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# STUDIES ON THE CRUSTACEA OF THE TURKS AND CAICOS ISLANDS, BRITISH WEST INDIES I. FOUR NEW MARINE ISOPOD CRUSTACEANS FROM THE VICINITY OF PINE CAY.

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**ABSTRACT** Four undescribed species of shallow-water marine isopods were recently collected in the vicinity of Pine Cay in the western Caicos Islands. These are described and include the anthurid *Licranthura tuberculata*, possessing a tuberculate third article of the antenna and a rounded distolateral angle of the uropodal exopod; the anthurid *Mesanthura spongicola*, which has a distinctive color pattern, distinctly attenuated body, and 5-7 spines on the third article of the mandibular palp; the paranthurid *Califanthura minuta*, a tiny (1.6 mm) species having a reduced, triangular uropodal exopod; and the stenetriid asellote *Stenetrium caicosensis*, which has a pronounced lobe on the merus of pereopod 1 in the male.

## INTRODUCTION

The fauna of the Turks and Caicos Islands, British West Indies, is poorly documented, especially for many marine invertebrate groups including the Isopoda. During the course of participating in the Turks and Caicos Coral Reef Ecology Program sponsored by the Oakleigh L. Thorne Foundation, the second author collected isopods from a variety of shallow-water marine habitats, mainly around Pine Cay and Fort George Cay. Fine mesh kicknets, yabby pumps, an Ockelmann dredge, and light traps were all used in this collection, with SCUBA at the deeper stations. Four undescribed marine species found during the survey and their descriptions are the subject of this report. While the marine isopods of the general Caribbean and Bahamian region have been broadly dealt with in Kensley and Schotte (1989), this is the first of a series of reports (see Schotte and Heard 1991, Schotte *et al* 1991) dealing with isopods specifically from the Turks and Caicos Islands.

## RESULTS

### Family Anthuridae

#### *Licranthura tuberculata*, new species

Figs. 1-3

**Material.** HOLOTYPE, USNM 243474, female tl 3.2 mm, PARATYPE, USNM 243475, male tl 3.2 mm, from yellow sponge, 37-40 m, 10 Nov 1988.

**Description.** Female: Body slender, about 12 times longer than wide. Faint red-brown pigmentation dorsally on pereonites 2-6. Body proportions: C < 1 > 2 = 3 < 4 with 5 or 6 distal plumose setae. Uropodal endopod

= 5 > 6 > 7 < P. Pleonites short, free, 1-5 of similar length, pleonite 6 dorsally demarked. Telson widening to posteriorly rounded serrate/crenulate margin.

Cephalon with well pigmented eyes. Antennular peduncle with basal article widest; flagellum of 3 articles, first very short, terminal article bearing 2 aesthetascs. Antennal peduncle with article 3 having 4 teeth on mesial margin, dorsal surface with several small tubercles plus stronger distal tooth; article 4 offset at right angle on article 3, short, about two-thirds length of article 5; flagellum of 8 setose articles. Mandibular palp of 3 articles, articles 1 and 3 subequal, each about half length of article 2; article 3 bearing 3 distal spines; incisor of 3 blunt cusps; lamina dentata having 5 serrations; molar absent. Maxilla having 5 distal spines. Maxilliped with endite short, blunt; palp of 5 articles, article 1 very short, articles 2-4 subequal, about as long as wide, article 5 very small.

Pereopod 1 more robust than pereopods 2 and 3, articles squat; carpus triangular, lacking free anterior margin; propodus roughly rectangular, posterior margin straight, bearing few simple setae, 2 fringed setae anterodistally; dactylus having several blunt corneous tubercles on posterior surface, unguis short, squat, with bifid accessory spine at base. Pereopods 2 and 3 similar, carpus with anterior margin barely free; propodus with strong toothed posterodistal spine; unguis almost three-fourths length of rest of dactylus. Pereopods 5-7, carpus with free anterior margin shorter than posterior margin, with toothed posterodistal spine; propodus with toothed posterodistal spine; unguis about two-thirds length of rest of dactylus. Pleopods similar, pleopod 1 slightly larger than following, both rami having opercular function, endopod longer and narrower than exopod, each roughly ovate, with margin serrate to crenulate; exopod

