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## *JERBARNIA STOCKI*, A NEW SPECIES FROM THE BARRIER REEF (CRUSTACEA, AMPHIPODA)

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### ABSTRACT

A new species of *Jerbarnia* is described in 2 meters of depth from Lizard Island on the Great Barrier Reef. It is the first species from depths shallower than 13 m. The species differs from all but *J. aquilopacifica* (Japan) in the lack of major teeth on pleonites 1-3 and from the latter species in the normal 2 teeth on each of urosomites 1-2.

### INTRODUCTION

*Jerbarnia* was placed in the maerellid subdivision of the cheirocratid division of the Gammaroidea by Barnard & Barnard (1983) where its relationships and keys for its identification can be found. We believe this genus and the maerellid cheirocratids and other cheirocratids probably belong with the so-called "upside-down" group of Melphidippoidea, but studies on behavior are required to identify the systematic position (Thomas & Barnard, 1986, and Barnard, Thomas & Sandved, 1988).

Four species of this genus have been described previously. We present a new review of the genus and its sister genera *Maerella* and *Coxomaerella* updated from Barnard & Barnard (1983). The species and their references are listed. Numbers in brackets refer to geographic

distribution code numbers found on pp. 181-203 in Barnard & Barnard (1983).

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### MAERELLIDS

Peduncle of uropod 3 elongate; pleonites with transverse serrations or teeth dorsally or dorsolaterally; *anterior coxae of male diverse*; male gnathopod 2 large and subchelate, other

