

The laophontid genus *Louireiophonte* Jakobi, 1953 (Copepoda, Harpacticoida) *

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So far, only three species are known in the laophontid genus *Louireiophonte* Jakobi. In the present contribution five new species are described, and two species formerly attributed to other laophontid genera (*Paralaophonte subterranea* Lang and *Laophonte cesareae* Por), are allocated to *Louireiophonte*. A redescription of *L. cesareae*, based on type-material, is included. Relying on the increased understanding of louireiophontid morphology, the diagnoses of *L. catharinensis*, type-species of the genus, and *L. paranaensis* are amended. Finally, three species-groups are defined within the genus: the *catharinensis*-group, the *cesareae*-group and the *subterranea*-group.

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Introduction

To date, the laophontid genus *Louireiophonte* defined by Jakobi in 1953 consists of only three species: *L. catharinensis* Jakobi, 1953 and *L. paranaensis* Jakobi, 1953, both described from the south coast of Brazil, and *L. isabelensis* Mielke, 1981, from the Galapagos Islands.

As the original description of the Brazilian species was quite inaccurate and the generic diagnosis ill-defined, Vervoort (1964) and Lang (1965) considered *Louireiophonte* as a doubtful genus. Only when Mielke (1981) described *L. isabelensis* and recognized the striking resemblance of the male characteristics of the latter with the Brazilian species, the genus became re-established. Bodin (1988) however, still listed *Louireiophonte* as genus incerta, and omitted *L. isabelensis* in his latest catalogue on marine harpacticoids.

In the course of a thorough revision of the family Laophontidae T. Scott, 1904, it became apparent that two other species, namely *L. cesareae* Por, 1964, and *P. subterranea* Lang, 1965, attributed to the genera *Laophonte* Philippi, 1840, and *Paralaophonte* Lang, 1948, respectively, are in fact members of the genus *Louireiophonte*.

In the present study, five new species are added to the genus and a redescription of *Paralaophonte cesareae*, based on the re-examination of the type-material, is given. Unfortunately, as there is no information about the type-series of the two Brazilian species and new material was not available, their specific status remains doubtful. Relying, however, on the better understanding of louireiophontid morphology, the original descriptions of *L. catharinensis* and *L. paranaensis* are re-evaluated in detail. The original descriptions of both species are rectified as far as possible and a revised diagnosis is presented herein for each species.

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Material and methods

Except for *L. majacola* spec. nov., obtained from washings of the common spider crab [*Maja squinado* (Herbst)], all species were encountered in residues on a sieve (38 µm mesh) after a thorough rinsing of algae with strong water jets.

Dissected specimens are mounted in glycerine, while preserved ones are stored in 75 % neutralized ethyl alcohol. The material is deposited in the collections of the Recent Invertebrates Section of the Koninklijk Belgisch Instituut voor Natuurwetenschappen (KBIN) (Brussels, labelled COP), and the Nationaal Natuurhistorisch Museum (NNM) (Leiden, labelled RNMH F).

Drawings were made with the aid of a camera lucida fixed to a light microscope, equipped with phase contrast. Abbreviations and terminology used in the text are according to Lang (1948, 1965). Mouthparts of the herein described species are not illustrated for they closely resemble the mouthparts of *L. isabelensis* Mielke, 1981. Where differences were observed, they are mentioned in the descriptions.

Systematics

Genus *Loureiophonte* Jakobi, 1953

Diagnosis.— Small-sized laophontids having a prehensile fusiform body with well-developed lateral expansions of the genital and abdominal segments. Furcal rami cylindrical, markedly divergent, possessing a proximal transversal row of spinules on an inner dorso-lateral elevation. Antennule six-segmented, with a small, mostly blunt, protuberance and a setulose seta on the second segment. Aesthetasc arising from the fourth segment. Antenna with a well-developed exopodite, bearing four sub-equal setae/spines. P1 with two-segmented exopodite. P2-P4 with three-segmented exopodal rami. Endopodites P2 and P3 two-segmented, endopodite P4 one-segmented. First endopodal segments without inner seta. Ultimate endopodal segment of P2 bearing two lateral setae and only one apical seta. Inner proximal seta short. Second endopodal segment of P3 without outer subdistal seta. Endopodite P4 one-segmented, with two setae at the most. P5 with, at the most, four baseoendopodal setae and five exopodal ones.

Sexual dimorphism: antennule seven-segmented with aesthetasc on segment four. P2-P4 exopodites dimorphic. Endopodite P2, two-segmented. Sub-apical lateral seta strongly thickened proximally and with a distinct lamellar structure in the distal third. Endopodite P3 and P4 as in the female except for the more spinulose ornamentation of the setae. P5 baseoendopodite represented as a transversal ridge, bearing one seta. Exopodite P5 with five setae. P6 with two setae.

Type-species.— *Loureiophonte catharinensis* Jakobi, 1953 by original designation.

Discussion.— Considering the systematic position of *Loureiophonte* amongst the numerous genera known in the family Laophontidae, Jakobi (1953) concluded the genus was most closely allied with the *inopinata* species-group of *Laophonte* Philippi. Curiously, in his discussion about the sexual dimorphic features of the P2 endopodite, he remarked upon the striking resemblance of the loureiophontid male P2 and its

homologue found in the genus *Paralaophonte*. However, the nearly similar reduction of the chaetotaxies of the legs and the presence of a one-segmented P4 endopodite in both *Loureiophonte* and the *inopinata* species were thought to be more decisive arguments.

Loureiophonte differs significantly from the *inopinata* species-group in several aspects. In respect to the comparable setal formula, especially in the P2 endopodite (with only one apical seta) and in the P4 (one-segmented with two setae), the presence of an outer sub-distal spine on the P3 endopodite and the sexual dimorphic features of the legs (outer rami of P2-P4 slightly stronger, endopodite P3 with apophysis, P5 exopodite with four setae, personal observations) in *L. inopinata* and congeners, provide strong evidence for different origins of *Loureiophonte* and the *inopinata* species-group.

Obviously, one of the main characteristics of the genus *Loureiophonte* is the dimorphic sub-distal endopodal seta of the male P2. Only two laophontid genera, *Paralaophonte* Lang and *Galapalaophonte* Mielke, possess a comparable dimorphism in this leg. But although the shape of the modified seta in *Galapalaophonte* resembles that of *Loureiophonte* in many aspects, both structures are not homologous. Males of the genera *Loureiophonte* and *Paralaophonte* have an inner modified sub-distal seta, while the transformed seta of the male P2 in the genus *Galapalaophonte* is the inner apical one (Mielke, 1981; Fiers, 1991).

Apparently, *Loureiophonte* is most closely allied to the genus *Paralaophonte*. Besides the dimorphic nature of the P2, both genera have a pentasetose P5 exopodite in males and females, four setae on the baseoendopodite of the female P5 and only one seta on the baseoendopodite of the male fifth leg. Moreover, both genera display a comparable angular body-shape, strong dimorphism of the P2-P4 exopodites, and furcal rami with a distinct row of spinules in the proximal third of the inner margin. *Loureiophonte* is easily distinguishable from its sister-group by the one-segmented P4 endopodite, the chaetotaxy of the P2 with two lateral setae but only one apical seta, and the bulbous appearance with a lamellar structure in the distal third of the dimorphic endopodal seta of the male P2.

On the basis of the chaetotaxy of the ultimate segments of the exopodal rami and of the P4 endopodite, three species-groups are distinguishable within *Loureiophonte*: the *catharinensis*-group, *cesareae*-group, and the *subterranea*-group.

The *catharinensis* species-group comprises six species. Besides the three species presently known in the genus (*L. catharinensis* Jakobi, *L. paranaensis* Jakobi, *L. isabelensis* Mielke), the group unites three species described below: *L. furcata* spec. nov., *L. laingensis* spec. nov., and *L. majahualeensis* spec. nov. The six species assembled in the *catharinensis* species-group share the following combination of characteristics: ultimate exopodal segments of P2 and P3 with three outer spines and of P4 with two outer spines, endopodite P4 with two setae, and outer exopodal seta of the male P3 comparable with those on the other segments. The *catharinensis* species-group is widely distributed in the Indo-Pacific realm with an extension of its range into the Caribbean and the south western Atlantic.

The *cesareae* group, the second species-group defined herein, unites *Loureiophonte cesareae* (Por) comb. nov., *L. mediterranea* spec. nov. and *L. majacola* spec. nov. This group is characterized by the presence of three outer spines on the exopodal rami of the P2-P4, the one-segmented P4 endopodite with a single seta, and the thick outer spine on the second exopodal segment of the male P3. So far, the *cesareae* group is known to be

distributed throughout the Mediterranean Sea and along western African shores.

Loureirophonte subterranea (Lang) comb. nov. is the only species attributed to *subterranea*-group. This species, known from the Californian Pacific coast, differs from the two other groups because of the unique combination of the following characteristics: two outer spines on the exopodal rami of P2-P4, the P4 endopodite with two setae, and a rather normal outer spine on the second exopodal segment of the male P3. The *subterranea* group seems to have evolved from the *catharinensis* group, for both groups share features in the P4 endopodite (two setae) and in the male P3 exopodite (normally transformed outer spine).

Key to the species of *Loureirophonte*

1. Distal exopodal segments of P2, P3 and P4 with three outer spines; endopodite P4 with one seta *cesarae* group: 2
 - Distal exopodal segments of P2 and P3 with three outer spines, of P4 with two outer spines; endopodite P4 with two setae *catharinensis* group: 4
 - Distal exopodal segments of P2-P4 with two outer spines; endopodite P4 with two setae *subterranea* group: *L. subterranea* (Lang)
2. Middle exopodal segments of P2-P3 without an inner seta; baseoendopodite P5 of the female with three setae/spines *L. majacola* spec. nov.
 - Middle exopodal segments of P2-P4 with an inner seta; baseoendopodite P5 of the female with four setae/spines 3
3. Furcal rami twice as long as wide; dimorphic seta of the male P3 with a lobed inner margin *L. mediterranea* spec. nov.
 - Furcal rami three times as long as wide; dimorphic seta of the male P3 with a spinulose inner margin *L. cesaraea* (Por)
4. Median exopodal segments of P2 and P3 with an inner seta 5
 - Median exopodal segments of P2 and P3 without an inner seta 6
5. Second antennular segment with a large, sharp process; furcal rami cylindrical, about twice as long as wide *L. isabelensis* Mielke
 - Second antennular segment with a minute, blunt process; furcal rami tapering posteriad, nearly four times as long as wide *L. furcata* spec. nov.
6. Female exopodite P5 long ovate, almost 2.5 times as long as wide; furcal rami 2.5 times as long as wide; inner seta of P4 endopodite minute
 - *L. majahualensis* spec. nov.
 - These characteristics not combined 7
7. Second endopodal segment P3 twice as long as first; endopodal setae of P4 equal in length; P2 endopodite as long as two exopodal segments
 - *L. paranaensis* Jakobi
 - These characteristics not combined 8
8. Endopodal segments P3 equal in length; endopodite P3 reaching only halfway the second exopodal segment; inner endopodal seta of male P3 as long as the entire endopodite *L. laingensis* spec. nov.
 - Second endopodal segment P3 twice as long as first; endopodite P3 as long as the two exopodal segments; inner endopodal seta of male P3 shorter than supporting segment *L. catharinensis* Jakobi

catharinensis species-group**Louireiophonte catharinensis** Jakobi, 1953

Louireiophonte catharinensis Jakobi, 1953: 48-52, fig. 1; Vervoort, 1964: 332; Lang, 1965: 444; Wells, 1976: 177; Bodin, 1979: 154 (*Laophontidae incertae*); Mielke, 1981: 137; Wells, 1983: 6; Bodin, 1988: 207 (*Laophontidae incertae*).

Material.— No material examined; attempts to locate the type-material failed.

Type-locality.— Brazil: Porto Belo and Itapocoró (Jakobi, 1953).

Discussion.— As stressed previously (Vervoort, 1964; Lang, 1965), the description and illustrations of *Louireiophonte catharinensis* are quite inaccurate and lack sufficient detail. However, the discovery of several new species belonging to the genus allows us to reconsider the figures and to rectify the species description.

The illustration of the P1 endopodite is clearly erroneous as already stated by Vervoort (1964), Lang (1965), and Mielke (1981). The large and obvious articulation zone between the basis and the first endopodal segment has been interpreted as a separate segment. Furthermore, the presence of only four setae on the second exopodal segment is doubtful. It seems reasonable to believe that an apical seta has been overlooked, as in all other species the second exopodal segment is known to bear two apical setae besides the three lateral ones.

