

scales, bearing strong striate posterodistal spine; unguis about half length of remainder of dactylus, with strong finely fringed accessory spine. Pleopod 1, rami fused, operculiform, slight distal slit indicating region of fusion, distal margin of fused endopod bearing fringed and simple spines between elongate plumose setae. Uropodal exopod elongate-oval, with margins strongly serrate, and strong acutely triangular process at about midpoint of outer margin. Endopod elongate-oval, margins coarsely serrate; both rami with broad hyaline margin; protopod with inner and outer distal margin serrate, with elongate plumose setae on ventral surface.

Male: Generally shorter than female. Eyes enlarged, extending to ventral area of head, of about 12 ommatidia each. Antenna 1, flagellum of 9 articles, basal article with row of elongate aesthetascs, 5 distal articles, except terminal article each with 1 or 2 aesthetascs. Mouthparts reduced, nonsclerotized. Pereopod 1, propodus with row of 11 serrate spines on mesial surface, strong posterodistal spine. Pleopod 1 rami not fused, narrow, each with 4 elongate plumose setae; pleopod 2 with strong saber-shaped copulatory stylet articulating at base of, and extending beyond, endopod; latter longer than mesially broadened exopod; both rami with 4 elongate plumose setae on distal margin. Pleopod 3 endopod broadly oval, with 3 distal plumose setae; exopod $\frac{1}{2}$ length and less than $\frac{1}{2}$ width of endopod, bearing 4 plumose setae. Uropodal exopod narrower than in female, with strong acutely triangular process on outer margin. Telson narrower than in female, with middorsal ridge running almost entire length.

REMARKS.—Of the 11 described species of *Eisothistos*, six possess dorsally unarmed telsons, one of the easiest features to determine. Further comparison of telsons, along with other features, serves to separate *E. petrensis* from these six species.

Eisothistos vermiformis Haswell, from Australia, has a distally truncate and crenulate telson.

Eisothistos maledivensis Wägele, from the Maldiv Islands, has a parallel-sided telson (i.e., not posteriorly flared); the uropodal endopod is

more elongate, whereas the rami of pleopod 2 are relatively short and broad.

Eisothistos anomala (Kensley), from Madagascar, although having a telson very similar to *E. petrensis*, possesses a more oval and apically acute uropodal endopod and a distinctly bicuspid mandible.

Eisothistos moreirai (Pires), from Brazil, has a bicuspid mandible, a serrate posterior margin of the propodus of pereopod 1, and no indication of a fusion slit in pleopod 1 of the female.

Eisothistos bataviae Kensley and Poore, from the Abrolhos Islands, has relatively short first and second antennae and strong movable spines on the anterolateral margins of the telson.

Eisothistos minutus Sivertsen and Holthuis, from Tristan da Cunha, has relatively short first and second antennae and a bilobed uropodal endopod lacking a large spinose process.

Eisothistos atlanticus Vanhöffen (1914) was described from the Cape Verde Islands. Vanhöffen's brief comments and figure are insufficient to define the species. Barnard (1925) recorded *E. atlanticus* from St. Thomas in the West Indies. Barnard's material has been re-examined and found to be conspecific with *E. petrensis*.

ETYMOLOGY.—The specific epithet, from the Latin for "among rocks," refers to the habitat of *E. petrensis*, i.e., coral reef rubble.

Family PARANTHURIDAE

Genus *Accalathura* Barnard, 1925

Accalathura setosa, new species

FIGURES 7, 8

MATERIAL EXAMINED.—*Holotype:* USNM 211210, ovig ♀ (5 eggs in marsupium), TL 8.5 mm, sta RC-7, reef crest rubble, 0.1 m.

Allotype: USNM 211211, ♂, TL 7.0 mm, sta K-63, reef crest rubble, 0.25 m.

Paratypes: USNM 211212, 7 ♂, TL 5.8–7.0 mm, 1 ovig ♀, TL 7.3 mm, 12 non-ovig ♀, 6 juvs, sta RC-91, RC-92, RC-93, reef crest rubble, 0.1 m.

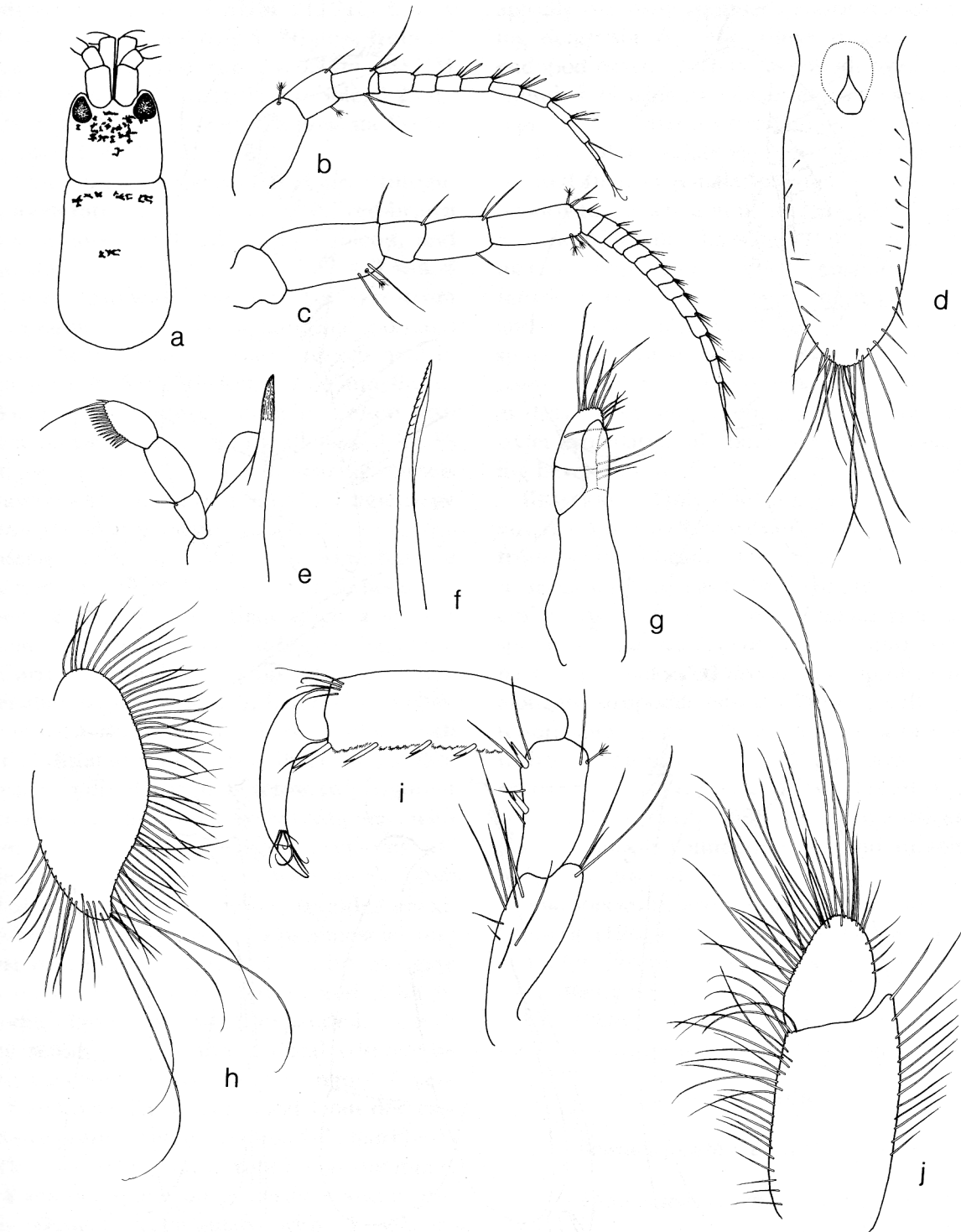


FIGURE 7.—*Accalathura setosa*, new species, ♀: *a*, head and pereonite 1, dorsal view; *b*, antenna 1; *c*, antenna 2; *d*, telson; *e*, mandible; *f*, maxilla; *g*, maxilliped; *h*, uropodal exopod; *i*, pereopod 7; *j*, uropodal endopod and basis.

