

INTERSTITIAL ANCORABOLIDAE (COPEPODA, HARPACTICOIDA)
FROM MACQUARIE ISLAND: *TAPHOLAOPHONTODES REMOTUS*
N. SP. AND *ALGENSIELLA BOITANII* N. GEN., N. SP.

BY

VEZIO COTTARELLI and FABIOLA BALDARI

Department of Animal and Human Biology, University "La Sapienza", Rome, Italy

INTRODUCTION

This paper deals with two new harpacticoids from interstitial waters, collected by Dr. Luigi Boitani, during the ANARE voyage (1984) to Macquarie Island (South Pacific Ocean). The interesting copepod material contained two new species of the family Ancorabolidae, namely *Tapholaophontodes remotus* n. sp. and *Algeniella boitanii* n. gen., n. sp.

Furthermore, comments on systematics and biogeography of the new species and the family Ancorabolidae are given.

***Tapholaophontodes remotus* n. sp.**

Material. — Nine ♀♀ and 1 copepodite. Macquarie Island, The Nugget beach near mouth of little stream, method Karaman-Chappuis, 23 October 1984.

Types. — Holotype: a dissected female mounted in polyvinyl-lactophenol, on a slide labelled *T. remotus* ht.

Paratypes: all the remaining specimens, mounted in the same way on slides labelled *T. remotus* pt., numbered from 2 to 10. The typeseries is part of the authors' collection in the Zoological Museum of the Department of Animal and Human Biology, University La Sapienza, Rome.

Diagnosis. — Characterized by a two-segmented exopodite P1, the length of endopodite P3 (not much longer than the first two articles of the corresponding exopodite), and the morphology and ornamentation of P5.

Description of the holotype. — Habitus (fig. 1a): Length, from apex of rostrum to distal margin of anal operculum, 0.42 mm. Body cylindrical, elongate, slightly tapering behind. Posterior margin of somites dorsally with denticles. First and second abdominal somites partially fused, a row of fine denticles indicates dorsally the suture between the two somites. Ventral posterior margin of abdominal somites covered with fine cilia.

Anal operculum (fig. 1h): Distal margin with nine strong denticles. Furcal rami (fig. 1h) cylindrical, slightly more than twice as long as wide, with a long