In the illustrations of P2 and P3, the confusion about the exact nature of the armature on the segments is striking. Differentiation in setae, spines and spinules lacks completely, making recognition rather hazardous. It is obvious that endopodal segments possessing two outer setae/spines, as listed in Jakobi's table for the P2, are highly unlikely. Therefore it is considered herein that the setal formula of the "P2" (see below) is 0-120 or 0-121 at the most.

Moreover, regarding the general appearance of the figures of the legs, it is most likely that P2 and P3 are interchanged. Characterized by the presence of a short proximalmost inner seta and a single apical feather - an important generic diagnostic feature - Jakobi's illustration of the female, captioned as P3 undoubtedly represents the P2. Consequently, the illustrations and columns in Jakobi's table of the setal formulae indicated as P2 have to be considered as P3.

Finally, the endopodites of the male P2 and P3 were described as three-segmented rami. In respect to the nature of the thickened part of the armature on the P2 endopodite, it seems beyond doubt that those rami are two-segmented as observed in all other species of the genus.

In the light of these conclusions, a revised diagnosis of the species is given and the setal formula of the legs is amended in table 1.

Revised diagnosis.— Louireiophontid species with furcal rami 2.5 times as long as wide, slightly tapering posteriad. Anal operculum rounded. Antennule six-segmented without a spiniform process on the second segment. First endopodal segment of P1 about five times as long as wide. Second exopodal segment P2-P4 without an inner seta. Third exopodal segments of P2 and P3 with three outer spines, and of P4 with two outer spines. Endopodites of P2 and P3 reaching towards the articula-

tion between second and third exopodal segments. P5 exopodite ovate, twice as long as wide. Baseoendopodite reaching halfway the exopodite. Sexual dimorphism: antennule six-segmented (?). Exopodites P2-P4 robust, having long and curved outer spines. Endopodites with typical dimorphic features. Outer setae of P5 exopodite remarkably short.

Lengths.— ♀: 450 µm, ♂: 350 µm.

Variability.— Jakobi (1953: 50) mentions females having a two-segmented endopodite in their left P4. The presence of setae on the proximal segment of these abnormal rami seems doubtful regarding the confusion between setules and setae in Jakobi's descriptions.

Known range.— *L. catharinensis* is only known from the type-region (Jakobi, 1953).

***Loureiophonte furcata* spec. nov.**
(figs. 1a-b, 2a-g)

Material.— Holotype, ♂ (KBIN), Oman, Muscat, Qurm: Sultan Qaboos Park. In front of the mangrove channel near the cliff, at low tide. Washing of "aufwuchs" gathered in the littoral zone, M. Jangoux, iv.1982, IG: 26431 (dissected, mounted on a single slide and labelled COP 2249).

Description.— Female unknown.

Male (holotype) with a fusiform body, tapering posteriad (fig. 1a, b). Length, measured from rostral tip towards distal margin of furcal rami: 465 µm. Largest width near the posterior margin of the cephalothorax and the second thoracic somite. Anal operculum strongly convex, nearly triangular.

Integument of cephalothorax and of the pleurotergites densely clothed with minute spinules. Pleural regions and posterior margins of the somites fringed with large spinules except for the smooth posterior margin of the cephalothorax. Median dorsal part of the first and second abdominal somite slightly elevated and more densely furnished with spinules. Ventral surface of the abdominal somite with a transversal row of spinules in the posterior third of each somite and along the posterior margin (spinulose aspects of the integument omitted in the illustrations). Anal operculum set with large spinules.

Furcal rami (fig. 2a) almost four times as long as wide, slightly tapering posteriad. Lateral setae implanted sub-distally. Dorsal seta, articulating on two basal parts arising in the distal third. Integument smooth except for a short latero-dorsal row of strong spinules in the posterior third and some slender and fragile spinules distally.

Antennule (fig. 2g) seven-segmented. Second segment with a small blunt process on its dorsal surface. Aesthetasc on segment four. Chirocerate claw composed of three segments. Dorsally directed surface of first and second segments densely clothed with slender spinules (not illustrated).

P1 (fig. 2b) typical, having two-segmented rami. First endopodal segment four times as long as the exopodite.

P2 (fig. 2c) with endopodite reaching halfway the median exopodal segment. Sub-apical dimorphic seta setulose with a less obvious node in the upper part.

P3 (fig. 2d) with subequal endopodal segments, reaching halfway the median exopodal segment.

P4 (fig. 2e) having an endopodite twice as long as wide. Outer endopodal seta nearly twice as long as the supporting segment.

P5 (fig. 2f) typically with one endopodal and five exopodal setae. Inner exopodal seta with strong setules and a thick stem.

Discussion.— Although the description is based on a single damaged male specimen, the affinities of this species to *Louireiophonte* and more precisely to the *catharinensis*-species group are obvious.

L. furcata spec. nov. is clearly distinguished from the other species of the group by its long, slightly tapering furcal rami and the triangular shape of the anal operculum.

With *L. isabelensis*, *L. furcata* spec. nov. shares a setal formula exhibiting inner setae on the median exopodal segments of P2 and P3, but differs from the former by the markedly longer furcal rami, as well as by the blunt shape of the antennular process and the setulose ornamentation of the dimorphic subapical seta of the P2 endopodite.

***Louireiophonte isabelensis* Mielke, 1981**

Louireiophonte isabelensis Mielke, 1981: 131-138, figs. 6-10; Wells, 1983: 6.

Material.— Holotype, ♀ (MCG), Galapagos Islands: Isabela, north side of the island [dissected and mounted on 13 slides, labelled II Gal 49 (a-m)]. Paratypes: 2 ♀♀ + 2 ♂♂ (all dissected) [not examined].

Diagnosis.— Louireiophontid species with furcal rami 2.5 times as long as wide. Antennule with a large and sharp process on the second segment. Distal exopodal segments of P2 and P3 with three outer spines, of P4 with two spines. Inner apical seta of third exopodal segment P4 only slightly longer than supporting segment. Endopodite P3 with one inner seta and two apical ones. P5 with four baseoendopodal setae and five exopodal ones. Sexual dimorphism: exopodites P3 and P4 much stronger than in the female. Endopodal setae of P3 and P4 stronger than in the female.

Lengths.— ♀: 350-390 µm, ♂: 430-350 µm.

Known range.— *L. isabelensis* Mielke is distributed throughout the Galapagos Archipelago. Specimens were found in samples from Fernandina, Isabela, Santa Cruz and Hood (Mielke, 1981).

***Louireiophonte laingensis* spec. nov.**

(figs. 3a-d, 4a-j)

Material.— Holotype, ♀ (KBIN), Papua New Guinea, Madang province, Laing Island. Northern reef flat: *Halimeda*-algae and fine sand between dead coral branches. J. Van Goethem, 22.v.1978, IG: 25848 (field # PNG 78-120) [dissected, mounted on two slides (COP 3477 a, b)]. Paratypes: 1 ♂ (allotype, here designated) [dissected, mounted on two slides (COP 3378 a, b)]; 2 ♀♀ (dissected) (COP 3431, 3432), ♂ (dissected) (COP 3397); 2 ♀♀ + 6 ♂♂ (preserved in alcohol) (COP 3676, RMNH F 1006).

Description.— Female habitus (fig. 3a, holotype) with typical appearance. Largest width near the posterior margin of the cephalothorax. Second genital somite

almost as wide as the maximal length of the genital double-segment. Length: 350 μm (340-375 μm , $n = 4$).

Furcal rami cylindrical, three times as long as wide and having a distinct inner extension in the proximal third of the inner margins. Dorsal seta arising on a small elevation and articulating on two basal parts.

Integument of cephalothorax and rostrum densely clothed with minute spinules. Posterior margin of the cephalothorax smooth. Integument of thoracic and abdominal somites furnished with short striae. Posterior margins of thoracic and abdominal somites fringed with spinules and fragile hairs except for the first genital somite, having spinules only. Medio-dorsal region of second and third abdominal somite slightly elevated and similarly ornamented. Anal operculum spinulose. Ventral surface of genital double-somite striated as in *L. isabelensis*. Postero-ventral margin set with hairs. Ventral surface of the other abdominal segments smooth, except for a transversal row of short spinules in the distal third of the surface of the third abdominal somite. Postero-ventral margins spinulose.

Antennule (fig. 3c) six-segmented, densely clothed with small spinules on the dorsally directed surface of the segments. Ventral surface and lateral margins of the first segment with rows of longer spinules. Second segment with a small triangular process. Setal ornamentation: 1-8-6-2+aesth.-1-12.

Antenna and mouthparts as in *L. isabelensis*.

P1 (fig. 4a) with a first endopodal segment almost six times as long as wide. Endopodal claw smooth.

P2-P4 (fig. 4b-d, respectively) with typical segmentation of the rami. Endopodite P2 shorter than two exopodal segments and endopodite P3 slightly longer than the first exopodal segment. Endopodite P4 with one inner long and one outer short seta. Inner apical seta of the third exopodal segment of P4 shorter than the outer spine. Outer margins of the exopodal rami densely set with spinules. Chaetotaxy as in table 1.

P5 (fig. 4j) with four baseoendopodal setae/spines. Exopodite oblong, nearly 1.5 times as long as wide. Anterior surface of the rami densely clothed.

Male.— Habitus more slender than in the female (fig. 3b). Length: 300 μm . Dorsal integument of the somites furnished as in female. Ventral surface of the first, second and third abdominal somites each with a transversal row of short spinules in the posterior third of the surface. Postero-ventral margins of the abdominal somites spinulose.

Antennule (fig. 3d) seven-segmented with first and second segment as in the female. Ultimate segment with a blunt extension.

P2-P4 (fig. 4e-g, respectively) with strong exopodal rami. Transformed seta of P2 with a bulbous proximal part, a hairy node medially and an unincised lamellar subdistal structure. Exopodite P4 rather short, bearing strongly armed outer spines on each segment. Outer seta of P4 endopodite much longer than in the female, about $\frac{3}{4}$ of the length of the inner seta.

Innermost seta of the exopodite P5 (fig. 4i) stronger than the other setae and armed with stout spinules. Exopodal ramus slightly longer than wide.

Variability.— One male exhibited a P3 endopodite with only one inner and one apical seta (fig. 4h).

Discussion.— Amongst the six species of the *catharinensis* species-group, *L. lain-*

gensis spec. nov. resembles closely the two problematic species, *L. paranaensis* and *L. catharinensis*. Because of the less accurate descriptions of the two Brazilian species, the features distinguishing *L. laingensis* spec. nov. from both other species may appear to be of minor importance. However, in the absence of the more detailed description of *L. catharinensis* and *L. paranaensis*, the specimens from Papua New Guinea described herein are considered as representatives of a distinct species.

L. laingensis spec. nov. differs from *L. paranaensis* in the shorter P1 endopodite (first endopodal segment four times as long as wide in the former, six to seven times in the latter) and the very short outer seta on the P4 endopodite (sub-equal in the latter).

The most obvious differences between *L. laingensis* spec. nov. and *L. catharinensis* are the proportional lengths of the endopodites of legs and the lengths of the setae on the male P3 and P5.

Loureirophonte majahualensis spec. nov.
(figs. 5a-e, 6a-j, 7a-d)

Material.— Holotype, ♀ (KBIN), Mexico, Quintana Roo, Majahual. Washings of *Halimeda*-algae gathered on the reef at low tide. D. Torruco (CINVESTAV-IPN), IG: 27849 [dissected, mounted on two slides (COP 3671 a and b)]. Paratypes: 1 ♂ (allotype, here designated) (dissected, mounted on two slides and labelled COP 3672 a and b); 6 ♀♀ + 7 ♂♂ [preserved in alcohol (COP 3674, 3675 and RMNH F 1007)]; ♂ (dissected) (COP 3673 a and b).

Description.— Female (holotype): habitus typical, with laterally extended abdominal somites (fig. 5a). Length: 370 µm (360–400 µm, n = 5). Largest width near the posterior margin of the cephalothorax. Anal segment rounded.

Furcal rami 2.5 times as long as wide. Inner proximal margin with a distinct process. Dorsal seta arising in distal third. Inner apical seta short and stout.

