anuropodione carolinensis*, n. sp., immature female: A, ventral view; B, dorsal view; C, antennae; D, posterior ventral border of head; E, right oostegite 1, internal view; F, left pereopod 1; G, left pereopod 7. All scale lines equal 1.0 mm.

Pereon widest across pereomere 5. Pereomeres with square edges, set apart by deep lateral indentations. Dorsal surface of pereon slightly raised medially. Pereopods (Fig. 8,E,F) nearly equal in size and proportions.

Abdomen fused, triangular, with no trace of appendages. Terminal edge produced into minute anal tube.

Variations of Other Males.—The other three males present vary from the type in a few details. The number of antennal setae ranges from four

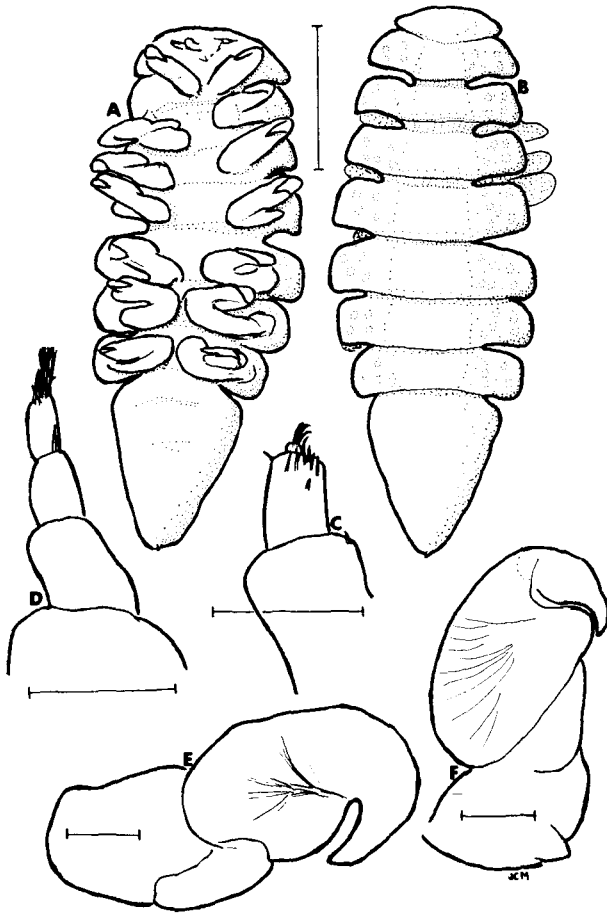


FIGURE 8. *Anuropodione carolinensis*, n. sp.—A, B, E, F, Allotype male: A, ventral view; B, dorsal view; E, right pereopod 1; F, right pereopod 7.—C, D, Paratype male: C, right antenna 1; D, right antenna 2. Scale lines equal 1.0 mm for A, B; 0.1 mm for C-F.

to eight. Two males have large colorless eyes. One male has the lateral pleomere edges rounded rather than squarish.

***Anuropodione megacephalon*, n. sp.**

Figs. 9-11

Material Examined.—Holotype ♀ (USNM 141585), allotype ♂ (USNM 141586) from right branchial chamber of ♂ paratype of *Munida pusilla* Benedict of CL 5.0 mm, USNM 20539. ALBATROSS Sta. 2405: Gulf of

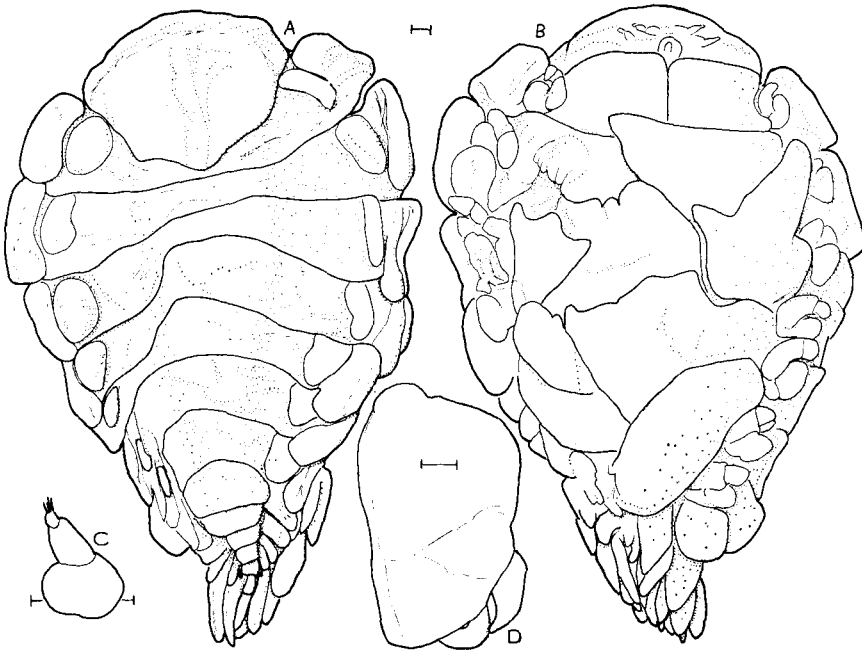


FIGURE 9. *Anuropodione megacephalon*, n. sp., holotype female: A, dorsal view; B, ventral view; C, left antenna 1; D, left maxilliped and posterior ventral border of head. All scale lines equal 0.1 mm.

Mexico, 28°48'N, 85°02'W; 30 fm (= 54 m); 15 March 1885; bottom of grey sand, gravel, broken coral.

Description, Holotype Female (Figs. 9, 10).—Length 2.89 mm, maximal width 1.80 mm, head length 0.71 mm, abdomen length 0.71 mm. Distortion 7°.

Body ovate in outline, with no abrupt changes (Fig. 9,A,B). All body regions and segments clearly set off.

Head deeply set into pereon. Moderately developed frontal lamina extending a short distance back along sides. Eyes lacking. Antennae (Fig. 9,C) both three-segmented, very similar in appearance, with terminal tufts of setae. Maxilliped (Fig. 9,D) with smooth outline. Posterior ventral border (Fig. 9,D) with two moderately pointed lateral projections on each side.

Pereon broadest across pereomere 2. Pereomere 1 curved around head, pereomere 2 nearly straight across, others progressively more concave posteriorly. Large reflexed coxal plates completely covering lateral margins

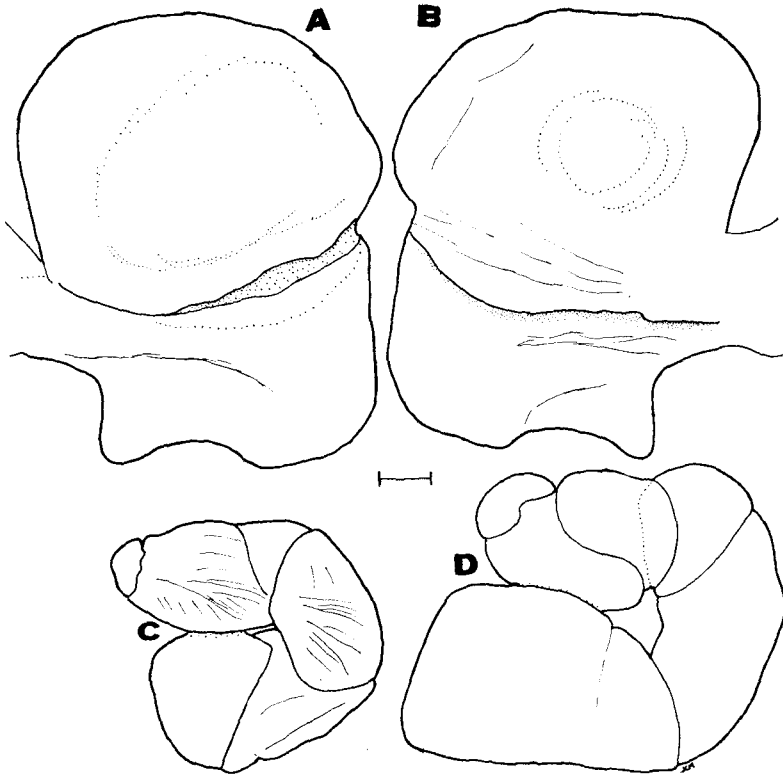


FIGURE 10. *Anuropodione megacephalon*, n. sp., holotype female: A, right oostegite 1, external view; B, same, internal view; C, right pereopod 1; D, right pereopod 7. Scale line equals 0.1 mm.

of all pereomeres. Prominent dorsal bosses on all pereomeres, much larger anteriorly. Oostegites completely covering ventral surface. Oostegite 1 (Fig. 10,A,B) evenly rounded anteriorly, slightly pointed posterolaterally, with nearly smooth internal ridge. Pereopods (Fig. 10,C,D) essentially alike, slightly larger posteriorly.

