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AMATHILLOPSIS CHARLOTTAE N. SP., FIRST RECORD OF AMATHILLOPSIDAE (CRUSTACEA, AMPHIPODA) FROM THE ANTARCTIC OCEAN

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Key words: Crustacea, Amphipoda, Amathillopsis charlottae n. sp., Antarctic.

ABSTRACT

Amathillopsis charlottae n. sp. from the Antarctic Ocean is described herein, the first record of the Amathillopsidae from this region. The new taxon differs from all other known species of this family by the combination of: long carina on pleonite 3, urosomite 1 without carina, accessory flagellum of antenna 1 uniarticulate, mandibular palp article 2 only weakly shorter than 3 and telson entire.
The genus *Cleonardopsis*, formerly classified as Eusiridae, is transfered into Amathillopsidae.

INTRODUCTION

During cruise 42 (ANT XIV/2) of RV "Polarstern" to the Antarctic Peninsula 1996/97, large quantities of crustaceans were collected. In one of these samples there was an interesting amathillopsid amphipod species. It proved to be new to science and is described in detail herein. Moreover it is the first record of an Amathillopsidae in the Antarctic. The material is deposited in the Museum für Naturkunde in Berlin and the Zoological Museum of Amsterdam.

SYSTEMATICS

Amathillopsis charlottae n. sp.
(Figs. 1-5)

Material examined

Holotype: male 30 mm. *Locus typicus:* „Polarstern" cruise 42 ANT XIV/2, station 177, Antarctic Peninsula: 66°33.10´S 68°41.90´W, depth 607 m. Gear: Agassiz-Trawl. ZMB 27235. Paratypes: 2 ov. females (29, 30 mm); 2 males (17, 18 mm). ZMB 27235. Additional paratypes: ov. females (23, 25 mm), male (23 mm) ZMA Amph 203796.

Etymology

This species is dedicated to Ms Ingeborg Charlotte Kilias to thank her for many years of work as a volunteer in the department of Crustacea of the Museum für Naturkunde, Berlin.

Description of holotype

Head with short rostrum (Fig. 2a), anteroventral angle deeply excavate, ocular lobe with short acute process, with ridge parallel to ventral margin (Fig. 1a); eyes not developed or pigments lost in alcohol, no ommatidia visible. Pereonite 1 somewhat longer than 2 and 3. Pereonite 2-4 indistinctly keeled dorsally; pereonite 5 with short carina and 5-6 with long pointed, weakly posteriorly curved processes. Similar but slightly longer processes on pleon segments 1-2 and a shorter one on pleonite 3, about half the length of that on pleonite 2. Epimeral plate 1 ventrally truncate, obtuse posteroventrally; plate 2 posteroventrally acute, plates 1 and 2 laterally ridged; posterolateral margin of epimerial plate 3 sinuous, posteroventral angle acute. Urosomite 1 as long as segment 2 and 3 combined; urosomite 2 shortest; urosomite 3 with shallow keel, slightly overreaching posterior margin, with shallow depression in lateral view.

Antenna 1 (Fig. 5d), peduncular article 1 subequal in length to article 2, article 3 less than 1/3 the length of article 2; accessory flagellum uniarticulate, somewhat longer than 1st flagellar article; flagellum consisting of numerous, short articles, calceoli present (Fig. 5c).
Antenna 2 (Fig. 2b, c): peduncular article 2 with produced

