

Crustacea Isopoda Serolidae: *Acutiserolis cidaris* and *Caecoserolis novaecaledoniae*, two new species from the Coral Sea

Gary C. B. POORE

Department of Natural Sciences
Museum of Victoria
71 Victoria Crescent, Abbotsford
Victoria 3067, Australia

&

Angelika BRANDT

Zoologisches Institut und Museum
Universitaet Hambourg
Martin-Luther-King-Platz 3
20146 Hamburg, Deutschland

ABSTRACT

Two new species of Serolidae are described from deep waters in the Coral Sea: *Acutiserolis cidaris* sp. nov. from 891-1491 m depth and *Caecoserolis novaecaledoniae* sp. nov. from 500-2750 m depth. *A. cidaris* is compared with *A. bromleyana*, illustrated and briefly diagnosed, from the Southern Ocean. *A. bromleyana* may be a variable species widely distributed in the Southern Ocean and more than one similar species exist in deep seas in lower latitudes. Both genera are rediagnosed.

RÉSUMÉ

Crustacea Isopoda Serolidae: *Acutiserolis cidaris* et *Caecoserolis novaecaledoniae*, deux espèces nouvelles de la mer du Corail.

Deux nouvelles espèces de Serolidae, provenant des eaux profondes de la mer de Corail, sont décrites : *Acutiserolis cidaris* sp. nov., récoltée à des profondeurs comprises entre 891-1491 m et *Caecoserolis novaecaledoniae* sp. nov. trouvée entre 500-2750 m de profondeur. *A. cidaris*, trouvée dans l'océan Austral, est comparée avec *A. bromleyana*, brièvement décrite et illustrée ici. *A. bromleyana* pourrait être une espèce variable, largement distribuée dans l'océan Austral, tandis que plusieurs espèces voisines existent en eau profonde aux basses latitudes. Les deux genres considérés ici sont redéfinis.

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INTRODUCTION

Following extensive earlier reviews (NORDENSTAM, 1933; SHEPPARD, 1933) the history of the taxonomy of the isopod crustacean family Serolidae Dana, 1853 was reviewed by BRANDT (1988, 1991) and WÄGELE (1994) who established new genera and subgenera to bring the total described to 20. BRANDT (1991) and WÄGELE (1994) both proposed phylogenies of the genera based on morphological characters.

French expeditions near New Caledonia and Australian expeditions along the eastern coast of Australia have collected serolids in deep water and this contribution describes two new species from tropical waters. The first species is similar to *Acutiserolis bromleyana* Willemöes-Suhm originally described from Antarctic waters and reported from New Zealand by HURLEY (1961). Adults of our material were much smaller than adults of the Antarctic species and differed morphologically from it and the New Zealand specimens. Investigation leads us to believe that it was one of several similar species and that *A. bromleyana* itself may be variable. The new species is described and its variability briefly discussed.

The second species was placed only with difficulty in any of the genera diagnosed by WÄGELE (1994) and in the phylogenies proposed by him and by BRANDT (1991) but is assigned to *Caecoserolis* Wägele, 1994.

METHODS

The material comes from two sources : deep dredging during cruises near New Caledonia organised by ORSTOM and the Muséum national d'Histoire naturelle, Paris; and dredging in northeastern Australia by James Cook University, Townsville, Australia. It is deposited in the Muséum national d'Histoire naturelle, Paris (MHNH), the Museum of Tropical Queensland, Townsville, Australia (MTQ), and the Museum of Victoria, Melbourne, Australia (NMV).

All illustrations are of left limbs unless otherwise noted, labelled as follows : A1, A2, antennae 1, 2; MD, mandible; MDp, mandibular palp; MX 1, 2, maxillae 1, 2; MP, maxilliped; P1-P7, pereopods 1-7; PL1-PL5, pleopods 1-5; U, uropod; l, left; r, right.

SYSTEMATIC ACCOUNT

Genus *ACUTISEROLIS* Brandt, 1988

Acutiserolis Brandt, 1988 : 21; 1991 : 131, 139.

Serolis (*Acutiserolis*) - WÄGELE, 1994 : 53, 60.

DIAGNOSIS. — Body broad, weakly-sculptured, slate-grey, lateral margin strongly divided from head to pleonites; pleotelson with weak dorsal lateral submarginal ridges. Eyes reniform, large, lateral. Pereonites 5-7 and pleonite 1 fused. Pereonal sternite 1 visible, sternites 2-4 invisible (ventral coxal plates meeting in midline), sternites 5-7 fused. Pleonal sternites 1-3 with 3-cornered medial plate, not sexually dimorphic.

Coxal plates with interacting keys, otherwise not in contact distal to bases of pereopods and acutely projecting and tapering; coxal sutures 2-4 visible dorsally; coxa 6 strongly exceeding pleonal epimera 2 and 3 posteriorly. Pleonites 2 and 3 with epimera narrow and strongly produced posteriorly.

Mandible with incisor process untoothed; left lacinia mobilis three-quarters width of incisor process, right toothed and narrower. Maxilla 2 with middle and outer lobes as long as inner, each with 2 distal setae. Maxilliped with free coxa, epipod and lamella on basis; palp article 2 cordiform.

Pereopod 1 with alternating spiniform and plate-like setae. Pereopod 2 of male with propodus palm having U-shaped marginal row of spiniform setae; unguis small and terminal; pereopod without felt of fine hairs. Pereopod 7 of male with propodus little broader than in female, setose and with felt of fine hairs; dactylus simple.

Pleopod 2 of male with endopod tapering. Pleopod 4 endopod not bilobed. Uropod biramous, peduncle short; inserting half-way along pleotelson.

Oostegites present on pereopods 1-4 of female.

REMARKS. — BRANDT (1988) diagnosed the genus and listed six species of *Acutiserolis*. We present an expanded diagnosis. In 1991 she discussed its relationship to other genera, differentiating it from them with a single autapomorphy, extreme posterior elongation of the coxal plates and pleonal epimera. WÄGELE (1994) added a seventh species while reducing the taxon to a subgenus of *Serolis* Leach. WÄGELE placed *Acutiserolis* on a clade in his dendrogram with *Serolis*, sharing two synapomorphies : a bilobed endopod on pleopod 4 and enlarged posterior coxal plates. While *S. paradoxa* Leach, type species of *Serolis* s.s. has a bilobed endopod (POORE, 1987), none of the species of *Acutiserolis* seen by us does. Nor do species of *Serolis* s.s. have the extremely elongated coxal plates of *Acutiserolis*. For these reasons we do not accept the subgeneric status of *Acutiserolis*.

Species of *Acutiserolis* differ from each other primarily in adult size, sculpture and setation of the male pereopods. Material available to us from New Zealand and from deep water off southern Australia contains at least three undescribed species. BEDDARD (1884b) and HURLEY (1961) referred material from the Tasman Sea and the vicinity of New Zealand to *A. bromleyana* but only BEDDARD noted differences from the syntypes from Antarctic waters. He figured a male from New Zealand which may be the species figured by HURLEY. A second species occurs off the southeastern coast of Australia but is not dealt with in this paper.

Here, we describe the third species which comes from the Coral Sea and the northern part of the Tasman Sea as new. It is certainly not the species mentioned by other authors.

We also comment on *A. bromleyana* and material from Antarctic waters which may belong to this species.

Acutiserolis bromleyana (Willemöes-Suhm, 1874)

Figs 1-2

Serolis bromleyana Willemöes-Suhm, 1874 : XIX; 1876 : 591. — BEDDARD, 1884a : 331; 1884b : 53-57, pl. 4 (except figs 3, 6). — SHEPPARD, 1933 : 280, 329-330.

Acutiserolis bromleyana - BRANDT, 1988 : 17, 21.

Serolis (Acutiserolis) bromleyana - WÄGELE, 1994 : 53.

not *Serolis bromleyana* - HURLEY, 1957 : 13; 1961 : 228-229, pl. 1.

MATERIAL EXAMINED. — Southern Ocean (Indian Ocean sector). "Challenger" : sta 156, 62°26'S, 95°44'E, 3614 m, 26 February 1874, diatom ooze bottom ; ♂ 53 mm, and ♀ 45 mm, syntypes (BMNH 1889.4.27.20).

DIAGNOSIS OF MALE. — Greatest width of body (between tips of coxae 4) 105% of body length (rostrum to end of pleotelson). Head with broad diverging anterolateral lobes lateral to bases of antennae, acutely produced anterolaterally; continuous sharp transverse ridge at base of antennae; with pair of low elevations between anterior margins of eyes and medial and pair of posterolateral elevations along posterior margin.