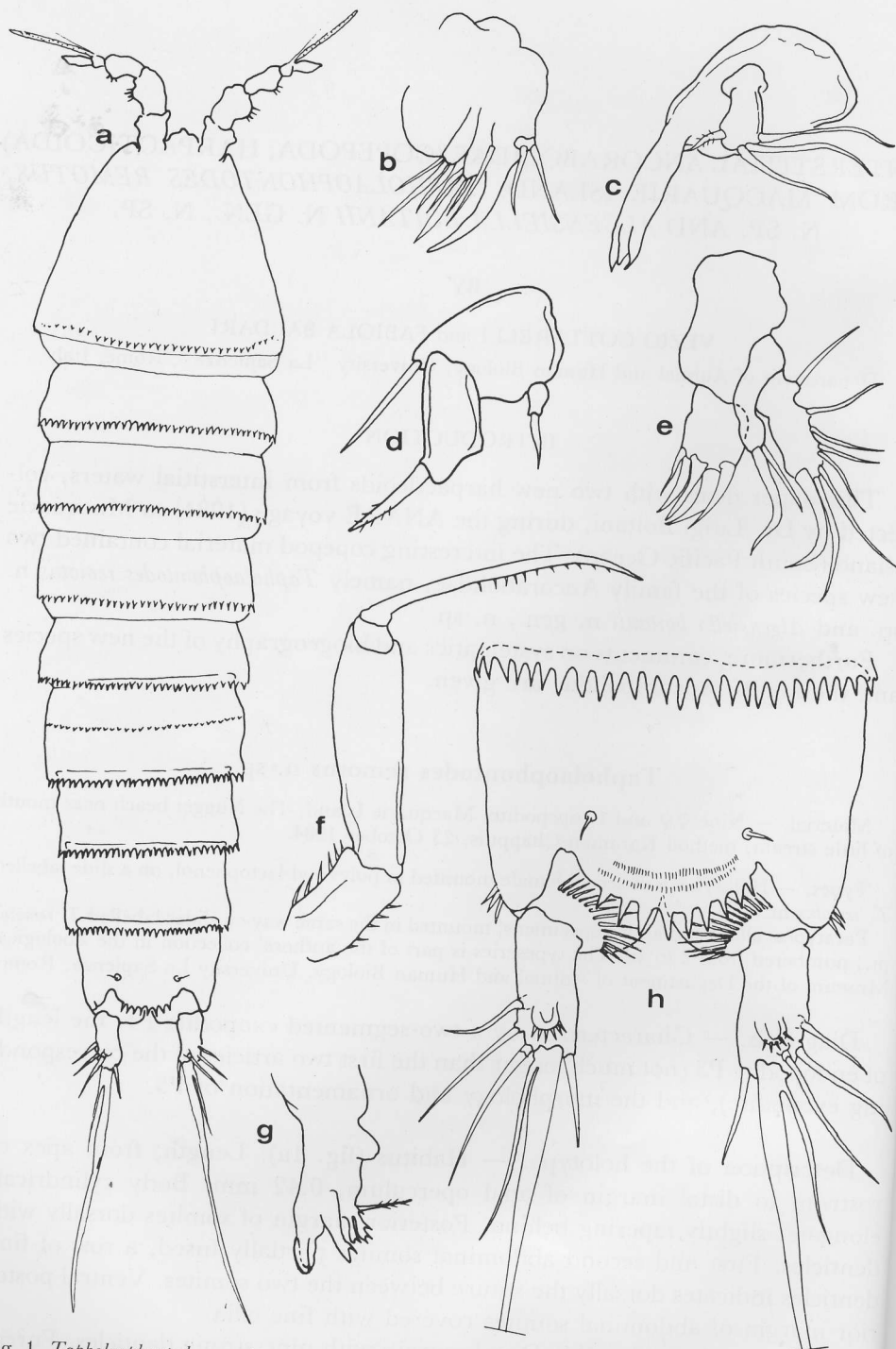


Fig. 1. *Tapholaophontodes remotus* n. sp., ad. ♀, holotype. a, habitus; b, second maxilla; c, mandible; d, endopodite P2 (paratype); e, first maxilla; f, maxilliped; g, mandible, pars molaris, lateral view; h, anal somite and furca.

and thin dorso-distal, articulated seta, with a tubercle ornated with short spinules, and four distal setae, the inner one shorter than the outer two; main apical seta bifid at base.

Rostrum (fig. 2e) articulated, with a seta on each side of the tip.

First antenna (fig. 2e) five-segmented. First article with a transverse row of fine cilia near the middle and one plumose seta on inner distal corner. Second and third article with swelling bearing some spines on the posterior margin; third article with a disto-anterior aphophysis bearing three setae and an aesthete. Fourth article small, with one seta. The last article with five posterior setae, two anterior setae, one apical seta and an aesthete.

Second antenna (fig. 2g): Short coxa; allobasis little longer than endopodite, with lateral short setae. Exopodite lacking.

Mandible (fig. 1c, g): Exo- and endopodite lacking. Coxa with four distal setae, the shortest plumose.

First maxilla (fig. 1e): Arthrite of praecoxa distally with four curved spines and one thin seta; coxa with two apical setae. Basis with two apical setae, one heavy, one thin; outer margin with six thin setae.

Second maxilla (fig. 1b): Exopodite represented by a short article bearing two setae. Basis projecting into a curved, claw-like tip with a thin seta at base.

Maxilliped (fig. 1f): Basis with small lateral spines. First endopodite-segment bare; second segment with strong claw armed with some spinules.

P1 (fig. 2f): Endopodite two-segmented, first article much longer than entire exopodite, with one short, latero-distal seta; second article nearly quadrangular, distally with strong claw and two setae, one long and thin and one spiniform. Exopodite two-segmented; first article with strong plumose seta on its medial margin, second article with one subapical geniculate seta, two longer apical, geniculate setae, and two long, thin setae.

P2-P4 (fig. 2b, c, d): Basis bearing a thin latero-distal seta. Three-segmented exopodites, decreasing in length from P2 to P4. Third article constantly with four distal setae, the inner very long and thin, the others distally plumose. Endopodite of P3 uni-articulated, little shorter than first two segments of exopodite, bearing only one distal seta.

P5 (fig. 2a): Baseoendopodite well-articulated, with short latero-distal seta. Exopodite large and elongate, with a tubercle bearing one seta near the middle of its lateral margin; same margin also with two setae, the longest subapical; one strong distal seta.