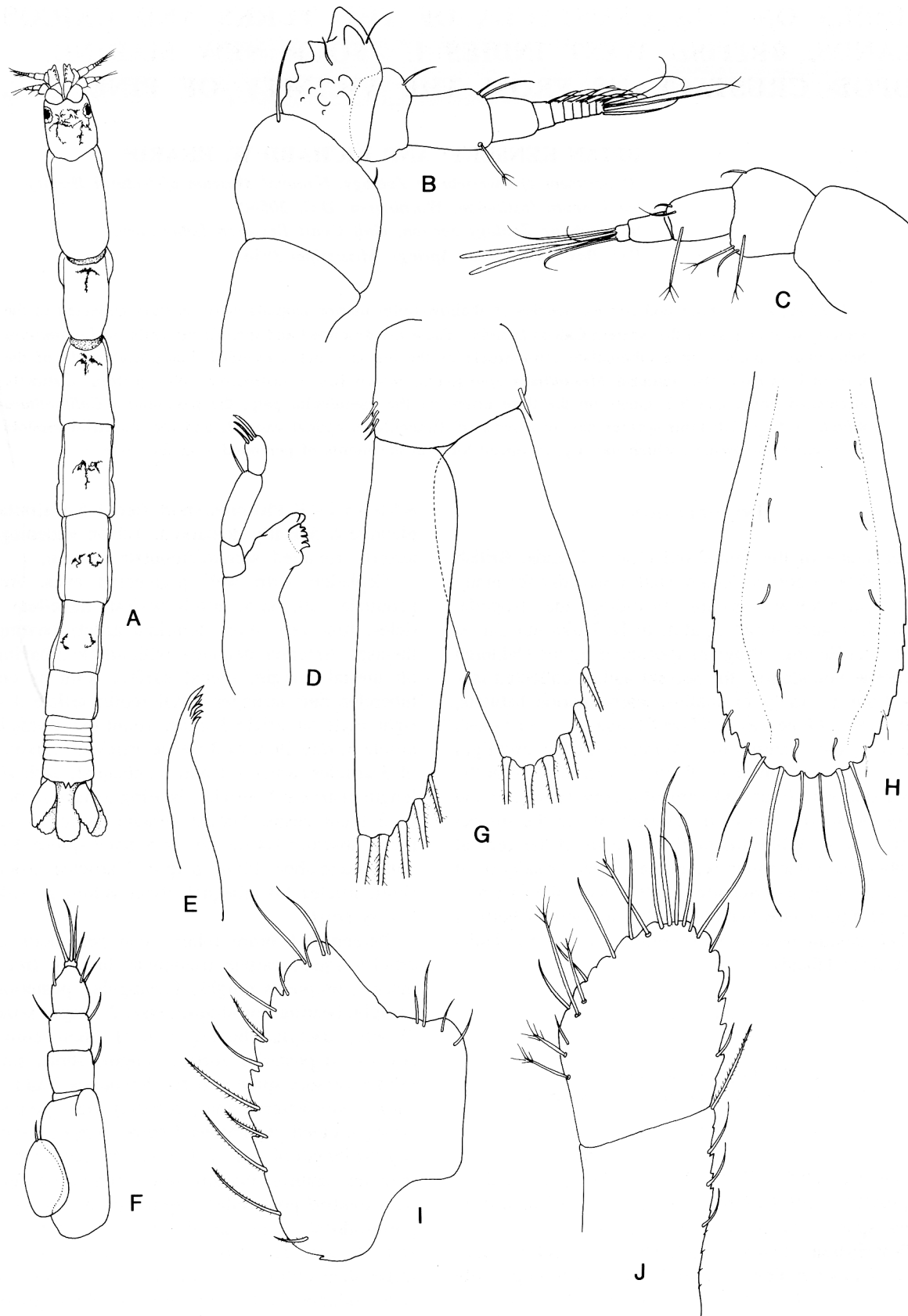


Fig. 1. *Licranthura tuberculata*, new species, female: A, dorsal view; B, antenna; C, antennule; D, mandible; E, maxilla; F, Maxilliped; G, pleopod 1; H, telson; I, uropodal exopod; J, uropodal endopod and protopod.