Abdomen nearly twice as long as wide, tapering sharply. Each successive pleomere shorter and narrower than preceding one except terminal (sixth) one, which is longer than all but the first. Lateral plates on pleomeres 1-5, very reduced posteriorly. Long lanceolate pleopods, first four biramous, fifth uniramous. Uropods absent.

Description, Allotype Male (Fig. 11).—Length 0.82 mm, maximal width 0.29 mm, head length 0.16 mm, abdomen length 0.21 mm.

Body regions set apart. Sides of body nearly parallel, tapering only at head and abdomen (Fig. 11,A,B).

Head large relative to body, extending deeply into pereon. Colorless round eyes near center of head. Antenna 1 (Fig. 11,C) three-segmented, segmentation of antenna 2 obscure, both tipped with a few setae, antenna 1 also with some distal setae on second segment.

Pereon broadest, though only slightly so, across pereomere 6. Pereomeres unevenly separated laterally. Pereopods (Fig. 12,D,E) all of nearly same size, but with blunter dactyli posteriorly.

Abdomen triangular, completely fused, but with indications of three segments dorsally. No abdominal appendages.

Discussion.—Bourdon (1967) erected the genus *Anuropodione* to include the new species *A. senegalensis*, which he recorded as a parasite of a *Munida* subsequently identified as *M. speciosa* Von Martens (Bourdon, 1968) taken near Dakar, Sénégal. He gave a succinct generic diagnosis that applies equally well to *A. carolinensis*, but not quite to *A. megacephalon*, thus: “♀.—Cephalon distinct du thorax, segments thoraciques séparés; plaques coxales lamelleuses et toutes développées; pléon pourvu de 5 paires de plaques latérales lamelleuses et de 5 paires de pléopods 2-ramés semblables. Uropodes absents. ♂.—Céphalon distinct du thorax; pléon soudé sans appendices.” (Bourdon, 1967:112). Bourdon (1967, 1968) also extensively discussed resemblances to, and distinctions from, other closely related genera of pseudionine bopyrids.

The distinctions between *A. senegalensis* and *A. carolinensis* are slight. In the females of *A. carolinensis*, the head is longer and more sharply pointed posteriorly, the dorsal bosses are less prominent, the coxal plates slightly less developed, and the abdominal lateral plates considerably more slender. The males of *A. carolinensis* have shorter heads, much more deeply indented lateral margins between pereomeres, and slightly more pointed abdomens than have the males of *A. senegalensis*.

The female of *Anuropodione megacephalon* differs from those of the other two species in several respects. It is much smaller, but the head is relatively larger. The body is broader relative to its length, and all pereomeres bear dorsal bosses, rather than only the first four. The coxal plates are much larger than those of *A. carolinensis* but similar to those of *A. senegalensis*. On the abdomen, the lateral plates, especially on pleomere 5, are much smaller, and only the first four pairs of pleopods are biramous, the fifth lacking exopodites. The male of *A. megacephalon* differs from those of both of the other species of *Anuropodione* in having a relatively larger head, faint eyes, and a pereon with more nearly parallel sides.

The lack of exopodites on the fifth pleopods of the female of *A. mega-*

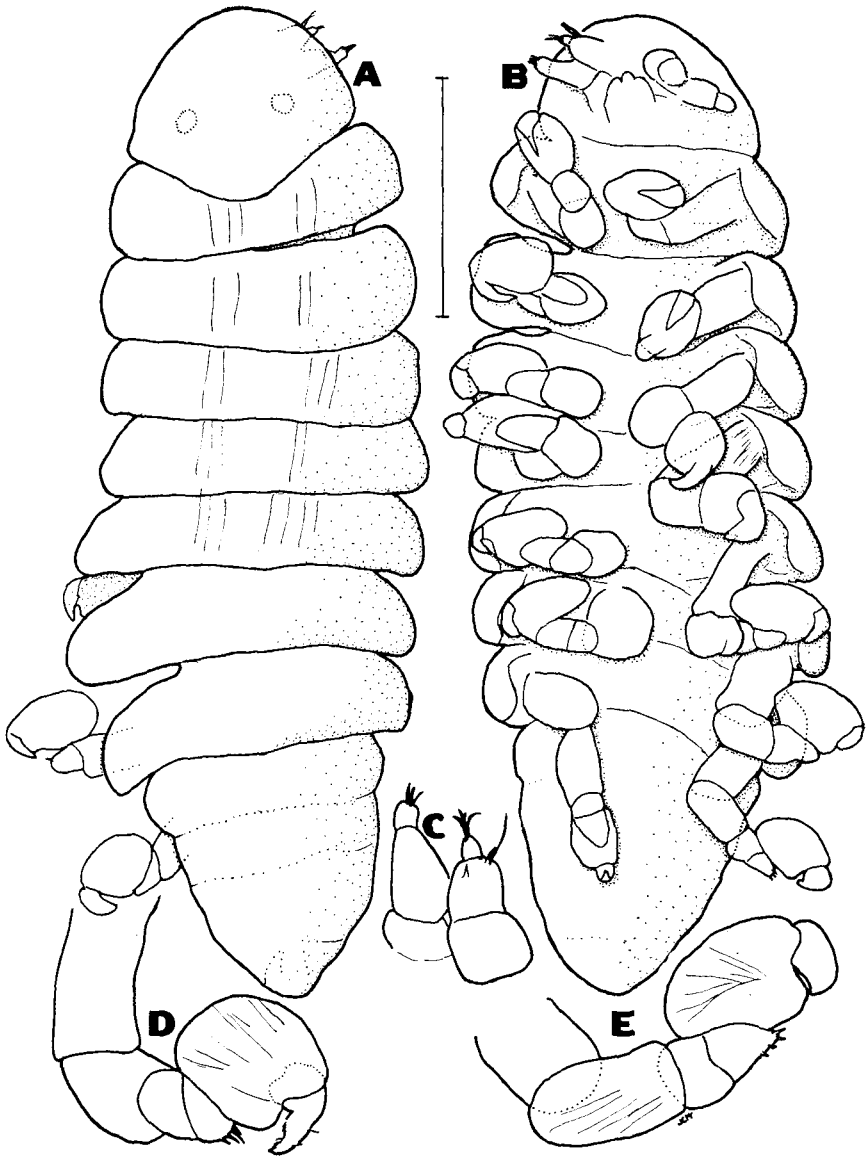


FIGURE 11. *Anuropodione megacephalon*, n. sp., allotype male: A, dorsal view; B, ventral view; C, right antennae; D, right pereopod 1; E, left pereopod 7. Scale line equals 0.2 mm for A, B; 0.1 mm for C-E.

cephalon contradicts the original generic diagnosis, quoted above. Since both sexes of *A. megacephalon* show all other characters of the genus, it seems best to include this new species in *Anuropodione* and to alter the diagnosis for the female slightly, thus: Abdomen bearing five pairs of pleopods, at least the first four biramous.

It is noteworthy that the most obvious difference between these two new species is that *Anuropodione megacephalon* is much smaller than *A. carolinensis*. This is also true for their respective hosts, which are closely similar, differing mainly in that *Munida pusilla* attains a considerably smaller size than *M. iris*.

Balanopleon, n. g.

Female.—Body strongly distorted so large head occupies an anterolateral corner. Abdomen reduced, of five pleomeres, pleopods 1-4 biramous, uropods uniramous, lateral plates reduced on pleomeres 1-3, absent on other pleomeres; pleomere 5 produced into bulbous pleotelson.

Male.—All body regions and pereomeres clearly separated. Abdomen short, of two segments, acorn-shaped, without appendages.

Etymology.—From Greek words meaning “acorn” and “abdomen” in reference to the outline of the male’s abdomen. Gender, masculine.

Type-Species.—*Balanopleon tortuganus*, n. sp.

Balanopleon tortuganus, n. sp.

