

Bull. Inst. r. Sci. nat. Belg. Bull. Inst. r. Sci. nat. Belg.	Bruxelles Brussel	30-XI-1982
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NEW CANUELLIDAE FROM THE NORTHERN COAST OF PAPUA
NEW GUINEA (COPEPODA : HARPACTICOIDA)

Léopold III Biological Station, Laing Island

Contribution No. 30

BY

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(With 17 plates and 1 textfigure)

ABSTRACT

Brianola vangoethemi sp. nov., *Scottolana glabra* sp. nov., *Scottolana dissimilis* sp. nov., *Canuella paenelantica* sp. nov. and *Parasunaristes cucullaris* gen. nov., sp. nov., from the Northern coast of Papua New Guinea, are described. *Brianola sydneyensis* HAMOND, 1973 and *Ellucana longicauda* SEWELL, 1940 were recorded for the first time in the coastal waters of Papua New Guinea. *E. longicauda* is redescribed and the generic characteristics are discussed.

RESUME

Brianola vangoethemi sp. nov., *Scottolana glabra* sp. nov., *Scottolana dissimilis* sp. nov., *Canuella paenelantica* sp. nov. et *Parasunaristes cucullaris* gen. nov., sp. nov., tous de la côte septentrionale de Papouasie Nouvelle-Guinée sont décrits. *Brianola sydneyensis* HAMOND, 1973 et *Ellucana longicauda* SEWELL, 1940 sont signalés pour la première fois dans les eaux côtières de Papouasie Nouvelle-Guinée. *E. longicauda* est redécrit et ses caractères génériques sont discutés.

INTRODUCTION

During several expeditions, sponsored by the Leopold III-Foundation and the Ministry of National Education, to Laing Island (Hansa Bay, Papua New Guinea), a large number of littoral as well as sub-littoral sediment samples were taken. Because this area seems to be largely unexplored, the collected copepod fauna is of great interest. The present contribution deals exclusively with the Canuellidae.

Only three authors, namely SCOTT (1909, Siboga expedition), SEWELL (1940, John Murray expedition) and HAMOND (1973, Australian Coast) have recorded canuellids found off the coasts of Papua New Guinea. Nevertheless, the Pacific species, discovered by two of the above mentioned authors (SCOTT, 1909 and SEWELL, 1940) are poorly understood. This is caused not only by the insufficient original descriptions, but also by the recent discovery of several closely related species.

In the present paper *Ellucana longicauda* found by SEWELL (1940) is redescribed and the genus *Ellucana* is compared with *Parasunaristes*, a new genus introduced here. Furthermore, five new species are added to the list of species belonging to the Canuellidae.

METHODS

The samples, taken by SCUBA-diving, were collected by the aid of a plastic bag, and fixed in 5 % neutralised formalin. They were washed and the Copepods were picked out and preserved in 75 % ethylalcohol. Dissected specimens were mounted in glycerine and studied with an immersion objective. Drawings were made by the aid of a camera lucida.

Morphological details were drawn as accurately as possible, with exception however of the finely feathered setae. More attention was paid to the representation of these ornamentations and of the plumose condition rather than to the exact number of setules and spines.

Abbreviations, used in the text and the tables, are kept to a minimum. The following abbreviations were used throughout the text: exopodite (exo), endopodite (end) and natatorial legs (P 1 to P 5).

Holotypes and paratypes are deposited in the collections of the Recent Invertebrates Section of the « Koninklijk Belgisch Instituut voor Natuurwetenschappen ».

STATIONS
(textfig. 1)

- PNG 77/107 : Laing Island (Madang Province), east side, coral sand at — 10 m; leg. : J. VAN GOETHEM on May 14th, 1977.
PNG 77/120 : Laing Island (Madang Province), north-west side, outer reef, coral sand at — 20 m; leg. : J. VAN GOETHEM on May 16th, 1977.

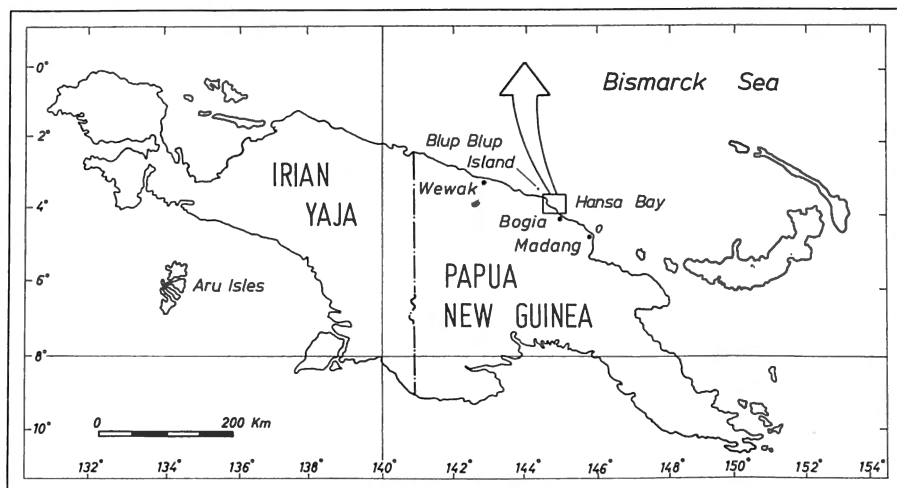
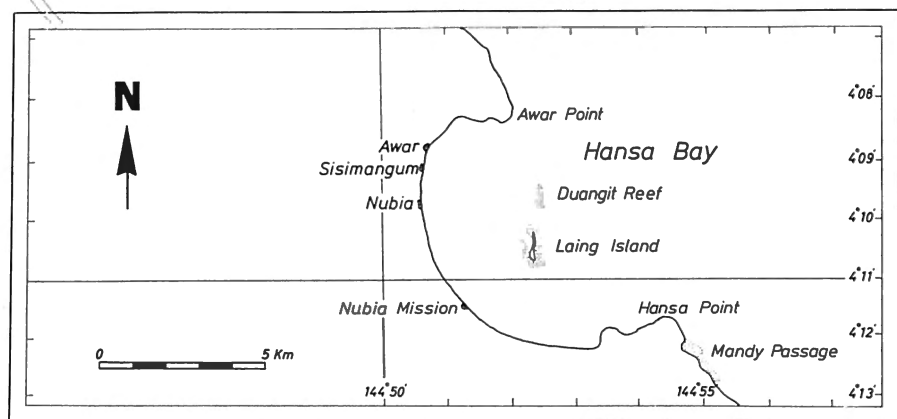


Fig. 1. — Localisation of the sampling sites.

- PNG 77/233 : Laing Island (Madang Province), north side of lagoon, coral sand at -10 m; leg. : J. VAN GOETHEM on May 29th, 1977.
- PNG 78/15 : Laing Island (Madang Province), lagoon, coral debris with mud at -6 m; leg. : J. VAN GOETHEM on May 7th, 1978.
- PNG 78/87 : Laing Island (Madang Province) lagoon, coral sand at -2 m; leg. : J. VAN GOETHEM on June 16th, 1978.
- PNG 78/150 : Laing Island (Madang Province), outer reef on the north-west side, between *Halimeda*-algae on dead coral; leg. : J. VAN GOETHEM on May 25th, 1978.

- PNG 78/152 : Laing Island (Madang Province) west side, gully between beach and ELWS, bottom of the gully at — 20 cm below ELWS, fine coral sand covered with organic deposits; leg. : — 3 m; leg. : J. VAN GOETHEM on June 16th, 1978.
- PNG 78/30 : Blup Blup Island (East-Sepik Province) coral sand at — 3 m; leg. : J. VAN GOETHEM on June 16th, 1978.
- PNG 78/323 : Laing Island (Madang Province) north-east side, near low water level in shallow pools, approx. 5 cm deep; leg. : J. VAN GOETHEM, on June 19th, 1978.
- PNG 79/100 : Bogia Bay (Madang Province) reef flat during ebb tide, coral sand in shallow pools; leg. : J. VAN GOETHEM on May 25th, 1979.
- PNG 79/101 : Bogia Bay, as PNG 79/100.
- PNG 79/127 : Hansa Bay (Madang Province) east side of Duangit Reef, coral sand at — 42 m; leg. : J. VAN GOETHEM and J. PIERRET on May 28th, 1979.

SYSTEMATICS

Family CANUELLIDAE LANG, 1848

Genus *Brianola* MONARD, 1926

Brianola vangoethemi sp. nov.

(Plate I, fig. 1-7; Plate II, fig. 1-9; Plate III, fig. 1a-1c)

Type-locality. — Lagoon of Laing Island (PNG 77/233).

Holotype. — One ovigerous female (slide P2025a).

Paratypes. — 11 females and 9 males.

Derivatio nominis. — In honour of Dr. J. VAN GOETHEM.

Diagnosis. — Body fusi form; furcal rami extended into a wedge; spines along the furcal rami; pseudo-operculum with concave posterior border.

Description. — Female (holotype).

Habitus (Pl. III, fig. 1c) : length 1.14 mm; thorax parallel-sided; cephalosoma and abdomen tapering; first legbearing segment fused, distinguished from the promosa by a tick dorsal band; thoracic segments devoid of ornamentations; genital double somite with two rows of teeth. The anterior row runs around the segment, the posterior one is interrupted on the lateral sides of the supporting segment. Each abdominal segment has a row of teeth, running totally around the whole segment.

Rostrum (Pl. III, fig. 1) : bell-shaped, without pronounced posterior angles.

Furcal Rami (Pl. III, fig. 1a, 1b) : two and the half times as long as broad and tapering towards the apex; 92 μm long, anterior width 56 μm and posterior width 21 μm ; dorsal side extended in a flat wedge-shaped tip; external margin of the rami with two rows of teeth; ventral row running from the furcal apex to the middle of the ventral surface; dorsal row running straight; external as well as internal margin extending posteriorly in a flat tip; these two tips are less broad than the conspicuous dorsal tip. The external seta (176 μm long) and the internal one (402 μm long) are accompanied by a dorsal (33 μm), a ventral (26 μm) and an internal lateral seta (91 μm). All those setae are devoid of any ornamentation.

Anal segment (Pl. III, fig. 1a, 1b) : covered by a pseudo-operculum as in *B. sydneyensis*; on both sides two additional combs; a hyaline incised fringe, forming spines, running around the segment. The ventro-median four spines of the fringe are smaller. Antennula (Pl. I, fig. 1a, 1b) with indistinctly separated segments; consisting of four or five segments; two aesthetascs (both 640 μm long) on the second or third segment; setae clustered around the aesthetascs; apical setae of the ultimate segment with strong setules; three accessory spines on the second (or third) segment, one on the penultimate segment and two on the ultimate segment.

Antenna (Pl. I, fig. 3a, 3b) : with coxa and basis well distincted, both with a row of fine hairs along their internal margin; endopodite consisting of three segments; first endopodital segment with one seta, penultimate segment with four setae and ultimate segment with seven setae. Some of the setae are, along their proximal stem, ornamented with large stout setules. The exopodite is typical for the genus and consists of seven well distinguished segments, third segment with one plumose seta; ultimate segment with three setae.

Mandibula (Pl. I, fig. 2a, 2b) : pars molaris with two rows of teeth, some of those blunt; coxa-basis long, bearing two setae; exopodite two-segmented with five densely feathered setae; endopodite consisting of two segments, the first one bearing three setae, the second one bearing eight setae. Near the articulation of the rami a row of long hairs runs along the distal edge of the coxa-basis.

Maxillulla (Pl. I, fig. 5) : precoxal arthrite with six spines and three setae, all implanted on the distal edge of the arthrite; basis and coxa not separated; coxa with a stout spine and three long epipodal setae; basis covered with a row of long hairs and bearing seven setae; two-segmented endopodite and one-segmented exopodite; first segment of the endopodite with only two stout setae, second segment with five; exopodite with seven setae; central seta long, marginal ones short; all setae densely feathered.

Maxilla (Pl. I, fig. 7) : precoxa and coxa well separated, each bearing two endites; endital setae-formula, from the first precoxal endite to the

last coxal : three, two, three and two; basis extended in a strong hook accompanied by a stout seta covered with long and broad setules; three more or less slender setae implanted on the surface of the basis; endopodite long, composed of one segment, bearing eight setae from different length.

Maxilliped (Pl. I, fig. 6) : only endopodite separated from protopodite; eight setae on the internal side; the entire external side covered with long hairs; endopodite with seven setae, the three internal ones being ornamented with stout setules.

Natatorial legs (table 1) : rami with three segments; endopodite always longer than the exopodite; ornamentations occurring on every segment, except on the exopodite of the P1 which is totally devoid of ornamentations. Spines are implanted along the external margin of the coxa of the four legs. These rows of spines are continuing along the distal margin of the basis.

TABLE 1

Briánola vangoethemi sp. nov.

	P 1	P 2	P 3	P 4
Coxa	0.1	0.0	0.0	0.0
Basis	1.1	1.0	1.0	1.0
Exo	I.0-I.1-III.1.1	I.0-I.1-II.1.1	I.0-I.1-II.1.1	I.0-I.0-II.1.1
End	0.1-0.1-II.1.3	0.1-0.1-II.1.2	0.1-0.1-II.1.1	0.0-0.0-II.1.1

Three long hairs on the frontal surface of the first three legs; basis of the P1 with a stout spine reaching over the distal edge of the first internal segment; internal seta on the basis of P2, P3 and P4 very slender and extending beyond the marginal spines. P1 (Pl. II, fig. 4) : small (0.10 mm high) in contrast with P2 (0.18 mm), P3 (0.17 mm) and P4 (0.19 mm); coxa with a supplementary plumose seta, implanted on the internal margin, just above the intercoxal plate. P2 (Pl. II, fig. 5) and P3 (Pl. II, fig. 6) : except for the setal formula, fairly similar; P4 (Pl. II, fig. 7) : with a more reduced setal formula as in *B. sydneyensis*.

Genital field (Pl. I, fig. 4) : pear-shaped with two cuticular structures, typical for the genus, on both sides; each structure bearing a short bare setae; the hyaline fringe, interrupted at the height of the ventro-median line, forming a small depression.

— male (paratype).

Habitus : similar to the female, except for the cephalosoma which is more angular in the male; length 0.78 mm; genital double-somite with a thick dorsal band;

Rostrum (Pl. II, fig. 2) : mitre-shaped; posterior margins parallel; basis curved and apex slightly prolonged.

Antennula (Pl. II, fig. 8-9) : very short, only the first and the last segment distinct. The latter is hook-shaped and bears three setae. Only one aesthetasc (262 μ m long) arises from the fused segments, together with several short setae; accessory spines of a special type, all directing posteriorly. Natatorial legs without sexual dimorphism.

Genital field (Pl. II, fig. 3) consisting of three plates; median plate ending in two long blunt structures, pointing to the posterior side; the lateral surfaces formed by the second and third plate, both bearing a blunt process near the middle of the genital field.

A row of spines, increasing in length, runs along the anterior and lateral margins of the lateral plates. Those plates form a median suture giving admittance to the genital pore, which is covered by the median plate.

Variability. — Several paratypes show a slight variability with regard to the above mentioned description. The hyaline comb around the anal segment of these specimens (4) shows a total regular pattern. In the holotype, however, this comb is interrupted in the ventro-median area.

Distribution. — Laing Island (PNG 77/107, PNG 77/120, PNG 78/15) and Blup Blup Island (PNG 78/303).

Discussion. — *Brianola vangoethemi* sp. nov. can be discriminated from *B. elegans* HAMOND, 1973 and *B. sydneyensis* HAMOND, 1973 by the shape of the furca and by the reduced number of setae on the first and the fourth leg. Other differences between these three closely related species are shown in table 2. Comparison with other species of the genus reveals that *B. vangoethemi* sp. nov. has the most reduced setal formula.

Brianola elegans HAMOND, 1973

Distribution. — PNG 78/323, PNG 79/100, PNG 79/101.

Each sample contained several tens of specimens, females, as well as males. Six specimens have aberrant legs : instead of a normal constructed ramus, they show a large blunt spine. This aberration occurs on either leg or ramus, but seems to be present mostly on the first leg. One animal lost all the rami of his first leg and acquired four spines instead. In contrast to the *Brianola* species found free-living in Papua New Guinea, HAMOND (1973) reported *B. sydneyensis*, *B. pori* and *B. elegans* from shells used by the hermit-crab *Diogenes senex* HELLER.

