

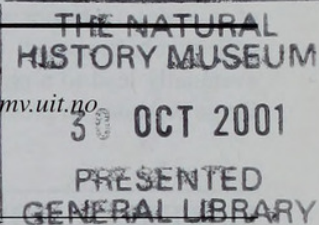
# Type material of Stegocephalidae Dana, 1855 (Crustacea, Amphipoda) in the collections of The Natural History Museum, London, including the description of seven new species

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**SYNOPSIS.** Six species belonging to the amphipod family Stegocephalidae Dana, 1855 (Crustacea) are redescribed and figured. Seven new species are also described: *Andaniexis americana* sp.nov., *A. gloriosa* sp.nov. and *A. pelagica* sp.nov., *Andaniopsis africana* sp.nov., *Stegocephaloides boxshalli* sp.nov., *S. calypsonis* sp.nov. and *S. ledoyeri* sp.nov. The type material of *Stegocephaloides attingens* K.H. Barnard 1916 comprises two species, *S. attingens* and *S. boxshalli* sp.nov. *Stegocephaloides calypsonis* is formally described for the first time, but was originally described in the PhD thesis of Anton Galan (1984).

## INTRODUCTION

Many species in the amphipod family Stegocephalidae Dana, 1855 were described at the end of the 19<sup>th</sup> or the beginning of the 20<sup>th</sup> century. These descriptions usually took the form of a limited descriptive text accompanied by very few figures, typically showing only one or two diagnostic characters. Very few of these species have been later redescribed in any detail, and when they have, the description was usually based on new material without any reference to the type material (e.g. Barnard, 1962, 1964; Ledoyer, 1986; all referring to *Andaniexis australis* K.H. Barnard 1932). Con-

sequently, for a number of stegocephalid species, there is considerable confusion in terms of morphology, generic and specific status.

The vast collections of The Natural History Museum in London (UK) include type material of nine stegocephalid species, none of which has ever been redescribed from the type material. Three of these species belong to the genus *Andaniotes* Stebbing, 1897; which have recently been dealt with elsewhere (Berge, 2001a.). In the present paper, the type material of six species is redescribed and figured: *Andaniexis australis* K.H. Barnard, 1932, *Bathystegocephalus globosus* (Walker, 1909), *Phippsia gibbosa* (Sars, 1883), *Phippsiella rostrata* K.H. Barnard, 1932, *Stegocephaloides attingens* K.H. Barnard, 1916 and *S. australis* K.H. Barnard, 1916. In addition



to these six species, one, *Stegocephaloides calypsonis* sp.nov., is formally described for the first time, although it was first recognized by Anton Galan in his unpublished Ph.D. thesis (1984).

As a 'spin-off' effect of describing some of the above mentioned species, six further new species are described: *Andaniexis americana*, *A. gloriosa* and *A. pelagica*, *Andaniopsis africana*, *Stegocephaloides boxshalli* and *S. ledoyeri*. All these species have previously been assigned to one of the six redescribed species.

The phylogenetic relationships and generic status of the species described herein are not discussed in the present paper, which is one of a series (together with Berge & Vader 1997 a–d) that will collectively revise all the genera and species in the family, and eventually lead to a phylogenetic analysis of the Stegocephalidae Berge & Vader, in press).

## MATERIAL AND METHODS

The present study is based primarily on material from the collections of the Natural History Museum in London, UK (BMNH). Additional material has been borrowed from the American Museum of Natural History, New York (AMNH) and the South African Museum, Cape Town (SAM).

All dissected appendages were mounted in polyvinyl-lactophenol and stained with rose-bengal. Figures of these appendages were made using a Leica compound microscope, while the habitus-drawings were made using a Leica dissecting microscope. Mature and immature females were distinguished from males by the presence of oostegites.

Scales on figures are all 0.1 mm. Classification of setae and setae-groups follow the scheme of Berge (2001b).

**Symbols:** A1–2: Antenna 1–2; EP3: Epimeral plate 3; L: Labium; LBR: Labrum; LMND: Left mandible; MX1: Maxilla 1; MX2: Maxilla 2; MXP: Maxilliped; P1–7: Pereopods 1–7; PLP: palp; RMND: Right mandible; T: Telson; U1–3: Uropod 1–3.

## SYSTEMATICS

Family **STEGOCEPHALIDAE** Dana, 1855

Type genus: *STEGOCEPHALUS* Krøyer, 1842

### *Andaniexis* Stebbing, 1906

*Andania* Boeck, 1871: 128. Homonym, Lepidoptera

*Andaniexis* Stebbing, 1906: 94

### *Andaniexis australis* K.H.Barnard, 1932

(Figs 1–3)

*Andaniexis australis* K.H.Barnard, 1932: 76

Non *A. australis* Barnard 1964 (= *A. pelagica* sp.nov.)

Non *A. australis* Barnard 1962 (= *A. americana* sp.nov.)

Non *A. australis* Ledoyer 1986 (= *A. gloriosa* sp.nov.)

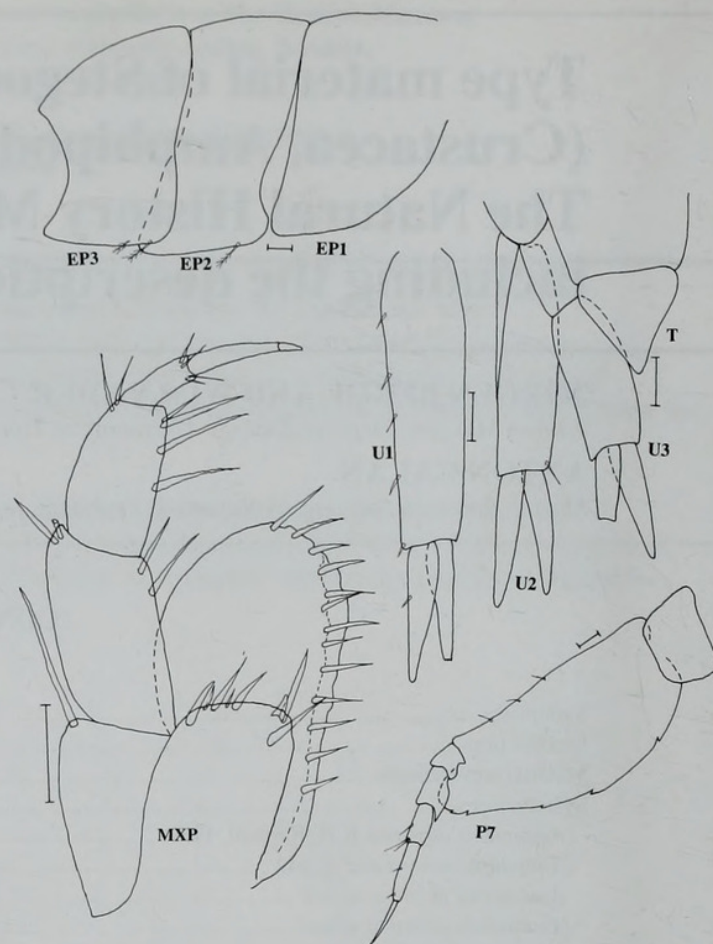
**MATERIAL EXAMINED.** Syntypes 4 females, BMNH 1936.11.2.588–591, 33–34°S 9–16°E, 1000m.

