

New apseudomorph tanaidaceans (Crustacea, Peracarida, Tanaidacea) from the bathyal slope off New Caledonia

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ABSTRACT

The Pacific collections by the French campaigns over the last 20 years included a total of six species of apseudomorph tanaidaceans from the bathyal slope off the coast of New Caledonia at between 410 and 1807 m depth. All of these species were new to science, and are described herein. Three are in the family Apsseudidae, viz. *Apsseudes batillus* n. sp., characterized by a scooped, down-curving rostrum and a spinous apophysis on antennule peduncle article 1, *A. coriolis* n. sp., with a reduced antennal squama and reduced pleopods unusual for the genus, and *Atlantapsseudes cyanea* n. sp., close to the type species of the genus *A. nigrichela* Băcescu, 1978, but without the prominent anterolateral spine-like apophysis on pereonite 2 of that species. The other three species are in the family Pagurapsseudidae, viz. *Indoapsseudes choristhema* n. sp., characterized by its extremely reduced antenna and lack of an exopodite on the cheliped, *Macrolabrum distonyx* n. sp., the deepest recorded species of this genus, with characteristic antennular and rostrum morphology, and *Pagurapsseudes inquilinus* n. sp., also distinguished by the segmentation of the antennular flagella and trunk-segment proportions, *inter alia*.

KEY WORDS
Crustacea,
Tanaidacea,
Apseudomorpha,
Apsseudes,
Atlantapsseudes,
Indoapsseudes,
Macrolabrum,
Pagurapsseudes,
New Caledonia,
new species.

RÉSUMÉ

Nouveaux tanaidacés apseudomorphes (Crustacea, Peracarida, Tanaidacea) de la pente bathyale au large de la Nouvelle-Calédonie.

Les collections faites dans le Pacifique sud-ouest lors des campagnes françaises au cours des 20 dernières années incluent un total de six espèces de tanaidacés récoltées au large de la côte de la Nouvelle-Calédonie à des profondeurs comprises entre 410 et 1807 m. Toutes ces espèces sont nouvelles pour la science et décrites

MOTS CLÉS

Crustacea,
Tanaidacea,
Apseudomorpha,
Apseudes,
Atlantapseudes,
Indoapseudes,
Macrolabrum,
Pagurapseudes
Nouvelle-Calédonie,
espèces nouvelles.

ci-après. Trois appartiennent à la famille des Apseudidae, *Apseudes batillus* n. sp., caractérisé par un rostre en forme de cuillère, courbé vers le bas, et une apophyse épineuse sur l'article 1 du pédoncule de l'antennule, *A. coriolis* n. sp., avec une écaille antennaire réduite et des pléopodes également réduits peu communs pour le genre, et *Atlantapseudes cyanea* n. sp., proche de l'espèce type du genre *A. nigrichela* Băcescu, 1978, mais sans l'apophyse antérolatérale proéminente spiniforme sur le péréonite 2 de cette espèce. Les trois autres espèces appartiennent à la famille des Pagurapseudidae, *Indoapseudes choristhema* n. sp., caractérisé par ses antennes extrêmement réduites et l'absence d'un exopodite sur le chélipède, *Macrolabrum distonyx* n. sp., espèce la plus profonde de ce genre, ayant une morphologie antennulaire et rostrale caractéristique, et *Pagurapseudes inquilinus* n. sp., distingué, entre autres, par la segmentation des flagelles antennulaires et les proportions tronç-segment.

INTRODUCTION

The intensive sampling by cruises from the MUSORSTOM campaigns of the Paris museum over the last 20 years, largely from New Caledonia and its surroundings (see Richer de Forges 1990; Crosnier *et al.* 1997), has generated, *inter alia*, a diverse collection of Western Pacific tanaidacean material. This material has been kindly made available to me for analysis. Previously, Bamber (2006) described four new species of tanaidomorph (*Zeuxo* (*Parazeuxo*) *cloacarattus*, *Konarus cheiris*, *Pseudoleptochelia bulbosus* and *Leptochelia* aff. *minuta*) from shallow waters (≤ 20 m) around New Caledonia; Bamber & Boxshall (2006) described a new tanaid of the Langitaninae Sieg, 1980 (*Mekon solidomala*) with its associated copepod parasite (*Arhizorhinus mekonicola*) from off New Caledonia at depths between 440 and 700 m (the upper bathyal slope). The present paper deals with the apseudomorph material collected from the bathyal slope (410-1807 m) off New Caledonia.

Six species of apseudomorph tanaidacean were collected, all new to science, three in the family Apseudidae Leach, 1814, in the genera *Apseudes* Leach, 1814 and *Atlantapseudes* Băcescu, 1978, and three in the family Pagurapseudidae Lang, 1970, one each in the genera *Indoapseudes* Băcescu, 1977, *Macrolabrum* Băcescu, 1976 and *Pagurapseudes* Whitelegge, 1901.

Type material has been lodged in the Muséum national d'Histoire naturelle, Paris (MNHN) and The Natural History Museum, London (NHM). Morphological terminology is as in Bamber & Shearer (2005), including the use of the term "segments" for serially repetitive body parts, including those of the trunk and those of the antennule and antennal flagella and uropod rami which are without independent musculature. The higher taxonomy is based on Guțu & Sieg (1999). Sampling gear (station number prefixes) is as:

DW Warén dredge;
PL collection by submarine ("plongée").

SYSTEMATICS

Suborder APSEUDOMORPHA Sieg, 1980
Superfamily APSEUDOIDEA Leach, 1814
Family APSEUDIDAE Leach, 1814
Genus *Apseudes* Leach, 1814

Apseudes batillus n. sp.
(Figs 1-3)

TYPE MATERIAL. — Holotype: New Caledonia, S to SW of Île des Pins, CALSUB, stn PL 20, *Cyana* dive 1035/41, 22°52.7'S, 167°23'E, 616-555 m depth, 10.III.1989, coll. A. Guille, ♂ (MNHN-Ta918).
Paratypes: same data as holotype, 1 ♂ (MNHN-Ta919). —

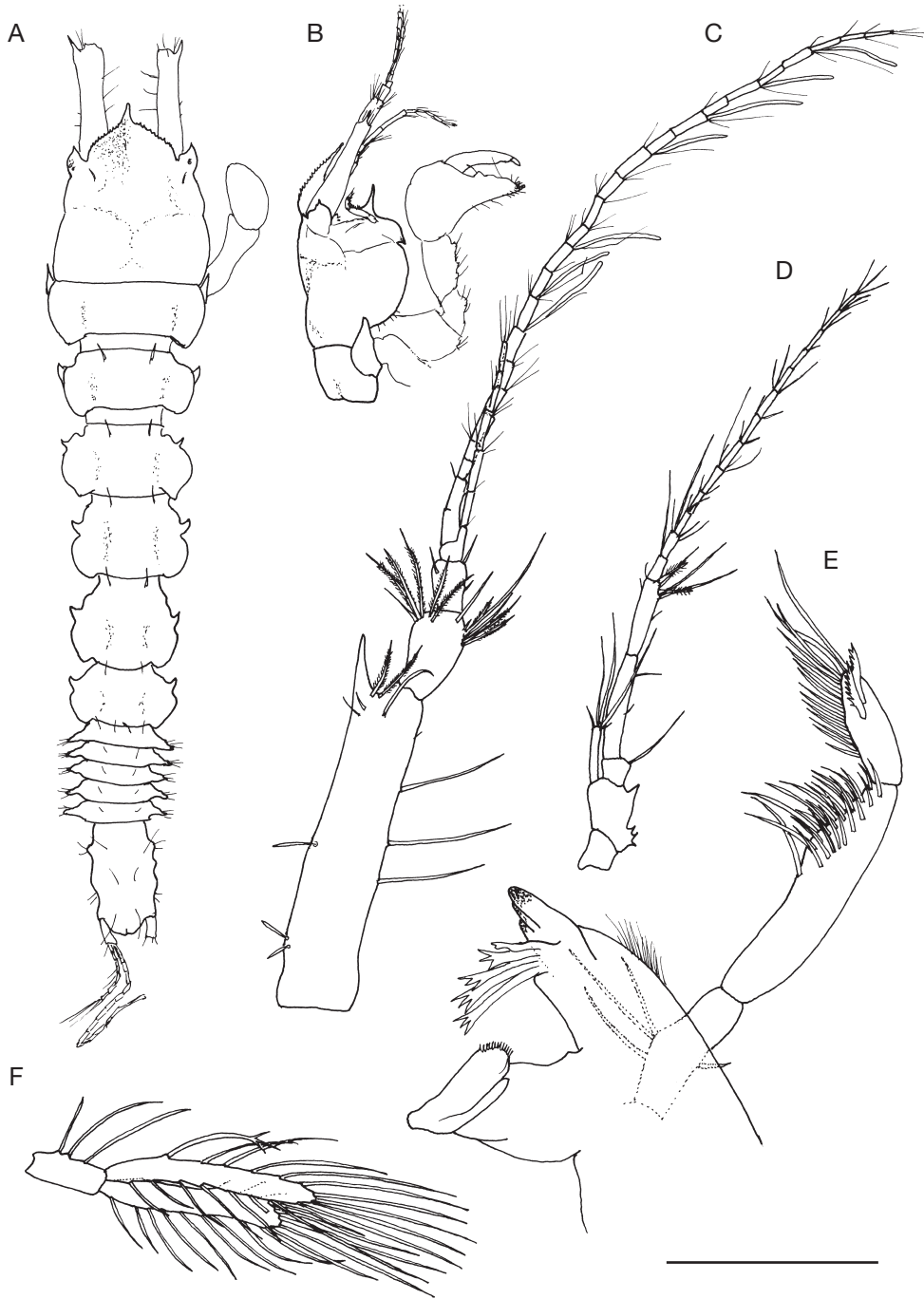


FIG. 1. — *Aapseudes batillus* n. sp.: **A**, holotype σ , dorsal; **B**, cephalon, lateral; **C**, antennule; **D**, antenna; **E**, left mandible; **F**, pleopod. Scale bar: A, B, 2 mm; C, D, F, 0.6 mm; E, 0.3 mm.

New Caledonia, BIOCAL, stn DW 44, 22°47.35'S, 167°14.50'E-23°47.34'S, 167°14.80'E, 440-450 m depth, 30.VIII.1985, 2 ♀♀ (1 dissected) (MNHN-Ta920); 1 subadult ♀ (NHM.2005.2713). — Stn DW 77, 22°15.32'S, 167°15.40'E-22°15.65'S, 167°15.49'E, 440 m depth, 5.IX.1985, 1 ♂ (NHM.222005.2714).

TYPE LOCALITY. — Off Île des Pins, New Caledonia, 22°52.7'S, 167°23'E.

ETYMOLOGY. — From the Latin "*batillus*", a shovel, alluding to the shape of the rostrum.

DESCRIPTION

Female

Body morphology as male (Fig. 1A), dorsoventrally flattened, holotype 7.9 mm long (tip of rostrum to posterior of pleotelson), 5.3 times as long as wide, tapering towards posterior. Cephalothorax subrectangular, 1.14 times as long as wide, with pronounced, dorsally concave ("shovel-like"), pointed rostrum with finely serrated lateral margins, tip pointing down below eye-lobes (Fig. 1B); eyelobes with anterior spinous apophysis, sparse ocelli present, unpigmented in preserved material. Six free pereonites; pereonites 1 and 6 shortest, subequal, about 1/3 as long as cephalothorax, pereonites 2 to 5 each longer than previous pereonite, pereonite 5 about 1.7 times as long as pereonite 1 (all pereonites respectively 3.1, 2.0, 1.8, 1.6, 1.2 and 1.9 times as wide as long); pereonites 1 and 2 laterally smoothly convex, pereonites 3 to 6 with anterolateral hook-like apophysis creating a midlateral indentation, posteriorly smoothly convex. Pleon 3.7 times as long as pereonite 6, of five free subequal pleonites bearing pleopods, each extended laterally into a spinous apophysis bearing setae; pleonites 5.5 times as wide as long, with four (pleonite 1) or two anterodorsal setae. Pleotelson rectangular, elongate, more than half length of pleon, nearly twice as long as wide, with antero- and mid-lateral bulges and stepped at insertion of uropods; sparse lateral setae, pairs of dorsal setae level with lateral swellings and uropod insertions.

Antennule (Fig. 1C) proximal peduncle article 4.5 times as long as wide, with three inner setae longer than article width, and conspicuous pointed distal apophysis with adjacent plumose and simple setae as figured; second article nearly twice as long

as wide, less than one third length of first and bearing groups of inner and outer plumose distal setae; third article half length of second, nearly twice as long as wide; fourth peduncle article shorter than third, wider than long. Main flagellum of 23 segments, single aesthetascs present on segments 7, 8, 10, 14, 16, 18 and 20; accessory flagellum of five segments.

Antenna (Fig. 1D) with simple, naked proximal peduncle article. Second article with inner and distal spine-like apophyses, and with elongate squama bearing three long and two short marginal setae. Third peduncle article shorter than wide with long inner seta; fourth article longest, as long as first three articles together, fifth article 3/4 as long as fourth. Flagellum of 13 segments.

