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Sueo M. SHIINO  
(With Two Text-figures)

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## On Three Bopyrid Isopods from California

SUEO M. SHIINO  
(With Two Text-figures)

A small collection of bopyrid isopods to be recorded here is the gift from Prof. G. E. MACGINITIE and his wife Prof. N. MACGINITIE. It comprises three species parasitic on the decapod crustaceans taken on the coast of California. One of them belongs to the known species and the rest two represent new species. The known species is very interesting for having been obtained at a spot far remote from the original locality.

It is a pleasure to record here a debt of gratitude to Prof. G. E. MACGINITIE and Prof. N. MACGINITIE for their kindness in providing me with the interesting specimens.

### *Aporobopyrus oviformis* SHIINO

SHIINO 1934. Mem. Coll. Sci., Kyoto Imp. U., ser. B, 9: 265-267, Fig. 4.

*Host:* *Pachycheles pubescens* HOLMES (new host).

*Locality:* Off Mugu Pier, 30-35 feet deep, Point Mugu, California.

*Date:* July 26, 1962.

*Collectors:* G. E. & N. MACGINITIE.

*Divers:* B. SCRONCE and H. CONBOY.

*Materials:* One female and one male of cryptoniscan stage found in the left branchial cavity of host. Female 3.5 mm × 2.1 mm, light yellow on dorsal side, white on ventral side. Without embryos in brood pouch. Male 0.65 mm × 0.26 mm, yellowish in color.

*Remarks:* The type specimen was taken from *Petrolisthes coccineus* (OWEN) at Seto, Japan. At the time when I erected *Aporobopyrus oviformis*, the host species was identified by myself as *P. pubescens* HOLMES after BALSS' (1913) description. According to MRYAKE'S (1943) treatise on the Japanese porcellanids, this host crab ought to be called *P. coccineus*.

In her personal correspondence Prof. N. MACGINITIE informed me that the collection of this bopyrid from *Pachycheles pubescens* comprised two couples, one sent to me and the other to U. S. National Museum. Although the female specimen under my observation is said to be the larger of the two, this is still smaller than the holotype. Apparently this is due to the smaller size of the new host than that

of the type host.

*Aporobopyrus muguensis* n. sp.

(Fig. 1)

*Host:* *Pachycheles rudis* STIMPSON.

*Locality:* Off Mugu Pier, 30-35 feet deep, Point Mugu, California.

*Date:* July 26, 1962.

*Collectors:* G. E. & N. MACGINITIE.

*Divers:* M. CONBOY and B. SCRONCE.

*Materials:* One female with one male, parasitizing in the left branchial cavity of host.

*Holotype:* Female. Body ovate, slightly asymmetrical, with left half more strongly expanded. Length exclusive of uropoda 4 mm, width 2.9 mm. Brood pouch containing yellowish embryos. Whitish, no pigmentation. Dorsal surface flattened, with caudal end turned upward, ventral surface highly convex.

Cephalon large, nearly triangular in shape, with frontal margin gracefully curved; two sides converging backward to continue to arched posterior boundary. Frontal lamina undifferentiated, but antero-lateral angles of cephalon produced laterally into small obtuse projections. Eyes small, located near the antero-lateral angles of cephalon.

Pereon with seven segments distinct, widest in third segment. First segment much reduced in length in mid-dorsal region. Second segment somewhat longer in the same region. Rest segments about twice as long as second and subequal in length to one another. Ovarian bosses in first four segments, oblong ovate, but ill-defined. Postero-lateral parts well-developed and broad in those segments. Coxal plates distinct in third and fourth segments only on longer side of body. Last three segments without ovarian bosses and postero-lateral lobes. Lateral regions of these segments somewhat narrowed.

Pleon short, about one fifth as long as total length of body, twice as wide as long, and composed of five pleon segments and pleotelson. Lateral plates of pleon segments very short, narrowly rounded, and exposing greater part of pleopoda in dorsal view. Pleotelson small, without lateral plates and represented by common attachment of uropoda.

Brood pouch strongly vaulted, filled with developing embryos and completely closed by oostegites. Pleopoda present in five pairs, biramous. Both rami similar in size and appearance, broad and lamellar in anterior pairs of pleopoda, and growing narrower and shorter towards posterior pairs. Uropoda uniramous, resembling last pair of pleopoda in shape.