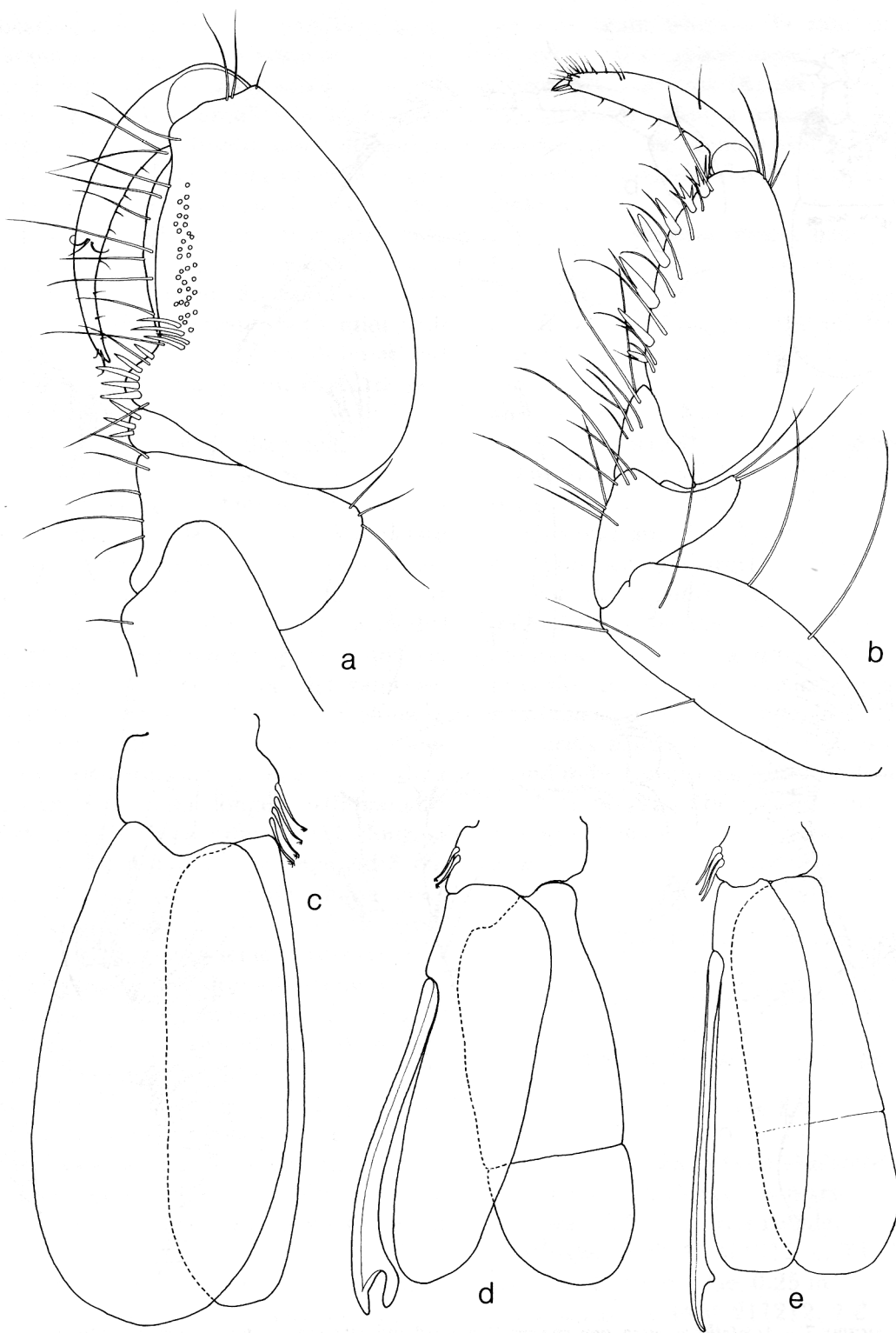


FIGURE 8.—*Accalathura setosa*, new species, ♂: a, pereopod 1; b, pereopod 2; c, pleopod 1; d, pleopod 2, ♂. *Accalathura crenulata* (Richardson): e, pleopod 2, ♂.

Additional Material: USNM 211213, 6 ♂, 1 sub ♂, 4 ovig ♀, 17 non-ovig ♀, 36 juvs, from 22 RC stations, reef crest rubble, 0.1 m. USNM 211214, 1 ♂, sta K-63, reef crest rubble, 0.25 m. USNM 211215, 1 ♂, 1 ovig ♀, 2 juvs, sta F-151, reef crest rubble, 0.4 m.

DESCRIPTION.—*Ovigerous Female:* Integument moderately indurate; scattered red-brown chromatophores on head, pereon, pleon, and telson. Body proportions: $C < 1 > 2 < 3 < 4 = 5 > 6 > 7$. Head with large dorsal eyes; rostrum low, triangular, not reaching anterolateral lobes of head. Pleonites short, free, 1–4 subequal in length, pleonite 5 slightly longer, pleonite 6 with middorsal slit in posterior margin. Telson with slight anterior constriction, parallel-sided for $\frac{2}{3}$ of length, posteriorly rounded, bearing numerous simple setae of varying lengths; single large anterior statocyst present.

Antenna 1, flagellum of 11 articles, with single aesthetasc on articles 4–8. Antenna 2, peduncle segment 2 slightly more than twice length of segment 3, segments 4 and 5 subequal; flagellum of 13 articles. Mandibular palp with segment 2 longer than segments 1 or 3; latter with 1 elongate and 15 short distal spines. Maxilla with about 11 distal serrations. Maxilliped with endite not reaching distal margin of setose palp segment 2. Pereopod 1, carpus narrowly triangular, with 3 spines on posterior margin; propodus expanded, palm gently convex, with submarginal band of spines on inner surface, rounded proximal lobe bearing 5 spines; unguis almost as long as rest of dactylus. Pereopod 2 with elongate setae on ischium, merus, carpus, and palm of propodus; latter somewhat expanded, with 5 strong sensory spines and 2 distal trispiculose spines; dactylus with very short unguis. Pereopods 2 and 3 similar to pereopod 1 but decreasing in size posteriorly. Pereopods 4–7, meri bearing elongate setae, carpi roughly rectangular, with 2 sensory spines on posterior margin; propodus elongate-rectangular, with 4 sensory spines and numerous fringed scales on posterior margin. Pleopod 1 operculiform, rami subequal in length, exopod almost twice width of endopod. Uropodal exopod with outer margin sinuous,

apically narrowly rounded; entire margin bearing dense simple setae, those at apex longest; endopod narrower than protopod, oval, distally rounded, bearing numerous elongate setae; protopod with numerous setae on outer margin.

Male: Body relatively more slender and pigmented than in female; pigment extending anteriorly to bases of antennae. Pereopod 1, carpus narrow, triangular, bearing 3 spines on posterior margin; propodus much more expanded than in female, with convex palm having narrow flange and rounded proximal lobe bearing 5 strong spines; band of spine-setae on mesial face near palm. Pleopod 2 exopod with transverse suture at distal $\frac{2}{3}$ of length; endopod with copulatory stylet articulating at about proximal $\frac{1}{3}$, extending beyond rami, distally expanded and bilobed.

REMARKS.—Only one species of *Accalathura*, viz., *A. crenulata* (Richardson), has been recorded from the Caribbean. This species co-occurs with *A. setosa* but may easily be distinguished by several features. *Accalathura crenulata* is a larger species (ovigerous female TL 15 mm) and has narrow parallel-sided uropodal exopods, a more elongate uropodal endopod, an apically acute telson, and an apically acute copulatory stylet with a subapical "heel." *Accalathura setosa* is ovigerous at about 8.0 mm and has a broad sinuous uropodal exopod, a short oval uropodal endopod, an apically rounded telson, and an apically bifid copulatory stylet.

The species referred to by Menzies and Frankenberg (1966) from Georgia as "*Accalathura ?crenulata* juvenile" may well be *A. setosa*, judging from the figure of the tailfan.

ETYMOLOGY.—The specific epithet refers to the highly setose margins of the uropodal rami.

Family ANTHURIDAE

Genus *Apanthura* Stebbing, 1900

Apanthura cracenta, new species

FIGURES 9, 10

MATERIAL EXAMINED.—*Holotype:* USNM 211217, non-ovig ♀, TL 4.6 mm, sta RC-103, reef crest rubble, 0.1 m.

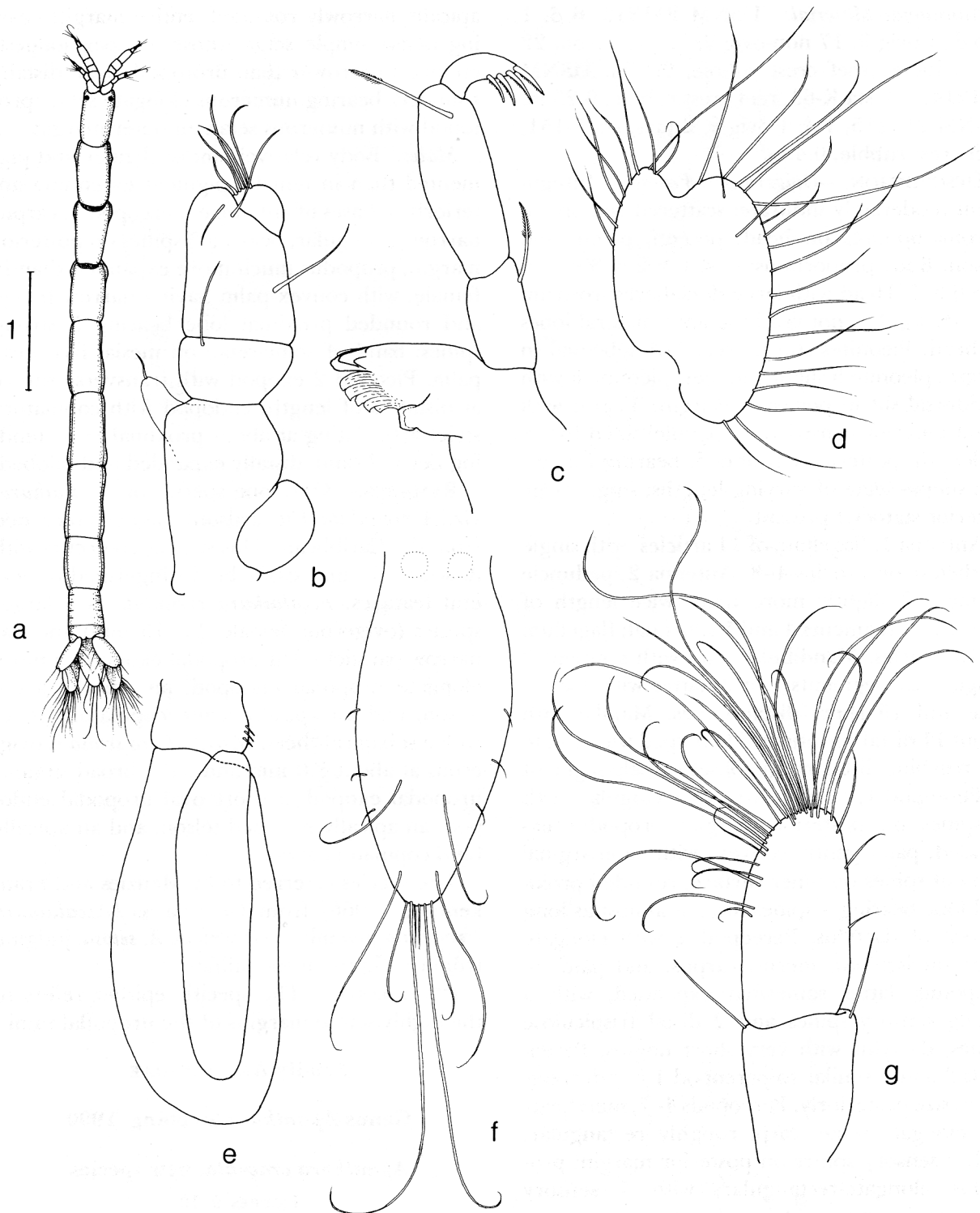


FIGURE 9.—*Apanthura cracenta*, new species: *a*, whole animal, dorsal view; *b*, maxilliped; *c*, mandible; *d*, uropodal exopod; *e*, pleopod 1; *f*, telson; *g*, uropodal endopod.

