

Two new species of *Hansenium* (Crustacea: Isopoda: Asellota) from Madang, Papua New Guinea

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Abstract.—Two new species of *Hansenium*, *H. tropex* and *H. thomasi*, are described from Paddock Reef, Madang, Papua New Guinea. *H. tropex* is characterized by the possession of a broad oar-shaped lobe of the carpus of pereopod 1 in the male. *H. thomasi* is characterized by a narrow tapering mesially-directed lobe of the carpus of pereopod 1 of the male. The genus is redefined, with its chief character being the presence of a large carpal lobe on the first male pereopod. The eight stenetriid genera are compared on the basis of six characters.

The shallow water marine crustaceans (with the exception of the Amphipoda) of the Papua New Guinea region are poorly known. The Isopoda have received scant attention (in all, only about 15 species have been recorded from the region.) Stebbing (1900), recorded three cirolanids, one cymothoid and one sphaeromatid from New Britain, New Guinea, Nobili (1905) described a corallanid and a bopyrid, while Nierstrasz (1931) lists three cymothoids, two cirolanids, three corallanids, and one sphaeromatid in his catalogue of isopod records. Bruce (1982, 1993, 1994) has described cirolanids from the Madang area, while Keable (1997) added further cirolanid records; Jones et al. (1983) described three species of corallanids; Williams & Bunkley-Williams (1992) described two new species of cymothoids. No asellote isopods have been reported. The finding of two very distinctive stenetriids was, therefore, thought to be well worth recording.

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Walker of the National Museum of Natural History, Smithsonian Institution. The collectors were carrying out a survey of the shallow water marine invertebrate fauna of Madang, Papua New Guinea, in cooperation with the Christensen Research Institute. Jebb & Lowry (1995) provide a useful description of the habitats of Madang Lagoon.

Suborder Asellota

Family Stenetriidae Hansen, 1905

Genus *Hansenium* Serov & Wilson, 1995

Hansenium Serov & Wilson, 1995: 72.

Diagnosis.—Lateral tooth of cephalon moderately well developed, antennal tooth subequal to lateral, or rounded. Rostrum short, rectangular, anterior margin truncate. Eyes reniform, of 13–19 ommatidia. Pereopod 1 in male with carpus produced posterodistally into lobe; propodus longer than width of palm, latter often with few teeth close to articulation of dactylus. Pleopod 2 in male with rounded protopodal lobe distally, appendix masculina of endopod distally somewhat broadened, truncate, often ringed by cuticular hairs.

Type species.—*Stenetrium hanseni* Nobili, 1906.

Remarks.—Serov & Wilson (1995), divided the genus *Stenetrium* into five separate genera, and reviewed the remaining three genera in the family Stenetriidae. They also listed the constituent species for each of the genera. Examination of the two present species, as well as undescribed material from the Indian Ocean has led us to revise the diagnosis of *Hansenium*, as given above. The presence of a variously developed posterodistal lobe on the carpus of pereopod 1 in the male would seem to be the most characteristic synapomorphy of the genus, along with the presence of one or more teeth on the short propodal palm. The extreme development of this lobe into the expanded and flattened oar-like structure seen in *H. tropex* and *H. wilsoni* (Müller, 1991a) is approached in two undescribed species from the Indian Ocean. A review of the 13 species of *Hansenium* listed by Serov & Wilson (1995) shows that only *Stenetrium bowmani* Kensley, 1984, and *S. gilbertense* Nordenstam, 1946 do not possess a carpal lobe on pereopod 1 in the male.

Table 1 summarizes the six characters thought most significant in defining the eight genera of the Stenetriidae.

Species included in Hansenium.