Still other species are only known from washings of shells inhabited by pagurid crabs (HESSE, 1867; HUMES and HO, 1969; HUMES 1972). As far as we actually know, *B. elegans* is the first species occurring both associated and free-living.

TABLE 2

Comparison between *B. elegans*, *B. sydneyensis* and *B. vangoethemi* sp. nov.

	<i>B. elegans</i> HAMOND	<i>B. vangoethemi</i> sp. nov.	<i>B. sydneyensis</i> HAMOND
P 1	External seta of endopodite normal	Internal seta of endopodite very small	External seta of endopodite normal
Rostrum ♀ ...	Rounded apex	Rounded apex	Pointed apex
♂ ...	Robust shape	Robust shape	Elongated shape
Furca	Outer margin bare; flat latero-apical spine	Outer margin with teeth; flat latero-apical and dorso-lateral spine	Outer margin with teeth; rounded dorso-apical apex
Pseudo-operculum ...	Centre prominent; no additional rows of teeth	Centre impressed; two additional rows of teeth	Centre impressed one additional row of teeth
Genital field ♀	Lateral combs prolonged	Lateral combs 0-shaped	Lateral combs 8-shaped
♂	A more or less open structure	Compressed	Lozenge-shaped
Setal form. ...	Exo P 1 : 0.1.6 Endo P 4 : 1.0.4	Exo P 1 : 0.1.5 Endo P 4 : 0.0.4	Exo : P 1 : 0.1.5 Endo P 4 : 1.0.4

Genus *Scottolana* POR, 1967*Scottolana glabra* sp. nov.

(Plate III, fig. 2a, 2b; Pl. IV, fig. 1-10; Pl. V, fig. 1-6)

Type-locality. — Laing Island between *Halimeda*-algae (PNG 78/150).

Holotype. — An ovigerous female (slide no. P2120).

Paratype. — One mature male (slide no. P2133).

Derivatio nominis. — *Glaber* (Latin) = smooth, because of the smooth body surface.

Diagnosis. — Separated first legbearing segment; short furcal rami without bump-shaped extensions; cephalosoma with thick cuticular band; first segment of antenna with bump-shaped extensions.

Description. — Female (holotype).

Habitus (Pl. III, fig. 2a, 2b): length 1.54 mm; in dorsal view parallel sided, prosoma and abdomen tapering; genital double-segment with a dorsal suture; prosoma with caudo-lateral extended sides. On the posterolateral surface of the prosoma a banded pattern can be observed.

Rostrum (Pl. IV, fig. 3) short; bell-shaped with rounded caudal edges; apex somewhat sharply protruded.

Furcal rami (Pl. IV, fig. 5): short and broad; two times as long as broad (apical width 43 μm , distal width 17 μm , and 67 μm long); external margin of the rami straight; internal margin convex; all furcal setae implanted around the apex; two terminal median setae, internal seta 812 μm and external one 473 μm long; a long internal ventral seta (120 μm), a short external seta (34 μm) a dorsal seta (100 μm) and two short internal setae implanted near the apex (shortest 13 μm , longest 32 μm).

Antennula (Pl. VI, fig. 2); consisting of six segments; all well separated from each other; first segment with a bump and three rows of slender hairs; third and fourth segment bearing an aesthetasc at approximately 78 μm long. The aesthetascs and the accompanying setae are implanted on a socle formed by an extension of the carrying segment. Accesorial spines very long, with typically constructed proximal stem. The distal part shows a more feathered seta-like appearance. Ultimate segment with several long densely feathered setae.

Antenna (Pl. IV, fig. 8); basis short, with three fields of hairs; endopodite three-segmented with on the second and last segment a row of hairs along the external margin; first segment with two unequal setae; second one with three setae and distal segment with six setae; the largest setae of the third segment ornamented with stout setules, the remaining setae being normally feathered. Exopodite consisting of eight robust segments, with the first one apparently vertically implanted on the first segment of the endopodite; all segments carrying a seta with the exception of the most distal one, carrying four setae; three setae (on the fourth, fifth and eighth segment of the exopodite, shorter as the other ones and ornamented with short strong setules.

Mandibula (Pl. IV, fig. 9): mandibular palp strongly constructed, with pars molaris consisting of one accesorial seta and two rows of teeth; coxa-basis with two seta on the internal margin; exopodite, with fused segments, bearing five long densely feathered setae and a small and normally constructed seta, implanted near the proximal edge.

Endopodite, two-segmented with on the first segment three and on the second segment seven setae; separation between the endopodite segments quite vague.

Maxillula (Pl. IV, fig. 10 and 6); precoxal arthrite with eight spines and four setae; coxa with two epipodal setae and an arthrite bearing four setae; basis rounded with, seven setae and a row of little teeth

on the surface : basis with four long and four short setae; exopodite bearing five long and densely feathered setae and on its internal margin three short and normally feathered setae; endopodite, two-segmented, with four setae on the first segment and six setae on the second one.

Maxilla (Pl. IV, fig. 4); composing parts well distinguished; pre-coxa and coxa with two endites; first precoxal endites with three setae and second one with two setae; both the coxal endites with three setae; feathering of the setae of the coxal endites different for each seta. Basis prolonged to a hook, striated by fine ridges near the middle, accompanied on both sides with a stout seta; the unmodified part bearing a short slender seta.

Endopodite, one-segmented, relatively long, bearing eight setae, all equal in length.

Maxilliped (Pl. IV, fig. 1) elements well separated; no ornamentations or setae on the pre-coxa; coxa with a seta implanted on the proximal edge and nine setae along the distal margin; one of the latter very long, reaching to the distal endings of the endopodital setae. The basis carries along his internal margin several slender hairs, and bears only three setae, on the internal border. Endopodite bears ten setae, wherefrom those, implanted along the external margin, are long and densely feathered, while these, standing on the internal rim, are more slender, less feathered and rather smaller in length.

TABLE 3

Scottolana glabra sp. nov.

	P 1	P 2	P 3	P 4
Coxa	0.1	0.1	0.1	0.0
Basis	1.I	1.0	1.0	1.0
Exo	I.0-I.1-IV.3	I.0-I.1-IV.3	I.0-I.1-IV.1	I.0-II-IV
End	0.1-0.1-III.3	0.1-0.1-III.2	0.I-0.1-IV	0.I-0.0-IV

Natatorial legs (table 3); All rami three-segmented; exopodites only a little smaller than the endopodites; bases of all legs with an inner seta; several segments bearing stout spines as ornamentation; the modified first and second segment of the P2 without spines, but with slender hairs.

P1 (Pl. V, fig. 3); with a stout spine on the inner side of the basis, reaching to the middle of the second segment of the endopodite; spines on the exopodite, remarkably long; second segment of endopodite, with stout ornamentations on the external margin.

P2 (Pl. V, fig. 4); with long slender hairs, along the internal border of the basis; between the endopodite and the exopodite, the basis is extended

in a blunt conical prolongment; the three segments of the exopodite with stout ornamentations; first segment of the endopodite with a prolongment, reaching to the distal edge of the second segment.

P5 (Pl. IV, fig. 7); supporting segment, distinct from the somite, bearing four bare setae; internal setae longest, the external one somewhat shorter and the two median setae very short.

Genital field (Pl. V, fig. 6); remarkably simple; consisting on both the sides of a square coverplate and a bare seta, implanted near the external margin.

— male (paratype).

Habitus : length 1.10 mm; prosome more tapering than in the female.

Rostrum (Pl. IV, fig. 2); smaller and more bell-shaped; apex slightly pointed.

Antennula (Pl. VI, fig. 1) : six-segmented : fifth and sixth segment modified to a typical haplocer organ; first segment with a bump, as in the female.

Genital segment separated from the first abdominal segment.

Natatorial legs (Pl. V, fig. 5) : identical to those of the female with exception of the P2 where the prolongation of the first endopodite-segment is more slender and does not reach to the outer distal edge of the second segment.

Genital field (Pl. IV, fig. 7); large triangular cover-plate covered by small, thick cuticular structures; on the inner caudal edge, a long bare seta; a hookshaped structure under the plate. Along the median axis, in caudal direction a cushion like thickening is covered with long hairs; longest axis of the perpendicular to the median line.

Discussion. — *Scottolana glabra* sp. nov. is compared with some other species of the genus (table 4). The closest species are *Scottolana bulbosus* (POR, 1967) and *Sunaristes curticaudata* THOMPSON and SCOTT, 1903, *sensu* SCOTT (1909) (= *Scottolana*), a species which needs careful reexamination.

Scottolana dissimilis sp. nov.

(Plate VI, fig. 3-4; Plate VII, fig. 1-10; Plate VIII, fig. 1-9; Plate IX, fig. 1-2)

Type-locality. — Laing Island, N. E.-side near low water-line; PNG 78/323.

Holotype. — One ovigerous female slide nr. P 2139.

Paratypes. — One female and one male (slides nr. P 2125 and P 2131 bis).

Derivatio nominis. — *dissimilis* (Latin) = different, because of the striking differences between males and females.

TABLE 4

Comparison between some species of the Genus *Scottolana*
(to avoid confusion, the original generic names are used).

	<i>Canuella curticaudata</i> SCOTT, 1909	<i>Canuella scotti</i> SEWELL, 1940	<i>Sumaristes bulbosus</i> POR, 1964	<i>Scottolana glabra</i> sp. n.
Exopodite P 1 1st and 2nd segment	Spines	Spines	Setae	Spines
Setal form. P 1 ...	115	016	115	116
1st segm. A 1 ...	?	Without process	With process	With process
Rostrum	?	Angular	Rounded	Pointed
Endopodite P 4 ...	Strong setae	Seta	Strong seta	Strong seta
P 5, setae	All of different length	?	Equal length	All of different length
Furcal rami	3 internal setae	?	3 internal setae and a notch	3 internal setae 1 dorsal seta 1 external seta
Basopodite P 1 ...	Internal spine	Internal spine	Without spine	With spine

Diagnosis. — Abdomen tapering; large rostrum; furcal rami with external spines and an intern, pear-shaped seta; furcal rami of the male with a normal structured internal seta.

Description. — Female (holotype)

Habitus (Pl. VII, fig. 3, 4): length 1.30 mm, thorax and abdomen tapering in dorsal view; first thoracal segment fused with the cephalosoma; greatest width at the level of the posterior margin of the cephalothorax; genital-double somite with a vaguely figured dorsal suture.

Rostrum (Pl. VIII, fig. 1): anterior rounded, posterior broad with slanting margins.

Furcal rami (Pl. VII, fig. 5): divergent; three and the half times as long as broad; apical 65 μm width, distal 28 μm width and 97 μm long; apex covered with several stout spines on the ventral side; medio-terminal setae well developed; internal one 590 μm long and external one 395 μm long; close to those setae, a very small seta (24 μm) implanted on the internal margin; two dorsal setae, implanted near the apex of the furca;

the shortest one (25 μm) bare and the longest one (65 μm) feathered. Just behind the middle of the internal side, a pear-shaped seta arises. This structure shows resemblance to the appendages on the furcal rami of *Scottolana longipes*. One seta (50 μm long) is implanted on the ventral side near the middle of the ramus.

Antennula (Pl. IX, fig. 1) : robust and long in proportion to the length of the body and consisting of six segments; first segment with one row of stout hairs; second segment without any accessory structure; on the third segment one, on the fourth, three, and on the fifth segment three large spines with spoon-shaped setules; ultimate segment bearing seven long setae, six short setae and a spine, implanted near the apical edge of the segment. The two aesthetascs (both 180 μm long) are accompanied by two long, almost bare setae, of equal length. As a whole the antennule looks very complex, which is partially due to the special spine modifications and partially to the very dense pattern of long and flexible setae.

Antenna (Pl. VII, fig. 9 and 10) with distinct basis, covered with two fields of slender hairs; endopodite two segmented; exopodite consisting of eight, distinct segments; first segment of the endopodite with two unequal setae, second segment with four proximal, one sub-apical and six apical setae; all those, especially the sub-apical seta, extremely ornamented. Each of the first seven segments of the exopodite bearing a long seta; the ultimate segment bearing four setae, with one quite short seta; the other setae long.

Mandibula (Pl. VII : fig. 1-6) : pars molaris composed by two rows of blunt and sharp teeth, an accessory seta and a row of little spines on the inner surface; coxa-basis robust, bearing two equal inner-setae and a very long setae, arising near the implantation of the exopodite. Endopodite two-segmented, with three setae on the first segment and nine setae on the second segment. Exopodite consisting of three segments; the first with one seta and the remaining segments each with two setae. On the distal edge of the penultimate segment a row of strong hairs is covering the joint.

Maxillula (Pl. VII : fig. 7, 8) : precoxal arthrite, bearing seven spines and seven setae; two epipodial setae on the coxa; coxal arthrite with two parallel rows of hairs, and four strong setae; one of those setae more than twice as long as the arthrite; basis with six normal setae and two extremely long ones, exopodite one-segmented; endopodite with two segments. The internal margin of the exopodite is bearing six slender setae while the apical and outer margin is bearing five large, densely feathered setae. First segment of the endopodite with five setae on the inner margin; second segment with six setae, all implanted on the apical ridge.

Maxilla (Pl. VII, fig. 3) : precoxa and coxa separated; both with two endites, bearing plumose setae, with the exception of the second coxal endite; basis prolonged to a large claw, with three setae implanted on it; endopodite consisting of one segment carrying seven setae.

Maxilliped (Pl. VII, fig. 2) : Precoxa and coxa distinct; coxa with three groups of spines or setae : proximally a single feathered seta; in the middle, two spines and distally a group of eighth spines, one of them being very long, reaching almost to the distal tips of the endopodial setae; basis with three and endopodite with nine setae; apical setae of the endopodite, with stout setules along their proximal stem.

Natatorial legs (table 5) : with a three-segmented endopodite and exopodite; all legs showing a robust outlook, especially the second and third one.

TABLE 5

Scottolana dissimilis sp. nov.

	P 1	P 2	P 3	P 4
Coxa	0.1	0.1	0.1	0.1
Basis	1.I	1.0	1.0	1.0
Exo	I.0-I.1-IX.1.2	I.0-I.1-III.1.3	I.0-I.1-III.1.1	1.0-1.1-1.2.1
End	0.1-0.1-III.1.2	0.0-0.1-II.1.2	0.1-0.1-II.1.1	0.1-0.0-II.1.1

P1 (Pl. VIII, fig. 9) : coxa with a long internal seta, reaching up to the distal border of the first endopodite-segment; the surface of the coxa covered with a group of little hairs and a row of sharp teeth. Basis with a long extern feathered seta, and a stout spine on the inner distal edge; third segment of the endopodite carrying three setae and three spines, the most distal one being very slender.

P2 (Pl. VII, fig. 8) coxa with an inner seta, a row of stout teeth and a hooked cuticular structure on the proximal inner corner; neither a seta nor a spine but a row of teeth on the inner margin of the basis; the apical teeth on the spines of the segments modified into rounded structures; first segment of the endopodite, wedge-like prolonged, retired in a groove, formed by seven blunt teeth on the second segment.

P3 (Pl. VIII, fig. 7) : coxa and basis as P2, but hooked prolongment arising from the inner distal edge; seta on the first segment of the endopodite, very short and stout; exopodite shorter than endopodite, just reaching up to the distal edge of the endopodial second segment.

P4 (Pl. VIII, fig. 6) : inner seta of the coxa very short; basis with inner distal prolongment, exopodite reaching only to the middle of the endopodite.

P5 (Pl. VIII, fig. 5) : consisting of four bare setae, a long extern one followed by a short seta, a long one and finally by a short internal one.

Genital field (Pl. VIII : fig. 5) : with a long bare seta on each side. The genital field consists of a bandage becoming a clew in the middle of the segments below the genital pore.

— male (paratype).

Habitus : as in the female but smaller (1.20 mm) sixth and seventh segment separated.

Rostrum (Pl. VIII, fig. 2) : frontal section with parallel margins; the apex rounded and caudal regio broad with rounded edges; the whole shows a more slender outlook than the rostrum of the female.