Allotype: USNM 211218, ♂, TL 3.8 mm, sta RC-22, reef crest rubble, 0.1 m.

Paratypes: USNM 211219, 2 ♂, TL 3.0–3.2 mm, 5 non-ovig ♀, TL 2.6–4.6 mm, sta RC-19, RC-26, RC-100, reef crest rubble, 0.1 m.

Additional Material: USNM 211220, 2 ♂, 19

non-ovig ♀, 3 juvs, sta RC-7, RC-13, RC-21, RC-23, RC-44, RC-56, RC-58, RC-95, RC-99, RC-101, RC-102, RC-104, RC-106, RC-115, RC-119, reef crest rubble, 0.1 m. USNM 211221, 1 ♂, 4 non-ovig ♀, 2 juvs, sta H(80)-11, H(80)-32, reef rubble, 15–27.4 m. USNM 221222, 2 non-

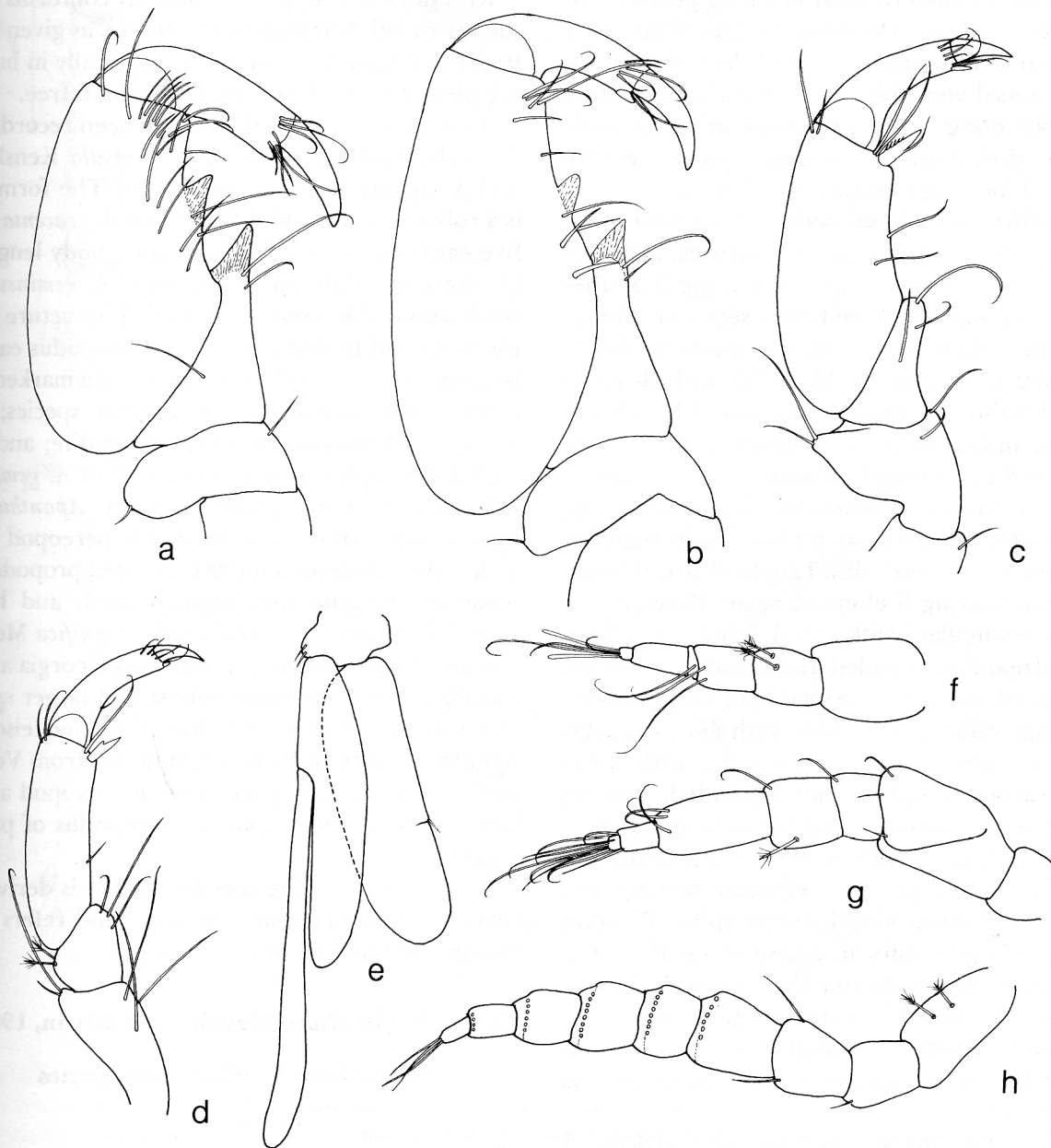


FIGURE 10.—*Apanthura cracenta*, new species: a, pereopod 1, ♂; b, pereopod 1, ♀; c, pereopod 2; d, pereopod 7; e, pleopod 2, ♂; f, antenna 1, ♀; g, antenna 2; h, antenna 1, ♂.

ovig ♀, sta H(81)-41, H(81)-57, reef rubble, 1–2 m. USNM 221223, 2 non-ovig ♀, sta CBC.4.5.74-3, reef rubble, 0.5 m.

DESCRIPTION.—*Female*: Body very slender, about 15 times longer than wide. Integument thin, non-indurate, unpigmented. Body proportions: $C = 1 = 2 > 3 > 4 = 5 = 6 > 7$. Rounded anterolateral lobes of head reaching beyond low rounded rostrum. Dorsolateral eyes small, well pigmented. Pleonites 1–5 fused, lateral slits visible in dorsal view; pleonite 6 free, with bilobed posterior margin. Telson widest at about midlength, posteriorly narrowed, apically evenly rounded, bearing elongate simple setae.

Antenna 1 with basal peduncle segment longest and widest; flagellum of 3 articles, article 2 longest; short terminal article bearing 2 aesthetascs. Antenna 2 with peduncle segment 2 longest, only slightly longer than segment 5; flagellum of 2 short articles. Mandible with 3- or 4-cusped incisor; lamina dentata with 5 broad serrations; molar truncate, sclerotized; palp with segment 2 twice length of segment 1, segment 3 with 4 serrate distal spines. Maxilliped with short thin endite; semicircular terminal palp segment set obliquely at outer distal angle of penultimate segment, bearing 5 elongate setae. Pereopod 1, carpus triangular, with distal acute sclerotized area; propodus expanded, palm bearing rounded sclerotized tooth in proximal half; unguis about half length of rest of dactylus, with short rounded accessory spine at base. Pereopod 2 with triangular carpus; propodus not expanded, bearing strong posterodistal serrate sensory spine. Pereopods 4–7, carpi with anterior margins shorter than posterior; propodi elongate-rectangular, with strong posterodistal serrate spine. Pleopod 1, exopod operculiform, endopod less than half width and slightly shorter than exopod. Uropodal exopod with elongate marginal setae and deep distal notch; endopod twice longer than wide, with outer distal margin bearing numerous elongate setae.

Male: Antenna 1, flagellum of 6 articles, 5 proximal articles each bearing row of aesthetascs. Eyes slightly larger than in female. Pereopod 1,

carpus with posterodistal angle produced into acute triangular tooth; propodal palm with acute triangular tooth at midlength; mesial surface of propodus with more setae than in female. Pleopod 2, copulatory stylet elongate, club-shaped, widening distally, articulating with endopod in proximal half of mesial margin.

REMARKS.—The present species conforms to the restricted diagnosis of *Apanthura*, as given by Poore and Lew Ton (in press), especially in having pleonites 1–5 fused, and pleonite 6 free.

Two species of *Apanthura* have been recorded from the Caribbean, viz., *A. geminsula* Kensley and *A. signata* Menzies and Glynn. The former is a robust species and differs from *A. cracentis* in five easily detectable features: total body length (*A. cracentis* adult up to 4.6 mm, *A. geminsula* adult about 8.0 mm); pereopod 1 structure in the male and female (carpus and propodus each bearing an acute tooth in *A. cracentis*); a markedly more setose tailfan in the present species; a shorter and broader maxillipedal endite; and a well-defined pit on pereonites 4–6 in *A. geminsula*, absent in the present species. *Apanthura signata* lacks triangular teeth on pereopod 1, which also possesses a more expanded propodus, possesses integumental pigmentation, and has relatively larger eyes. *Apanthura magnifica* Menzies and Frankenberg, known from Georgia and Florida, is an even more robust and larger species, with an indurate posteriorly flattened telson. *Apanthura significata* Paul and Menzies, from Venezuela, has an unnotched uropodal exopod and lacks teeth on the carpus and propodus of pereopod 1.