Pereonite 1 with anterior margin (medial to small triangular projection) concave; lateral margin shallowly sinuous; posterolateral corner produced as an acute triangular plate, convex posteriorly; sharp oblique ridge runs from near eye to meet an angled submarginal ridge, sharply defined between oblique ridge and anterior projection and more obscure on posterolateral plate. Pereonites 2-4 articulating, with coxal plates marked off by dorsal sutures; pereonites 5-7 fused, with groove between 5 and 6 dorsally; all pereonites with small spine on mid-dorsal margin. Posterolateral angles of the coxal plates 2-6 longer than and reaching much further posteriorly than those of preceding segments; coxal plate 4 reaching to base of pleotelson, 5 reaching 70% of length of pleotelson, 6 exceeding total body length by 38%). Pereonite 7 without coxal plates. Pleonite 1 not visible dorsally. Pleonites 2 and 3 with narrow elongate diverging epimera, apically notched; (epimera 2 both broken); epimeron 3 only slightly exceeding pleotelson. Pleotelson 34% of total length, 1.2 times as wide as long, tapering to rounded posterolateral corners and concave posterior margin; with long slight medial keel and obscure triangular elevations near angle at base of uropods; a narrow medial pit at base of keel.

Pereopod 2 without fine setae; propodus cylindrical proximally, with heel about halfway along, greatest width half of length, palm with 18 spiniform setae in irregular U-shaped marginal row plus 1 spiniform seta in middle of oblique concave palm; dactylus strongly curved and overlapping heel of palm, unguis absent (or broken).

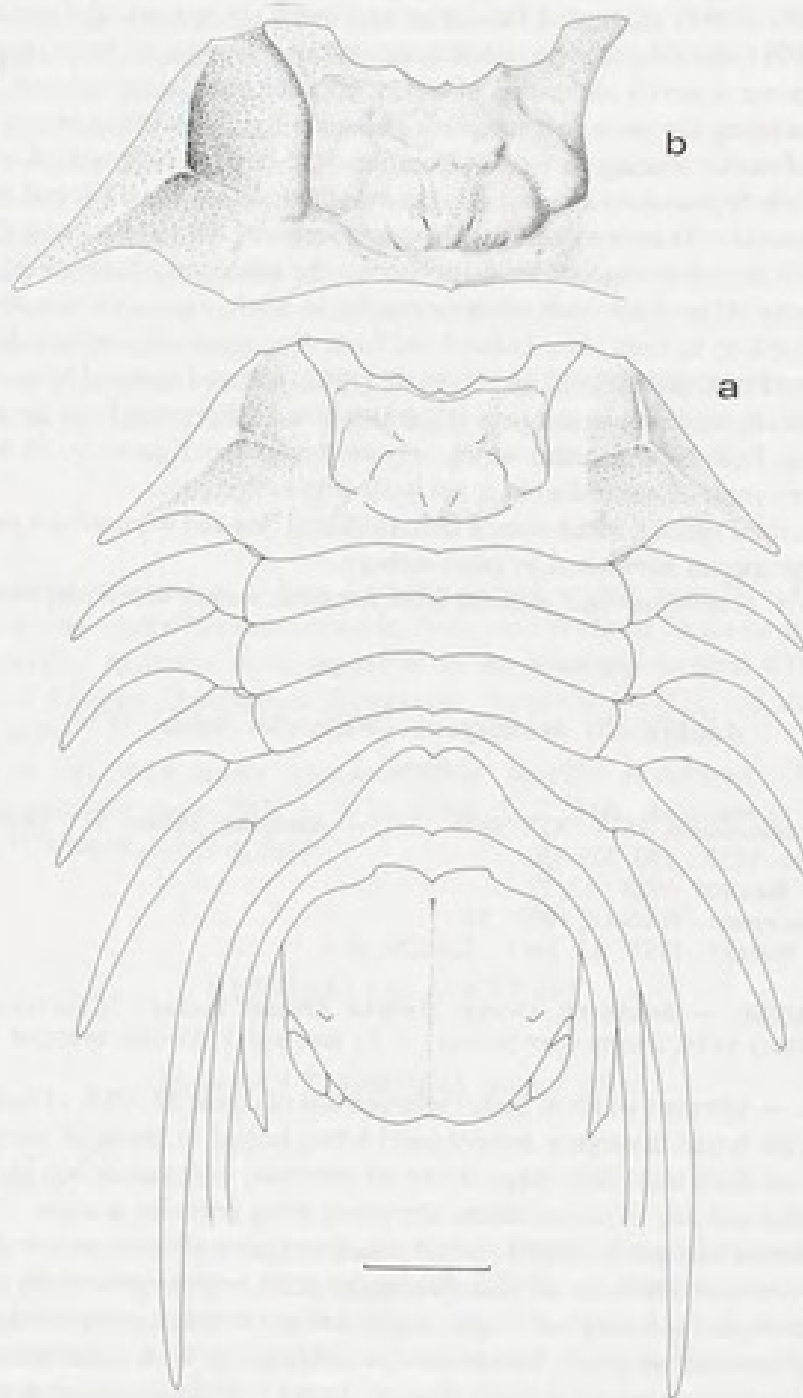


FIG. 1. — *Acutiserolis bromleyana* (Willemöes-Suhm). Male syntype, BMNH 1889.4.27.20 : a, habitus (reconstructed from damaged specimen), scale bar = 10 mm; b, detail of head and pereonite 1.

REMARKS. — The brief diagnosis deals with the overall shape and sculpture of the body and the male pereopod 2. These are sufficient to differentiate this species from the new species described herein and others. The combination of an anterior spine and a strong angled submarginal ridge on pereonite 1, and a short concave palm on the propodus of the male pereopod 2 serve to diagnose the species.

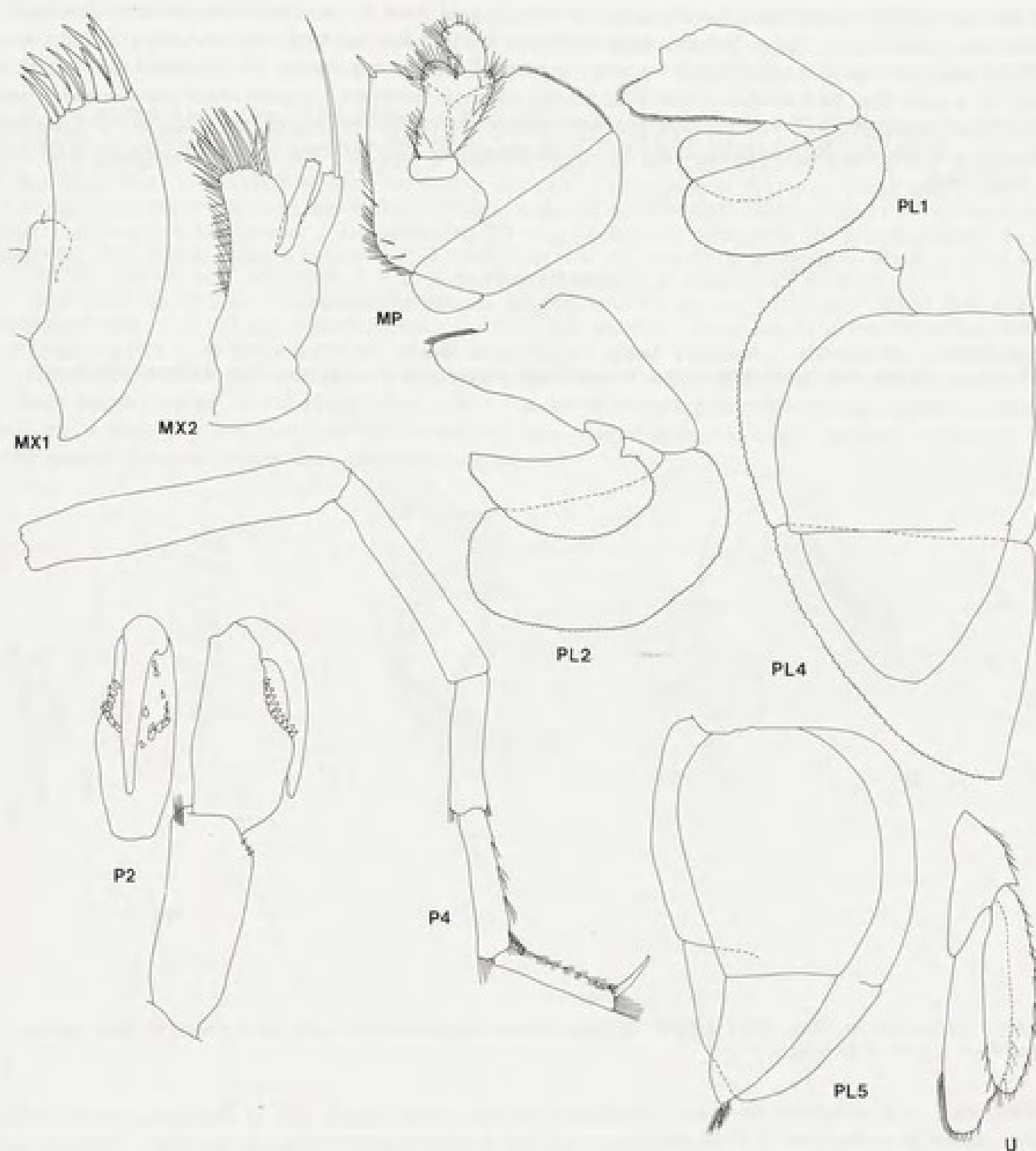


FIG. 2. — *Acutiserolis bromleyana* (Willemöes-Suhm). Female syntype, BMNH 1889.4.27.20 : maxillae 1, 2, maxilliped, pereopod 4, pleopods 1, 4, 5, uropod. — Male syntype, BMNH 1889.4.27.20 : pereopod 2 propodus and dactylus, palm in face view; pleopod 2 (appendix masculina lost).