*Allotype:* Male. Whitish in color, sparingly scattered by pigment patterns on dorsal surface. Length 2.7 mm, width at second pereon segment 0.83 mm. Body attenuating from fore end towards caudal end. All segments distinct.

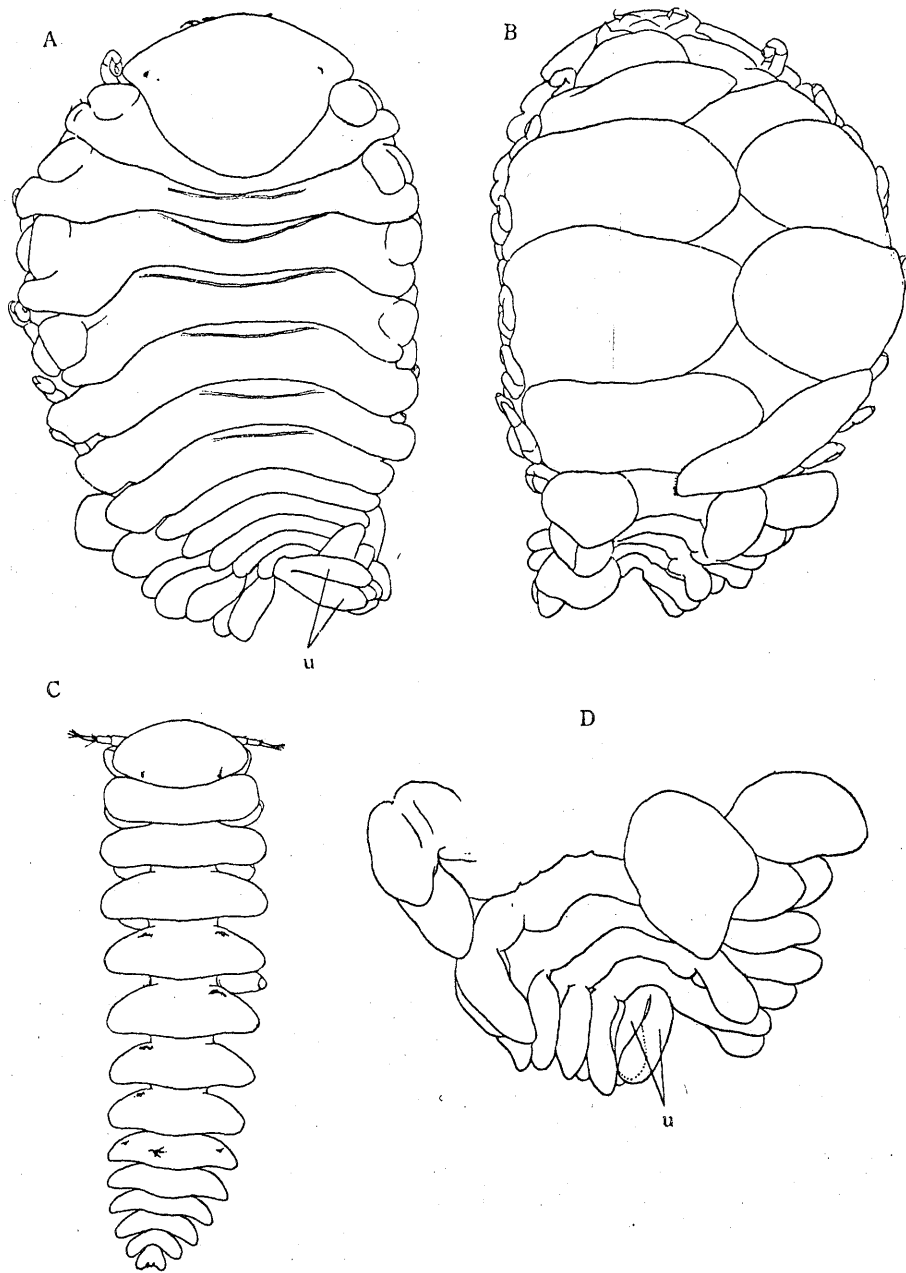


Fig. 1. *Aporobopyrus muguensis* n. sp.  
A, female, dorsal view; B, same, ventral view; C, male, dorsal view; D, female pleon, ventral view. A, B  $\times 19$ , C, D  $\times 27$ .  
u, uropod.