Simply pointed epistome present (Fig. 1B). Labrum rounded, simple, setose. Left mandible (Fig. 1E) with strong, crenulate pars incisiva, insignificant lacinia mobilis, setiferous lobe with one bifurcate and four trifurcate setae, pars molaris stout, blunt with fine outer setation; palp of three articles, proximal article with three inner and one outer setae; second article twice as long as first with three rows of inner setae in its distal half; third article half length of second, with 15 inner setae increasing in length to distal pair, and two denticulate mesial spines dorsally. Right mandible as left but without lacinia mobilis. Labium (Fig. 2C) with setulose outer and inner margins, distally involuted, palp with outer serrations, fine lateral setules and three simple distal setae. Maxillule (Fig. 2A) inner endite with inner and outer apophyses, finely setose margins and five plumose distal setae, outer endite with ten distal spines and two subdistal setae, outer and inner margins finely setose, palp of two articles, distally with two long setae, subdistally with one short simple seta and four longer distally-setulose setae. Maxilla (Fig. 2B) typical of the genus, moveable endite virtually fused, fixed endite with bifurcate distal spines, other spines and setae simple, rostral row of 21 setae. Maxilliped (Fig. 2D) basis rounded, naked; first palp article with longer, plumose inner distal seta and simple outer seta; second palp article with inner margin bearing numerous shorter simple setae each about half length of sparser plumose setae, and simple outer distal seta; third palp article wider

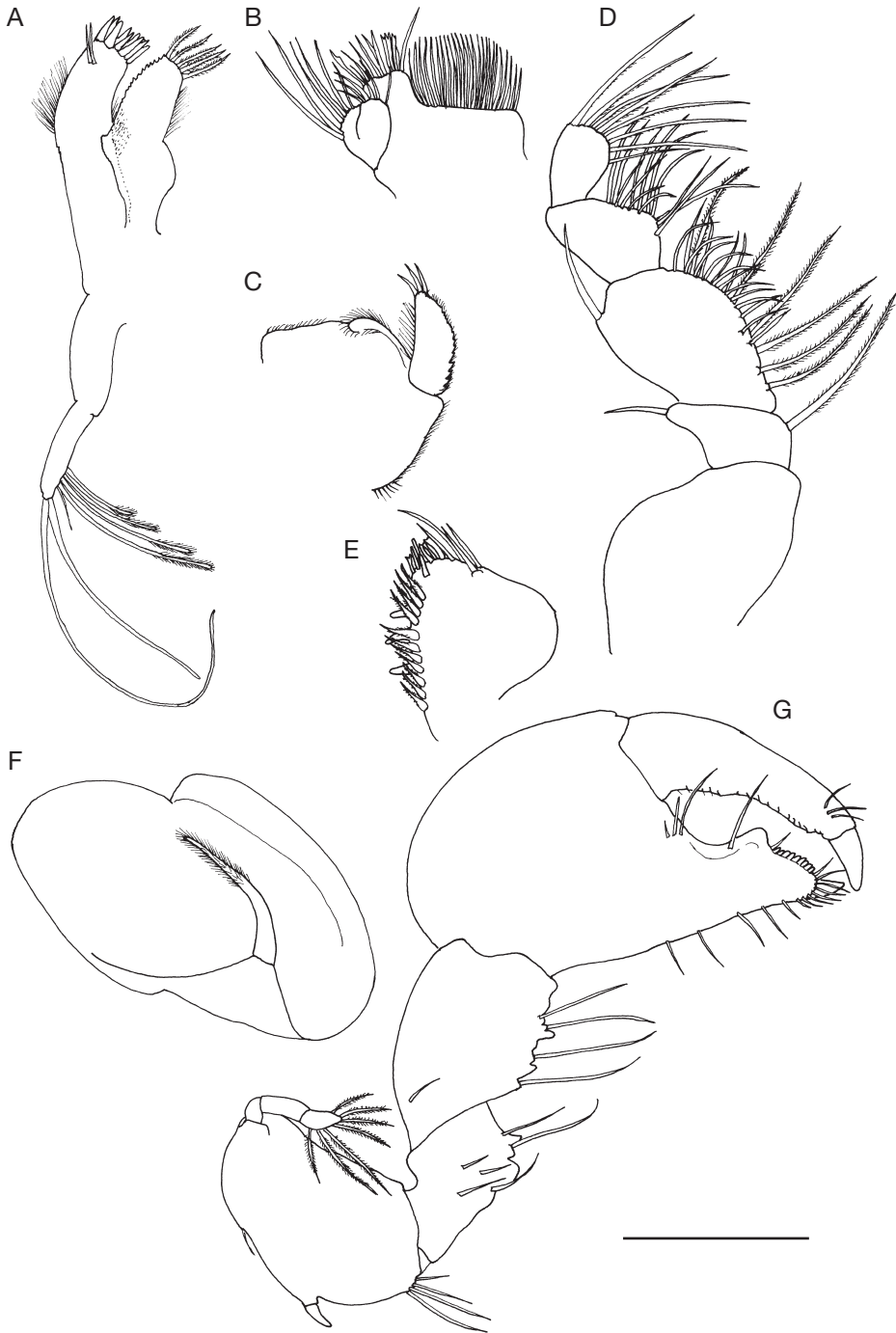


FIG. 2. — *Apseudes batillus* n. sp.: **A**, maxillule; **B**, maxilla; **C**, labium; **D**, maxilliped palp; **E**, maxilliped endite; **F**, epignath; **G**, right cheliped. Scale bar: A-F, 0.3 mm; G, 0.6 mm.

than long with densely setose inner-distal margin; fourth palp article with seven finely denticulate and one simple distal setae. Endite (Fig. 2E) with three coupling hooks, distally with outer simple and inner blunt setae, inner caudodistal seta simple, blunt. Epignath (Fig. 2F) large, cup-shaped, with prominent distally-setose spine.

Cheliped (Fig. 2G) compact, basis 1.5 times as long as wide, ventrally with fine proximal seta, stout central spine and row of four distal setae; three-articled exopodite present, distal article with seven plumose setae. Merus subrectangular, mid-ventrally with prominent tubercles and simple setae; carpus compact, about as long as wide, ventrally with blunt tubercles interspersed with simple setae. Chela stout, palm (propodus) just longer than wide; fixed finger with central tooth-like apophysis and small distal denticulations on cutting edge, and numerous distal and ventral setae; dactylus as long as palm, curved, with no apophyses on cutting edge.

Pereopod 1 (Fig. 3A) bearing pronounced coxal spine-like apophysis with two plumose distal setae; basis 2.9 times as long as wide, with small ventrodistal spine and one longer and one shorter seta; exopodite small, three-articled, distal article with eight plumose setae. Ischium with two ventrodistal setae. Merus wider distally, with smaller ventrodistal and longer dorsodistal spines, setose as figured. Carpus compact, shorter than merus, longer than wide, with two ventral and one dorsodistal spines; dorsodistal pair of setae and inner row of four smaller setae, three ventral marginal setae. Propodus with three ventral slender blunt spines interspersed with setae, middorsal and dorsodistal slender blunt spines amongst sparse setae, compound pectinate seta at base of dactylus. Dactylus stout, with fine ventral denticulations; unguis short, distinct.

Pereopod 2 (Fig. 3B) basis four times as long as wide, with fine dorsal and ventral marginal setae and longer plumose ventrodistal seta; ischium with smaller dorsal seta and two longer plumose ventrodistal setae; merus as long as carpus, with simple ventral setae, two plumose dorsodistal setae and ventrodistal slender blunt spine; carpus with six dorsodistal setae, and single ventrodistal blunt spine, small mesiodistal blunt spine, and smaller submarginal ventral spines; propodus slender, sparsely

setose, with row of five ventral spines, single dorso-distal spines and two smaller spines on anterior face; dactylus finely denticulate and with small dorsal seta, unguis distinct. Pereopod 3 (Fig. 3C) similar to pereopod 2, but carpus longer than merus, propodus with three ventral spines.

Pereopod 4 (Fig. 3D) basis stouter, three times as long as wide, with long ventrodistal seta; carpus nearly twice as long as merus and with three pairs of ventral spines and longer mesiodistal spine; propodus with distal crown of five setae, one as long as dactylus. Pereopod 5 (Fig. 3E) more slender than pereopod 4, basis with dorsal and ventral marginal plumose setae; carpus as long as merus and with four dorsal plumose setae, distal three grouped; merus with two anterior plumose setae; propodus with row of 12 short, fine spines distally. Pereopod 6 (Fig. 3F) with marginal plumose setae dorsally on basis and single ventrodistal plumose seta; fine ventral setae short and simple; merus with single dorsal plumose seta; carpus with three dorsal plumose setae; propodus ventral margin with row of some 11 small compound spines not extending to distal margin, dorsodistal group of two blunt spines and single seta.

Pleopods (Fig. 1F) all alike, basis with three inner plumose setae, outer margin naked; rami slender, endopod slightly longer than exopod, respectively with 17 and 15 marginal plumose setae, inner proximal seta of endopod with trifurcate tip.

Uropod biramous, basis with two outer and one inner distal setae; exopod three times as long as basis and of seven apparent segments, distal setae as long as exopod; endopod elongate, filiform, multisegmented, 2.5 times as long as pleotelson.

Male

Body length 7.0 mm, closely similar to female; ventral penial tubercle on pereonite 6 pointed and directed ventrally. Cheliped carpus with more prominent, pointed apophyses on ventral margin.

REMARKS

Despite the number of inappropriate species which have been attributed to the genus in the past, there are few species of *Apeudes* recorded from Pacific waters. *Apeudes spectabilis* Studer, 1883 is known from



FIG. 3. — *Apseudes batillus* n. sp.: A-F, pereopods 1-6 respectively. Scale bar: 0.6 mm.

Japan and the Subantarctic at depths of 13–387 m. *A. tropicalis* Miller, 1940 was recorded from Hawaii (?littoral), while *A. vitjazi* Kudinova-Pasternak, 1970 is a deep North Pacific species, recorded from 5050–5095 m. Shiino (1963) described two new species from Vietnam, *A. nhatrangensis* Shiino, 1963 (38–43 m) and *A. nageae* Shiino, 1963 (Vietnam and Brunei, ?littoral to 60 m).

None of these species has the scooped, down-curving rostrum nor the spinose apophysis on antennule peduncle article 1. Down-curving rostra are not unusual in *Apseudes* species (e.g., *A. spinosus* (M. Sars, 1858)), but these do not have the uniform concavity of the present species. Conversely, spine-like apophyses on the antennule peduncle are hardly recorded: *Hoplomachus propinquus* (Richardson, 1903), a species moved from *Apseudes* by Guțu (2002), has a similar apophysis, but also has others along the interior margin of the same article, and a number of other features which caused Guțu to reassign its generic status, but which do not occur in *A. batillus* n. sp.

Apseudes corioliis n. sp.
(Figs 4; 5)

TYPE MATERIAL. — Holotype: New Caledonia, BIO-GEOCAL, N.O. *Corioliis*, 21°29.15'S, 166°26.59'E, 1520 m depth, stn KG 240, 14.IV.1987, 1 ♂ (MNHN-Ta921).

Paratype: New Caledonia, CALSUB, stn PL 13, *Cyana* dive 1028/34, 21°26'S, 166°22.7'E, 1807–1587 m depth, 4.III.1989, coll. M. Segonzac, 1 juvenile (MNHN-Ta922).

TYPE LOCALITY. — Off New Caledonia, 21°29.15'S, 166°26.59'E.

ETYMOLOGY. — Named after the cruise ship N.O. *Corioliis* which collected the holotype (noun in apposition).

DESCRIPTION

Body slender (Fig. 4A), 6.8 mm long, 7 times as long as wide, cephalothorax subtriangular, without preorbital spines, ocular lobes present, without spinous apophyses, no pigmented eyes in preserved material, conspicuous sharp rostrum. Six free pereonites; pereonite 1 shortest, with convex anterolateral margins, without apophyses; pereonites

2 to 5 gradually increasing in length, pereonite 6 shorter than pereonite 3; these five pereonites with anterolateral spine-like apophysis and convex posterior corner at attachment of pereopod coxae. Five free subequal pereonites, each with lateral setose, spine-like apophyses, each bearing pair of pleopods; elongate pleotelson 1.5 times as long as wide, stepped slightly at insertion of uropods, and with paired distal setae. Hyposphenia present as pointed, posteriorly directed processes ventrally on pereonites 3 and 5 and pleonites 1, 2 (smaller), 4 and 5; penial tubercle present mid-ventrally on pereonite 6.

Antennule (Fig. 4B) proximal peduncle article slender, 7.6 times as long as wide, with sparse, simple setae; second article 1/4 as long as first with five simple distal setae; third article as long as second; fourth as long as wide; main flagellum of 11 segments, with single aesthetasc present on each of segments 1 to 6 and 8; accessory flagellum of two segments.

Antenna (Fig. 4C) proximal peduncle article short, simple; second article four times as long as wide, with tiny distal squama (shorter than third article) bearing single distal seta; third article 1/4 length of second, fourth and fifth articles subequal, 1.3 times as long as second; flagellum of five segments.