The syntypes are damaged. Our figures of the other limbs are incomplete but show only very slight differences in proportions and setation from the new species.

Besides the two syntypes from the Southern Ocean, the *Challenger* collected other similar specimens, listed by BEDDARD (1884b), and some of these remain in the Natural History Museum, London. These were dredged from

off the coast of New South Wales, Australia, and off New Zealand, after WILLEMÖES-SUHM wrote his description (while the "Challenger" was in Sydney, April 1874) and are therefore not syntypes. According to BEDDARD (1884b) these differed in features which we now regard as of specific importance. He illustrated (1884a : pl. 4 figs 3, 6) a male from New Zealand without the anterior spine on pereonite 1, curved coxal plates 6 and 7, and setose male pereopod 2 with long palm, all characters differentiating it from the syntypes. D.E. HURLEY too had difficulty with the New Zealand material and recognised three forms with different depth ranges (in litt. to GCBP, 16 May 1984).

Acutiserolis sp.

Fig. 3

MATERIAL EXAMINED. — Southern Ocean (West Scotia Basin) : 57°12'S, 62°45'W to 57°14'S, 62°51'W, 3733-3806 m, 29 July 1962, USN "Eltanin" : ♂ 40 mm (NMV J11639, part of larger collection : USNM 123911).

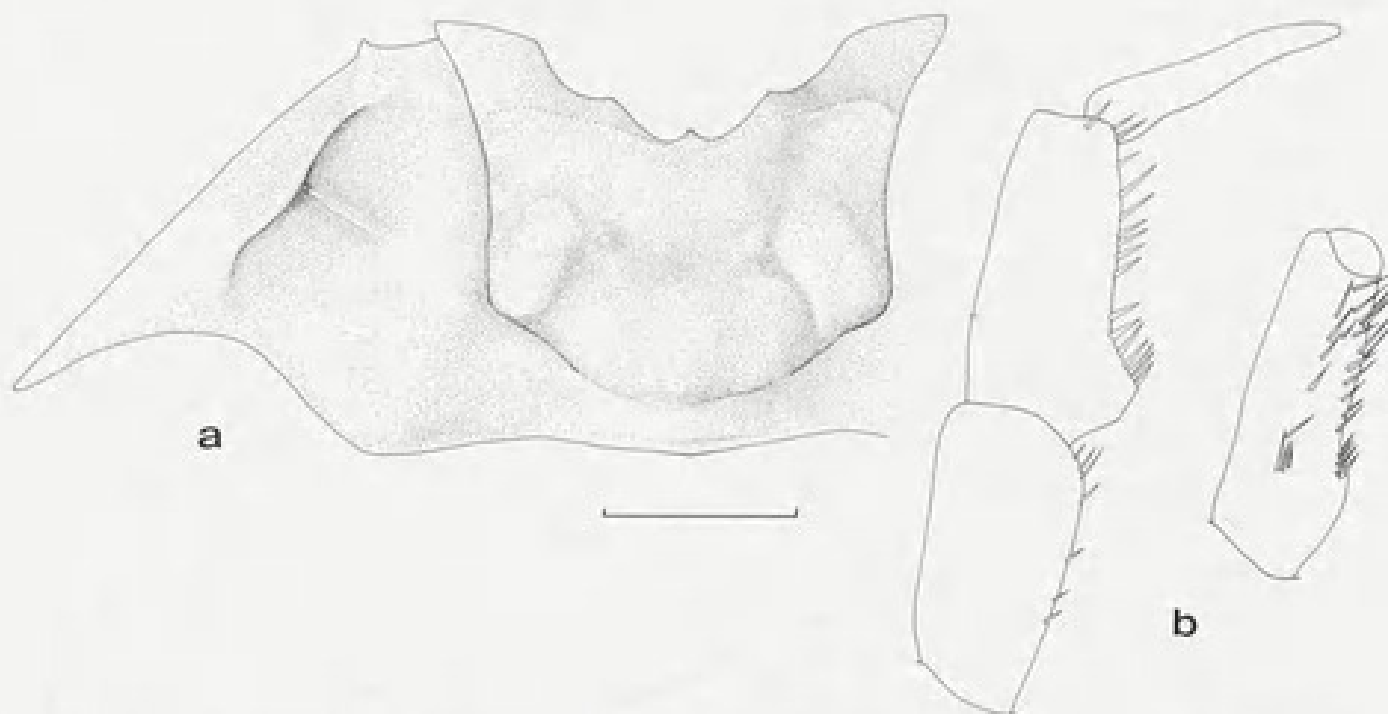


FIG. 3. — *Acutiserolis* sp. Male, NMV J11639 : a, detail of head and pereonite 1, scale bar = 5 mm; b, distal articles of pereopod 2, palm in face view.

REMARKS. — A male from the West Scotia Basin, on almost the opposite side of Antarctica from the type locality, differs from the types of *A. bromleyana* in size and at least two morphological characters. Although this male is smaller than other species, adult male features are generally seen in individuals over quite a size range. The more pronounced, erect submarginal oblique ridge on pereonite 1 might be interpreted as a local variation. However, the shape of the male pereopod 1 differs substantially from that of the syntypes. Its heel is more proximal, the palm more elongate, and there are many more (30) and finer setae along its margins. MENZIES (1962) described *A. macdonnellae* and *A. maryannae* from the South Atlantic but his material and figures are too poor to reconcile with this specimen. Circumpolar variation or speciation in *Acutiserolis* remains to be investigated before the status of this specimen can be determined. WÄGELE (1986) concluded after studying variability in *Ceratoserolis trilobitoides* (Eights, 1833) that this is a polymorphic circum-Antarctic species. The same may be true for *A. bromleyana*.

Acutiserolis cidaris sp. nov.

Figs 4-6

TYPE MATERIAL. — Coral Sea, Australia, near Townsville. CIDARIS 1 (all beam trawl samples) : stn 31-1, 17°12.15'S, 147°10.80'E, 1489-1491 m, 12 May 1986 : 1 ♂ holotype, 25.1 mm (MTQ W13598). Paratypes : 5 ♂ 26.9-28.1 mm; 2 ovigerous ♀ 26.9 mm; 1 juvenile ♀ (NMV J27642). — Stn 1-4, 18°08.69'S, 147°33.97'E, 966-962 m, 6 May 1986 : ♂ 22.1 mm (MTQ W13599). — Stn 8-1, 18°07.82'S, 148°15.39'E, 1115-1119 m, 7 May 1986 : 3 ♂ 21.2-24.0 mm, 2 juvenile ♀ 15.4-22.4 mm (MTQ W13600). — Stn 11-4, 18°10.06'S, 148°32.44'E, 1121-1123 m, 8 May 1986 : 2 ♀ 20.4-20.6 mm, juvenile ♀ 16.9 mm (MTQ W13601). — Stn 13-1, 17°58.49'S, 148°38.40'E, 1040-1059 m, 8 May 1986 : 6 ♂ 20.1-21.8 mm, 1 ovigerous ♀ 21.0 mm, 1 juvenile 16.7 mm (MTQ W13602). — Stn 50-3, 18°01.69'S, 147°20.53'E, 918-891 m, 17 May 1986 : 3 ♂ 21.0-22.1 mm, 1 juvenile ♀ 15.7 mm (MTQ W13603).

NON-TYPE MATERIAL. — Chesterfield Islands. MUSORSTOM 5 : stn 324, 21°15.01'S, 157°51.33'E, 970 m, 22 October 1986 : 1 ♂ 19.8 mm (MNHN-Is 3068); 3 ♂ 22-24 mm, and 3 ♀ (1 ovigerous) 21-23 mm (MNHN-Is 3069).

DESCRIPTION OF MALE HOLOTYPE. — Colour slaty-grey. Greatest width of body (between tips of coxae 4) 93% of body length (rostrum to end of pleotelson). Head with broad diverging anterolateral lobes lateral to bases of antennae, acutely produced anterolaterally; continuous sharp transverse ridge at base of antennae; with broad low anteromedial elevation between eyes, posterolaterally rugose.