Figs. 12-14

Material Examined.—Holotype ♀ (USNM 141599), allotype ♂ (USNM 141600) from branchial chamber of ♀ *Munida simplex* Benedict of CL 6.1 mm. PILLSBURY Sta. P-734: Off W end of La Tortuga I., N of Venezuela, 11°01.8'N, 65°34.2'W; 68-60 m; 22 July 1968; 10-foot otter trawl; hard bottom with red calcareous rubble.

Description, Holotype Female (Figs. 12, 13).—Length 3.53 mm, maximal width 2.35 mm, head length 0.96 mm, abdomen length 0.96 mm. Distortion 30°.

Body ovate. Head markedly displaced to short side. All body regions and segments clearly set off (Fig. 12).

Head nearly oval, smoothly rounded both anteriorly and posteriorly. No eyes. Both antennae (Fig. 13,A) of three segments, proximal one largest, central one much smaller, distal one a tiny stub. Ventral posterior border (Fig. 13,B) with single long digitate process at each side, slight rounded projection immediately medial to each process, central region straight.

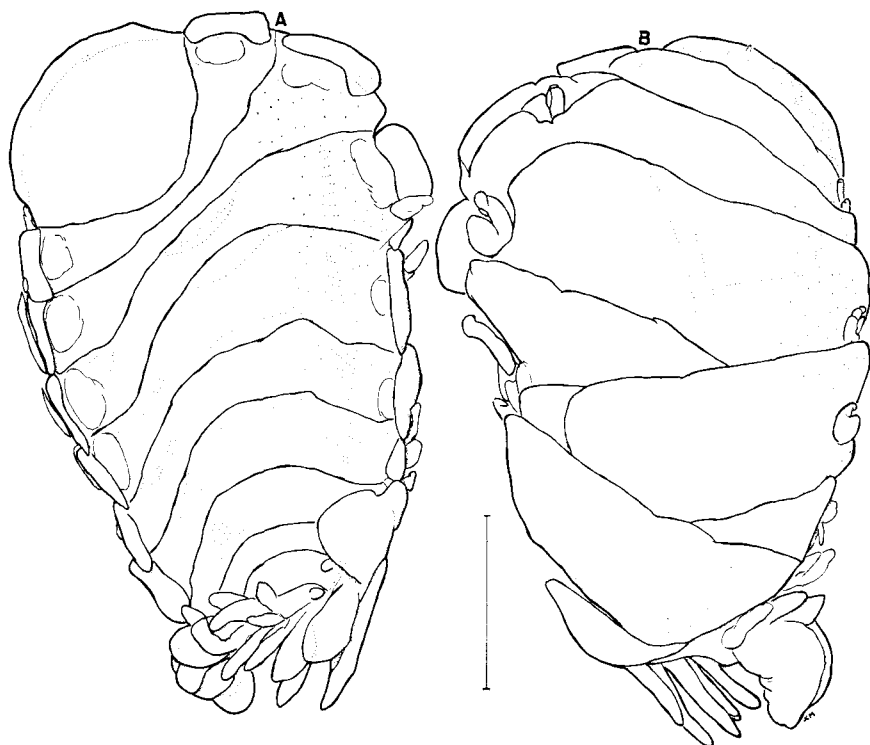


FIGURE 12. *Balanopleon tortuganus*, n. g., n. sp., holotype female: A, dorsal view; B, ventral view. Scale line equals 1.0 mm.

Pereon widest across pereomere 3. Broad middorsal ridge along pereon. Coxal plates just covering borders of all pereomeres. Dorsal bosses moderately developed on first five pereomeres, absent on last two. Oöstegites enclosing marsupium; oöstegite 1 (Figs. 13,C,D) rounded anteriorly, produced into acute point posterolaterally, bearing deep central cleft externally which is reflected by prominent irregular dividing line internally. Pereopods (Fig. 13,E,F) nearly doubling in size from first to seventh.

Abdomen (Fig. 13,G,H) with border continuous with that of pereon, then tapering rapidly to round point. Ratio of length to width 0.77. Five pleomeres, first three bearing reduced lateral plates. Pleopods foliaceous, biramous, exopodites somewhat the smaller. Uropods uniramous. Pleomere 5 terminating in bulbous pleotelson.

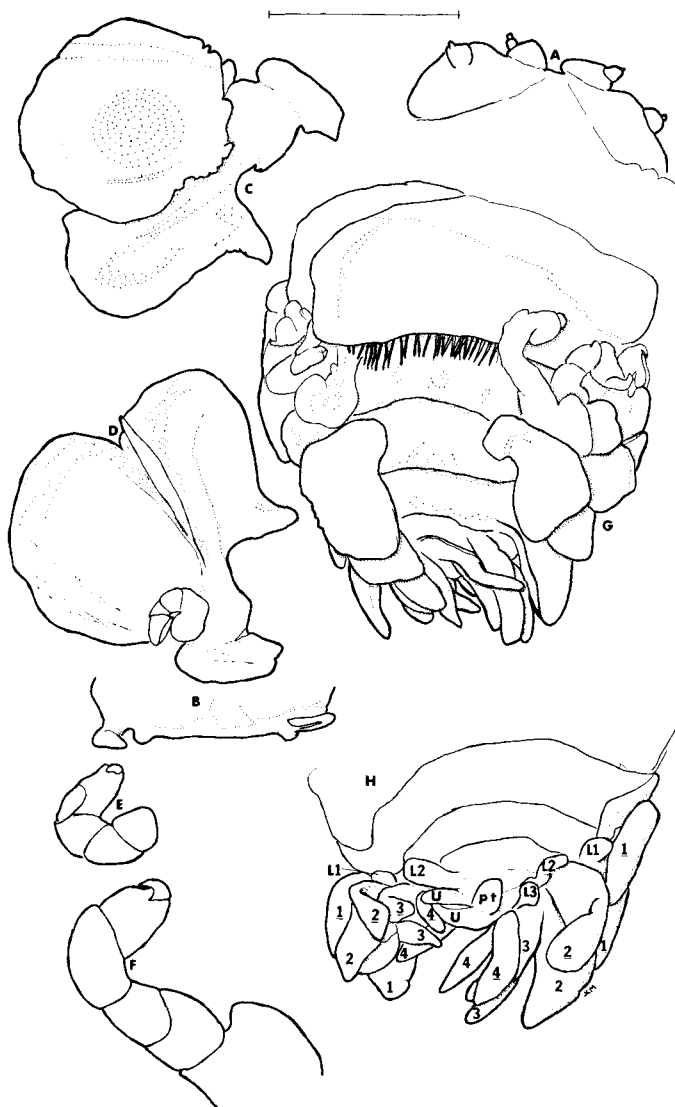


FIGURE 13. *Balanopleon tortuganus*, n. g., n. sp., holotype female: A, antennae; B, posterior ventral border of head; C, left oostegite 1, internal view; D, same, external view; E, left pereopod 1; F, left pereopod 7; G, abdomen, ventral view; H, abdomen, dorsal view (L1-L3, lateral plates; 1-4, pleopodal exopodites; 1-4, pleopodal endopodites; U, uropod; pt, pleotelson). Scale line equals 0.5 mm for A, E, F; 1.0 mm for B, C, D, G, H.