Integument of the cephalothorax and of the other somites densely furnished with minute spinules. Median dorsal region of genital somites and second abdominal somite with a pattern of slightly stouter spinules. Posterior margins of the somites set with small spinules. Anal operculum spinulose. Ventral surface of genital double-somite partly furnished with integumental lines (fig. 5c). Extended parts of genital somites and second abdominal somite with markedly larger spinules. Posteroventral margins of the abdominal somites set with long and slender spinules.

Antennule (fig. 7d) six-segmented with aesthetasc arising from segment four. Second segment with a small blunt process. Each segment dorsally densely clothed with spinules. Setal ornamentation: 1-9-6-2+aesth.-1-12.

Antenna as in *L. isabelensis* except for four armed exopodal setae. Maxilliped with an endopodal claw slightly longer than the supporting segment.

P1 (fig. 6a) typical. First endopodal segment five times as long as wide. Endopodal claw armed with a few teeth in distal half.

P2 (fig. 6b) with sub-equal endopodal segments. Endopodite reaching just beyond the articulation between first and median exopodal segments. P3 (fig. 6c) with a long cylindrical extension of the basis, supporting the outer seta. Endopodite reaching towards the middle of the median exopodal segment. P4 (fig. 6g) with a small ultimate exopodal segment, bearing a long smooth inner apical seta. Endo-

podite slightly longer than twice the width. Outer endopodal seta minute, inner one reaching beyond the ultimate exopodal segment. Setal formula of the legs in table 1.

P5 (fig. 7c) with five exopodal and four endopodal setae/spines. Endopodal process of baseoendopodite not reaching the middle of the exopodite. Exopodite slightly longer than twice the width. Posterior surfaces of the rami smooth, anterior surfaces clothed with spinules.

Male.— Habitus tapering posteriad. Largest width near the posterior margin of the cephalothorax. Length: 310 μm (305–335 μm , $n = 5$). Dorsal integumental structures as in the female (fig. 7a). Ventral surface of first abdominal somite with several curved transverse rows of long spinules. Second and third abdominal somites with transverse rows of spinules in the distal half of the surface and along the posterior margin.

Antennule (fig. 5d) seven-segmented. Second segment with a small blunt process. Ultimate segment sharp. Fourth segment with aesthetasc. First and second segment furnished dorsally with spinules. Surface of the other segments smooth.

P2 (fig. 5d-e) with stronger exopodal segments. Exopodal spines of the second and third segments smooth. Dimorphic seta with a bulbous proximal part and a plate-shaped distal node. P3 (fig. 5f) with exopodite as in P2. Second endopodal segment with three setae having rather strong setules along their stem. P4 (fig. 5j) with armed exopodal spines. Inner apical seta of the ultimate segment short. Endopodite at the most twice as long as wide, bearing two setae with stout setules.

Exopodal segment of P5 twice as long as wide (fig. 7b). Innermost exopodal seta rigid, markedly stronger than the accompanying setae.

P6 (fig. 7b) with a setulose inner seta and a smooth outer one.

Variability.— Males were encountered with a two-segmented exopodite in the P4 (fig. 6i) or with an aberrant setal formula on the endopodite and on the third exopodal segment of P4 (fig. 6j). One male has a left P5 represented as two spines (fig. 5e) and bears three setae on the left P6 (fig. 5b).

Discussion.— *L. majahualensis* spec. nov. differs in several aspects from all other members of the *catherinensis* species-group. The rather short furcal rami (2.5 times as long as wide), the long ovate female P5 exopodite, and the long inner distal seta of the third exopodal segment of the female P4 are unique features within the species-group.

Loureirophonte paranaensis Jakobi, 1953

Loureirophonte paranaensis Jakobi, 1953: 52, 54, fig. 2; Vervoort, 1964: 332; Wells, 1976: 177; Bodin, 1979: 154 (*Laophontidae incertae*); Mielke, 1981: 137; Wells, 1983: 6; Bodin, 1989: 207 (*Laophontidae incertae*).

Material.— No material examined; type-material not available.

Type-locality.— Brazil: Porto Belo, Itapocorói (Jakobi, 1953).

Discussion.— While the description of *L. catharinesis* contains at least some particularities about the leg morphology, the illustrations and descriptions of the appendages

of *L. paranaensis* almost completely lacks sufficient detail. Moreover, since the male of the latter is unknown, we have no information about the most important generic features. Regarding, however, the reduced setal ornamentation of the legs (especially the presence of only two outer spines on the ultimate exopodal segment of the P4), the two-segmented P1 exopodite, the long and divergent furcal rami, and the chaetotaxy of the P5, there is little doubt about the designation of *L. paranaensis* to the genus *Loureirophonte*.

As for *L. catharinensis* and the setal lengths of Jakobi's illustrations of the P2 and P3, it is likely that both legs are interchanged. Comparing the setal lengths of the P2 and P3 in the herein described *L. laingensis* spec. nov. and *L. majahualensis* spec. nov., we see that the inner distal seta of the P3 endopodite is markedly longer than the outer one, while the sub-distal seta of the P2 endopodite is clearly shorter than the distal seta. In contrast, the illustrations captioned as P2 and P3 in the description of *L. paranaensis* exhibit setal ornamentations with proportional lengths observed, respectively, in the P3 and P2 of the above-mentioned species. As such, it is believed herein that the drawings of the P2 and P3 are interchanged in the Jakobi's description of the species. Finally, a chaetotaxy with two outer endopodal setae in the P3 (captioned as P2) and with a seta or spine in the middle of the outer margin of the second endopodal segment of the P2 (captioned as P3) seems highly improbable. The so-called setae correspond as a matter of fact to setules and are omitted in table 1, compiling the setal formulae of the several species.

Revised diagnosis.— Loureirophontid species with furcal rami at least three times as long as wide. Antennule as in *L. catharinensis*. Endopodite P1 long and slender. Exopodites of P2-P3 with three outer spines, of P4 with two outer spines, on the distal segment. Second endopodal segment P3 with one inner seta and two apical setae (and one outer seta?). Endopodite P3 reaching beyond the articulation between second and third exopodal segment. Endopodite P4 with two sub-equal setae. Baseo-endopodite P5 with four setae/spines. Exopodite ovate, 1.5 times as long as wide. Sexual dimorphism: male unknown.

Length.— ♀ : 350 μm.

Known range.— *L. paranaensis* is known from Porto Belo and Itapocorói (Santa Catharina), Brazil. The species was found in eulittoral phytal samples, together with *L. catharinensis*.

cesareae species-group

Loureirophonte cesareae (Por, 1964) comb. nov.

(fig. 8a-g)

Laophonte cesareae Por, 1964: 116-117, figs. 273-281; Lang, 1965: 447; Wells, 1976: 177, 189; Bodin, 1979: 140; Fiers, 1987: 297; Bodin, 1989: 189.

Material.— Type-series: 19 ♀♀ + 7 ♂♂ (Zoology Department of the Hebrew University, Jerusalem), labelled COP.25, Israel: eulittoral zone in front of Cesarea (Stat. 1 and Stat. 2 in Por, 1964) [not seen]; 2 ♀♀ + 2 ♂♂ (RMNH F 1005), labelled as paratypes (see also Fiers, 1987), Station 2, Cesarea, Mediterranean coast of Israel, 12-7-60, F.D. Por, 1963 (preserved in alcohol).

Description.— The specimens studied are not dissected. They are so small that drawings and descriptions of the appendages in question could be made without dissection.

Female.— Habitus (fig. 8a): length, including rostrum and furcal rami: 410 μm . Body slender with distinct lateral expansions of the genital segments and the second abdominal one. Largest width at the second genital segment. Cephalothorax with rounded postero-ventral edges, only slightly posteriorly extended.

Integumental structures: surface of the cephalothorax, thoracic and abdominal somites densely furnished with minute spinules. Dorso-median area of the second genital somite with a triangular pattern of coarser spinules. Second and third abdominal somites and anal operculum provided with almost parallel dorsal transversal rows of coarser spinules. Ventral surface of the genital somites smooth except for some cuticular lines in front of the genital area. Second abdominal somite smooth, and third and anal somites spinulose. Posterior margin of the cephalothorax smooth, those of the other somites spinulose with hairs implanted between the spinules. Lateral margins of genital and abdominal somites set with long spinules. Anal operculum convex and spinulose.

Rostrum tapering strongly in anterior direction. Rostral tip bifid.

Furcal rami three times as long as wide, cylindrical. Dorsal surface set with minute spinules. Inner margin with a transverse row of long spinules near the articulation with the supporting somite. Lateral setae sub-distally implanted.

Antennule six-segmented, having a small and blunt process on the second segment. Dorsal surface of the segments entirely covered with minute spinules. Several setae are lacking but the setal ornamentation seems to be identical as in *L. mediterranea* spec. nov. (see below).

P1-P4 typical. Chaetotaxy of the legs in table 1. Endopodites P2 and P3 reaching halfway the second exopodal segment. Endopodite P2 with two inner setae and an apical one (captioned as P3 in Por, 1964: fig. 277). Endopodite P3 with two apical setae. Exopodal spines armed with minute teeth.

P5 baseoendopodite with a rounded endopodal process, bearing four setae/spines. Exopodite reaching far beyond the endopodal and process bearing five setae. Anterior surface of both rami densely clothed with spinules. Lateral margins of the rami with long spinules.

Male.— Habitus more slender than the female. Length: 350 μm . Integumental structures as in the female. Ventral surface of the abdominal somites smooth, except for a transverse row on the second and third abdominal segment. Postero-ventral margins of the abdominal somites set with long spinules.

Antennule (fig. 8b) seven-segmented. First and second one as in the female, densely furnished with spinules on the dorsal surface. Ultimate segment with a minute apical process.

P2 exopodite slightly stouter than in the female, bearing more strongly armed outer spines. Endopodite two-segmented with a large pore near the outer distal edge of the first segment. Modified sub-distal seta bulbous, having stout setules medially. Apical endopodal seta short, reaching only halfway the sub-distal seta (fig. 8g).

P3-P4 (fig. 8c-e) with exopodites slightly stouter than in the female. Exopodal spines markedly more strongly armed except for the outer spine of the P3 exopodite which is smooth.

P5 (fig. 8f): baseoendopodal pore situated at the implantation of the seta, close to a small bump. Exopodite with long spinules near the distal margin and bearing five setae. All exopodal setae feathered.

Variability.— One paratype male specimen has two setae on the endopodite of the P4 instead of one.

Discussion.— Por (1964) designated this species to the *inornata* species-group of the genus *Laophonte*. Shortly after the original description, Lang (1965) consented to this opinion. Unfortunately, the designation of *L. cesareae* to the genus *Laophonte* originated from two errors in the description:

1 - the confusion between P2 and P3: examination of the paratypes revealed that the descriptions and illustrations captioned as P3 (fig. 277 and 279 in Por, 1964) represent the P2 while the drawing of the female P2 (fig. 276) is in fact the P3;

2 - the interpretation of the modified seta of the male P2 as an additional segment.

The setal ornamentation of the female P3 exopodite, as illustrated by Por (1964, indicated as P2, see former paragraph), lacks an inner seta on the median exopodal segment. The four paratype specimens examined here, all possess a small seta on this segment. Furthermore, the two male specimens from the Leiden collection bear a long and feathered seta on the baseoendopodite of the male P5. The male P5 figured in the original description seems to have lost this seta.

Known range.— So far, *L. cesareae* has been reported from the northern Israelian coast only. The species was found in eulittoral phytal samples.

***Louireiophonte majacola* spec. nov.**

(figs. 8h, 9a-d, 10a-d)

Material.— Holotype, ♀ (RMNH D 35798), Canary Islands, south coast of Fuerteventura near Punta de Gran Tarajal. Washing of *Maja squinado* (Herbst), Tydeman, CANCAP II expedition, 27.viii.1977 [dissected, mounted on a single slide (COP 3679)]. Paratypes: 1 ♂ (allotype, here designated) [dissected, mounted on a single slide (COP 3680)]; 12 ♀♀ + 7 ♂♂ (RMNH F 1008) (preserved in alcohol). Additional material: 2 ♀♀ + 1 ♂, south coast of Madeira, 32°38'N 16°56'W, found in washings of *Maja squinado* (Herbst) collected in the western part of the harbour of Funchal, at 0-20 m; specimen labelled RMNH D 35784, CANCAP III Sta. D03 expedition, 17.x.1978. (COP 3690).