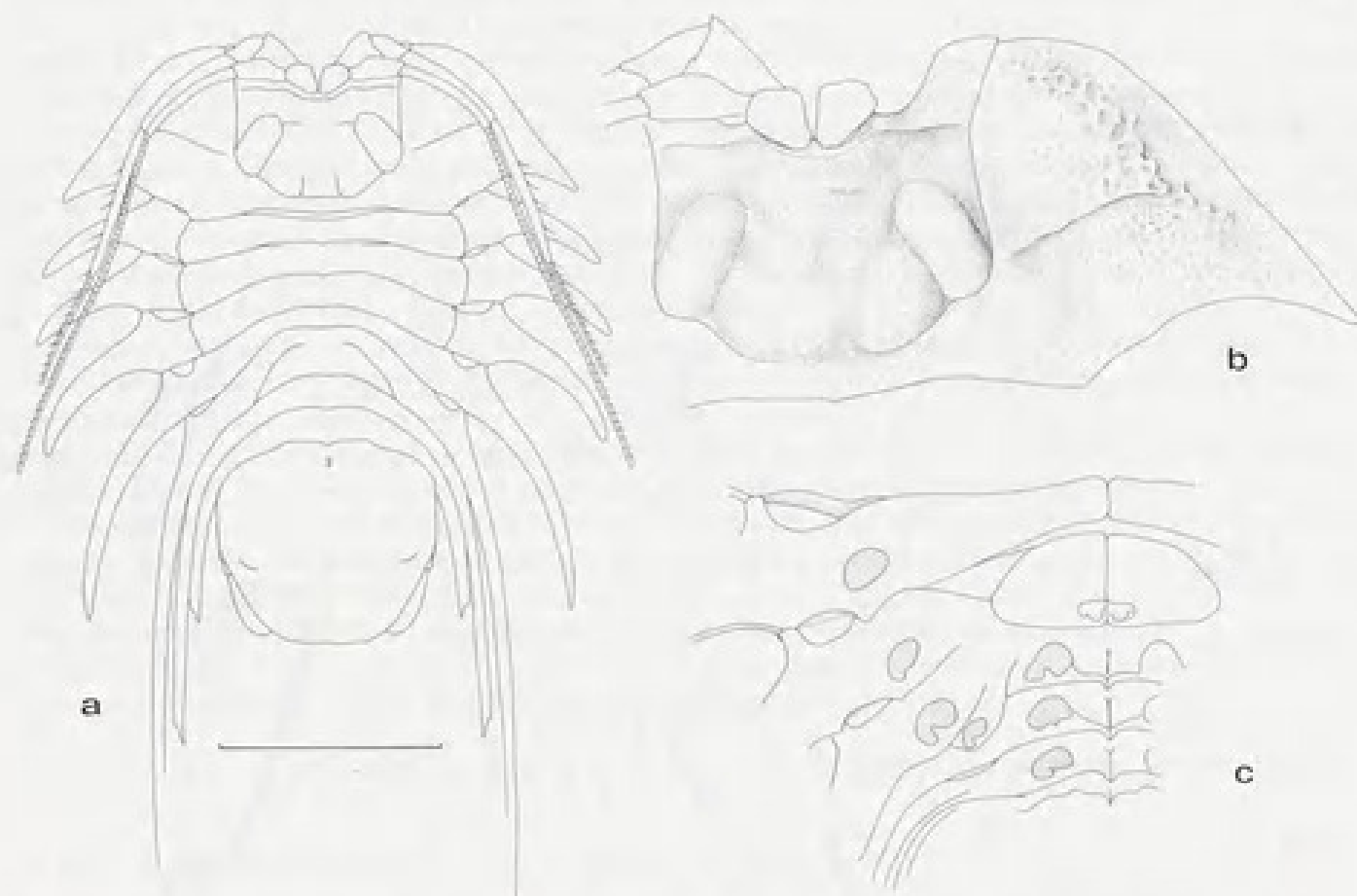


FIG. 4. — *Acutiserolis cidaris* sp. nov. Male holotype, MTQ W13598 : a, habitus (reconstructed from damaged specimen), scale bar = 10 mm; b, detail of head and pereonite 1; c, ventral view of pereonites 4-7 and pleonites 1-3.

Pereonite 1 with anterolateral margin convex and upturned over anterior quarter, straight posteriorly; posterolateral corner produced as an acute triangular plate, concave posteriorly; a sharp oblique ridge runs from near eye to meet a low pocked submarginal ridge, broad anteriorly and narrower on posterolateral plate. Pereonites 2-4

articulating, with coxal plates marked off by dorsal sutures; pereonites 5-7 fused, with groove between 5 and 6 dorsally. Posterolateral angles of the coxal plates 2-6 longer than and reaching much further posteriorly than those of preceding segments; coxal plate 4 reaching to base of pleotelson, 5 reaching 85% of length of pleotelson; 6 broken on all specimens, exceeding total body length by over 60%. Pereonite 7 without coxal plates. Ventral coxal plates 2-4 meeting in midline, smooth; sternites 5-7 fused, with paired small penes posteriorly; coxal plates 5-7 fused, 7 visible only ventrally. Pleonite 1 not visible dorsally. Pleonites 2 and 3 with narrow elongate diverging epimera, apically notched; epimeron 2 90% of length of pleotelson and epimeron 3 exceeding pleotelson by 57% of its length. Pleonite 1 with 3-cornered sternal plate with median ridge between bases of pleopods; pleonites 2 and 3 similar but less well developed. Pleotelson 35% of total length, little wider than long, posterolateral corners rounded and posterior margin convex; with long elevated medial keel and obscure triangular elevations near angle at base of uropods; a narrow medial pit at base of keel.

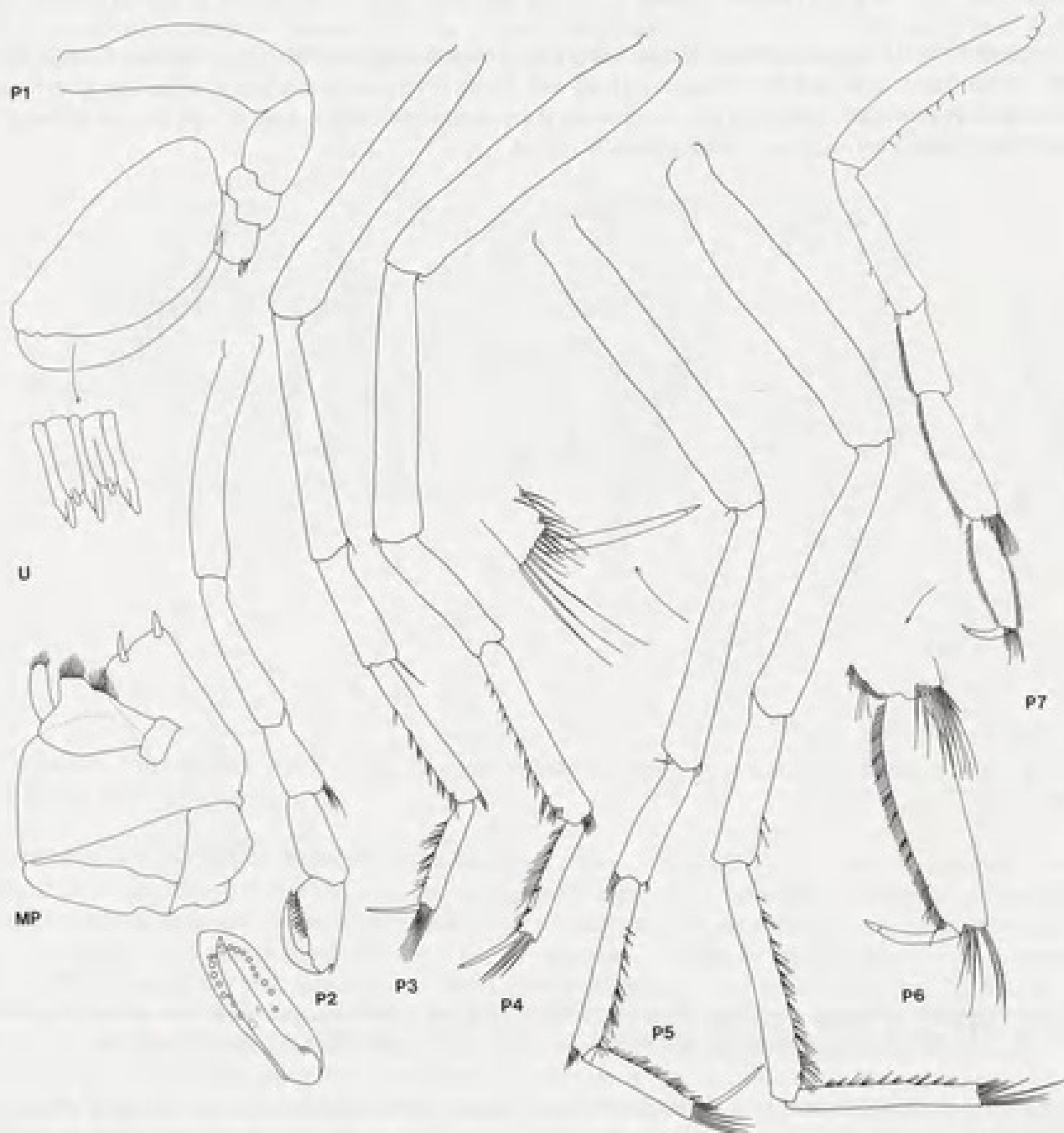


FIG. 5. — *Acutiserolis cidaris* sp. nov. Male holotype, MTQ W13598.

Antenna 1 with peduncular articles 1 and 2 of similar width, article 2 about twice as long as 1, article 3 almost as long as first two together; flagellum of over 50 articles; flagellar article 1 longest, one-quarter length of last peduncle article, articles 1-2 without aesthetascs, remainder with 1 long aesthetasc and 2-3 simple setae. Antenna 2 with short first peduncular article, second longer than third, with few proximal short setules, third with medial and lateral setae, fourth and fifth with tufts of lateral and dorsal setules, fifth 1.3 times as long as fourth; flagellum of at least 19 articles, each with group of 4 distolateral simple setae and 1 on opposite side.