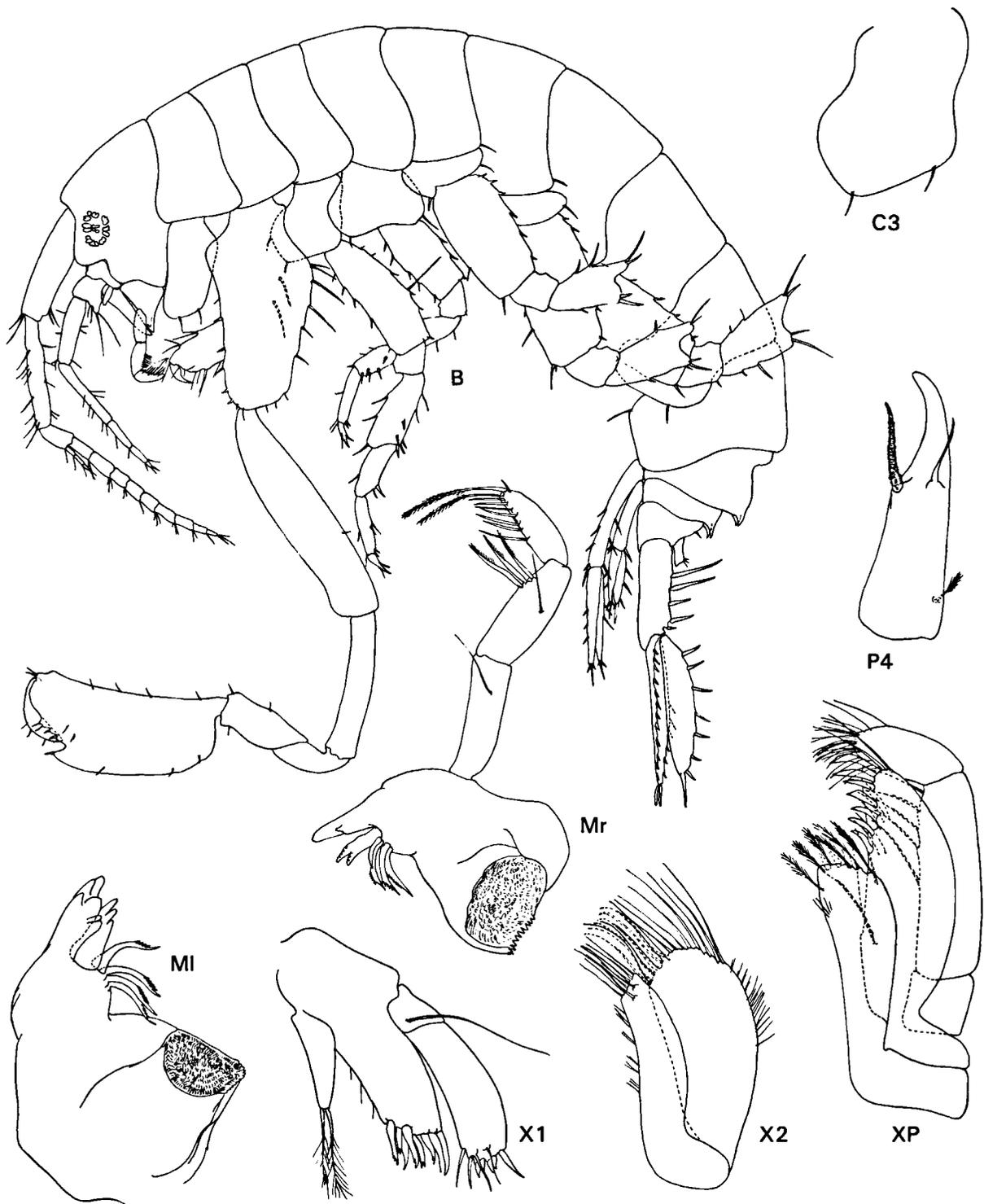


Fig. 1. *Jerbarnia stocki*, male holotype "a" 3.74 mm. Capital letters in figures refer to parts; lower case letters to left of capital letters refer to specimens and to the right refer to adjectives as described below: A, antenna; B, body; C, coxa; D, dactyl; E, epimera; G, gnathopod; L, labium; M, mandible; O, outer ramus; P, pereopod; PL, pleopod; T, telson; U, uropod; X, maxilla; XP, maxilliped; l, left; m, medial; r, right; s, setae removed.

gnathopods feeble and nearly simple; maxillae not medially setose; dactyl of maxillipeds vestigial or absent; telson short, cleft halfway, lobes apically truncate.

Remarks. — Since 1971 when *Jerbarnia* was described, and since 1981, when Barnard and Barnard (1983) was completed, several new taxa in the maerellids have been described, including *Coxomaerella* Karaman (1981), *Maerella ledoyeri* Karaman (1981), *Jerbarnia americana* Watling (1981), *J. tridentata* Ledoyer (1981) and *J. aquilopoacifica* Hirayama (1986). Because of the close similarity of the genera except in male secondary characters, some of these taxa are difficult to assign to a genus. We believe, however, that the specimens described for *J. tridentata* and *J. aquilopoacifica* are males and according to the diagnoses given below of the genera *Maerella* and *Jerbarnia* we believe that these two species should be transferred to *Maerella*. However, to facilitate the situation we have retained those species in the key presented for *Jerbarnia*.

#### KEY TO THE GENERA OF THE MAERELLIDS

1. Surface area of coxa 7 as large as coxa 4 ..... *Coxomaerella*  
Surface area of coxa 7 smaller than coxa 4 ..... 2
2. Male coxa 2 as long as coxa 1, article 3 of male gnathopod 2 short ..... *Maerella*  
Male coxa 2 much longer than coxa 1, article 3 of gnathopod 2 highly elongate ..... *Jerbarnia*

#### *Maerella* Chevreux

*Maerella* Chevreux, 1911: 218 (*Gammarus tenuimanus* Bate, 1862, monotypy).

Body slender, pleon and urosome transversely dentate or urosome with large teeth, urosomites also with scattered dorsal spines. Rostrum obsolescent, lateral cephalic lobes mammilliform.

Antennae elongate, antenna 1 longer than 2, ratio of peduncular articles = about 28:36:6,

primary flagellum as long as peduncle, accessory flagellum 5-articulate. Antenna 2 flagellum not longer than article 5 of peduncle.

Ratio of mandibular palp articles = about 17:13:12, article 3 sickle-shaped, setae = DE. Inner lobes of labium large and fleshy, no gape. Maxillae not medially setose, inner plate of maxilla 1 thinly rectangular, with 2 apical setae, outer plate with 7-9 spines, palps [?symmetrical]. Inner plate of maxilla 2 lacking medial and facial setae, very thin. Outer plate of maxilliped medially setose, dactyl absent.

Coxae 1-4 of medium length to short, of diverse sizes and shapes, setae sparse, coxa 1 strongly tapered, coxa 2 slightly tapered, not significantly longer than coxa 1, coxae 3-4 very broad, coxa 4 scarcely lobate, posterior margin convex and forming lobe but without normal lobe-forming concavity. Female gnathopods thin, elongate, feeble, carpi elongate, not lobed, propodi thin, rectangular, palms oblique, poorly defined, short, carpus of gnathopod 2 much longer than 1; male gnathopod 1 like female but carpus intermediate between her gnathopods 1-2, gnathopod 2 enlarged, carpus short, slightly lobed, propodus large, rectangular, palm slightly oblique, sculptured, well defined.