Simply pointed epistome present; labrum lost in preparation. Right mandible (Fig. 4D) with crenulate pars incisiva, slender lacinia mobilis similar to compound setae on setiferous lobe; pars molaris robust, blunt; palp of three articles, first article with simple inner seta, second article longest with paired simple setae along distal half of inner margin, distal article with seven short and two longer distal setae. Left mandible similar to right mandible, but lacinia mobilis larger with crenulate distal margin (Fig. 4E). Maxillule (Fig. 4G) outer endite with ten distal spines and two subdistal setae, inner endite without apophyses, with four simple distal setae; palp of two articles with five simple, distal setae. Maxilla (Fig. 4F) generally with simple distal setae and spines, fixed endite with bifurcate distal spines, rostral row of 24 simple setae sheltering two longer, bilaterally denticulate setae. Labium (Fig. 4H) with denticulate outer margin, palp finely setose with two larger distal setae. Maxilliped (Fig. 5A) basis

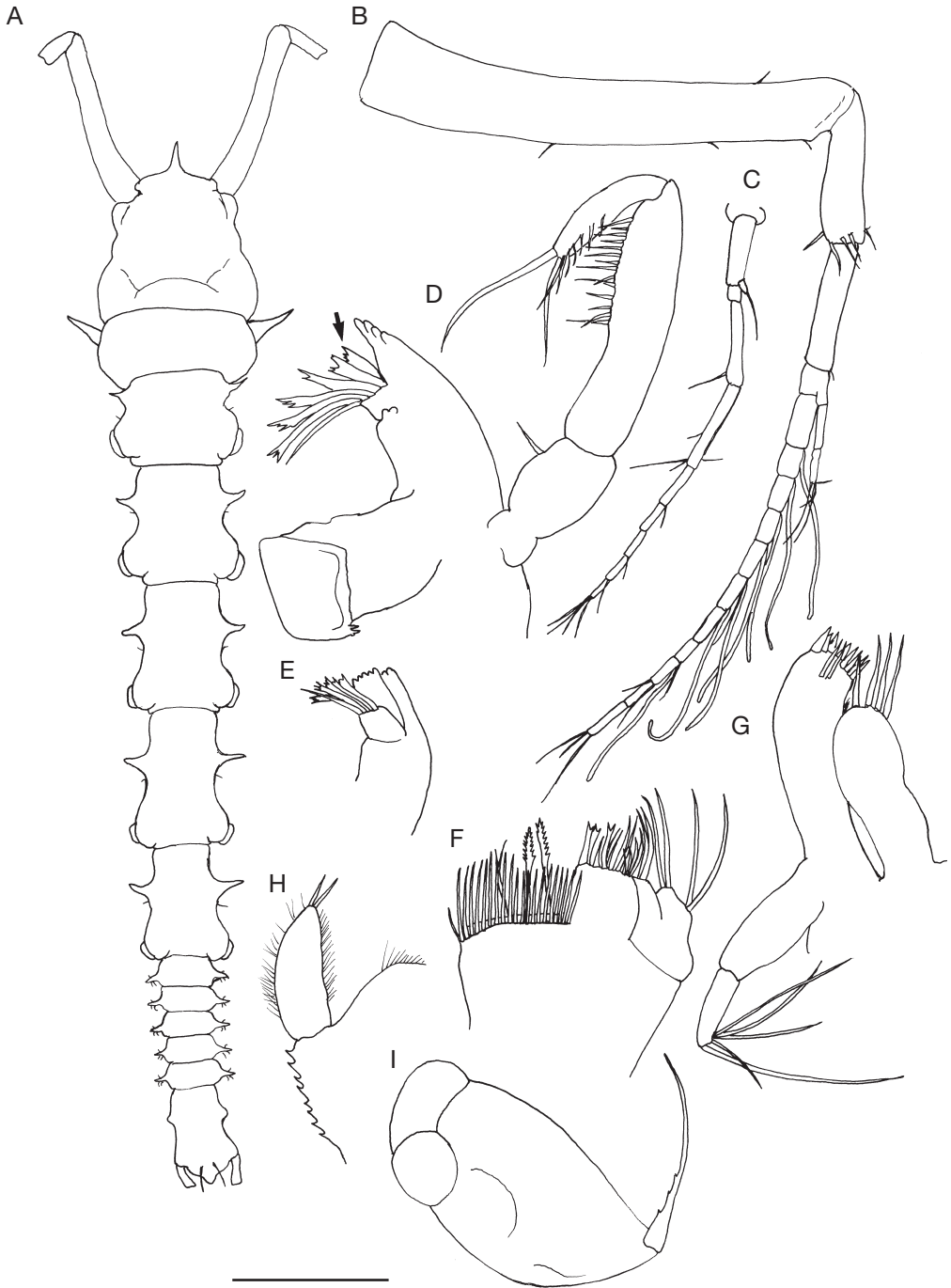


FIG. 4. — *Apsuedes coriolis* n. sp., ♂: **A**, body, dorsal; **B**, antennule; **C**, antenna; **D**, right mandible (lacinia mobilis arrowed); **E**, distal detail of incisor of left mandible; **F**, maxilla; **G**, maxillule; **H**, labium; **I**, epignath. (**E** and **I** from paratype). Scale bar: **A**, 1.0 mm; **B**, **C**, 0.3 mm; **D**-**I**, 0.1 mm.

simple with inner distal seta; proximal palp article with short outer distal seta and longer inner distal seta exceeding tip of second article; second article with single outer distal seta and two rows of simple inner setae; third article with five simple setae in distal half on inner apophysis; fourth article with seven simple distal setae. Endite with three coupling hooks, inner caudodistal seta simple, slender; inner distal setae short, square, outer distal setae slender. Epignath (Fig. 4I) large, typical of the genus, with slender distal spine bearing some corrugations in proximal half.

Cheliped (Fig. 5B) basis with small proximal ventral seta, conspicuous mid-ventral spine-like apophysis and elongate subdistal simple seta; merus subrectangular with ventrodistal pair of simple setae; carpus longer than basis, three times as long as wide, with three longer and one distal shorter ventral setae, and single mesiodistal seta. Chela fingers longer than palm, propodus fixed finger with three ventral setae forming a “crown” with paired distal and three inner setae, cutting edge with fine denticulation distally, and large tooth-like apophysis proximally; dactylus longer than fixed-finger, with distal crenulations on cutting edge and larger tooth-like apophysis proximally. Exopodite present with three distal setae.

Pereopod 1 (Fig. 5C) coxa with prominent, pointed spine-like apophysis; basis 3.4 times as long as wide, with stout ventrodistal spine and with small three-articled exopodite bearing four plumose distal setae; ischium with single ventrodistal seta; merus longer than carpus, with outer midlateral group of three longer setae, three ventral and two small dorsodistal setae, and robust ventrodistal spine; carpus with two spines mid-ventrally and one ventrodistally interspersed with simple setae as figured, dorsodistal spine with three adjacent setae; propodus with three ventral and two dorsal spines, single simple seta adjacent to each of latter pair and one adjacent to dactylus, and compound, bilaterally denticulate seta at base of dactylus; dactylus with two large, ventral denticulations, unguis distinct.

Pereopod 2 (Fig. 5D) basis slender, 6.5 times as long as wide, naked; ischium naked; merus nearly three times as long as ischium, with single ventrodistal seta; carpus slender, twice as long as merus,

with two ventral and four distal simple setae; propodus shorter than carpus, with paired ventroproximal setae, and single mid-ventral and ventrodistal setae, and three dorsodistal setae; dactylus longer than unguis, both slender, together longer than propodus. Pereopod 3 as pereopod 2.

Pereopod 4 (Fig. 5E) similar to pereopod 2, but basis with two small, simple ventroproximal setae, merus just more than twice as long as ischium and with two distal setae, propodus with middorsal plumose sensory seta and distal crown of five longer outer and three shorter inner simple setae. Pereopod 5 as pereopod 4 but basis naked, propodus with only four distal setae. Pereopod 6 (Fig. 5F) similar to pereopod 4, but basis with single dorsoproximal plumose sensory seta, merus expanding distally, with two distal setae, carpus sparsely setose, propodus distally with row of 12 fine leaf-like spines and three simple distal setae.

Pleopods (Fig. 5G) all similar, highly reduced; basis slender, naked; rami slender, as long as basis, almost naked, bearing only a single distal plumose seta three times length of ramus. Uropods missing, detached.

REMARKS

With a conspicuous spine-like apophysis on the first coxa and a “normal” caudo-distal spine on the maxilliped endite, *Apseudes coriolis* n. sp. accords comfortably with the characters of the genus *Apseudes*. It also has a number of features unusual for the genus, particularly the highly reduced antennal squama and pleopods, and also the generally simple setation throughout. Reduced pleopods are a feature of *Langapseudes tuberculatus* (Lang, 1968), removed from *Apseudes* by Băcescu (1987): in that species the pleopod rami are much shorter than the basis (1/4 or less as long); in addition, there are multiple aesthetascs on the antennule segments, and there are differences in the pereonite and pleonite conformation (*inter alia*); *L. tuberculatus* has a “normally-developed” antennal squama.

Despite the lack of leaf-like inner caudodistal seta on the maxilliped endite, the present species has the appearance of a *Leviapseudes*, with gross similarity to, for example, *L. gracillimus* (Hansen, 1913). In this vicinity, only Nierstrasz (1913)

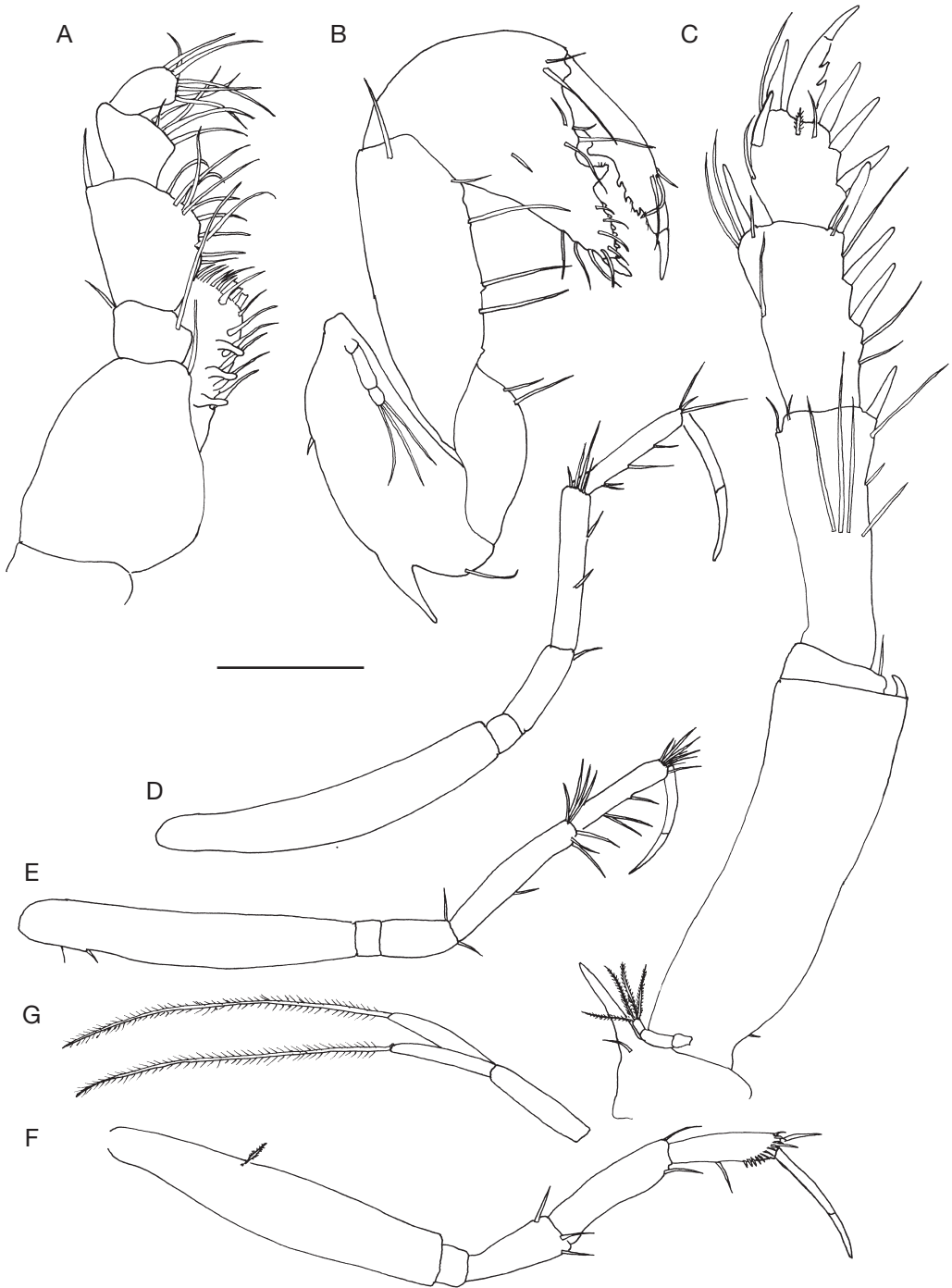


FIG. 5. — *Apseudes coriolis* n. sp.: **A**, maxilliped; **B**, right cheliped; **C-F**, pereopods 1, 2, 4 and 6 respectively; **G**, third pleopod. Scale bar: A, 0.1 mm; B-F, 0.3 mm; G, 0.15 mm.

described *Leviapseudes* species (as *Apseudes*), viz. *L. sibogae* and *L. weberi*, both from Indonesia at > 1500 m depth; the present specimen shows some affinities to these. The only other Pacific record is of *L. zenkevitchi* (Kudinova-Pasternak, 1966), from the North Pacific at 1067–6065 m depth. None of these species have the pleopod, squama, or reduced setation characters of *A. coriolis* n. sp.