Mandibles : Left lacinia mobilis a broad blade as wide as incisor, spine (spine row rudiment) simple and straight. Right lacinia mobilis with 1 strong tooth and denticles, spine simple and straight. Mandibular palp second article 1.6 times as long as first, with 35 short setae along distal part of lateral margin, third article lanceolate, with row of 50 setae, last 3 longer. Maxilla 1 lateral lobe with 11 strong apical teeth; medial lobe with 1 short apical seta in weak notch. Maxilla 2 inner lobe with 19 slender setae, median and outer lobes each with 2 setae. Maxilliped : coxa and epipod lateral to it separated by suture; basis not separated by suture from lateral almost-semicircular lamella; basis without facial setae proximal to palp; endite with oblique distal margin bearing 2 short spiniform setae; palp with short first article, second article without lateral row of setae, with 2 rows of mesial setae with hiatus between, third article without lateral row of setae but with distal setae.

Pereopod 1 basis to merus without setae; carpus without setae on posterior margin, with 2 spiniform setae on distal corner; propodus greatest width 50% of length, curved palm with row of 45 alternating flattened and spiniform setae, each with apical projection, and with row of short lateral setae submarginally; dactylus evenly curved and tapering, unguis weakly differentiated, overlapping carpus. Pereopod 2 with slender basis; ischium 75% length of basis; merus and carpus subequal in length, merus with strong anterodistal setae; propodus with prominent heel, greatest width 52% of length, palm with 20 strong flagellated setae in U-shaped marginal row plus 1 simple seta in middle of flat palm; dactylus strongly curved on to heel of palm, unguis small. Pereopods 3-6 similar. Basis, ischium and merus progressively shorter; carpus longer than merus, setose on lower margin; propodus shorter than carpus, setose on lower margin and with long setae on distal margin; dactylus very slender and tapering. Pereopod 7 about 0.6 length of pereopod 6; merus-propodus with mat of fine setae on lower margin; carpus and propodus with strong setae on distal margins; propodus width 0.3 length; dactylus about 0.4 length of propodus, closing back on palm, more curved than in pereopods 3-6.

Pleopod 1 peduncle subtriangular, with strong medial lobe (not figured) bearing 3 setulate setae; endopod almost semicircular, with 25 marginal plumose setae; exopod larger, with 46 marginal plumose setae. Pleopod 2 peduncle more elongate than in pleopod 1, with narrow medial lobe bearing 2 setulate setae; endopod narrower than in pleopod 1, with 23 marginal plumose setae, with apical slender appendix masculina, 4 times as long as endopod; exopod larger, broader, with 53 marginal plumose setae. Pleopod 3 peduncle narrower than in pleopod 2, with medial lobe bearing 2 setulate setae; endopod rounded, triangular, with 29 marginal plumose setae; exopod almost semicircular, with 52 marginal plumose setae. Pleopod 4 exopod operculiform, chitinized, 2-articulate, with lateral row of about 130 short marginal plumose setae; endopod smaller, without setae. Pleopod 5 rami with transverse suture; exopod with 10 distal plumose setae; endopod as long as exopod, without setae. Uropod peduncle triangular; exopod 0.85 length of endopod, distally rounded, with 10 widely spaced marginal setae; endopod 3.2 times as long as wide, distally rounded, with 16 distomedial setae.

ETYMOLOGY. — For CIDARIS, the name of the series of cruises organised by James Cook University of North Queensland in the Coral Sea.

DISTRIBUTION. — Coral Sea, 891-1491 m depth.

REMARKS. — *A. cidaris* differs from *A. bromleyana* mainly in the dorsal sculpture of pereonite 1, shape and setation of male pereopods 1 and 7, and size. The low submarginal ridge on pereonite 1 is characteristic of the species. It does not end anteriorly in the marginal spine seen in *A. bromleyana*. The male syntype of *A. bromleyana* is 53 mm long whereas adult males of *A. cidaris* range in size from 19.8 to only 28.1 mm. Ovigerous females are 15.4 to 26.9 mm and have similar body proportions to males. The species also differs from the other species of *Acutiserolis* [listed by BRANDT (1991) and WÄGELE (1994) but only partly illustrated] : *Acutiserolis macdonnellae* (Menzies, 1962) and *A. maryannae* (Menzies, 1962) have a small anterior triangular

projection on pereonite 1 (like *A. bromleyana*); *A. neaera* (Beddard, 1884), *A. gracilis* (Beddard, 1884) and *A. spinosa* (Kussakin, 1967) have strong sculpture on the pleotelson and slightly different relative lengths of the coxal plates and epimera. *Serolis margaretae* Menzies, 1962, included by both BRANDT (1991) and WÄGELE (1994) in *Acutiserolis*, lacks the extreme elongation of coxal plates and epimera so may belong in another genus but, at 8.4 mm long, may not be an adult specimen.

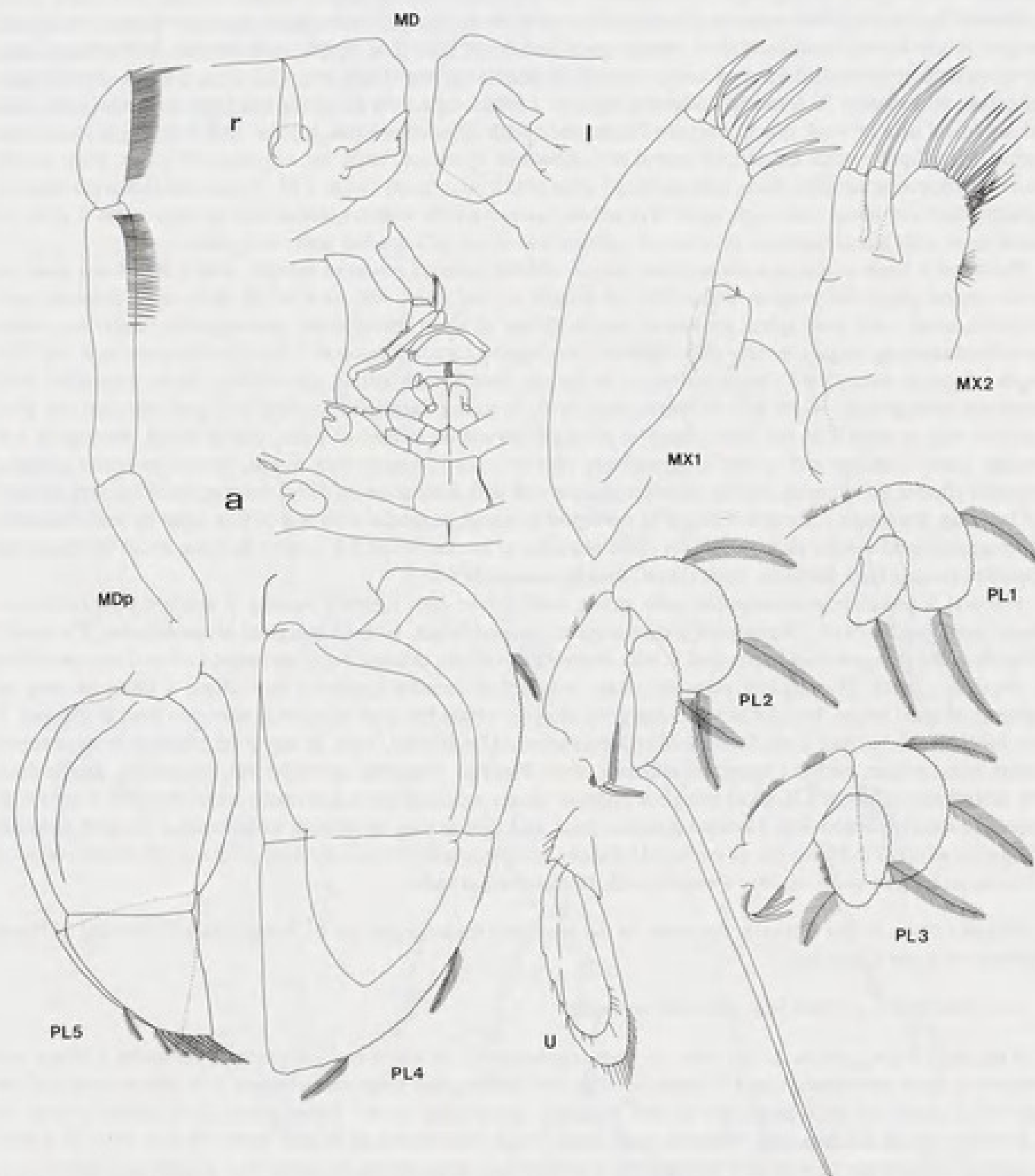


FIG. 6. — *Acutiserolis cidaris* sp. nov. Male holotype, MTQ W13598 (only representative setae shown on pleopods) :
a, ventral view of head and pereonites 1-2.