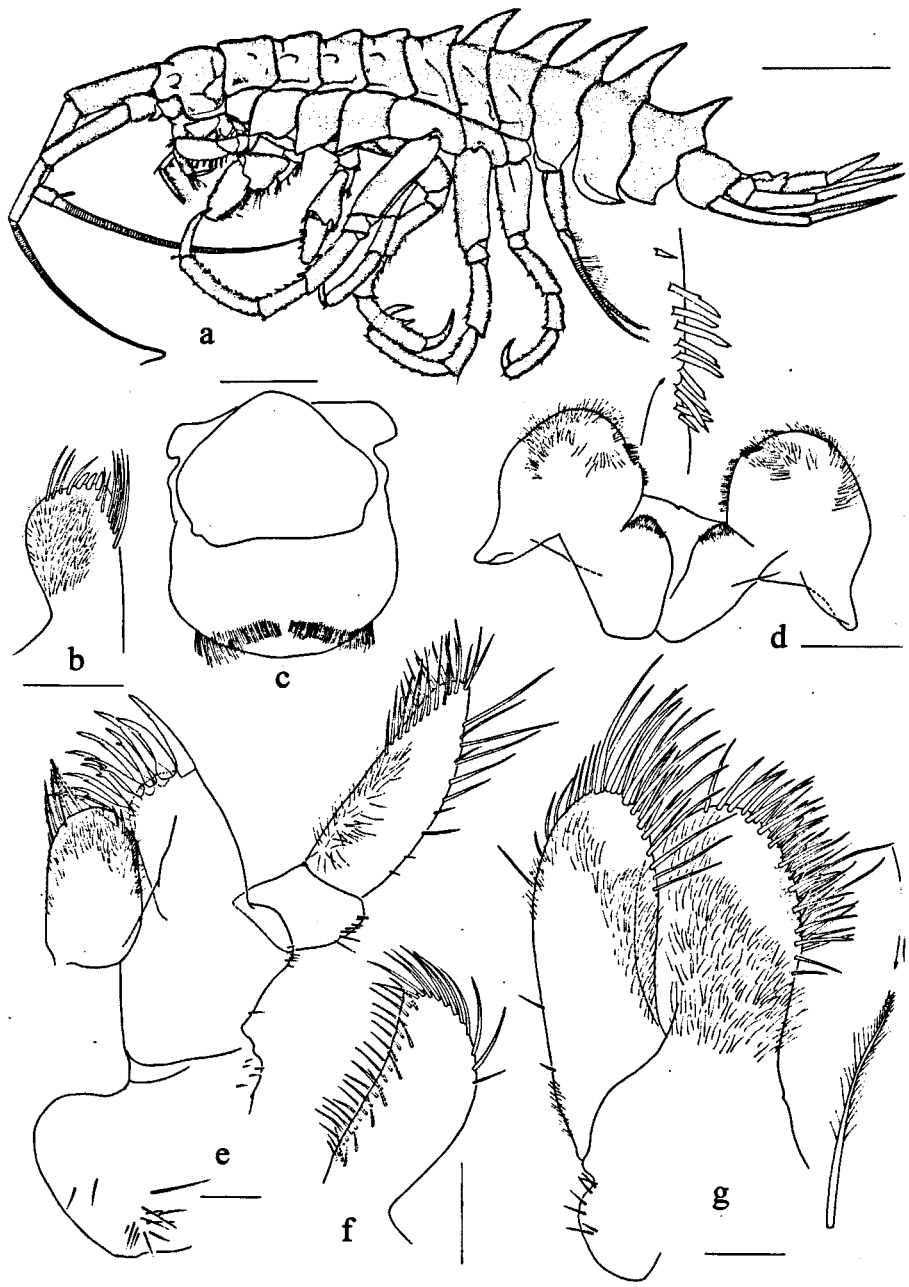

Fig. 1a-g. *Amathillopsis charlottae* n. sp., male holotype 30 mm. a: left side of habitus; b: inner plate of maxilliped, anterior aspect; c: labrum; d: lower lip (hypopharynx); e: maxilla 1; f: outer plate of maxilliped; g: maxilla 2. Scale bars: a: 5 mm; b-d, f: 500µm; e, g: 200 µm.

gland cone; article 3 subequal to 1-2 combined; article 4 longest, weakly tapering; article 5 slender, subequal to article 1-3 combined; flagellum consisting of numerous, short articles, calceoli present (Fig. 2c).

Labrum (upper lip) (Fig. 1c): wider than long with convex margin, entire.