Etymology.— The specific name is a compound of the generic name *Maja* and the Latin word *cola*, meaning living on, and refers to the association of this species with the common spider crab *Maja squinado*.

Description.— Female (holotype): habitus (fig. 8h) typically louireiophontid. Length, including rostrum and furcal rami: 400 µm.

Integumental structures: cephalothorax, thoracic and abdominal somites clothed with a dense pattern of minute spinules. Second and third abdominal somites with a dorsomedian pattern of slightly coarser spinules, arranged in transverse lines and parallel with the posterodorsal margin. Posterior margin of the cephalothorax smooth.

Posterior margins of the thoracic and abdominal somites spinulose with slender and fragile hairs between the spinules. Lateral expansions of abdominal somites set with long spinules. Ventral (fig. 9a) surface of the genital double somite smooth except for some cuticular lines around the genital area. Posterior margin of the second genital somite smooth. Ventral surface of the abdominal somites smooth. Posteroventral margins of the abdominal somites spinulose. Anal operculum set with coarse spinules. Surface of the operculum spinulose.

Rostrum strongly prominent and tapering anteriorly. Rostral tip bifid. Integument spinulose.

Furcal rami cylindrical and three times as long as wide. Lateral and dorsal setae implanted in the posterior third. Outer apical seta long and spinulose. Inner apical seta short and smooth. Dorsal surface of the rami covered with minute spinules. Inner lateral margin furnished with a transverse row of long spinules, implanted in the anterior third. Somewhat larger spinules arising near the implantation of the lateral setae and near the implantation of the outer apical one.

Antennule (fig. 9c) six-segmented. Aesthetasc implanted on the fourth segment. Second segment with a small blunt process. Dorsal surface of all segments, except ultimate segment, densely clothed with spinules. Ventral surfaces smooth. Setal ornamentation: 1-8-6-2+aesth.-1-12.

P1 as in *L. cesareae* with the first endopodal segment about five times as long as wide. P2-P4 (fig. 10a-c) with small and smooth prae-coxae. Coxae with two rows of large teeth parallel with the outer margin. Outer setae of the bases arising from a cylindrical extension of the segment. Endopodal segments of P2 equal, reaching towards the distal half of the second exopodal segment. Endopodite P3 reaching just beyond articulation between first and second exopodal segments. Distal endopodal segment of P3 only half as long as proximal one. Endopodal segment P4 with convex lateral margins. Chaetotaxy of the legs in table 1.

P5 (fig. 10i) with exopodal ramus 1.5 times as long as wide. Baseoendopodite reaching halfway the exopodite and bearing three setae. Proximalmost baseoendopodal seta smooth. Anterior surface of both rami spinulose, posterior surface smooth.

Male (allotype).— With typical habitus: tapering posteriorly and more slender than in the female. Length: 370 μm .

Integumental structures of the dorsal surfaces of the somites as in the female. Ventral surfaces of first abdominal somite with two transverse rows of spinules. Second abdominal somite with a single transverse row.

Antennule (fig. 9d) seven-segmented. First and second segment as in the female. Integument of third to seventh segment smooth. Ultimate segment slightly protruded.

P2 (fig. 10d-e) with an exopodite as in the female except for slightly stronger teeth on the outer spines. Subdistal inner endopodal seta with a bulbous proximal part and a median part with three to four blunt processes. Distal seta only half as long as the sub-distal one.

P3-P4 (fig. 10f-g, respectively) with protopodites and endopodites as in the female. Exopodites with stronger outer spines. Median segment of P3 with a thick outer spine, armed with coarse spinules along one side.

P5 baseoendopodite (fig. 10h) with a rounded endopodal process bearing the sin-

gle seta. Exopodite with spinules on the outer margin and having five setae: outermost spinulose, apical one and inner setae feathered.

P6 (fig. 9b) with a spinulose inner seta and a smooth outer one.

Discussion.— *Louireiophonte majacola* spec. nov. is easily distinguishable from the two other members of the *cesareae*-group by the presence of only three setae on the baseopodite of the female P5 (proximal one absent) and by the lack of inner setae on the median exopodal segments of P2 and P3. Moreover, *L. majacola* spec. nov. differs from all other known species by the peculiarly protruded baseopodite of the male P5.

L. majacola spec. nov. shows a reduced pattern of integumental structures on the dorsum of the abdominal somites. In the other species of the species-group the second genital somite displays a distinct triangular pattern of coarse spinules while the third abdominal and anal somites are furnished with distinct parallel rows of spinules. Although *L. majacola* spec. nov. shows a comparable pattern, the considerably smaller spinules make the typical louireiophontid abdominal integumental pattern less distinct in this species.

Known range.— *L. majacola* spec. nov. is known from the Canary Islands (type-locality) and the Azores. Apparently, this species is a close associate of the common spider crab, living sublittorally. Eulittoral phytal samples from the same region never revealed the presence of this harpacticoid species.

***Louireiophonte mediterranea* spec. nov.**

(figs. 11a-f, 12a-d, 13a-f)

Material.— Holotype, ♀ (KBIN), France, Département du Var, Canadel-sur-Mer. Sand sample with small green algae collected in the sub-littoral zone between rocks. F. Fiers, 29.vii.1982, IG. 26474 (dissected, mounted on a single slide and labelled COP 2593). Paratypes: 1 ♂ (allotype, here designated) [dissected on a single slide (COP 2594)]; 2 ♀♀ + 1 ♂, COP 2595-2597 (dissected); 4 ♀♀ + 3 ♂♂, COP 2598 (preserved). Additional material: 5 ♀♀ + 6 ♂♂ (COP 2599, RMNH F 1009), Balearic Isles, Majorca, Cala Murada, algae on the rocky shores at 0.5-1 m, C. Massin, 7.viii.1983, IG. 26642 (alcohol preserved specimens).

Etymology.— The specific name refers to the Mediterranean Sea.

Description.— Female (holotype) with typical habitus (fig. 11a-b). Body length: 350 µm.

Integumental structures: cephalothorax, thoracic and abdominal somites densely clothed with minute spinules. Posterior margin of cephalothorax smooth. Posterolateral edges of the cephalothorax furnished with long spinules. Thoracic somites with some coarser spinules around the lateral pore, along their pleural edge and near their lateral articulation with the preceding somite. Lateral expansions of the genital double somite and the second abdominal somite set with strong and long spinules. Dorsalmost area of the second genital somite and the second abdominal one with an area of coarse spinules. Posterior margins of the thoracic somites and posterodorsal margins of the abdominal somites set with spines and hairs. Ventral surface of the genital double-somite striated in the anterior half, but smooth in the posterior half. Posteroventral margin of the genital somites set with fragile hairs. Second abdominal

somite with smooth ventral surface. Third and anal segment with a spinulose ventral integument.

Furcal rami twice as long as wide. Dorsal surface covered with minute spinules. Ventral and lateral surfaces smooth. Inner margin with a row of coarse spinules in the posterior third and near the implantation of the dorsal seta. Outer margin with spinules around the implantation of the lateral setae. Lateral and dorsal setae implanted in the distal third.

Antennule (fig. 12d) six-segmented. Dorsal integument of segment I-V densely spinulose. Second segment with a small but sharp process. Setal occupation: 1-8-6-2+aesth.-1-12.

P1 (fig. 13a) with long coxa, almost three times as long as wide. Basis rather short. Both protopodal rami furnished with long spinules. Proximal endopodal segment about 5.5 times as long as wide. Endopodal claw smooth.

P2-P4 (fig. 13b-d) with typical rami. Endopodite P4 rather long, nearly half as long as the first exopodal segment. Proximal part of the endopodite P4 globular, distal part much more slender. Outer exopodal spines smooth in the P2, finely toothed along one side in the P3 and strongly armed in the P4.

P5 (fig. 13f) with a densely spinulose surface of the rami. Exopodite rather narrow near the articulation with the baseoendopodite, the latter not reaching towards the middle of the exopodal segment. All setae feathered with long setules.

Male (allotype).— With normally tapering body. Length: 330 μm .

Dorsal and lateral surfaces of the somites with integumental structures as in the female. Ventral surface of the P6-bearing somite smooth. Ventral surface of first abdominal somite set with several transverse rows of long and slender spinules (fig. 12b). Second and third abdominal somite with short rows of spinules, situated close to the lateral margins.

Antennule (fig. 12c) seven-segmented. Second segment with a small but sharp thorn. Integument of first and second segment spinulose.

P2-P4 (fig. 11d, c, b, respectively) with stronger exopodites than in the female. Outer spines of ultimate exopodal segment of the P2 smooth, but armed in P3 and P4. Second endopodal segment P2 lobed along the inner distal half and bulbous in the outer proximal half.

P5 baseoendopodite represented as a long transverse band (fig. 11f). Endopodal seta implanted on a slightly elevated socle. Exopodite bearing five setae: the outermost finely spinulose, the other setulose.

Variability.— A few specimens from the Balearic Islands have a two-segmented endopodite P4. Other specimens have a one-segmented endopodite but the original constriction of the internal integument is still obvious. The specimens from France (Canadel-sur-Mer) all bear a one-segmented endopodite P4.

Discussion.— *L. mediterranea* spec. nov. is undoubtedly closely related to *L. cesareae* and can easily be confused with the latter. However, the shorter furcal rami (only twice as long as wide), the slender P5 of the female, and the lobed modified endopodal seta in the P2 of the male discriminate the present species clearly from its congener.

Distribution.— The present species is found in phytal samples from the Balearic

Islands (type-locality) and from the Mediterranean French coast. The small dimensions of this animal make it difficult to find it between the algae. It is very likely that *L. mediterranea* spec. nov. is more widely distributed in the Mediterranean Sea.

subterranea species-group

***Loureiophonte subterranea* (Lang, 1965) comb. nov.**

Paralaophonte subterranea Lang, 1965: 503-508, figs. 276-279; Wells, 1976: 172, 190; Bodin, 1979: 146; Mielke, 1981: 131; Bodin, 1988: 195.

Material.— Type-series: 8 ♀♀ + 1 ♂ (4 ♀♀ and 1 ♂ dissected), U.S.A., California: Tomales Bay, Dillon Beach, 2 specimens deposited in the NRS [not examined].

Diagnosis.— Body slender, with slightly extended lateral wings. Furcal rami slightly longer than twice the width. Antennule without a process on the second segment. Distal exopodal segments of P2-P4 with two outer spines and without an inner apical seta. Endopodites P2-P3 reaching halfway the ultimate exopodal segments. Chaetotaxy of the legs in table 1. Exopodite P5 reaching far beyond the baseoendopodite and bearing four setae. Sexual dimorphism: endopodite P2 typical with modified sub-distal seta having spiniform processes in distal half. Exopodites P3 and P4 much stronger than in the female. Endopodite P4 two-segmented. P5 with a slightly stronger innermost seta.

Lengths.— ♀: ± 400 µm, ♂: ± 400 µm.

Discussion.— Although Lang (1965) recognized the advanced and peculiar characteristics of this species, he attributed *P. subterranea* to the genus *Paralaophonte* because of the primitive nature of the male characteristics. However, the general aspect of the body with its divergent furcal rami, the segmentation of the female endopodal rami, and most important, the sexual characteristics and chaetotaxy of the P2 endopodite in both sexes, clearly demonstrate the affinities of *P. subterranea* with the genus *Loureiophonte*.

However, regarding the chaetotaxy of the P2 and P3 exopodites, *L. subterranea* contrasts strongly with all other loureiophontids, in having only two outer spines and a single distal seta on the ultimate segments. These peculiar characteristics justify the erection of a separate group for this species.

In contrast to the other species, which are typical eulittoral algal dwellers (except for *L. majacola* spec. nov., see above; Mielke, 1981), *L. subterranea* has been encountered in the interstitial realm, up on the shore (Lang, 1965). The advanced features displayed in *L. subterranea*, apparently are adaptations to the interstitial life of the species.

Known range.— *L. subterranea* is known only from the Californian coast of the U.S.A.: Tomales Bay (Dillon Beach) and Monterey Bay, off Hopkins Marine Station (Lang, 1965).

Table 1. Chaetotaxy of the species.