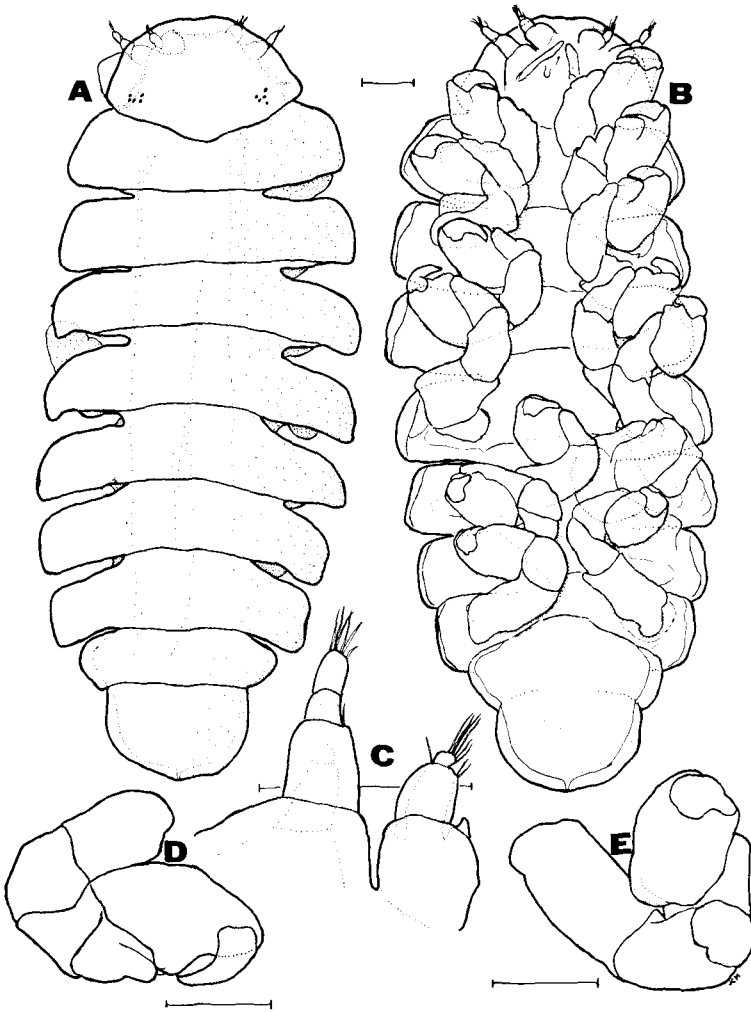


FIGURE 14. *Balanopleon tortuganus*, n. g., n. sp., allotype male: A, dorsal view; B, ventral view; C, right antennae; D, right pereopod 1; E, right pereopod 7. Each scale line equals 0.1 mm.

Description, Allotype Male (Fig. 14).—Length 1.49 mm, maximal width 0.60 mm, head length 0.24 mm, abdomen length 0.29 mm.

Sides of body nearly parallel, narrowing abruptly at both head and abdomen (Fig. 14,A,B). Body regions distinctly set off.

Head with anterior edge nearly semicircular except for medial cleft,

posterior edge of two nearly straight lines intersecting in center as slight convexity. Eyes near posterolateral borders, each consisting of several scattered black pigment spots. First antenna (Fig. 14,C) of three segments; distal one with six terminal setae, middle one with three terminal setae, proximal one with terminal pointed tubercle. Antenna 2 (Fig. 14,C) of four segments; distal segment with six terminal setae, next one with one terminal seta.

Pereon with all pereomeres clearly indicated by deep lateral clefts. Pereomeres nearly equally broad. Pereopods (Fig. 14,D,E) all nearly same size, though dactyli smaller and blunter posteriorly.

Abdomen acorn-shaped, divided into two pleomeres, distinctly separated only dorsally. No trace of pleopods or uropods.

Etymology.—The specific name *tortuganus* refers to the collection of the type-specimens near Isla la Tortuga, Venezuela.

Discussion.—*Balanopleon* differs from all other genera in a few important characters. The female closely resembles those of *Orbimorphus* Richardson (1911) in body proportions and in having a reduced five-segmented abdomen, which bears four pairs of biramous pleopods. It differs most conspicuously from the species of that genus in having a highly distorted body and in bearing uniramous rather than biramous uropods. The male of *Balanopleon tortuganus* is also similar to that of *Orbimorphus constrictus* Richardson, but differs mainly in having two pleomeres rather than one. The male of the only other described species of *Orbimorphus*, *O. lamellosus* Nierstrasz & Brender à Brandis (1923), is unknown.

Aporobopyrina Shiino, 1934

Type-Species.—By monotypy, *Aporobopyrina lamellata* Shiino, 1934.

Aporobopyrina anomala, n. sp.

Figs. 15-17

Material Examined.—From branchial chambers of seven ♂♂ and three ♀♀ of *Munida valida* Smith. From three ALAMINOS stations: Sta. 70-A-10-40: Off Peninsula de la Guajira, Colombia, 12°40'N, 72°00'W; 620-660 m; 18 July 1970; holotype ♀ (USNM 141587), allotype ♂ (USNM 141588), one immature ♀ (UMML 32-4525). Sta. 68-A-13-21: NW Gulf of Mexico, 27°38'N, 95°21.5'W; 490-640 m; 19 November 1968; two pairs (MCZ collection). Sta. 68-A-13-23: NW Gulf of Mexico, 27°35'N, 95°23'W; 730 m; 20 November 1968; three pairs (UMML 32-4526). From three GERDA stations: Sta. G-122: S of Marquesas Keys, Florida, 24°07'N, 82°00'W; 686-715 m; 19 June 1963; otter trawl; one pair (UMML 32-4523). Sta. G-680: 24°06'N, 81°44'W;

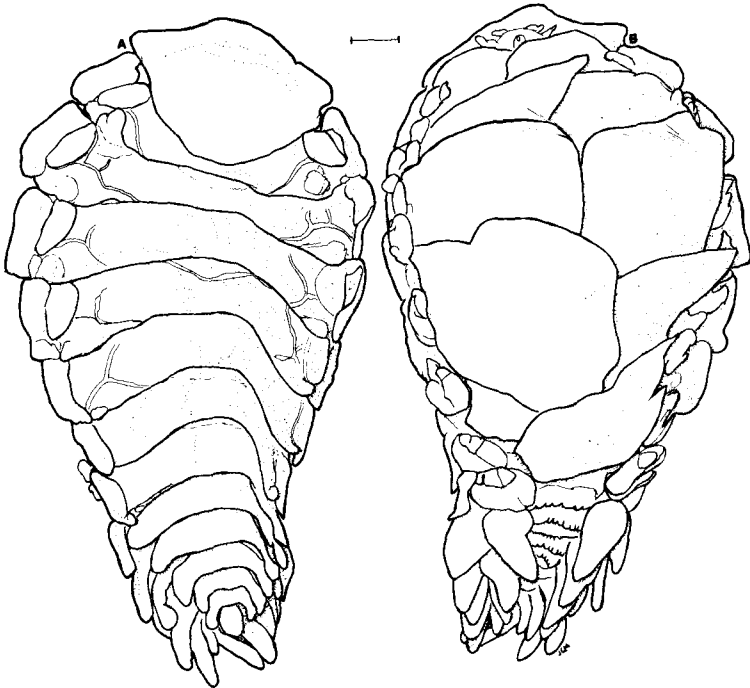


FIGURE 15. *Aporobopyrina anomala*, n. sp., holotype female: A, dorsal view; B, ventral view. Scale line equals 1.0 mm.

720-750 m; 29 August 1967; 10-foot otter trawl; one pair (YPM collection). Sta. G-1099: S of Dry Tortugas, Florida, 24°12'N, 82°50'W; 622 m; 28 April 1969; 10-foot otter trawl; one pair (UMML 32-4524).

Description, Holotype Female (Figs. 15, 16).—Length 12.67 mm, maximal width 6.66 mm, head length 2.36 mm, abdomen length 3.40 mm. Distortion 29°.

Body smoothly rounded, all body regions and segments set off (Fig. 15).

Head rounded both anteriorly and posteriorly. Large frontal lamina covering entire anterior edge and extending far to each side. No eyes. Antenna 1 three-segmented, antenna 2 four-segmented, setation uncertain (Fig. 16,A). Ventral posterior border (Fig. 16,B) with two long lateral digitate processes, central region with single broad blunt medial point.

Pereon widest across third pereomere. Coxal plates on all pereomeres, covering lateral edges of each, and, on more posterior ones, extending onto edges of succeeding pereomeres. Dorsal bosses on pereomeres 1-4.