While in some ways the present species could be associated with any of these three genera, it has a number of clear distinctions from them all, which even in combination are not considered sufficient to warrant erection of a new genus.

Genus *Atlantapseudes* Băcescu, 1978

Atlantapseudes cyanea n. sp.

(Figs 6; 7)

TYPE MATERIAL. — Holotype: New Caledonia, CALSUB, stn PL 13, *Cyana* dive 1028/34, 21°26'S, 166°22.7'E, 1807–1567 m depth, 4.III.1989, coll. M. Segonzac, ♀ with oostegites (MNHN-Ta923).

Paratypes: same data as holotype, 1 subadult ♂ (MNHN-Ta924). — New Caledonia, BIOGEOCAL, stn KG 210, N.O. *Coriolis*, 22°44.00'S, 166°30.97'E, 1190 m depth, 9.IV.1987, 1 ♂, 2 juveniles (MNHN-Ta925).

TYPE LOCALITY. — Off New Caledonia, 21°26'S, 166°22.7'E.

ETYMOLOGY. — Name derived from that of the submersible *Cyana* which was responsible for its collection (noun in apposition).

DESCRIPTION

Body (Fig. 6A), dorsoventrally flattened, holotype 9.3 mm long (tip of rostrum to posterior of pleotelson), 4.9 times as long as wide, tapering towards posterior. Cephalothorax subrectangular, 0.9 times as long as wide, with small, pointed rostrum with lateral shoulders; eyelobes with anterior spinous apophysis, ocelli apparently absent; one lateral cephalothorax spine behind each eyelobe preceded by short seta. Six free pereonites; pereonites 1 shortest, about 1/4 as long as cephalothorax, pereonites 2 to 4 each longer than previous pereonite, pereonite 4 about three times as long as pereonite 1, pereonite 5 just shorter than pereonite 4, pereonite 6 just shorter than

pereonite 3 (all pereonites respectively 4.5, 2.5, 1.8, 1.2, 1.3 and 1.7 times as wide as long); pereonites 1 and 2 laterally smoothly convex, without spines or apophyses; pereonites 3 to 6 with anterolateral spine-like apophysis, a midlateral indentation, posteriorly smoothly convex. Pleon three times as long as pereonite 6, of five free subequal pleonites, each extended laterally into a spinous apophysis bearing setae; pleonites three times as wide as long; female without pleopods, subadult male with pleopod rudiments on pleonite 1. Pleotelson rectangular, elongate, more than half length of pleon, 1.1 times as long as wide, stepped at insertion of uropods, naked.

Antennule (Fig. 6B) proximal peduncle article four times as long as wide, with single inner seta, midlateral outer plumose sensory seta and two simple setae distal of this; second article twice as long as wide, less than half length of first, with outer distal seta exceeding peduncle tip and adjacent plumose sensory seta, inner distal seta as long as article width; third article 0.3 times length of second, wider than long; fourth peduncle article as long as third, wider than long. Main flagellum of seven segments, first segment as long as any two distal segments, distal article with two aesthetascs; accessory flagellum of three segments.

Antenna (Fig. 6C) with simple, naked proximal peduncle article. Second article with inner and proximal setae, and with elongate squama, as long as peduncle article 4, bearing two long distal setae. Third peduncle article shorter than wide with single inner distal seta; fourth article longer than second, with inner distal plumose sensory seta as long as article; fifth article longest, 1.25 times as long as fourth, with simple inner, outer and distal setae and three longer distal plumose sensory setae. Flagellum of six segments.

Simply pointed epistome present. Labrum (Fig. 6D) square, simple, setose. Left mandible (Fig. 6E) with strong, crenulate pars incisiva, stout lacinia mobilis with four denticles, setiferous lobe setulose and with seven simple setae, pars molaris stout, blunt, distally with delicate marginal teeth and plumose setae on posterior edge (Fig. 6F); palp of three articles, proximal article with one inner seta; second article 0.6 times the length of the whole palp, with five simple inner distal setae; third article as long as

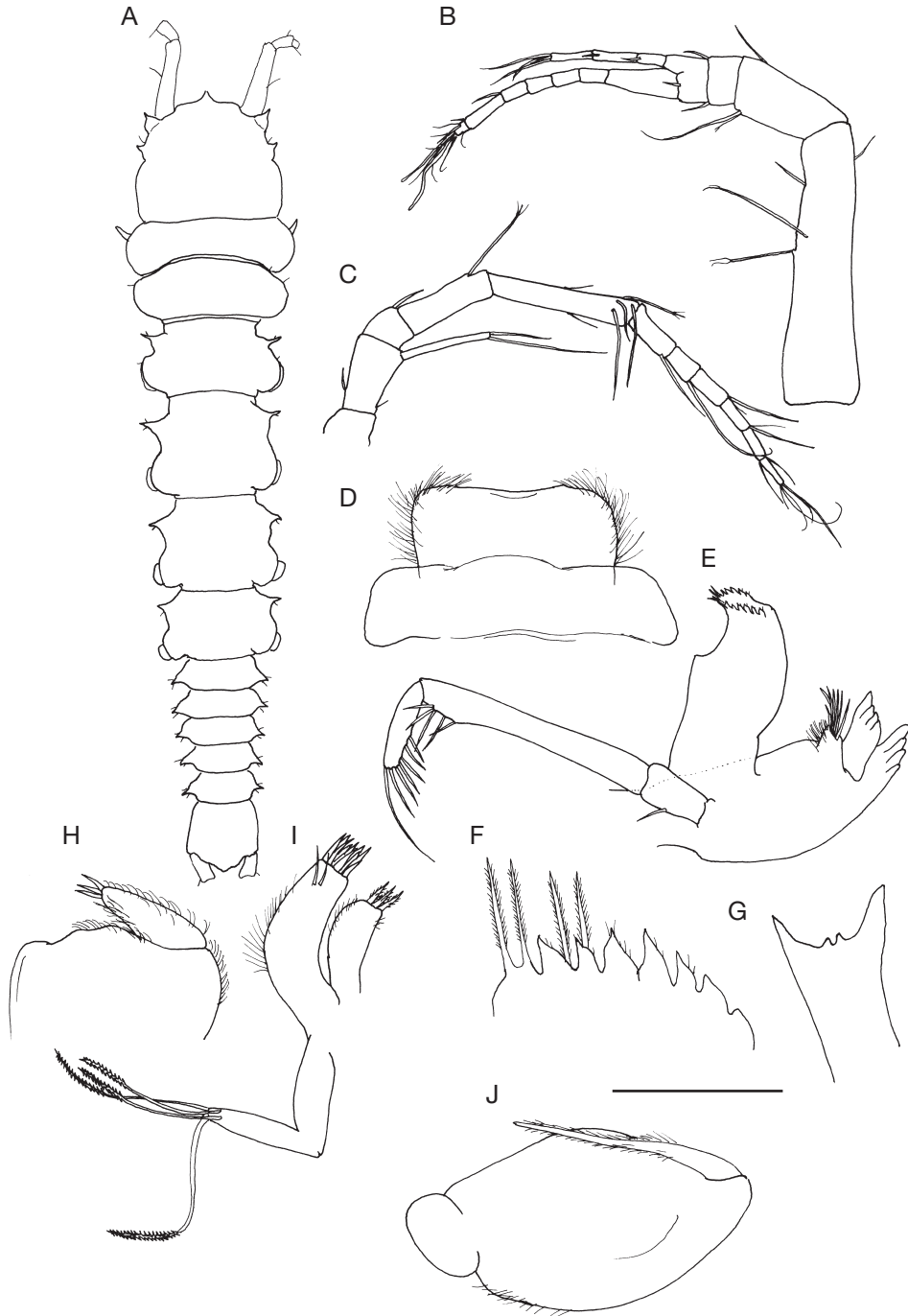


FIG. 6. — *Atlantapseudes cyanea* n. sp.: **A**, holotype ♀, dorsal; **B**, antennule; **C**, antenna; **D**, labrum; **E**, left mandible; **F**, detail of margin of molar process of left mandible; **G**, lacinia mobilis of right mandible; **H**, labium; **I**, maxillule; **J**, epignath. Scale bar: A, 2 mm; B, C, 0.6 mm; D-J, 0.3 mm.

first, with six inner finely-denticulate setae in the distal half, increasing in length to distal simple seta. Right mandible as left but lacinia mobilis smaller (Fig. 6G). Labium (Fig. 6H) with setulose outer and inner margins, palp slender with fine lateral setules and three simple distal setae. Maxillule (Fig. 6I) inner endite without apophyses, finely setose margins and three plumose distal setae; outer endite with ten distal spines and one subdistal seta, outer margin finely setose; palp of two articles, distally with four long setae, each biserrate in distal third, serrations oriented proximally and distally on opposite sides. Maxilla not recovered. Maxilliped (Fig. 7A) basis simple, naked; first palp article with single simple inner and outer distal setae; second palp article with inner margin bearing seven simple setae, upper face with two simple subdistal setae, and simple outer distal seta; third palp article longer than wide with 12 setae along inner margin; fourth palp article with nine longer and one shorter simple distal setae. Endite with two coupling hooks, distally with outer simple tapering setae, two inner distal plumose setae, three marginal plumose setae. Epignath (Fig. 6J) large, cup-shaped, with prominent distally-setose spine.

Cheliped similar in conformation to that of *Atlantapseudos lindae* Meyer & Heard, 1989, basis 2.5 times as long as wide, proximally with blunt apophysis, ventrally with central spine; exopodite absent. Merus subrectangular, naked, mid-ventrally with prominent tubercle; carpus 2.5 times as long as wide, ventrally with blunt proximal tubercle and single central and distal setae, dorsally with small proximal seta only. Chela (Fig. 7B) slender, palm (propodus) 0.6 times as long as wide, fingers longer than palm; fixed finger with single ventral seta, small proximal denticulations on cutting edge and slender terminal claw; dactylus just longer than fixed finger, curved, with small proximal denticulations but no apophyses on cutting edge, terminal claw longer; no black pigment apparent (in preserved material).

Pereopod 1 (Fig. 7C) bearing slender coxal spine-like apophysis with two distal setae; basis nearly six times as long as wide, sparsely setose as figured, exopodite absent. Ischium with one ventrodiscal seta. Merus wider distally, with finely denticulate ventrodiscal spine, marginal ventral setae and tuft of five dorsodistal setae. Carpus shorter than merus,

nearly twice as long as wide, with two ventral and one dorsodistal finely denticulate spines; dorsal and ventral margins with 11 and four simple setae respectively. Propodus with four ventral spines, distal-most being finely denticulate, and middorsal and dorsodistal finely denticulate spines; single longer seta between these last two, single dorsoproximal seta and paired ventrodiscal setae. Dactylus stout, with four ventral denticulations and two fine dorso-proximal setae; unguis distinct.

Pereopod 2 (Fig. 7D) basis almost six times as long as wide, with sparse marginal setae and paired longer ventrodiscal seta; ischium with single ventrodiscal seta; merus longer than carpus, with simple ventral setae and row of four dorsodistal setae; carpus with numerous ventral and dorsal marginal setae, six dorsodistal setae, and single posterodistal short spine; propodus slender, as long as carpus, with row of six ventral setae, six dorsal marginal setae and tuft of six dorsodistal setae, and three small spines along the posterior face; dactylus finely denticulate and with single small dorsal and ventral setae, unguis distinct. Pereopod 3 (Fig. 7E) similar to pereopod 2, but basis with single ventrodiscal seta, propodus without posterior spines.

Pereopod 4 similar to pereopod 5, basis stouter than anterior pereopods, five times as long as wide, without ventrodiscal seta; merus and carpus subequal; dactylus and unguis of right leg of holotype distorted into pseudo-claw (presumed damaged); that of left leg normal. Pereopod 5 (Fig. 7F) basis with simple marginal setae in proximal half; merus shorter than carpus and with one ventrodiscal seta; carpus with two ventral spines in distal half and three distal setae; propodus with two ventral spines in distal half and tuft of five distal setae; dactylus slender with fine paired dorsal setae, unguis distinct. Pereopod 6 (Fig. 7G) as pereopod 5, but carpus without ventrodiscal spine, propodus (Fig. 7H) with single mid-ventral spine and posterodistal row of ten small spines not extending to distal margin, dorsodistal group of two short and two longer setae, the latter exceeding tip of unguis.

Pleopods absent in female; only rudimentary first pair present in subadult male.

