

Amsterdam Expeditions to the West Indian Islands, Report 46*

NEW WEST ATLANTIC LOCALITIES FOR THE STYGOBIONT
PARANTHURID *CURASSANTHURA* (CRUSTACEA, ISOPODA, ANTHURIDEA)
WITH DESCRIPTION OF *C. BERMUDENSIS* N. SP. **

by

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ABSTRACT

A third species of the hypogean genus *Curassanthura* Kensley, 1981 (Isopoda, Anthuridea, Paranthuridae) is described from a cave on Bermuda. *C. bermudensis* n. sp. is very similar to *C. halma* Kensley, 1981, hitherto known from Curaçao, and now also recorded from new localities on Bonaire.

ZUSAMMENFASSUNG

Eine dritte Art der hypogäischen Gattung *Curassanthura* Kensley, 1981 (Isopoda, Anthuridea, Paranthuridae) wird von einer Höhle von Bermuda beschrieben. *C. bermudensis* n. sp. ist *C. halma* sehr ähnlich, die bisher von Curaçao und nun auch von neuen Fundorten auf Bonaire bekannt ist.

ABBREVIATIONS USED IN TEXT AND FIGURES

A 1,2: antenna 1,2; Md: mandible; MdP: mandibular palp; Mx: maxilla 1; Mxp: maxilliped; P 1-7: pereopods 1-7; Plp 1-5: pleopods 1-5; Tel: telson; Uex: exopodite of uropod; Urp: Uropod.

INTRODUCTION

The rare endofaunal genus *Curassanthura*, which is morphologically adapted to life in subterranean habitats (Wägele, 1982), has a curious amphiatlantic distribution (Lanzarote, Curaçao) explained mainly by the mechanisms of plate tectonics (Wägele, 1985); the genus is considered a Tethyan relict. Material from new localities, discovered by Prof. J. H. Stock, adds new facts to the puzzle of the Caribbean hypogean fauna's origin.

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SYSTEMATICS

Curassanthura halma Kensley, 1981
(Fig. 1)

Material. — Amsterdam Expeditions to the West Indian Islands, sta. 84-205, NETHERLANDS ANTILLES, Bonaire: Plaj'i (= Playa) Funchi, Estate Washington (12°17'08"N 68°24'41"W), in a small resurgence or trickle on the landside of a bar of beach rock and coral rubble, Bou-Rouch biophreatical pump in coarse and fine sand, 50 cm below the surface, chlorinity 26104 mg/l; 9 June 1984. One immature adult, length 2.1 mm (Zoölogisch Museum Amsterdam, coll. no. ZMA Is. 105.286).

Sta. 84-202, same island: Slagbaai, at the head of the salina (12°16'01"N 68°24'41"W), in a small resurgence in coral rubble and sand. Bou-Rouch biophreatical pump, 50 cm below the surface, chlorinity 25978 mg/l, 8 June 1984. One immature adult, length 2.2 mm (ZMA Is. 105.285).

Description. — The specimens agree well with the descriptions of members of this species from the neighbouring island of Curaçao (Kensley, 1981; Wägele, 1982). Some new details, important for the comparison with the following species, are shown in fig. 1: Mxp with slender basipodite; palp 5-segmented, first article visible in dorsal view; third article with 4, fourth with 2, last with 4 terminal setae. Palm of propodus P1 straight, with basal hook-line tooth and row of 9 stout comb-like spines; parallel to these a row with 3 simple proximal and 3 distal pectinate thin setae. Dactylus of P2-6 bearing a claw with 2 notches (fig. 1: P3). Exopodite of uropod small, with in situ 2 medially directed plumose setae.