Mandible (Fig. 2e, g) incisor with sharp teeth; lacinia mobilis wide and with similar teeth; raker row present; pars molaris weakly ridged with very small teeth on margin; palp with elongate articles 2-3, bordered with long setae on ventral margin, article 3 longest, slender and tapering.
Lower lip (hypopharynx) (Fig. 1d): small inner lobes present, outer lobes wide and distally rounded, with groups of stout setae mediodistally; hypopharyngeal gap wide; mandibular processes narrow.

Maxilla 1 (Fig. 1e): inner lobe wide distally, with plumose setae mediodistally; outer plate with 11 slender apical setae; palp 2-articulate, article 1 expanded distally, article 2 tapering, with row of setae laterally and group of setae mediodistally.

Maxilla 2 (Fig. 1g): outer plate longer than inner; inner plate expanded; both plates with long setae distally and medially.

Maxillipeds (Figs. 1b, f, 2h, f): slender and covered

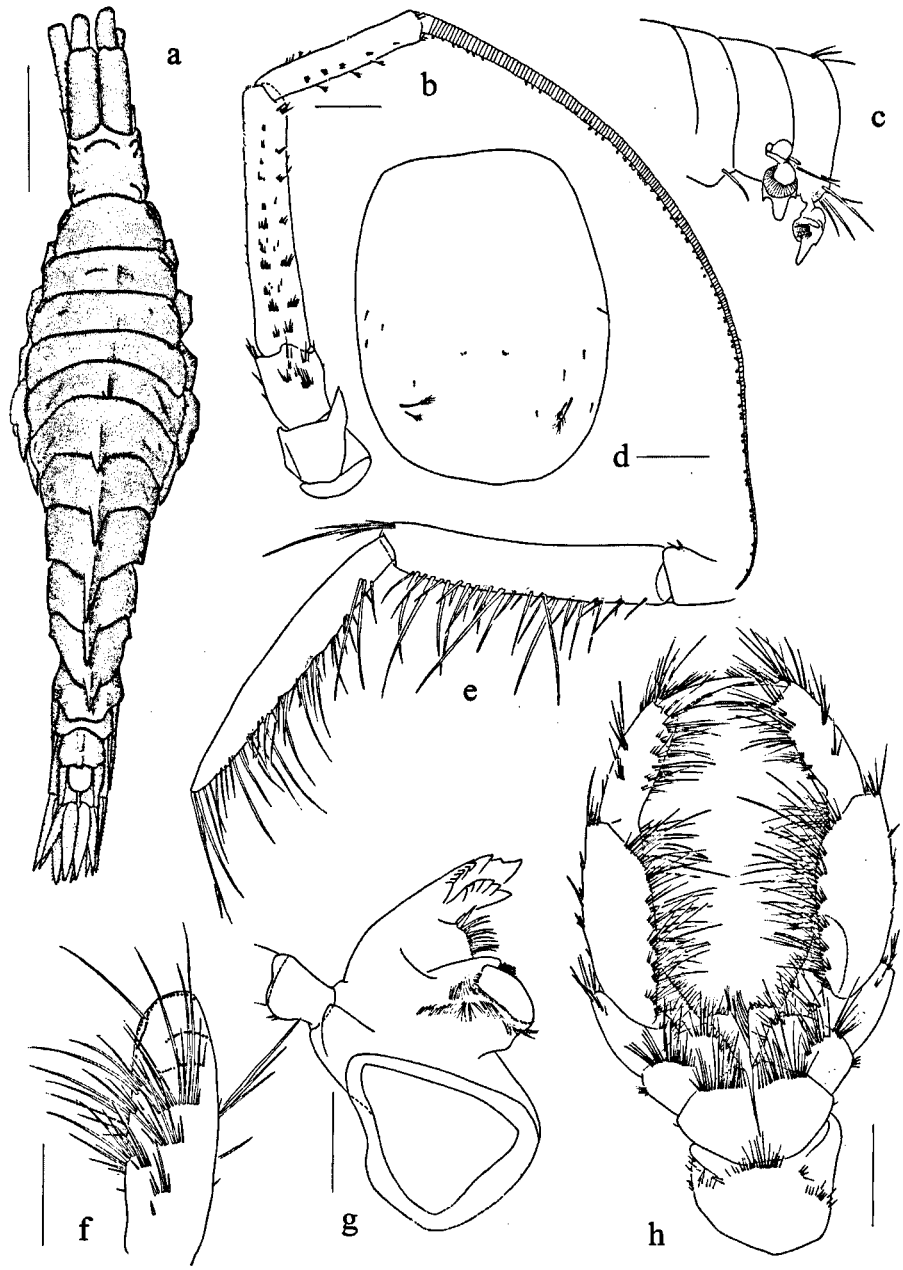

Fig. 2a-h. *Amathillopsis charlottae* n. sp., male holotype 30 mm. a: dorsal aspect of habitus; b: antenna 2; c: calceoli from flagellar articles of antenna 2. d: telson; e: mandibular palp; f: 3rd article of maxillipedal palp; g: mandibular body; h: maxilliped, posterior aspect. Scale bars: a: 5 mm; b, h: 1 mm; d: 250 µm; f, g: 500 µm.

with numerous setae; inner plates short with 3 nodular setae medioapically (Fig. 1b), outer plates slender with row of setae medially and long apical setae (Fig. 1f); palp articles 2-4 elongate, article 2 longest; article 3 with long setae on anterior surface (Fig. 2f); dactylus almost as long as article 3.

Pereopod 1 (gnathopod 1) subchelate (Fig. 3a, c); coxa 2/3 the length of coxa 2-4 and narrower, with anteroventral shallow excavation; basis anterior margin straight, posterior margin convex, drawn out into a rounded lobe posterodistally, submarginal short setae (Fig. 3a), medial face with long setae; ischium shorter than wide, with long setae on distal margin; merus with long setae apically; carpus distally expanded with posterior lobe and covered with setae medially and posteromarginally; propodus slender with convex posterior margin, with row of stout setae posteromarginally and groups of long setae on medial and lateral face; dactylus long, with row of minute hair-like setae on posterior and few on anterior margin.

Pereopod 2 (gnathopod 2) subchelate (Fig. 3b, d); coxa ventrally excavate, anteroventrally acute; basis anterior margin straight, posterior margin convex, drawn out into a rounded lobe posterodistally, submarginal short setae (Fig. 3b), medial face with long setae; ischium narrow-