ETYMOLOGY.—The specific epithet is derived from the Latin *cracentis* (slender) and refers to the overall body form of the species.

Genus *Pendantthura* Menzies and Glynn, 1968

Pendantthura hendleri, new species

FIGURE 11

MATERIAL EXAMINED.—*Holotype*: USNM 211224, ovig ♀, TL 3.3 mm, sta H(81)-11, from

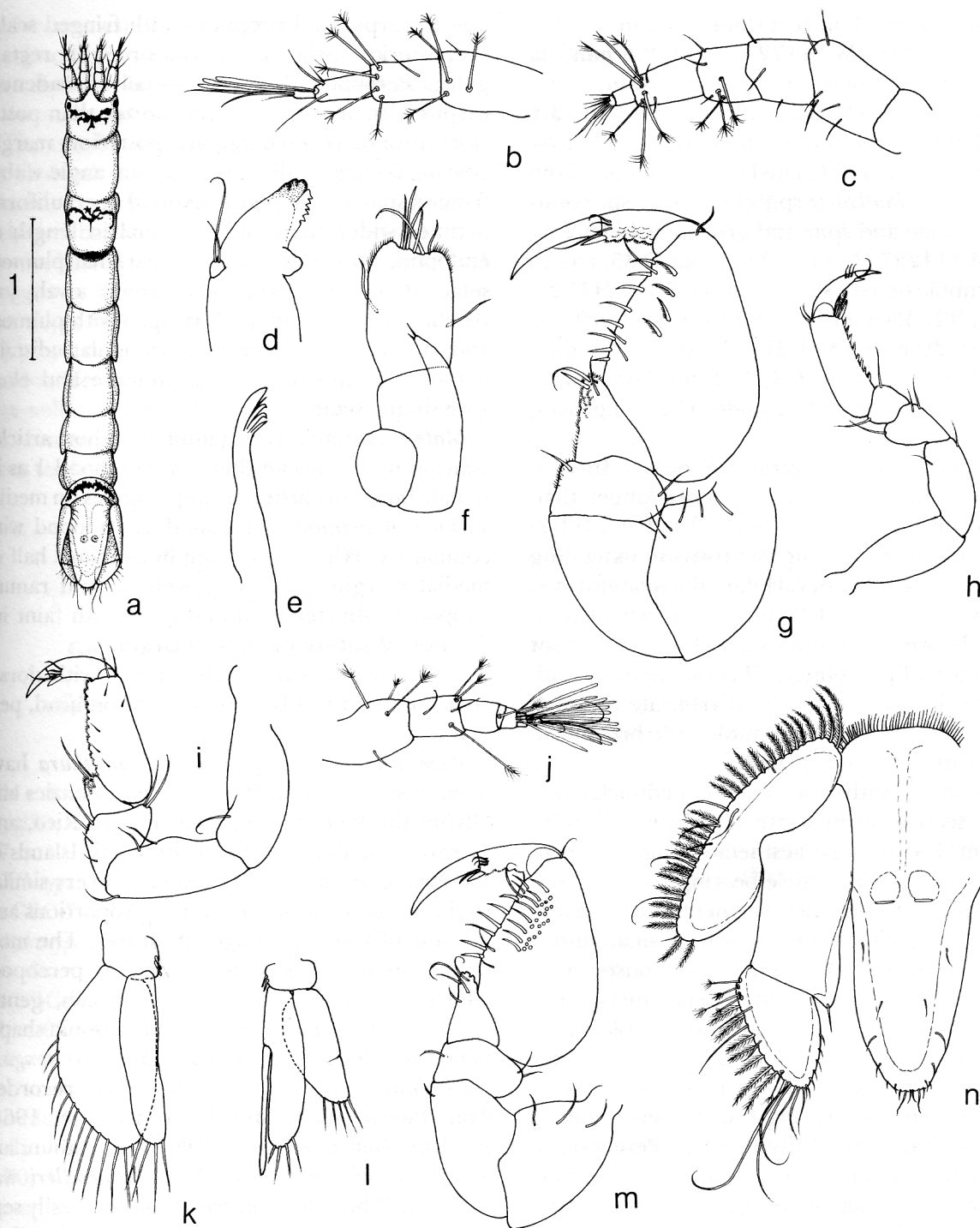


FIGURE 11.—*Pendantura hendleri*, new species: a, whole animal, dorsal view; b, antenna 1, ♀; c, antenna 2; d, mandible; e, maxilla; f, maxilliped; g, pereopod 1, ♀; h, pereopod 7; i, pereopod 2; j, antenna 1, ♂; k, pleopod 1; l, pleopod 2, ♂; m, pereopod 1, ♂; n, telson and uropod.

Madracis sp. coral on reef slope, 15.2 m.

Allotype: USNM 211225, ♂, TL 2.8 mm, sta K-145, coarse rubble on reef slope, 23 m.

Paratypes: USNM 211226, ovig ♀, TL 3.1 mm, 2 non-ovig ♀, TL 3.3 mm, 3 juvs, TL 1.8–2.1 mm, sta H(81)-11, H(81)-31, H(81)-35, from *Agaricia* sp., *Madracis* sp., and *Porites* sp. corals on reef slope and spur and groove, 9.1–15.2 m. USNM 211227, ♂, TL 3.0 mm, sta K-35, coarse coral rubble on reef slope, 20 m. USNM 211228, ovig ♀, TL 3.4 mm, sta *Alpha-Helix* ND-19, off Panama, 30 m. USNM 211229, ♂, TL 2.9 mm, juv, TL 1.8 mm, sta H(81)-1, Twin Cays, Belize, from *Caulerpa verticillata* under red mangroves, 0–2 m.

DESCRIPTION.—*Ovigerous Female*: Integument not indurate. Body $8\frac{1}{2}$ times longer than wide; proportions: $C < 1 > 2 < 3 = 4 = 5 > 6 > 7 > P$. Head with triangular rostrum extending well beyond anterolateral lobes; dorsolateral eyes small, well pigmented. Strong dorsal articulation-hollow between pereonites 2 and 3. Pleon about half length of pereonite 7. Telson basally broad, tapering in posterior half to truncate-rounded apex; 2 statocysts at about midlength; broad hyaline margin in posterior half.

Antenna 1 with 3-segmented peduncle, segments decreasing in width and length distally; segment 3 with single aesthetasc; flagellum consisting of single tiny article bearing 2 aesthetascs. Antenna 2 with peduncle segment 2 longest and broadest; flagellum consisting of 1 small and 1 tiny setose article. Mandibular palp consisting of single short segment bearing 2 setae; incisor of 3 cusps; lamina dentata of 5 serrations; molar short and blunt. Maxilla with 1 strong and 4 smaller distal spines. Maxillipedal palp of single broad quadrate segment bearing 6 distal setae; endite short, conical, with 2 distal setae. Pereopod 1 with triangular carpus bearing fringed scales on posterior and distal margins; propodus broad, expanded, palmar margin very gently convex, bearing 8 simple spines, medial face with 4 fringed spines; unguis equal in length to rest of dactylus, with strong accessory spine at base; posterior surface bearing fringed scales. Pereo-

pod 2, carpus and propodus with fringed scales on posterior surfaces; propodus roughly rectangular. Pereopod 7, merus distally broadened; carpus with anterior margin shorter than posterior; propodus rectangular, posterior margin bearing fringed scales, posterodistal angle with 3 fringed spines. Pleopod 1, exopod operculiform, 3 times wider than and subequal in length to endopod, both rami bearing marginal plumose setae. Uropodal exopod narrowly oval, just reaching base of endopod, fringed with plumose and simple setae; endopod triangular, distally narrowly rounded, bearing plumose and elongate simple setae.

Male: Antenna 1, flagellum of 4 short articles bearing numerous aesthetascs. Pereopod 1 as in female but with cluster of simple spines on medial surface of propodus. Pleopod 2, endopod with copulatory stylet articulating in proximal half of medial margin, extending well beyond ramus; exopod $\frac{1}{3}$ shorter than endopod, with faint indication of suture on outer margin.

Color: Body transparent in life, with dorsal reticulation of red-brown pigment on head, pereonite 2, and pleon.

REMARKS.—Two species of *Pedanthura* have been described, viz., *P. tanaiformis* Menzies and Glynn, the type-species, from Puerto Rico, and *P. rarotonga* Kensley, from the Cook Islands in the Pacific. *Pedanthura rarotonga* is very similar to the present species in overall proportions and in most of the appendage structures. The most noticeable differences lie in the first pereopod, which is sinuous in the Pacific species, gently convex in *P. hendleri*, and in the telsonic shape, being broader and less tapered in *P. rarotonga*.

Pedanthura tanaiformis has been recorded from Puerto Rico (Menzies and Glynn, 1968) and from Belize (Kensley, 1982) and is abundant on the same reef from which *P. hendleri* was collected. The color pattern, however, easily separates the two species, *P. tanaiformis* being dorsally heavily pigmented on the head, pereon, and pleon, and *P. hendleri* having three narrow dorsal patches of pigment. Other differences lie in the mandible (the palp having a single seta in the

earlier species), the maxilliped (relatively more elongate in *P. hendleri*), and pereopod 1, which has a distinct, rounded lobe on the propodal palm in the male and female of *P. tanaiformis*.

The two Caribbean species also show a differential depth distribution, *P. tanaiformis* being abundant in intertidal rubble habitats and rarely recorded below 1 m. *Pendanthura hendleri* has been collected in 1–2 m in algal turf under red mangroves and in several coral species on the reef slope, to a depth of 30 m.

ETYMOLOGY.—The species is named for Dr. Gordon Hendler, of the Smithsonian Institution, who collected most of the specimens and who also has contributed many other isopod specimens to this study.