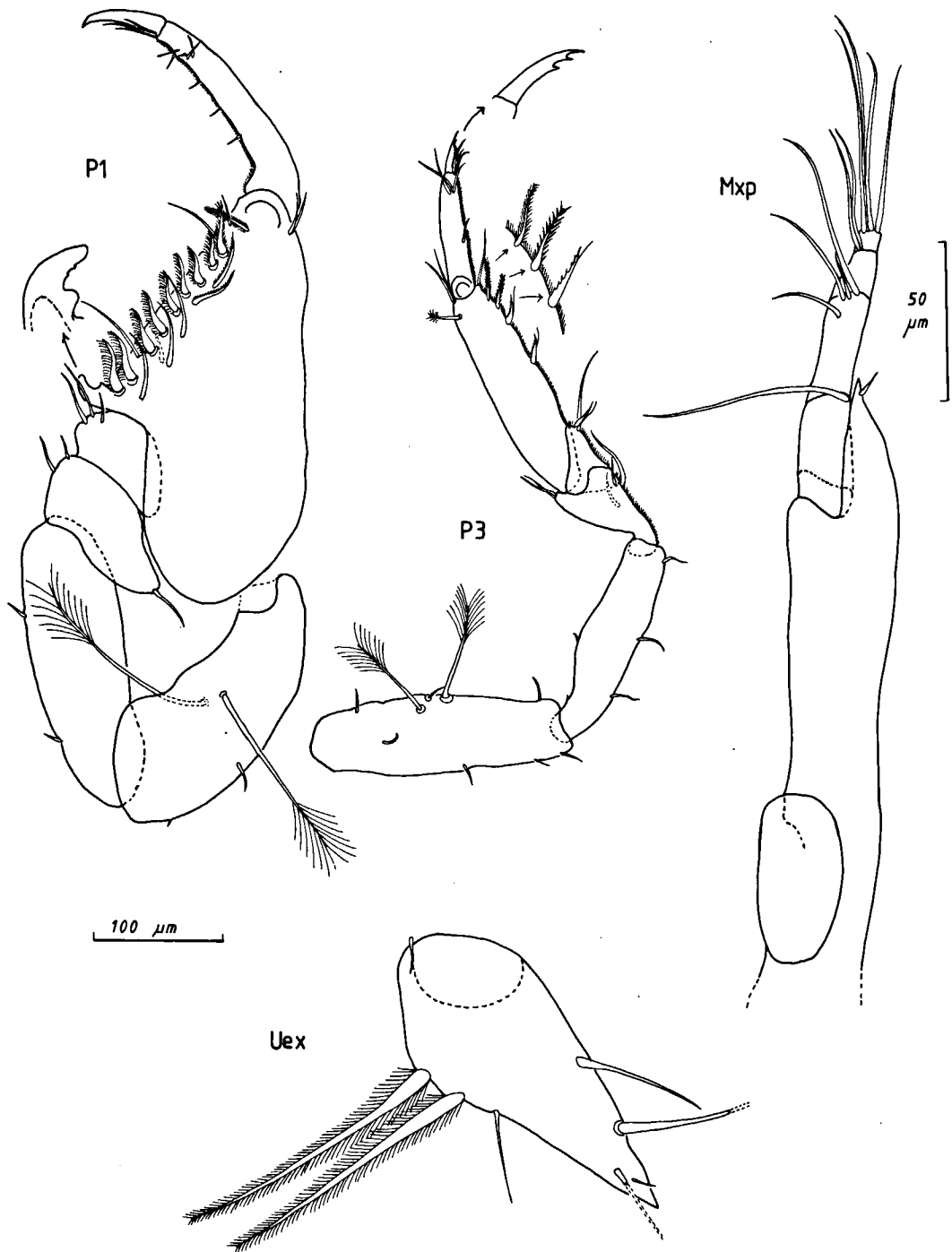


Fig. 1. *Curassanthura halma* Kensley, 1981 from Bonaire. P1 with detail of basal propodal tooth, P3 with details of claw and propodal spines. For symbols see list of abbreviations.

Curassanthura bermudensis n. sp.

(Figs. 2-4)

Material. — Amsterdam Expeditions to the West Indian Islands, sta. 84-255, BERMUDA, Church Cave (grid reference 340027 3578712), washed from coarse sediments on the shore of the large cave pool in a collapse cave (semi-dark), clean with some wood debris, salinity (surface) 15.54‰, salinity at 1 m depth 26.06‰, 5 Oct. 1984. This is an isolated cave with a very slow replenishment time. One immature adult (holotype), length 3 mm (ZMA Is. 105.284).

Description of the holotype. — Blind, unpigmented paranthurid; body (without antennae) about 13 times longer than wide. Cephalothorax longer than wide, with pronounced rostral point. Relative length of pereonites: ceph. $<1 < 2 > 3 = 4 > 5 = 6 > > 7$, unfused pleonites 1-5 together shorter than pereonite 6, pleonite 6 fused with telson (fig. 2).