Article 2 of pereopods 5-7 unexpanded, unlobate, rectilinear or weakly ovate.

Rami of uropods 1-2 extending evenly, marginally spinose, uropod 1 without basofacial spine (not showing in literature), uropod 2 much shorter than 1. Uropod 3 greatly extended, magniramous, almost aequiramous, rami ovatolanceolate, peduncle elongate, outer ramus 1-articulate. Telson very short, cleft halfway, lobes appressed, scarcely tapering, with weak apical and larger dorsal spines.

Coxal gills [?2-6], ovate. Oostegites slender.

Variants. — Species poorly known (*westwoodi*); males of *tridentata* and Griffiths' species not definitely identified.

Relationship. — Like *Hornellia* but medial maxillary setae absent, anterior coxae reduced and diversified, maxillipedal dactyls absent.

Species. — *aquilopoacifica* (Hirayama, 1986) [395];

*tenuimana* (Bate, 1862) (Chevreux & Fage, 1925) [352];  
*tridentata* Ledoyer, 1982 [698];  
*westwoodi* (Stebbing, 1899) (Gurjanova, 1951) [220];  
species of Griffiths (1975) [743].

Distribution. — Arctic to Mediterranean, Japan, South Africa, Madagascar, sublittoral, 4 species.

### **Jerbarnia Croker**

*Jerbarnia* Croker, 1971: 382 (*Jerbarnia mecochira* Croker, 1971, original designation).

Body slender, pleon and urosome transversely dentate or toothed, pleon occasionally smooth but at least one urosomite with dorsal tooth, urosomites with scattered dorsal setae. Rostrum obsolescent, lateral cephalic lobes mammilliform or obsolescent.

Antennae elongate, antenna 1 longer than 2, ratio of peduncular articles = about 24:31:7, primary flagellum as long as peduncle, accessory flagellum 3-articulate. Antenna 2 peduncular article 3 lobate and setose below, flagellum not longer than article 5 of peduncle.

Labrum minutely truncate. Ratio of mandibular palp articles = about 14:10:10, article 3 scarcely sickle shaped, setae = DE. Inner lobes of labium large, fleshy, no gape. Maxillae not medially setose, inner plate of maxilla 1 thin, with 2-3 apical setae, outer plate with 7-9 spines, palps symmetric. Inner plate of maxilla 2 very thin, outer very broad. Outer plate of maxilliped medially spinose, dactyl absent or vestigial.

Coxae 1-4 short in female, diverse, coxae 1, 3, 4 in male short, coxa 2 greatly elongate, coxae sparsely to well spinose, coxa 4 without normal lobe-forming concavity, though with posteroventral and anteroventral lobe. Female gnathopods thin, elongate, feeble, carpi elongate, not lobed, propodi thin, rectangular, palms oblique, poorly defined, short, carpus of gnathopod 2 longer than 1; male gnathopod 1 like female but carpus intermediate between her gnathopods 1-2; male gnathopod 2 greatly enlarged, coxa elongate, articles 2-3 elongate,

or article 3 not elongate, carpus typically of medium length but unlobate, in some species carpus much longer than propodus, propodus elongate, subrectangular, narrow, palm oblique, short, sculptured, well defined, gnathopod 2 folded to form sled-runner.

Article 2 of pereopods 5-7 scarcely expanded, unlobate.

Pleopods of ordinary size, rami multiarticulate [new observation, see Remarks below]. Rami of uropods 1-2 extending equally, marginally spinose (or not on uropod 1 in type-species), uropod 1 with "basofacial" spines on peduncle (spines actually on ventrolateral margin, either basal or distal). Uropod 3 greatly extended, magniramous, almost aequiramous, rami ovatolanceolate, peduncle elongate, dorsolateral margin widely spinose, outer ramus with tiny article 2 but disappearing in some larger adults. Telson very short, cleft halfway, lobes appressed, scarcely tapering, almost truncate, with weak apical spination.

Coxal gills 2-6, ovate. Oostegites slender.

Remarks. — The original description of the type-species showed the pleopods with long 1-articulate rami. We have examined one male paratype of *J. mecochira* and find the pleopodal rami multiarticulate; for example, on left pleopod 1 the outer ramus has 7 articles and the inner ramus 5; despite its fewer articles the inner ramus is longer than the outer by the length of one article because the articles are longer than on the outer ramus.