- Hansenium caicosense* (Kensley & Heard, 1991). Turks & Caicos Islands.
Hansenium dodo (Müller, 1991b). Réunion Island.
Hansenium entale (Nordenstam, 1946). Gilbert Islands.
Hansenium hanseni (Nobili, 1906). Tuamotu Islands.
Hansenium monodi (Nordenstam, 1946). Gulf of Suez; Seychelles.
Hansenium spathulicarpus (Kensley, 1984). Belize.
Hansenium stebbingi (Richardson, 1902) (= *Stenetrium antillense* Hansen, 1904, and = *Stenetrium occidentale* Hansen, 1904). Bermuda; Belize; St. Thomas, West Indies.
Hansenium thomas n. sp. Madang, Papua New Guinea.

Hansenium tropex n. sp. Madang, Papua New Guinea.

Hansenium wilsoni (Müller, 1991a). Moorea.

Hansenium tropex, new species

Figs. 1–2

Material examined.—Holotype, USNM 253348, ♂ tl 4.8 mm, Paratypes, USNM 253349, 2 ovigerous ♀ tl 3.5 mm (damaged), 5.0 mm, Paddock Reef, Madang, Papua New Guinea, coral rubble, 3–4 m, coll. J. D. Thomas, 14 Jan 1989.

Description.—Body slender, about 4 times as long as wide, cephalon about twice as wide as long. Rostrum short, rectangular, apically truncate, subequal in length to antennal teeth. Antennal teeth elongate, acute. Lateral teeth pronounced, subequal to antennal teeth. Frontal margin of cephalon below rostrum slightly convex. Eyes reniform, consisting of about 14 ommatidia.

Antennule, flagellum of about 20 articles; 1 aesthetasc on first article, 2 on second article. Mandible with 4-cusped incisor; 3-cusped lacinia mobilis; left mandible with spine row of 4 comb setae; right mandible spine row with 7 comb setae and 3 simple setae; molar with 8 plumose setae below marginal serrations. Maxilla 1 inner lobe with 2 large fringed setae and 2 smaller simple setae; outer lobe with 8 fringed setae. Maxilla 2 outer lobe with 4 stout fringed setae and 1 simple seta; middle lobe with 5 stout fringed setae; inner lobe with 8 simple setae and 4 stout plumose setae on mesial margin. Maxilliped palp with 3 proximal articles wider than 2 distal articles, latter longer than wide; endite broad with 6 broad flattened fan setae distally; mesial margin with 5 coupling hooks.

Pereonites 1–4 decreasing in length posteriorly, with anterolateral margins acute; pereonites 5–7 increasing in length posteriorly; pereonites 5–6 with rounded posterolateral margins; pereonite 7 with angular posterolateral margins. Male pereopod 1 elongate, slender; dactylus equal in length

Table 1.—Comparison of the genera in the isopod family Stenetriidae.

	Antennal and lateral tooth of cephalon	Rostrum	Eyes	Pereopod 1 δ propodus	Pereopod 1 δ carpus	Pleopod 2 δ appendix masculina
<i>Hansenium</i> Serov & Wilson, 1995	lateral tooth well developed; antennal tooth acute or rounded	short, rectangular, anterior margin truncate	reniform, of 13–19 ommatidia	longer than width of palm	strongly produced postero-distally	distally widened, truncate
<i>Liocoryphe</i> Serov & Wilson, 1995	antennal and lateral teeth absent; anterolateral area angular or rounded	short, anterior margin convex	small rounded group of 3–4 ommatidia	distally broadened, as wide as long, palm sloping oblique-posteriorly	rarely produced	distally widened, truncate, subdistal row of short barbs
<i>Mizothernar</i> Serov & Wilson, 1993	lateral tooth short; antennal tooth absent	poorly defined or absent	rounded group of 9–10 ommatidia	distally broadened, as wide as long, palm with row of oblique dentate setae	not produced	distally widened, truncate
<i>Protalocoxa</i> Schultz, 1978	lateral tooth strong; antennal tooth absent	large, robust, triangular-linguiform	rounded group of about 8 ommatidia	distally broadened, as long as wide, palm with row of oblique dentate setae	not produced	distally widened, margin concave, subdistal row of short barbs
<i>Stenetrium</i> Haswell, 1881	lateral and antennal tooth well developed, subequal	short, rounded to subtriangular	reniform, of about 18 ommatidia	longer than width of palm	rarely produced	distally widened, subdistal row of barbs
<i>Stenobermuda</i> Schultz, 1979	lateral tooth well developed; antennal tooth shorter than lateral	narrow, triangular	rounded group of 3–4 ommatidia	~twice longer than palm, with row of pectinate setae	not produced	with distal fringed lamella and sperm tube
<i>Tenupedunculus</i> Schultz, 1982	lateral tooth well developed; antennal tooth small	short, anterior margin rounded or truncate	reniform or absent	as long as palm width	not produced	distally widened, truncate, subdistal row of barbs
<i>Tristenium</i> Serov & Wilson, 1995	lateral tooth short or absent; antennal tooth rounded or absent	triangular with broad base and narrowed distally	rounded group of 3–5 ommatidia	slightly longer than palm	not produced	distally tapered to acute process, subterminal elongate setae