Genus *CAECOSEROLIS* Wägele, 1994

Caecoserolis Wägele, 1994 : 10-11, 50, 55-57.

DIAGNOSIS. — Body ovoid, smooth, slate-grey, margin continuous from head to coxa 6; pleotelson with dorsal lateral submarginal ridges. Eyes minute, round, lateral. Pereonites 5-7 and pleonite 1 fused. Pereonal sternite 1 visible, sternites 2-4 invisible (ventral coxal plates meeting in midline), sternites 5-7 fused. Pleonal sternites 1-3 with vertical posterior ridge, not sexually dimorphic.

Coxal plates without interacting keys, closely fitting; coxal sutures 2-4 visible dorsally; coxa 6 as long as or exceeding pleonal epimera 2 and 3 posteriorly. Pleonites 2 and 3 with epimera laterally flattened, narrow in dorsal view.

Mandible with incisor process untoothed; left lacinia mobilis three-quarters width of incisor process, right toothed and narrower. Maxilla 2 with middle and outer lobes shorter than inner, each with 2 distal setae. Maxilliped with free coxa, epipod and lamella on basis; palp article 2 cordiform.

Pereopod 1 with alternating spiniform and plate-like setae plus submarginal lateral row along palm. Pereopod 2 of male with propodus palm having margin of spiniform setae and lateral row of longer setae; unguis small and terminal; pereopod without felt of fine hairs. Pereopod 7 of male with propodus little broader than in female, setose but without felt of fine hairs; dactylus simple.

Pleopod 2 of male with endopod tapering. Pleopod 4 endopod not bilobed. Uropod biramous, peduncle short; inserting half-way along pleotelson.

Oostegites present on pereopods 1-4 of female.

REMARKS. — The new species *Caecoserolis novaecaledoniae* is difficult to place in any genus as recently defined. BRANDT (1991) defined a genus-group, expanded by WÄGELE (1994), of three genera, *Atlantoserolis* Wägele, 1994, *Glabroserolis* Menzies, 1962 and *Caecoserolis* Wägele, 1994, which share synapomorphies of being blind and being widest at pereonite 2. They were also said to have a "stalked" endopod on the male pleopod 2 which bears the appendix masculina. WÄGELE (1994) believed this to be a synapomorphy of his genus-group B (which includes these genera). The new species has a similar shape and smooth dorsal surface to members of these three genera but has small eyes. It does not have the stalked endopod but nor do *Caecoserolis brinki* (Kensley, 1978) or *C. apheles* (Schotte, 1992), species presently assigned to *Caecoserolis*. This genus was reported by WÄGELE (1994) to differ from *Atlantoserolis* and *Glabroserolis* in not having a shortened uropodal exopod but it is very short in *C. apheles*.

The genera have been weakly differentiated in the past, not all species agreeing well with the diagnoses of the genera to which they have been assigned. For many characters such as those used by HARRISON and POORE (1984) and POORE (1987) (coxal keys, mandible, maxilla 2, maxilliped, male pereopod 2 palm setation and unguis, felt of setae on pereopods 2 and 7, pleonal sternites) the condition is known for few serolid genera. We present an expanded diagnosis and, for the time being, we believe the new species is best assigned to *Caecoserolis*.

An alternative might be to place the new species in one of WÄGELE's genus-group C whose synapomorphy is a 3-lobed ridge between the eyes. Similar structures are seen outside this genus-group, for example in *Serolina* Poore, 1987, which may cast doubt on its monophyly. All but one genus of this group possess paired spines and raised triangular fields on the pleotelson viewed as synapomorphies by WÄGELE (1994). If this sculpture is homologous with the dorsolateral ridges seen in the new species and it is a member of genus-group C, the species may be a member of *Serolella* Pfeffer, 1891 but its members have large reniform eyes and diverging coxal plates.

Caecoserolis novaecaledoniae sp. nov.

Figs 7-10

TYPE MATERIAL. — New Caledonia. BIOCAL : stn CP 62, 24°19'S, 167°49'E, 1395-1410 m, 2 September 1985 : holotype ♂ 16.9 mm (MNHN-Is 4081). Paratypes : 1 ovigerous ♀ 18.5 mm, 1 juvenile ♀ 13.7 mm, damaged post-manca,

10.0 mm (MNHN-Is 4082). — Stn CP 58, 23°56'S, 166°41'E, 2660-2750 m, 1 September 1985 : manca, 7.8 mm (MNHN-Is 4080). — Stn CP 69, 23°52'S, 167°58'E, 1220-1225 m, 3 September 1985 : 1 ♂ 16.7 mm, 1 ovigerous ♀ 18.5 mm (NMV J27644).

NON-TYPE MATERIAL. — **Chesterfield Islands.** CORAIL 2 : stn DE 13, 21°02.77'S, 160°55.00'E, 700-705 m, 21 July 1988 : 1 juvenile ♀ 12.2 mm (MNHN-Is 4083);

MUSORSTOM 5 : stn 386, 20°56.21'S, 160°51.12'E, 770-755 m, 22 October 1986 : male, 13.0 mm (MNHN-Is 3067).

Norfolk Island : 29°46.6'S, 167°58.9'E to 29°42.0'S, 168°02.0'E, 500 m, Sigsbee trawl, J.E. WATSON on R.V. "Dimitry Mendeleev", 1 January 1976 : 1 ♂ 11.4 mm (NMV J6796). — 30°31.0'S, 161°54.2'E to 30°19.4'S, 161°40.6'E, 1210 m, 29 December 1976 : 1 ♂ 11.7 mm (NMV J7763).

DESCRIPTION OF MALE HOLOTYPE. — Greatest width of body (between tips of coxae 2) 78% of body length (rostrum to end of pleotelson). Head with broad diverging anterolateral lobes lateral to bases of antennae, bluntly produced anterolaterally; continuous obscure transverse ridge at base of antennae; eye minute, circular, submarginal near widest part of head.

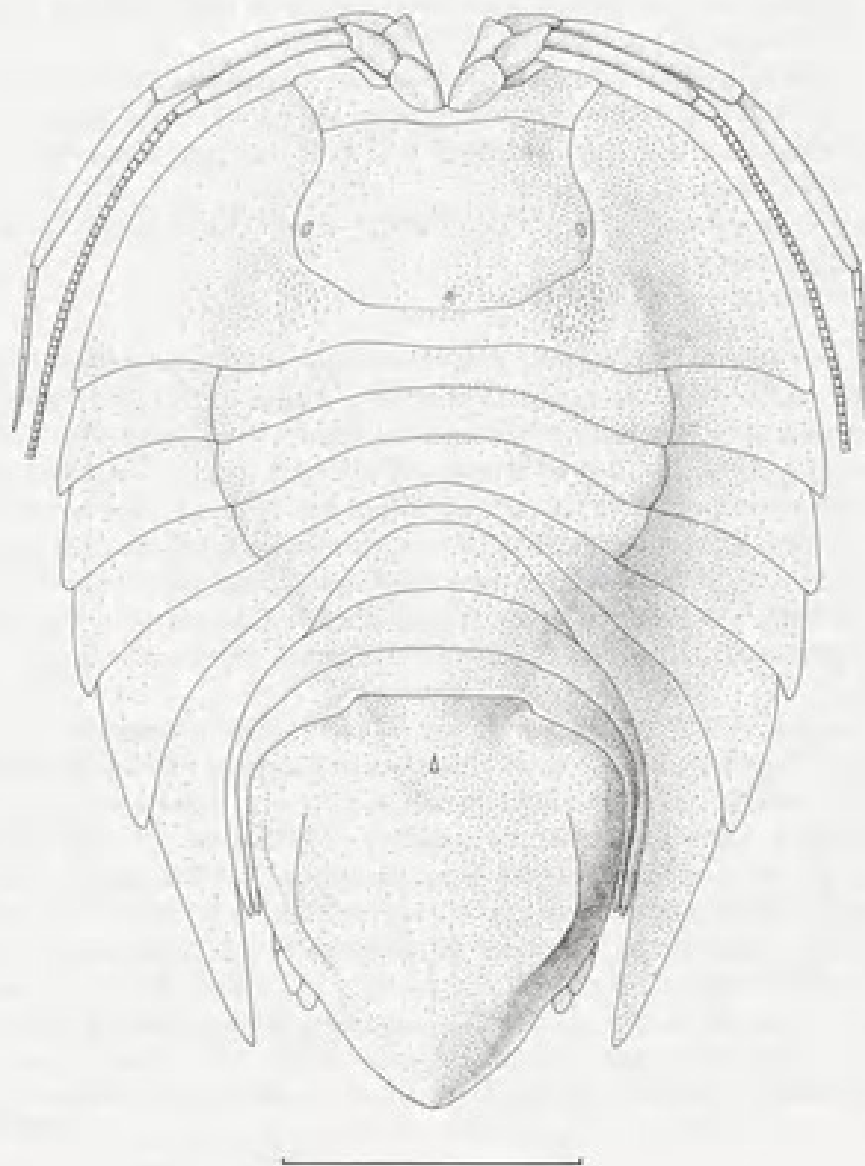


FIG. 7. — *Caecosterolix novaecaledoniae*. Male holotype, MNHN-Is 4081 : habitus, scale bar = 5 mm.