Variability: — All the above mentioned features are constant in the type-series apart from slight variation in the total length (0.39 to 0.44 mm). The P2 of one specimen bears a very short endopodite with a small seta on the tip (fig. 1d).

Derivatio nominis. — The specific name alludes to the solitude of Macquarie Island.

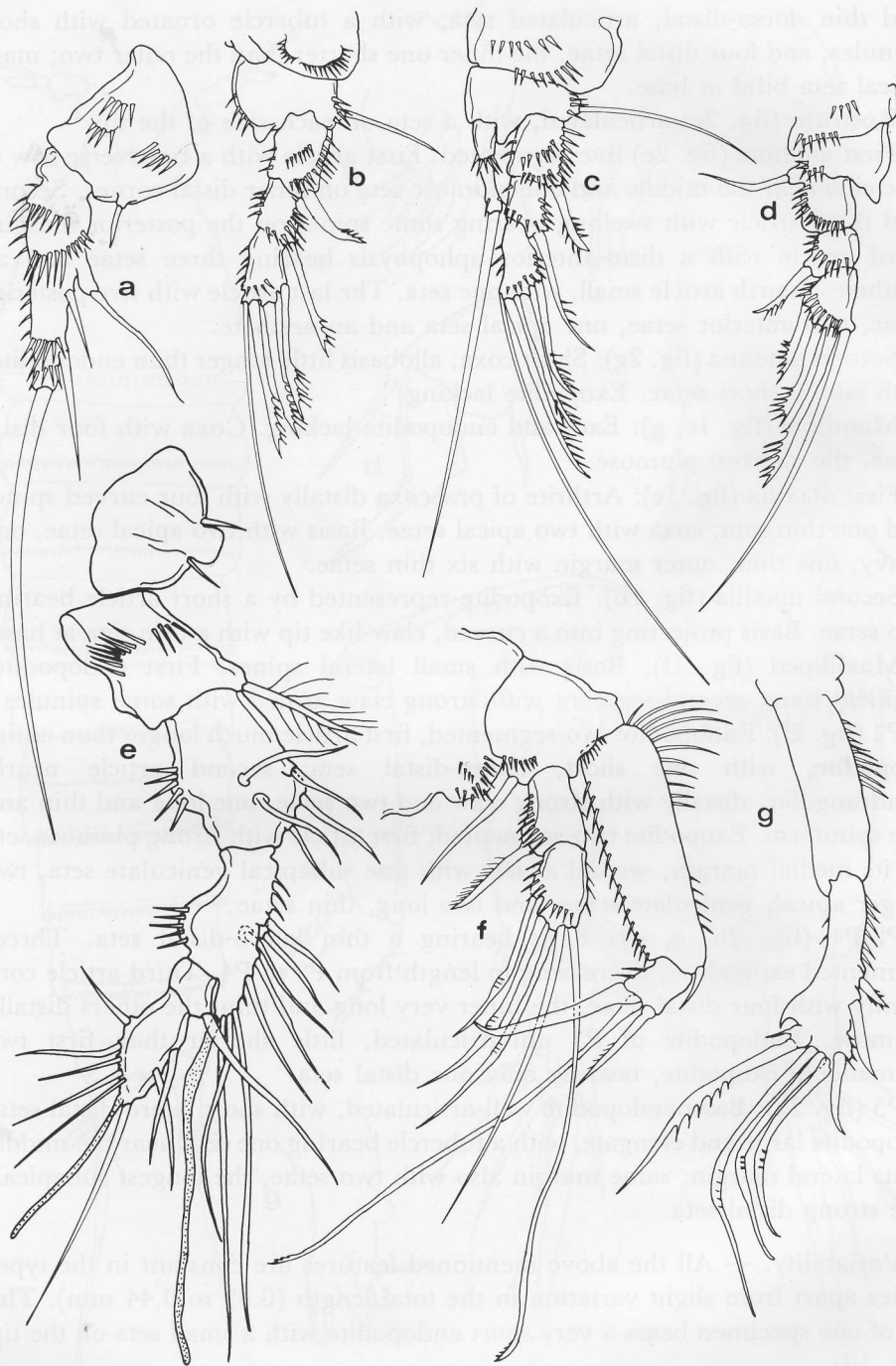


Fig. 2. *Tapholaophontodes remotus* n. sp., ad. ♀, holotype. a, P5; b, P2; c, P3; d, P4; e, first antenna; f, P1; g, second antenna.