A1 (fig. 2) with 6 flagellar articles, first article with feather-like bristle, second article longest, without setae, articles 3 to 5 each with one aesthetasc, 2 setae on article 3, 2 on article 5, last article with 4 longer setae. Peduncle of A1 3-segmented, setation shown in fig. 2. A2 (fig. 3) with 5 peduncular articles, the second as long as the fifth; fifth peduncular article bearing distally 5 long feather-like bristles and 5 simple setae. Flagellum of A2 8-segmented, each article bearing distally 3-5 short setae, last article with 3 longer setae; flagellum slightly longer than last peduncular article.

Mouthparts of the stinging/sucking type, covered dorsally by the labrum. Palp of Md 3-segmented, second article longest, with 2 setae, third article with 4 apical setae. Mx 1 lanceolate, apex laterally serrated with 13 indentations (fig. 2). Basipodite of Mxp slender, longer than palp, endite strong, acute apex reaching beyond second palp article; palp 5-segmented, first article visible in dorsal view, second article with 1 long medially directed seta; third article with 4, fourth and fifth each with 3 setae (fig. 3).

Pereopods very slender (figs. 2-4), only the proximally broadening propodus of P1 stout. Propodal palm of subchelate P1 convex, basally protruding and bearing a hook-like tooth; a row

of 11 comb-like spines is accompanied by a parallel row of 6 thin setae, the first (basal) one not pectinate; distally another pectinate seta can be found. P2-7 not subchelate, articles elongate-cylindrical, propodal palm each with 2 sensory spines and, on P2 and P3 distally a small pectinate spine and a simple seta. Carpus of P2 and P3 small, triangular in lateral view, carpus of P4-6 long cylindrical, longer than merus. Carpi each with 1 sensory spine, basipodites with 3 long scolopidial feather-like setae. Each dactylus bearing a claw with 3 notches (detail of P2: fig. 3; P5: fig. 4). Pereopod 7 not developed.

Plp 1 (fig. 3) operculiform, exopodite with 6-7, endopodite with 3-4 swimming setae, exopodite more than 2 times wider than endopodite, endopodite shorter. Exopodite of Plp 2 (fig. 4) with 4-5, endopodite with 3 swimming setae. Exopodite of Urp basally slightly wider than in fig. 4, with in situ 1 medially directed, basal plumose seta, and 4 other simple setae. Endopodite of Urp considerably shorter than sympodite, apex rounded, bearing 2 long feather-like and 7 simple setae. Telson proximally widest, tapering to narrow apex, lateral margins with distal sinuosity. Single proximomedial statocyst very large, telsonic apex with 4 pairs of setae (fig. 4).

Discussion. — Though only one specimen of this species was found, it is described here because of its enigmatic occurrence on Bermuda.

C. canariensis differs from the two West Indian species in a richer setation of the pereopods, a larger size, and the occurrence of another flagellar article in A1 (see Wägele, 1985). Though no sexually mature specimens of the genus have been discovered until now, it seems that the West Indian species tend to be smaller. The latter are very similar and differ only in minor details. *C. bermudensis* n. sp. differs from *C. halma* in having a more slender A1; the first peduncular article has 4 feather-like setae (instead of none), the second article has 5 setae instead of 2; the flagellae are very similar; on the whole A2 with more setae than in *C.*