Antennula (Pl. IX, fig. 2) : only ultimate segment different from the female; this segment more rounded; the distal regio formed by a more or less lobed structure.

Natatorial legs : no sexual dimorphism could be observed.

P 5 (Pl. VIII, fig. 3) differing from the female; the internal seta longest; the three extern equal in length.

Genital field (Pl. VIII, fig. 3) consisting of two plates, bordered with thick cuticular bands; at each side of the genital pore a long free-hanging band is implanted; through the hole, occurring in each plate, a similar structure arises. Along the median axis, between the caudal tips of the cover-plates, a cushionlike structure occurs. It is covered with several small teeth.

Furcal rami (Pl. VII, fig. 4) with the same appearance as the furca of the female; however the pear-shaped internal setae have a normal shape; lateral extern seta shorter; ornamentations on the furcal apex less dense and occurring only along the lateral margin.

Distribution. — At present *S. dissimilis* is only known from the type-locality (2 specimens) and from a sample (PNG 77/107) taken more to the eastern side, of the same reef-flat.

REMARKS ON SOME SPECIES OF THE GENUS SCOTTOLANA

The inadequate descriptions of some species, of the genera *Canuella* and *Scottolana*, lead to a lot of difficulties and mis-interpretations throughout the literature of the Canuellids. In recent years, however, some of these problems have been cleared up. Nevertheless, difficulties with *Sunaristes longipes* THOMPSON and SCOTT (1903), *Canuella curticaudata* SCOTT (1909), *Sunaristes inopinata* THOMPSON and SCOTT (1903) are still pending. Recently, HAMOND (1973, p. 178) considered *Scottolana bulbosus* (POR, 1964) as a synonym of *Scottolana curticaudata* (THOMPSON and SCOTT, 1903) *sensu* SCOTT, 1909. Although both species resemble well, several characteristics are not identical at all.

The spines on the exopodite of the P 1 of *S. bulbosus* are modified to long setae-like appendages, reaching the distal edge of the third segment. The drawing given by SCOTT (1909, Pl. LXIV) shows two spines of normal proportions. As will be discussed later, the same characteristic permits to discriminate *Ellucana longicauda* from *Ellucana secunda*.

A second difference between *Sunaristes bulbosus* and *S. curticaudata* occurs in the setation of the P 5 which has four equal setae in the former, four unequal setae in the latter.

In table 4 all the differences between these and other species of the genus *Scottolana* are summed up. The above mentioned considerations led us to the conclusion *Scottolana bulbosus* (POR, 1964) and *Scottolana curticaudata* (THOMPSON and SCOTT, 1903) *sensu* SCOTT, 1909 non THOMPSON and SCOTT, 1903 may be not regarded as synonyms.

Genus *Canuella* T. and A. SCOTT, 1893

Canuella paenelantica sp. nov.

(Plate X, fig. 1-7; Plate XI, fig. 1-4; Plate XII, fig. 1-5)

Type-locality. — Laing Island East Side (PNG 77/107).

Holotype. — A female (prep. nr. P2131).

Paratype. — A male (prep. nr. P2123).
a juvenile specimen (prep. nr. P2075).

Derivatio nominis. — *paene* (Latin) = almost, because of the resemblance to *Canuella elantica* POR, 1967.

Diagnosis. — Large species, with bulbiform cuticular structures, long rostrum, terminal setae of the furcal rami covered with strong setules.

Description. — Female (holotype).

Habitus: length 1.70 mm, parallel-sided with slightly tapering abdomen and cephalothorax; first pediger fused with cephalosoma; genital double-somite with interrupted dorsal suture; the whole cuticula is covered with blunt cuticular structures.

Rostrum: (Pl. XII; fig. 3) long, seemly soft; borders curved; caudal edges rounded.

Furcal rami (Pl. XII; fig. 2) tapering to the apex, twice as long as broad; triangular in cross-section; the base of the triangle ventrally situated; external median setae shorter as the ramus and ornamentated with stout spines on the stem; internal setae bare and three times as long as the furcal ramus; two internal setae, the first one implanted next to the internal median seta, and the second one implanted near the middle of the furcal ramus.

One dorsal and one ventral seta, both short; long external seta ornamentated with toothlets.

Antennula (Pl. XII, fig. 1): indistinctly five-segmented with two aesthetascs on the third segment; several robust spines, all implanted on the

second and third segment; three setae implanted on the first segment; eight on the second, four setae on the fourth, seven on the penultimate and six on the ultimate segment. The aesthetascs are short (200 μm long) and hidden by the strong spines.

Antenna (Pl. X, fig. 1) : coxa and basis well separated; exopodite with seven distincted segments (first segment probably composed of a presumed first and second segment); endopodite consisting of two segments.

Basis with slender seta, reaching up to the distal edge of the first endopodite segment; the latter bears two setae while the ultimate segment has eight setae; two of those implanted along the proximal border of the second segment, the remaining ones all standing on the distal edge; a cluster of long hairs arising along the posterior margin of the ultimate segment; all segments of the exopodite with one seta, except the seventh segment bearing three setae. Almost every seta of the antenna is ornamented with stout setules.

Mandibula (Pl. X, fig. 4 and 2) : pars molaris with five long teeth, constructing the major biting edge, two short teeth in a second row and two accessory spines; corpus mandibularis with three accessorial rows of teeth; coxa-basis bearing two long densely feathered setae on the height of the basis; exopodite three-segmented; formula 1,1 and 4; the ultimate segment presumably composed of two segments; endopodite consisting of two segments; the first one with two and the second one with eight setae; two setae implanted on the penultimate segment; the setae on the internal and apical margin of the ultimate segment are ornamented with stout setules.

Maxillula (Pl. X, fig. 6 and 5) : precoxa distinctly separated from coxa; coxa and basis fused; precoxal arthrite with four setae and seven spines; coxa bearing four setae and one epipodital seta; basis with 5 setae; exopodite one-segmented and endopodite two-segmented; exopodite with five long and two short setae; one implanted on the internal side and on the external side; penultimate segment of the endopodite bearing six setae along the internal margin; the ultimate segment also with six setae, all implanted on the apical side.

Maxilla (Pl. XII, fig. 3) : precoxa and coxa fused; several rows of hairs on their surface; two cuticular structures at the height of the coxa; precoxa and coxa with two endites, precoxal endites with four and two setae; coxal endites with three setae; basis hook-like extended; accompanied with a stout spine on both sides, a slender bare seta implanted near the proximal regio of the hook; endopodite indistinctly two-segmented and bearing nine setae.

Maxilliped (Pl. X, fig. 3) : all elements well separated; precoxa with a row of strong hairs and a seta; coxa with seven setae, the most distal seta long and covered with strong setules; external margin of the basis with long hairs; internal margin with four spines; endopodite with ten setae of two types; four external setae, feathered and the remaining internal setae, with stout spines along their stem.

TABLE 6

Canuella paenelantica sp. nov.

	P 1	P 2	P 3	P 4
Coxa	0.I	0.I	0.I	0.0
Basis	1.I	1.0	1.0	1.0
Exo	I.0-I.1-IV.3	I.0-I.1-III.1.3	I.0-1.1-III.1.1	I.0-I.1-V
End	0.1-0.1-III.3	0.1-0.1-II.1.2	0.1-0.1-III.1	0.1-01-IV

Natatorial legs (table 6) : all rami three-segmented; exopodites shorter than endopodites, except the P4 where the rami are equal in length; ultimate segments of the rami devoid of ornamentations; the other segments bearing long flat spines along their external margin; the proximal external margin of the coxal of the P3 and the P4 showing a remarkable hooked prolongment.

P1 (Pl. XI, fig. 1a, 1b) : coxa with several long and stout hairs on the anterior and posterior surface; coxa bearing an inner spine : basis with an inner and an outer spine; these spines ornamented with long setules around their stem; first segment of the exopodite with a row of fine hairs along the internal margin; distal spine of the third segment of the exopodite with three kinds of ornamentations along his stem.

P2 (Pl. XI, fig. 2) : coxal spine bearing long hairs, implanted around the stem no sexual modifications occurring on the female leg.

P3 and P4 (Pl. XI, fig. 3 and 4) : normally constructed legs; the third leg coxal spine still existing whereas this spine is absent on the coxa of the P4.

Genital field (Pl. X, fig. 7) : constructed by a plate covering the groove giving admittance to the genital pore; lateral sides of the plate strengthened by several thick cuticular bands; both sides of the genital field ornamented with a strong bare seta.

. — male (paratype) : sexual dimorphism apparent in the antennula, the P2, the genital field and the setation of the furcal rami.

Habitus : 1.10 mm long, with the same shape as the female.

Antennula (Pl. XII, fig. 1) : only ultimate and penultimate segment different from the female, both constructing a haplocer apparatus; setae and spines as in the female, but those implanted on the fourth and fifth segment shorter.

P2 (Pl. XI, fig. 2) with the same shape as the female; sexual dimorphism apparent on the first endopodite segment; inner margin of the latter extended, forming a blunt cylindrical proces.

Furcal rami (Pl. XII, fig. 2) : external terminal seta with sharp spines along the whole stem, in contrast with the female seta.

Discussion. — *Canuella paenelantica* sp. nov. closely resembles *Canuella elantica* POR, 1967 but differs from the latter by the setation of the furcal rami, the shape of the genital field and the number and shape of the setae at the mouth parts.

Genus *Parasunaristes* gen. nov.

The unadequate description of the genus *Ellucana* by SEWELL (1940, pp. 136) and the subsequent descriptions of some species by THOMPSON and SCOTT (1903) and by SCOTT (1909) has led to confusions.

Even today, most authors are not convinced at the validity of this genus. Although the consideration of SEWELL (1940) that *Ellucana* is a subgenus of *Canuella* clearly was mistaken, the separation of the species with a biramous endopodite of the P4, was certainly a step forwards.

Since 1940, this group was enlarged with four species, showing such a variation that the validity of the genus became doubtful again.

The rediscovery of *Ellucana longicaudata* SEWELL, 1940 enables a thorough restudy of this complex.

From table 7 it appears that the uniformity of the setal formula of the P3 and the P4 is very obvious.

Two major groups can be distinguished on the basis of this feature, namely the *Canuellina-Ellucana* group and the *Sunaristes-Parasunaristes* group. Even the species with a more reduced formula are uniform within those groups. The two groups can also be separated on the basis of the shape of the genital field. The first group includes species with a genital field composed of two independent areas, bearing one bare seta at each side. The genital field of the second group consists of two plates occurring closely together in the middle of the genital somite. A strong bare seta implanted on both sides.

In this respect the aspect of the first legbearing segment also shows the same distinction between the two groups. This feature became of less importance since the revision made by POR (1967), but now it seems to be one of the most important features of the genera again.

All these considerations led to the conclusion that the genus *Sunaristes* (*sensu auct.*) has to be split in two separate genera, the genus *Sunaristes* HESSE, 1867 and the genus *Parasunaristes* gen. nov.

The genus *Sunaristes* contains at present the following species : *S. paguri* HESSE, 1867; *S. inopinata* THOMPSON and SCOTT, 1903; *S. inaequalis* HUMES and HO, 1969; and *S. trantani* HAMOND, 1973.

The genus *Parasunaristes* gen. nov. contains *P. cucullaris* n. sp.; *P. curticaudata* (THOMPSON and SCOTT, 1903); *P. dardani* (HUMES and HO, 1969) and *P. chelicerata* (POR and MARCUS, 1972) (*Ellucana steinitzi* POR and MARCUS, 1972, p. 273, nomen nudum).

TABLE 7

Setal formula of all known species of the genera :
Ellucana, *Canuellina*, *Sunaristes* and *Parasunaristes* gen. nov.

	P 1		P 2		P 3		P 4	
	exo	end	exo	end	exo	end	exo	end
<i>Ellucana longicauda</i> SEWELL	017	/ 116	016	/ 115	014	/ 114	004	/ -13
<i>Ellucana secunda</i> COULL	017	/ 116	016	/ 015	014	/ 114	004	/ -13
<i>Canuellina insignis</i> GURNEY	007	/ 115	016	/ 005	014	/ 114	004	/ 103
<i>Canuellina canalis</i> POR	007	/ 116	016	/ 115	014	/ 114	004	/ 103
<i>Canuellina femur</i> POR	007	/ 116	005	/ 115	014	/ 114	004	/ 103
<i>Canuellina onchophora</i> POR	017	/ 116	006	/ 115	014	/ 114	004	/ 103
<i>Sunaristes paguri</i> HESSE	017	/ 116	017	/ 115	015	/ 113	014	/ 103
<i>Sunaristes inequalis</i> HUMES and HO	017	/ 116	017	/ 115	015	/ 113	014	/ 103
<i>Sunaristes trantani</i> HAMOND	017	/ 116	017	/ 115	015	/ 113	014	/ 103
<i>Sunaristes inopinata</i> THOMPSON and SCOTT	017	/ 116	017	/ 115	?		014	/ 103
<i>Parasunaristes curticaudata</i> THOMP- SON and SCOTT	?		016	/ 115	015	/ 113	014	/ -13
<i>Parasunaristes chelicerata</i> POR and MARCUS	017	/ 116	017	/ 115	015	/ 113	014	/ -13
<i>Parasunaristes dardani</i> HUMES and HO	017	/ 116	017	/ 115	015	/ 113	014	/ -13
<i>Parasunaristes cucullaris</i> sp. nov.	017	/ 116	017	/ 115	015	/ 113	014	/ -13

Parasunaristes gen. nov.

Type-species. — *Parasunaristes cucullaris* sp. nov. (here designated).

Diagnosis. — Resembling *Sunaristes*; first legbearing separated from cephalosoma: female with a dorsal suture on the genital double-somite; male with a genital segment separated from the first « abdominal » segment; furcal rami short; antennula with four segments; antennula of the male with « chelicerate » penultimate and ultimate segments; natatorial legs with setal formulae: (P 1) 017/116, (P 2) 017/115, (P 3) 015/113 and (P 4) 014/-13; endopodite of P 4 two-segmented; P 2 of

male with sexual dimorphism occurring on the endopodite; female genital field ventro-medially situated and ornamented with a bare seta on both the sides; male showing a groove constructed by two triangular cuticular folds, each bearing a bare seta; along the groove-walls, one or two blunt appendages.

Parasunaristes cucullaris sp. nov.

(Plate XIV, Fig. 1-6; Plate XV, Fig. 1-5, Plate XVI, Fig. 1-8,
Plate XVII, Fig. 1-6)

Type-locality. — Laing Island, west-side, (PNG 78/152).

Holotype. — An ovigerous female, (prep. nr. P2140).

Paratypes. — 11 females and 10 males, all from the type-locality, (prep. nr. P2141 to P2145, others preserved in alcohol).

Derivatio nominis. — *Cucullaris* (Latin) = cap, the specific name refers to the extension of the cephalosoma.

Diagnosis. — First legbearing segment separated from the cephalosoma; covered by the extension of the posterior ridge of the cephalosoma; furcal rami short, anal segment with two small bump-shaped extensions. Male bearing two « chelicerate » antennae.

Description. — Female (holotype).

Habitus (Pl. XIV, fig. 5): prosoma and urosoma tapering in dorsal view; in lateral view, prosoma extended in a blunt tip, directing posteriorly; ventral side of prosoma more or less concave in the middle; lateral extension reaching to the anterior side of the third somite; first segment separated and almost totally covered; genital double-somite one and the half as long as broad; distinct dorsal suture; anal segment; dorsally with a blunt extension on both sides; the posterior side of the last somite with rounded extensions; operculum rectangular and smooth. Rostrum (Pl. VII, fig. 1): bell-shaped, longitudinal axis longer as the width; apical edge rounded.

Furcal rami (Pl. XIV, fig. 2): short, one and a half times as long as broad; all setae implanted near the furcal apex; dorsal and external lateral setae, stout, covered with small setules; lateral internal and dorsal internal setae, slender and smooth; terminal setae also smooth with the following measures: external setae 0.2 mm and internal setae 0.3 mm.