Suborder FLABELLIFERA

Family SPHAEROMATIDAE

Genus *Cymodoce* Leach, 1814

Cymodoce ruetzleri, new species

FIGURES 12–14

MATERIAL EXAMINED.—*Holotype*: USNM 211230, ♂, TL 5.0 mm, sta F-48, rubble flats, 0.7 m.

Allotype: USNM 211231, ovig ♀, TL 4.0 mm, sta CBC-7.5.74-1, 0.5 m.

Paratypes: USNM 211232, 6 ♂, TL 4.0–4.5 mm, 3 ovig ♀, TL 4.0–4.2 mm, 2 ♀, TL 4.0 mm, sta CBC-2.5.74-3, 0.5 m. USNM 211233, 7 ♂, TL 4.0–4.3 mm, 4 ovig ♀, TL 4.0–4.3 mm, coarse sediments in *Thalassia* seagrass flats, 0.5 m.

Additional Material: USNM 211234, 9 ♂, 14 ♀, 4 juvs, sta K-4, K-22, K-35, K-53, K-61, K-62, K-70, K-73, coarse sediments in *Thalassia* seagrass flats, in *Dictyota* sp. clumps, coarse sand in *Halimeda* sp. clumps, coral rubble, intertidal to 30 m. USNM 211235, 16 ♂, 39 ♀, 69 juvs, sta H(80)-7, H(80)-11, H(80)-22, H(80)-31, H(80)-41, H(81)-3, H(81)-5, H(81)-39, in *Agaricia* sp. coral and *Halimeda* sp. algal clumps on fore reef,

1–36 m. USNM 211236, 6 ♂, 2 ♀, 1 juv, sta RC-7, RC-18, RC-65, RC-97, RC-112, reef crest coral, 0.1 m. USNM 211237, 2 ♂, 1 ♀, sta AC-67, AC-501, AC-519, coarse sand, and interior of sponge, 5–13 m. USNM 211238, 1 ♀, 1 juv, sta CBC-4.5.74-3, CBC-7.5.74-1, 0.5 m.

DESCRIPTION.—*Male*: Body dorsally strongly arched. Integument hard and brittle; anteriorly sparsely setose, becoming more densely setose posteriorly; entire pleotelson having numerous small tubercles, becoming obsolete anterior to pereonite 7. Head with large well-pigmented dorsolateral eyes; tiny ventrally directed rostral point on frontal ridge, separating bases of antenna 1, just touching apex of clypeus. Latter broadly U-shaped, with rounded dorsal apex; short blunt slightly divergent arms embracing labrum. Pereonite 1 with coxal plate fused, ventrally broadened, with posteriorly directed round lobe. Pereonite 1 broadest. Pereonite 7 with posterior margin faintly and broadly bilobed, lobes sometimes bearing tiny spine-like tubercles. Pleon consisting of 3 anterior fused pleonites articulating with pleotelson; free posterior margin of pleonite 3 submedially bilobed, with lateral emargination. Telson bearing submedian pair of strong conical tubercles, each having acute tip; conical tubercles flanked by low rounded setose tubercle; pleotelson sloping ventrally posterior to tubercles; apex of pleotelson trilobed, triangular outer lobes separated by deep incisions from truncate median lobe; small spinose tubercle at base of incision; outer lobes apically bearing 2 short teeth.

Antenna 1, peduncle 3-segmented, basal segment broad, indurate, setose, outer (exposed) surface flattened, segment 2 about $\frac{1}{2}$ width and $\frac{1}{3}$ length of basal segment; segment 3 twice length of segment 2, slender, cylindrical; flagellum of 11 articles; 8 distal articles each bearing single aesthetasc. Antenna 2 slightly longer than antenna 1, peduncle 5-segmented, 3 basal segments subequal in length, segment 4 about $\frac{1}{3}$ longer than segment 3, segment 5 about $\frac{1}{3}$ longer than segment 4; flagellum of 14 articles. Mandibular palp 3-segmented, basal segment

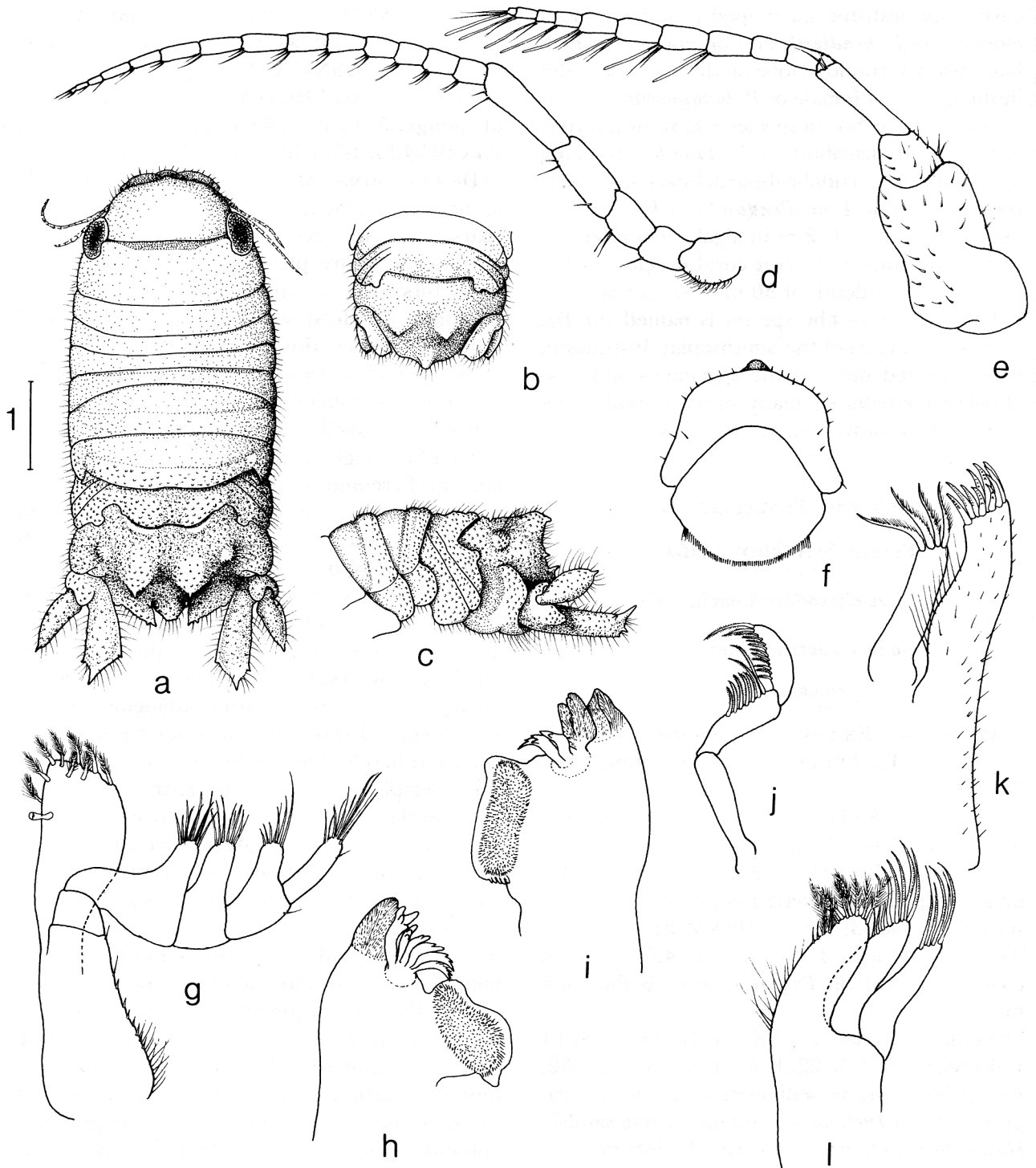


FIGURE 12.—*Cymodoce ruetzleri*, new species: a, ♂, dorsal view; b, pleotelson, ♀, dorsal view; c, pleotelson, ♂, lateral view; d, antenna 2; e, antenna 1; f, clypeus and labrum; g, maxilliped; h, left mandible; i, right mandible; j, mandibular palp; k, maxilla 1; l, maxilla 2.