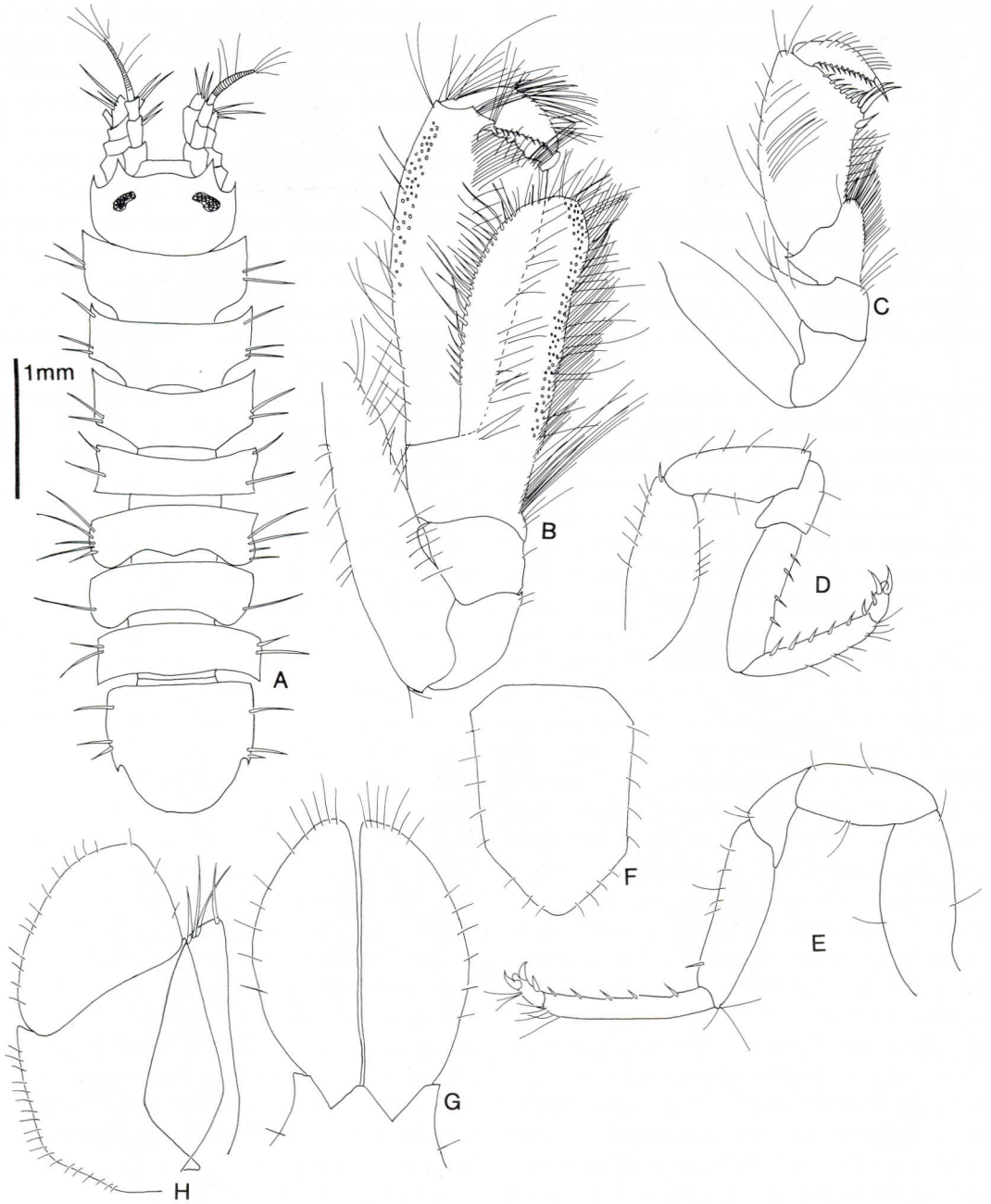


Fig. 1. *Hansenium tropex*, new species. A, ♂, dorsal view; B, Pereopod 1 ♂; C, Pereopod 1 ♀; D, Pereopod 2; E, Pereopod 7; F, Operculum ♀; G, Pleopod 1 ♂; H, Pleopod 3.

to propodal palm; short unguis extending beyond proximal spine of propodal palm; propodal palm serrate; carpus with large stout distally rounded densely setose lobe

projecting anteroventrally, about 0.8 times length of propodus (Fig. 1B). Female pereopod 1 significantly smaller than in male, with sparser setae; dactylus equal in length



Fig. 2. *Hansenium tropex*, new species. A, Right mandible; B, Left mandible; C, Mandibular palp; D, Maxilla 1; E, Maxilliped; F, Maxilla 2; G, Antennule.

to propodal palm, with 10 short simple setae on posterodistal margin; propodal palm with 6 short simple setae, terminating in 2 long setae; carpal lobe much less prominent than in male.

Pleon having 2 vestigial pleonites plus pleotelson; posterolateral spines pronounced; postanal margin nearly semicircular. Male pleopod 1 biramous with rami elongate; mesial margins of rami parallel; lateral margins rounded and sparsely setose. Female pleopod 2 1.4 times longer than wide, pentagonal, with outer margins sparsely setose. Pleopod 3 operculiform, with outer ramus broad, sparsely setose; inner ramus narrow and nearly triangular, with 4 terminal setae.