Antennula (Pl. XV, fig. 3): four-segmented; ornamented with strong spines, bearing blunt teeth implanted around the stem; second and third segment with an aesthetasc (990 μ m and 115 μ m long): each aesthetasc accompanied by a striated seta of the same length. The first segment

shows two parallel rows of hairs and one seta while the second segment, the largest of the antennule, bears six spines and eighteen setae. The third segment, the shortest of all the segments, bears besides an aesthetasc only three spines and the above mentioned, striated seta. The fourth segment is cylindrical and carries a spine, four anterior setae, five posterior ones and three apical setae. The setae, directing to the posterior side, are the shortest.

Antenna (Pl. XV, fig. 4a and 4b) : with a three-segmented endopodite and an eight-segmented exopodite; basis cylindrical and short, bearing an outer row of slender hairs; first segment of endopodite long with a seta, implanted on the inner margin; second and third segment approximately equal in length; the former bearing four setae, the latter seven, all implanted on the distal edge; the setules at two setae on the penultimate and one seta on the ultimate segment are modified, forming imbricately implanted blunt structures; the first and second exopodite segment without setae; formula : 0, 0, 1, 1, 1, 1, 1 and 3; setae on the third and fourth segment small.

Mandibula (Pl. XVI, fig. 8) : pars molaris with several blunt and sharp teeth and an accessory seta; corpus mandibularis without ornamentations; coxa-basis, cylindrical, with two setae and two rows of fragile hairs; setae more or less distally implanted; two-segmented endopodite and three-segmented exopodite; segments of the exopodite well distinguished with formula : 2, 1 and 3; first segment of the endopodite bearing four setae, two of those implanted on the distal edge, the others more proximally situated; ultimate segment with six setae, all implanted on the distal edge, and a row of hairs near the middle of the external margin. All the setae of the endopodite are feathered as those on the coxa-basis.

Maxillula (Pl. XVI, fig. 1-14) : precoxa and coxa not distinguished; regio of precoxa with two rows of short hairs, one near the external margin and one under the arthrite, along the internal border; precoxal arthrite with two setae and seven spines; coxal regio bearing two epipodal setae and five inner-setae; near the implantation of the proximal seta, the coxa bears five little spines.

Maxilla (Pl. XVI, fig. 7) : stout construction, with a large brownish extension on the basis; pre-coxa and coxa fused; with four endites; first endite with four setae; second one with two setae and the third and fourth endite with three setae. The surface of the precoxa-coxa shows a pattern of small and stout hairs along the internal, external and proximal margins; basis with on both sides of the hook-shaped extension a socle with two setae on it; endopodite, one-segmented, bearing nine feathered setae.

Natatorial legs (table 8) : except for the endopodite of P4, all rami three-segmented; P1 with a seta on the inner distal corner of the coxa; external setae of the basis of all legs, long and slender;

TABLE 8
Setal formula of *Parasunaristes cucullaris* sp. nov.

	P 1	P 2	P 3	P 4
Coxa	0.1	0.0	0.0	0.0
Basis	1.I	1.0	1.0	1.0
Exo	I.0-I.1-IV.3	I.0-I.1-IV.3	I.0-I.1-III.2	I.0-I.1-II.2
End	0.1-0.1-III.3	0.1-0.1-II.3	0.1-0.1-0.3	0.1-0.3

P1 (Pl. XVII, fig. 3) : rami almost equal in size; ornamentations occurring only on the first segment of the exopodite and the first and second segment of the endopodite. In contrast with the other legs, the ornamentations occurring on the P1 are fragile hairs.

P2 (Pl. XVII, fig. 5) : exopodite longer as endopodite, last segments of both the rami without ornamentations; the distal external corners of the first and second segment extending to a tip both reaching to the middle of the following segment.

P3 (Pl. XVII, fig. 4) : endopodite very small, reaching to the middle of the last segment of the third segment of the exopodite; third segment of endopodite extended in a tip and bearing a short seta on the inner side; all segments with ornamentations.

P4 (Pl. XVII, fig. 6) : endopodite two-segmented and reaching just above the first exopodite segment; except for the first segment of the endopodite, all segments with accessory spines on their surface.

P5 (Pl. XVI, fig. 2) : consisting of four bare setae; external setae longest; accompanying seta equal in length; supporting segment well distinguished from the body-segment; besides the external setae, which is implanted on a socle, an external bump is formed.

Genital field (Pl. XIV, fig. 4) very complex, but comparable with the genital fields of the other known species of *Sunaristes* and *Parasunaristes*. A cuticular fold (plate), with its longest axis situated antero-posteriorly, forms the median groove; the genital pore is situated between the anterior edges of the cover-plate. Externally, along the anterior edge of the folds, the genital field consists of thick cuticular structures, bearing a long bare seta.

. — male (paratype). prep. nr. P.2141.

Habitus (Pl. XIV, fig. 6, and Pl. XV, fig. 5) : length 0.83 mm posterior margin of the prosoma laterally and dorsally extended; the dorsal extension (Pl. XV, fig. 5) as a hoe with on both the sides a triangular formation; posterior side of the hoe-structure concave; lateral extension and ventral margin of the prosoma as in the female; thorax, in contrast with the urosome, slender, partly (first and second somite) covered by

the prosoma; genital somite separated from the first abdominal segment; anal segment and furcal rami as in the female.

Rostrum (Pl. XVII, fig. 2) more robust than in the female; posterio-lateral edges more straight.

Maxilla (Pl. XVI, fig. 5 and 6) : Precoxa and coxa, as in the female; basis with a straight extension, bearing five blunt teeth on the posterior surface; on each side of this hook-shaped structure, two setae implanted on a socle; endopodite consisting of a single segment, bearing nine setae, as in the female.

Antennula (Pl. XV, fig. 1 and 2) composed of four segments : bearing two aesthetascs of the same size and five spines instead of seven as in the female : each aesthetasc implanted on a socle; third and fourth segment modified, forming a chelicerate apparatus; third segment consisting of two sub-units; a small socle, bearing one short and two large setae and a second large unit developed dorso-ventrally; the dorsal margin extended to a finger-like structure; two setae on the anterior and three setae on the posterior surface; two setae implanted along the inner margin of the helice; fourth segment, articulating with the ventral edge of the third one, showing, in reverse the finger-shaped structure of the third segment; the fourth segment bearing three setae on the anterior side, implanted near the articulation.

Natatorial legs (Pl. XIV, fig. 3) : only P2 showing sexual dimorphism; the first segment of the endopodite with an extended, brownish structure, reaching over the middle of the ultimate segment; second segment, also with an extension, but much shorter.

Genital field (Pl. XV, fig. 1) : triangular shape; constructed by the extension of the ventral surface : two plates (one on each side) forming a median groove; a blunt process on each side of the groove : a long and a short one; the posterior corner of the coverplates bearing a stout bare spine; along the posterior ventral margin four sensorial hairs are implanted.

Discussion. — *Parasunaristes cucullaris* sp. nov. is the second species, actually known, with male antennula showing a strong chelicerate habitus. It differs from *Parasunaristes chelicerata* (POR and MARCUS) in the shape of the prosoma, the shape of the anal segment and the shape of the genital field.

Genus *Ellucana* SEWELL, 1940

Type-species. — *Canuella (Ellucana) longicauda* SEWELL, 1940.

Diagnosis. — Resembles the genus *Cannuellina* closely; first leg-bearing segment fused with the cephalosoma; female genital double-somite with a dorsal suture; furcal rami long; natatorial legs with setal formula of P3 014/114 and of P4 : 004/-13; endopodite of P4 two-segmented; genital segment of female consisting of two independent

areas each bearing a bare setae. The male shows slight sexual dimorphism on the endopodite of the second pair of legs. The genital armature bears three long setae implanted under the covering plates. The antenna is haplocer, with a lot of setae on the ultimate and penultimate segments. At present the genus *Ellucana* comprises only two species namely *E. longicauda* SEWELL, 1940 and *E. secunda* COULL, 1971.

Ellucana longicauda SEWELL, 1940
(Plate XII, Fig. 6-7; Platte XIII, Fig. 1-7)

1940. *Canuella (Ellucana) longicauda* sp. nov. — SEWELL, John Murray Exp., p. 136.
 1948. *Canuella (Ellucana) longicauda* SEWELL, 1940. — LANG, Mongr. Harp., p. 1615.
 1967. *Ellucana longicauda* SEWELL. — POR, Harp. Elat., p. 106.
 1971. *Ellucana longicauda* SEWELL, 1940. — COULL, Meibent. harp., p. 197.

Material. — PNG 77/120 : Laing Island, a female (prep. P.2119).
 PNG 78/15 : Laing Island, lagoon, a female (prep. P.2144).

Description. — Female.

Habitus (Pl. XII, fig. 6) : robust, cephalothorax short; thorax-segments parallel-sided, abdomen tapering; genital double-segment with a dorsal suture; length = 1.15 mm; somites and furcal rami devoid of any cuticular structure.

Rostrum (Pl. XIII, fig. 6) : bell-shaped, with rounded apex and rounded caudal edges.

Furcal rami (Pl. XII, fig. 7 and Pl. XIII, fig. 1) three and half times as long as broad; inner margin, curved; external margin straight; at the height of the distal third two bare internal setae; a short dorsal seta, and an apical inner seta near the apex, implanted near the terminal inner setae. The internal terminal seta is very long, approximately four times as long as the furcal rami and the external terminal seta only half as long.

Maxilliped (Pl. XIII, fig. 7) : precoxa and coxa fused. One seta implanted near the proximal edge of the precoxa-coxa; distal edge, bearing eight appendages; four appendages are slender setae and four are relatively strong. The basis from which the inner distal corner is extended, bears only three setae. External rim of the basis covered with fine hairs. The endopodite, carrying ten setae, is rather flat, forming a straight distal rim. The setae are implanted on little socles, created by small incisions.

P3 (Pl. XIII, fig. 3) : endopodite and exopodite almost equal in length; coxa with a stout inner spine, without ornamentations on the surface; basis with a slender external seta, and extended into a sharp tip between the rami. The rami showing a robust shape created by the thick cuticular and the strong extensions of the external distal corners.

P4 (Pl. XIII, fig. 4) with the same ornamentations on the basis and the coxa as in P3; exopodite and endopodite with strong cuticular structures on every segment; endopodite two-segmented, the second segment just reaching to the distal edge of the second segment of the exopodite.

P5 (Pl. XIII, fig. 2): supporting segments fused, bearing four setae; external setae long; remaining setae, equal in length, and about half as long as the external ones.

Genital field (Pl. XII, fig. 7 and Pl. XII, fig. 5) consisting of two areas which are jointed together with a triangular cuticular fold; apex of the triangle formed by the genital pore. The genital fields are constructed by thick cuticular bands with a long bare setae implanted on it.

ACKNOWLEDGEMENTS

I am indebted to Dr. J. VAN GOETHEM, head of the Department of the Recent Invertebrates, K. B. I. N., for procuring me working facilities and offering me the interesting material. I am also most grateful to Dr. K. WOUTERS for critically reading the manuscript.

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EXPLANATION OF PLATES

PLATE I

Brianola vangoethemi sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1a. — Antennula, female, setae and aesthetascs, holotype, (P2025a).
 Fig. 1b. — Antennula, female, accessory spines, holotype, (P2025a).
 Fig. 2a. — Mandibula, female, holotype, (P7025a).
 Fig. 2b. — Mandibula, female, pars molaris, holotype, (P2025a).
 Fig. 3a. — Antenna, female, protopodite and endopodite, holotype, (P2025a).
 Fig. 3b. — Antenna, female, exopodite, holotype, (P2025a).
 Fig. 4. — Genital field, female, holotype, (P2025a).
 Fig. 5. — Maxillula, female, holotype, (P2025a).
 Fig. 6. — Maxilliped, female, holotype, (P2025a).
 Fig. 7. — Maxilla, female, holotype, (P2025a).

PLATE II

Brianola vangoethemi sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Rostrum, female, holotype, (P2025a).
 Fig. 2. — Rostrum, male, paratype, (P2138).
 Fig. 3. — Genital field, male, paratype, (P2138).
 Fig. 4. — P 1, antero-posterior view, female, holotype, (P2025a).
 Fig. 5. — P 2, postero-anterior view, female, holotype, (P2025a).
 Fig. 6. — P 3, antero-posterior view, female, holotype, (P2025a).
 Fig. 7. — P 4, antero-posterior view, female, holotype, (P2025a).
 Fig. 8. — Antennula, male, accessory spines, paratype, (P2138).
 Fig. 9. — Antennula, male, setae and aesthetascs, paratype, (P2138).

PLATE III

Brianola vangoethemi sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1a. — Furcal rami, dorsal view, female, holotype, (P2025a).
 Fig. 1b. — Furcal rami, ventral view, female holotype, (P2025a).
 Fig. 1c. — Female, habitus, holotype, (P2025a).
 Fig. 1d. — Labrum, female, holotype, (P2025a).

Scottolana glabra sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 2a. — Prosoma, lateral view, female, holotype, (P2120).
 Fig. 2b. — Female, habitus, holotype, (P2120).

PLATE IV

Scottolana glabra sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Maxilliped, female, holotype, (P2120).
- Fig. 2. — Rostrum, male, paratype, (P2133).
- Fig. 3. — Rostrum, female, holotype, (P2120).
- Fig. 4. — Maxilla, female, holotype, (P2120).
- Fig. 5. — Furcal rami, female, holotype, (P2120).
- Fig. 6. — Precoxal arthrite of the female maxillula, holotype, (P2120).
- Fig. 7. — Genital field and P 5, male, paratype, (P2133).
- Fig. 8. — Antenna, female, holotype, (P2120).
- Fig. 9. — Mandibula, female, holotype, (P2120).
- Fig. 10. — Maxillula, female, holotype, (P2120).

PLATE V

Scottolana glabra sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — P 3 female, holotype, (P2120).
- Fig. 2. — P 4 female, holotype, (P2120).
- Fig. 3. — P 1 female, holotype, (P2120).
- Fig. 4. — P 2 female, holotype, (P2120).
- Fig. 5. — P 2, first and second segment of the endopodite, male, paratype, (P2133).
- Fig. 6. — Genital field female, holotype, (P2120).

PLATE VI

Scottolana glabra sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Antennula, male, paratype, (P2133).
- Fig. 2. — Antennula, female, holotype, (P2120).

Scottolana dissimilis sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 3. — Habitus, female, holotype, (P2139).
- Fig. 4. — Lateral view, female, holotype, (P2139).

PLATE VII

Scottolana dissimilis sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Mandibula, female, holotype, (P2139).
- Fig. 2. — Maxilliped, female, holotype, (P2139).

- Fig. 3. — Maxilla, female, holotype, (P2139).
 Fig. 4. — Furcal rami, dorsal view, male, paratype, (P2131bis).
 Fig. 5. — Furcal rami, dorsal view, female, holotype, (P2139).
 Fig. 6. — Mandibula, female, pars molares, holotype, (P2139).
 Fig. 7. — Maxillula, female, precoxal arthritis, holotype, (P2139).
 Fig. 8. — Maxillula, female, holotype, (P2139).
 Fig. 9. — Antenna, female, exopodite, holotype, (P2139).
 Fig. 10. — Antenna, female, protopodite and endopodite, holotype, (P2139).

PLATE VIII

Scottolana dissimilis sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Rostrum, male, paratype, (P2131bis).
 Fig. 2. — Rostrum, female, holotype, (P2139).
 Fig. 3. — Genital somite of male, paratype, (P2131bis).
 Fig. 4. — First and second segment endopodite P 2, male, (P2139bis).
 Fig. 5. — Genital double-somite of female, holotype, (P2139).
 Fig. 6. — P 4, female, holotype, (P2139).
 Fig. 7. — P 3, female, holotype, (P2139).
 Fig. 8. — P 2, female, holotype, (P2139).
 Fig. 9. — P 1, female, holotype, (P2139).

PLATE IX

Scottolana dissimilis sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Antennula, female, holotype, (P2139).
 Fig. 2. — Antennula, penultimate and ultimate segment, male, (P2131bis).

PLATE X

Canuella paenelantica sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Antenna, female, holotype, (P2131).
 Fig. 2. — Mandibula, pars molares, female, holotype, (P2131).
 Fig. 3. — Maxilliped, female, holotype, (P2131).
 Fig. 4. — Mandibula, female, holotype, (P2131).
 Fig. 5. — Precoxal, arthritis of female maxillule, (P2131).
 Fig. 6. — Maxillula, female, holotype, (P2131).
 Fig. 7. — Genital field, female, holotype, (P2131).