**DISTRIBUTION.** Only the type material is known.

#### DESCRIPTION

Based on type material. Females 4–5mm.

Rostrum very small.



**Fig. 1** *Andaniexis australis*, female cotype.

Antennae short. Antenna 1 longer than antenna 2; flagellum 6-articulate; accessory flagellum article 2 absent. Antenna 2 peduncle (articles 3–5) shorter than flagellum; article 3 short, about as long as broad; article 4 shorter than article 5.

Epistome produced laterally; rectangular with a long ridge on each side.

Epistomal plate (medial keel) produced; small elongate medial ridge exceeding along the entire epistome.

Mandible incisor transverse; incisor smooth; left lacinia mobilis present, reduced, distally straight, not conical.

Maxilla 1 palp 2-articulate, oval, apex reaching beyond outer plate; outer plate distally rounded, ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 ordinary (similar to ST 2–4), gap between ST5 and ST7 present, ST A–C present and part of second row; inner plate with a weakly developed shoulder; setae pappose.

Maxilla 2 ordinary; outer plate setae without distal hooks or cleft; inner plate setae row A covering the entire margin, clearly separated from row B, row A setae pappose; 3–4 first setae pectinate distally; row B setae proximally pappose, distally with cusps present; row C present; row D present, 1–3 long setae distally, setae slender.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate with 1 nodular seta; medial setae-row present, not reduced, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row present, but reduced to one or two setae, conspicuously large and strong; outer plate outer setae-row present, setae submarginal, attached normally, long robust, straight; inner setae-row present, well developed, setae long robust, slender, appressed to outer setae-row; distal setae-group absent.



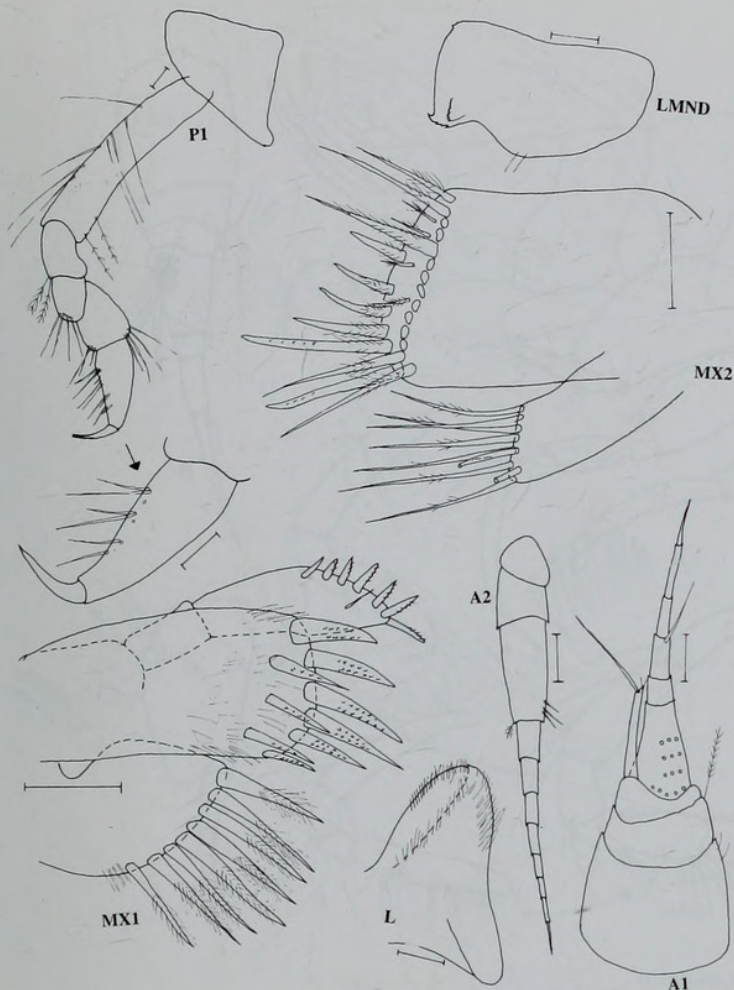


Fig. 2 *Andaniexis australis*, female cotype.

Labrum very short; lobes symmetrical and reduced.

Labium distally broad, oval.

Coxal plates and basis of pereopods smooth; coxae 1–3 contiguous.

Pereopod 1 coxa not as deep as basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1; ischium elongate, ratio length:breadth exceeding 1.5, posterior margin with long plumose setae distally; propodus subovate, palm absent.

Pereopod 4 coxa posteroventral lobe small, reaching about the base of the 6th pereon segment; basis anterior and posterior margins without long setae, with plumose setae on distal anterior margin, no plumose setae on distal posterior margin; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion conspicuous, rounded posteriorly, without a row of long plumose setae.

Pereopod 7 basis anterior margin concave, distally rounded, no medial row of setae.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus longer than inner. Uropod 2 peduncle longer than rami, outer ramus slightly longer than inner. Uropod 3 peduncle longer than rami, outer ramus 2-articulate, outer ramus equal to inner.

Telson as long as broad, shorter than peduncle uropod 3, entire, apically pointed.

MALE. Unknown.