Cephalon as long as wide, transversely oblong ovate, having both anterior and posterior borders widely rounded. Eyes present close to posterior border of cephalon.

Pereon segments discontinuous in lateral regions. First segment a little wider than cephalon, to which it is closely applied. Lateral parts of this segment well round and not particularly narrowed. Second segment widest of all pereon segments, and with lateral parts somewhat narrower than central part. Succeeding segments diminish in width insensibly but successively from before backward. Anterior borders of lateral regions incline obliquely backward in those segments and meet nearly horizontal posterior border at narrowly round lateral angles.

Pleon occupies a quarter of entire body length, and has segments much shorter than those of pereon and rapidly diminishing in width backward. Anterior segments resemble preceding pereon segments, and have narrowly round sides. Posterior segments have lateral parts more or less turned backward. Pleotelson small, cordiform, widening caudad. It ends in two short lobes, between which a small anal projection is inserted.

Second antenna elongate, extending far beyond cephalic margin. No medio-ventral tubercles on pereon segments. Pleopoda and uropoda absent.

*Remarks:* The genus *Aporobopyrus* is known from seven species. These are *A. curtatus* (RICHARDSON), *aduliticus* NÖBILI, *johannis* NIERSTRASZ and BRENDER à BRANDIS, *gracilis* NIERSTRASZ and BRENDER à BRANDIS, *oviformis* SHIINO, *ryukyuensis* SHIINO and *parvus* SHIINO. The present species may be distinguished from all of these, for the first ground, by the possession of very narrow coxal plates on the third and fourth segments only on the longer side of body in the female and by the bilobed pleotelson of the male. In the general constitution of the female body, however, it appears to be nearly allied to *A. oviformis*. The males of the two species are entirely different in the configuration of segments.

The specimens will be preserved in Prefectural University of Mie.

***Bopyrella macginitiei* n. sp.**

(Fig. 2)

*Host:* *Crangon equidactylus* (LOCKINGTON).

*Materials:* Two females, both without male.

*Female 1:* (Holotype). Taken from right branchial cavity of host. Locality: Smugler's Cove, 40 feet deep, Santa Cruz Is., California. Collectors: G. E. & N. MACGINITIE. Date: June 21, 1963. Divers: M. CONBOY, and B. SCRONCE.

*Female 2:* (Paratype). Taken from left branchial cavity. Locality: Pelican Cove, 20-60 feet deep, Santa Cruz Is., California. Collectors: G. E. & N. MACGINITIE. Date: October 15, 1963. Divers: M. CONBOY, R. EIVEN, E. EVERT and C. CARREOW. Top side: W. LONG.

*Holotype:* Female. Color in alcohol light yellowish brown, no pigmentation

except that of eyes. Body pyriform, narrowing backward, strongly asymmetrical and expanded in right lateral parts of first three pereon segments. Both dorsal and ventral surfaces flattened, brood pouch widely open. Length measured from right margin of first pereon segment to caudal end 5.7 mm, width from left margin of third segment to right margin of fourth segment 3.5 mm.