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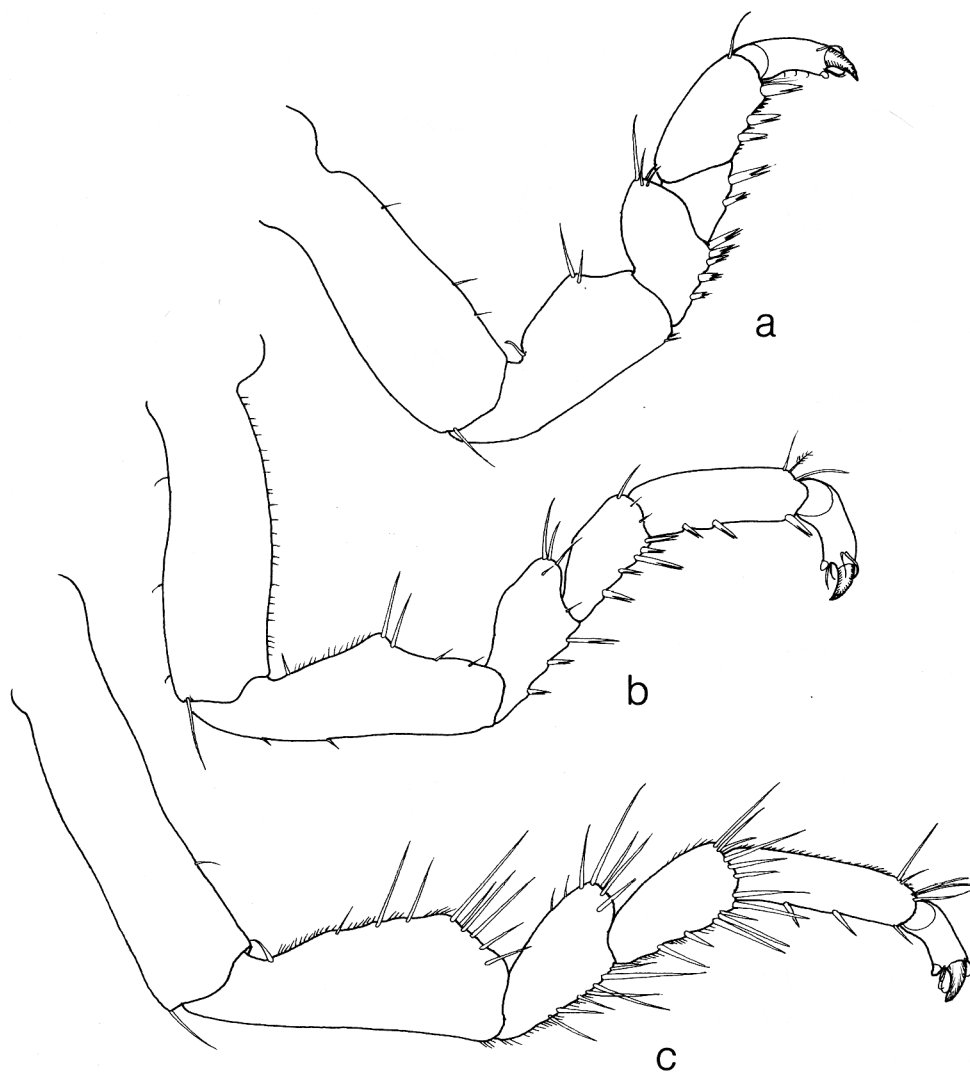


FIGURE 13.—*Cymodoce ruetzleri*, new species: a, pereopod 1; b, pereopod 2; c, pereopod 7.

longest, unarmed; segment 2 bearing 7 fringed spines; segment 3, outer margin curved, inner (median) margin bearing 12 fringed spines, 2 distal spines longest; molars of both left and right mandibles broad, with sclerotized outer margin; incisor bluntly triangular, heavily sclerotized; left mandible with 6 spines in spine row, right mandible with strongly sclerotized lacinia mobilis and 2 spines in spine row. Maxilla 1, outer ramus with 9–10 strong spines; inner ramus with 4 elongate fringed setae. Maxilla 2, inner ramus

with 8–10 fringed setae on mediodistal margin; 2 lobes of outer ramus each bearing several elongate finely ridged spines. Maxillipedal endite broadening distally, with single coupling hook, 9 short fringed setae on mediodistal margin; palp 5-segmented, segments 2–4 each with mediodistal setose lobe, terminal segment slender, setose. Pereopods increasing in length posteriorly. Pereopod 1 with short peg-like spine at base of unguis; propodus with 3 sensory spines on posterior margin; triangular carpus with 2 sensory

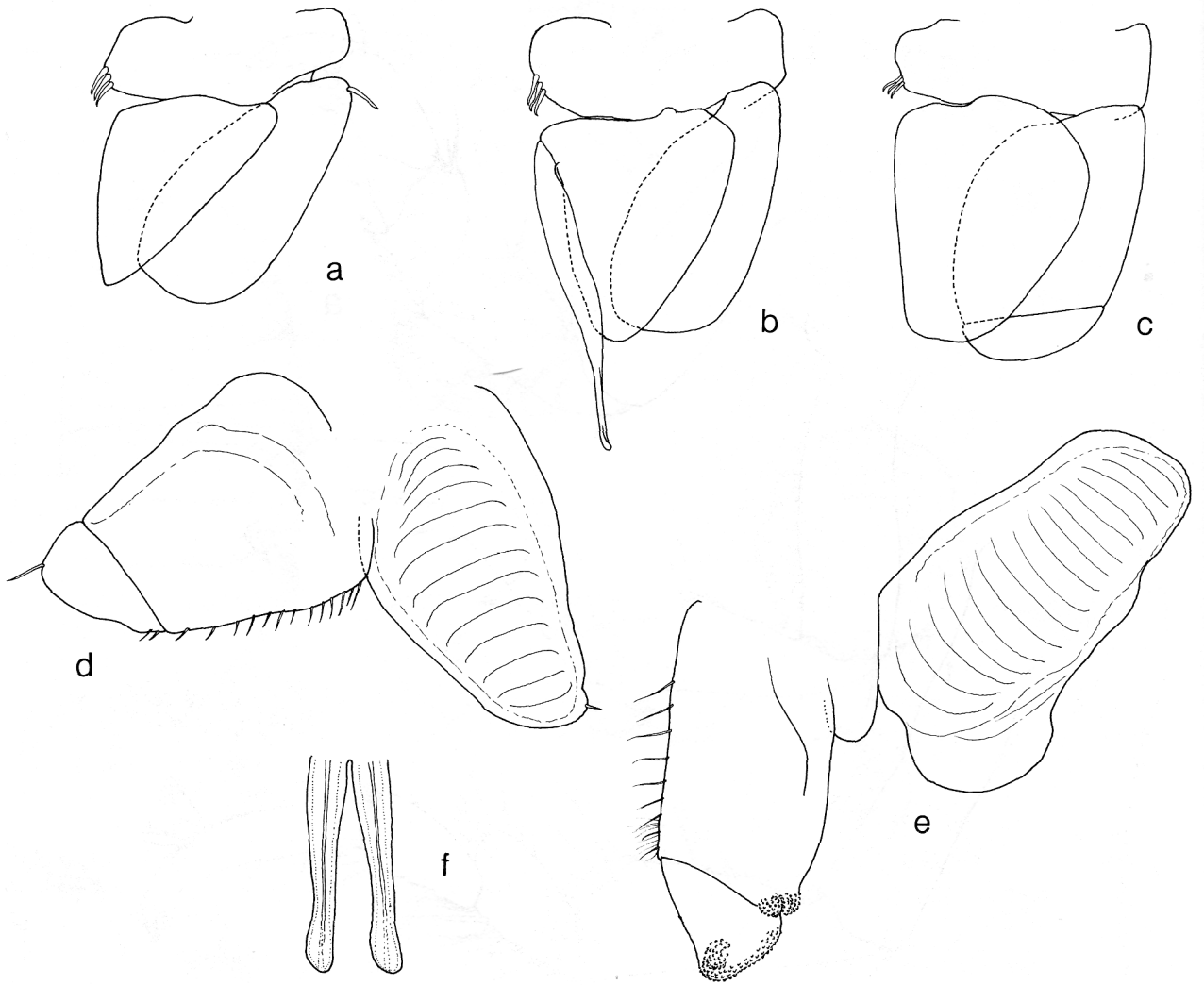


FIGURE 14.—*Cymodoce ruetzleri*, new species, ♂; a, pleopod 1; b, pleopod 2; c, pleopod 3; d, pleopod 4; e, pleopod 5; f, penis.

spines; merus with 5 sensory spines. Pereopod 2 more slender and elongate than pereopod 1; propodus with 3 posterior sensory spines; roughly rectangular carpus with 5 posterior spines; merus with 3 posterior spines. Pereopod 7 with numerous spines of varying lengths on propodus, carpus, merus, and anterior margin of ischium. Penial processes on sternal of pereonite 7 elongate-cylindrical, with slight distal swelling. Pleopod 1, basis with 3 retinacula; endopod triangular; exopod oval, distally widened. Pleopod 2, basis with 3 retinacula; endopod triangular, with copulatory stylet articulating at base, taper-

ing distally, extending well beyond apex of ramus; exopod oval, distally widened. Pleopod 3, endopod basally broad, tapering distally, apex broadly rounded; exopod broadly oval, with transverse suture in distal fourth. Pleopod 4, endopod pleated, basally broader than distally; exopod membranous, broadly triangular, with transverse suture in distal fourth. Pleopod 5, endopod pleated, with rounded basal lobe; exopod membranous, with oblique transverse suture in distal third. Uropodal endopod longer than exopod, fused with peduncle, with short lateral lobe at base near articulation of exopod; endo-

pod somewhat flattened, widening distally to triangular apex bearing strong tooth; exopod oval in cross-section, with apical tooth.

Female: Free posterior margin of pleonite 4 not bilobed as in male; pleotelson with 2 strong submedian conical apically acute tubercles; apex barely notched, having short rounded lobe slightly offset from posterior pleotelsonic margin. Uropodal endopod and peduncle fused, endopod flattened, widening distally to rounded/truncate margin, with short tooth at mediobasal corner; exopod shorter than endopod, flattened, oval, with tiny distal tooth.

REMARKS.—This species agrees on all points with the generic diagnosis of *Cymodoce*, given by Hurley and Jansen (1977:45).

No true *Cymodoce* species has hitherto been recorded from the Caribbean. *Cymodoce ruetzleri* most closely resembles *C. bentonica* Loyola e Silva, 1962, from São Paulo, Brazil, especially in the overall structure of the male and female pleotelson and in the posterior granulation of the integument. In details, however, the two species may easily be separated. The male *C. bentonica* possesses a strong anterodorsally flexed spine on the pleotelson and lacks the distinctive spines of the pleotelson tubercles and uropods seen in *C. ruetzleri*. The lobes of the male pleotelson are apically rounded, and the median lobe elongate in the Brazilian species, whereas in *C. ruetzleri* the outer lobes are spinose, the medial lobe less elongate and apically truncate. The pleotelsonic tubercles of the female are acute in the new species, rounded in the Brazilian species.

ETYMOLOGY.—The species is named for Dr. Klaus Rützler, coordinator of the Smithsonian IMSWE program in Belize.