Remarks.—*Hansenium tropex* bears the closest resemblance to *H. wilsoni* (Müller, 1991a), but several features distinguish the two. In *H. tropex*, the antennal spines are clearly longer than the lateral spines, while in *H. wilsoni*, the antennal spines are reduced, rounded, and shorter than the lateral spines. The anterior margin of the cephalon in *H. tropex* is convex, straight in *H. wilsoni*. In *H. tropex* the maxilliped has six flattened fan setae on the endite where *H. wilsoni* has three. In pereopod 1 of the male in *H. tropex*, the carpal process extends about $\frac{3}{4}$ the length of the propodus, the propodal palm terminates in a simple blunt seta, the merus is not produced and the ischium is sparsely setose; in *H. wilsoni*, the carpal lobe extends beyond the propodus and the dactylus distally, the propodal palm has no articulated seta, the merus is slightly produced, and there is a dense cluster of setae on the ischium. Pleopod 1 in *H. tropex* females is nearly pentagonal, with setae at regular intervals on the lateral margins; in *H. wilsoni*, the female pleopod 1 operculum has only four setae and is more triangular in shape. Pleopod 1 in the male of *H. tropex* is nearly semicircular, tapering proximally and distally, while in *H. wilsoni* the male pleopod 1 only narrows distally.

Etymology.—The specific name is derived from the Greek 'tropex', an oar, refers

to the paddle-like carpal lobe of the male pereopod 1, and is used as a noun in apposition.