We are not certain as to the identity of *J. ledoyeri* but because Karaman (1981) went ahead and created this species we have tried to segregate it in our key as well as we could. We observe some minor specific distinctions in Griffiths' figure of "*J. mecochira*" from South Africa and provisionally include it as a distinct species in the key.

Relationship. — Like *Maerella* but male coxa 2 gigantic and article 3 of male gnathopod 2 elongate.

Species. — *americana* Watling, 1981 [254]; *ledoyeri* (Karaman, 1981) (= *Maerella tenuimana* of Ledoyer, 1979a and Nagata, 1965) (= *Jerbarnia mecochira* of Ledoyer, 1982) [698, 395];

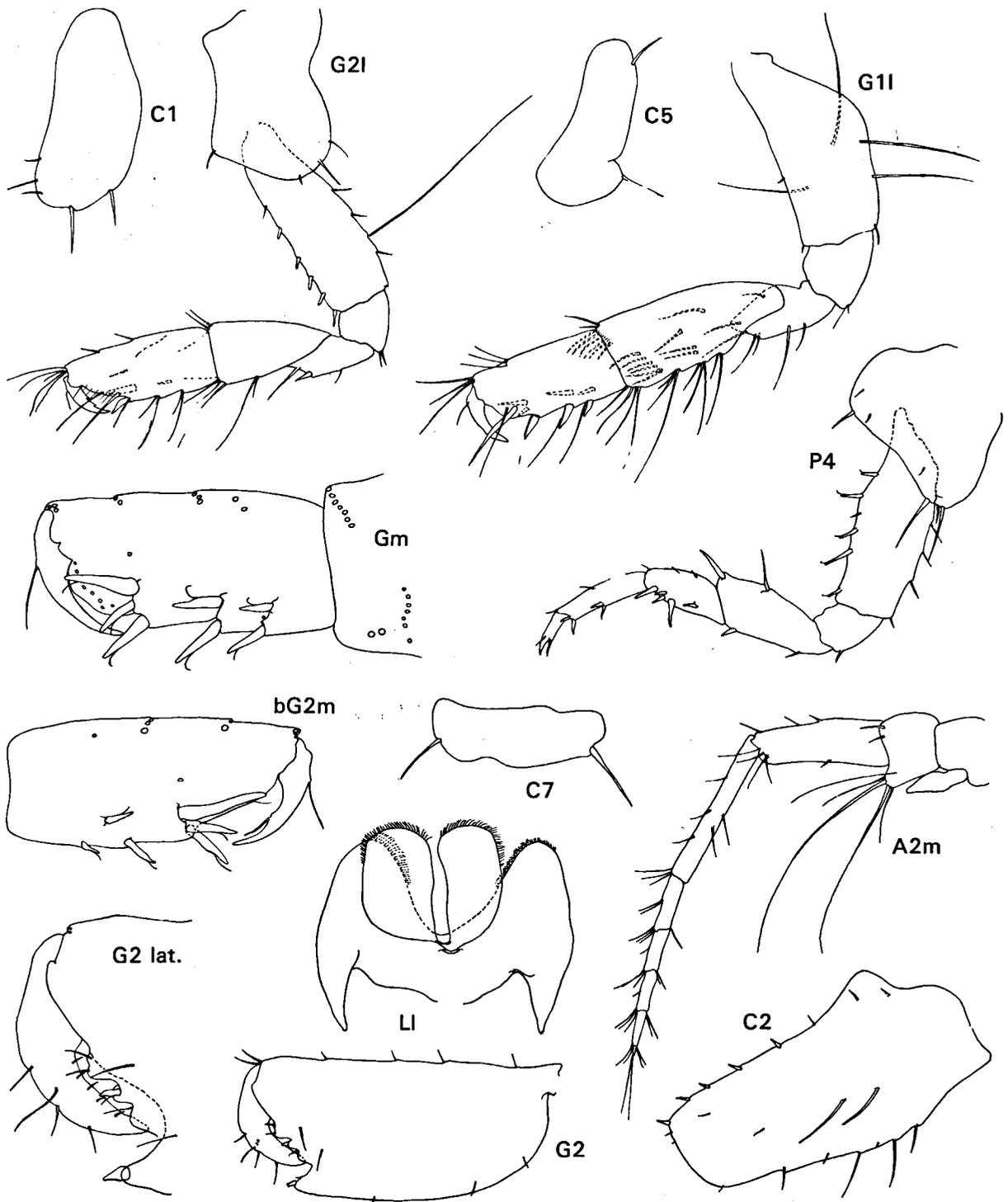


Fig. 2. *Jerbarnia stocki*, unattributed figures - male holotype "a" 3.74 mm; b - female "b" 4.31 mm.