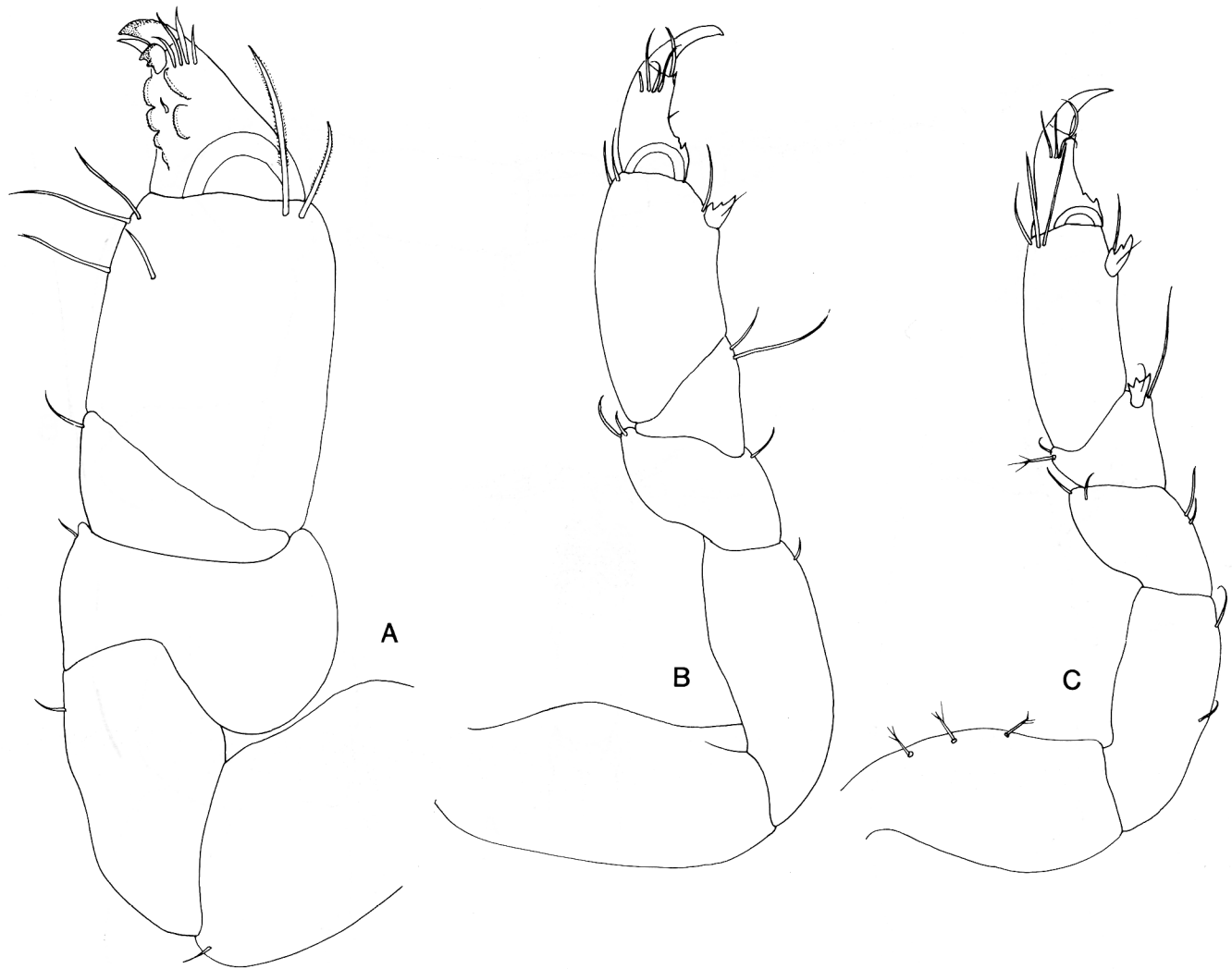


Fig. 2. *Licranthura tuberculata*, new species, female: A, pereopod 1; B, pereopod 2; C, pereopod 7.

laterally broadened, distally emarginate, with lateral lobe bluntly triangular, lateral margin serrate and setose.

Male: Body similar to female; eyes enormously enlarged, dorsally almost contiguous. Antennular flagellum of about 9 aesthetascs-bearing articles. Antennular peduncle article 3 having 4 distal acute tubercles, article 4 offset at right-angle on article 3; flagellum of 7 setose articles. Pereopod 1, propodal width slightly more than twice anterior length, with few simple and fringed setae posterodistally; dactylus with low blunt tubercles on posterior surface, unguis about half length of rest of dactylus, with short squat accessory spine. Pleopod 2, exopod of 2 articles, proximal about half length of distal article; endopod with copulatory stylet articulating in proximal half of mesial margin, reaching slightly beyond apex of ramus.

**Remarks.** The present species differs from *L. amyle* Kensley and Schotte, 1987, from Belize, the type and

only other species in the genus, in having fewer teeth on the mesial margin of the third antennal peduncle article, a posteriorly more rounded telson, and a blunt (as opposed to an acute) distolateral lobe on the uropodal exopod.

**Etymology.** The specific epithet refers to the tuberculate nature of the third antennal peduncle article.

*Mesanthura spongicola*, new species

Fig. 4

**Material.** HOLOTYPE, USNM 243479, non-ovig. female total length (tl) 6.5 mm, PARATYPE, USNM 243480, 14 non-ovig. females tl 5.3 - 6.5 mm, GCRL 1149, 3 non-ovig. female 5.3-6.5 mm, in yellow tube sponge (*Verongia* sp.) on fringing reef, off Pine Cay, 25 - 28 m, 11 Nov 1989. PARATYPES, USNM 243481, 2 non-ovig. females tl 4.3 & 4.8 mm, in sponge on outer