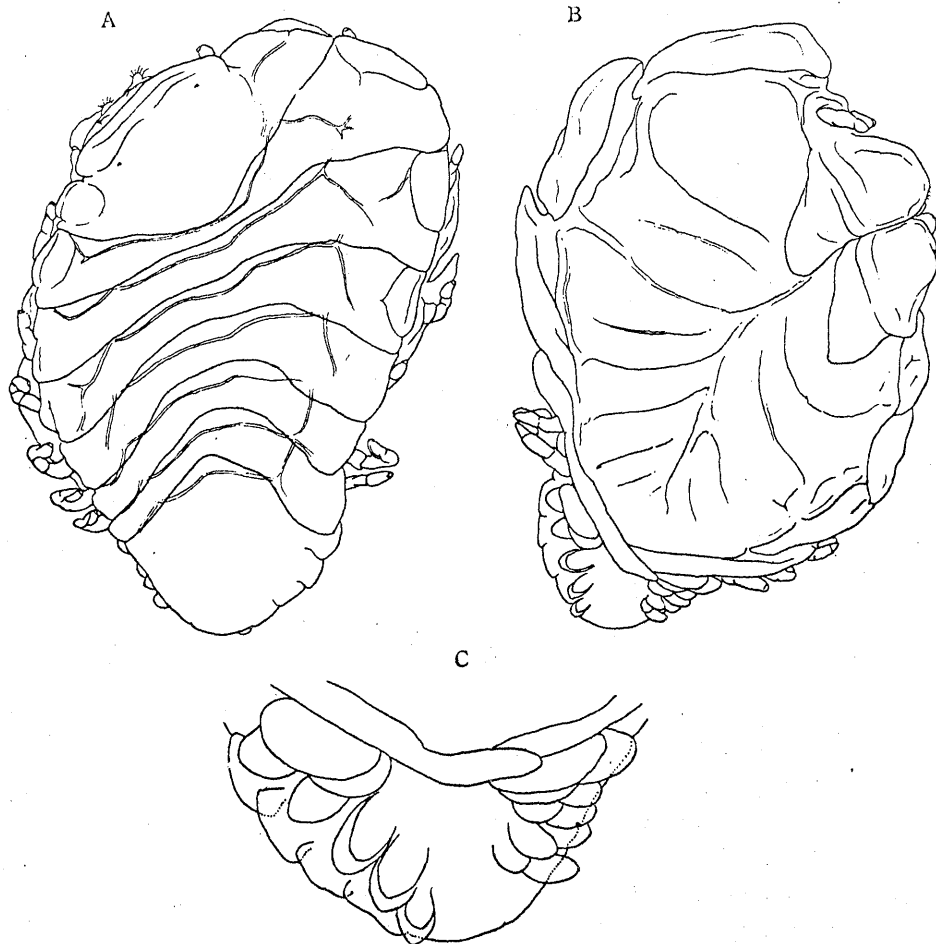


Fig. 2. *Bopyrella macginitiei* n. sp.  
A, female, dorsal view; B, same, ventral view; C, same, pleon, ventral view. A, B  $\times 14$ ,  
C  $\times 28$ .

Cephalon displaced to shorter side of body, entirely fused with first pereon segment without leaving any trace of boundary except for a pair of lateral incisions between them. Width of cephalon a little larger than medio-dorsal length from fore end to hind border of first pereon segment. Anterior margin almost straight, though very slightly depressed on median region. Frontal lamina undifferentiated.

Eyes very small, located some distance inward from antero-lateral angles of cephalon.

All pereon segments more strongly expanded on the right than on the left. First four segments divided on lateral sides into two portions. Postero-lateral portions of first three segments enlarged on the right, but much reduced on the left. Coxal plates absent, ovarian bosses ill-defined. Last three segments arched forward and undivided on the sides.

All pleon segments and pleotelson entirely coalesced into one. Coalesced pleonal piece  $3/10$  as long as body,  $3/5$  as wide, and wider than its own length. It is rhombic in shape, having well round caudal end. Right margin bears four shallow incisions. Left margin nearly straight and without incision except for very slight one near caudal end.

Brood pouch widely open. Posterior lamella of first pair of oostegites not turned inward. Rest four pairs narrow. Pleopoda present in five pairs, biramous. Both rami broad and lamellar in first two pairs; endopodites larger than exopodites and directed inward, whereas the latter outward. In last three pairs, exopodites somewhat larger than endopodites; both rami directed outward. Uropoda lacking.

*Male:* Unknown.

*Paratype:* 5.8 mm long and 3.5 mm wide. Identical with the holotype in constitution. It carries distinct, but very narrow coxal plates on first four pereon segments on both sides.

*Remarks:* The new species is characterized above all by the striking asymmetry of the female body and the structure of the pleon. Although it is not accompanied by the male, it may be distinguished from all the known species of *Bopyrella* by nearly complete fusion of the lateral plates of the pleon. In other species the boundaries between the consecutive plates are indicated by a series of notches or incisions on the sides of the pleon, and the caudal end bears, at times, even a median excavation. In the configuration of the pleon and the absence of coxal plates and ovarian bosses, the new species is more or less nearly allied to *Bopyrella setoensis* SHIINO obtained from an alpheid shrimp at Seto, Japan. In this species, however, the intersegmental notches are far more distinct on both sides of body, and the cephalon is not so far dislocated to one side as in the new species.

The specimens will be preserved in Prefectural University of Mie.

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