Uropod missing in holotype; that of paratype biramous, basis with one outer distal seta; exopod



FIG. 7. — *Atlantapseudes cyanea* n. sp.: **A**, maxilliped and endite; **B**, chela; **C-G**, pereopods 1-3, 5 and 6 respectively; **H**, distal articles of pereopod 6. Scale bar: A, 0.3 mm; B-G, 0.6 mm; H, 0.15 mm.

longer than basis and of one proximal short segment and three further slender segments, distal segment with four terminal setae; endopod elongate, filiform, multisegmented, longer than pleon plus pereonite 6.

Male closely similar to female, but with pronounced penial tubercle mid-ventrally on pereonite 6.

REMARKS

Of the three described species of *Atlantapseudes* (see Guțu 1996b), *A. diversus* (Lang, 1968) is distinct in having an exopodite on the cheliped (*inter alia*); both *A. diversus* and *A. lindae* Meyer & Heard, 1989 (q.v.) have an antennal squama shorter than the third antennal peduncle article, and the latter has only small anterolateral tubercles on the pereonites.

In most respects, *A. cyanea* n. sp. is closest to the type species of the genus, *A. nigrichela* Băcescu, 1978, taken off Portugal in 740 to 1250 m depth. Both have an antennal squama as long as the fourth antennal peduncle article (about 3.5 times the length of the third peduncle article). However, the new species has less spination of the carapace, and is without the prominent anterolateral spine-like apophysis on pereonite 2 present in *A. nigrichela* (Băcescu [1978] figured and described such an apophysis also on pereonite 1, but this would have been the coxal apophysis of pereopod 1); other distinguishing features include the shorter labial palp, the more numerous chela-fixed-finger ventral setae, and the lack of distal setal row on the pereopod 6 propodus in *A. nigrichela*.

The unusual proximal blunt apophysis on the cheliped basis of three of these species may be the remains of the exopodite: this apophysis is absent in *A. diversus* which has an exopodite.

Family PAGURAPSEUDIDAE Lang, 1970
Subfamily HODOMETRICINAE Guțu, 1981
Genus *Indoapseudes* Băcescu, 1976

Indoapseudes choristhema n. sp.
(Figs 8; 9)

TYPE MATERIAL. — Holotype: New Caledonia, S to SW of Île des Pins, CALSUB, stn PL 19, *Cyana* dive 1034/40,

22°46'S, 167°20'E, 416-404 m depth, 10.III.1989, coll. M. Segonzac, ♀ with oostegites (MNHN-Ta926).

Paratypes: same data as holotype, 1 manca, paratype (MNHN-Ta927). — New Caledonia, between Lifou and Ouvéa, CALSUB, stn PL 15, *Cyana* dive 1030/36, 20°37.1'S, 166°58'E, 545-317 m depth, 6.III.1989, coll. A. Guille, 1 manca (MNHN-Ta928). — New Caledonia, BIOGEOCAL, stn DW 44, N.O. *Charcot*, 22°47.35'S, 167°14.50'E-23°47.34'S, 167°14.80'E, 440-450 m depth, 30.VIII.1985, 1 ♀ with oostegites, anterior fragment (dissected).

TYPE LOCALITY. — Off New Caledonia, 22°46'S, 167°20'E.

ETYMOLOGY. — From the Greek “*choris*”, without, and “*aisthima*”, feeling, with reference to the unique lack of antennal flagellum in this species.

DESCRIPTION

Female

Body (Fig. 8A) strongly calcified, typical of the genus, tapering from anterior to posterior; small, holotype 4.9 mm long. Cephalothorax subrectangular, naked, 1.1 times as long as wide, with concave anterior margin without rostrum; eyelobes present, eyes without pigment. Six free pereonites; pereonite 1 short with convex lateral margins; pereonites 2 and 3 progressively longer, with anterolateral spine-like apophyses; pereonite 4 longest (twice as long as pereonite 1) with paired anterolateral and posterolateral spine-like apophyses; pereonite 5 1.5 times as long as pereonite 1, with posterolateral spine-like apophyses; pereonite 6 as long as pereonite 1 with midlateral spine-like apophyses and further dorsolateral pair near anterior margin. Pleon of five free subequal pleonites each with four spine-like apophyses across dorsal surface. Pleotelson pentagonal, longer than all pleonites together, 2.6 times as long as wide with pair of distal setae.

Antennule (Fig. 8B) proximal peduncle article 4.6 times as long as wide, with numerous inner sharp (holotype) or rounded (paratype) apophyses, and smaller outer rounded apophyses in proximal half; outer distal corner extended into slender, rounded apophysis. Second article 0.15 times as long as first with distal crown of six simple setae; third article 1.2 times length of second, fourth article 1/3 length of second. Main flagellum of six segments subequal in length, distal segments narrower than proximal,

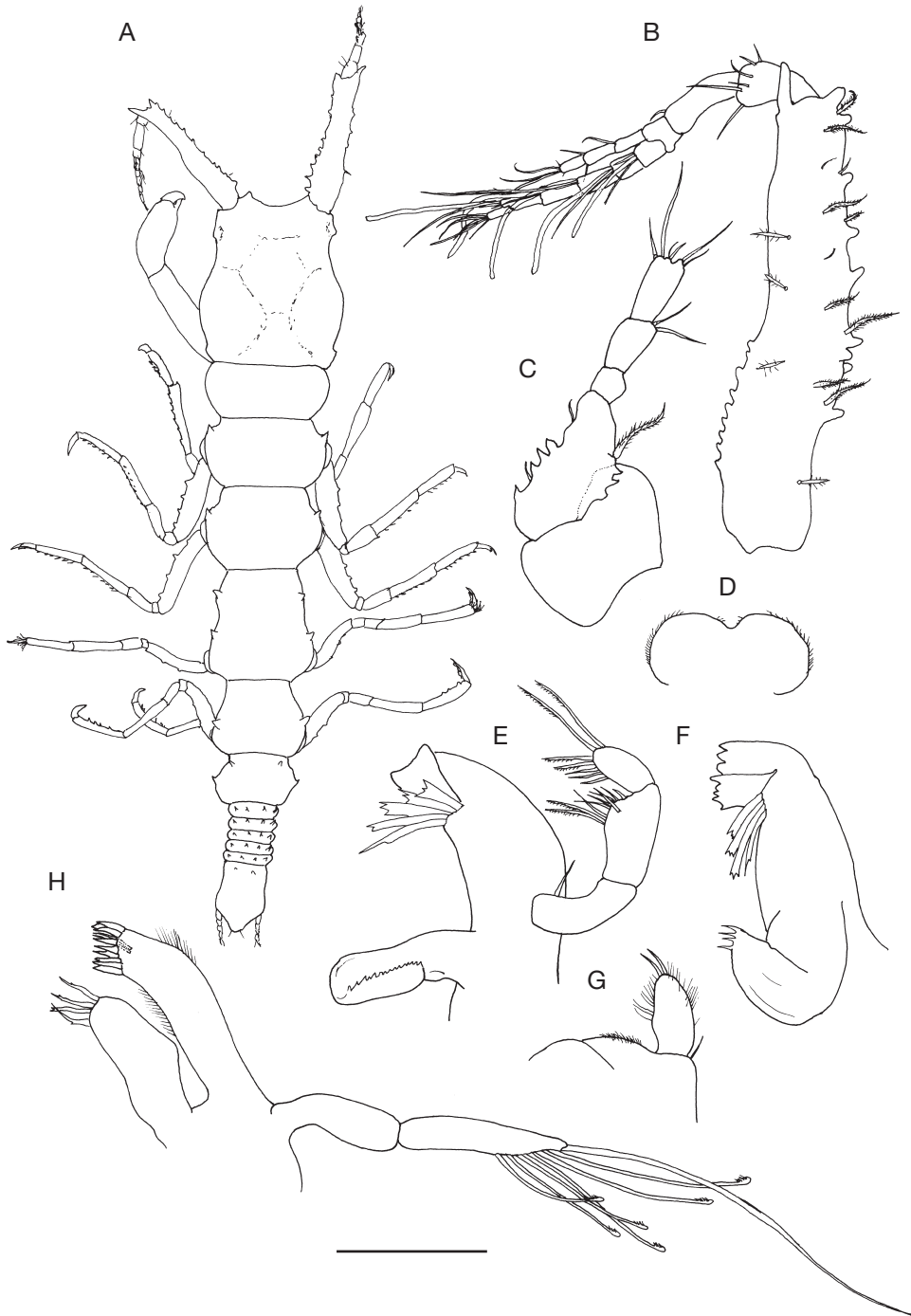


FIG. 8. — *Indoapseudes choristhema* n. sp.: **A**, holotype ♀, dorsal; **B**, left antennule; **C**, right antenna; **D**, labrum; **E**, right mandible; **F**, left mandible (palp not shown); **G**, labium; **H**, maxillule. Scale bar: A, 1 mm; B, C, 0.3 mm; D-H, 0.15 mm.

first five segments with single aesthetasc, distal segment with five distal setae; accessory flagellum of three segments.

Antenna (Fig. 8C) with five-articled peduncle; proximal article wide, rounded, naked; second article with inner and outer spine-like apophyses and single subdistal outer setulose seta; squama absent. Third article 1/5 as long as second, fourth article twice as long as third with paired outer setae; fifth article just longer than fourth with three longer and three shorter distal setae. Flagellum absent.

Labrum (Fig. 8D) bilobed, rounded, laterally setulose. Right mandible (Fig. 8E) with tricuspid pars incisiva, lacinia mobilis not denticulate, setiferous lobe with five setae, pars molaris slender, blunt but with finely denticulate margin; palp of three articles, proximal article with simple proximal seta, second article as long as first with two longer denticulate inner setae and distal group of seven simple setae, third article shorter, with three simple and two denticulate inner subdistal setae and two longer denticulate distal setae. Left mandible (Fig. 8F) as right but with denticulate lacinia mobilis and sparse distal spines on pars molaris. Labium (Fig. 8G) with smooth outer margin, palp with two distal setae. Maxillule (Fig. 8H) inner endite with four distal setae and slight outer apophysis, outer endite with 10 distal spines, inner and outer margin sparsely setose; palp of two articles, subdistally with six setae ending in setulose "club", longer distal seta simple. Maxilla (not figured) with rostral row of 23 setae and two inner simple spines; endites with simple setae. Maxilliped (Fig. 9A) with simple setae; basis naked, endite with simple outer distal setae and four stout inner spines, paired subdistal setae slender, elongate, simple; basis naked; palp proximal article with single outer distal seta; second article outer margin coarsely denticulate, inner margin with two parallel rows of eight setae; third article with inner apophysis bearing two rows of four setae; distal article with seven setae. Epignath (Fig. 9B) large, complex, cup-shaped, with setulose distal seta.

Cheliped (Fig. 9C) basis 2.5 times as long as wide, dorsal and ventral margins with spine-like apophyses including larger mid-ventral and ventrodiscal apophyses; exopodite absent (only one cheliped available); merus quadrangular, with ventrodiscal

denticulations, few setae; carpus slender, 3.7 times as long as wide, dorsodistal spine-like apophysis, whole ventral margin with fine, rounded denticulations; propodus slender, twice as long as wide, with short simple setae along ventral margin; fixed finger with finely crenulate cutting edge, longer simple proximal seta; moveable finger slender with fine crenulations along cutting edge.

Pereopods all similar to each other. Pereopod 1 (Fig. 9D) coxa with slight setose apophysis; basis slender, 5.5 times as long as wide, with row of rounded dorsal apophyses interspersed with fine, simple setae; ischium with single, fine mid-ventral seta; merus 0.3 times as long as basis, widening distally, sparsely setose as figured; carpus 1.6 times as long as merus, propodus 0.75 times as long as carpus; carpus and propodus bearing two ventral rows of triangular spines and simple dorsal setae as figured; propodus with dorsodistal spine and cluster of four setae, one being simple, three recurved and distally setulose. Dactylus stout with single inner and outer setae, unguis distinct, stout.

Pereopod 2 (Fig. 9E) as pereopod 1 but with two inner setae on dactylus, single simple distal seta on propodus. Pereopod 3 (Fig. 9F) as pereopod 2 but with two denticulate distal setae and mid-dorsal plumose sensory seta on propodus. Pereopod 4 (Fig. 9G) propodus with distal crown of six denticulate setae; pereopod 5 with only two, pereopod 6 (Fig. 9H) with three simple distal setae on propodus.

Pleopods absent.

Uropod endopods missing on all specimens. Exopod (Fig. 9I) of three segments, proximal segment shortest, distal segments subequal, distal segment with paired simple distal setae; basis with two outer setae.

Male

Unknown.