REMARKS. This species was originally described by K.H. Barnard

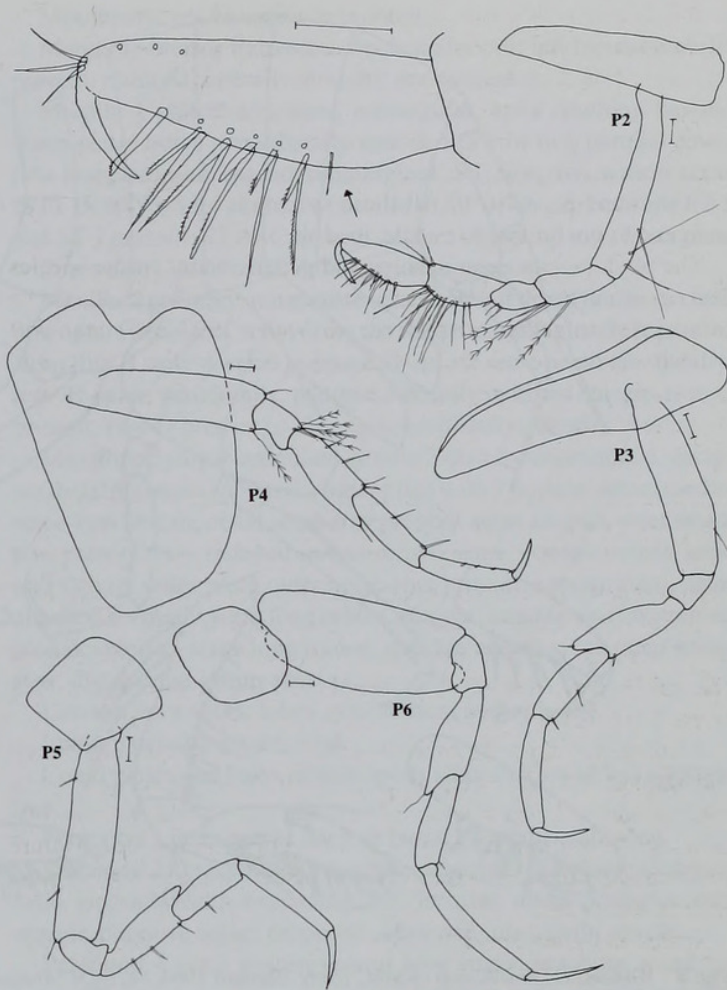


Fig. 3 *Andaniexis australis*, female cotype.

in 1932, and has later been redescribed by Barnard 1962, 1964) and Ledoyer (1986). However, neither of these redescriptions were made based upon the type material. Consequently, both *Andaniexis americana* sp.nov. (see below) and *Andaniexis gloriosa* sp. nov. (see below) were wrongly identified as *A. australis* s.s.

The combination of a rectangular coxa 4, a concave anterior margin of pereopod 7 and the presence of only one nodular seta on the inner plate of the maxilliped is unique for this species within the genus (note: the last character is unknown for *A. oculatus*). From the description of *A. oculatus*, it is not possible to separate *A. australis* from *A. oculatus*. However, until material of the latter has been made available for examination, the two species are not put into synonymy.

### *Andaniexis americana* sp.nov.

(Figs 4–5)

*Andaniexis australis* Barnard 1964: 13 fig. 9 (non *A. australis* K.H. Barnard, 1932)

MATERIAL EXAMINED. Holotype, Station V-15-69 (see Barnard 1964), females 3mm, 10°13'S 80°05'W, Dec. 9, 1958, 6324–6328m. Paratype, female 2.6mm (see Barnard 1964).

DISTRIBUTION. Only type material is known.

### DESCRIPTION

Rostrum very small.

Antennae short. Antenna 1 longer than antenna 2; flagellum 5-articulate; accessory flagellum article 2 present. Antenna 2 peduncle



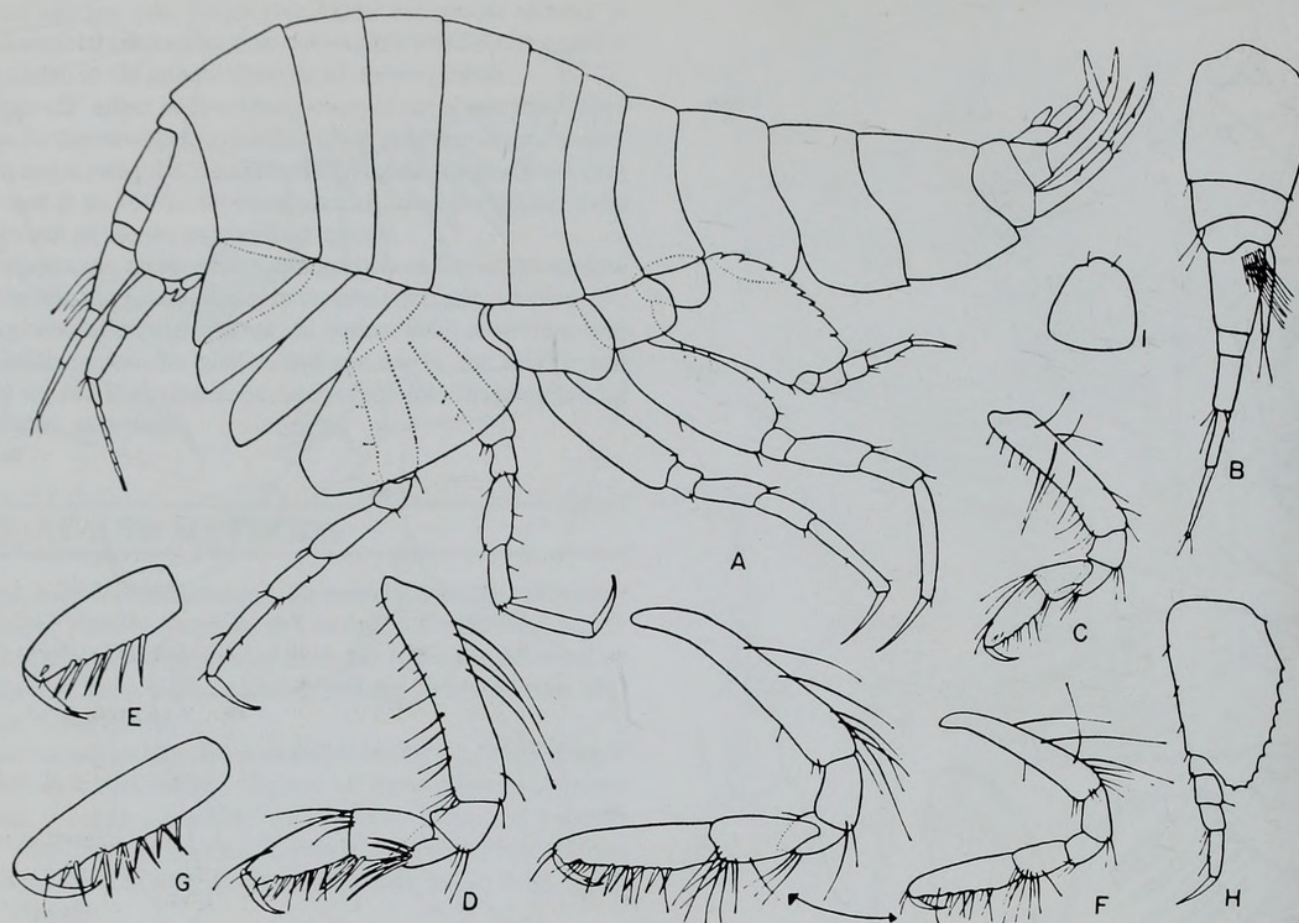


Fig. 4 *Andaniexis americana* sp. nov., from: Barnard 1964:14, fig.9 '*Andaniexis australis*'.

(articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 longer than article 5.

Epistome produced laterally, rectangular with a long ridge on each side; epistomal plate (medial keel) produced into a small elongate medial ridge exceeding along the entire epistome.

Mouthparts not elongate or pointed.

Mandible incisor transverse; smooth; left lacinia mobilis present, reduced, laterally straight, not conical.