PLATE XI

Canuella paenelantica sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1a. — Protopodite and exopodite P 1, female, holotype, (P2131).
 Fig. 1b. — Endopodite P 1, female, holotype, (P2131).
 Fig. 2. — P 2 male, paratype, (P2123).
 Fig. 3. — P 3 female, holotype, (P2123).
 Fig. 4. — P 4 female, holotype, (P2123).

PLATE XII

Canuella paenelantica sp. nov., Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Antennula, male, paratype, (P2131).
 Fig. 2. — Furcal rami, ventral view, female, holotype, (P2123).
 Fig. 3. — Maxilla, female, holotype, (P2131).
 Fig. 4. — Rostrum, female, holotype, (P2131).
 Fig. 5. — Genital field, male, paratype, (P2123).

Ellucana longicaudata SEWELL, 1940, Laing Island, Hansa Bay, Papua New Guinea

- Fig. 6. — Female, habitus, (P2119).
 Fig. 7. — « Abdomen » ventral view, female, (P2144).

PLATE XIII

Ellucana longicaudata SEWELL, 1940, Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Left genital structure, female, (P2119).
 Fig. 2. — P 5, female, (P2119).
 Fig. 3. — P 3, female, (P2119).
 Fig. 4. — P 4 and intercoxalplate, female, (P2119).
 Fig. 5. — Left genital structure, female, (P2119).
 Fig. 6. — Rostrum, female, (P2119).
 Fig. 7. — Maxilliped, female, (P2119).

PLATE XIV

Parasunaristes cucullaris, gen. nov., spec. nov.,
 Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Genital segment with P 4 and genital field of male, (P2141).
 Fig. 2. — Anal segment and furcal rami, female, holotype, (P2140).

- Fig. 3. — Endopodite P 2 male, paratype, (P2141).
 Fig. 4. — Genital field of female, holotype, (P2140).
 Fig. 5. — Lateral view, female, holotype, (P2140).
 Fig. 6. — Lateral view, male, paratype, (P2141).

PLATE XV

Parasunaristes cucullaris, gen. nov., spec. nov.,
 Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Antennula, posterior view, male, paratype, (P2141).
 Fig. 2. — Antennula, anterior view, male, paratype, (P2141).
 Fig. 3. — Antennula, female, holotype, (P2140).
 Fig. 4a. — Antenna, protopodite and endopodite, female, holotype, (P2140).
 Fig. 4b. — Antenna, exopodite, female, holotype, (P2140).
 Fig. 5. — Prosoma, dorsal view, male paratype, (P2141).

PLATE XVI

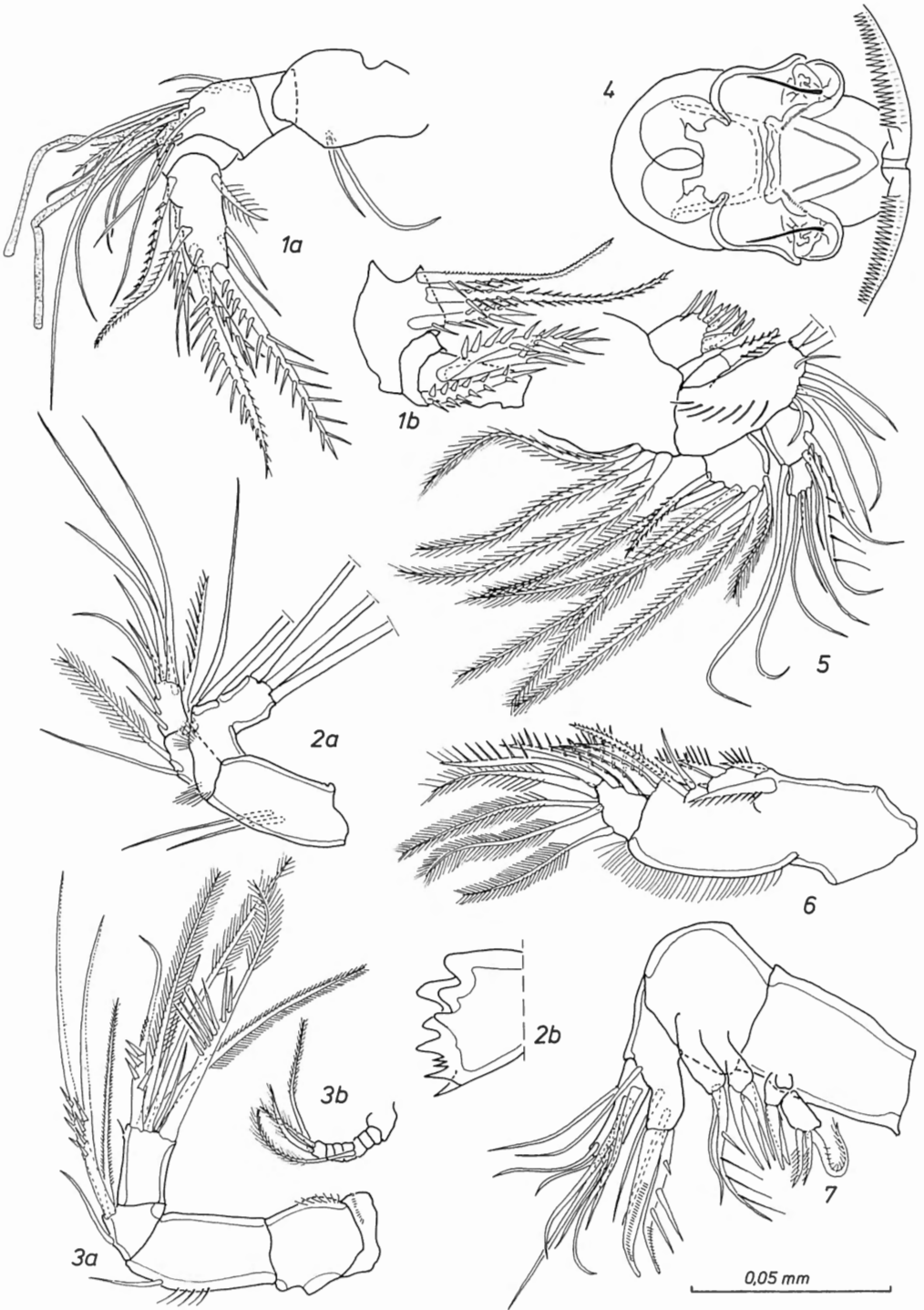
Parasunaristes cucullaris, gen. nov., spec. nov.,
 Laing Island, Hansa Bay, Papua New Guinea

- Fig. 1. — Maxillule, female, holotype, (P2140).
 Fig. 2. — P 5, left, female, holotype, (P2140).
 Fig. 3. — Maxilliped, female, holotype, (P2140).
 Fig. 4. — Coxal endites of maxillule, female, holotype, (P2140).
 Fig. 5. — Hook of the basis of the maxille male, (P2141).
 Fig. 6. — Basis and endopod of the males maxilla, (P2141).
 Fig. 7. — Maxilla, female, holotype, (P2140).
 Fig. 8. — Mandibula, female, holotype, (P2140).

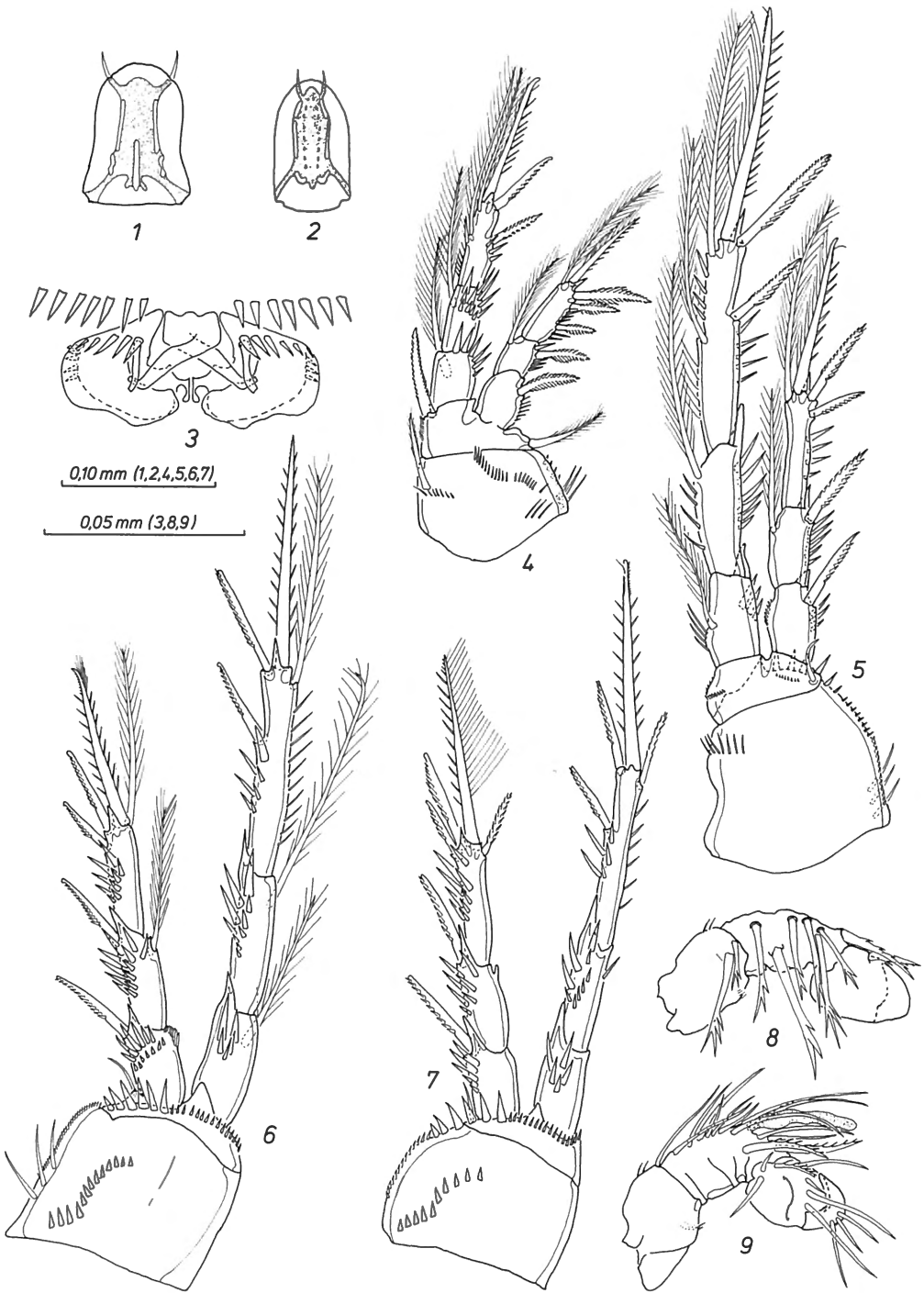
PLATE XVII

Parasunaristes cucullaris, gen. nov., spec. nov.,
 Laing Island, Hansa Bay, Papua New Guinea

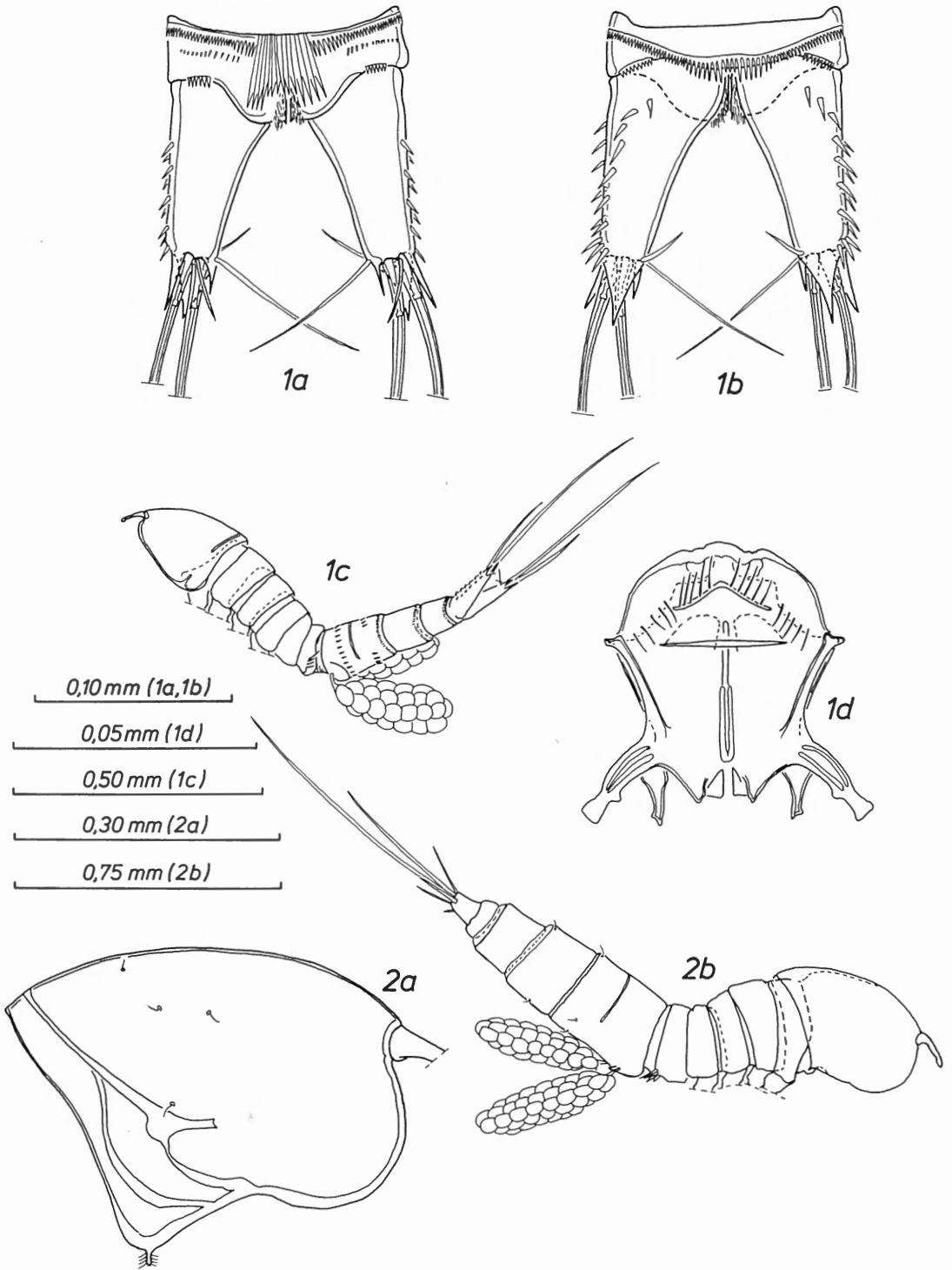
- Fig. 1. — Rostrum, female, holotype, (P2140).
 Fig. 2. — Rostrum, male, paratype, (P2141).
 Fig. 3. — P 1, female, holotype, (P2140).
 Fig. 4. — P 3, female, holotype, (P2140).
 Fig. 5. — P 2, female, holotype, (P2140).
 Fig. 6. — P 4, female, holotype, (P2140).



