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# *PELTOMYZON ROSTRATUM* N. GEN., N. SP., A SIPHONOSTOME CYCLOPOID COPEPOD ASSOCIATED WITH THE WEST INDIAN CORAL *MONTASTRAEA*

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ABSTRACT

A new species representative of a new genus of Copepoda is described. It belongs to the subfamily Cletopontiinae of the family Asterocheridae (Cyclopoida siphonostoma). The new genus is chiefly characterized by the 2-segmented nature of the endopodites of legs 3 and 4, by the absence of an exopodite in the posterior antenna, and by the strongly developed tergum of the 2nd metasomite, giving the animal a shield-shaped appearance. Only the female sex of this copepod has been found; it is an associate of the hermatypic coral *Montastraea cavernosa* (L.) on the South coast of Curaçao (Netherlands' Antilles), in depths from 4 to 40 meters.

## INTRODUCTION

During fieldwork in Curaçao (Netherlands' Antilles), a small, transformed, more or less shield-shaped, copepod was found as a regular associate of the hermatypic coral *Montastraea cavernosa* (Linnaeus).

The specimens were recovered from corals which had been left overnight in a basin with about 5% ethylalcohol in sea-water. Next morning the corals were taken out and the residu was poured through a filter and rinsed with a stream of fresh tap-water. Collections made in this way, usually contain ecto-associates only; the present species constitutes presumably no exception on this rule.

The fieldwork in Curaçao was made possible by a grant from the Netherlands' Foundation for the Advancement of Tropical Research (WOTRO, The Hague). The director and staff of the Caribbean Marine Biological Institute, Piscadera Bay, Curaçao provided greatly appreciated assistance. For the identification of the coral host, I am indebted to Drs. Rolf P.M. Bak, Curaçao.

All figures have been drawn with the aid of a camera lucida, from entire specimens mounted in lactophenol, and from dissected specimens mounted in Reyne's modification of Faure's medium. The material, including the types, has been preserved in the Zoölogisch Museum, Amsterdam (ZMA).

*Peltomyzon* n. gen.

Diagnosis.- Family Asterocheridae, subfamily Cletopontiinae (vide Ummerkutty, 1966). Female: Characterized by the strong development of the 2nd metasome segment in posterior direction, forming a tergum concealing the 3rd metasomite and all (except the last) urosomites. Anterior antenna 19-segmented; spine on 11th, aesthete on 18th article. Posterior antenna devoid of exopod. Mandible palp present, 1-segmented, setiferous. Other mouth parts normal. Legs 1 to 4 with 3-segmented exopods; endopods of 1st and 2nd legs 3-segmented, of 3rd and 4th legs 2-segmented. Chaetotaxis reduced. Male unknown.

Type species.- *Peltomyzon rostratum* n. sp., ectoparasitic on hermatypic corals.

Derivatio nominis.- The generic name *Peltomyzon* is composed of the Greek words πέλτη (= shield, alluding to the shape of the prosome) and μύζω (= to suck, alluding to the siphonostome nature of the mouth parts). Gender neuter. The specific name *rostratum* (Latin) alludes to the presence of a wide and well-defined rostral fold.

Affinities.- *Psylomyzon* Stock, 1965 and *Indomyzon* Ummerkutty, 1966, have a less reduced 4th endopodite than *Peltomyzon* and have the aesthete on the antepenultimate article of the anterior antenna. *Tuphacheres* Stock, 1965, has more strongly pronounced reductions in the legs, also touching the exopodites. In *Cletopontius* Thompson & Scott, 1903, the 4th endopodite is lacking. All these genera have a well-developed exopodite in the posterior antenna, whereas this is absent in *Peltomyzon*.

*Cholomyzon* Stock & Humes, 1969, shares the absence of a well-developed antennal exopodite with *Peltomyzon*, but differs in having reduced 4th and 5th legs.

*Discopontius* Nicholls, 1944, although originally described in the family Dyspontiidae, was tentatively considered related to the Asterocheridae by Eiselt (1962: 359, footnote) and Stock & Humes (1969: 64). Its mandible palp is not described, but its fourth leg is strongly reminiscent of *Peltomyzon*. Points of difference from *Peltomyzon* are the 3-segmented nature of the 3rd endopodite (the 2nd article of this endopodite bears moreover 2 setae, a characteristic of the Asterocherinae and not of the Cletopontiinae), the presence of an antennal exopod, and the position of the aesthete on the antepenultimate article of the anterior antenna.