Remarks. — The genus *Tapholaophontodes* was established by Soyer (1974) for *T. rollandi* Soyer, 1974, found in marine interstitial water of the Kerguelen Islands. The new species, *T. remotus*, having a two-segmented exopodite of P1, does not fit the generic diagnosis of Soyer. Nevertheless many features of the new taxon agree so we thought it suitable at present to extend the diagnosis. In particular we attach great value to Soyer's statement that *T. rollandi* "se distingue de tous les genres de la famille actuellement connus par l'absence d'endopodites à P2 et P4".

Algeniella n. gen.

Diagnosis. — Ancorabolidae with five-segmented first antenna; second antenna lacking an exopodite. P1 with three-segmented exopodite and two-segmented endopodite. Exopodites of P2-P4 of three articles, the last having five elements. P2 without endopodite. P3 (♀) with one-segmented endopodite bearing two apical setae and P3 endopodite (♂) showing sexual dimorphism. P4 with one-segmented endopodite, with two apical setae.

The generic name *Algeniella* is derived from the latin word *algens* = cold. Gender of the genus feminine.

The new genus agrees well with the diagnosis of the Laophontidinae Lang, 1948, and differs from the other genera both in the absence of an endopodite in P2 and the presence of an endopodite in P4. Relationships should be searched among those Laophontidinae showing reduction or absence of endopodites. Hence we think *Algeniella* n. gen. is closely related to *Tapholaophontodes* Soyer, as both genera likewise present the same interstitial habitus. There are some resemblances to *Patagoniaella* Pallares, 1968 and to a minor extent to *Paralaophontodes* Lang, 1965, though the latter seems to belong to a different line. Among the five known genera of Laophontidinae Lang, 1948, *Patagoniaella*, *Tapholaophontodes* and *Algeniella* show reduction of legs, simplified chaetotaxy and a similar ecology, as all are found in marine interstitial waters of the southern hemisphere. Furthermore *Tapholaophontodes* and *Algeniella* inhabit the "province kerguelenienne" (Knox, 1960), i.e. Kerguelen (locus typicus of *T. rollandi*), Prince Edwards', Marion, Crozet and Macquarie Islands (cf. Soyer, 1976). Among the other genera of the Ancorabolidae, which include some interstitial species, *Laophontodes* T. Scott, a near-cosmopolitan genus, is represented in the subantarctic area by *L. psammophilus* Soyer, 1974, and *L. propinquus* Brady, 1910 (Kerguelen Islands). Three other species, *L. latissimus* Brady, 1918 (Macquarie Island), *L. antarcticus* Brady, 1918 and *L. echinatus* Brady, 1918, considered by Lang (1948) "incertae et incertae sedis" have been omitted in the key to *Laophontodes* presented by Lang, 1965. *Paralaophontodes* has not yet been found in subantarctic waters. In this context we may anticipate that another ancorabolid collected at Macquarie Island, and now under study, probably represents a new genus, closely related to *Paralaophontodes* and *Laophontodes*.

***Algeniella boitanii* n. sp.**

Material. — Eleven ♀♀ (7 ♀♀ ovigerous) and 4 ♂♂. Macquarie Island, Green Gorge beach, 24 October 1984.

Types. — Holotype: one dissected ovigerous female mounted in polyvinyl-lactophenol, on a slide labelled *A. boitanii* ht.

Paratypes: all remaining specimens, mounted in the same way, labelled as *A. boitanii* pt. and numbered from 2 to 15. The type-series is part of the authors' collection in the Zoological Museum of the Department of Animal and Human Biology, University La Sapienza, Rome.

Diagnosis. — Conforms to the diagnosis of the genus.

Description of the holotype. — Habitus (fig. 3a): Length, from apex of rostrum to distal margin of anal operculum, 0.35 mm. Body dorso-ventrally depressed; first five somites broader than abdominal ones, dorso-posterior margin of all somites bearing a row of spiniform denticles. First and second abdominal somites partially fused, dorsally the suture is marked by a row of denticles. Abdominal somites with ventral cilia on posterior margin.

Anal operculum (fig. 3d): Distal margin with a row of spiniform denticles. Furcal rami (fig. 3d) cylindrical, little longer than last abdominal somite and three times longer than wide, bearing two setae on both outer and inner margins, and a dorsal, articulated seta near the main apical seta, the latter being bifid at the base.