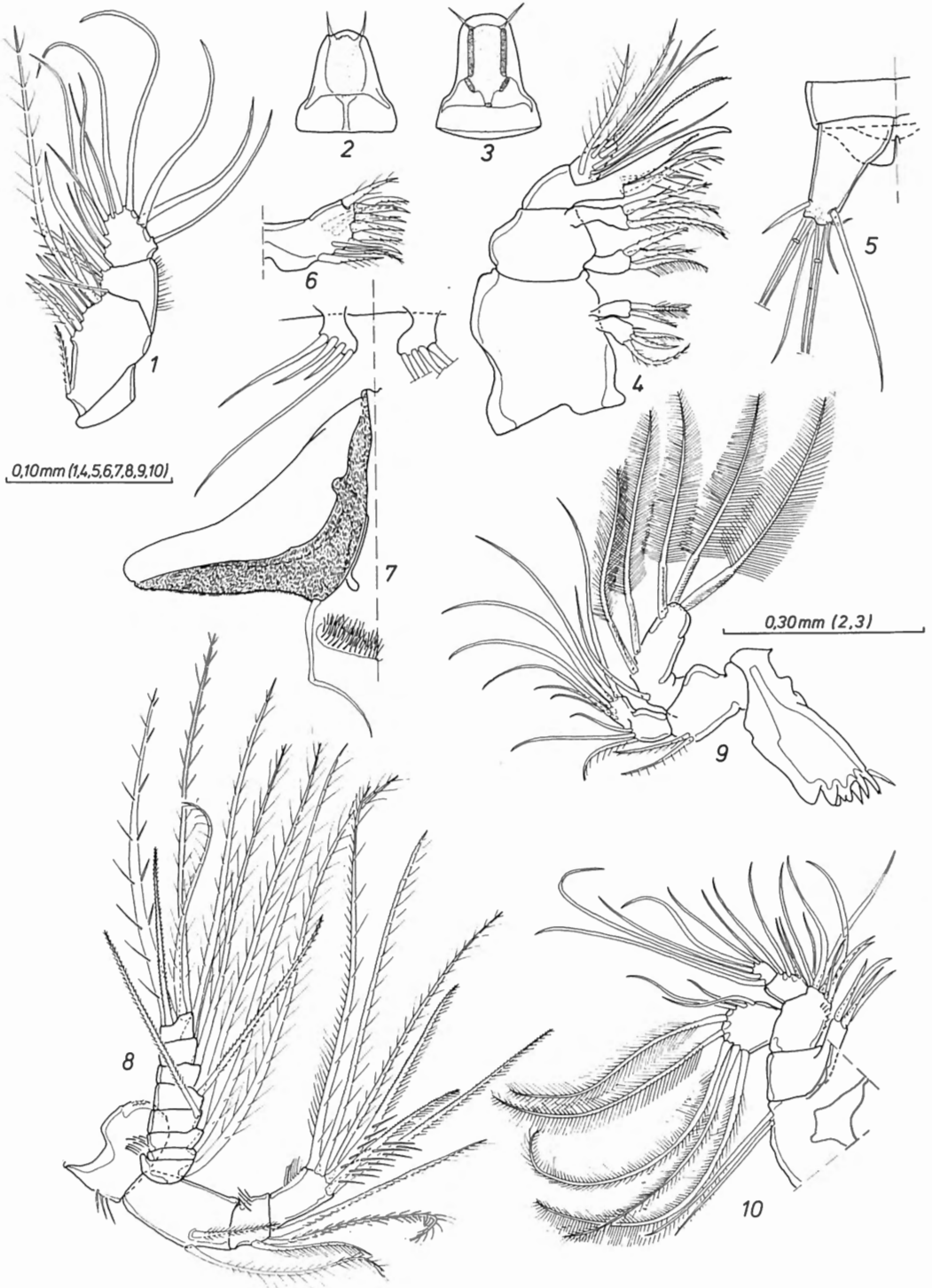
F. FIERS. — New Canuellidae from the Northern coast of Papua New Guinea (Copepoda : Harpacticoida).