Maxilla 1 palp 2-articulate, oval, apex reaching beyond outer plate; outer plate distally rounded; ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 ordinary (similar to ST 2–4), gap between ST 5 and ST 7 present, ST A–C present and part of second row; inner plate with a weakly developed shoulder, setae pappose.

Maxilla 2 ordinary; outer plate setae without distal hooks or cleft; inner plate setae row A covering the entire margin, clearly separated from row B, row A setae pappose, 3–4 first setae pectinate distally; row B setae proximally pappose, distally with cusps absent; row C present; row D present, 1–3 long setae distally, slender.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate with 1 nodular setae; medial setae-row present, not reduced, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row absent; outer plate outer setae-row present, submarginal, setae attached normally, setae long robust; inner setae-row present, well developed, setae long robust, slender, appressed to outer setae-row; distal setae-group absent.

Labrum very short; lobes symmetrical and reduced.

Labium unknown.

Coxal plates and basis of pereopods smooth; coxae 1–3 contiguous.

Pereopod 1 coxa not as deep as basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1; ischium elongate, ratio length:breadth

exceeding 1.5; ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe small, reaching about the base of the 6th pereon segment; basis anterior and posterior margins without long setae, with plumose setae on distal anterior margin, no plumose setae on distal posterior margin; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion conspicuous, rounded posteriorly, without a row of long plumose setae.

Pereopod 7 basis anterior margin concave; distally rounded; no medial row of setae.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus longer than inner.

Uropod 2 peduncle longer than rami, outer ramus as long as inner.

Uropod 3 peduncle longer than rami, outer ramus 2-articulate.

Telson as long as broad, shorter than peduncle uropod 3, entire; apically rounded, submarginal setae apically.

MALE. Unknown.

REMARKS. This is the only recorded species of *Andaniexis* from the west coast of the American continent. The present species is a typical member of this genus, but is separated from all other known species of this genus by its very broad and powerful lacinia mobilis (left mandible only). As in *A. australis*, *A. gracilis* Berge & Vader, 1997a, *A. oculatus* Birstein & Vinogradov, 1970 and *A. stylifer*



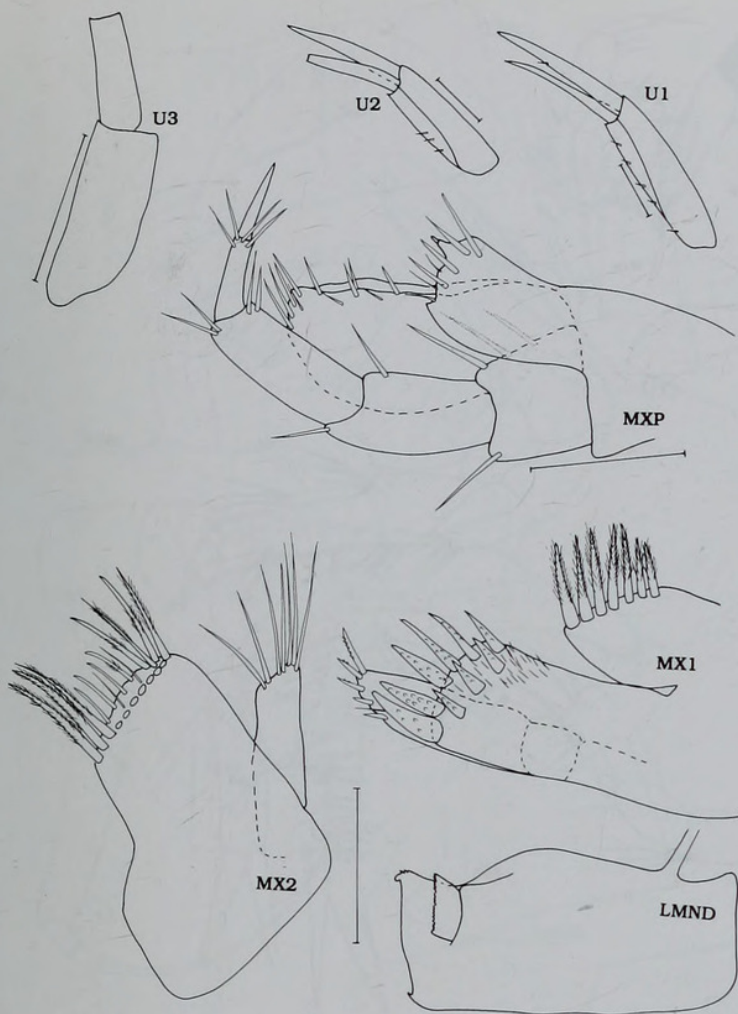


Fig. 5 *Andaniexis americana* sp. nov., holotype.

Birstein & Vinogradov, 1960, the anterior margin of pereopod 7 is slightly concave, while only two other known species, *A. australis* and *A. gloriosa* (see below), share its state of having just one nodular seta on inner plate of the maxilliped. Furthermore, the present species has coxa 4 'heart'-shaped, a character otherwise only found in *A. gracilis*, *A. mimonectes* Ruffo, 1975 and *A. tridentata* Ledoyer, 1986.

### *Andaniexis gloriosa* sp. nov.

(Figs 6–7)

*Andaniexis australis* Ledoyer 1986: 953–954, fig. 375. (non *A. australis* K.H. Barnard, 1932)

**MATERIAL EXAMINED.** Holotype, female 7mm, st. CH90 (see Ledoyer 1986). Paratypes 4 females, 7–10 mm, st. CH 87 (see Ledoyer 1986), 3716m. Additional material, immature 2.5 mm, st. DE 12 (see Ledoyer 1986), 2500m.

**DISTRIBUTION.** Only known from the type locality (Madagascar).

### DESCRIPTION

Rostrum very small.

Antennae short. Antenna 1 shorter than antenna 2; flagellum 5-articulate; accessory flagellum article 2 present. Antenna 2 peduncle (articles 3–5) as long as flagellum; article 3 short, about as long as broad; article 4 shorter than article 5.

Epistome produced laterally, rectangular with a long ridge on each side; epistomal plate (medial keel) produced into a small elongate medial ridge exceeding along the entire epistome.

Mouthparts not elongate or pointed.

Mandible incisor transverse; incisor smooth; left lacinia mobilis present, reduced, laterally straight, not conical.

Maxilla 1 palp 2-articulate, rectangular, apex reaching beyond outer plate; outer plate distally rounded; ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 ordinary (similar to ST 2–4), gap between ST 5 and ST 7 present, ST A–C present, all part of second row; inner plate with a weakly developed shoulder, setae pappose.

Maxilla 2 ordinary, outer plate setae without distal hooks or cleft; inner plate setae row A covering the entire margin, clearly separated from row B, row A setae pappose, 3–4 first setae pectinate distally; row B setae proximally pappose, distally without cusps; row C present; row D present, 1–3 long setae distally, slender.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate with 1 nodular setae; medial setae-row absent; distal setae-row present, setae simple; inner setae-row present, row reduced to one or two setae, conspicuously large and strong; outer plate outer setae-row present, submarginal, setae attached normally, setae long robust, straight; inner setae-row present, well developed, setae long robust, slender, appressed to outer setae-row; distal setae-group absent.