Species-groups	P2		P3		P4	
<i>catharinesis</i> -group						
<i>L. catharinensis</i> ¹	0-0-023	0-210	0-0-023	0-120	0-0-022	020
<i>L. paranaensis</i> ¹	0-0-023	0-210	0-0-023	0-121*	0-0-022	120*
<i>L. isabelensis</i>	0-1-023	0-210	0-1-023	0-120	0-0-022	110
<i>L. furcata</i>	0-1-023	0-210	0-1-023	0-120	0-0-022	020
<i>L. laingensis</i>	0-0-023	0-210	0-0-023	0-120	0-0-022	020
<i>L. majahualensis</i>	0-0-023	0-210	0-0-023	0-120	0-0-022	020
<i>cesareae</i> -group						
<i>L. cesareae</i>	0-0,1-023	0-210	0-1-023	0-020	0-0-023	010
<i>L. mediterranea</i>	0-1-023	0-210	0-1-023	0-020	0-0-023	010
<i>L. majacola</i>	0-0-023	0-210	0-0-023	0-020	0-0-023	010
<i>subterranea</i> -group						
<i>L. subterranea</i>	0-0-012	0-1,220	0-0-012	0-1,220	0-0-022	020

¹: amended setal formula, see discussion of the species; *: the presence of an outer seta is doubtful.

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CINVESTAV-IPN = Centro de Investigación Estudios Avanzados-Instituto Polytecnico Nacional, Mérida, México; KBIN = Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels; MCG = Mielke collection, Göttingen; NRS = Naturhistoriska Riksmuseet, Stockholm; RMNH = Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie), Leiden; ULB = Université Libre de Bruxelles, Brussels.

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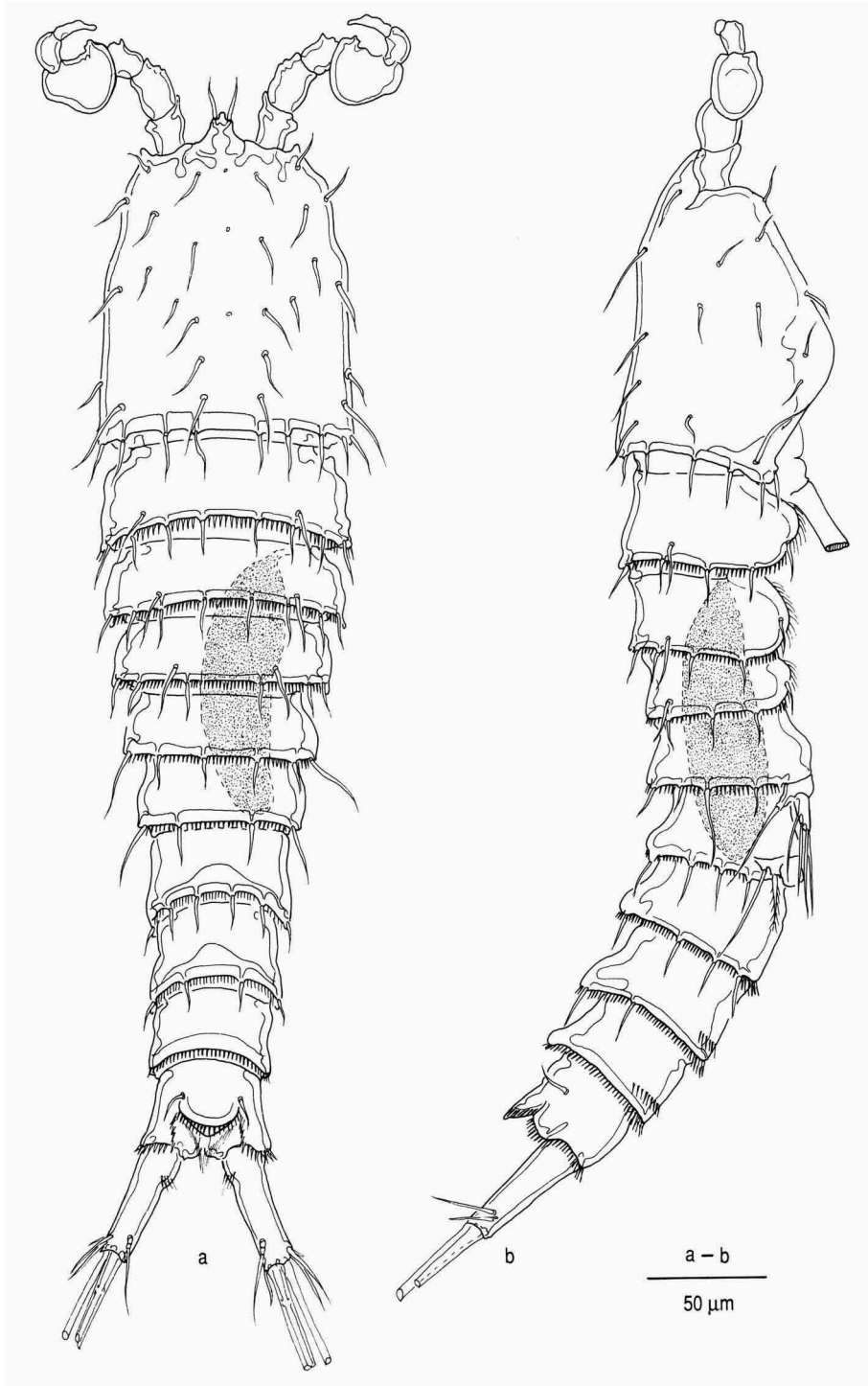


Fig. 1. *Loureirophonte furcata* spec. nov.; a, male habitus, dorsal view; b, male habitus, lateral view.

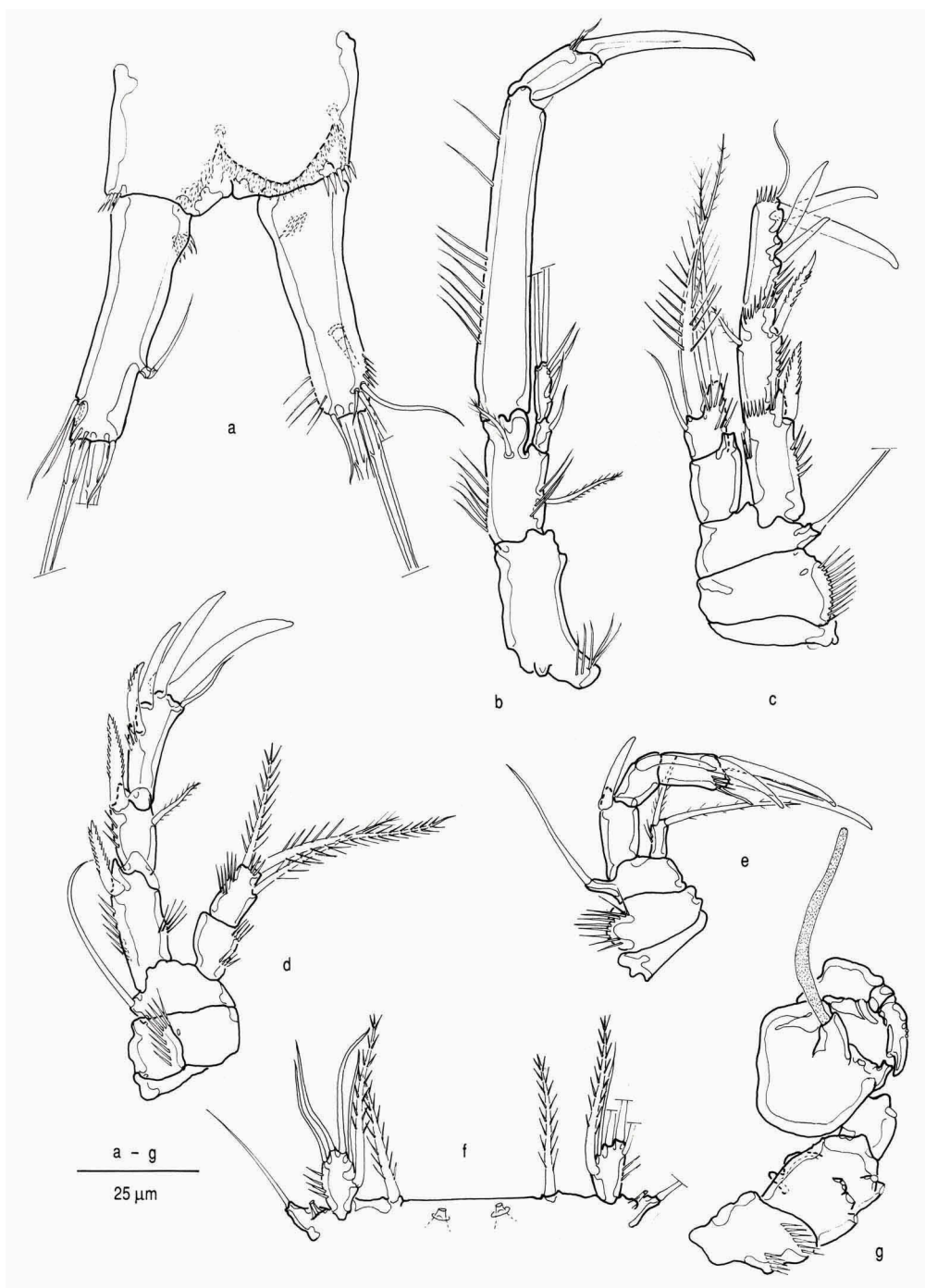


Fig. 2. *Loureirophonte furcata* spec. nov.; a, anal segment and furcal rami, ventral view (somewhat distorted); b, P1; c, P2; d, P3; e, P4; f, P5; g, contours of male antennule.

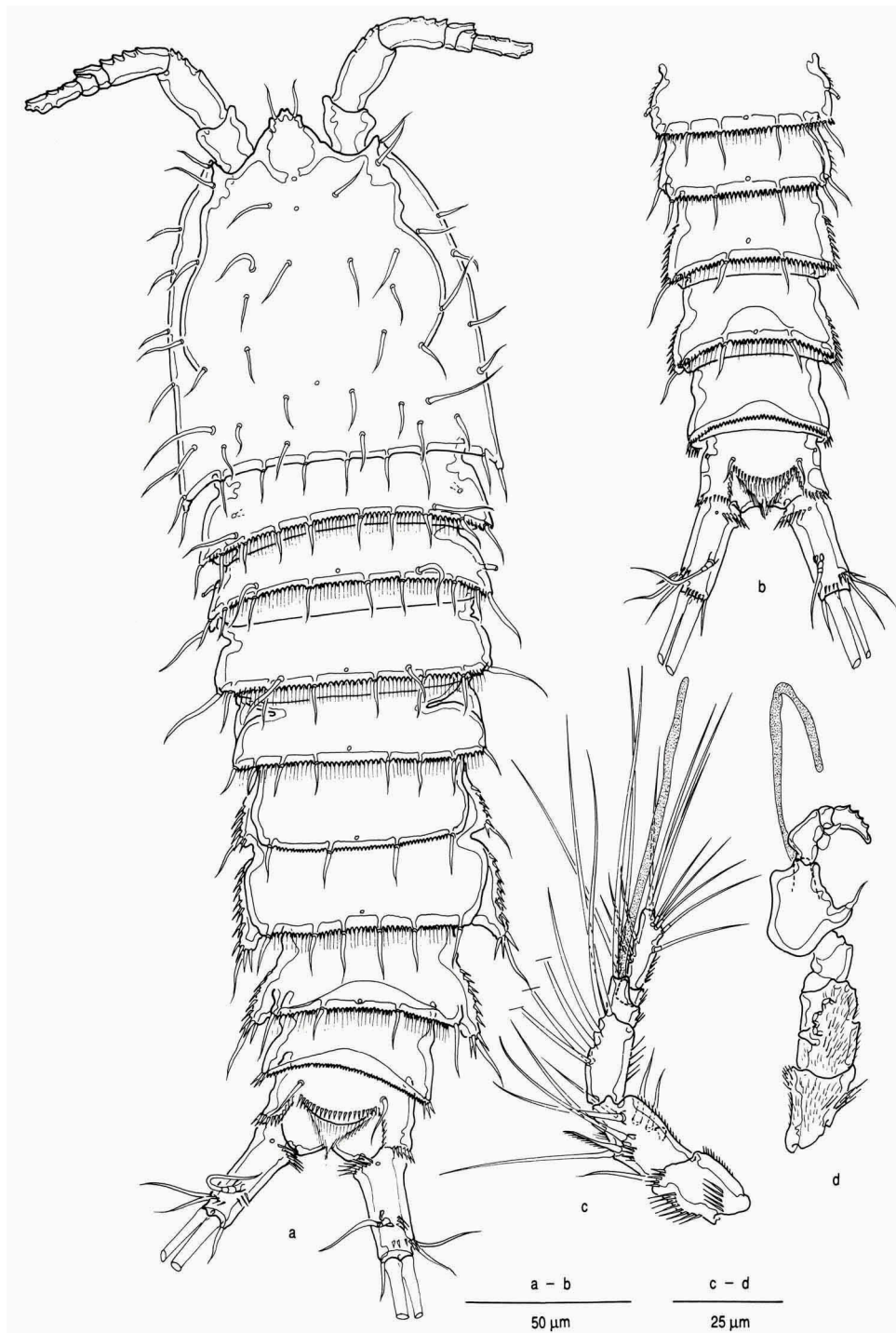


Fig. 3. *Loureirophonte laingensis* spec. nov.; a, female habitus, dorsal view; b, male abdomen, dorsal view; c, female antennule; d, contour of male antennule.