Pereonite 1 with anterolateral margin continuously convex; posterolateral corner tightly overlapping coxa 2; smooth except for slight mediolateral roughening. Pereonites 2-4 articulating, with coxal plates marked off by

dorsal sutures; pereonites 5-7 fused mid-dorsally. Posterolateral angles of the coxal plates 2-6 barely protruding posterolaterally, longer than and reaching further posteriorly than those of preceding segments; coxal plate 4 reaching to base of pleotelson, 5 reaching 30% of length of pleotelson, 6 reaching 80% of length of pleotelson. Pereonite 7 without coxal plates. Ventral coxal plates 2-4 meeting, swollen and sculptured in mid-line; sternites 5-7 fused and visible, with minute fused paired penes; ventral coxal plates 6-7 incompletely separated.

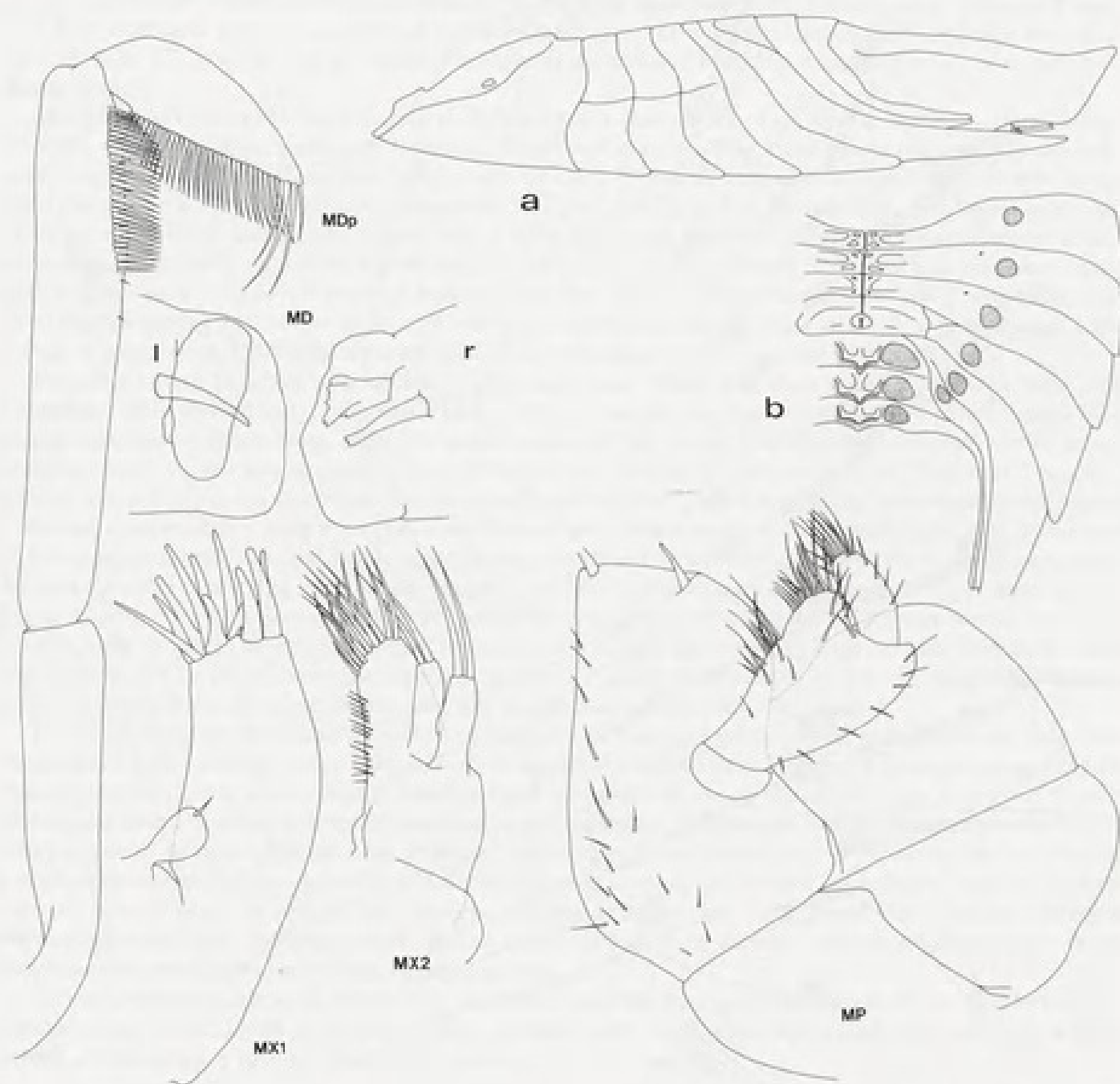


FIG. 8. — *Caecoserolis novaecaledoniae*. Male holotype, MNHN-Is 4081 : a, habitus in lateral view. b, ventral view of pereonites 2-7, pleonites 1-3.

Pleonite 1 not visible dorsally. Pleonites 2 and 3 with narrow epimera, both 50% of length of pleotelson. Pleonites 1-3 similar, with sternal plate broad, prominent, sculptured, angled sharply posterolaterally and at midpoint.

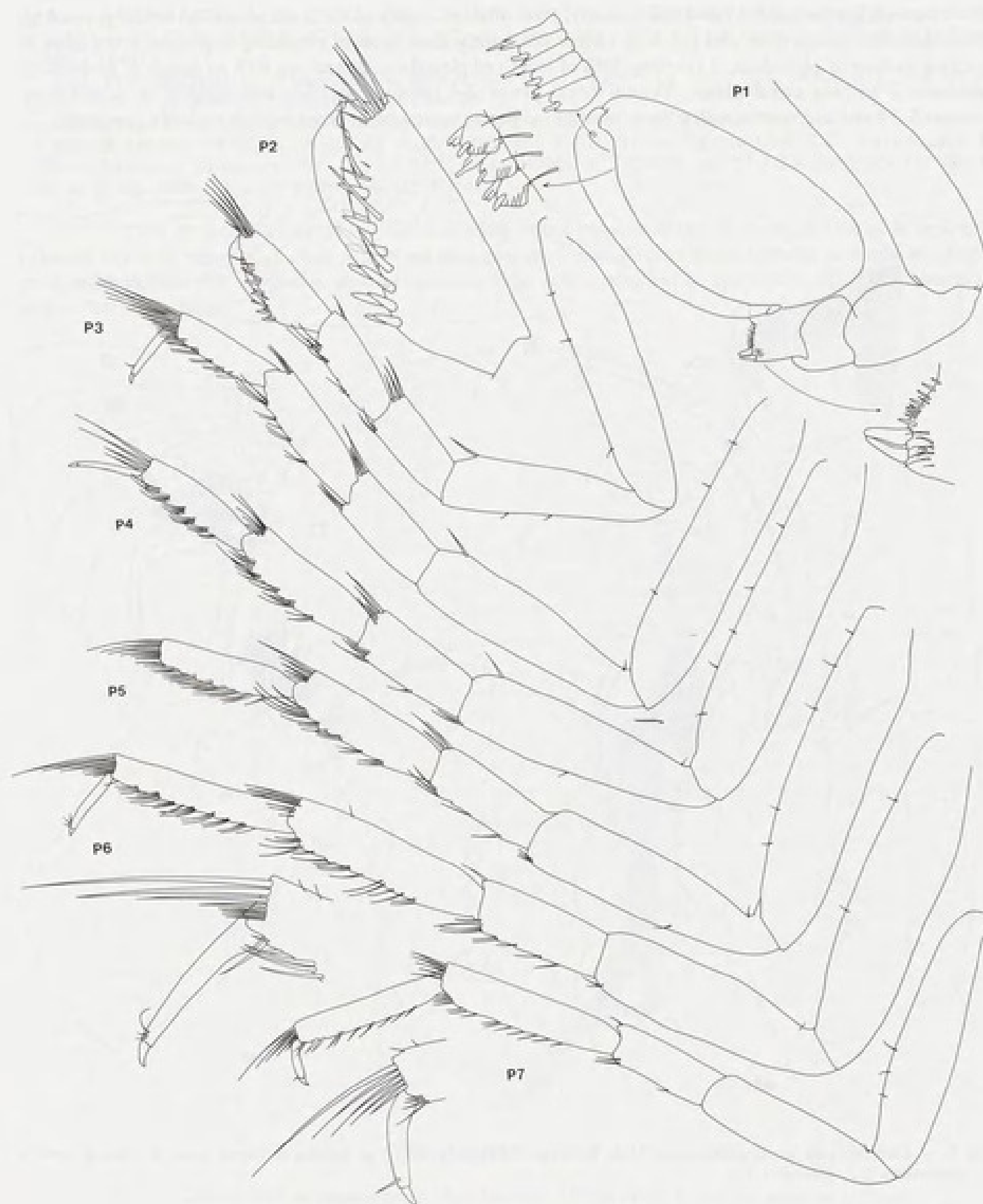


FIG. 9. — *Carcoserolis novaecaledoniae*. Male holotype, MNHN-Is 4081 (p5 dactylus missing).