Labrum very short; lobes symmetrical and reduced.

Labium distally broad, oval.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa not as deep as basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1; ischium elongate, ratio length:breadth exceeding 1.5; ischium distal posterior with margin plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe small, reaching about the base of the 6th pereon segment; basis anterior and posterior margins without long setae, without plumose setae on distal anterior and posterior margins; ischium without plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion conspicuous, rounded posteriorly; without a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus longer than inner.

Uropod 2 peduncle longer than rami, outer ramus longer than inner.

Uropod 3 peduncle longer than rami, outer ramus 2-articulate, outer ramus longer than inner.

Telson longer than broad, shorter than peduncle uropod 3, entire, apically pointed, no submarginal setae on apically.

**MALE.** Unknown.

**REMARKS.** The present species is separated from all other members of *Andaniexis* by its relatively long and pointed telson. Furthermore, coxa 1 is relatively long and pointed (triangular), and is thus more similar to that of *Andaniotes* Stebbing, 1897.

Unfortunately, the type material, borrowed from Museo Civico de Storia Naturale in Verona, Italy, disappeared in the mail. Thus, at present, there exists, to the authors' knowledge, no registered material of this species.

### *Andaniexis pelagica* sp. nov.

(Figs 8–10)

*Andaniexis australis* Barnard 1962: 38–40, figs. 24, 25 (immature 9 & 5.5 mm only, not immature 4.0, 2.0 & 1.5).



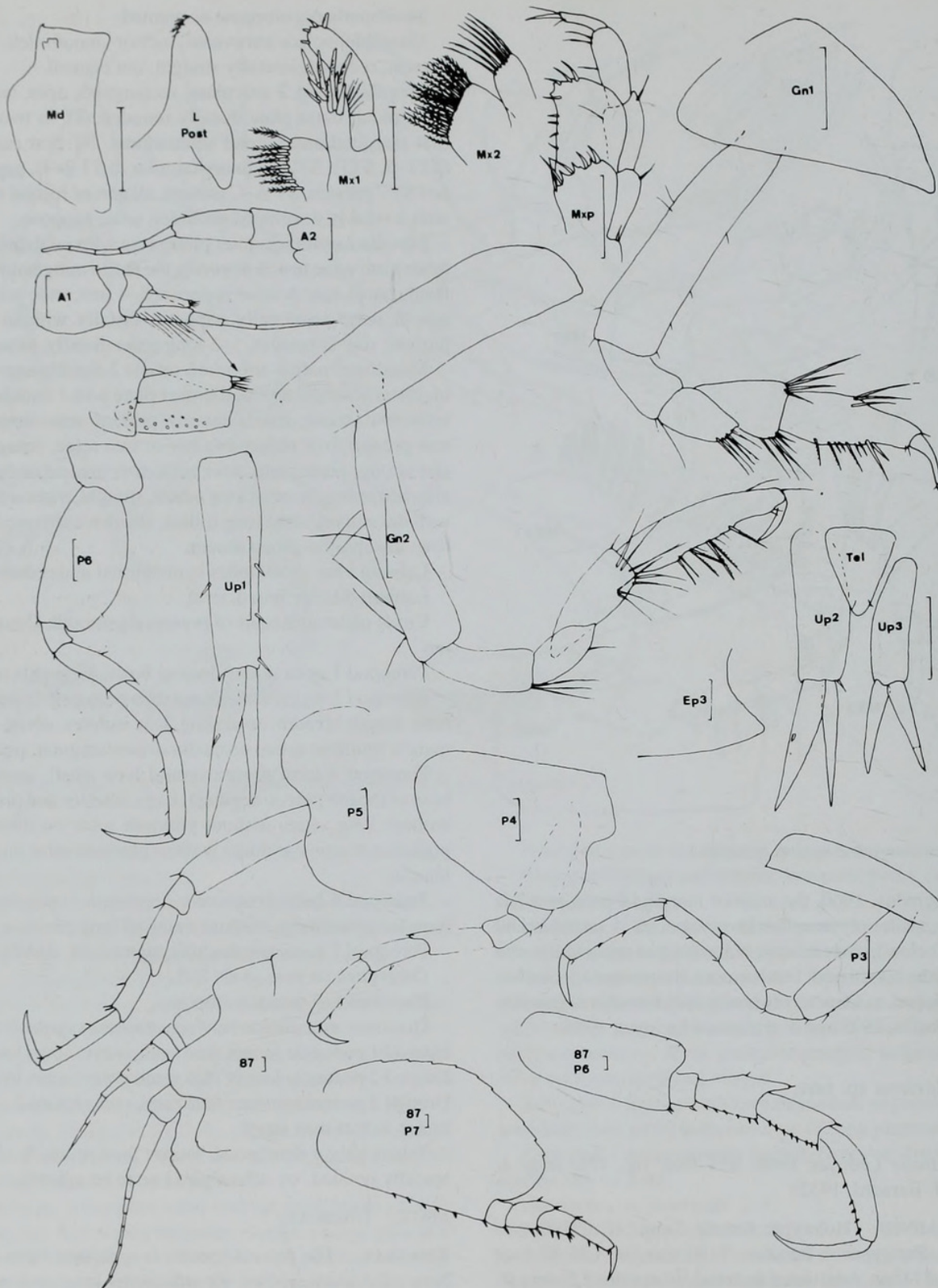


Fig. 6 *Andaniexis gloriosa* sp. nov., from: Ledoyer 1986:955, fig.375 '*Andaniexis australis*'.

**MATERIAL EXAMINED.** Holotype, Vema Station 53 (see Barnard 1962), immature female 9.0 mm, Cape Basin, 4893 m. Paratype, Vema Station 53, immature 5.5mm.

**DISTRIBUTION.** Known from type locality only.

**DESCRIPTION.** Biology: pelagic (Barnard 1962).

Rostrum very small.

Antennae elongate. Antenna 1 shorter than antenna 2; flagellum 3-articulate; accessory flagellum article 2 absent. Antenna 2 peduncle

(articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 shorter than article 5.

Epistome produced laterally, rectangular with a long ridge on each side; epistomal plate (medial keel) produced into a small elongate medial ridge exceeding along the entire epistome.

Mouthparts not elongate or pointed.

Mandible incisor transverse; incisor smooth; left lacinia mobilis present, reduced, laterally straight, not conical.