Hansenium thomasi, new species

Figs. 3–5

Material examined.—Holotype, USNM 253350, ♂ tl 4.3 mm, Paratypes, USNM 253351, 3 ♂, 8 ovigerous ♀ tl 3.4–4.5 mm, 4 juveniles, Paddock Reef, Madang, Papua New Guinea, 1.5–4 m, coll. J. D. Thomas, 14 Jan 1989.

Diagnosis.—Body about 3.5 times longer than wide, width of cephalon about 1.5 times length. Rostrum short, rectangular, anterior margin truncate; frontal margin of cephalon convex posterior to rostrum. Antennal spines equal in length to rostrum; lateral spines subequal in length to antennal spines. Eyes reniform with about 19 ommatidia.

Antennule of about 8 articles; 2 aesthetascs on terminal article; 1 aesthetasc on subterminal; 1 aesthetasc on following article. Mandible with 4-cusped incisor and 3-cusped lacinia mobilis; left mandible with spine row of 4 comb setae, left molar with 8 fringed setae; right mandible with spine row of 7 comb setae, 2 plumose setae, and 2 simple setae; right molar with 5 plumose setae. Maxilla 1 inner ramus with 3 stout plumose setae, 1 shorter simple seta; outer ramus with 5 stout comb setae and 5 stout simple setae. Maxilla 2 outer lobe with 2 long fringed terminal setae, 2 shorter simple setae, mesial margin with 6 simple setae; middle lobe with 3 long fringed terminal setae, 1 simple terminal seta, 6 simple setae on mesial margin; inner lobe with 6 fringed setae and 6 simple setae. Maxillipedal endite broad; distal margin with 6 round flattened fan setae and 5 narrow fringed setae, with 1 short stout simple terminal seta; mesial margin with 4 coupling hooks, 4 fringed setae.

Pereonites 1–3 increasing in length posteriorly; pereonite 4 longer than pereonite 5; pereonite 6 longer than pereonite 7; cox-