Pleotelson 42% of total length, 92% as wide as long, lateral margins curved, posterior margin rounded and upturned; with obscure mid-dorsal ridge over proximal half, sharp dorsolateral ridge sharp and evenly curved over three-quarters of length, widest at about midpoint of pleotelson; sides almost vertical over proximal half and bulging over shallow concavity.

Antenna 1 with peduncular article 2 slightly narrower and shorter than article 1, article 3 little longer than first two together; flagellum of about 60 articles; flagellar article 1 longest, one-sixth length of last peduncle article, articles 1-4 without aesthetascs, remainder with 1 long aesthetasc and 2-3 simple setae. Antenna 2 with short first peduncular article, second longer than third, with few proximal short setules, fourth and fifth with tufts of setae, fifth 1.2 times as long as fourth; flagellum of more than 25 articles, each with group of distolateral simple setae.

Mandibles asymmetrical, right lacinia mobilis narrower than on left. Left lacinia mobilis a broad blade 0.8 width of incisor, spine (spine row rudiment) simple and straight. Right lacinia mobilis irregularly toothed, spine simple and straight. Mandibular palp second article 1.3 times as long as first, with 30 short setae along distal part of lateral margin, third article lanceolate, with row of 37 setae, last 4 longer. Maxilla 1 lateral lobe with 11 strong apical teeth; medial lobe stalked, with 1 short apical seta. Maxilla 2 inner lobe with 16 slender setae, median and outer lobes each with 2 setae. Maxilliped: coxa and epipod lateral to it separated by suture; basis separated by suture from lateral rounded lamella; basis with facial setae near mesial face; endite with transverse distal margin bearing 2 spiniform setae; palp with short first article, second article with lateral row of setae, with 2 rows of medial setae with hiatus between, third article with lateral row of setae and with distal setae.

Pereopod 1 basis to merus without setae; carpus with about 10 peg-like short setae on transverse palm and 2 spiniform setae distolaterally; propodus widest at 50% of length, curved palm with row of 35 alternating fan-shaped setae and spiniform setae, each with apical projection, and submarginal lateral row of short simple setae; dactylus evenly curved and tapering, unguis differentiated. Pereopod 2 with basis longer than next 2 articles; ischium with 1 anterodistal seta; merus and carpus subequal in length; merus with strong anterodistal setae; carpus with setae along posterior margin; propodus with obtuse heel, greatest width 40% of length, palm with lateral row of 3 long tapered setae, scattered smaller setae distally, lateral and mesial rows each of 6 peg-like spiniform setae; dactylus curved, not reaching heel of palm, unguis not differentiated. Pereopods 3-6 similar, except distal articles longer in posterior limbs. Basis, ischium and merus progressively shorter; carpus longer than merus, setose on lower margin; propodus shorter than carpus, setose on lower margin and with long setae on distal margin; dactylus very slender, 0.4 length of propodus, tapering. Pereopod 7 about three-quarters length of pereopod 6; setation similar; dactylus one-third length of propodus, less slender than in pereopods 3-6.

Pleopod 1 peduncle subtriangular, with strong medial lobe bearing 3 setulate setae; endopod almost oval, with 24 marginal plumose setae; exopod larger, with 46 marginal plumose setae. Pleopod 2 peduncle more elongate than in pleopod 1, with narrow medial lobe bearing 2 setulate setae; endopod narrower than in pleopod 1, with 18 marginal plumose setae, with apical slender appendix masculina, 3.6 times as long as endopod; exopod larger, broader, with 48 marginal plumose setae. Pleopod 3 peduncle narrower than in pleopod 2, with medial lobe bearing 2 setulate setae; endopod rounded, with 28 marginal plumose setae; exopod almost semicircular, with 48 marginal plumose setae. Pleopod 4 exopod operculiform, chitinized, 2-articulate, with lateral row of about 130 short marginal plumose setae; endopod smaller, without setae. Pleopod 5 rami weakly 2-articulate; exopod with 3 distal plumose setae; endopod as long as exopod, without setae.

Uropod attached just beyond midpoint of pleotelson, reaching three-quarters of its length; with subtriangular peduncle; exopod 0.75 length of endopod, distally rounded, with 7 widely spaced marginal setae; exopod 2.9 times as long as wide, distally rounded, with 8 distal setae.

FEMALE. — Differs from male : oostegites present on pereopods 1-4; pereopod 2 similar to pereopods 3-6; pereopod 7 dactylus very slender as in pereopods 3-6.

ETYMOLOGY. — For New Caledonia.

DISTRIBUTION. — Coral Sea, northern Tasman Sea; 500-2750 m depth.

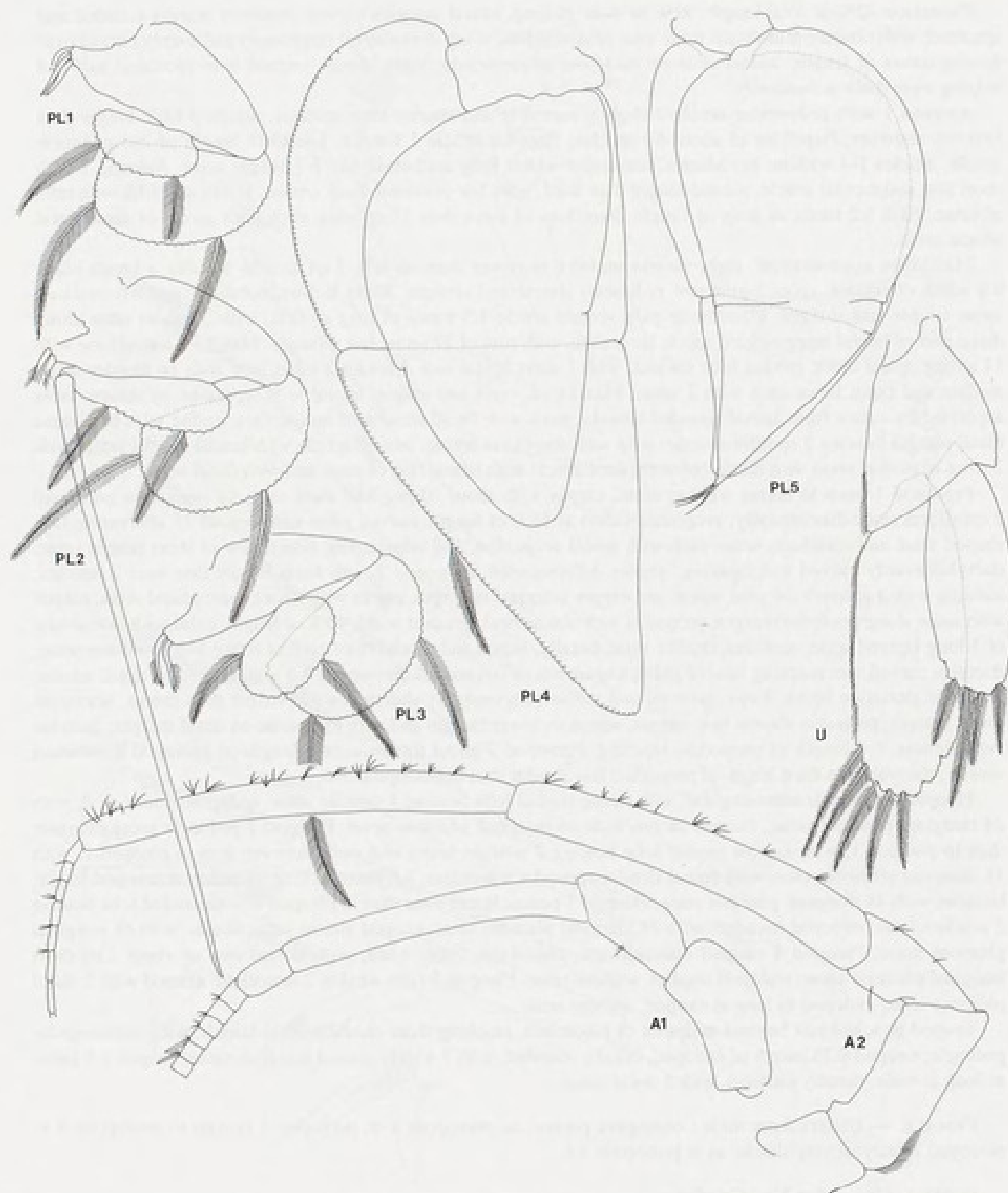


FIG. 10. — *Caecoserolis novaecaledoniae*. Male holotype, MNHN-Is 4081 (only representative setae shown on pleopods).

REMARKS. — The shape and sculpture of the pleotelson of the two males far south from the type locality, in the vicinity of Norfolk Island (30°S), differ slightly from that of the type material. The pleotelson is more angled laterally at the ends of the pleonal epimera than in the holotype. The dorsolateral ridge is more sharply angled, proximal to the ends of the pleonal epimera, whereas in the holotype this ridge is curved and widest further posteriorly. These differences point to possible widespread polymorphism in Serolidae (WÄGELE, 1986). Variability of this species over a wider geographic range remains to be investigated.

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