Maxilla 1 palp 2-articulate, oval, apex reaching beyond outer



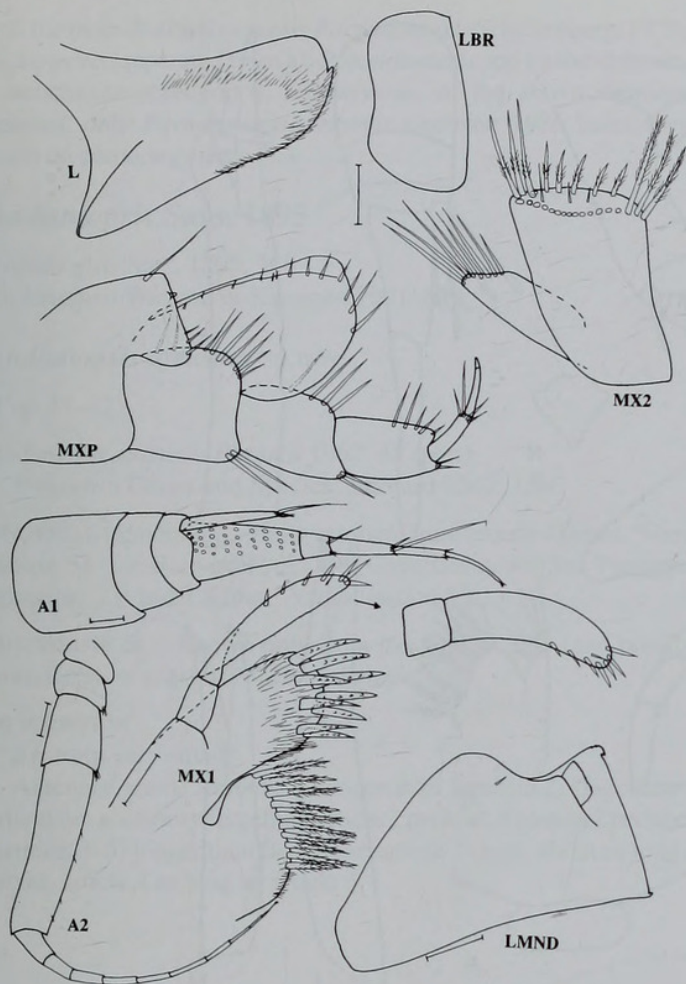


Fig. 7 *Andaniexis gloriosa* sp. nov., holotype.

plate; outer plate distally rounded; ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 ordinary (similar to ST 2–4), gap between ST 5 and ST 7 present, ST A–C present and part of second row; inner plate with a weakly developed shoulder, setae pappose.

Maxilla 2 ordinary, outer plate setae without distal hooks or cleft; inner plate setae row A covering the entire margin, appressed to row B, row A setae pappose, 3–4 first setae pectinate distally; row B setae proximally pappose, distally with cusps present; row C present; row D present, reduced, 1–3 long setae distally, slender.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple

(pointed); inner plate with 2 nodular setae; medial setae-row present, not reduced, transverse, simple; distal setae-row present, setae simple; inner setae-row present, row reduced to one or two setae, conspicuously large and strong; outer plate outer setae-row present, marginal, setae attached normally, setae long robust, straight; inner setae-row present but strongly reduced, setae short simple, slender, appressed to outer setae-row; distal setae-group absent.

Labrum very short; lobes symmetrical and reduced.

Labium distally broad, oval.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa not as deep as basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1, ischium elongate, ratio length:breadth exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe small, reaching about the base of the 6th pereon segment; basis anterior and posterior margins without long setae, plumose setae on distal anterior and posterior margins; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion rudimentary, no row of long plumose setae.

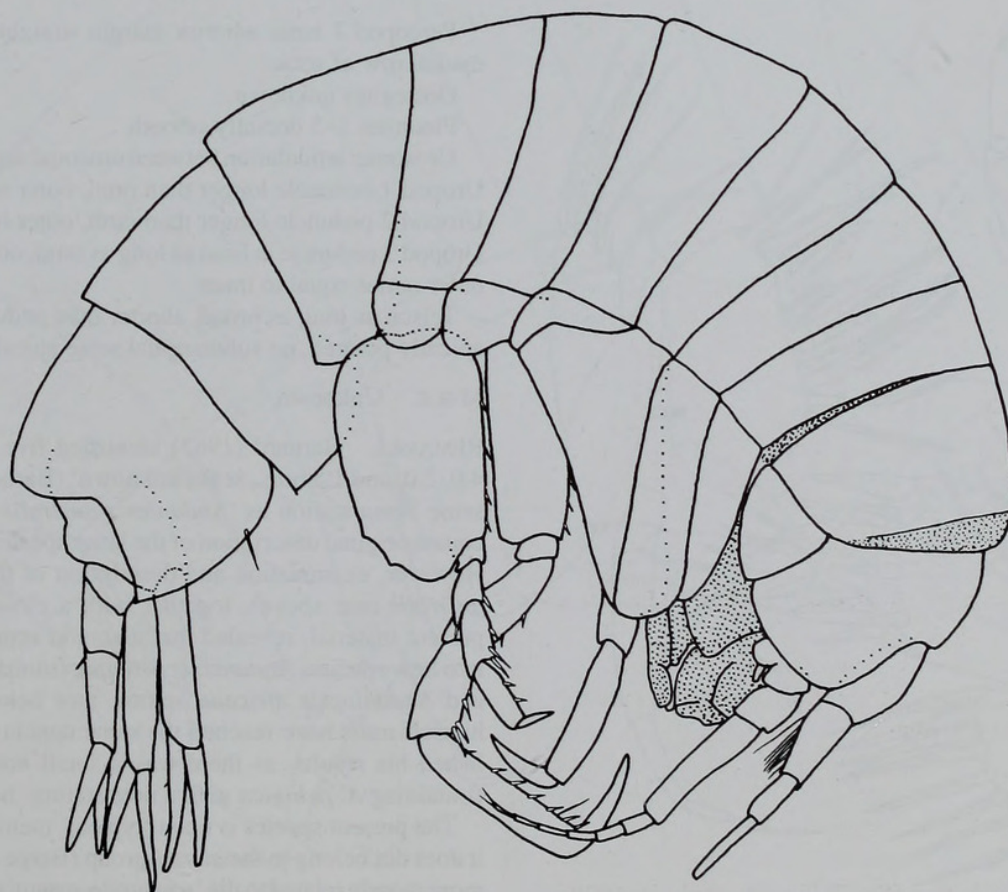


Fig. 8 *Andaniexis pelagica* sp. nov., from: Barnard 1962:38, fig. 24 '*Andaniexis australis*'.