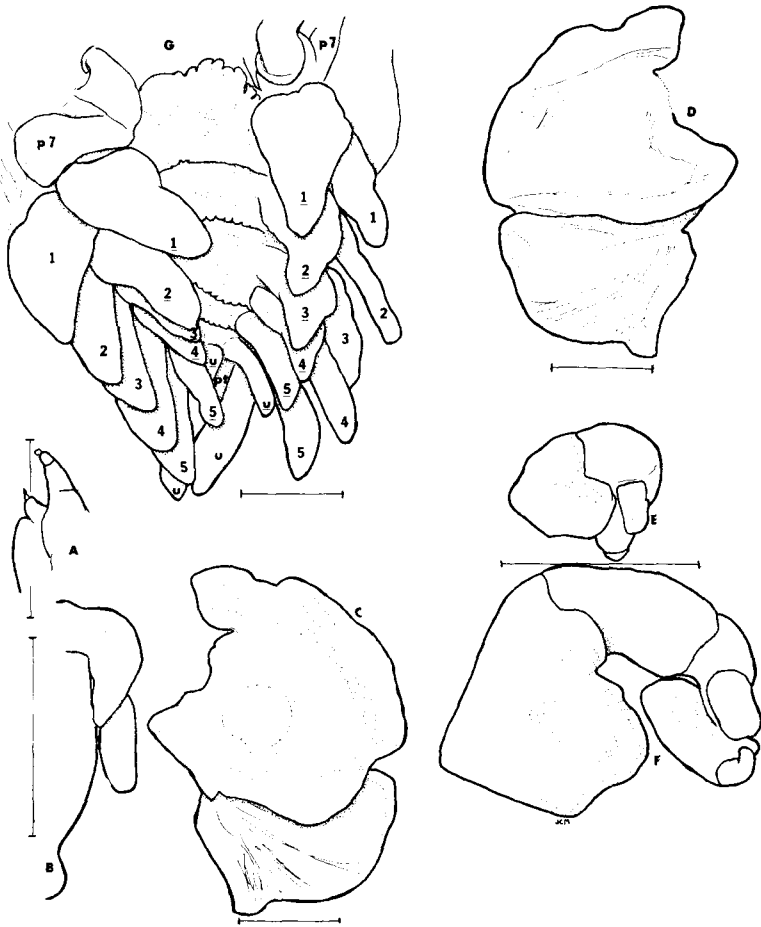


FIGURE 16. *Aporobopyrina anomala*, n. sp., holotype female: A, left antennae; B, left ventral posterior border of head; C, left oostegite 1, internal view; D, same, external view; E, left pereopod 1; F, left pereopod 7; G, abdomen, ventral view (p7, pereopod 7; 1-5, pleopodal exopodites; 1-5, pleopodal endopodites; u, uropodal exopodites; u, uropodal endopodites; pt, pleotelson). Each scale line equals 1.0 mm.

Fairly long tergal projections on posterolateral corners of first six pereomeres. Oostegites completely enclosing marsupium. Oostegite 1 (Fig. 16,C,D) with small squarish posterolateral point, nontoothed internal ridge. Pereopods (Fig. 16,E,F) more than doubling in size posteriorly, basal segment of each with large rounded projection.

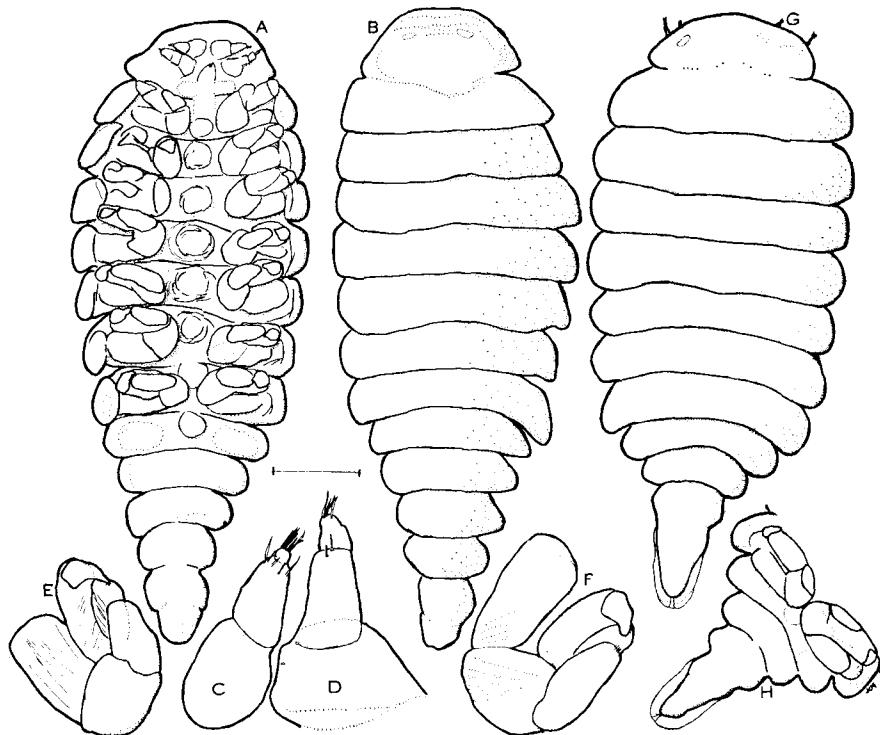


FIGURE 17. *Aporobopyrina anomala*, n. sp.—A-F, Allotype male: A, ventral view; B, dorsal view; C, right antenna 1; D, right antenna 2; E, right pereopod 1; F, right pereopod 7.—G-H, Paratype male: G, dorsal view; H, abdomen, ventral view. Scale line equals 0.5 mm for A, B; 0.4 mm for G, H; 0.2 mm for E, F; and 0.1 mm for C, D.

Abdomen of six pleomeres, first five with small lateral plates and large foliaceous biramous pleopods nearly covering ventral surface of abdomen (Fig. 16,G). Endopodite of each pleopod smaller than its exopodite, all progressively smaller posteriorly. Terminal pleomere developed into large bulbous pleotelson and bearing pair of biramous uropods, their endopodites considerably the smaller.

Description, Allotype Male (Fig. 17,A-F).—Length 3.72 mm, maximal width 1.44 mm, head length 0.35 mm, abdomen length 1.42 mm.

Body (Fig. 17,A,B) roughly lanceolate in outline, with no abrupt narrowing. Head and pereon nearly fused, but abdomen set off.

Head nearly straight along anterior edge, somewhat convex posteriorly. Colorless eyes near anterior edge. Antenna 1 (Fig. 17,C) of three seg-

ments; distal one with terminal tuft of several setae, middle one encircled by fringe of several subterminal setae. Segmentation of antenna 2 (Fig. 17,D) indistinct; distal segment with terminal tuft of four to seven setae, next segment with a few setae near distal edge.

Pereon widest across pereomere 4. Lateral edges of all pereomeres bent ventrally. Prominent midventral tubercle on each pereomere, largest on fourth. Pereopods (Fig. 17,E,F) of essentially same size, dactyli smaller and blunter posteriorly.

Abdomen of four pleomeres. Fourth pleomere partly separated into two parts dorsally but not ventrally, while lateral indentations indicate traces of yet another pleomere. Pleomere 1 with midventral tubercle like those on pereomeres. No pleopods, though indistinct lateral ventral swellings on first pleomere may indicate traces of them. Abdomen terminating in blunt point without uropods.

Variations of Other Specimens.—Other females and males show a great deal of variation from the types, some of it in important characters. The variation among paired males and females follows no consistent pattern, so it appears impossible to split them into separate species; on the other hand, such great differences among specimens make characterization of the species difficult. Of the ten females examined, four have clearly biramous uropods, one has only minute traces of uropodal endopodites, and the others appear to lack such endopodites completely. There are also variations in the number of tergal projections and the relative sizes of the pereopods. Among males, the abdomen is the most variable part. In all cases, it is long and acutely pointed and completely devoid of appendages, but the degree of fusion varies greatly. At one extreme, all pleomeres are fused; in two cases three separate pleomeres may be distinguished, the end ones being fused (Fig. 17,G,H); three males besides the type have four pleomeres; one male has five pleomeres; the final male has a damaged abdomen, so it is uncertain how many pleomeres it has.

Etymology.—The specific name *anomala* has been selected to emphasize the anomalous variations within this new species.

Discussion.—Of the two species of *Aporobopyrina* already described, both from the western Pacific, one, *A. lamellata* Shiino (1934) infests the porcellanids *Petrolisthes pubescens* Holmes at Seto, Japan, and *P. hastatus* at Shimoda, Japan (Shiino, 1936), while the second, *Aporobopyrina javaensis* Bourdon (1972) is a parasite of *Munida andamanica* Alcock in the Java Sea. Bourdon assigned his new species to *Aporobopyrina* with some reservations, and it is with comparable reservations that I assign the new species herein described to this genus, although both of these species do have characters which indicate that this is their appropriate placement.