Rostrum (fig. 3b) fused, with a seta on each side of the tip.

First antenna (fig. 3b) five-segmented. First article with a strong disto-anterior, plumose seta. Second and third articles with a tubercle bearing some spiniform setae, third also with distal apophysis bearing an aesthete and two apical setae. Fourth article short, bearing one anterior seta. The last article with seven setae and two apical ones.

Second antenna (fig. 3c): Coxa short; allobasis longer than endopodite, distally with three geniculate setae and one spine, two subdistal spines. Exopodite lacking.

Mandible (fig. 4h): Coxa-basis with five distal setae.

First maxilla (fig. 4i): Arthrite of praecoxa with five curved spines; coxa with two apical setae; basis with three apical setae and four setae on the outer margin.

Second maxilla (fig. 4c): Endopodite represented by short article with two setae. Basis projecting, with hook-like tip. Two endites bearing three distal setae.

Maxilliped (fig. 4g): Basis and first endopodite segment with some small lateral setae; second segment bearing strong claw.

P₁ (fig. 5c): Endopodite of two articles, the first nearly twice as long as exopodite; the second with one strong apical spine, a very long seta and one spiniform seta. Exopodite of three articles, the first two with one seta on outer margin, the last with three apical and one subapical setae.

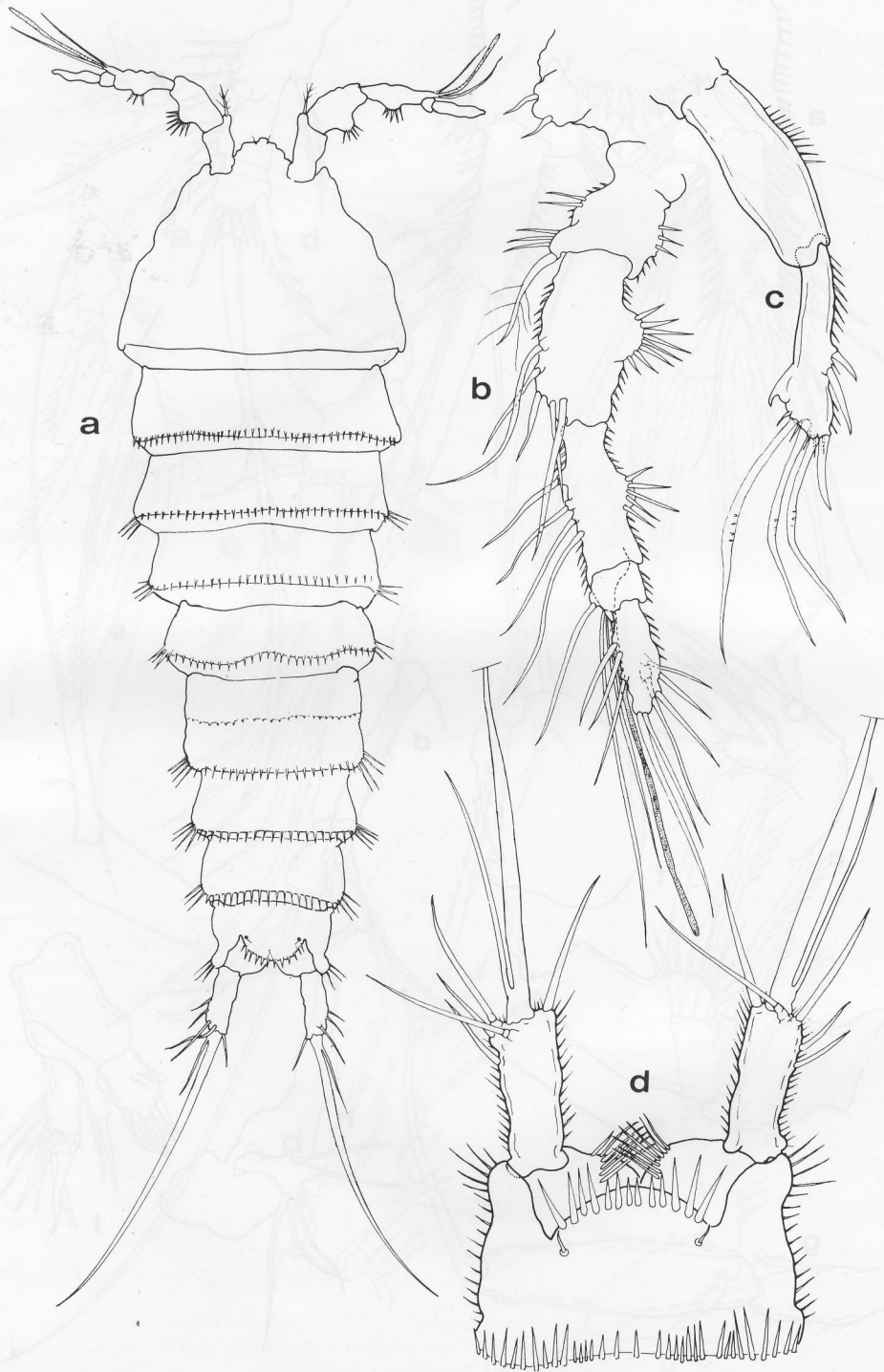


Fig. 3. *Algesiella boitanii* n. gen., n. sp., ad. ♀, holotype. a, habitus; b, first antenna; c, second antenna; d, anal somite and furca.