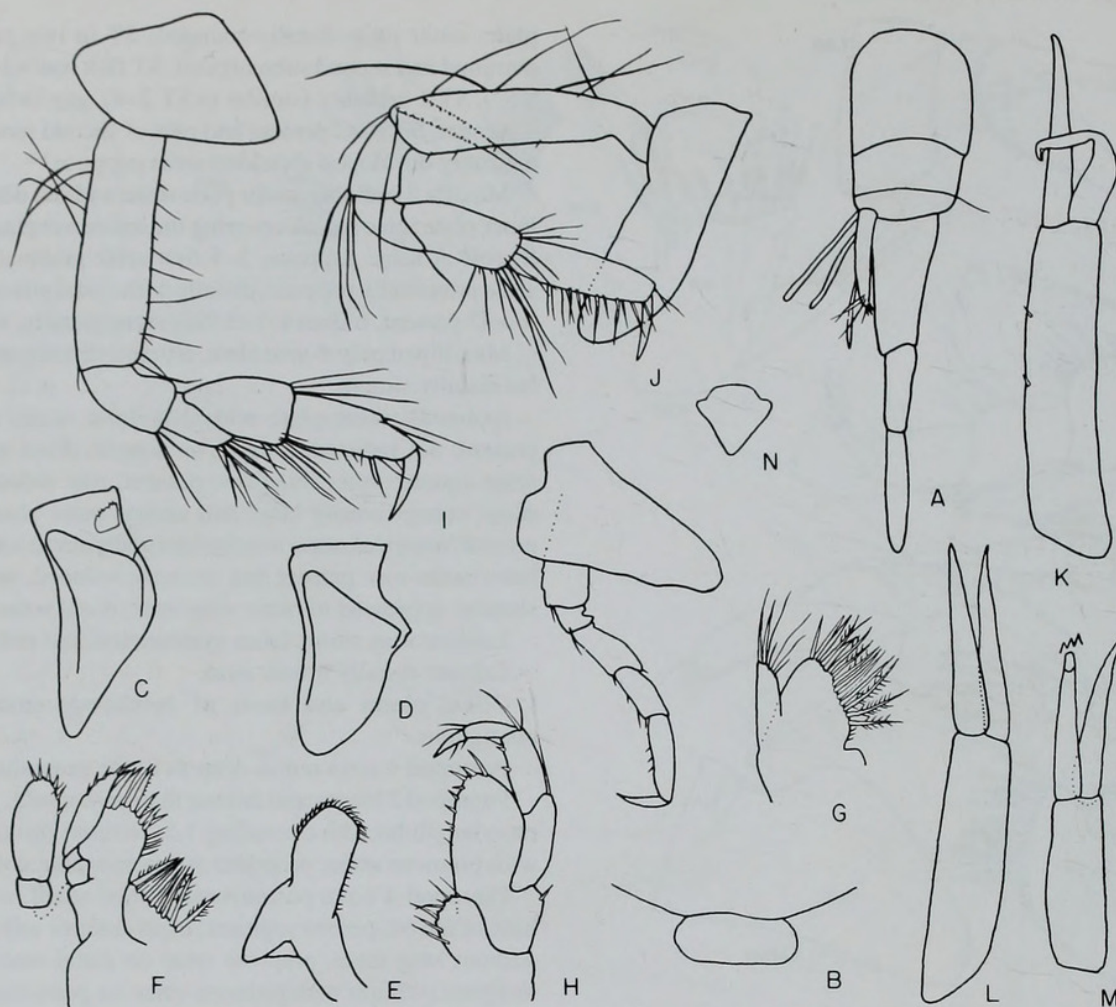


Fig. 9 *Andaniexis pelagica* sp. nov., from: Barnard 1962:38, fig. 25 '*Andaniexis australis*'.

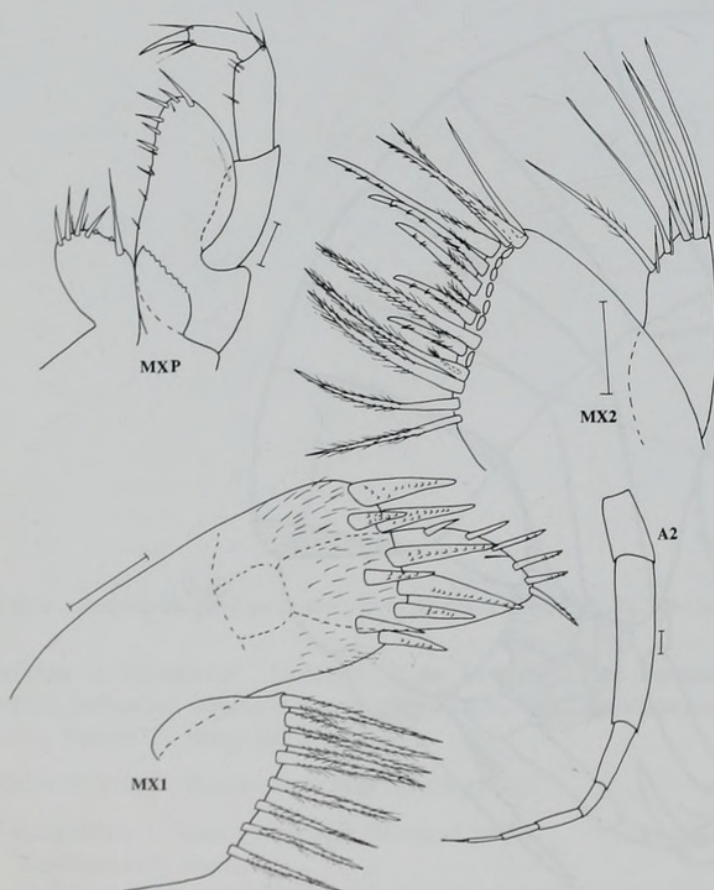


Fig. 10 *Andaniexis pelagica* sp. nov., holotype.

Pereopod 7 basis anterior margin straight, distally rounded, no medial row of setae.

Oostegites unknown.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus as long as inner.

Uropod 2 peduncle longer than rami, outer ramus as long as inner.

Uropod 3 peduncle at least as long as rami, outer ramus 2-articulate, outer ramus equal to inner.

Telson as long as broad, shorter than peduncle uropod 3, entire, apically pointed, no submarginal setae apically.

MALE. Unknown.

REMARKS. Barnard (1962) identified five specimens ('9.0, 5.5, 4.0, 2.0, and 1.5 mm., sexes unknown' (Barnard 1962: 40) from the same *Vema* station as '*Andaniexis australis* (?)', due to the inadequate original description of the latter species (K.H. Barnard 1932). However, examination and description of the type material of *A. australis* (see above), together with a closer examination of the present material, revealed that it should actually be separated into two new species: *Andaniexis pelagica* (immatures 9.0 and 5.5 mm) and *Andaniopsis africana* sp. nov. (see below). [In fact, Barnard himself must have reached the same conclusion after he had published his results, as there was a small note in one of the vials containing *A. pelagica* with a note stating 'holotype'.]

The present species is not a 'typical' member of *Andaniexis*, i.e. it does not belong to the *abyssi*-group (Berge & Vader 1997a), but is more closely related to the '*tridentata*-group' (*A. tridentata* Ledoyer, 1986 and *A. spinescens* Alcock, 1894, see Berge & Vader 1997a),



and the more distinctive genus *Parandaniexis* Schellenberg, 1929. It is, however, separated from all *Parandaniexis* spp by the absence of a subchelate pereopod 4. Furthermore, of the above mentioned species, only *Parandaniexis inermis* Ledoyer, 1986 lacks dorsal teeth on pleon segments 1–3.