*mecochira* Croker, 1971 [582];  
*stocki* Thomas and Barnard, herein [633].

Distribution. — Eniwetok Atoll, Great Barrier Reef, Japan, Madagascar, Atlantic America, 2-179 m, 4 species.

#### KEY TO THE SPECIES OF *JERBARNIA* AND CERTAIN SPECIES OF *MAERELLA*

1. Tooth formula on urosomites 1-2 = 1-0 ....  
..... *aquilopacifica*  
Tooth formula on urosomites 1-2 = 2-2 .. 2
2. Maxillipedal palp 4-articulate, palm of  
gnathopod 1 lacking defining spine .....  
..... *americana*  
Maxillipedal palp 3-articulate, palm of  
gnathopod 1 bearing defining spine ..... 3
3. Pleonites 1-3 lacking teeth ..... *stocki*  
Pleonites 1-3 with large teeth ..... 4
4. Pleonites 2-3 each with 3 teeth, (male coxae  
1-2 each with 2 heavy or weak spines) ....  
..... *tridentata*  
Pleonites 2-3 each with 5 teeth ..... 5
5. Pleonite 1 with 1 dorsal tooth, (male coxae  
1-2 each with 2-3 short setae or spines) ...  
..... *ledoyeri*  
Pleonite 1 with 5 dorsal teeth ..... 6
6. Male coxae 1-2 each with 6+ heavy spines,  
coxa 1 tapering distally ..... *mecochira*  
Male coxae 1-2 with 3 and 1 armaments,  
coxa 1 truncate distally species of Griffiths

*Jerbarnia stocki* Thomas & Barnard, new  
species (Figures 1-3)

Etymology. — Named in honor of Professor  
Jan H. Stock so as to recognize his lifetime of  
extensive contributions to knowledge of aquatic  
biology.

Diagnosis of male. — Outer plate of maxilla  
1 with 8-9 spines (opposites sides); palp of max-  
illiped with 3 articles; coxa 1 relatively short,  
subtruncate below, with 2 apical setae; coxa 2  
elongate but subtruncate below, with 4-5  
anterior spines, 4-6 posterior spine-setae, 3-4  
ventral setules; palm of gnathopod 1 convex,  
defined by row of 3 stout spines extending onto  
medial face, propodus with 2 posterior spines,

palm with long lateral spine; article 3 of  
gnathopod 2 spineless, palm short, 3-humped,  
defined by large hump, dactyl short; anterior  
margins of article 2 on pereopods 3-4 and poste-  
rior margins of pereopods 5-7 well spinose;  
pleonites 1-3 lacking dorsal teeth, urosomites 1-  
2 each with 2 dorsal, non-reverted teeth; epi-  
meron 1 slightly excavate posteriorly, epimera  
2-3 slightly convex posteriorly, each epimeron  
with one anteroventral, one posteroventral  
spine; peduncle of uropod 1 with 3 “basofacial  
spines” actually located ventrodistally on  
lateral side; rami of uropods 2-3 with apposite  
marginal spines, inner ramus of uropod 2 with  
one lateral spine.

Female. — Gnathopod 1 like male but pro-  
podal spines slightly fewer; gnathopod 2 like  
male gnathopod 1 but medial propodal spines  
fewer, article 2 with 5 strong anterior spines  
unlike male; coxa 2 short.

Juvenile. — We have no truly juvenile  
specimens and cannot therefore describe  
juvenile morphology, a necessity to distinguish  
some of the identifications of other species in  
the literature.

Variability. — Article 2 on outer ramus of  
uropod 3 present or absent.

Holotype. — Australian Museum, male “a”  
3.74 mm.

Type-locality. — JDT-LIZ 19C, Lizard  
Island, Australia, rubble zone off Lizard Head,  
2 m, formalin wash of rubble in sand pockets,  
2 Feb 1989, coll. J. D. Thomas and J. Clark.

Material. — Type-locality, ovigerous female  
“b” 4.31 mm; male “d” 3.56 mm and 12 other  
specimens.