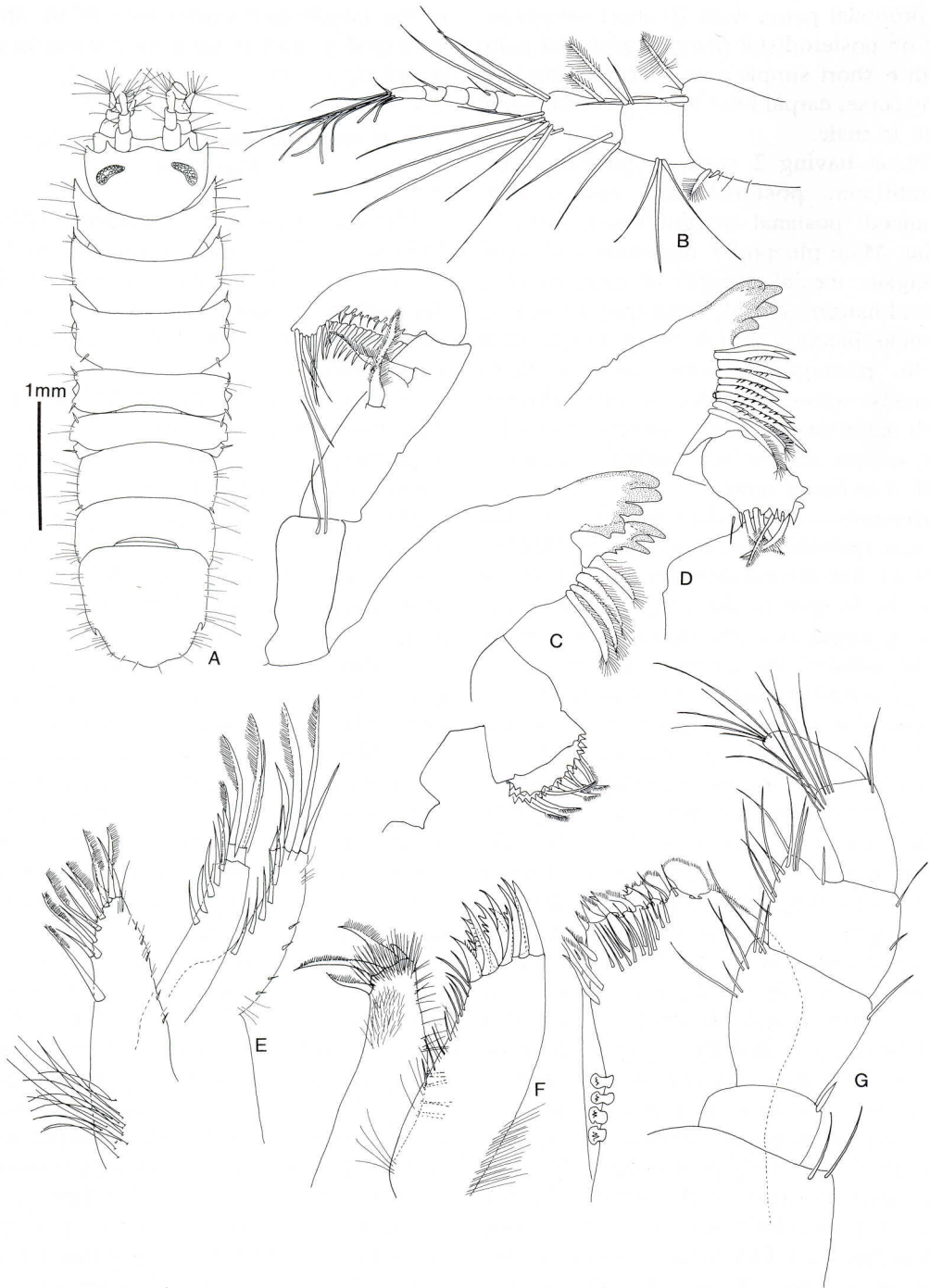


Fig. 3. *Hansenium thomasi*, new species. A, ♂, dorsal view; B, Antennule; C, Left mandible; D, Right mandible; E, maxilla 2; F, Maxilla 1; G, Maxilliped.