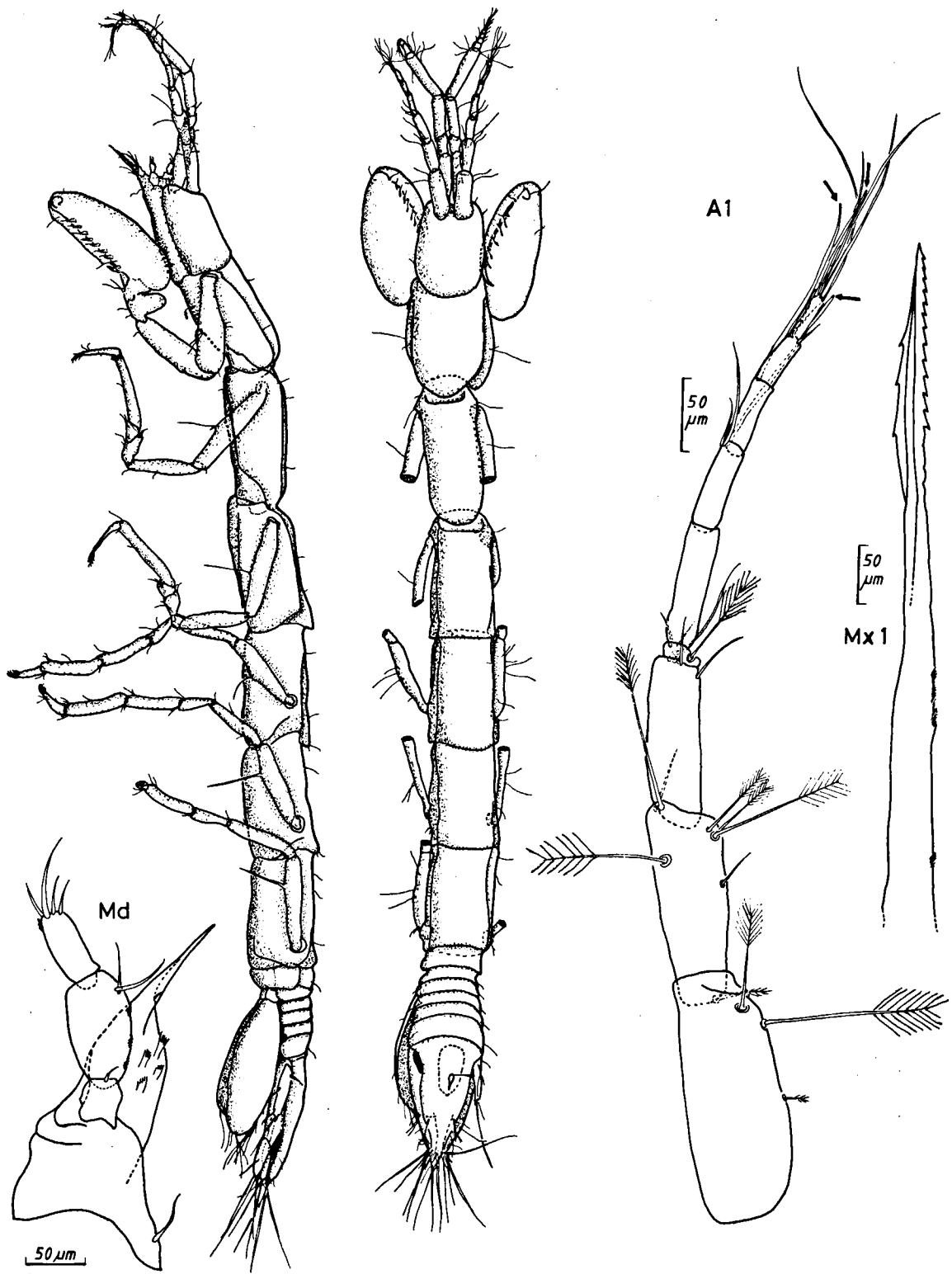


Fig. 2. *Curassanthura bermudensis* n. sp., holotype in lateral and dorsal view. Arrows indicating the tip of aesthetascs of the flagellar articles 3-5.