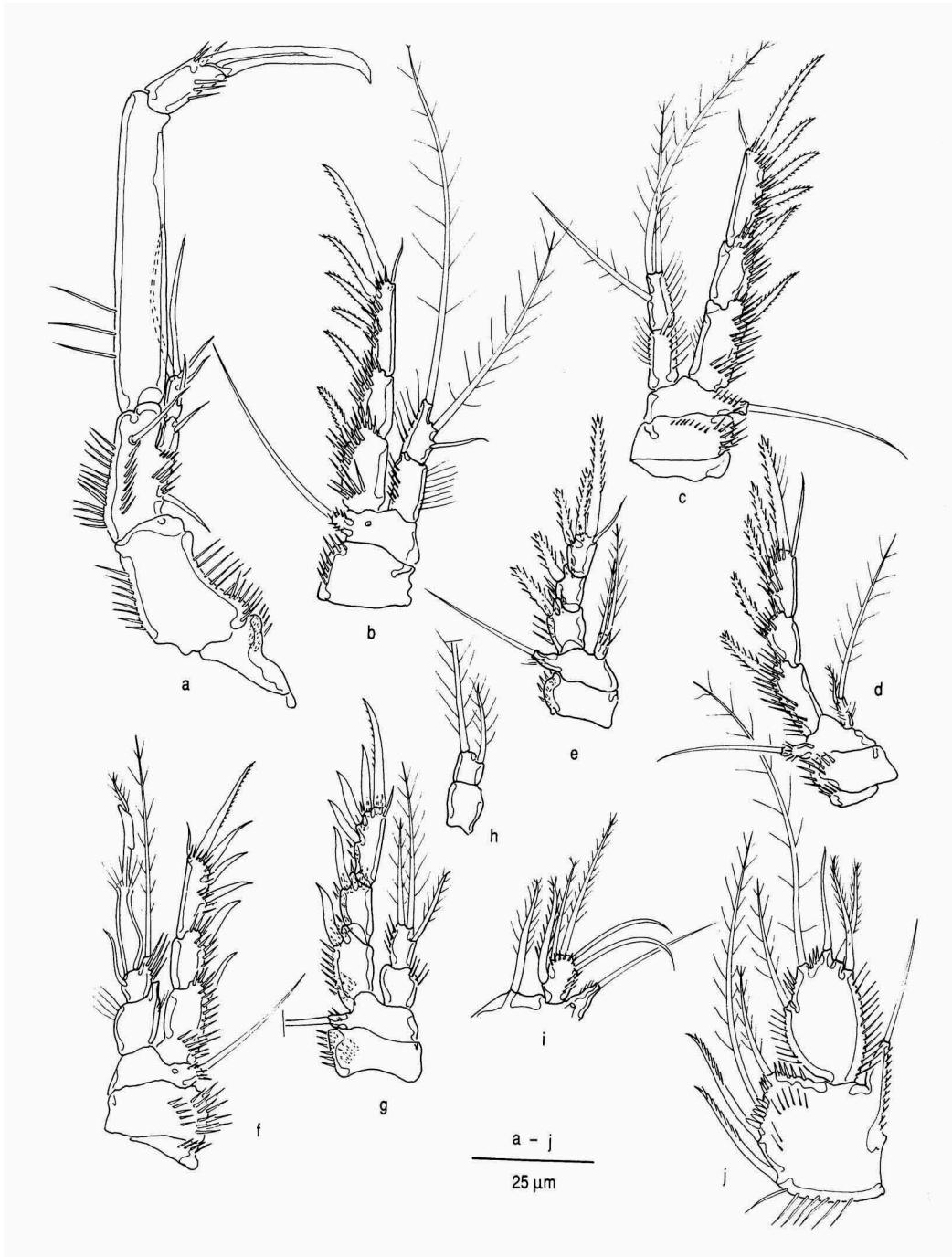


Fig. 4. *Loureirophonte laingensis* spec. nov.; a, female P1; b, female P2; c, female P3; d, female P4; e, male P4; f, male P2; g, male P3; h, endopodite P3 of another male specimen; i, male P5; j, female P5.

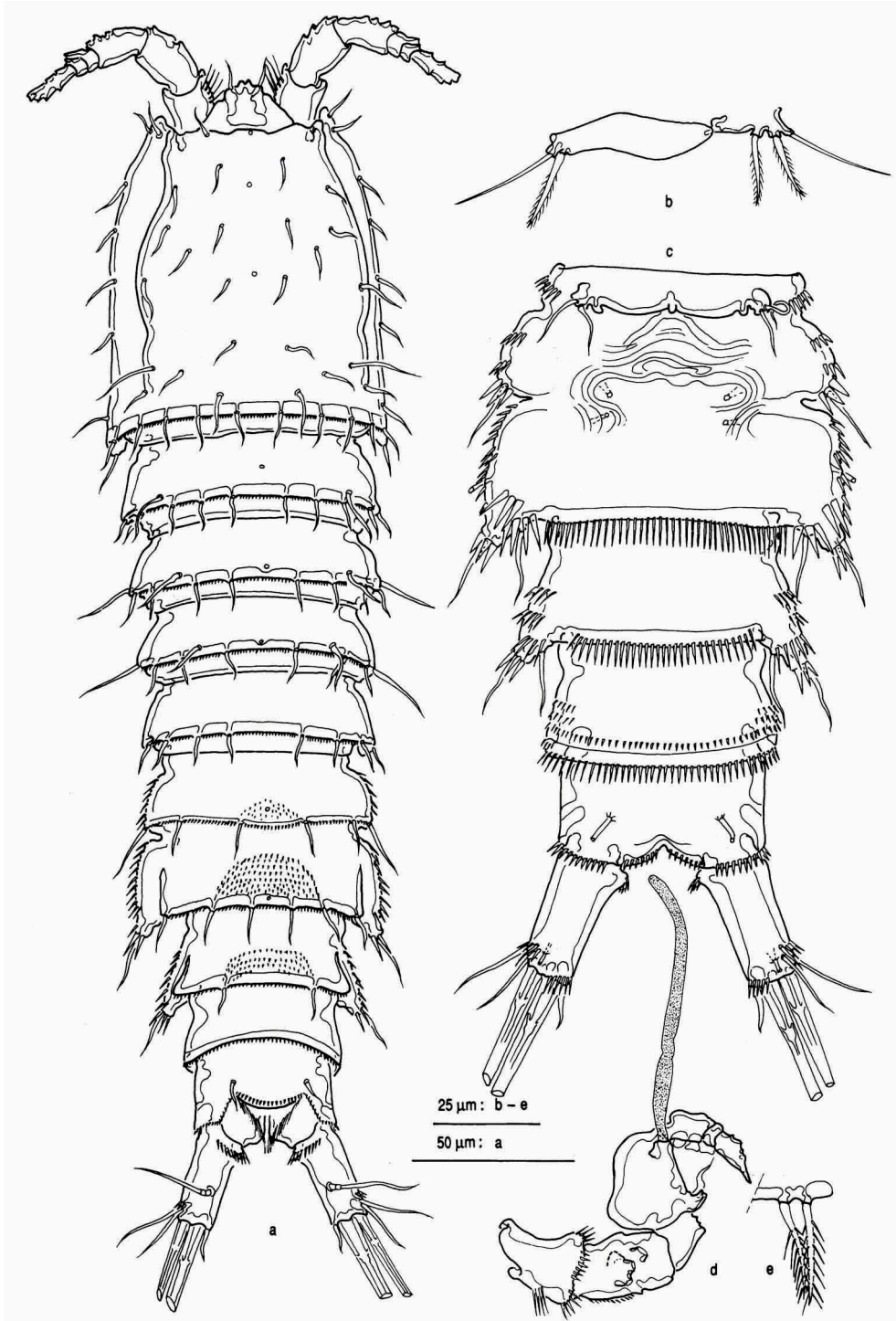


Fig. 5. *Loureirophonte majahualensis* spec. nov.; a, female habitus, dorsal view; b, male P6, abnormal; c, female abdomen, ventral view; d, contour of male antennule; e, male P5, abnormal.



Fig. 6. *Loureirophonte majahualensis* spec. nov.; a, female P1; b, female P2; c, female P3; d, male P2; e, endopodal dimorphic seta of male P2, inner view; f, male P3; g, female P4; h, male P4, abnormal; i, male P4, abnormal; j, male P4, normal.

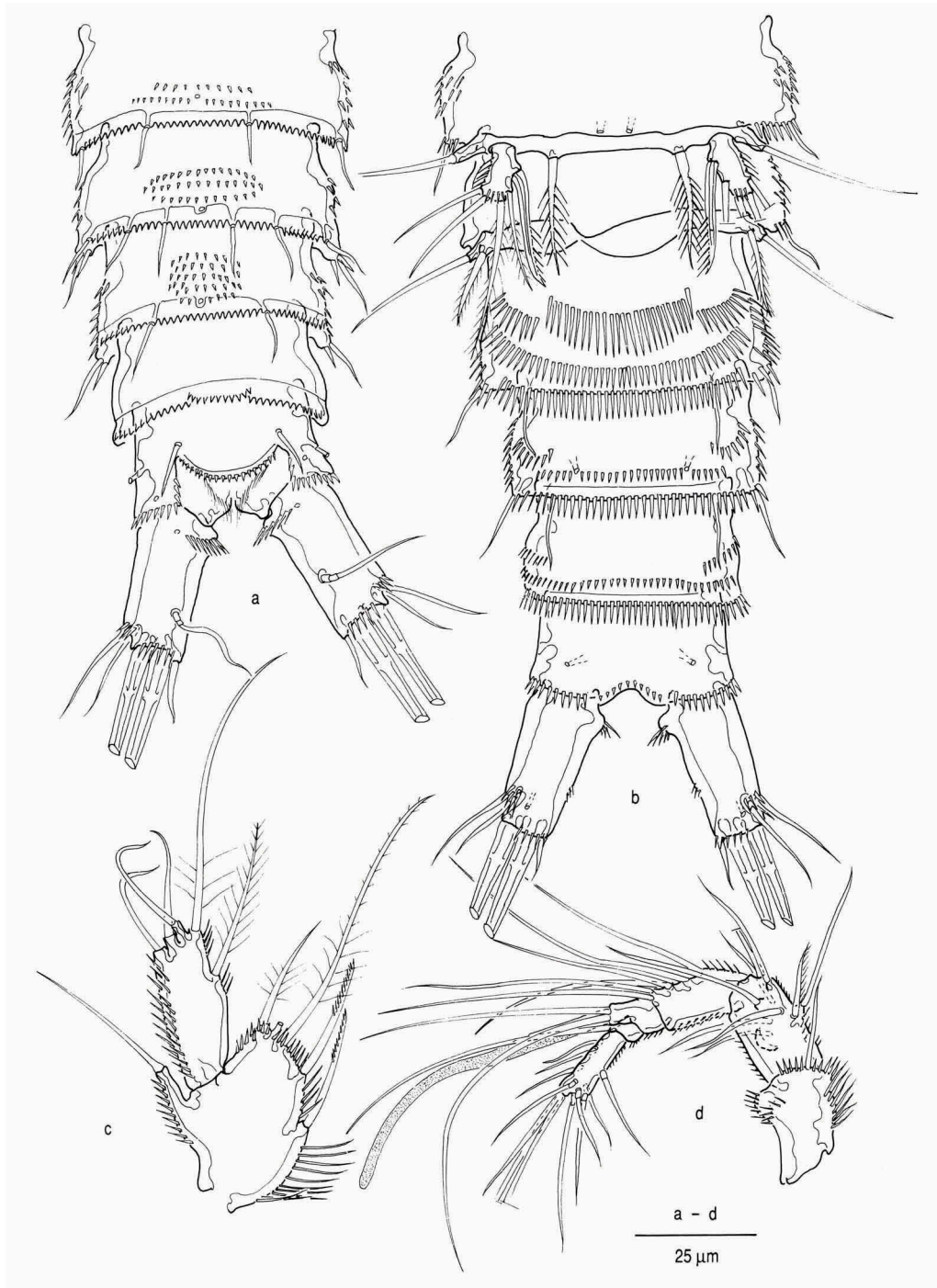


Fig. 7. *Loureirophonte majahualensis* spec. nov.; a, male abdomen, dorsal view; b, male abdomen and fifth thoracic somite, ventral view; c, female P5; d, female antennule.