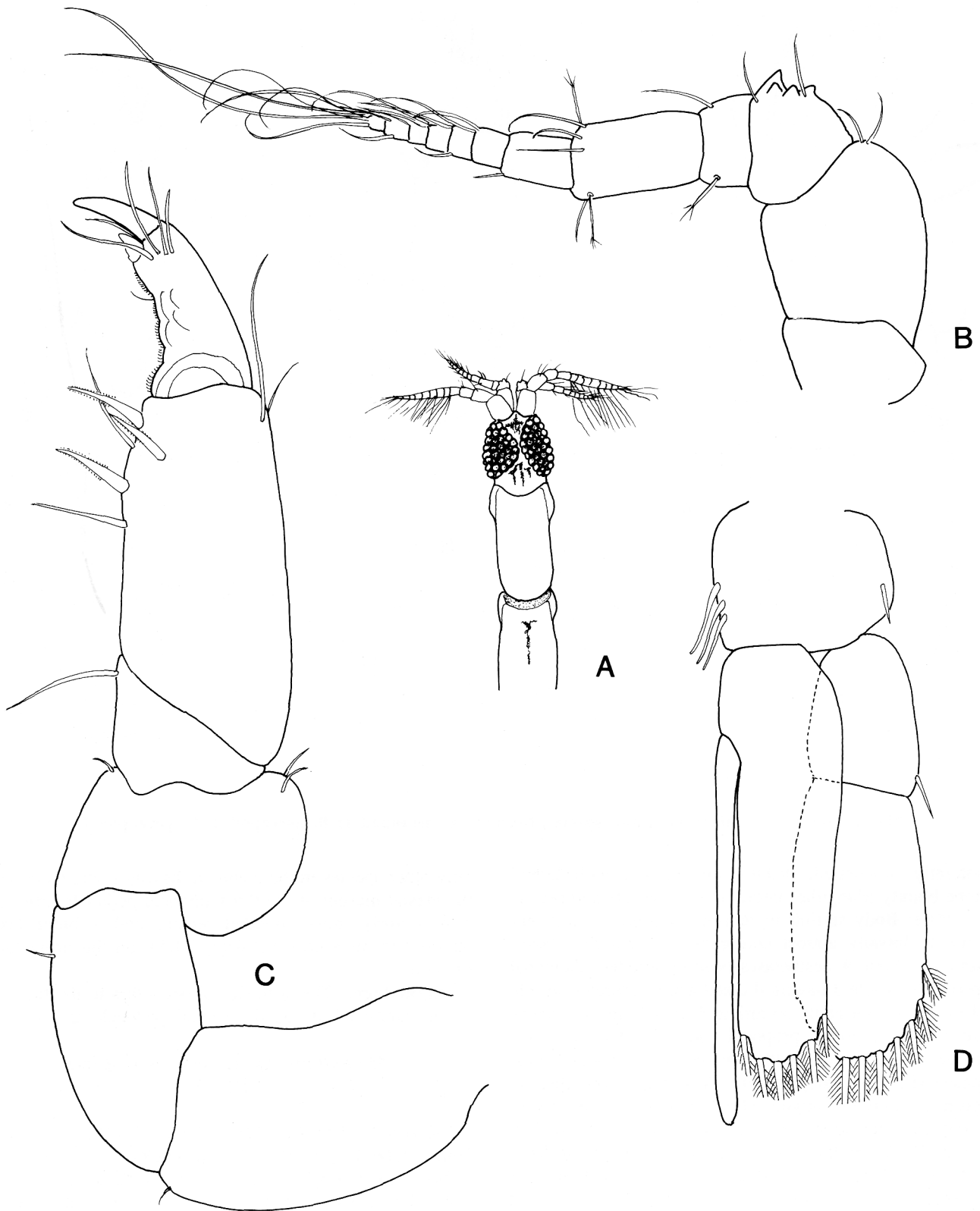


Fig. 3. *Licranthura tuberculata*, new species, female: A, pereopod 1; B, pereopod 2; C, pereopod 7.

fringing reef, off Pine Cay, 12 m, 4 Nov 1989. PARATYPES, USNM 243483, 2 non-ovig. females tl 3.2 & 5.8 mm, in *Verongia* sp. off outer reef, Pine Cay, 20 m, 31 Oct 1988.

**Description.** Female: Body proportions,  $C = 1 = 2 > 3 < 4 > 5 > 6 > 7 < P$ . Pleonite 6 dorsally free, posterior margin bilobed. Telson with posterior margin broadly rounded, with 2 pairs of short and long apical setae mesially. Antennular flagellum of 4 articles, subterminal article with 1 aesthetasc, terminal article with 2 aesthetascs. Antennal flagellum of 4 setose articles. Mandibular palp of 3 articles, article 2 longest and broadest, with single strong distal seta, article 3 having 5 - 7 distal spines; lamina dentate with 5 serrations; molar reduced to rounded boss. Maxilla with 6 distal spines. Maxilliped lacking endite, palp of 3 articles, terminal article semi-circular in outline, with 7 setae on mesial margin. Pereopod 1 subchelate, carpus triangular, posterodistally rounded; propodus moderately expanded, length about 2.5 times greatest width, palm sinuous, bearing few setae; unguis subequal in length to rest of dactylus. Pereopod 2, propodus with anterior length almost 3 times greatest width, with posterior margin bearing numerous scales plus tricuspid posterodistal spine; dactylus with 2 low proximal teeth on posterior margin, unguis about half length of rest of dactylus. Pereopods 4 - 7, carpi with anterior margin shorter than posterior, with short posterodistal spine; propodi with fringed scales on posterior margin plus 2 stout fringed setae and tricuspid spine posterodistally; unguis about one-third length of rest of dactylus. Pleopod 1 exopod operculiform, about 3.5 times wider than endopod, latter shorter than exopod, with 6 distal plumose setae. Uropodal endopod distally rounded, length about 1.5 times basal width; exopod reaching beyond base of endopod, apically acute, with shallow distal emargination in lateral margin.

**Color pattern.** Red-brown patches of chromatophores on dorsum of cephalon, all pereonites, pleon, telson, and uropods, those on pereonites and pleon having elongate unpigmented median area.

**Remarks.** Of the eight known species of *Mesanthura* from the western North Atlantic, *M. spongicola* is most similar to *M. bivittata* Kensley, 1987, from Belize and *M. looensis* Kensley & Schotte, 1987, from the Florida Keys. The new species can be separated from *M. bivittata* by the presence of 5 - 7 spines on article 3 of the mandibular palp and pereopods 2 - 6 each having a stout tricuspid sensory spine at the posterodistal angle of the propodus. The distinctly more elongate body form and the dorsal pigment pattern distinguish *M. spongicola* from *M. looensis*. Pereonite 7 of *M. spongicola* has the pigment patch in a thick irregular U-shape, whereas the pigment in this area in *M. looensis* is in the shape of an acute triangle or tapers anteromedially.

Collection data indicate that *M. spongicola* is associated with, and lives in a yellow tube sponge, *Verongia* sp. Although numerous benthic and epibenthic samples, which represented a variety of substrata and over 10 other

species of sponges, were taken along the fringing reef-face off Pine Cay, *M. spongicola* was found to occur only with the yellow tube sponge. Specimens were found in six of the eight specimens of *Verongia* examined during the fall (Oct-Nov) of 1988 and 1989; however, during the spring (April-May) of 1989 and 1990 no specimens of *M. spongicola* were found in over 20 yellow tube sponges from the same collecting area. Of the approximately 30 described species of *Mesanthura*, only three, viz. *M. albinotata* Thompson, 1951, *M. bipunctata* Thompson, 1951, and *M. protei* Kensley, 1980, have been collected with, or found in sponges (See Negoescu & Wägele 1984).

**Etymology.** The specific epithet, meaning 'sponge dweller', refers to the fact that all the specimens of this species were taken from sponges.

#### Family Paranthuridae

#### *Califanthura minuta*, new species

#### Fig. 5

**Material.** HOLOTYPE, USNM 243271, ovig. female tl 1.6 mm, PARATYPES, USNM 243272, 2 non-ovig. females tl 1.6 mm, off Pine Cay, inner fringing reef, in coarse sand and rubble, 1.5 m, 3 Nov 1988. PARATYPE, USNM 243273, non-ovig. female cl 1.6 mm, off Pine Cay, in coarse sand and rubble, 5 m, 16 Nov 1989. PARATYPE, GCRL 1148, 1 non-ovig. female, 1.6 mm, off Pine Cay, back of fringing reef in coarse sand and rubble, 4 m, 16 Apr 1989.