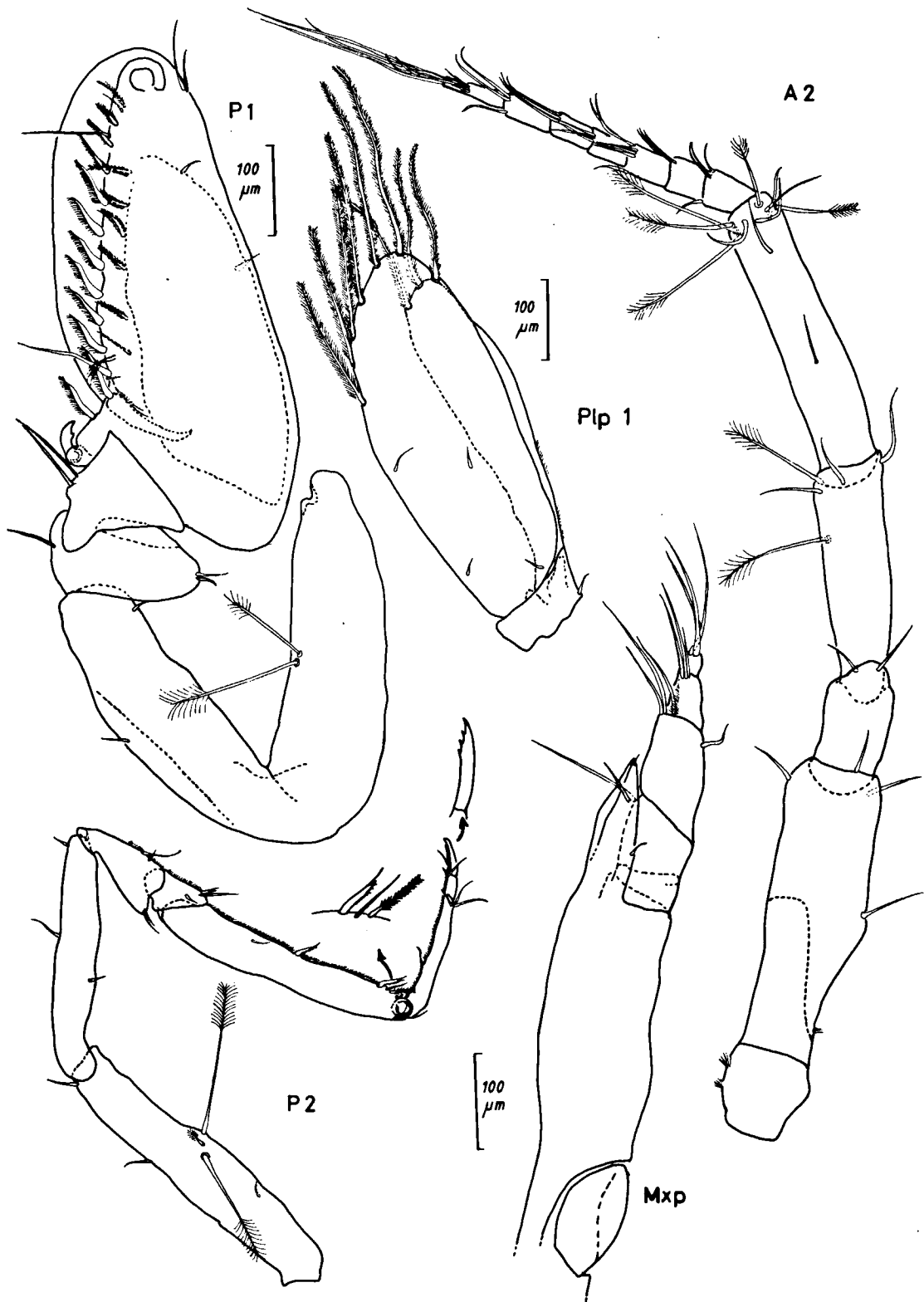


Fig. 3. *Curassanthura bermudensis* n. sp., holotype. P2 with details of claw and propodal spines.