Genus *Dynamenella* Hansen, 1905

Dynamenella quadrilirata, new species

FIGURES 15, 16

MATERIAL EXAMINED.—*Holotype*: USNM 211239, 1 ♂, TL 2.6 mm, sta CBC-4.5.74-3, from sponge, 0.5 m.

Allotype: USNM 211240, ovig ♀, TL 2.5 mm,

sta CBC-4.5.74-3, from sponge, 0.5 m.

Paratypes: USNM 211241, 6 ♂, TL 2.1–2.5 mm, 17 ovig ♀, 2.1–2.5 mm, 5 ♀, sta CBC-2.5.74-2, from sponge, 0.5 m. USNM 211242, 1 ♂, TL 2.4 mm, sta F-21, Twin Cays, *Caulerpa verticillata* mat under red mangroves, 0.2 m. USNM 211243, 1 ♂, TL 2.4 mm, 1 ovig ♀, TL 2.5 mm, 2 juvs, sta AC-147, coral rubble in upper spur and groove, 3 m.

DESCRIPTION.—*Male*: Body dorsally strongly arched. Integument indurate. Dorsolateral eyes well pigmented. Head faintly tuberculate, with tiny rostral point touching apex of clypeus, separating bases of antenna 1. Clypeus U-shaped, with stubby arms embracing labrum. Coxal plate 1 fused to pereonite, vental margin straight, anteriorly triangular under eye, posteriorly narrowed. Pereonite 1 longest, dorsally with roughened integument. Pereonites 2–7 each with roughened transverse band in posterior half. Fused pleonite section with 2 low rounded submedian tubercles. Pleotelson with anterior half inflated, bearing 4 strong rounded ridges; tapering posteriorly to deeply notched apex; ventral margins of apical notch not contiguous, notch cordate, with low rounded lobe on midline.

Antenna 1, first peduncle segment wider, but subequal in length to 2 distal segments; segment 3 narrow, cylindrical, 1½ times longer than segment 2; flagellum of 8 articles, articles 3–6 each with single aesthetasc. Antenna 2 slightly shorter than antenna 1, peduncle segments increasing in length distally; flagellum of 8 articles. Mandibular palp 3-segmented, basal segment longest; segment 2 with 4 fringed spines increasing in length distally; segment 3 with 9 fringed spines increasing in length distally. Left mandible with 3-cusped incisor; lacinia mobilis not sclerotized, with 2 rounded basal cusps; spine row with 1 broad and 2 fringed spines; molar ridged, with numerous marginal teeth. Right mandible with 4-cusped incisor; lacinia mobilis sclerotized, with 3 cusps; spine row of 5 fringed spines. Maxilla 1, inner ramus with 4 elongate fringed setae; outer ramus with 10 stout spines, some faintly dentate. Maxilla 2, inner ramus with 6 spines on mediobasal margin, 2 of these stout, conspicuously

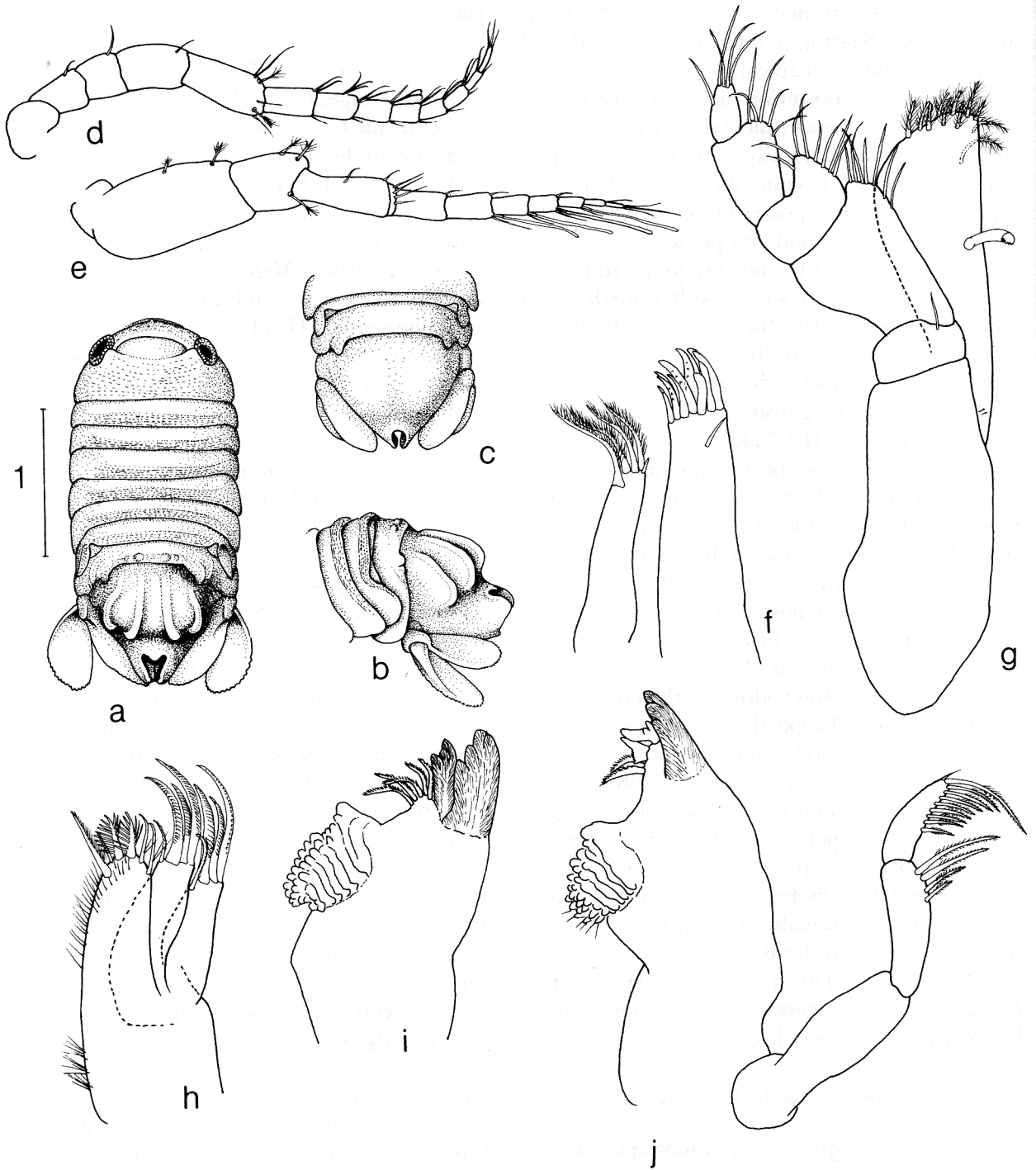


FIGURE 15.—*Dynamenella quadrilirata*, new species: a, ♂, dorsal view; b, pleotelson, ♂, lateral view; c, pleotelson, juvenile, dorsal view; d, antenna 2; e, antenna 1; f, maxilla 1; g, maxilliped; h, maxilla 2; i, right mandible (palp omitted); j, left mandible.

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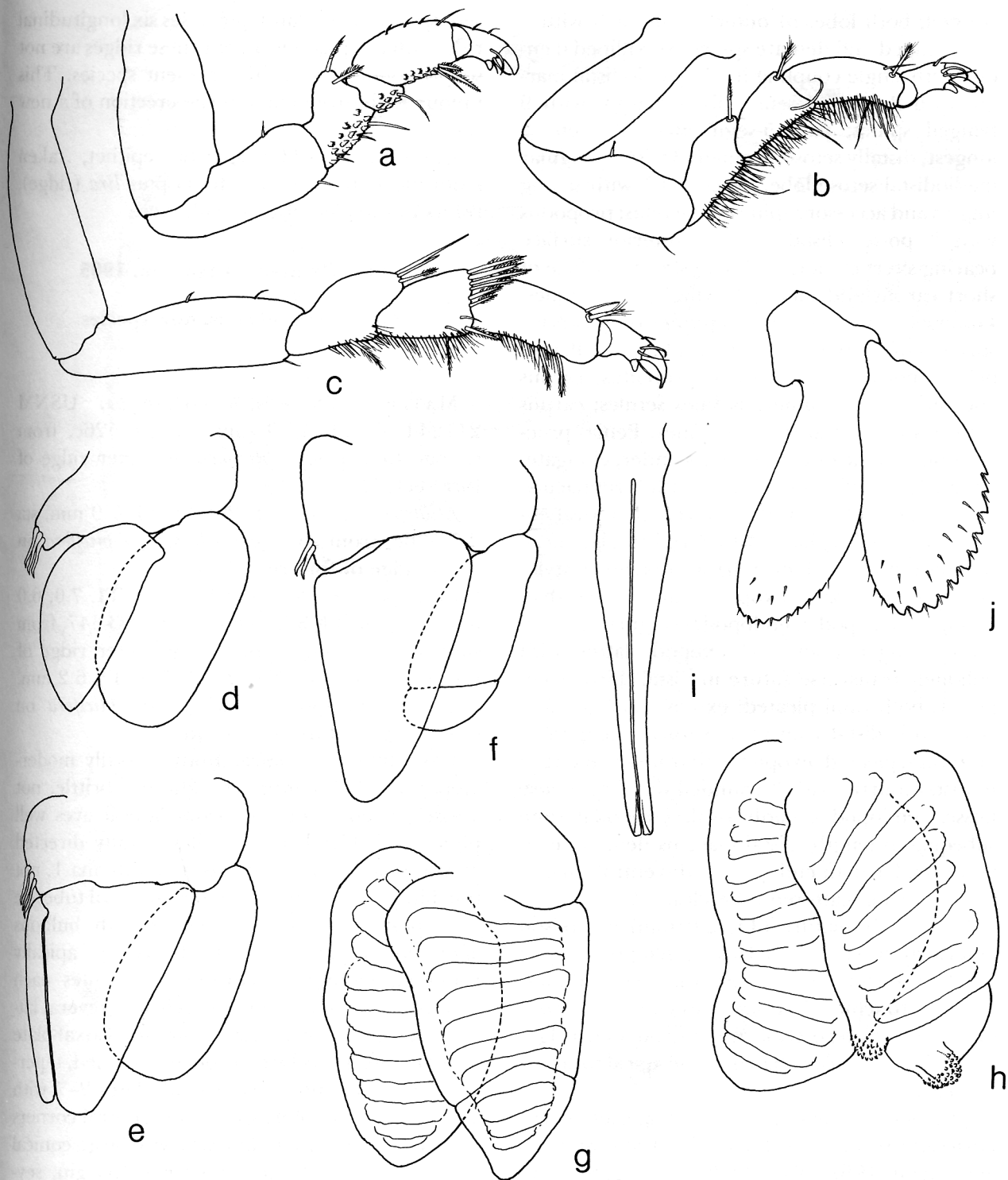