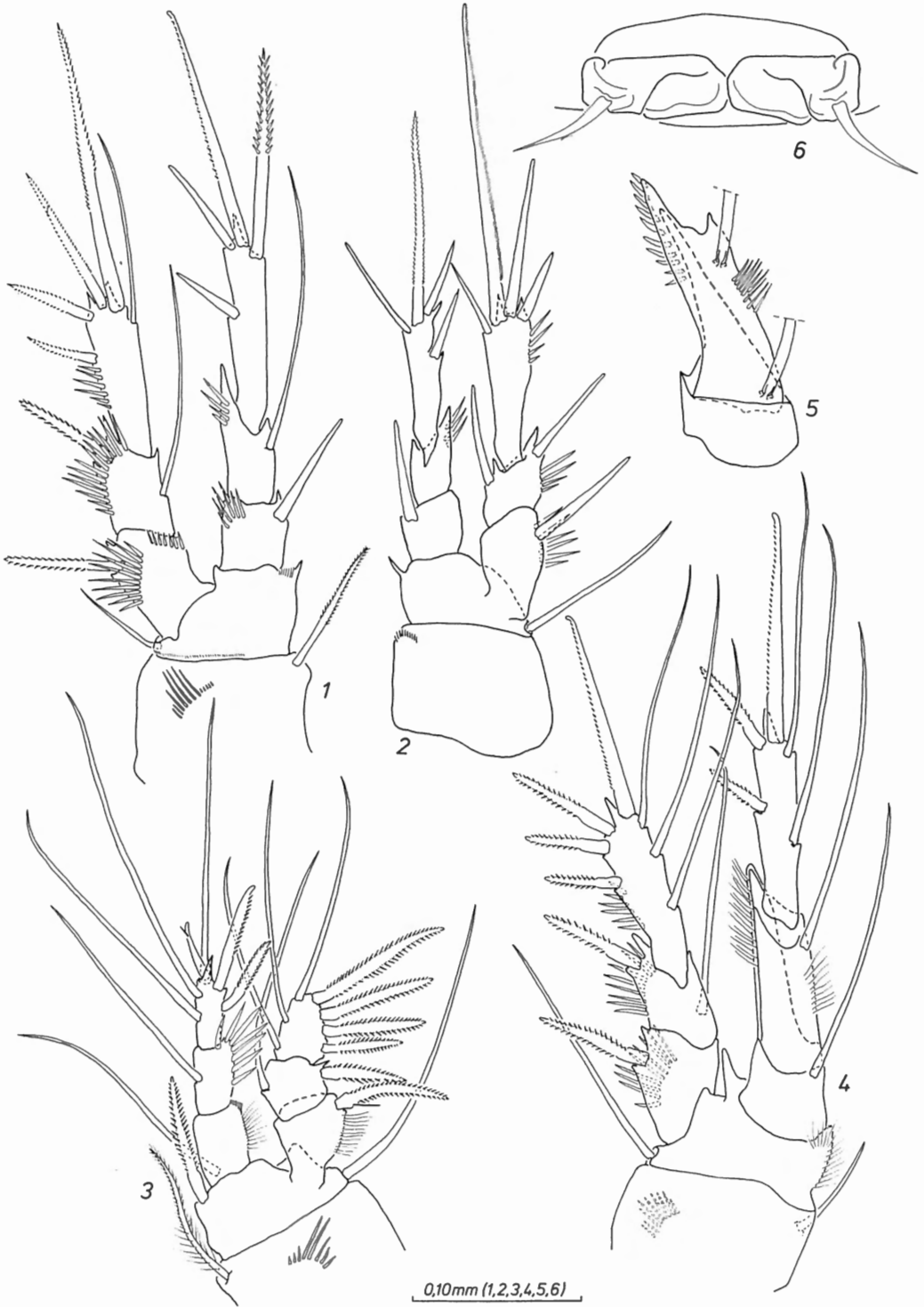
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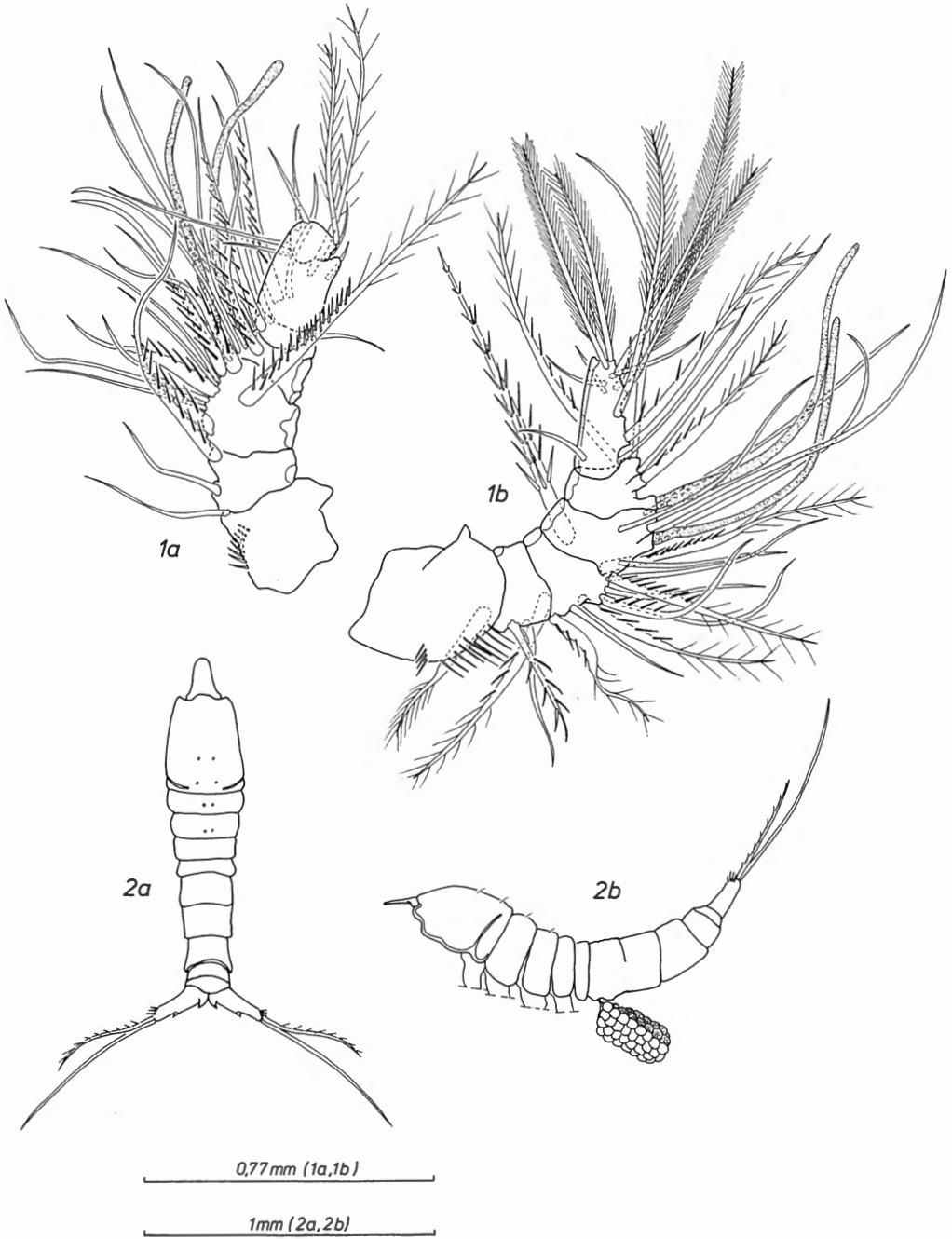
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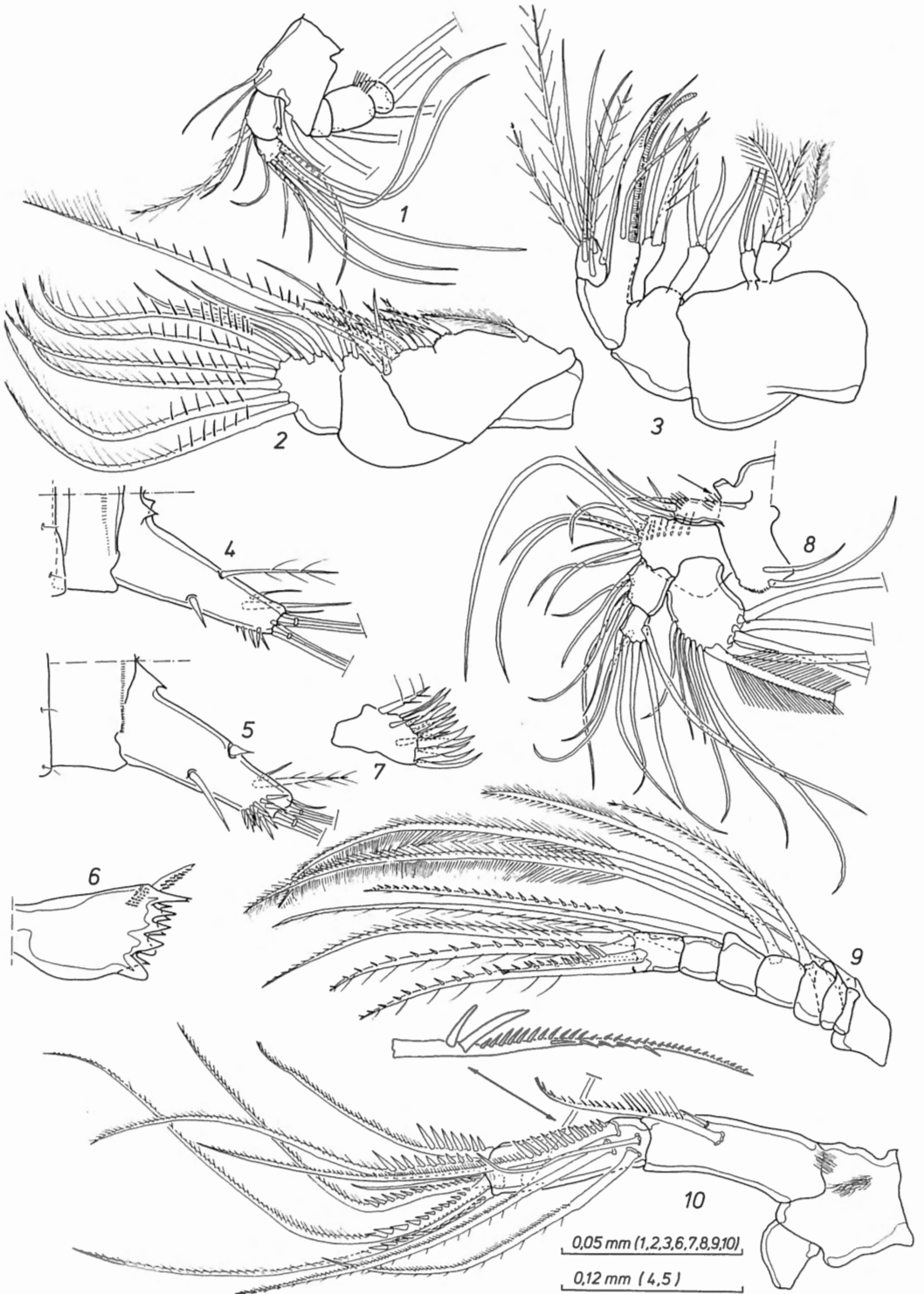
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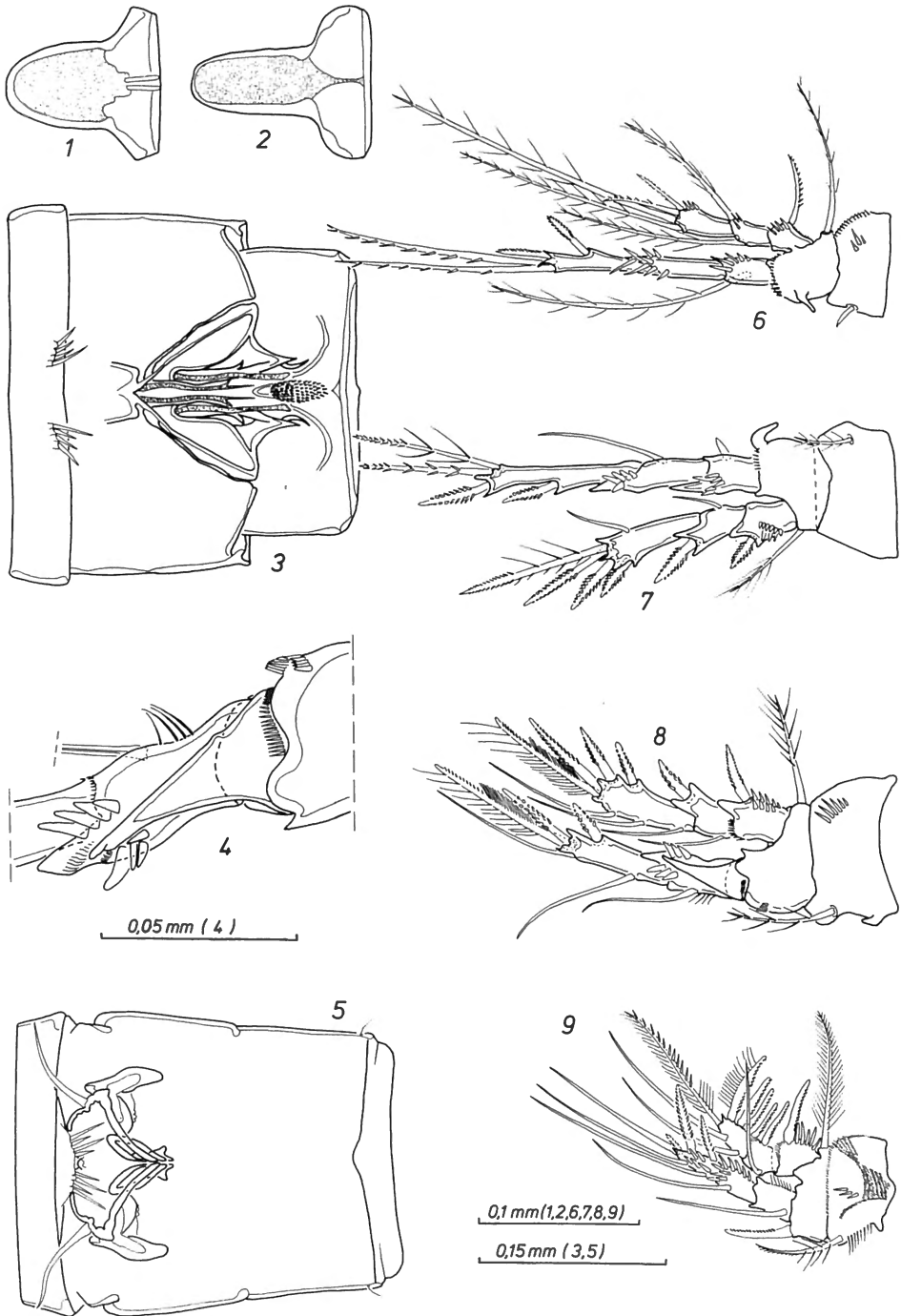
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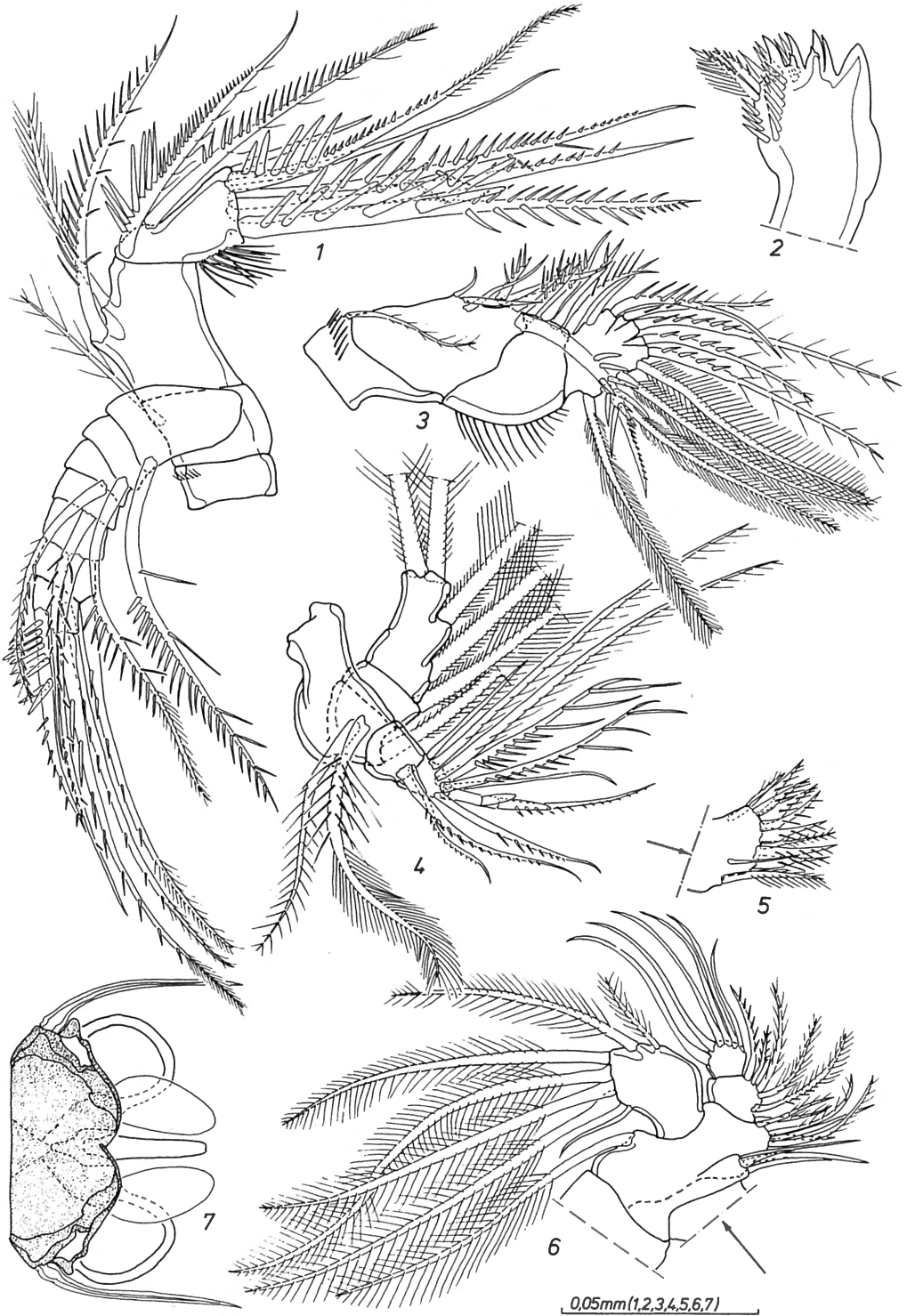
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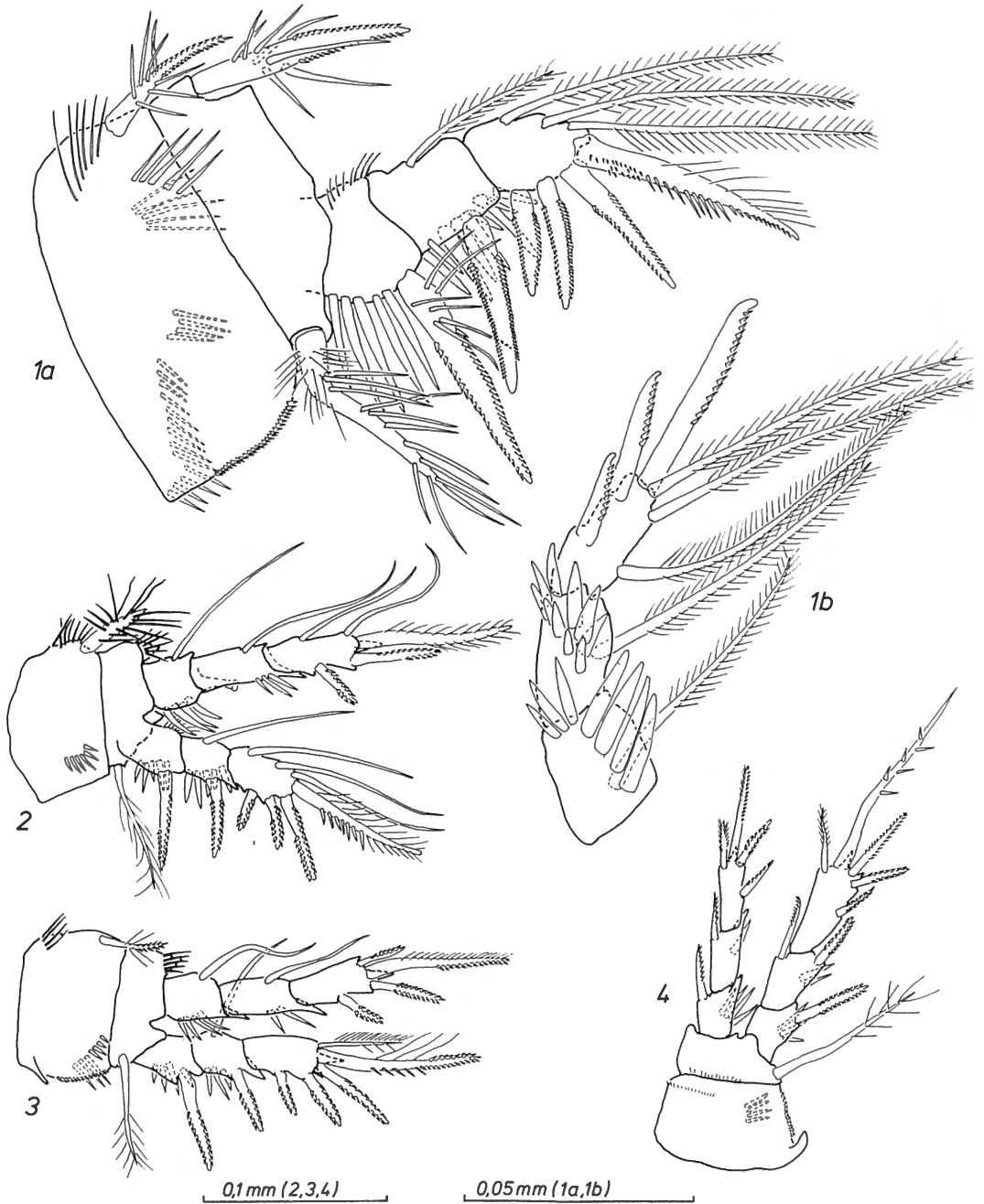
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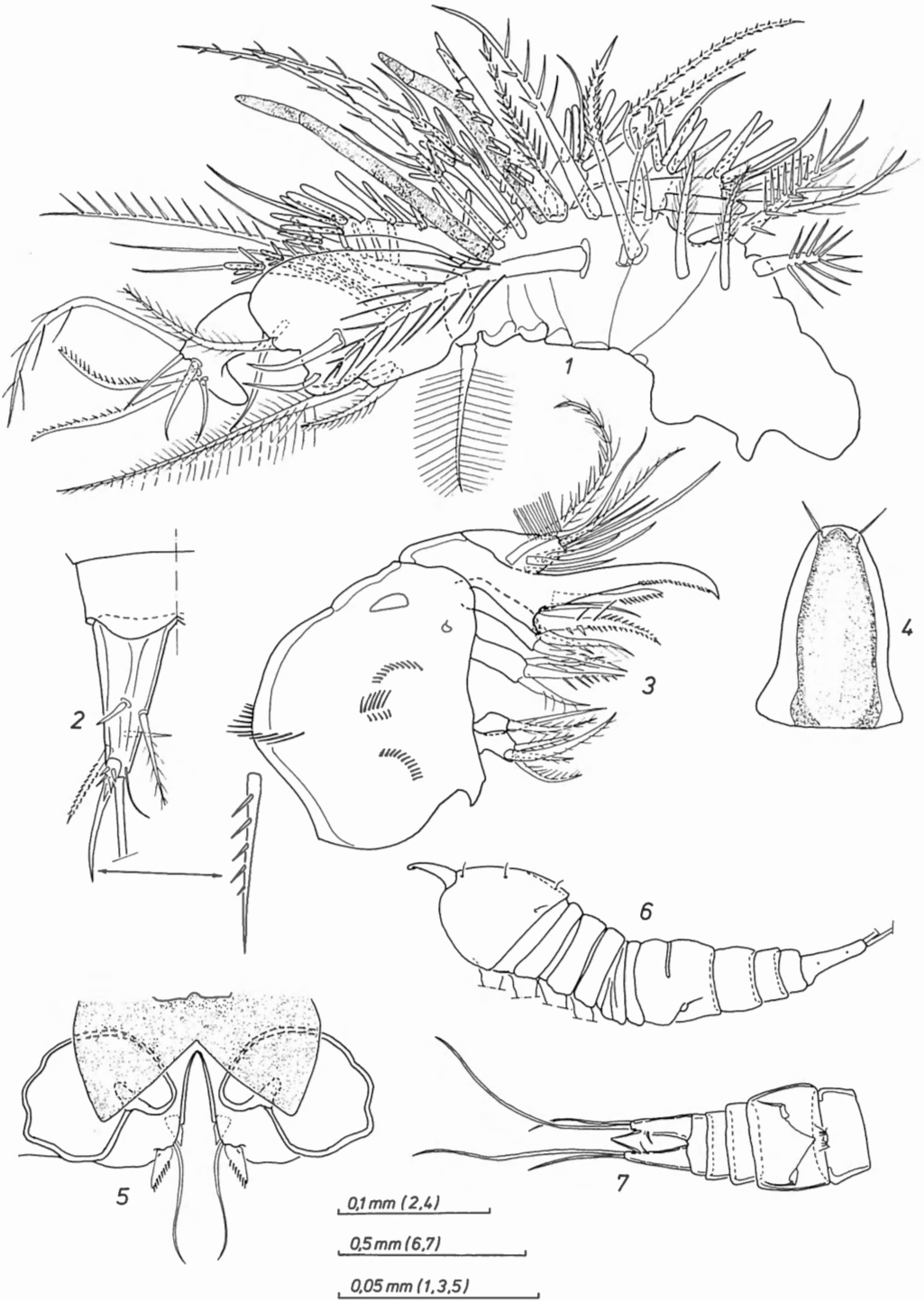