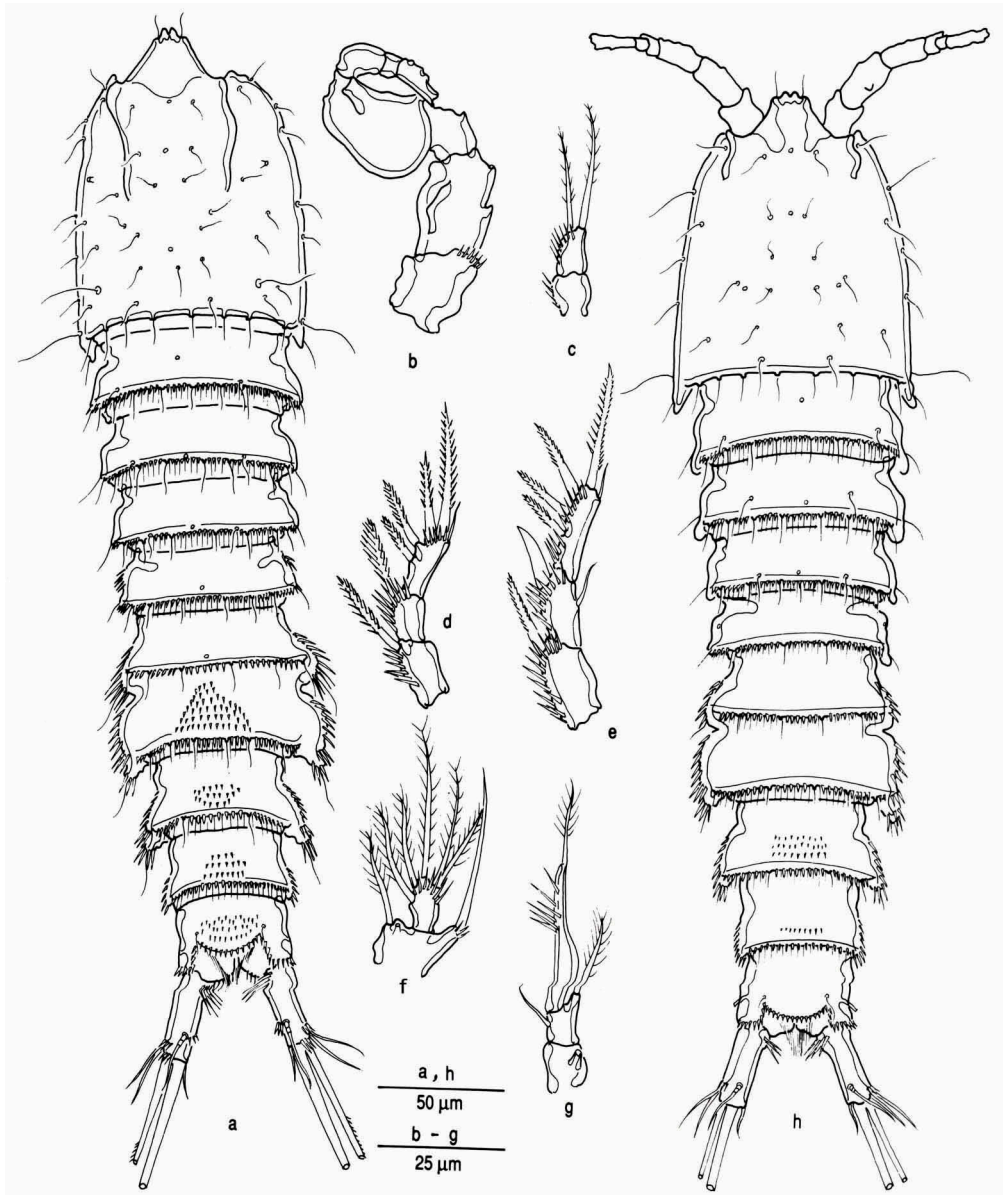


Fig. 8. *Loureirophonte cesaraea* Por, 1964; a, female habitus, dorsal view; b, contour of male antennule; c, endopodite P3, male; d, exopodite P4, male; e, exopodite P3, male; f, male P5; g, endopodite P2, male; *Loureirophonte majacola* spec. nov.; h, female habitus, dorsal view.

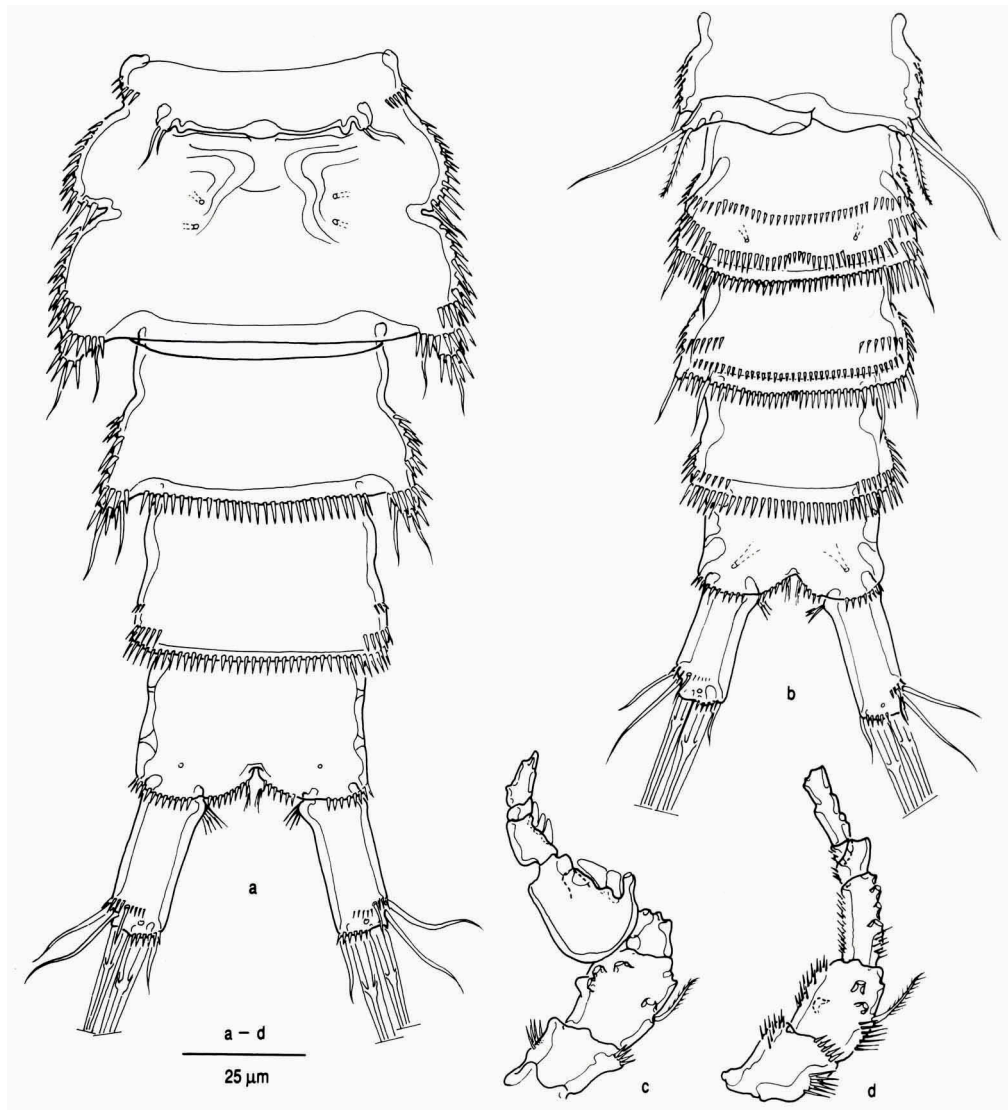


Fig. 9. *Loureirophonte majacola* spec. nov.; a, female abdomen, ventral view; b, male abdomen, ventral view; c, contour of male antennule; d, contour of female antennule.

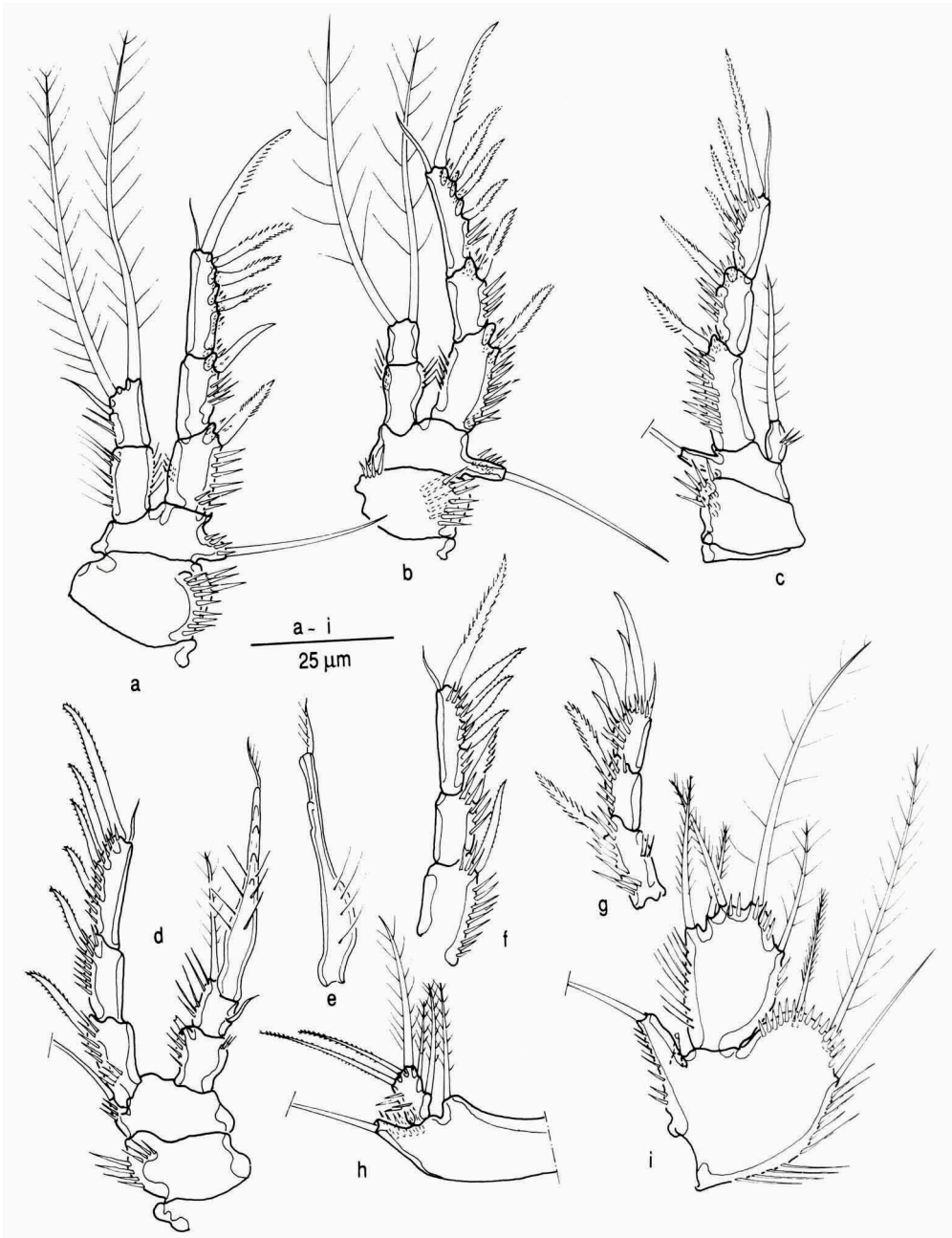


Fig. 10. *Loureirophonte majacola* spec. nov.; a, female P2; b, female P3; c, female P4; d, male P2; e, dimorphic endopodal seta male P2, lateral view; f, male exopodite P3; g, male exopodite P4; h, male P5; i, female P5, posterior view.