The body shape (the strongly produced metasomal tergum) distinguishes *Peltomyzon* from all other genera discussed here.

*Peltomyzon rostratum* n. sp.

Material examined.- All from *Montastraea*[1] *cavernosa* (Linnaeus) collected on the South coast of Curaçao:

23 ♀ from 2 colonies of the host; about 500 m W. of Piscadera Bay, depth about 4m; January 7, 1974. One of the females has been selected as holotype, the remaining specimens are paratypes (ZMA Co. 102.545).

11 ♀ from 2 small colonies of the host, same locality, depth 4-5 m, January 16, 1975 (ZMA).

4 ♀ from 1 colony of the host, same locality, depth 34-40 m, March 29, 1975 (ZMA).

Description.- Although 38 females have been collected, not a single male attributable to this species has been recovered.

The body (figs. 1, 2) has a shield-shaped prosome; especially the 2nd metasome somite contributes to this shape, because it has a large tergum, with a semi-circular posterior margin, which in dorsal view partly or entirely conceals the urosome. Depending on the state of contraction of the telescoping urosome somites, the anal segment and caudal rami might be still visible in dorsal view

[1]) The genus *Montastraea* is described by De Blainville (1830, Dictionnaire des Sciences naturelles, 60: 339) and in identical wordings also by the same author (1830, Manuel d'Actinologie ou de Zoophythologie: 374). In both cases the spelling with the ending *-aea* is used. However, in the index (p. 639) of the "Manuel" the spelling *Montastrea* (ending on *-ea*) is used. Both spellings occur in contemporary literature (e.g. Walton Smith uses the *-ea* ending in his "Atlantic Reef Corals", whereas Wells uses *-aea* in his various papers). I arbitrarily followed Wells in this paper.

(as in fig. 1) or entirely covered by the metasomal tergum.

The first pedigerous somite is completely incorporated in the cephalosome. The first free metasome somite bears the 2nd pair of legs; this somite is of almost "normal" shape. The 2nd metasome somite has the posterior tergum, which covers not only the urosome, but also the 3rd metasome somite (bearing the 4th pair of legs); the latter somite shows up in dorsal view by transparency only as a widely U-shaped, refractive area in the anterior half of the 2nd metasome somite. The prosome segments visible in dorsal view, have a very strongly sclerotized cuticle, which is covered by numerous refractive areas giving it a pitted appearance. The lateral borders of the cephalosome are prolonged in ventral and medial directions, thus forming a kind of enclosed area, delimited at the anterior side by the broad, obtuse, well-defined rostral fold, at the lateral sides by the recurved borders of the cephalosomal cuticle, at the posterior side by the first legs. In this enclosed area, the posterior antenna, siphon, and mouth parts are found (fig. 4).

The length of the prosome somites visible in dorsal view is 641-709 µm (mean, based on 5 specimens, 677 µm); the total length, to the tip of the caudal ramus but without furcal setae, ranges from 700-775 µm (mean 739 µm); the greatest diameter of the cephalosome ranges from 486-527 µm (mean 503 µm).

The urosome (fig. 3) consists of a widely-trapezoidal somite bearing the fifth legs. The genital somite is wide in its anterior half, bearing the genital orifices marked by two dorsal setules, and narrower in its posterior half. There are 2 postgenital somites, both unarmed. The anal segment is almost as long as wide. The caudal ramus is small, roundedly squarish. Measured along its lateral margin, the ramus is 12-14 µm long, along the medial margin 9-11 µm; its greatest width is 14-16 µm. The ramus bears 6 smooth setae, the longest of which is about as long as the 2 postgenital somites together. Just over the implantation of this longest furcal seta, a dorsal seta arises. The lateral seta arises just over the implantation of the lateralmost furcal seta.

The rostral fold (fig. 5) consists of a smooth kind of chitin (not pitted); its basal diameter (measured between the implantations of the anterior antennae) is 160-165 µm, its apical diameter (measured along the straight part of the rostral fold) 55-57 µm.