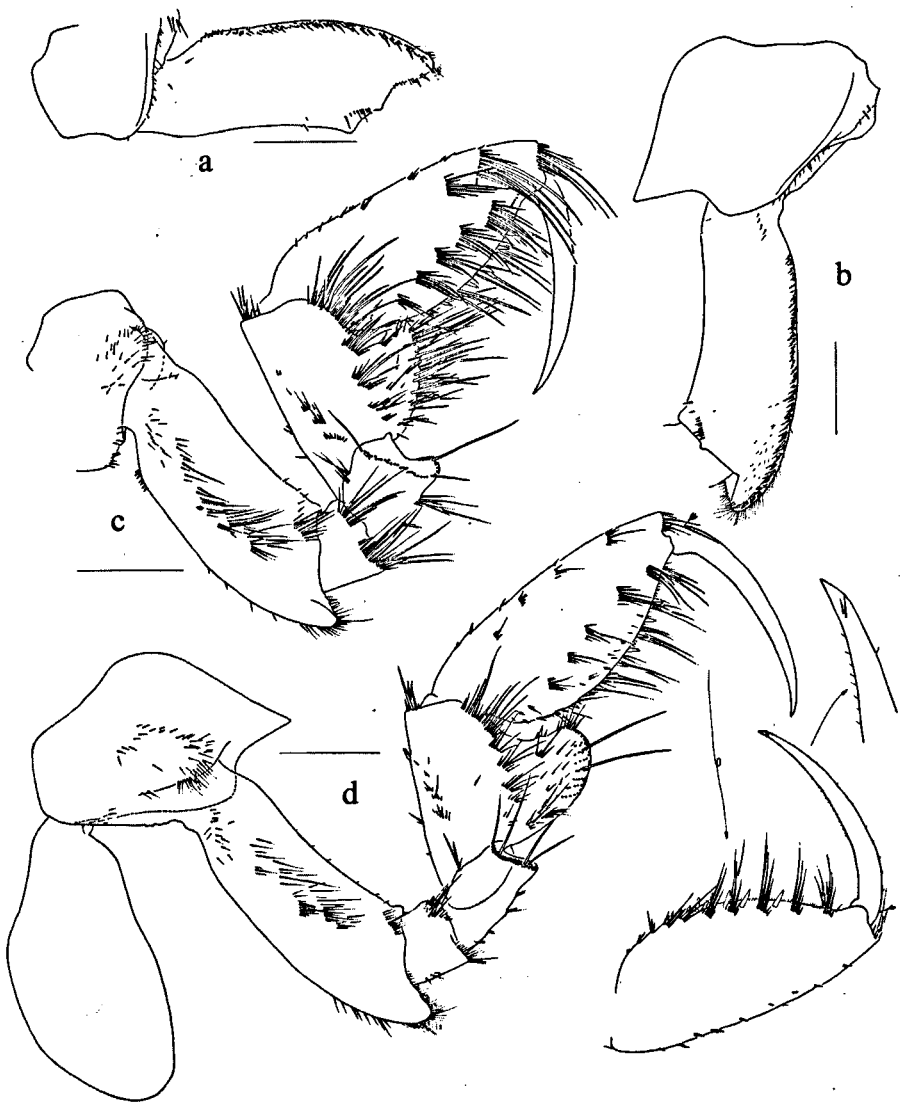

Fig. 3a-d. *Amathillopsis charlottae* n. sp., male holotype 30 mm. a: coxa and basis of pereopod 1, lateral aspect; a: coxa and basis of pereopod 2, lateral aspect; c: medial aspect of pereopod 1; d: medial aspect of pereopod 2. Scale bars: a-d: 1 mm.

er than on pereopod 1, subquadrate; merus longer than wide with group of setae apically; carpus distally expanded, with setae on medial face and posteromarginally, carpus drawn out into lobe posteriorly; propodus narrow, posterior margin convex with stout short setae (detail of Fig. 3d), setae on medial face shorter than on pereopod 1; dactylus long, with row of minute hair-like setae on posterior and few on anterior margin.

Pereopod 3 (Fig. 4a): coxa longer than on preceding appendages, apex oblique with shallow depression; basis subrectangular with oblique apex; ischium narrow; merus subequal to propodus; propodus with stout spine on posterior margin; dactylus falcate.

Pereopod 4 (Fig. 4b): coxa sharply pointed with oblique rather straight apex, subequal in length to pereopod 3; basis with straight anterior and weakly convex posterior margins; ischium shortest; merus curved posteriorly with long setae on posterior margin, apex somewhat excavate; carpus slightly expanded distally; propodus about the length of basis, stout spine in distal half of posterior margin, dactylus falcate.

Pereopod 5 (Fig. 4c) longest; coxa wider than long; basis subrectangular with proximal short rounded lobe, directed dorsally, short ridge on proximal lateral face and conspicuous ridge close to posterior margin; ischium posteriorly excavate; merus and carpus somewhat expanded distally with groups of long spines posteromarginally; propodus longer than on preceding appendages, slightly curved anteriorly; dactylus long, slender and falcate.

Pereopod 6 (Fig. 4d) shorter than pereopod 5; coxa similar to that of pereopod 5, but somewhat wider; ischium shortest with excavation posteromarginally; merus shorter than on pereopods 3-5; carpus weakly expanded distally; propodus curved anteriorly; long setae on posterior margin of merus to propodus; dactylus falcate.