REMARKS

There are three species of *Indoapsendes* which have been described previously: *I. brycesoni* Băcescu, 1977, from Dar es salaam at 0-25 m depth (the type species of the genus), *I. secundus* Guțu, 1997 from the Celebes Sea at 6 m depth, and *I. macabre*

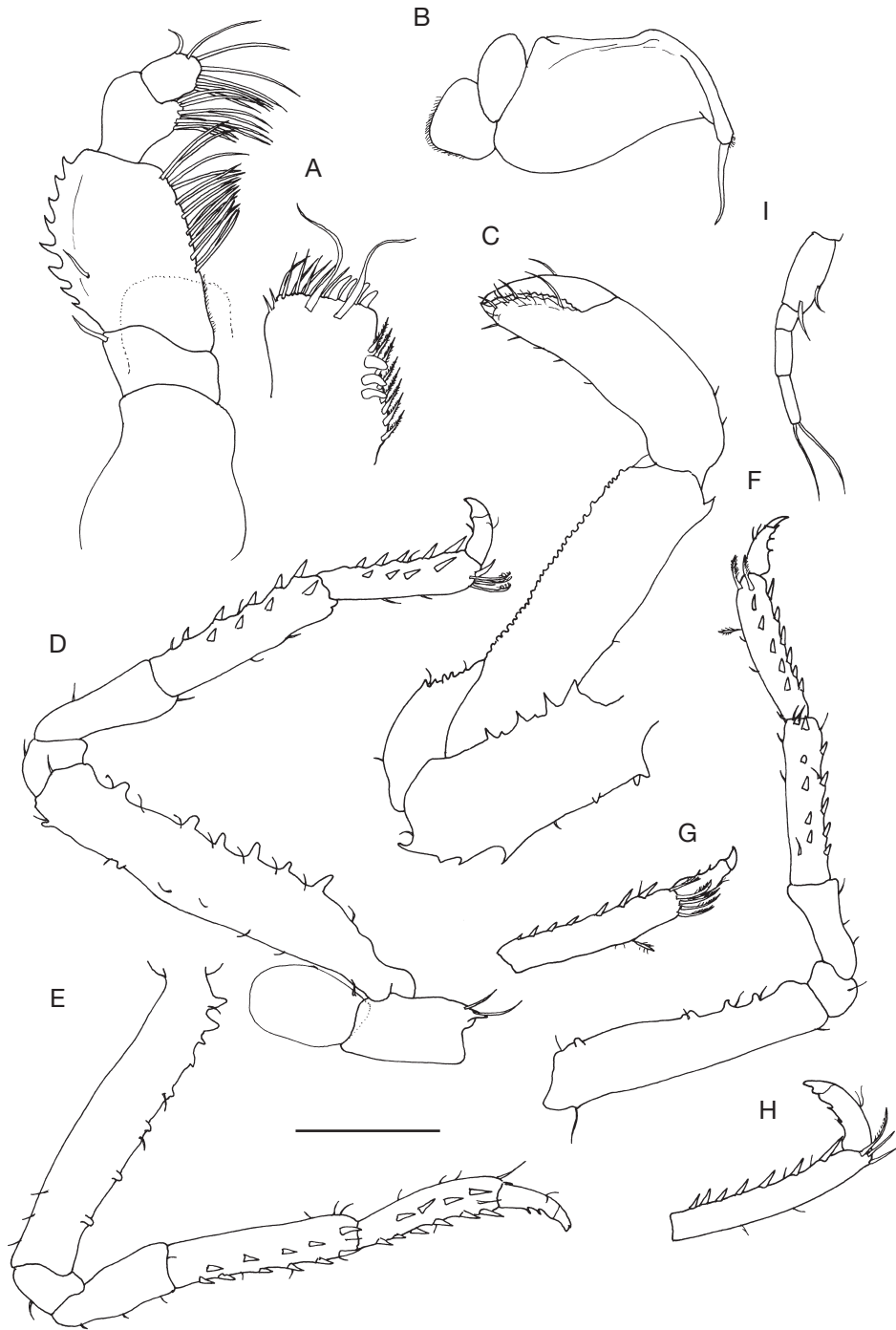


FIG. 9. — *Indoapseudes choristhema* n. sp.: **A**, maxilliped and endite; **B**, epignath; **C**, left cheliped (drawn *in situ*); **D-F**, pereopods 1 to 3 respectively; **G**, distal articles of pereopod 4; **H**, distal articles of pereopod 6; **I**, left uropod basis and exopodite. Scale bar: A, I, 0.15 mm; B, D-H, 0.3 mm; C, 0.4 mm.

Bamber, 2005 from Esperance Bay, SW Australia at 18 to 26 m depth. The latter two have a small, central pointed rostrum while *I. brycesoni* has a denticulate down-curved rostrum (Băcescu 1977); the present species has no rostrum. All three of the previous species have an exopodite on the cheliped, unlike *I. choristhema* n. sp.; further, *I. secundus* and *I. macabre* have a squama on the antenna (unlike *I. choristhema* n. sp.), and all three of the previously known species have an antennal flagellum. The lack of an antennal flagellum in *I. choristhema* n. sp. is particularly unusual not only for this genus but for any apseudomorph tanaidacean. While the present species, from 400 to 545 m depth, is by far the deepest of the species discovered so far, it is hard to interpret the reduced antenna as an adaptation to a deeper water habitat.

Subfamily PAGURAPSEUDINAE Guțu, 1981
Genus *Macrolabrum* Băcescu, 1976

Macrolabrum distonyx n. sp.
(Figs 10-12)

TYPE MATERIAL. — Holotype: New Caledonia, BIOCAL, stn DW 66, 24°55.43'S, 168°21.67'E-24°54.84'S, 168°21.99'E, 515-505 m depth, 3.IX.1985, ♀ (MNHN-Ta929).

Paratypes: same data as holotype, 1 brooding ♀ (dissected) in a gastropod shell. — New Caledonia, BIOCAL, stn DW 77, 22°15.32'S, 167°15.40'E-22°15.65'S, 167°15.49'E, 440 m depth, 5.IX.1985, 1 ♀, 2 specimens in gastropod shells (MNHN-Ta930); 1 brooding ♀ (NHM.2005.2715).

TYPE LOCALITY. — Off New Caledonia, 24°55.43'S, 168°21.67'E-24°54.84'S, 168°21.99'E.

ETYMOLOGY. — From the Greek “*di*”, two, and “*stonyx*”, any sharp point, with reference to the two spine-like apophyses on the proximal antennal peduncle articles.

DESCRIPTION

Female

Body (Fig. 10A) typical of a pagurapseudid, pleon skewed to the right and curved under pereon; small, holotype about 3.25 mm long. Cephalothorax (Fig. 10B) subrectangular, as long as wide, with pronounced triangular rostrum with denticulate

anterior margin, four lateral plumose dorsolateral setae behind on each side of cephalothorax, four pairs of simple setae middorsally; eyelobes conspicuous, eyes present, black. Epistome not protruding beyond anterior of rostrum. Six free pereonites; pereonites 1 to 3 subequal, pereonites 4 and 5 subequal, longer, pereonite 6 as long as pereonite 1; pereonites with one or two plumose setae on each lateral margin. Pleon of five free subequal pleonites, pleonites 1 and 2 only bearing pleopods, each pleonite about half as long as pereonite 5. Pleotelson (Fig. 10C) pentagonal, not as long as last two pleonites together, as wide as long, with single midlateral plumose seta, paired anterodorsal plumose setae and rows of three posterodorsal simple setae on each side.

Antennule (Fig. 10E) proximal peduncle article 3.8 times as long as wide, with numerous inner sharp apophyses and few outer sharp apophyses; second article 0.3 times as long as first, third article 0.9 times length of second, fourth article half length of second with minimal extension for accessory flagellum. Main flagellum of two segments subequal in length, distal segment narrower than proximal, each with single aesthetasc, distal segment with five distal setae; accessory flagellum of one segment, distally reaching just past proximal segment of main flagellum.

Antenna (Fig. 10D) with four-articled peduncle; elongate rectangular proximal article bearing inner distal plumose seta and outer distal spine-like apophysis; second article short, 1/4 as long as first, with outer distal spine-like apophysis; third article 2.5 times as long as second, fourth article 1.3 times as long as third. Flagellum of two very small segments.

Labrum simple, rounded, distally setulose. Left mandible (Fig. 10F) with quadricuspid pars incisiva, lacinia mobilis denticulate, setiferous lobe with five setae, pars molaris round, blunt, simple; palp of three articles, proximal article with long, plumose distal seta, second article longest with group of four inner subdistal setae, third article with two short and two long distal setae, each finely serrate in distal half. Right mandible as left but without lacinia mobilis. Labium (Fig. 10G) with denticulate outer margin, palp with single distal seta. Maxillule (not figured) typical for the genus, inner endite with four finely plumose distal setae, outer endite

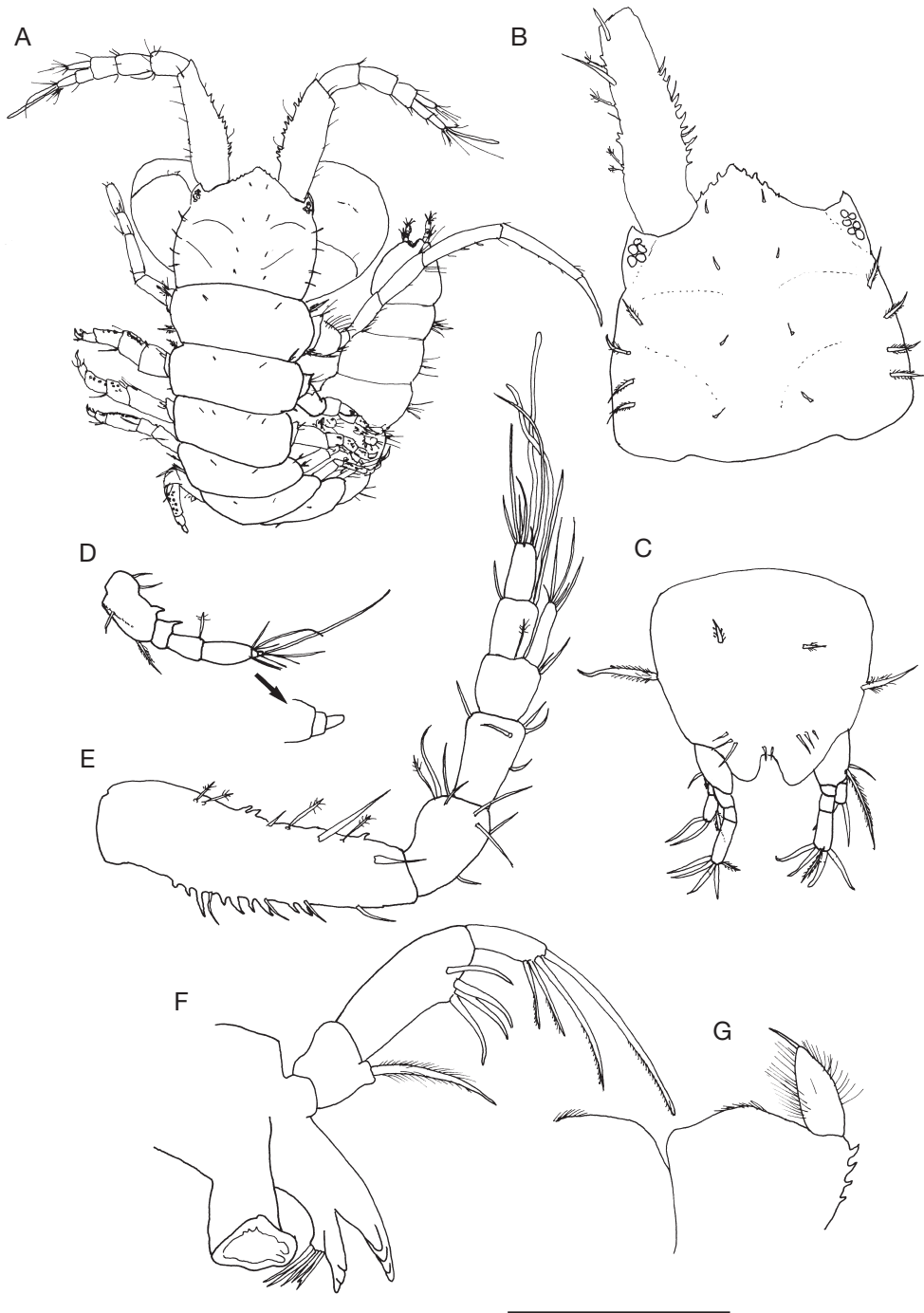


FIG. 10. — *Macrolabrum distonyx* n. sp., ♀: **A**, holotype ♀, entire; **B**, cephalon, dorsal; **C**, pleotelson, dorsal; **D**, left antenna with detail of distal articles; **E**, left antennule; **F**, left mandible; **G**, labium. Scale bar: A, 0.7 mm; B, C, 0.4 mm; D, E, 0.3 mm; F, G, 0.1 mm.