The anterior antenna (fig. 6) consisting of 19 articles. A distinct spiniform element is present at the distal end of segment 11, a smaller spine on segment 10. Segments 1 to 8 each bear 2 setae. Segment 9 bears 7 setae. Segments 10 and 11 each bear 1 seta and 1 spine. Segments 12 to 17 each bear 2 setae. Segment 18 bears 1 seta and 1 aesthete. Segment 19 is not very elongated; it is provided with 5 terminal setae, and with 1 and 2 setae on the margins. The setae on the anterior antennae are very brittle, break off easily, and are (seemingly) lacking in part in certain specimens.

The posterior antenna (fig. 7) has a 2-segmented, unarmed protopod. An exopod is absent. The endopod consists of 3 articles and a slender terminal claw; article 1 is elongated, ornamented with a row of spinules; article 2 is short and trapezoidal, ornamented with a few spinules and armed with a short seta; article 3 bears a row of cilia. The claw is feebly curved when placed under cover glass pressure, but may show up more strongly curved when observed in situ.

The siphon is short and broad, without tubiform part; mouth transverse, slit-like.

The mandible (fig. 8) consisting of a short, heavily built stylet and a 1-segmented palp. The stylet has a number of cilia or spinules in its distomedial part; distally it is armed with some 9 teeth, gradually increasing in size in medial to lateral direction. The palp consists of a short, finger-shaped article, distally armed with 1 minute seta and a longer plumose seta.

The anterior maxilla (fig. 9) consists of a very wide inner lobe, distally armed with 4 setae, the outermost plumose, the innermost naked, the two medianmost barbelated. The narrow outer lobe is almost as long as the inner lobe; distally it carries 2 heavier setae, and 2 thinner ones, all plumose.

The posterior maxilla (fig. 10) has a very heavy basal article and a strong distal claw, the latter with a sharply recurved tip.

The maxilliped (fig. 11) consists of a 2-segmented basal section (segment 1 with a spinule, segment 2 unarmed) and of a 5-segmented claw section. The first claw section article bears 2 spi-

nules; the second article is very small, triangular; article 3 is unarmed, squarish; article 4 is elongated, armed with 1 terminal seta; article 5 is slender, claw-like, unornamented.

The biramous legs 1 to 4 are gradually in reduction in an anterior to posterior series. The legs 1 and 2 are larger than legs 3 and 4. The two anterior pairs have both rami 3-segmented, whereas the endopodite is 2-segmented in leg 4, and usually 2-segmented (exceptionally 3-segmented) in leg 3. Coxopodite in all legs unarmed. Basipodite with a smooth lateral seta in all legs. Basipodite of leg 1 moreover with a strong element at the base of the endopodite. The chaetotaxis formula is, as is often the case in species in which the legs are in a process of reduction, not entirely constant. I have not noticed any variation in the chaetotaxis of legs 1 and 2 (figs. 12, 13):

$P_1$ protopod 0-0; 1-I; exopod I-1; I-1; II-4; endopod 0-1; 0-1; 1-2-3.

$P_2$ protopod 0-0; 1-0; exopod I-1; I-1; II-I-4; endopod 0-1; 0-1; 1-2-3.

All setae in legs 1 and 2 are smooth, except for the 3 medial setae on exopod article 3 of leg 1, which bear some sparse plumosities. The 3rd exopod article of leg 2 may vary in length; in some specimens, it is slightly longer than illustrated in fig. 13.

Leg 3 (fig. 14) has a 3-segmented exopod, the endopod usually is 2-segmented, but I observed one specimen in which it was 3-segmented on one side of the body, normal on the other side. The chaetotaxis formula is:

protopod 0-0; 1-0; exopod I-1; I-1; II-I-4; endopod 0-1; 0-I-2 (or 0-1; 0-1; 0-I-2).

Leg 4 (fig. 15) has a 3-segmented exopod, and a 2-segmented endopod. The lateral basipod seta may be lacking, though it is usually well-developed. Likewise lacking may be the lateral spine (of reduced length) on exopod article 1. The chaetotaxis formula is:

protopod 0-0; 1-0 (or 0-0); exopod I-1 (or 0-1); I-1; II-I-3; endopod 0-1; 0-I-2.

All setae on legs 3 and 4 are naked.