Pereopod 7 (Fig. 5a) shorter than pereopod 5 and 6;

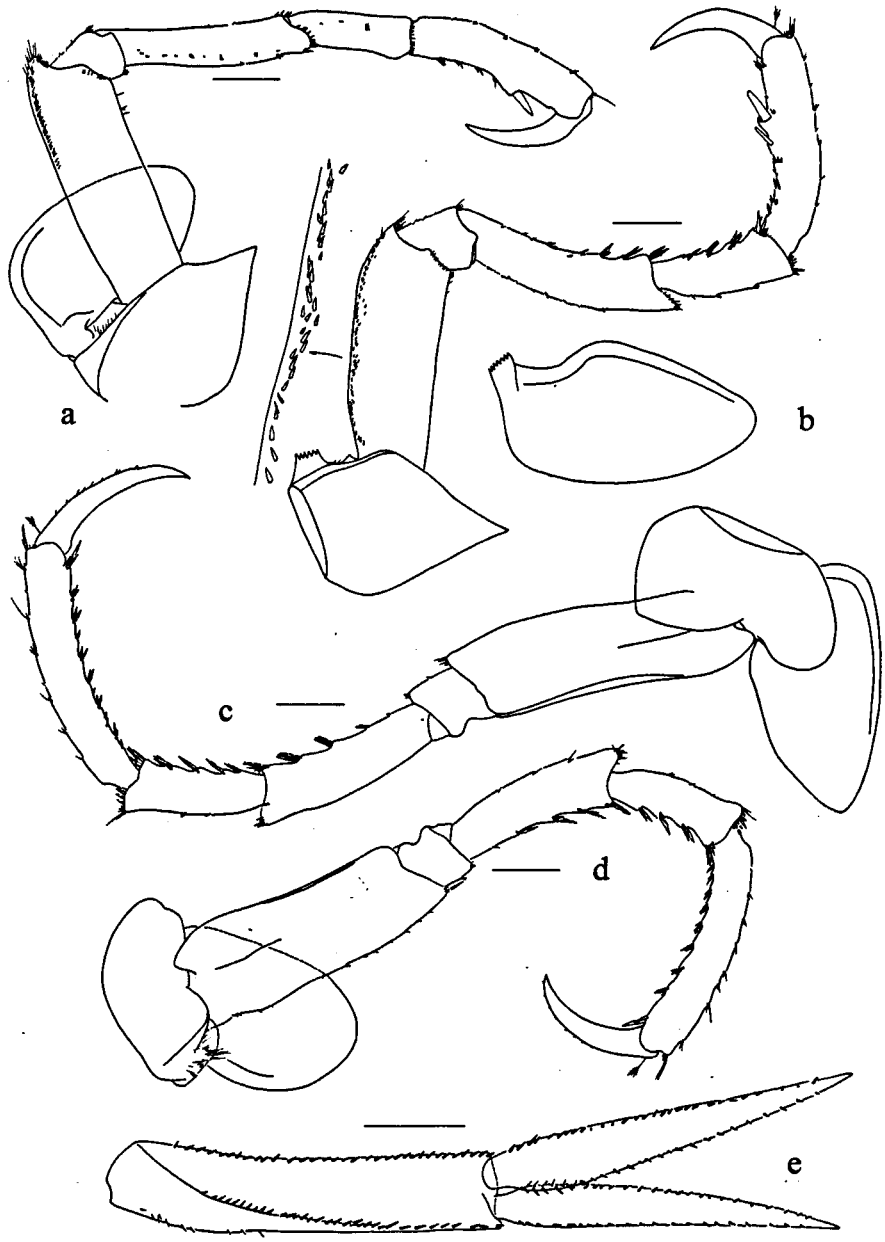

Fig. 4a-e. *Amathillopsis charlottae* n. sp., male holotype 30 mm. a: pereopod 3; b: pereopod 4 and gill; c: pereopod 5; d: pereopod 6; e uropod 1. Scale bars: a-e: 1 mm.

coxa smallest of all pereopods; basis shorter and wider proximally compared to pereopod 5 and 6, tapering distally; ischium to dactylus of similar shape as pereopod 6, but carpus to dactylus shorter.