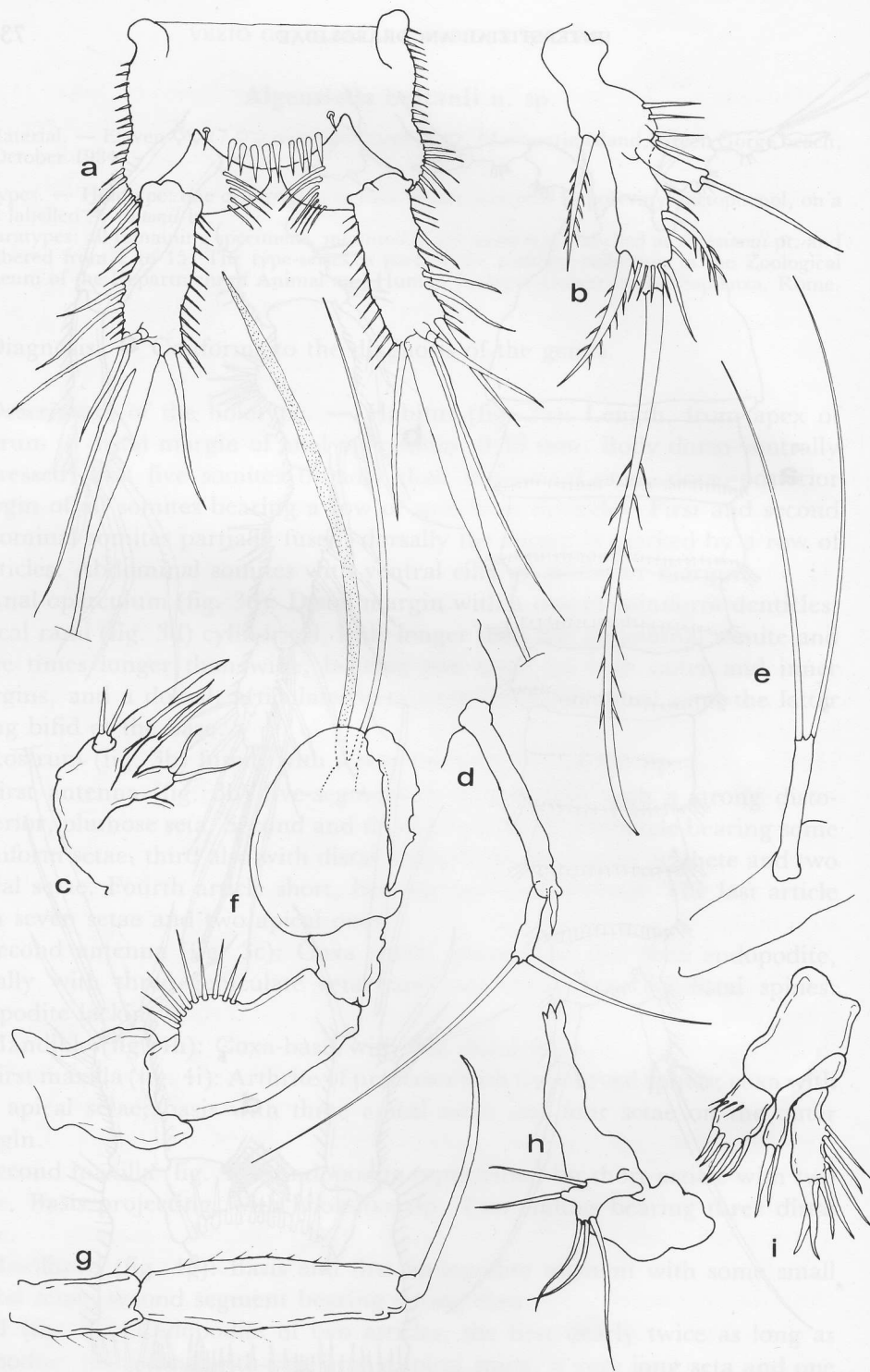


Fig. 4. *Algeniella boitanii* n. gen., n. sp. c, g, h, i, ad. ♀, holotype: c, second maxilla; g, maxilliped; h, mandible; i, first maxilla. a, b, d, e, f, ad. ♂, paratype: a, anal somite and furca; b, P5; d, endopodite P3; e, endopodite P4; f, first antenna.