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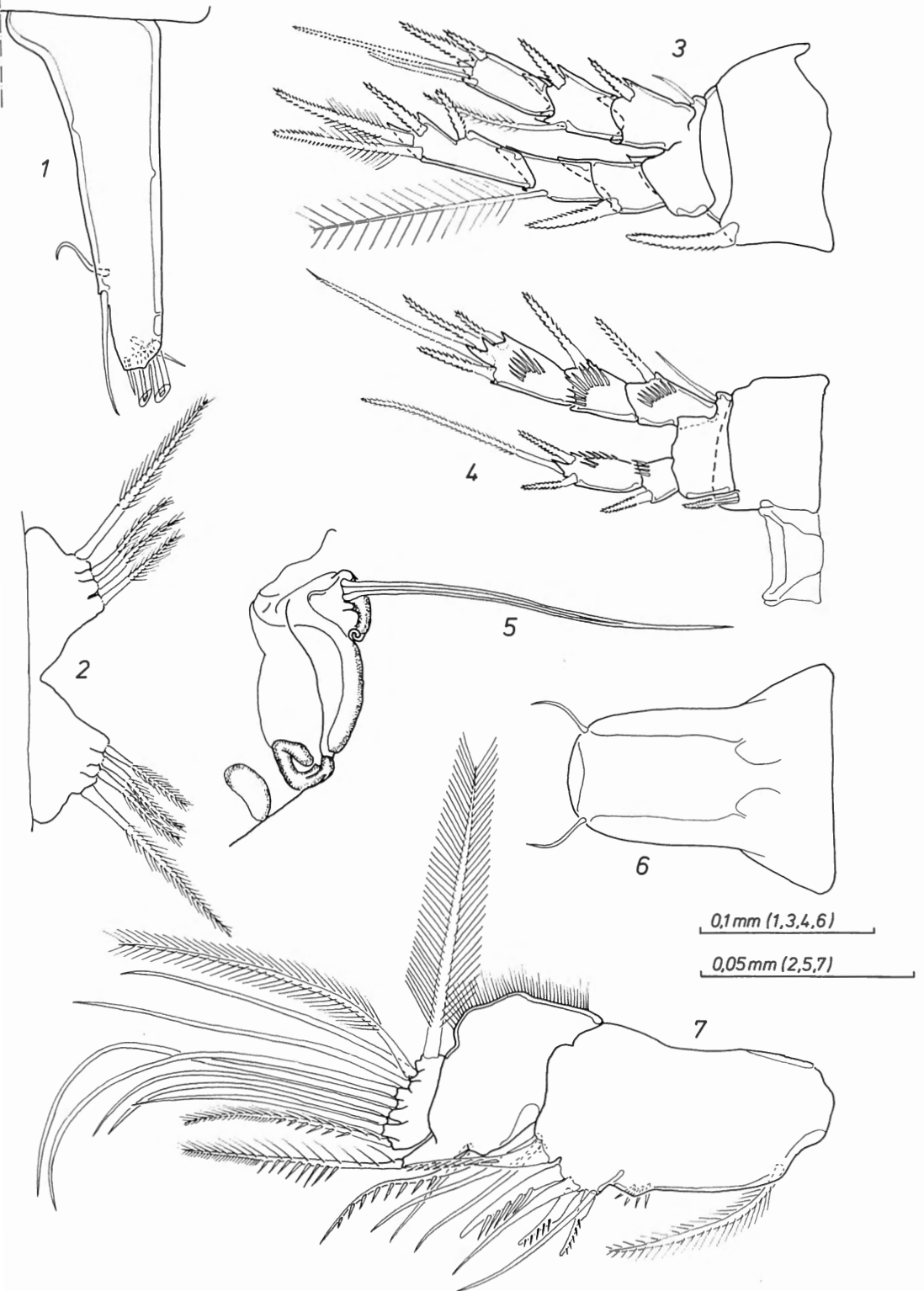
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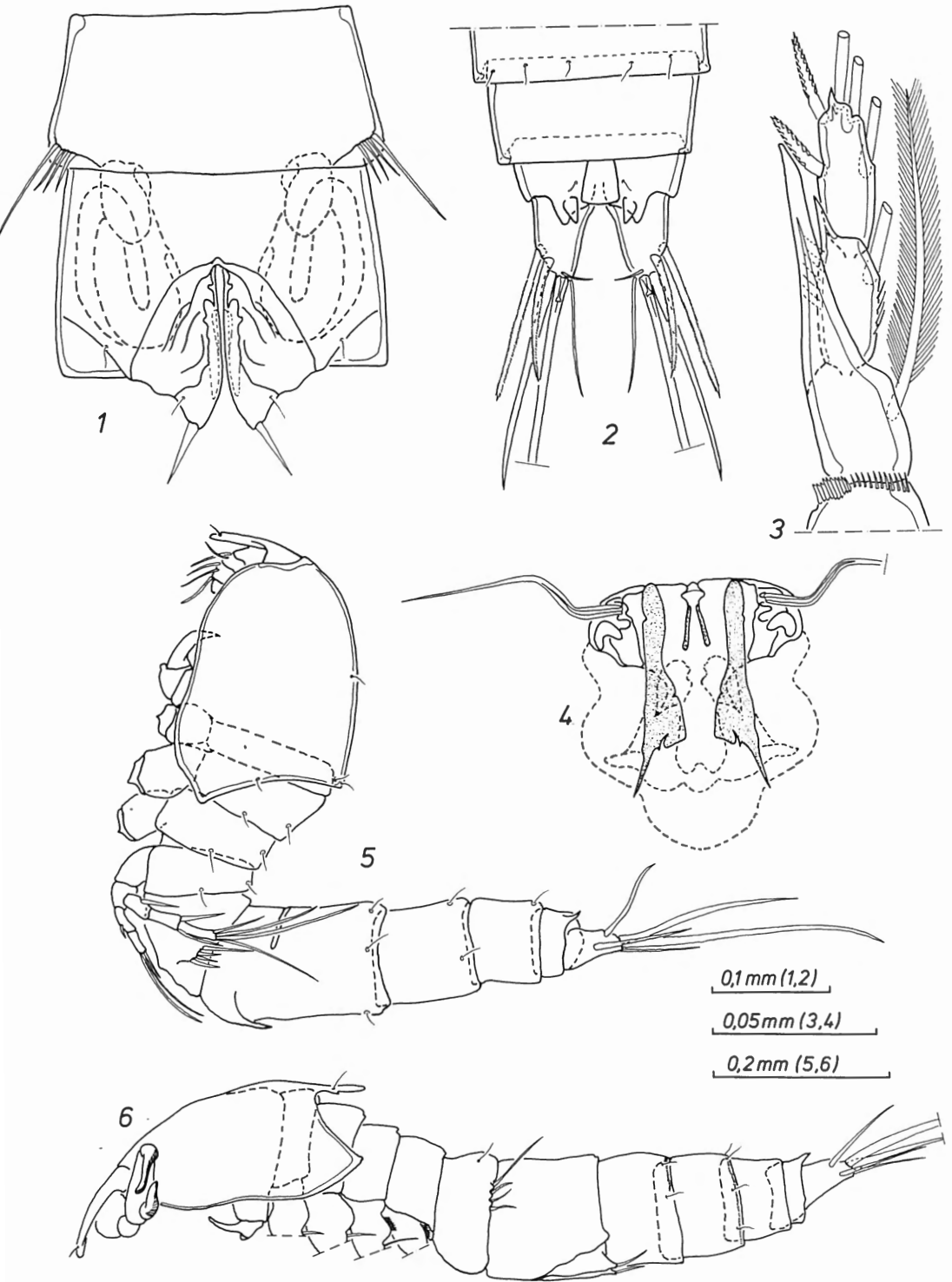
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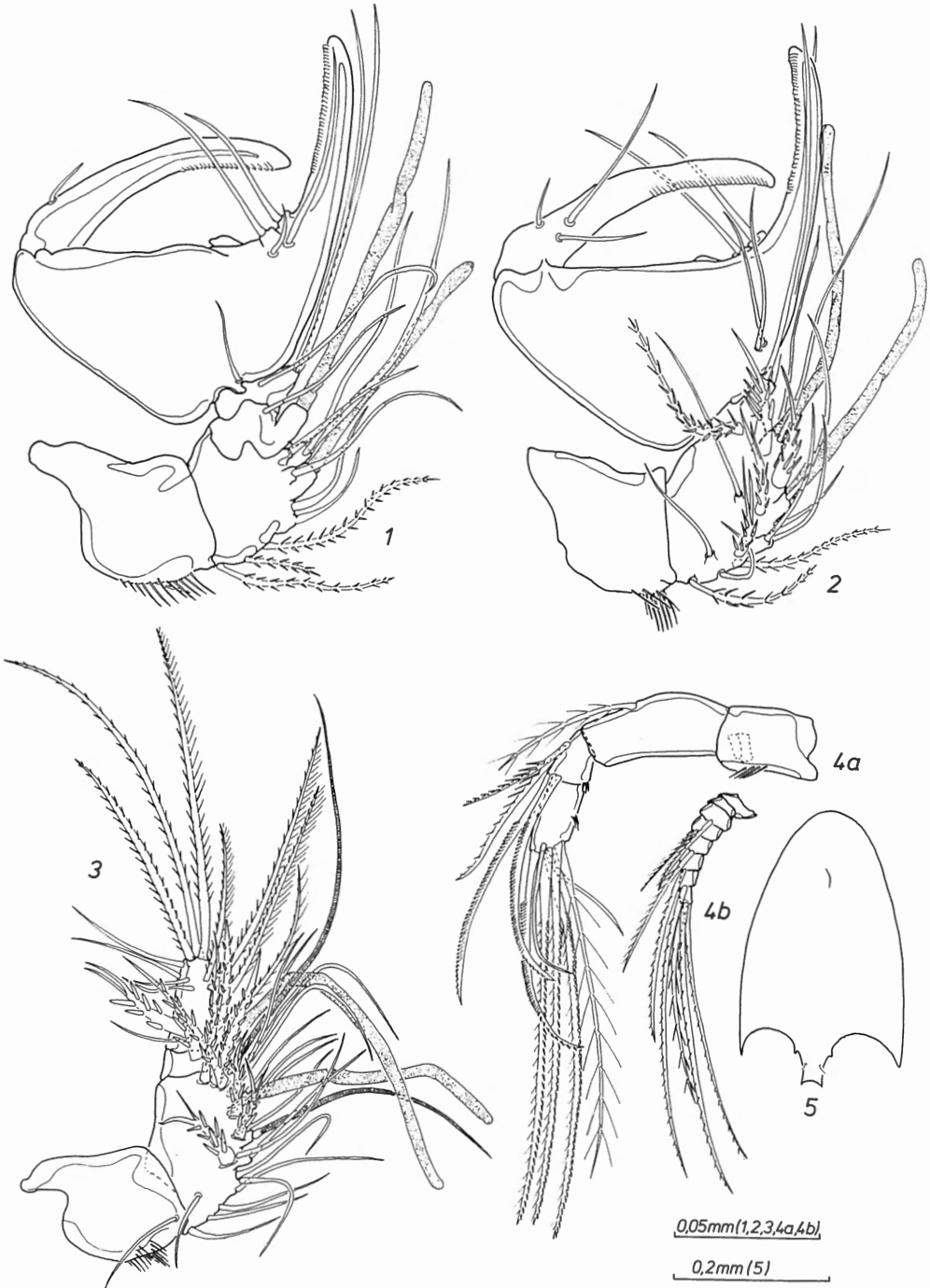
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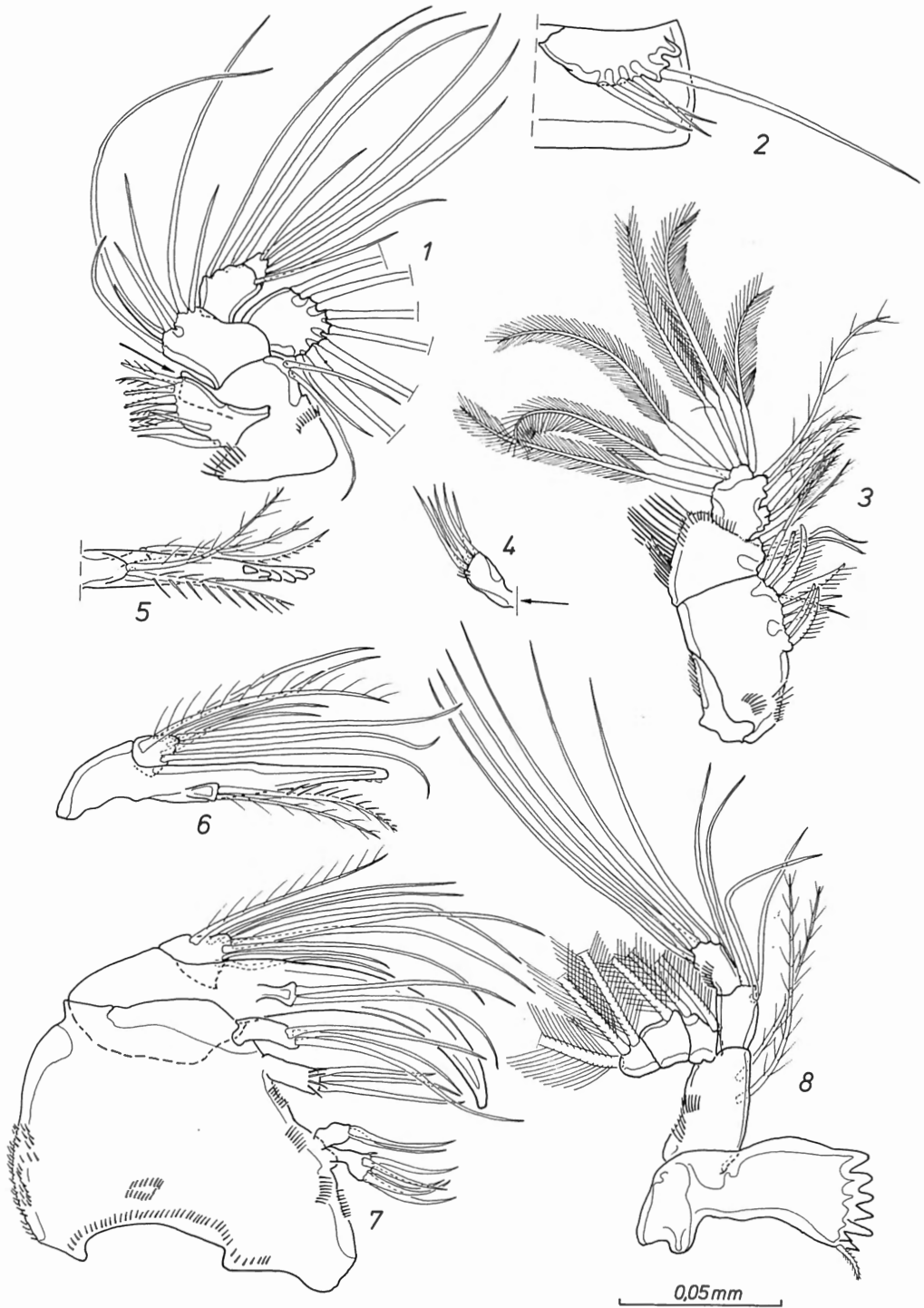
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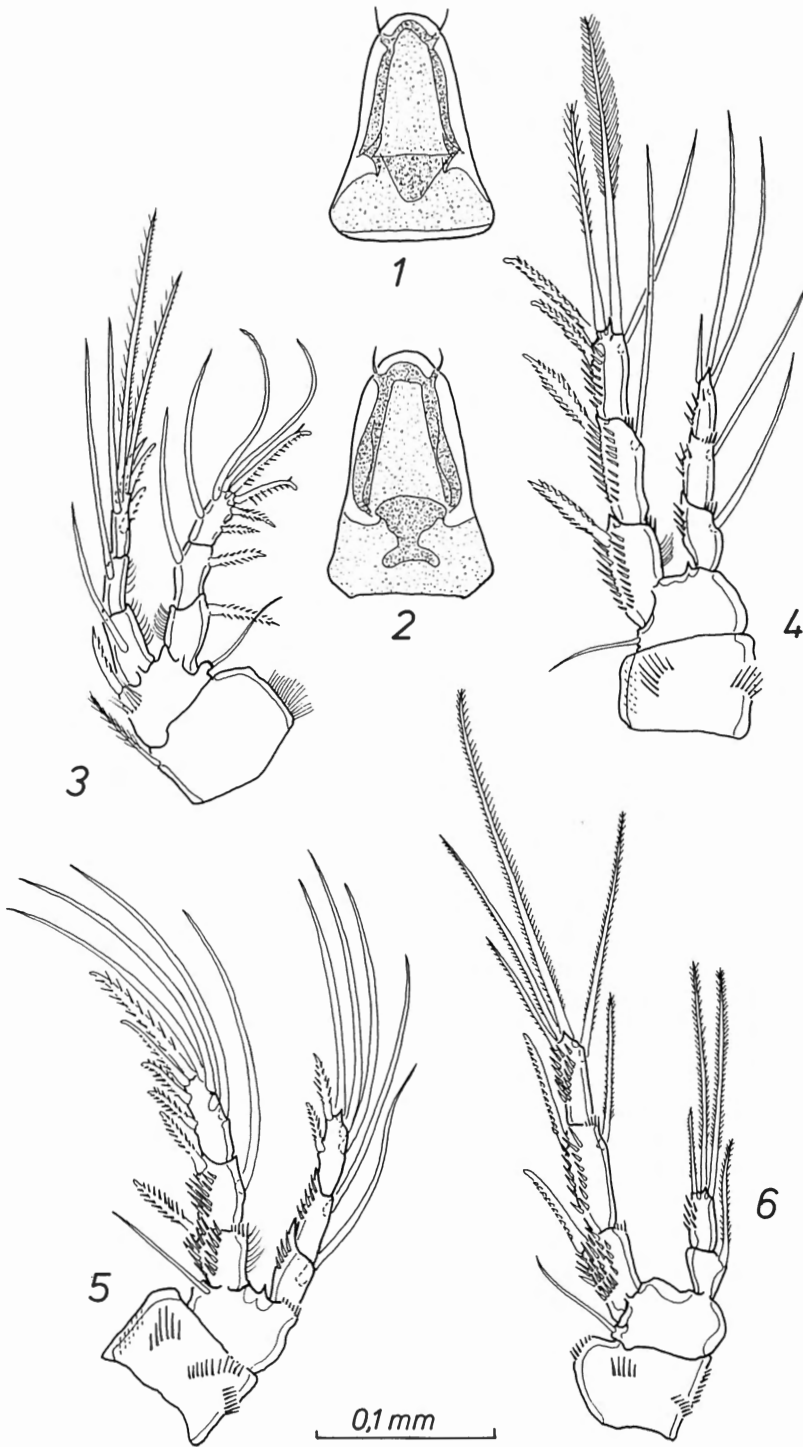
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