The female of *A. anomala* is similar to those of *Munidion* in several characters, but it is more like other species of *Aporobopyrina* because of its relatively extended head, reduced lateral plates, and nonpetiolate pleotelson. In the males, there is also some difficulty in placing the species. A fact which seems significant is that even though Shiino (1934) cited four pleomeres as being diagnostic for the genus, he pictured the abdomen of another male which clearly had an incipient fifth pleomere. Further, the male of *A. javaensis* has five pleomeres, and Bourdon (1972), in discussing the placement of that species, comments that too much emphasis has been placed on the number of pleomeres in the male as a systematic character. The fact that it varies so greatly among the males, which appear to belong to a single species, indicates that it is indeed of little systematic value in the present case. That some of the females of *A. anomala* have reduced, or no, uropodal endopodites is reminiscent of the female of *A. javaensis*, in which one uropodal endopodite is reduced and the other absent.

The "typical" females of *A. anomala* differ from those of *A. lamellata* in having the body longer and narrower, the frontal lamina more extended, the tergal projections longer and more pointed, the pleotelson longer relative to its width, and the lateral plates slightly less developed. They differ from that of *A. javaensis* in being more distorted, having more prominent tergal projections, a more completely closed marsupium, five pairs of lateral plates instead of three, and a more bulbous pleotelson. The males of *A. anomala* differ from those of *A. lamellata* in having eyes less distinct or absent, antennae less extended, and abdomen narrowing less abruptly but comprising a considerably larger proportion of the total body length. In contrast to the male of *A. javaensis*, the males of *A. anomala* are relatively longer and less rapidly narrowing at each end and have somewhat smaller and rounder midventral tubercles.

On the basis of the three species of *Aporobopyrina* now known, I have prepared the following generic diagnosis. *Female*: Body slightly distorted. Head distinctly extended, bearing prominent frontal lamina along anterior edge. Coxal plates lamellar. Six pleomeres. Small lateral plates. Large foliaceous biramous pleopods. Uropods with endopodites reduced or absent. Final pleomere produced into nonpetiolate pleotelson. *Male*: Sides of body smoothly rounded. Head separated from pereon or trace of such separation indicated by lateral indentations. Pereomeres distinctly set apart. Midventral tubercles on all pereomeres and anterior region of abdomen. Abdomen elongate and distinctly pointed, of one to five separate pleomeres, lacking appendages.

The type-specimens of *Aporobopyrina anomala* infested an individual of *Munida valida* which was simultaneously parasitized by a rhizocephalan. This appears to be *Cyphosaccus chacei* Reinhard, which has evidently been

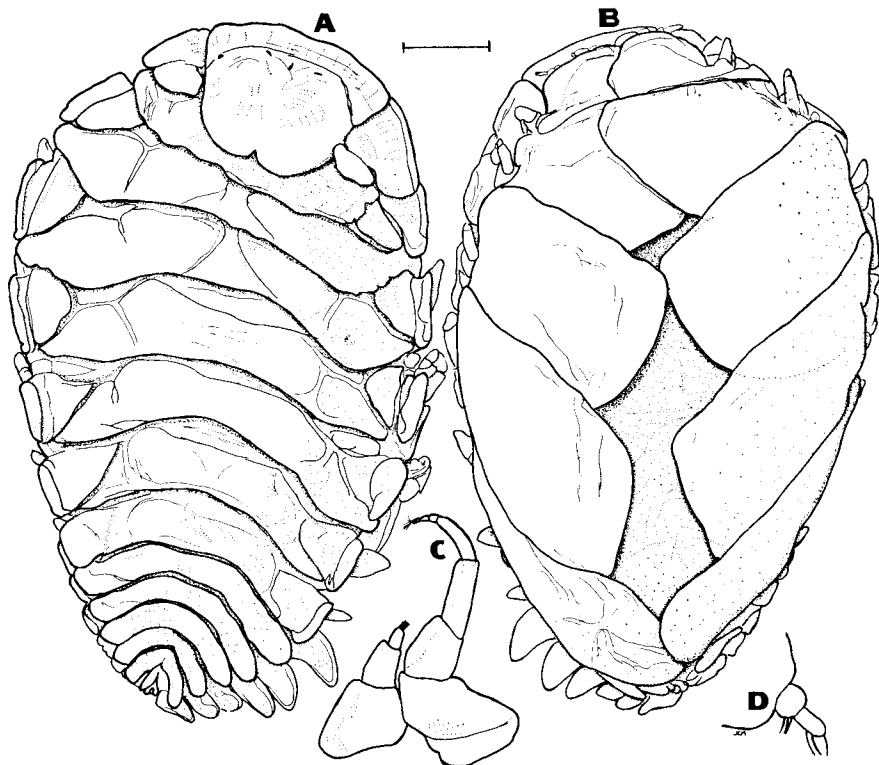


FIGURE 18. *Pleurocryptella fimbriata*, n. sp., holotype female: A, dorsal view; B, ventral view; C, left antennae; D, palp of right maxilliped. Scale line equals 1.0 mm for A, B; 0.25 mm for C; and 0.2 mm for D.

recorded only once before, the type-specimens having been found on an individual of *Munida irrasa* A. Milne Edwards, also from the Caribbean (Reinhard, 1958).

Pleurocryptella Bonnier, 1900

Type-Species.—By monotypy, *Pleurocryptella formosa* Bonnier, 1900.

***Pleurocryptella fimbriata*, n. sp.**

Figs. 18-21

Material Examined.—PILLSBURY Sta. P-1256: 17°27'N, 78°10'W; 605-655 m; 14 July 1970; 10-foot otter trawl; holotype ♀ (USNM 141603), allotype ♂ (USNM 141604), paratype pair (USNM 141605) infesting *Munida constricta* A. Milne Edwards.—PILLSBURY Sta. P-1261: 17°16'N,

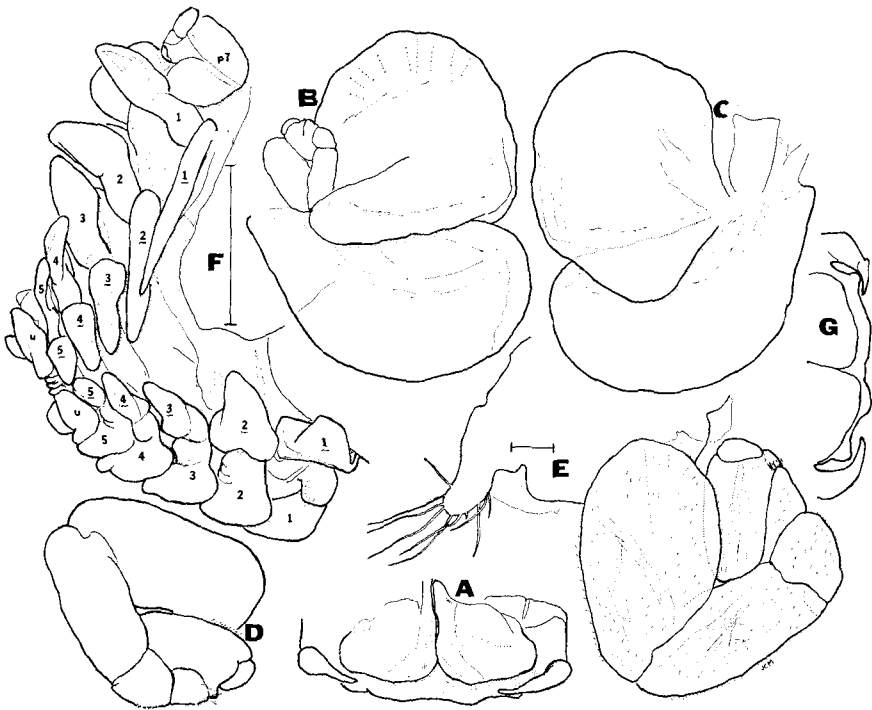


FIGURE 19. *Pleurocryptella fimbriata*, n. sp.—A-F, Holotype female: A, posterior ventral border of head; B, right oostegite 1, external view; C, same, internal view; D, right pereopod 1; E, right pereopod 7, with attached oostegite; F, abdomen, ventral view (labels as in Fig. 16,G).—G, Paratype female, posterior ventral border of head. Scale line at F equals 1.0 mm for A, F, G; scale line at E equals 0.1 mm for B-E.