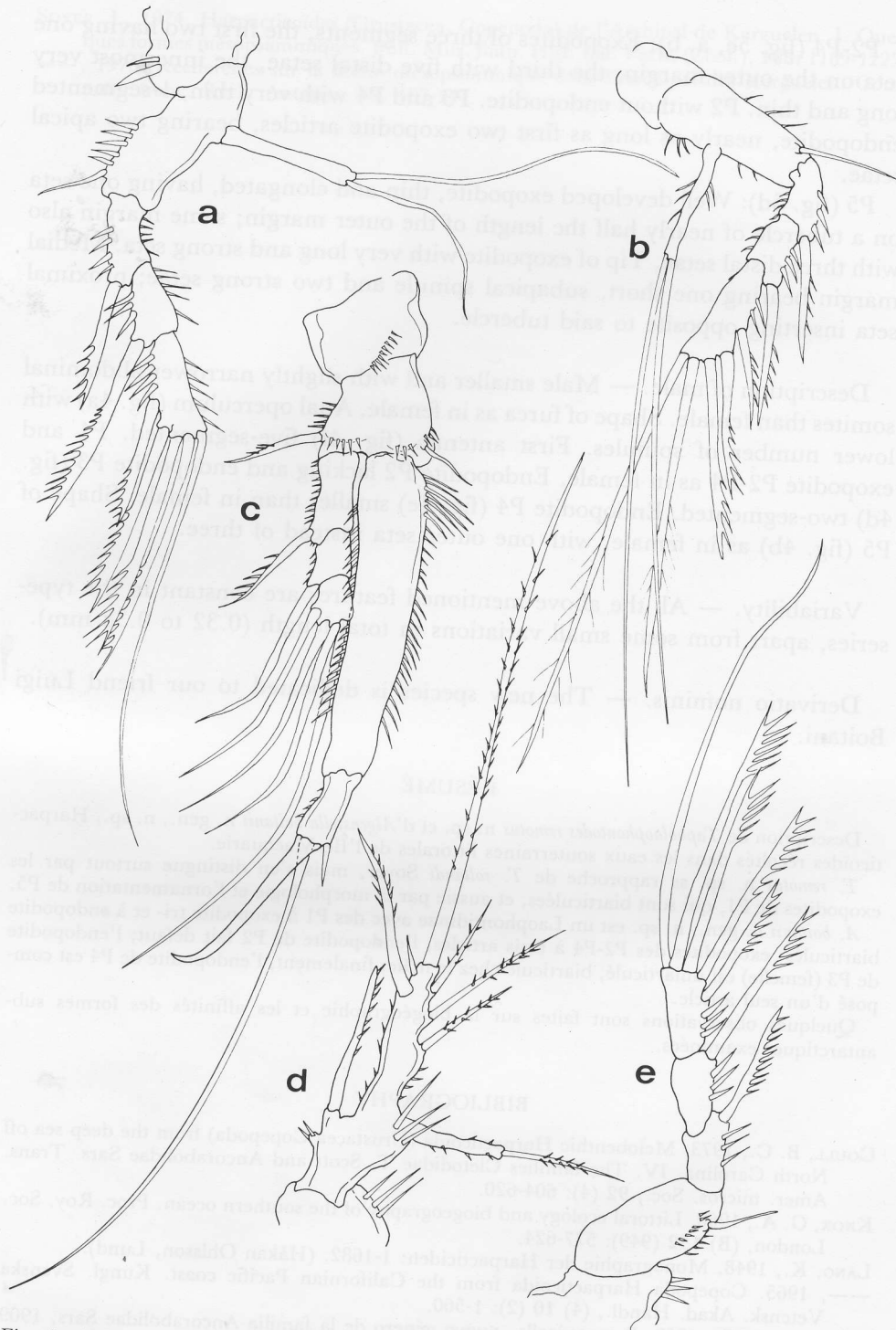


Fig. 5. *Algesiella boitanii* n. gen., n. sp., ad. ♀, holotype. a, P3; b, P4; c, P1; d, P5; e, P2.

P2-P4 (fig. 5e, a, b): Exopodites of three segments, the first two having one seta on the outer margin, the third with five distal setae, the innermost very long and thin. P2 without endopodite. P3 and P4 with very thin, 1-segmented endopodite, nearly as long as first two exopodite articles, bearing two apical setae.

P5 (fig. 5d): Well developed exopodite, thin and elongated, having one seta on a tubercle of nearly half the length of the outer margin; same margin also with three distal setae. Tip of exopodite with very long and strong seta. Medial margin bearing one short, subapical spinule and two strong setae; proximal seta inserting opposite to said tubercle.

Description of male. — Male smaller and with slightly narrower abdominal somites than female. Shape of furca as in female. Anal operculum (fig. 4a) with lower number of spinules. First antenna (fig. 4f) five-segmented. P1 and exopodite P2-P4 as in female. Endopodite P2 lacking and endopodite P3 (fig. 4d) two-segmented. Endopodite P4 (fig. 4e) smaller than in female. Shape of P5 (fig. 4b) as in female, with one outer seta instead of three.

Variability. — All the above mentioned features are constant in the type-series, apart from some small variations in total length (0.32 to 0.38 mm).

Derivatio nominis. — The new species is dedicated to our friend Luigi Boitani.

RÉSUMÉ

Description de *Taphloaophontodes remotus* n. sp. et d'*Algenziella boitanii* n. gen., n. sp., Harpacticoides récoltés dans les eaux souterraines littorales de l'Île Macquarie.