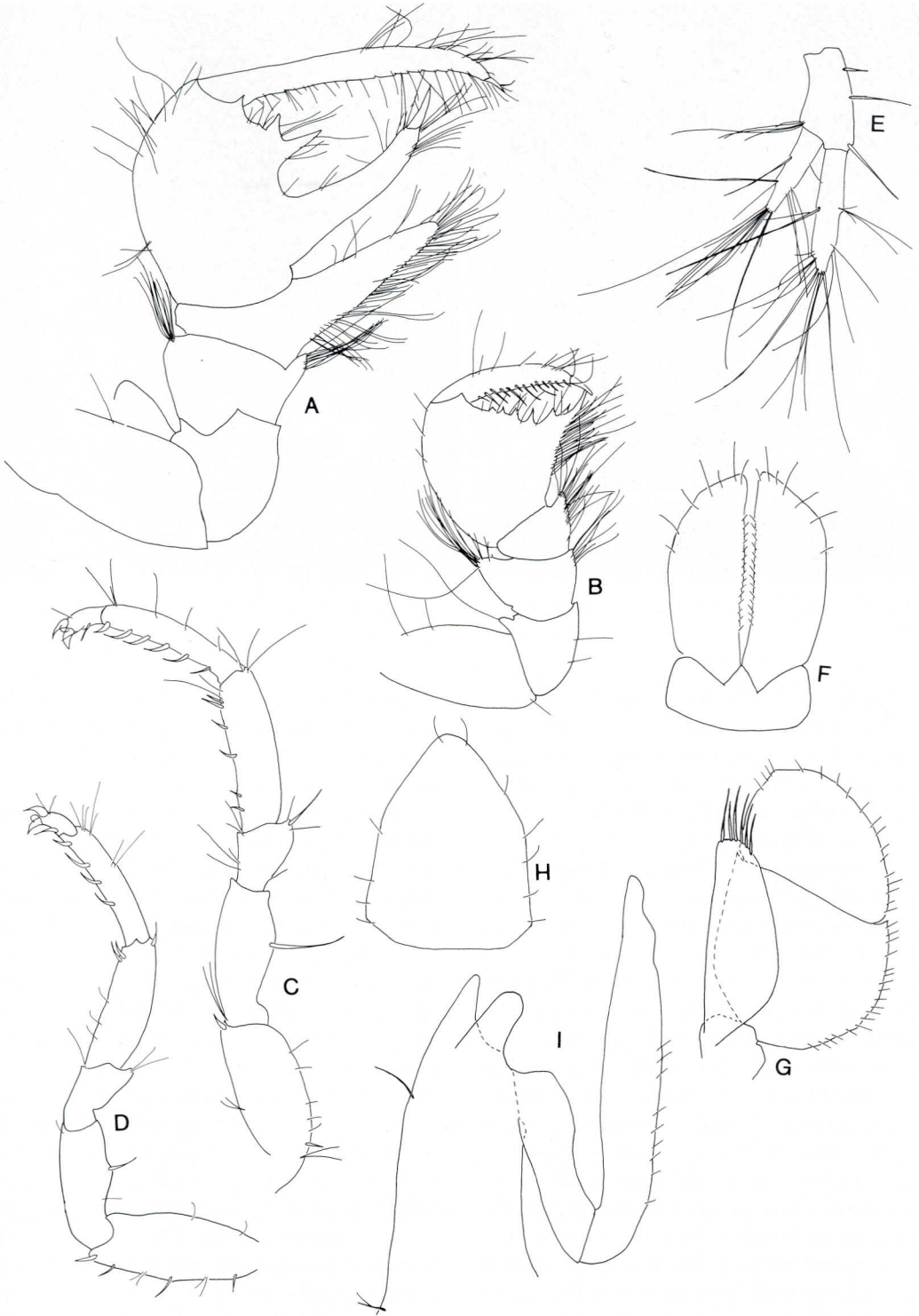


Fig. 4. *Hansenium thomasi*, new species. A, Pereopod 1 ♂; B, Pereopod 1 ♀; C, Pereopod 2; D, Pereopod 7; E, Uropod; F, Pleopod 1 ♂; G, Pleopod 3; H, Operculum ♀; I, Pleopod 2 ♂.