Pleopods (Fig. 5b): peduncle with row of setae lateromarginally, 2 coupling hooks medially, inner ramus weakly shortened.

All uropod peduncles and rami densely bordered with short spiniform setae, outer rami shortened. Uropod 1 (Fig. 4e): peduncle equal to inner ramus. Uropod 2 (Fig. 5e): peduncle shorter than rami. Uropod 3 (Fig. 5f): peduncle wide with some stouter spines on outer margin, outer ramus shortened.

Telson (Fig. 2d): longer than wide, entire, convex distally, with 2 pairs of plumose setae on dorsal surface and some microtrichs.

DISCUSSION

Amathillopsis charlottae n. sp. is similar to *A. australis* Stebbing, 1888, *A. grevei* Barnard, 1961 and *A. atlantica* Chevreux, 1908. They all have a middorsal carina or tooth on pleonite 3 which is about half the length of that of pleonite 2 and urosomite 1 lacks a dorsal process. All other known species of this genus have a process on

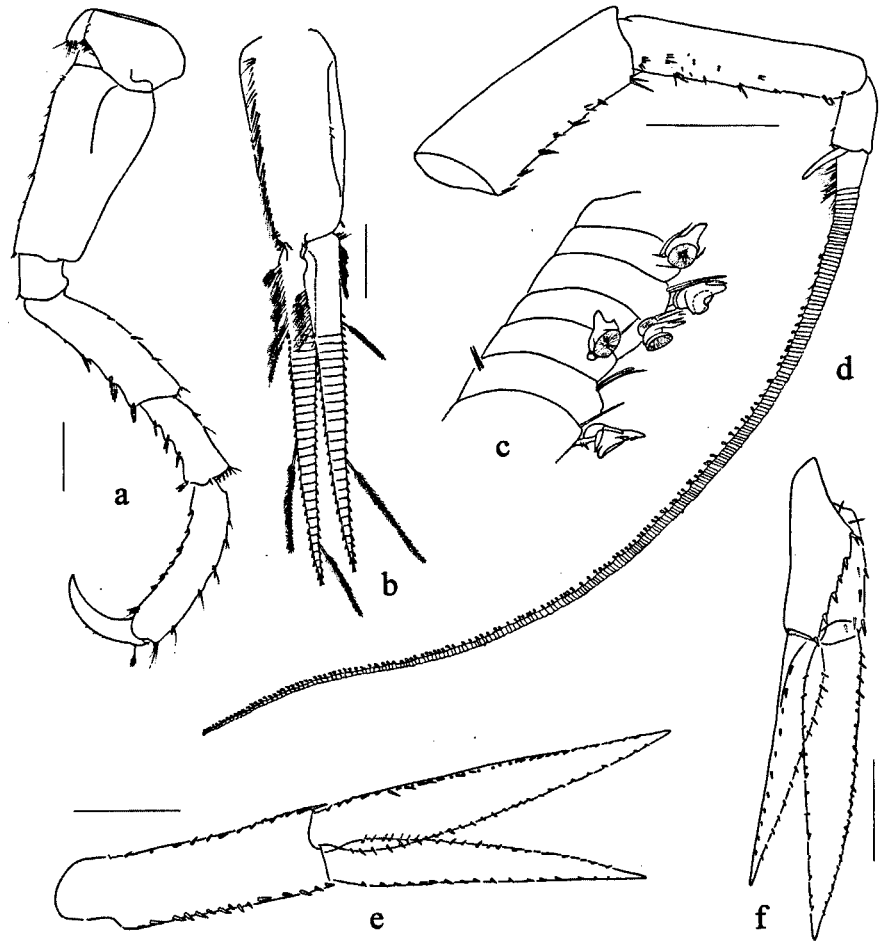

Fig. 5a-f. *Amathillopsis charlottae* n. sp., male holotype 30 mm. a: pereopod 7; b: pleopod 1; c: flagellar articles; d: antenna 1; e: uropod 2 f: uropod 3. Scale bars: a, b, e, f: 1 mm; d: 2 mm.