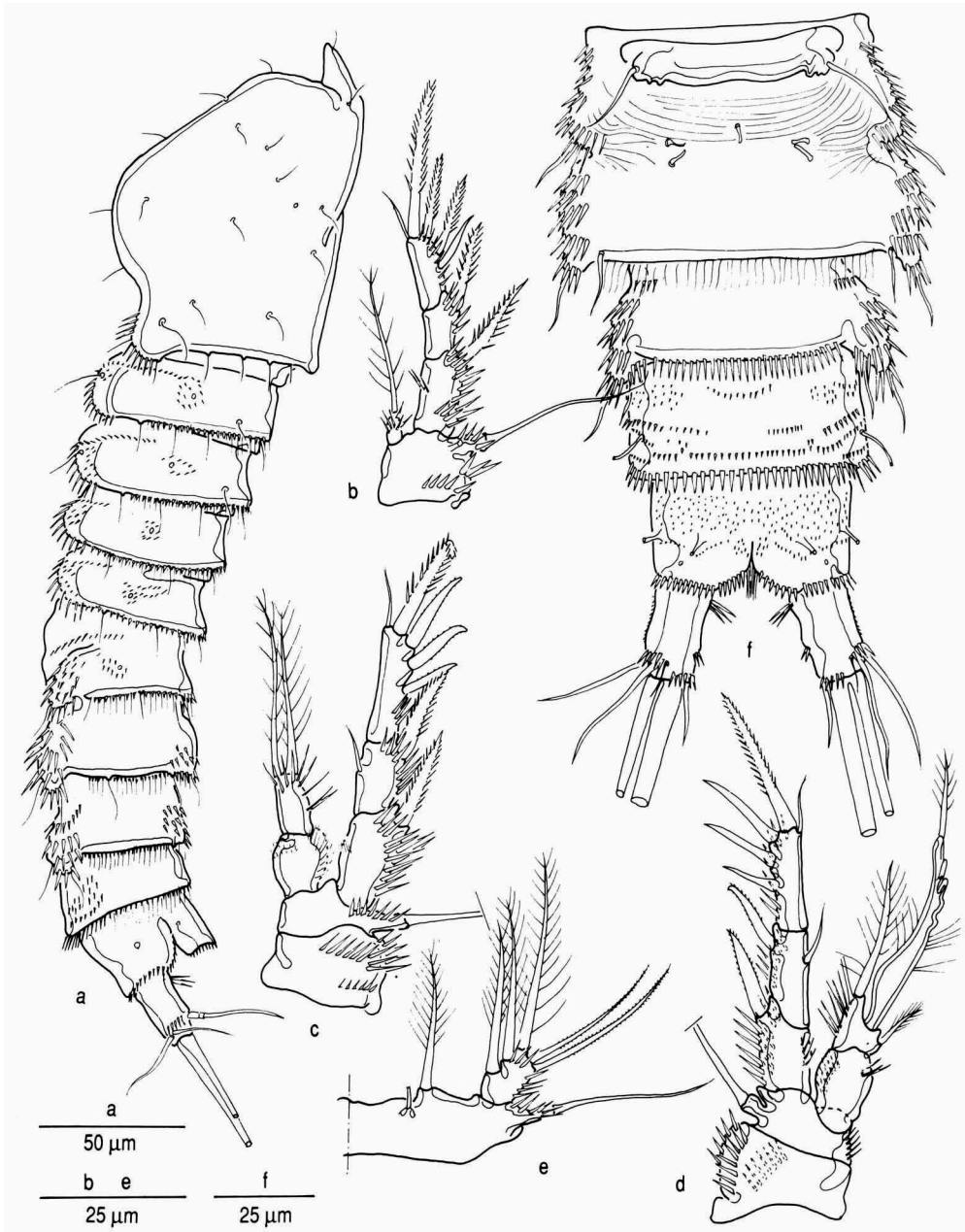


Fig. 11. *Loureirophonte mediterranea* spec. nov.; a, female habitus, lateral view; b, male P4; c, male P3; d, male P2; e, female abdomen, ventral view; f, male P5.

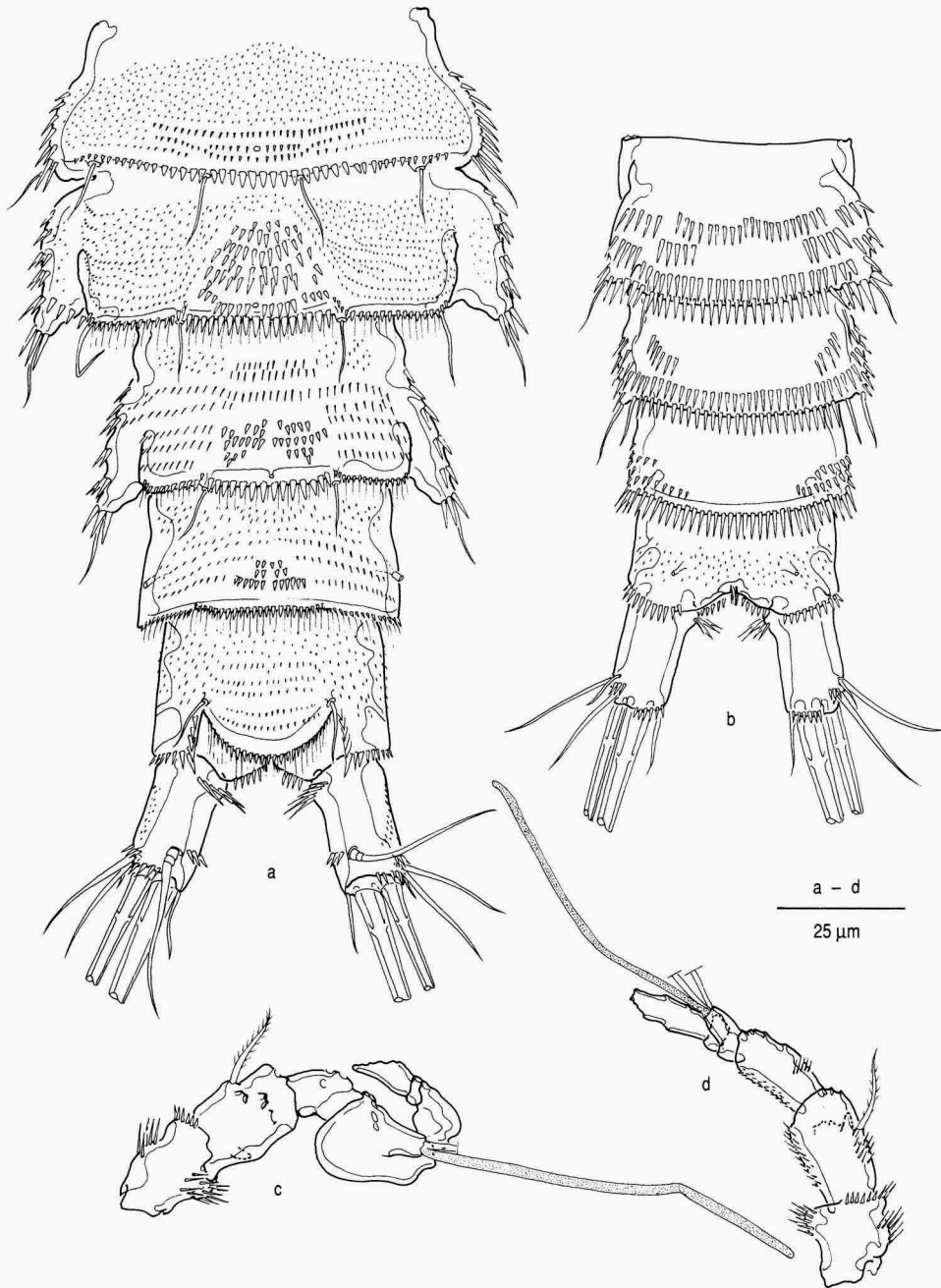


Fig. 12. *Loureirophonte mediterranea* spec. nov.; a, female abdomen, dorsal view; b, male abdomen, ventral view (6-th leg bearing somite omitted); c, contour of male antennule; d, contour of female antennule.

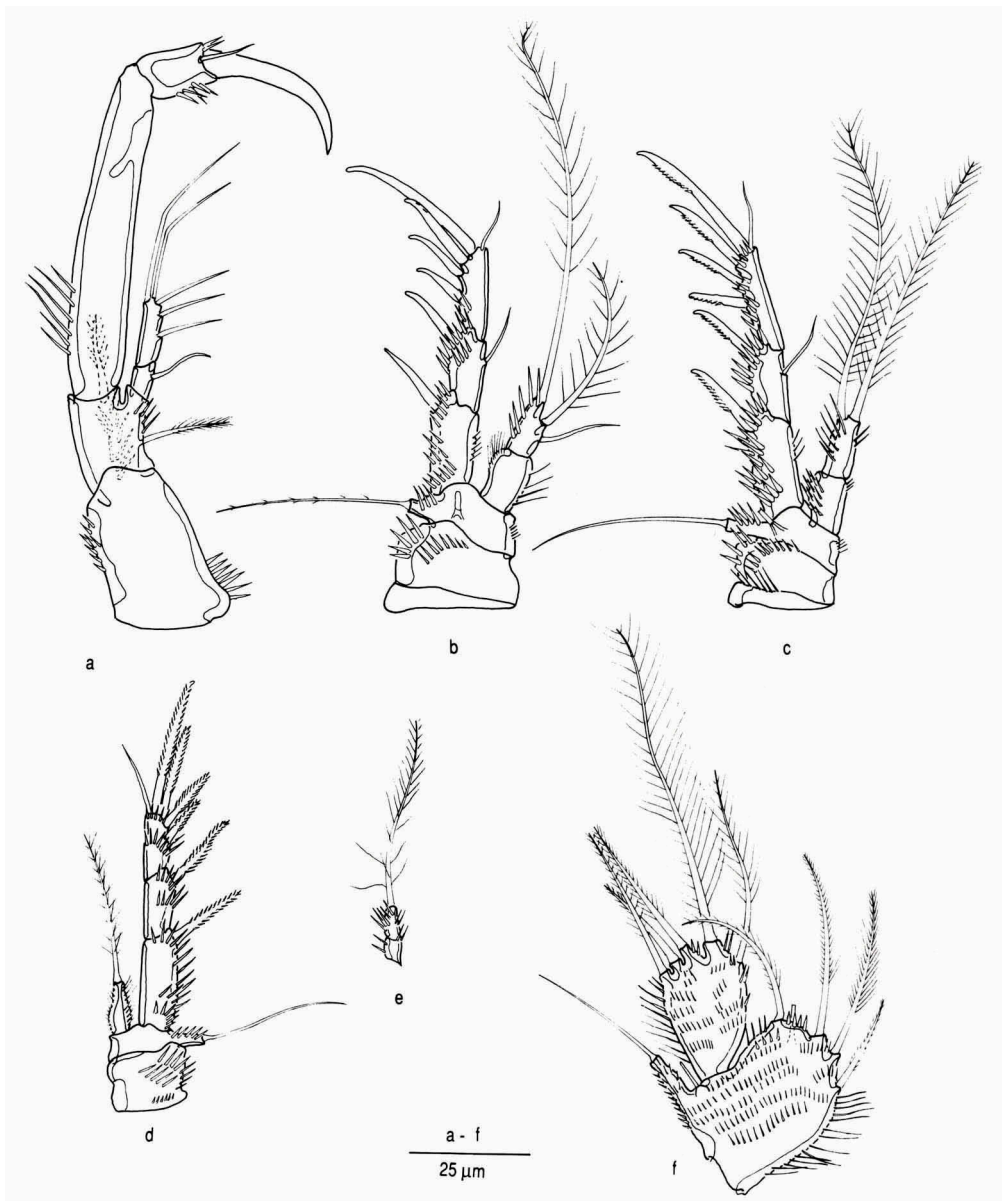


Fig. 13. *Loureirophonte mediterranea* spec. nov.; a, female P1; b, female P2; c, female P3; d, female P4; e, endopodite P4 of another female specimen; f, female P5.