Relationship. — Differing from all species  
but *J. aquilopacifica* (which is probably in  
*Maerella*) in the lack of large teeth on pleonites  
1-3. Differing from the latter species in the for-  
mula of 2-2 teeth on urosomites 1-2 (versus  
1-0).

The key above shows other relationships.

This is the shallowest dwelling (2 m) of the  
known species, which otherwise occur between  
13 and 179 m. Because of the lack of dredging  
equipment we do not know if the present  
species occurs in deeper waters.

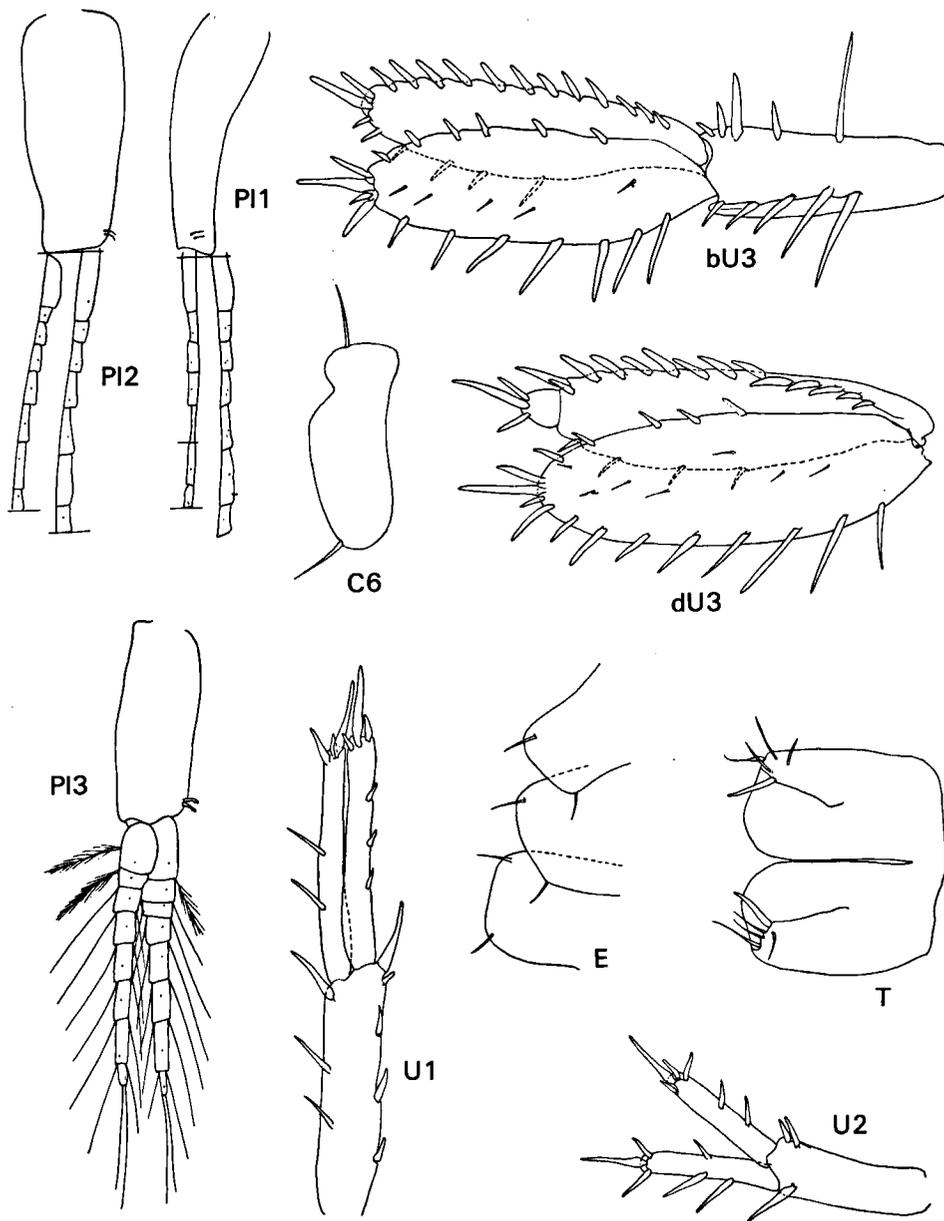


Fig. 3. *Jerbarnai stocki*, unattributed figures = male holotype "a" 3.74 mm; b = female "b" 4.31 mm; d = male "d" 3.56 mm.

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