77°48'W; 720 m; 15 July 1970; 10-foot otter trawl; one ♀ (UMML 32-4520), same host species.—Harvard-Havana Expedition, ATLANTIS Sta. 2936D: Bahía de Cochinos, Cuba, 22°07'N, 81°08'W; 400-500 m; 25 February 1938; one pair (MCZ Collection) infesting *Munida miles* A. Milne Edwards.

Description, Holotype Female (Figs. 18; 19,A-F).—Length 7.47 mm, maximal width 4.73 mm, head length 1.27 mm, abdomen length 1.66 mm. Distortion, head-perceon 17°, perceon-abdomen 13°, body bent twice so axes of head and abdomen nearly parallel.

Body shape ovate, border rather smoothly rounded (Fig. 18,A,B). Body regions and segments clearly set off with no abrupt changes in size.

Head shaped like truncate fan, anterior edge the broader. Well-developed

frontal lamina. Antenna 1 (Fig. 18,C) of three segments, each smaller than that proximal to it; distal segment tipped with cluster of setae. Antenna 2 (Fig. 18,C) of seven segments, progressively smaller distally; distal segment tipped with a few setae. No distinct eyes, though scattered anterior pigment spots may represent them. Maxilliped bearing tiny two-segmented palp (Fig. 18,D) on anteromedial corner. Posterior ventral border (Fig. 19,A) with two long, pointed lateral processes and triangular protuberances immediately medial to them.

Pereon broadest across third pereomere. Coxal plates on lateral margins of all pereomeres. Dorsal bosses on all pereomeres. First five oostegites fully developed, incompletely enclosing marsupium; oostegite 1 (Fig. 19,B,C) externally bearing small medial flap which partly covers pereopod, internally bearing prominent toothless flap, posteriorly rounded without point; oostegites 6 and 7 (Fig. 19,E) present beneath oostegite 5, but only tiny rudiments. Pereopods (Fig. 19,D,E) nearly alike in structure, slightly larger posteriorly, all fringed with fine setae.

Abdomen of six pleomeres clearly set off from each other, small lateral plates on each. Foliaceous biramous pleopods (Fig. 19,F) on first five pleomeres, progressively smaller posteriorly, exopodites larger than respective endopodites but extending little or none beyond lateral plates. Uniramous uropods on last pleomere similar to pleopodal exopodites. Posterior margin of last pleomere with several indentations.

Variations of Other Females.—The other three females examined are very similar to the holotype. Two of them lack the double distortion of the body, one has a larger frontal lamina, which is pointed at each edge, and another bears slightly longer inner processes on the posterior ventral border of the head (Fig. 19,G).

Description, Allotype Male (Figs. 20, 21).—Length 3.58 mm, maximal width 1.33 mm, head length 0.52 mm, abdomen length 0.93 mm.

Body slender, pointed posteriorly (Fig. 20). All body regions and segments clearly set off and separated by deep lateral incisions. Sides of pereon nearly parallel, but head and abdomen abruptly narrower. All parts of body and pereopods fringed with fine setae.

Head elliptical, broader than long. Small, black, irregularly shaped eyes near posterolateral margins. Antenna 1 (Fig. 21,A) of four segments, each considerably smaller than that proximal to it; setal formula (from distal segment in) 5, 8, 11, 2, with a scattering of minute setae on proximal segment. Antenna 2 (Fig. 21,A) of seven segments, third from base largest, those distal to it progressively smaller; setal formula 6, 6, 3, 4, 3, 1, 0. Maxilliped (Fig. 21,B) long and narrow, slightly broader at base than at end, where it bears two terminal setae.

Pereon broadest, but only slightly so, across fourth and fifth pereomeres.

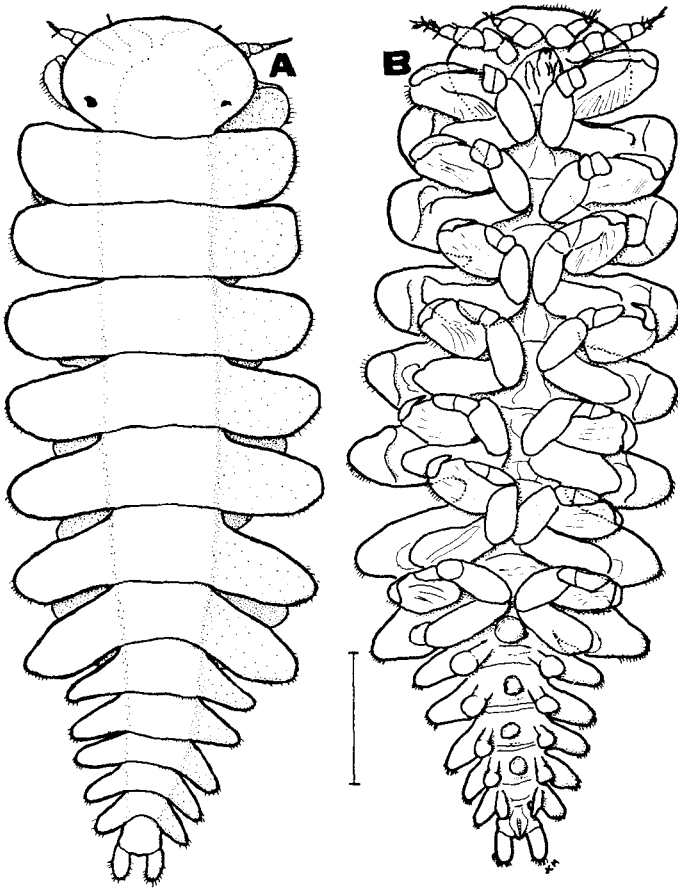


FIGURE 20. *Pleurocryptella fimbriata*, n. sp., allotype male: A, dorsal view; B, ventral view. Scale line equals 0.5 mm.

Posterior borders of first two pereomeres nearly straight, all others progressively more concave posteriorly. Anterolateral margins of pereomeres 3-7 deeply incised so segments markedly set apart. Poorly defined medio-ventral tubercles on all pereomeres. Pereopods (Fig. 21,C,D) all of nearly same size, but of highly varying proportions: first pereopod (Fig. 21,C) with long pointed dactylus, short broad carpus and merus; pereopod 2 with only slightly shorter dactylus; other pereopods with considerably shorter dactyli, longer carpi, and somewhat longer meri.

Abdomen of six clearly demarcated pleomeres; first five of same shape as seventh pereomere, with distolateral corners produced into blunt points;



FIGURE 21. *Pleurocryptella fimbriata*, n. sp., allotype male: A, right antennae; B, right maxilliped; C, right pereopod 1; D, right pereopod 7; E, end of abdomen, ventral view. Scale line equals 0.2 mm for A, C, D; and 0.1 mm for B, E.

first pleomere abruptly narrower than last pleomere, others progressively narrower. Prominent, large, medioventral tubercle on first pleomere, distinct but smaller ones on next three pleomeres. Conspicuous unsegmented uniramous clublike pleopods on first five pleomeres (Fig. 20,B). Backward-pointing uniramous uropods on end of terminal pleomere (Fig. 21,E), which also bears anus on elevated cone extending slightly beyond posterior margin.

Variations of Other Males.—One of the paratype males has more reduced eyes and somewhat more prominent medioventral pereonal tubercles. The second one differs from the allotype in that its head is relatively longer.

Etymology.—The specific name *fimbriata* refers to the fringing of fine setae on the female's pereopods and on the male's body and appendages.

Discussion.—Bonnier (1900) established the new genus *Pleurocryptella* to include the single species *P. formosa*, a parasite of the chirostyliid *Ptychogaster formosus* A. Milne Edwards (now called *Gastroptychus formosus* [A. Milne Edwards]), collected near the Canary Islands. Earlier, Giard & Bonnier (1888) had mentioned the same specimens under the name *Pleurocrypta formosa* without a description. Bonnier (1900) first published a complete description and figures of this species, and, though he attributed it to Giard & Bonnier, I agree with Bourdon (1968) that it should properly be attributed to Bonnier, the earlier reference being considered a *nomen nudum*. Nierstrasz & Brender à Brandis (1923) recorded and described the second known species of the genus, *Pleurocryptella infecta*, which parasitizes *Munida militaris* Henderson in the East Indies. Shiino (1937) found and described additional material of this species, including the first known male, at Tosa, Japan, where the host was *M. japonica* Stimpson.