**Description.** Body proportions:  $C < 1 = 2 < 3 < 4 > 5 > 6 > 7$ . Cephalon with low rounded rostrum; eyes well pigmented, consisting of 6 - 8 ommatidia each. Pereonite 7 about one-sixth length of pereopod 6, lacking legs. Pleonites 1 - 5 fused; pleonite 6 dorsally indistinguishably fused with telson. Latter tapering posteriorly to broadly rounded posterior margin. Antennular peduncle with basal article longest and broadest; article 2 shorter than article 3; flagellum of 2 short articles, distal article bearing several simple setae plus 2 aesthetascs. Antennal peduncle with article 3 about half length of article 4, which in turn about half length of article 5; flagellum consisting of single setose article. Maxilla having about 12 distal serrations. Pereopod 1, carpus distally rounded; propodus broad, expanded, with rounded lobe at proximal end of palm, having 3 stout basally situated setae on mesial surface, palm with lateral convex flange bearing few setae. Pereopod 2, propodus barely inflated, with 4 short spines on posterior margin. Pereopod 6, carpus with anterior margin shorter than posterior, latter bearing 2 distal spines on posterior margin; propodus about 2.5 times longer than wide, with single strong posterodistal spine. Pleopod 1, endopod elongate, slender, with 3 distal plumose setae; exopod broad, operculiform, with about 8 plumose setae on laterodistal margin. Uropodal endo-

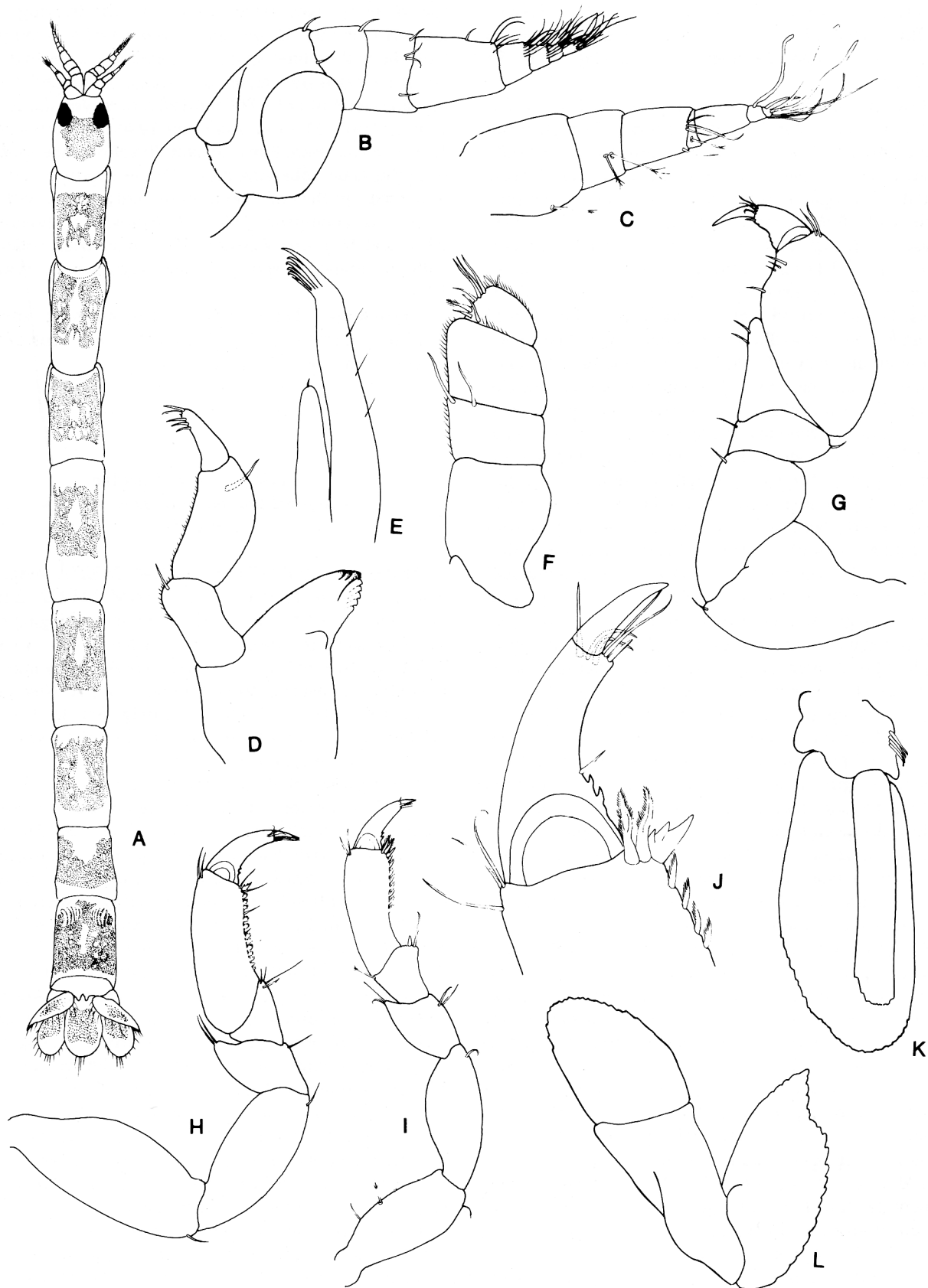


Fig. 4. *Mesanthura spongicola*, new species; A, Non-ovigerous female in dorsal view; B, antenna; C, antennule; D, mandible; E, maxilla; F, maxilliped; G, pereopod 1; H, pereopod 2; I, pereopod 7, distal propodus and dactylus; K, pleopod 1; L, uropod.

pod ovate, distal margin setose; exopod short, narrowly triangular, distally acute, barely reaching level of mesio-distal margin of protopod.