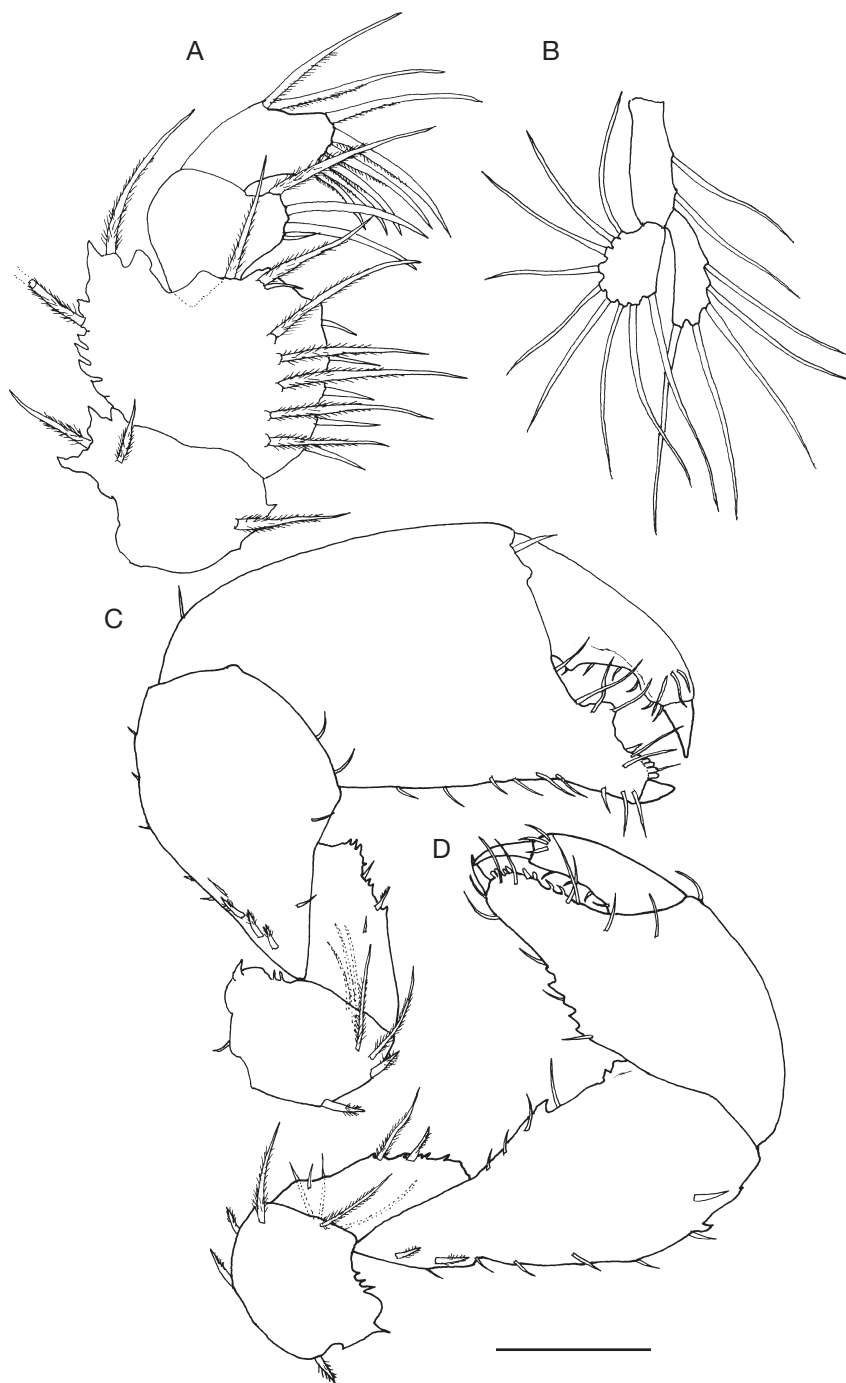


FIG. 11. — *Macrolabrum distonyx* n. sp., ♀: **A**, maxilliped palp; **B**, second right pleopod (plumose nature of all setae not shown); **C**, right cheliped; **D**, left cheliped. Scale bar: A, B, 0.1 mm; C, D, 0.2 mm.



FIG. 12. — *Macrolabrum distonyx* n. sp., ♀: **A**, right pereopod 1, with detail of exopod; **B-F**, left pereopods 2-6 respectively; **G**, uropod. Scale bar: A, 0.2 mm; B-G, 0.1 mm.

with 10 distal spines, outer margin sparsely setose, palp of two articles, distally with two setae. Maxilla (not figured) with rostral row of 11 setae and inner denticulate spine; fixed endite with two trifid and four simple setae and inner plumose seta; moveable endite lobes almost fused and with simple setae. Maxilliped endite with five slender distal spines and subdistal plumose seta; maxilliped basis naked; palp (Fig. 11A) proximal article with single plumose inner seta, outer margin with denticulate apophyses and with two plumose long setae; second article outer margin coarsely denticulate with two long plumose setae, inner margin dorsally with seven long plumose setae, marginally with five simple spines; third article with inner apophysis bearing one plumose and two longer and one shorter simple setae; distal article with one distal, five inner setae and two outer subdistal setae, all setae finely denticulate along proximal half. Epignath destroyed in dissection.

Right cheliped (Fig. 11C) with compact basis as long as wide, with paired subdistal, ventral plumose setae and two ventral marginal spines with finely bidenticulate margin towards distal end, spine-like apophyses dorsally, exopodite absent; merus quadrangular, subdistally with ventral denticulations, few setae; carpus compact, 1.5 times as long as wide, widening distally, with group of three proximal dorsal compound spines, marginal setae simple; propodus stout, quadrangular, 1.2 times as long as wide, with simple setae along ventral margin; fixed finger with five spines distally and large triangular apophysis proximally on cutting edge, moveable finger slender with proximal small triangular apophysis, distal bulge and small curved setae on cutting edge.

Left cheliped (Fig. 11D) smaller than right cheliped, basis and merus similar to those of left cheliped; carpus more slender, 2.3 times as long as wide; propodus more slender, with denticulate ventral margin and hook-like spines on cutting edge of fixed finger.

Pereopod 1 (Fig. 12A) longest pereopod, basis twice as long as wide, dorsal margin extended as flange bearing eleven plumose setae, ventral margin with seven plumose setae; exopodite present, large, distal article with 16 plumose setae. Ischium with single long ventrodistal plumose seta. Merus as long as basis, ventral margin with six plumose setae alternating with six compound spines. Carpus

shorter than merus, ventrally with three compound spines alternating with setae, distal seta not plumose. Propodus slender, longer than merus, with four ventral slender spines. Dactylus plus unguis slender, curved, 1.5 times as long as propodus, with three ventral spines with adjacent fine setae.

Pereopods 2 to 6 (Fig. 12) similar to each other, progressively smaller, about 1/3 (pereopod 2) to 1/4 (pereopod 6) as long as pereopod 1; basis compact with single ventrodistal plumose seta, and additional two (pereopod 6) or three (pereopods 4 and 5) ventral plumose setae, single dorsal plumose setae on pereopods 3 to 5, two on pereopod 6; ischium with ventrodistal plumose seta and adjacent simple spine on pereopods 2 and 3. Merus, carpus and propodus bearing "sucker-like" spines and plumose setae as figured. Merus and carpus subequal on pereopods 2 and 3, carpus much longer than merus on pereopods 4 to 6. Propodus on all of these pereopods with distal seta with fine inner serrations, dactylus and unguis not fused into claw, dactylus with minute inner seta.

Pleopods (Fig. 11B) alike, biramous; basis with two dorsal plumose setae; exopod slender with five plumose setae, endopod almost circular with nine plumose marginal setae. Uropod (Fig. 12G) biramous, basis with one plumose and one simple outer seta; endopod longer than basis, of three segments, distal segment longer than proximal two, distally with plumose sensory seta and four stout spine-like setae; exopod of two segments, together as long as proximal two endopod segments, with two distal setae.

Male

Unknown.

REMARKS

Of the three gastropod-shell-inhabiting genera of the Pagurapseudinae, *Pagurotanais* Bouvier, 1918 is distinguished, *inter alia*, by the exopodite on pereopod 1 being reduced to one article or absent (see Guțu 1996a); *Macrolabrum* is distinguished from *Pagurapseudes* Whitelegge, 1901 by having an elongate epistome exceeding the anterior margin of the cephalon, large plumose setae on the maxilliped palp, and a serrated outer margin to the second article of that palp (Guțu 1997). While these maxil-

lipid features are present in *M. distonyx* n. sp., the epistome does not exceed the anterior margin of the cephalon. Guțu (1997) discussed the variability in this feature, and thus the difficulty in diagnosing these two genera. Generally, as here, *Macrolabrum* species show marked dimorphism in the chelae in the adult and have stout distal setae or spines on the uropod endopod.

Guțu (1997) produced a key to the five species of *Macrolabrum* then known: the only one of those species with pleopods, a two-segmented uropod exopod and a three-segmented uropod endopod is *M. aenigmaticus* Guțu, 1997 (from Bali, littoral), known only from juveniles. That species is distinct from *M. distonyx* n. sp. in its protruding epistome, its simple, distally bifurcate rostrum, and in having four segments in the main flagellum and two segments in the accessory flagellum of the antennule, *inter alia*.

The only species of *Macrolabrum* described since 1997 is *M. impedimenta* Bamber, 2006, from southwestern Australia in 20 to 39 m depth. That species also has pleopods and one and two segments in the accessory and main flagella of the antennule respectively; however, *M. impedimenta* has a one-segmented uropod exopod and a two-segmented uropod endopod, simpler setation on the mandibular palp, and complete marginal rows of eight plumose setae on pereonite 1, as well as numerous differences in the setation of the pereopods (Bamber 2005).

The four-articled peduncle of the antenna in the present species is shared with *M. rugosus* Guțu, 1997 (other species having five articles); the proximal peduncle article in each of these species is elongate, and may represent the fusion of two articles. With a depth range of 440 to 515 m, the present species is by far the deepest recorded, the other six species having been taken in depths of less than 40 m.

Genus *Pagurapseudes* Whitelegge, 1901

Pagurapseudes inquilinus n. sp. (Figs 13-15)

TYPE MATERIAL. — Holotype: New Caledonia, BIO-CAL, stn DW 44, 22°47.35'S, 167°14.50'E-23°47.34'S,

167°14.80'E, 440-450 m depth, 30.VIII.1985, 1 ♀ with brood pouch (MNHN-Ta931).

Paratypes: same data as holotype, 1 brooding ♀, 1 subadult ♂, 1 ♂, dissected (MNHN-Ta932); 1 brooding ♀, 1 subadult ♂ (NHM.2005.2716-2717).

TYPE LOCALITY. — Off New Caledonia, 22°47.35'S, 167°14.50'E-23°47.34'S, 167°14.80'E.

ETYMOLOGY. — From the Latin "*inquilinus*", a tenant or lodger.

DESCRIPTION

Female

Body (Fig. 13A) typical of a pagurapseudid, pleon skewed to the right and curved under pereon; small, holotype about 1.15 mm long. Cephalothorax narrowing anteriorly, 0.9 times as long as wide, with straight denticulate anterior margin, the outer teeth largest; scattered dorsal setae and posterolateral setae all plumose. Eyelobes distinguished, eyes present as sparse group of ocelli, unpigmented in preserved material. Epistome small. Six free pereonites, all with paired anterior and lateral plumose setae; pereonite 1 shortest, 0.6 times as long as pereonite 2; pereonites 2 to 6 subequal, pereonites 4 and 5 just longest. Pleon of five free subequal pleonites, pleonites 1, 2 and 3 only bearing pleopods, each pleonite about half as long and 0.7 times as wide as pereonite 6. Pleotelson (Fig. 13B) pentagonal, longer than last two pleonites together, 1.14 times as wide as long; with numerous plumose lateral, dorsal and posterior setae as figured.

Antennule similar to that of male (Fig. 13C), proximal peduncle article 7 times as long as wide, with conspicuous inner and outer apophyses, mostly accompanied by plumose setae, and blunt distal apophysis; second and third articles subequal, 0.15 times as long as first, fourth peduncle article 1/3 length of third. Main flagellum of seven segments, with single aesthetascs on segments 4, 6 and 7; accessory flagellum of two segments, distally reaching to half length of fourth segment of main flagellum.