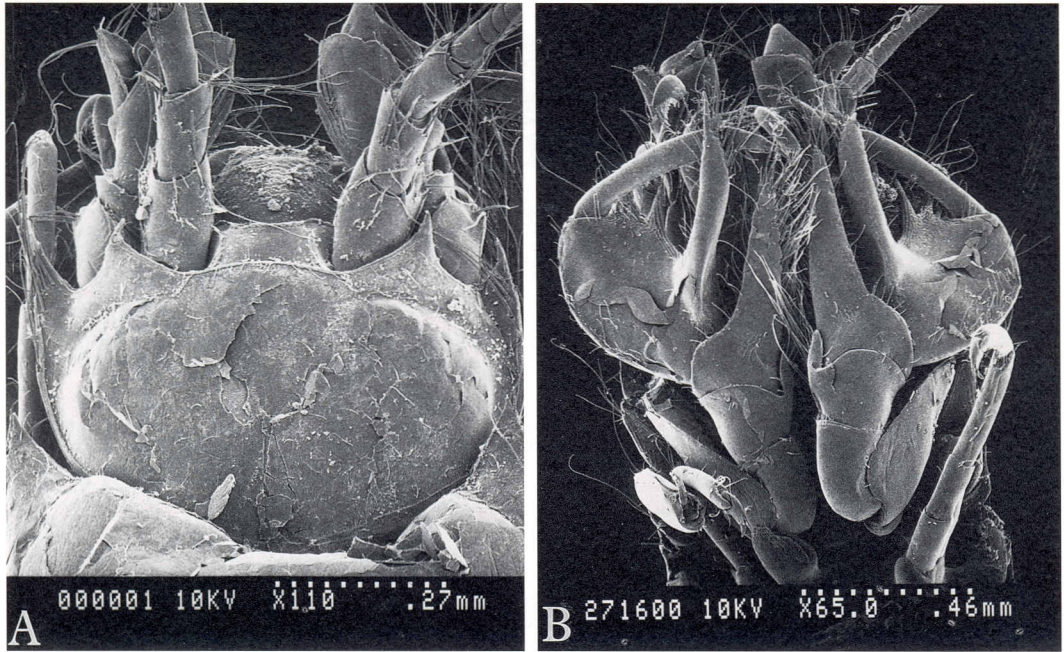


Fig. 5. *Hansenium thomasi*, new species. A, Cephalon in dorsal view; B, Left and right pereopod 1 ♂ in situ.

ae visible on pereonites 1 and 3–5; pereonites 1–2 with acute anterolateral angles; pereonites 3–4 with concave lateral margins; pereonite 5 with flat lateral margins, rounded posterolateral angle; pereonites 6–7 laterally broad and rounded.

Male pereopod 1 dactylus elongate, narrow with acute unguis, extending far beyond propodal palm; propodal palm broad, with 3 sharp teeth, posterodistal angle greatly produced into narrow lobe terminating in simple stout seta; carpus with strongly produced posterodistal setose lobe; merus with small posterodistal projection and tufts of setae on postero- and anterodistal margins. Female pereopod 1 much smaller than in male; dactylus equal in length to broad propodal palm, with row of short setae along posterodistal margin; propodal palm broader than in male, with 7 teeth; carpal process much smaller than in male; merus with setal tufts and low anterodistal lobe. Pereopods 2–7 similar, carpus with 2 posterodistal setae; propodus with 4–6 stout setae on posterior margin.

Pleon with 2 vestigial pleonites plus pleotelson, latter with single produced posterolateral spine on each lateral margin; postanal region gently convex. Male pleopod 1 mesial margins finely setose, parallel; lateral margin convex with 6–7 setae distally. Male pleopod 2 endopod simple, outer margin with about 9 setae; protopod distally subacute, exopod rounded. Female pleopod 2 operculum subtriangular, 1.3 times longer than wide, sparsely setose. Pleopod 3 rami together sub-circular, with lateral margin of exopod setose; endopod nearly triangular with 6 distal spines.

Remarks.—*Hansenium thomasi* bears considerable resemblance to *H. entale* (Nordenstam, 1946) from the Gilbert Islands in the Pacific. Comparison of the male pereopod 1, however, easily distinguishes the two species. The dactylus of *H. thomasi* is less curved. There are three teeth on the propodal palm of *H. thomasi*, more apically acute than the four found on *H. entale*. The propodal teeth of *H. thomasi* are well separated from each other, whereas in

H. entale their fused bases join the propodal palm. *Hansenium thomasi* has a large posterodistal propodal lobe, separate from the teeth, which terminates distally in a simple stout seta. *Hansenium entale* has a similar large toothlike process, but it is more directly a part of the propodal palm, close to the other four teeth. Both *H. thomasi* and *H. entale* have produced carpi in the male pereopod 1, but the process is more setose and distally rounded in *H. thomasi*. The meral process in *H. thomasi* is much shorter than in *H. entale*, where it extends almost half the length of the carpus.

The anterior margin of the cephalon in *H. thomasi* is gently convex, straight in *H. entale*. *Hansenium entale* has a characteristic pigment pattern, with a line across the anterior cephalon and a broad band between the eyes; *H. thomasi* apparently has no pigmentation. In *H. entale*, the coxae are visible on pereonites 3 and 4 only, while in *S. thomasi* they are visible on pereonites 3–5.

Etymology.—The species is named for James Darwin Thomas, amphipod specialist, who collected the specimens.

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