**Remarks.** Poore (1984) clarified the diagnoses of four seemingly closely related paranthurid genera that lack a seventh pereopod in the adult, of which *Califanthura* is one. The five previously described species of *Califanthura* are characterized by having pleonites 1-5 fused and generally lacking dorsal folds marking this fusion (see Poore 1984:699). None of these possesses a short triangular uropodal exopod and an evenly tapering telson, nor are any of them mature at the small size (1.6 mm) seen in *C. minuta*.

**Etymology.** The specific epithet, the Latin for little or tiny, refers to the small size (1.6 mm) of the adult.

#### Family Stenetriidae

##### *Stenetrium caicosensis*, new species

Figs. 6-7

**Material.** HOLOTYPE, USNM 243476, male tl 5.0 mm, PARATYPES, USNM 243477, 2 males tl 4.3 - 5.0 mm, 5 ovig. females tl 3.9 - 4.5 mm, 11 juvs., GCRL 1150, 1 male 4.3 mm, 1 ovig. female 4.8 mm, Fort George Cay, *Neogoniolithon* washings, 0.5 m, 18 Apr 1988. PARATYPE, USNM 243478, male tl 5.2 mm, Crab Hole Cay, Caicos Bank off Pine Cay, 15 Apr 1988.

**Description.** Male: Body about 3.5 times longer than greatest width. Cephalon with dorsolateral eyes large, well pigmented; anterolateral lobe acutely triangular; frontal margin faintly concave; rostrum rectangular, anterior margin truncate. Anterolateral lobes of pereonites 1-3 acute, of 4-7 right-angled to rounded; posterolateral lobes of pereonites 6 and 7 acute. Pleotelson wider than long, lateral margins each with 4 serrations, posteriormost forming strong tooth; posterior margin between uropodal bases gently convex. Antennule with basal article widest and longest, article 2 about half length of 3; flagellum of 11 articles, single aesthetasc on each of 8 distal articles. Antenna almost as long as body, peduncle articles 1 and 2 short, subequal, latter with setose scale, article 3 very short, articles 4 and 5 slender, elongate, subequal, each longer than 3 proximal articles together. Mouthparts typical of genus, as figured. Maxilliped endite with 6 coupling hooks on mesial margin. Pereopod 1 of mature male with posterior surfaces of ischium, merus, carpus, propodus and dactylus bearing dense elongate setae; merus with broad apically subacute lobe produced from distal half of posterior margin; carpus subequal in length of merus (excluding posterior lobe); propodus anterior length about 2.5 times greatest width, with distally directed spine-like process in distal half of posterior margin; dactylus curved, club-shaped, reaching to base of propodus, lacking distal claw or unguis. Pereopods 2 - 7 similar, meri with anterodistal angle produced and bearing stout seta; carpi roughly rectangu-

lar, with few short spines on posterior margin; propodi subequal in length to, about half width of carpus, with 6 spines on posterior margin; dactyli biunguiculate, 2 ungui equally strong; slender accessory spines on posterior margin. Pleopod 1, rami tapering, distally rounded, distolateral margins setose. Pleopods 2-4 typical of genus. Uropod with basis slightly shorter than endopod; exopod three-fourths length of endopod.

Female: Pereopod 1, basis bearing 5 stout distal setae on anterior margin; ischium with few setae on posterior surface; merus with anterodistal angle produced, bearing stout seta; carpus with numerous setae on posterior surface, anterodistal angle produced into acute lobe; propodus with palm separated from posterior margin by strong fringed spine, palm bearing 5 slender fringed setae; dactylus bearing row of short fringed spines on posterodistal margin, unguis about one-fourth length of rest of dactylus. Pleonal operculum longer than basal width, subapically slightly pinched, distally rounded.

**Color pattern.** Red-brown scattering of chromatophores between eyes, on pereonites 1 and 2, broad band on 3, absent on 4, broad band on 5, scattering on 6 and 7, broad basal band with lateral lobes on pleon.

**Remarks.** Of the four Caribbean species of *Stenetrium* having reniform eyes (See Kensley & Schotte 1989:100), *S. caicosensis* most closely resembles *S. bowmani* Kensley, 1984, from Belize and Mexico, especially in the shape of the cephalon and pleon. The two species can easily be separated, however, by the color pattern (the chromatophores are more evenly and densely spread over the dorsum of *S. bowmani*), by the number of coupling hooks on the maxillipedal endite (four in *S. bowmani*, six in *S. caicosensis*), by the shape of pereopod 1 of the male (*S. bowmani* possesses an expanded propodus with a trilobed palm, while *S. caicosensis* has a broad lobe on the posterior surface of the merus), and by the more strongly produced acute anterodistal lobe on the carpus of pereopod 1 of *S. caicosensis*.