Antenna (Fig. 13D) with wide proximal peduncle article bearing two spine-like apophyses and four plumose setae in distal half, and inner proximal apophysis and simple seta; second article as long as wide; third and fourth peduncle articles subequal, twice as long as second, both with plumose distal

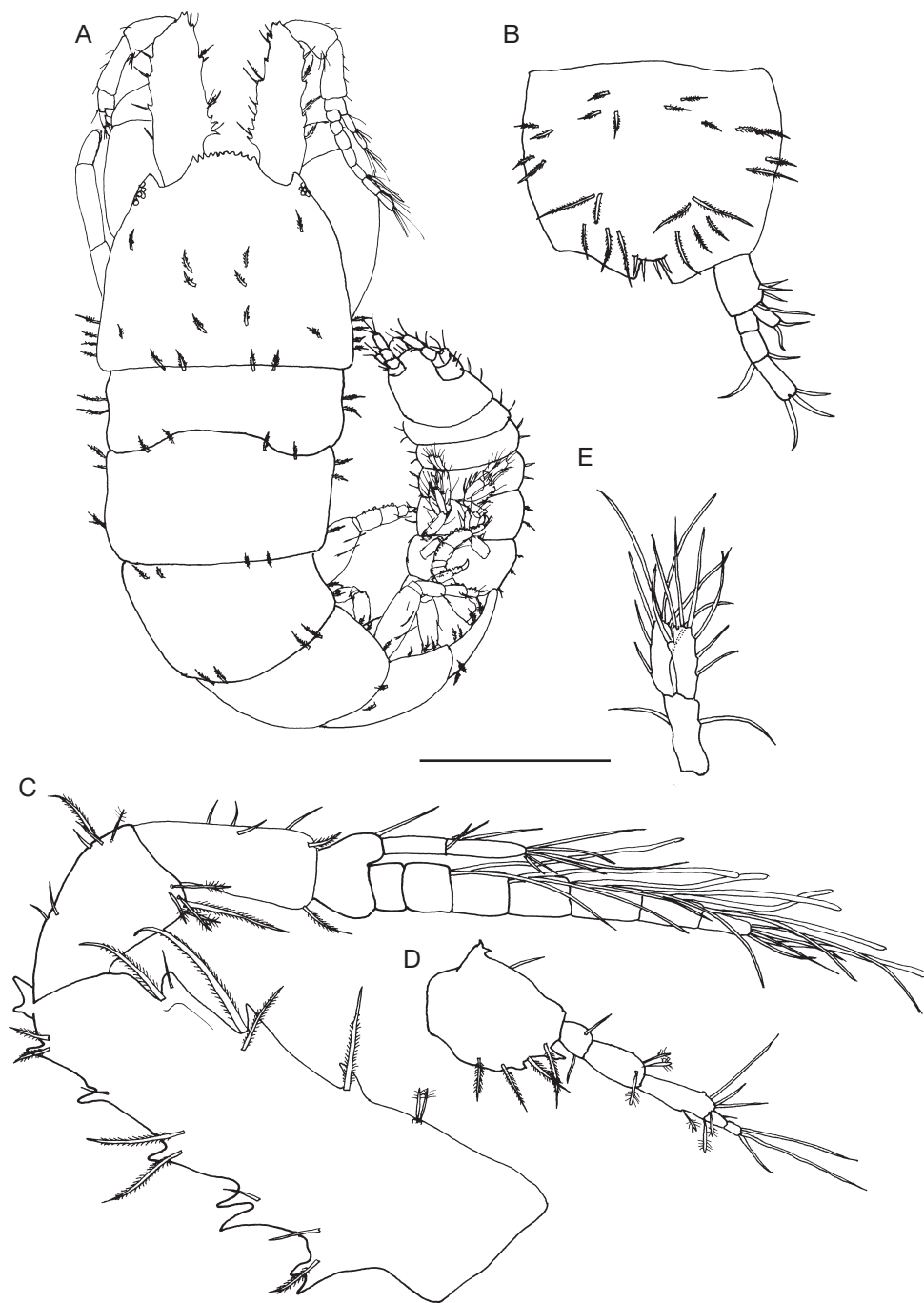


FIG. 13. — *Pagurapseudes inquilinus* n. sp., ♀: **A**, holotype ♀, entire; **B**, pleotelson, dorsal; **C**, right antennule of male; **D**, right antenna; **E**, pleopod (plumose nature of setae not shown). Scale bar: A, 1 mm; B-E, 0.5 mm.

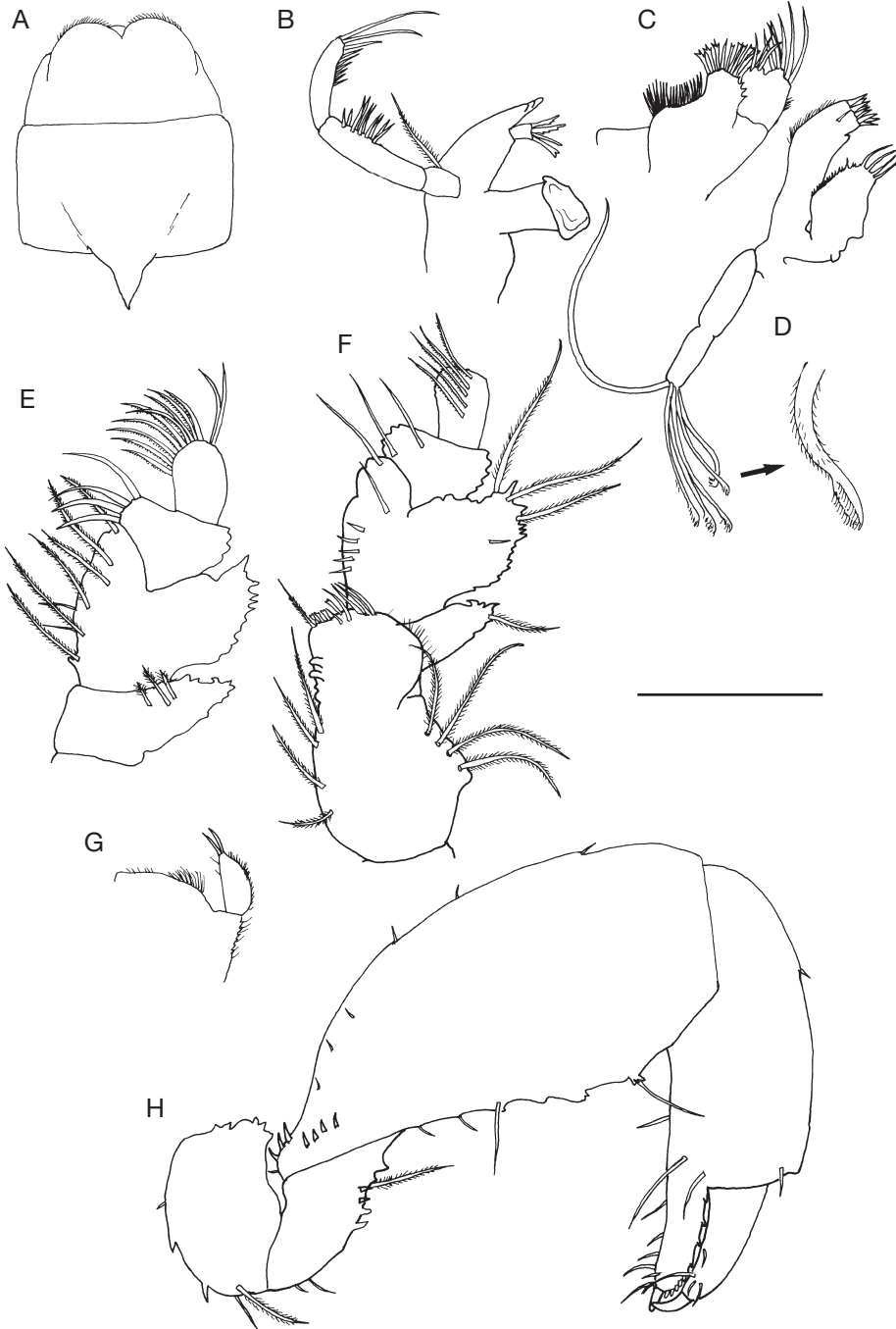


FIG. 14. — *Pagurapseudes inquilinus* n. sp., ♂: **A**, labrum; **B**, left mandible; **C**, maxilla; **D**, maxillule, with distal detail of palp seta; **E**, left maxilliped palp, showing inner and ventral setae only; **F**, right maxilliped, showing outer and dorsal setae of palp only; **G**, labium; **H**, right cheliped. Scale bar: A-G, 0.3 mm; H, 0.5 mm.

sensory setae. Flagellum of two segments, distal segment with three distal setae.

Labrum (Fig. 14A) bilobed, sparsely setose. Left mandible (Fig. 14B) with tricuspid pars incisiva, lacinia mobilis inconspicuous, setiferous lobe with four variously crenulate setae, pars molaris round, blunt, simple; palp of three articles, proximal article with long, plumose distal seta, second article longest, four times as long as proximal article, with five pairs of inner setae in distal half; third article $3/4$ as long as second, with nine progressively longer setae in distal half, distal pair as long as article. Right mandible as left but without lacinia mobilis. Labium (Fig. 14G) typically marginally setose, palp with two distal setae. Maxillule (Fig. 14D) inner endite with four finely plumose distal setae, outer endite with nine distal spines, outer margins sparsely setose; palp of two articles with indistinct articulation, distally with five finely-setulose setae with expanded tips and single longer simple seta. Maxilla (Fig. 14C) with rostral row of about 20 simple setae, fixed endite with trifurcate, simple and bifurcate setal groups and serrate margin; moveable endite lobes fused and with simple setae. Maxilliped (Fig. 14E, F) endite with five slender outer distal setae, four inner distal bilobed spines and innermost plumose seta; proximal palp article with denticulate outer margin with one plumose seta, and three plumose sensory setae on ventral face; second article with three long plumose setae on denticulate outer margin, five shorter simple inner spines and six plumose setae along inner margin; third article with two dorsal and four inner marginal simple setae, inner and outer margins crenulate; distal article with eleven finely denticulate inner-marginal and distal setae, and dorsal row of five similar setae.

Chelipeds (Fig. 14H) showing no conspicuous dimorphism. Compact basis 1.6 times as long as wide, with subdistal, ventral plumose seta and three ventral marginal spines, and dorsoproximal denticulation; exopodite absent. Merus triangular, ventral margin with membranous spine-like apophyses, plumose seta in distal half with two adjacent outer small spines. Carpus elongate, just more than twice as long as wide, widening distally, with groups of short proximal spines, ventral margin

with membranous spine-like apophyses in distal half. Propodus slender, twice as long as wide, setose as figured, fixed finger with row of small teeth and five small spines distally on cutting edge; moveable finger slender, curved.

Pereopod 1 (Fig. 15A) longest pereopod, with stout basis twice as long as wide, dorsal margin bearing nine plumose setae, ventral margin with numerous small, simple setae and single distal plumose seta; exopodite present, large, distal article with 13 plumose setae. Ischium 0.4 times as long as basis, with dorsal and ventral simple distal setae and single ventrodiscal plumose seta. Merus as long as basis, ventral margin with short plumose setae, and spines mainly in distal half. Carpus shorter than merus, with short ventral spines and simple setae, single ventrodiscal and paired dorsodiscal setae plumose. Propodus longer than merus, with short ventral spines and simple setae. Dactylus curved, 1.1 times as long as propodus, with ventral flagellated blunt apophyses, unguis slender, blunt, 0.4 times as long as dactylus.

Pereopods 2 to 6 (Fig. 15) similar to each other, progressively shorter, each about $1/3$ as long as pereopod 1; bases 3 times (pereopod 2) to twice (pereopod 6) as long as wide, with subdistal, ventral plumose seta, and rows of dorsal plumose setae numbering 7, 2, 3, 2 and 1 on pereopods 2 to 6 respectively; ischium with paired ventrodiscal setae, both plumose on pereopod 2, one simple on pereopods 3 to 6. Merus, carpus and propodus bearing "sucker-like" spines and plumose setae as figured. Merus about as long as carpus on pereopods 2 to 4; on pereopods 5 and 6 carpus 3 times as long as merus. Propodus of pereopod 2 with simple distal seta; propodus of pereopod 6 with distal denticulate spine and adjacent simple spine. Dactylus and unguis not fused into claw, with minute inner seta on pereopods 4 to 6.

Pleopods (Fig. 13E) all alike, biramous, the rami slender, as long as basis, and bearing plumose setae; basis with single dorsal and ventral plumose setae. Uropod (Fig. 13B) biramous, basis with three small outer and one longer mesial distal setae; endopod longer than basis, of three segments increasing in length, second segment distally with two simple setae, third segment with



FIG. 15. — *Pagurapseudes inquilinus* n. sp., ♂: A-F, pereopods 1-6 respectively. Scale bar: A, 0.45 mm; B-F, 0.3 mm.

three stout distal setae; exopod of one segment, just longer than proximal endopod segment, with two stout distal setae.

Male closely similar to female, but antennule (Fig. 13C) with more aesthetascs on main flagellum (one each on segments 2 to 7).

REMARKS

Pagurapseudes inquilinus n. sp. is morphologically and geographically close to the type species of the genus, *P. spinipes* Whitelegge, 1901, recorded from New South Wales, Australia, at depths of 37 to 108 m (Whitelegge 1901); indeed, it keys out to that species in the key to the nine species known previously of Guțu (1997). The gross morphology of both animals is quite similar. The present species is distinguished in that pereonites 2 to 4 are subequal in *P. inquilinus* n. sp., without posterior “incisions” ($2 < 3 < 4$ in *P. spinipes*, with posterior “submedian incisions”), the rostral margin is more coarsely denticulate (“minutely spinulose” in *P. spinipes*), the pleonites are subequal (pereonite 1 “rather longer” in *P. spinipes*), the main and accessory flagella of the antennule have seven and two segments respectively (four and one in *P. spinipes*; note that, in his text, Whitelegge [1901] included the distal peduncle article in both flagella), the basal apophysis on the antenna is much smaller in *P. inquilinus* n. sp., and the basis of pereopod 1 has long, plumose setae, while Whitelegge (1901) describes and figures only “a few small denticles on the anterior border”. The segmentation of the antennular flagella serves as a ready character to distinguish these species without dissection.

Pagurapseudes abrucei Băcescu, 1981, from Heron island, Queensland, at 30 m depth, is the only other species described from this region. That species has four and two articles in the main and accessory flagella of the antennule respectively, and a prominent triangular rostrum without denticulation (Băcescu 1981).

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