FIGURE 16.—*Dynamenella quadrilirata*, new species: *a*, pereopod 1; *b*, pereopod 2; *c*, pereopod 7; *d*, pleopod 1; *e*, pleopod 2; *f*, pleopod 3; *g*, pleopod 4; *h*, pleopod 5; *i*, penis; *j*, uropod.

fringed; both lobes of outer ramus each with 4 stout ridged and dentate spines. Maxillipedal endite with single coupling hook; mediodistal margin with 2 fringed setae; distal margin with 9 fringed spines; palp 5-segmented, segment 2 longest, distally setose; segment 3 with triangular mediodistal setose lobe. Pereopod 1 with strong unguis and accessory spine on dactylus; propodus with 3 posterodistal spines, posterior surface bearing short ctenoid scales; posterior surface of short carpus and merus bearing spinose scales. Pereopod 2 with numerous setules on posterior surfaces of propodus, carpus, and merus. Pereopod 7, posterior surfaces of propodus, carpus and merus with numerous fines setules; carpus with 6 anterodistal fringed spines. Penial processes on midline of pereonite 7 slender, elongate, basally fused. Pleopod 1, basis with 3 retinacula; endopod distally subacute, shorter than oval exopod. Pleopod 2, basis with 3 retinacula; endopod triangular, with cylindrical copulatory stylet articulating at base; exopod oval, shorter than endopod. Pleopod 3, endopod triangular, considerably longer than oval exopod; latter with obliquely transverse suture in distal third. Pleopod 4, both rami pleated; exopod tapering apically, with distal transverse suture. Pleopod 5, both rami pleated; exopod with transverse suture in distal fourth, with 3 rounded distal spinulose bosses; endopod broadly oval. Uropodal rami subequal in length, distal margins dentate; exopod broader than endopod, with ventral surface bearing small scattered tubercles.

Female: Immature (TL 2.0 mm) pleotelson anteriorly inflated, but lacking sculpture; apex notched, forming short open tube, ventral margins not touching, foramen circular. Oviparous (TL 2.5 mm) pleotelson with 4 rounded ridges somewhat less raised than in male; apical foramen circular.

REMARKS.—None of the ± 12 species of *Dynamenella* recorded from Puerto Rico (Menziés and Glynn, 1968), Panama (Glynn, 1968), Venezuela (Glynn, 1970), or Brazil (Loyola e Silva, 1960) show the strong 4-ridged pleotelson of *D. quadrilirata*. *Dynamenella condita* Hurley and Jan-

sen, from new Zealand, possesses six longitudinal ridges on the pleotelson, but these ridges are not so pronounced as in the present species. This unique sculpture demands the erection of a new species.

ETYMOLOGY.—The specific epithet, taken from the Latin *quattuor* (four) plus *lira* (ridge), refers to the pleotelsonic sculpture.

Genus *Paracerceis* Hansen, 1905

Paracerceis cohenae, new species

FIGURES 17, 18

MATERIAL EXAMINED.—*Holotype:* USNM 211244, ♂, TL 10.0 mm, sta AC-526c, from sponge *Callispongia plicifera* on outer ridge of fore reef, 15 m.

Allotype: USNM 211245, ♀, TL 7.9 mm, sta AC-526c, from sponge *Callispongia plicifera* on outer ridge of fore reef, 15 m.

Paratypes: USNM 211246, 2 ♀, TL 7.0, 6.0 mm, 10 juvs, TL 3.2–5.8 mm, sta AC-347, from sponge *Callispongia plicifera* on outer ridge of fore reef, 16 m. USNM 211247, ♀, TL 6.2 mm, 3 juvs, from sponge *Callispongia plicifera* on outer ridge of fore reef, 15 m.

DESCRIPTION.—*Male:* Body dorsally moderately arched. Integument indurate, brittle, not setose (except uropods). Dorsolateral eyes well pigmented. Head with small ventrally directed rostral point, separating bases of antenna 1, not touching apex of clypeus; low middorsal tubercle near posterior margin. Clypeus with bulbous apex, arms parallel-sided, divergent, apically rounded, embracing labrum. Pereonites each with rounded middorsal tubercle and several lateral tubercles near posterior margin. Coxal plate of pereonite 1 posteriorly lobed, rounded, tapering anteriorly under eye. Coxal plates 2–7 with 2 or 3 rounded tubercles, posteroventral corners rounded. Four fused pleonites with large conical middorsal tubercle near posterior margin, several smaller lateral tubercles. Pleotelson with anterior $\frac{2}{3}$ inflated, faintly tripartite, marked posteriorly by transverse ridge bearing strong mid-

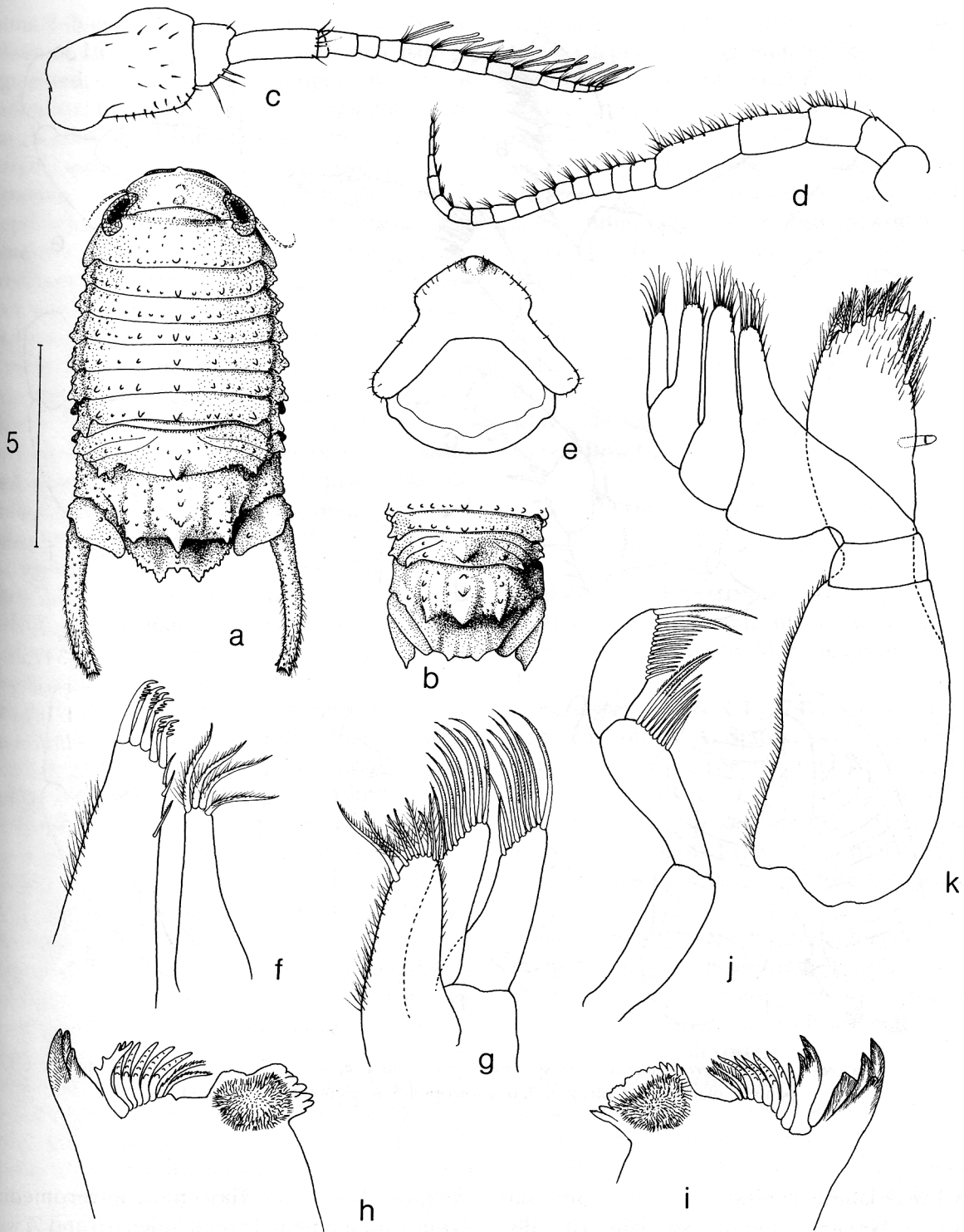


FIGURE 17.—*Paracerceis cohenae*, new species: a, ♂, dorsal view; b, pleotelson, ♀, dorsal view; c, antenna 1; d, antenna 2; e, clypeus and labrum; f, maxilla 1; g, maxilla 2; h, left mandible; i, right mandible; j, mandibular palp; k, maxilliped.

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