**Etymology.** The specific name is derived from the type locality, viz. the Caicos Islands.

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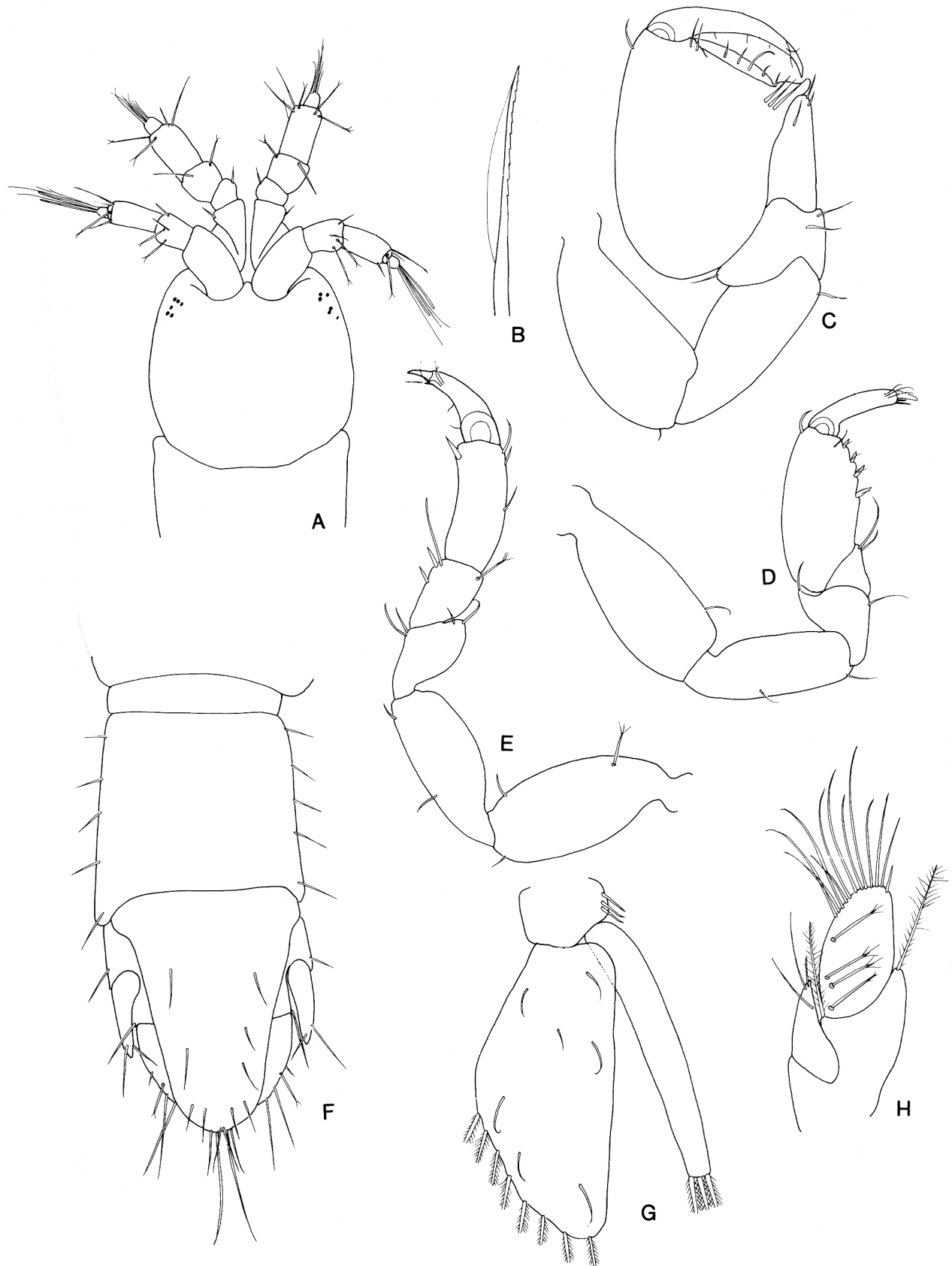


Fig. 5. *Califanthura minuta*, new species, female: A, cephalon, antennules, and antennae; B, maxilla; C, pereopod 1; D, pereopod 2; E, pereopod 6; F, pleon and pleotelson; G, pleopod 1; H, uropod.