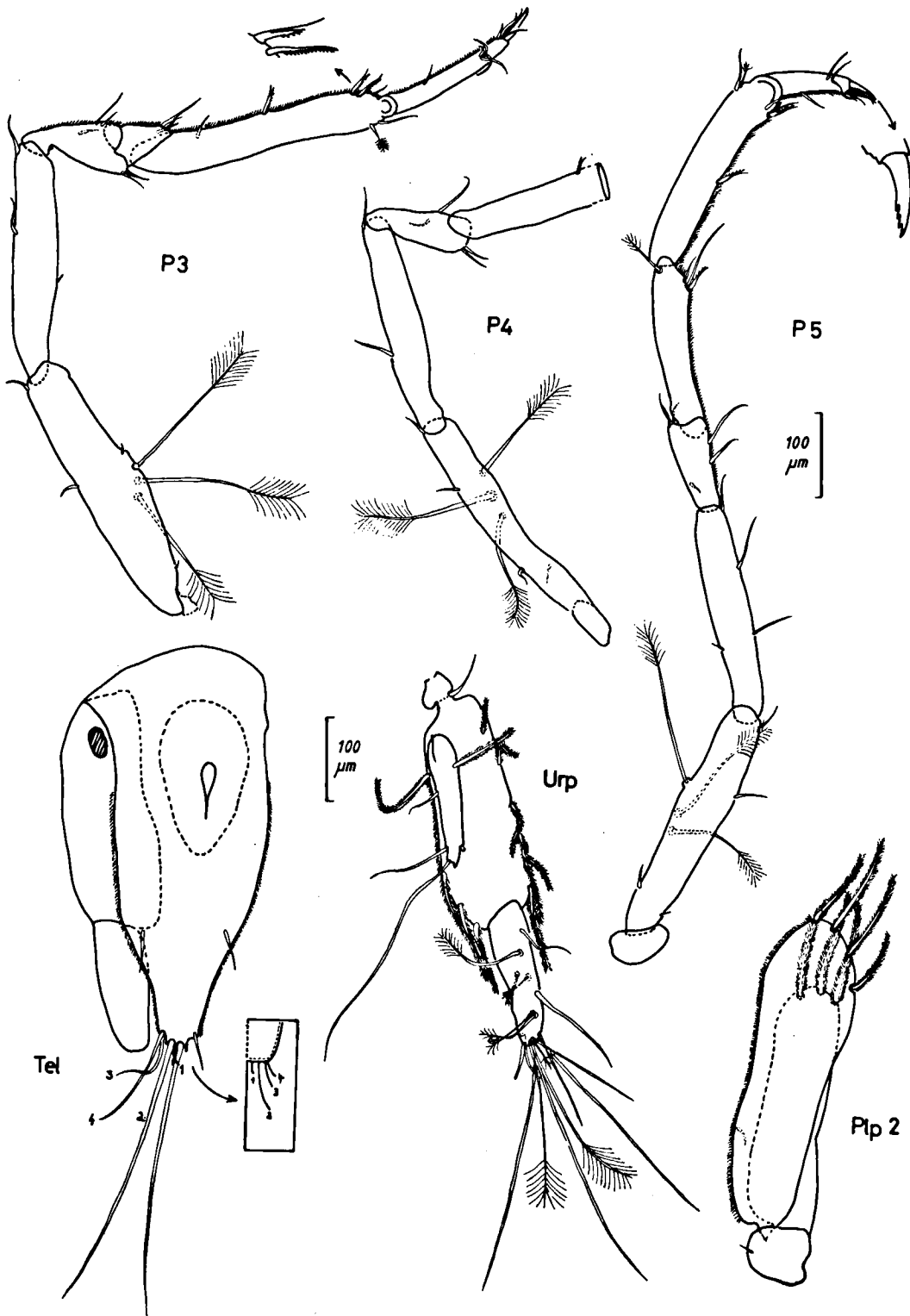


Fig. 4. *Curassanthura bermudensis* n. sp., holotype. Apical part of P4 lacking; Tel shown with outline of sympodite and endopodite of the left uropod, with scheme of apical telsonic setation. Uropod (Urp) shown in slightly dorsomedial view, the width is therefore reduced in this projection.

halma. P1 of the specimen studied shows sexual differences: the palm is not straight, the row of thin setae has only 1 (not 3) simple and 5 pectinate setae, the basal propodal portion is more protruding; propodi of P2-6 more slender than in *C. halma*. Exopodite of the Urp of the specimen studied with only 1 (instead of 2) medially directed plumose seta. Distal part of telson narrower.

Though the number of morphological differences is obvious, there remains some doubt resulting from the lack of further specimens. It is especially interesting to look out for male specimens, which may show other (sexually dimorphic) features. The morphological differences found in the present study, together with the large geographic distance (more than 2,200 km) between the populations of these stygobiont, island-dwelling animals form the justification to separate the species *halma* and *bermudensis*.

The origin of the Bermudian *Curassanthura* is as problematic as that of other unique subterranean species (e.g. Mictacea: Bowman & Iliffe, 1985) of this relatively isolated, oceanic island (see Sket & Iliffe, 1980; Iliffe et al., 1983). *Curassanthura* is a strictly stygobiont genus of marine paranthurid ancestors, with no relatives in the deep sea (Wägele, 1985). Its natural active dispersion is only thinkable by using "land bridges" between islands; to postulate the very improbable accidental passive dispersion (drift of wood etc.) is not satisfactory, especially when dealing with cave animals.

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