Leg 5 (fig. 3) is implanted on the first urosome somite; near the implantation, a naked seta arises on the urosomite. The leg has a free article which is roughly ovate in outline, length 46-54 µm, greatest width 21-23 µm. The free article has three terminal setae, 2 longer and 1 sligthly shorter; no other ornamentation or armature.

Only one of the 38 females recovered was ovigerous, bearing a single egg (fig. 1) under the tergum.

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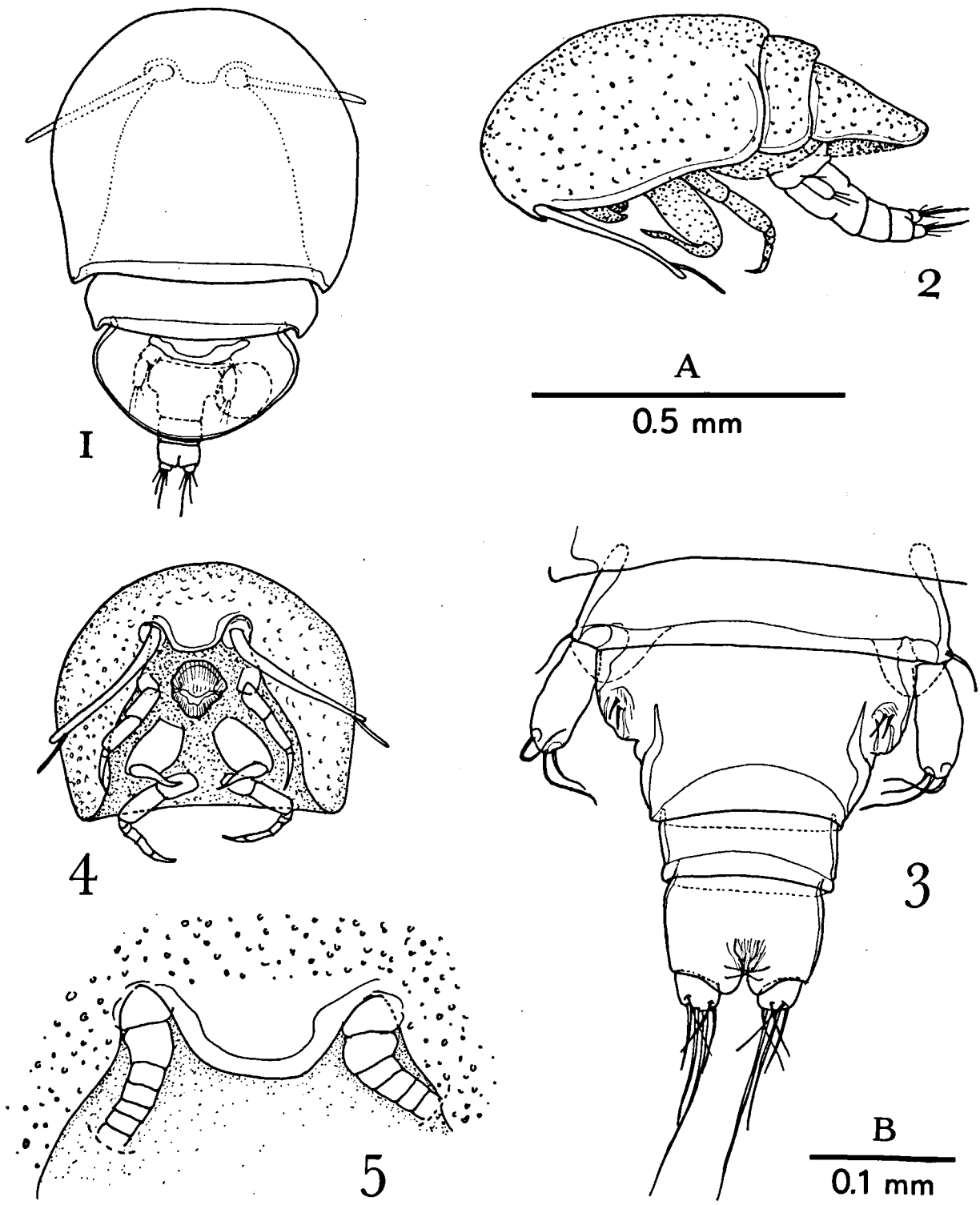
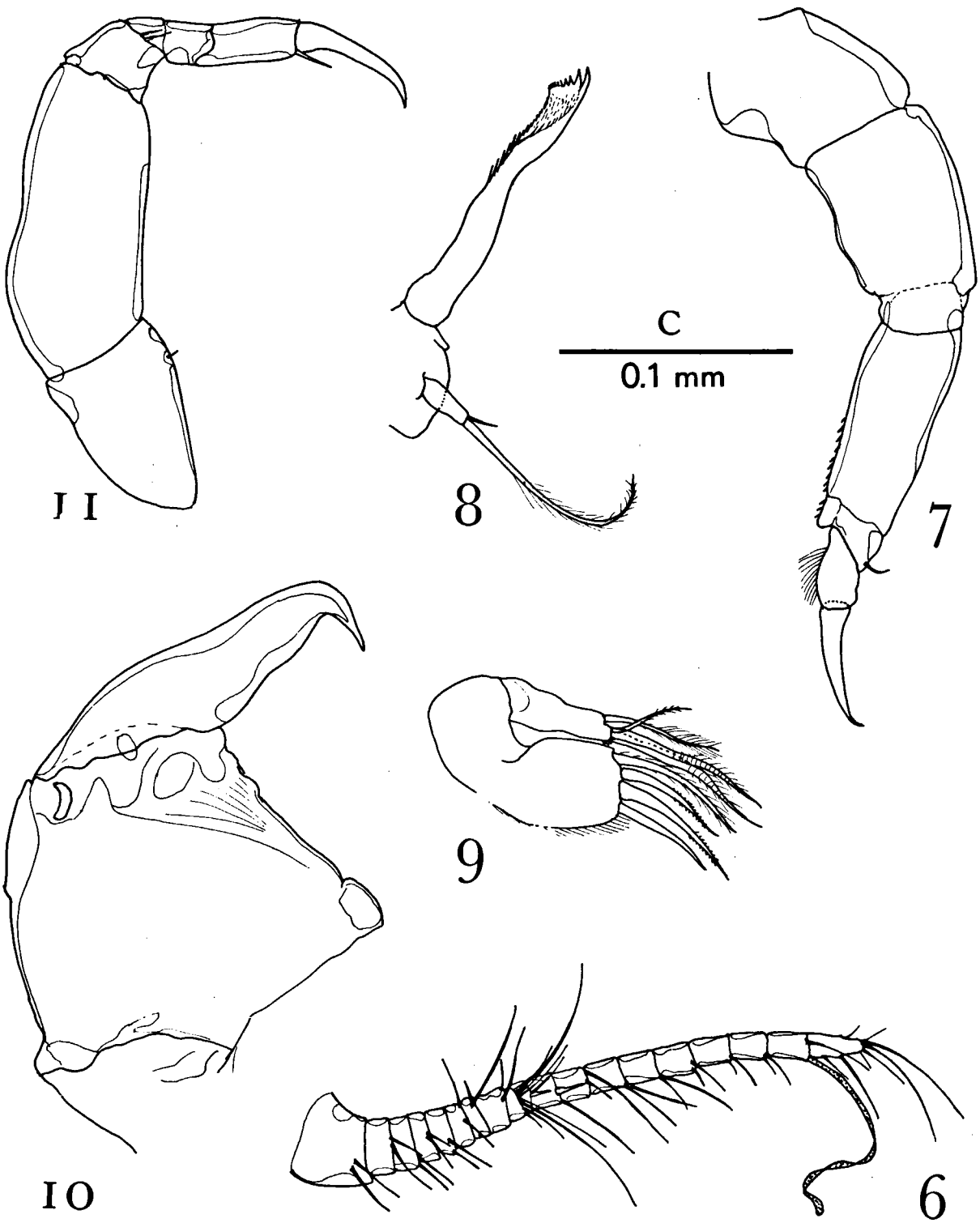
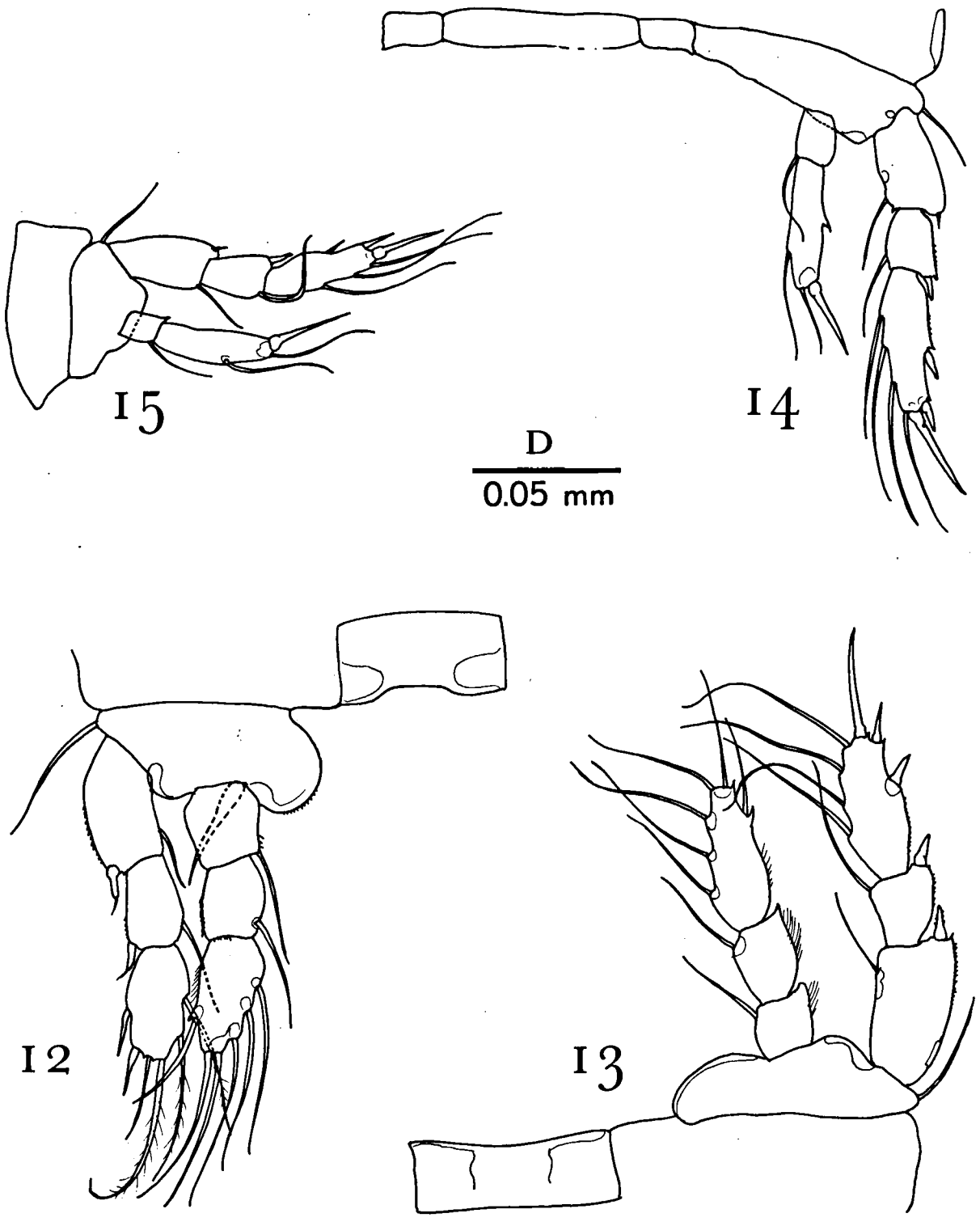



Figs. 1-5. *Peltomyzon rostratum* n. gen., n. sp., female.
1, body, dorsal (scale A); 2, body, from the left (A); 3, urosome, dorsal (C); 4, cephalosome, ventral, mandible and anterior maxilla omitted (A); 5, rostral fold, ventral (B).




Figs. 6-11. *Peltomyzon rostratum* n. gen., n. sp., female.
6, anterior antenna (scale C); 7, posterior antenna (D); 8, mandible (D); 9, anterior maxilla (D); 10, posterior maxilla (D); 11, maxilliped (D).




Figs. 12-15. *Peltomyzon rostratum* n. gen., n. sp., female.
12, first leg (scale D); 13, second leg (D); 14, third leg (D); 15, fourth leg (D).