T. remotus n. sp. se rapproche de *T. rollandi* Soyer, mais s'en distingue surtout par les exopodites de P1, qui sont biarticulées, et aussi par la morphologie et l'ornementation de P5.

A. boitanii n. gen., n. sp. est un Laophontidinae avec des P1 à exopodite tri- et à endopodite biarticulés; exopodites des P2-P4 à trois articles; l'endopodite de P2 fait défaut; l'endopodite de P3 (femelle) est uniarticulé, biarticulé chez le mâle; finalement, l'endopodite de P4 est composé d'un seul article.

Quelques observations sont faites sur la biogéographie et les affinités des formes sub-antarctiques examinées.

BIBLIOGRAPHY

- COULL, B. C., 1973. Meiobenthic Harpacticoida (Crustacea Copepoda) from the deep sea off North Carolina. IV. The families Cletodidae T. Scott and Ancorabolidae Sars. Trans. Amer. micros. Soc., **92** (4): 604-620.
- KNOX, G. A., 1960. Littoral ecology and biogeography of the southern ocean. Proc. Roy. Soc. London, (B) **152** (949): 577-624.
- LANG, K., 1948. Monographie der Harpacticiden: 1-1682. (Håkan Ohlsson, Lund).
- , 1965. Copepoda Harpacticoida from the Californian Pacific coast. Kungl. Svenska Vetensk. Akad. Handl., (4) **10** (2): 1-560.
- PALLARES, R. E., 1968. Patagoniaella, nuevo género de la familia Ancorabolidae Sars, 1909 (Copepoda, Harpacticoida). Physis (Buenos Aires), **27** (75): 461-469.

- SOYER, J., 1974. Harpacticoïdes (Crustacea, Copepoda) de l'Archipel de Kerguelen. I. Quelques formes mésopsammiques. Bull. Mus. natn. Hist. nat. Paris, (Zool.), **168**: 1169-1223.
- , 1976. Recherches sur la faune mésopsammique dans l'Archipel des Kerguelen. Com. natn. franç. Rech. Antarct., **39**: 107-141.