pleonite 3 that is less than half the length of that of pleonite 2 or, if it is longer, then urosomite 1 bears a tooth. *Amathillopsis australis*, however, differs from the new species in its subacute labrum (vs rounded); in the length relationship of mandibular palp articles 2:3 = 0.65 (vs. 0.9); in the distally strongly expanded basis of pereopod 2 and the excavated posterior margin (vs convex); *Amathillopsis australis* has elongate coxal plates 3 and 4; the dorsal process on pleonite 3 is not upright as in *A. charlottae*, but directed posteriorly; and the telson is emarginate (vs entire). *Amathillopsis grevei*, similar to the new species, has short coxal plates 3-4 and epimeral plate 1 ventrally truncate. However, it has rather small carinae, the accessory flagellum is 2-articulate (vs uniarticulate), and the telson is emarginate (vs entire). *Ama-thillopsis atlantica* has very narrow dorsal carinae viewed laterally, posteroventrally pointed processes on epimera 2-3 are missing, and the telson tapers distally and is notched.

Other species of *Amathillopsis* bear a short dorsal process on pleonite 3 and have a smooth urosomite 1. *Amathillopsis comorensis* _edoyer, 1986 differs in the tricuspidate apex of coxa 2 (vs excavate) and the notched telson (vs entire), *Amathillopsis pacifica* Gurjanova, 1955 in the widened basis of pereopods 1-2, elongate coxae 3-4, and the tapering, notched telson. *Amathillopsis annectens* (Holmes, 1909) differs from the new species by the short and strongly backwards curved carinae, rounded apex of gnathopod 1, elongate coxal plates 2-4, subocular notch shallow (vs. deep), posterior margins of pleonites 2-3 rather straight (vs. sinuous) and telson ovate (tapering). In *Amathillopsis affinis* Miers, 1881 the carinae begin on pereonite 1, the accessory flagellum is very small; the gnathopods lack carpal lobes, their propodi are not almond-shaped as in all other species of the genus, and the telson is notched.

Two other species have an additional dorsal process on urosomite 1: *Amathillopsis septemdentata* Ledoyer, 1978 has a long carina on pleonite 3, but also a short dorsal process on urosomite 1, a much longer mandibular palp article 3 than 2 (ratio segment 2:3=0.65, vs 0.9), and elongate and narrow dorsal carinae (vs shorter and wider) and sinuous anterior margins of coxae 3-4 (vs. straight), so that the tips of the apices appear curved anteriorly and coxa 2 is deeply excavate distally; basis 5-7 are without the small dorsal lobes that are developed in *A. charlottae*. In *Amathillopsis spinigera* Heller, 1875 the dorsal carinae

begin on pereonite 1, urosomite 1 with dorsal process, and coxae 3-4 are excavate distally.

There is another species that is currently classified as Eusiridae (see Barnard and Karaman, 1991), *Cleonardopsis carinata* Barnard, 1916. This species should be transferred to the Amathillopsidae. It has most of the amathillopsid characters: (1) the dorsal carinae, (2) the typical antennae with the same peduncular articles relations, even the calceoli are of the same shape, (3) the gnathopods are of the same outline (row of short spine-like setae on posterior margin of basis, carpal lobes, alond-shaped propodi, slender dactyli with microtrichs in inner curvature), (4) an elongate mandibular palp with article 3 longer than 2 (see Pirlot, 1934) (5) inner plate of maxilla 1 subequal in length to outer plate, (6) same shape of maxilliped. Different from the other Amathillopsidae *Cleonardopsis* has rounded coxal plates 3-4.

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