Upon erecting his new genus, Bonnier (1900) presented a brief generic diagnosis, which Nierstrasz & Brender à Brandis (1923) dismissed as unintelligible and self-contradictory ("Wie dies zu verstehen ist, bleibt uns dunkel!"—p. 87). Strangely, they failed to present a replacement diagnosis, even though they clearly accepted the validity of the genus, and there is no doubt that *Pleurocryptella infecta* and *P. formosa* are congeneric. On the basis of the descriptions and figures of Bonnier (1900), Nierstrasz & Brender à Brandis (1923), and Shiino (1937), and observations made on *P. fimbriata*, n. sp., I have drawn up the following generic diagnosis. *Female*: Body roughly ovate, only slightly distorted. Head broader than long, moderately set into pereon, eyeless, with well-developed frontal lamina; posterior ventral border with long process on each side, a pair of reduced processes medial to them. All pereomeres set apart, prominent coxal plates on all, dorsal bosses variously developed on anterior ones; first five oöstegites fully developed but not completely enclosing marsupium, oöstegites 6 and 7 present as rudiments. Six pleomeres, the first with short lateral plates; five pairs of biramous foliaceous pleopods; prominent leaflike uniramous uropods. *Male*: Considerably longer than broad, all body regions and segments clearly separated; head and abdomen abruptly narrower than pereon; sides of pereon nearly parallel. Head elliptical, often with eyes. Pereopods all subequal in size, but dactyli of first two pairs much longer and sharper than others. Six pleomeres, first four frequently bearing medioventral tubercles; pleopods large, uniramous, tuberculiform to club-shaped, on first five pleomeres; uropods leaflike, uniramous.

TABLE 1
COMPARISON OF 19 GENERA OF THE SUBFAMILY PSEUDIONINAE

	Females				Males				<i>Munida</i> sp. as host
	Pleo- meres	Uro- pods* ‡	Coxal plates	Pleo- meres	Pleo- pods [†]	Pereonal ventral tuber- cles [‡]	Head & pereons [§]		
								B or U	
<i>Bonnieria</i> Nz. & B. à B.	6	B	Lamellar	6	+	+	S	+	
<i>Munidion</i> Hansen	6	B	Lamellar	1	—	+	V	+	
<i>Aporobopyroides</i> Nobili	6	B	Rudimentary	5	—	—	S	—	
<i>Pagurion</i> Shiino	6	B	Rudimentary	6	+	—?	S	—	
<i>Parapagurion</i> Shiino	6	B	Rudimentary	6	+	—?	S	—	
<i>Parasiganitone</i> Barnard	6	B	Absent	6	+	+	S	+	
<i>Aporobopyrina</i> Shiino	6	B or U	Lamellar	1-5	—	+	V	—	
<i>Aporobopyrosa</i> Shiino	6	U	Lamellar	3	—	—	S	—	
<i>Parionella</i> Nz. & B. à B.	6	U	Lamellar	5	—	—?	S	—	
<i>Parionina</i> Nz. & B. à B.	6	U	Lamellar	4	—	—?	S	—	
<i>Pleurocryptella</i> Bonnier	6	U	Lamellar	6	+	+	S	—	
<i>Pseudione</i> Kossmann	6	U	Reduced	6	+	—	S	—	
<i>Pleurocrypta</i> Hesse	6	U	Lamellar	1	—	—	V	—	
<i>Parione</i> Richardson	6	U	Rudimentary	4-5	—	—?	S	—	
<i>Upogebiophilus</i> Nobili	6	U	Rudimentary	5	+	—	S	—	
<i>Parionella</i> Nz. & B. à B.	6	U or —	Lamellar	4	+	+	S	—	
<i>Anuropodione</i> Bourdon	6	—	Lamellar	1	—	+	S	+	
<i>Orbimorphus</i> Richardson	5	B	Lamellar	1	—	—?	S	—	
<i>Balanopleon</i> , n. g.	5	U	Lamellar	2	—	—	S	+	

* Female uropods: B, biramous; U, uniramous; —, absent.

† Male pleopods: +, present; —, absent.

‡ Male pereonal ventral tubercles: +, present; —, absent; —?, probably absent; + —, present in some, absent in others.

§ Male head and pereon: S, separate; V, variable.

|| *Munida* sp. as host: +, only *Munida* sp. (or spp.) infested; —, no *Munida* sp. (or spp.) infested; + —, both *Munida* sp. (or spp.) and members of other genera infested.

Shiino (1965), in discussing the phylogeny of the family Bopyridae, concluded that it is monophyletic with the generalized "*Pseudione*-group" (subfamily Pseudioninae) the most primitive. He considered the genus under discussion, *Pleurocryptella*, to be the most primitive because it is the only bopyrid whose females retain the sixth and seventh oöstegites and one of the few pseudionines whose males still have uropods. *P. fimbriata* illustrates both of these characters well. One of the females of *P. fimbriata* has its marsupium filled with microniscan larvae, which seem quite distinctive, in that their abdomens are enlarged into saclike structures. This enlargement seems unique among bopyrid microniscans and possibly is another indication of the primitiveness of this genus. Larvae have not been reported for other species of *Pleurocryptella*.

P. fimbriata differs from *P. formosa* in several important respects, but it is closely similar to *P. infecta*. Characters distinguishing *P. formosa* from *P. fimbriata* are as follows. *Female*: broader and more rounded, head broader and more deeply embedded in pereon; proximal segment of first antenna smaller; posterior ventral border of head with longer inner processes; dorsal bosses only on first four pereomeres; posterior dorsal margins of pereomeres produced into more prominent lobate processes. *Male*: more elongate; eyeless; abdomen as broad anteriorly as pereon and much shorter, pleomeres less separated laterally, lacking medioventral tubercles. Characters which distinguish *P. infecta* from *P. fimbriata* are that in the former the female's head is more nearly square, it bears dorsal bosses on only the first four pereomeres, and its uropods are much more posteriorly directed, while the male of *P. infecta* is relatively broader and has less extended pleopods. Other distinctions probably exist among these three species, but they are not evident from the published descriptions of the two species that I have not seen.

Unidentified pseudionine bopyrid

Material Examined.—GERDA Sta. G-589: NW of Cay Sal Bank, 29°39'N, 80°45'W; 148-152 m; 14 April 1965; pair from left branchial chamber of ♀ *Munida irrasa* A. Milne Edwards (UMML 32-4521).

These two individuals seem to belong to a new species, probably even a new genus. The female has only three pleomeres, and the male's abdomen is abruptly narrowed in a unique manner. Unfortunately, the female appears damaged, at least judging from its pleopods, and the male, which is extremely tiny, may still be in a larval stage. Since no other similar specimens were available for comparison with these possibly aberrant specimens, it seems advisable not to describe them as members of a new species but only to note their occurrence.

CONCLUSIONS

With the description of six new species of bopyrid parasites of species of *Munida*, one of which belongs to a new genus, the total number of genera whose members are known parasites of *Munida* spp. is now 14, of which 13 belong to the subfamily Pseudioninae. The accompanying table compares characters of the 13 pseudionine genera found on *Munida* spp. with those of six other genera not known to infest *Munida* spp. It is essentially an enlargement of the table presented by Shiino (1934).

SUMARIO

SEIS NUEVAS ESPECIES DE ISÓPODOS BOPIRIDOS PARÁSITOS
DE CANGREJOS GALATEIDOS DEL GÉNERO *Munida*
EN EL ATLÁNTICO OCCIDENTAL

El estudio de siete especies del género *Munida* en el Atlántico occidental ha revelado seis especies de isópodos bopiridos parásitos, todos los cuales estaban sin describir. *Bonnieria americana*, n. sp., infecta *Munida microphthalma* A. Milne Edwards; *Anuropodione carolinensis*, n. sp., infecta *Munida iris iris* A. Milne Edwards; *Anuropodione megacephalon*, n. sp., infecta *Munida pusilla* Benedict; *Balanopleon tortuganus*, n. gen., n. sp., infecta *Munida simplex* Benedict; *Aporobopyrina anomala*, n. sp., infecta *Munida valida* Smith, y *Pleurocryptella fimbriata*, n. sp., infecta *Munida constricta* A. Milne Edwards y *M. miles* A. Milne Edwards. Además se encontró una pareja de bopiridos infectando un ejemplar de *Munida irrassa* A. Milne Edwards, pero como la hembra parece estar dañada y el macho no está maduro, no son descritos ni se les da nombre.

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