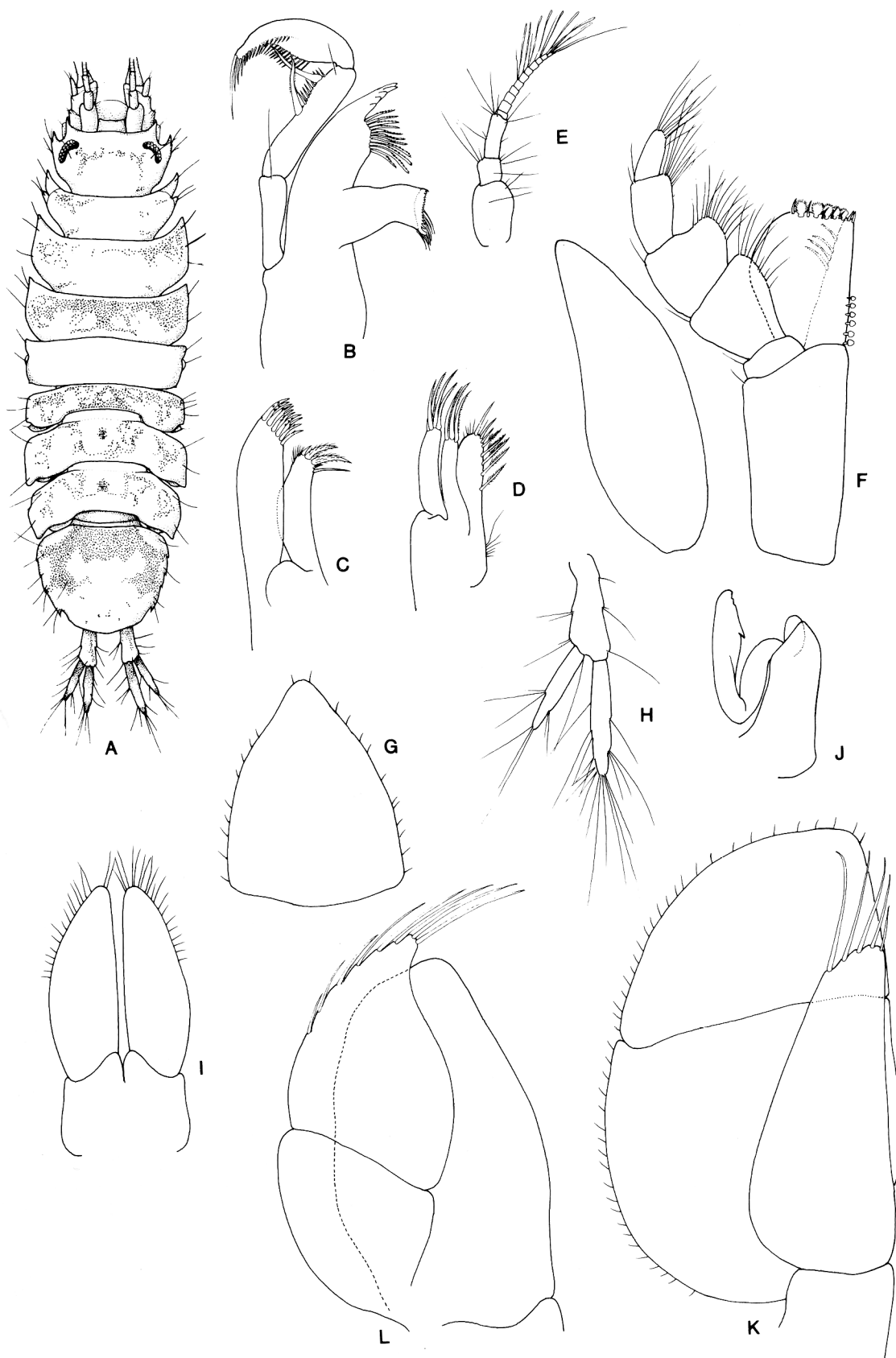


Fig. 6. *Stenetrium caicosensis*, new species: A, whole animal in dorsal view; B, mandible; C, maxilla 1; D, maxilla 2; E, antennule; F, maxilliped; G, operculum, female; H, uropod; I, pleopod 1 male; J, pleopod 2 male; K, pleopod 3; L, pleopod 4.

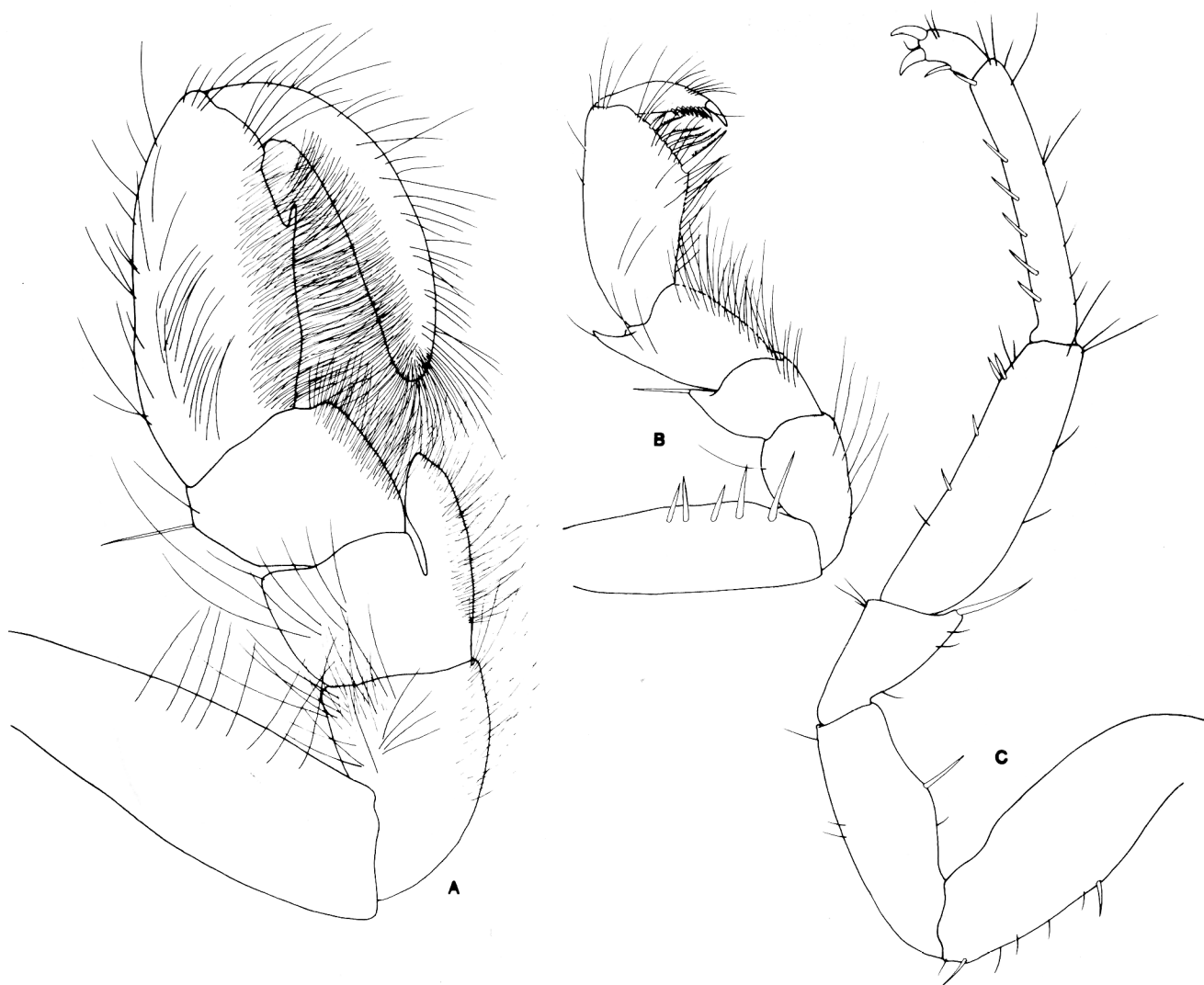


Fig. 7. *Stentrium caicosensis*, new species: A, pereopod 1 male; B, pereopod 1 female; C, pereopod 7.

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