### *Andaniopsis* Sars, 1895

*Andaniopsis* Sars, 1895: 208.

*Andaniopsis* Barnard & Karaman 1991: 678.

### *Andaniopsis africana* sp.nov.

(Figs 11–12)

*Andaniexis australis* Barnard 1962: 38 (part)

? 'Unknown Genus and Species' Barnard 1967: 150

**MATERIAL EXAMINED.** Holotype, immature female 4.0 mm, 'Vema' station 53 (see Barnard 1962: 40): Cape Basin, 4893m. Paratypes, immature 2.0 and 1.5 mm, 'Vema' station 53.

**DISTRIBUTION.** Known only from the type locality (and possibly from the west coast of Mexico). Pelagic.

### DESCRIPTION

Rostrum very small.

Antennae short. Antenna 1 longer than antenna 2; flagellum 4-articulate; accessory flagellum article 2 present. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 as long as article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) produced into a large conspicuous keel.

Mouthparts not elongate or pointed.

Mandible incisor transverse; toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

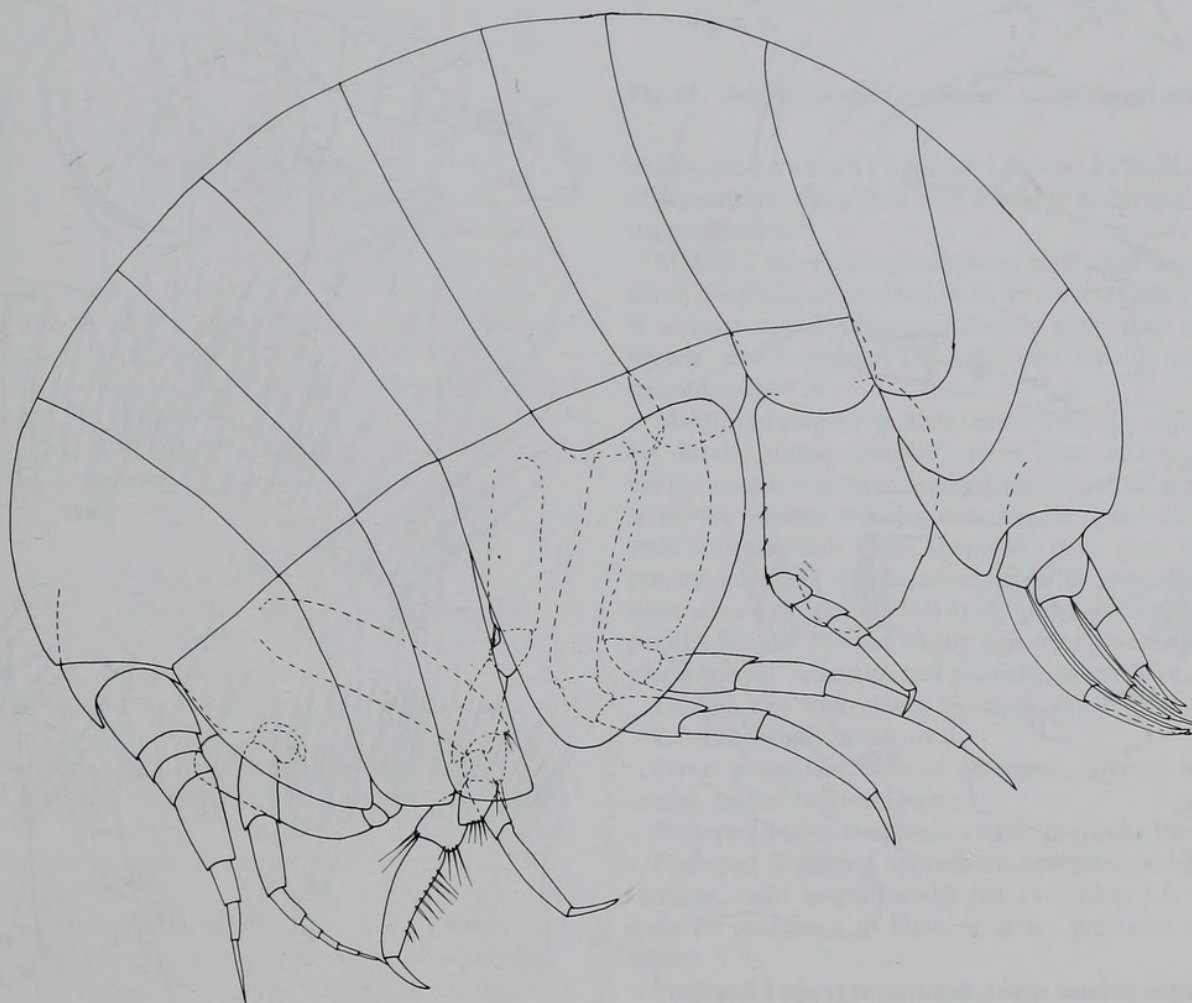
Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rounded; ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 ordinary (similar to ST 2–4), gap between ST 5 and ST 7 present, ST A–C present and part of second row; inner plate without a well developed shoulder, setae pappose.

Maxilla 2 ordinary, outer plate setae without distal hooks or cleft; inner plate setae row A covering the entire margin, appressed to row B, row A setae pappose, 3–4 first setae weakly pappose proximally, slender distally; row B setae proximally simple, distally with cusps absent; row C absent; row D absent.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate not exceeding base of palp article 2; with 2 nodular setae; medial setae-row present, not reduced, transverse, setae pectinate; distal setae-row absent; inner setae-row present, row reduced to one or two setae, setae conspicuously large and strong; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short, straight; inner setae-row present but strongly reduced, setae short simple, slender, parallel but not appressed to outer setae-row; distal setae-group absent.

Labrum not reduced; lobes asymmetrical and reduced.

Labium distally broad, oval.



**Fig. 11** *Andaniopsis africana* sp.nov., holotype (see scale 3 on fig. 12).



Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subrectangular.

Pereopod 2 general appearance like pereopod 1, ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe medium sized, not reaching the base of the 7th pereon segment; basis anterior and posterior margins without long setae, plumose setae on distal anterior margin, no plumose setae on distal posterior margin; ischium without plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion conspicuous, rounded posteriorly, without a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, with a medial row of setae, setae short and robust.

Oostegites on pereopods 2–5; gills on pereopods 2–7.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus as long as inner.

Uropod 2 peduncle longer than rami, outer

ramus as long as inner. Uropod 3 peduncle at least as long as rami, outer ramus 1-articulate, outer ramus as long as inner.

Telson shorter than broad, shorter than peduncle uropod 3, cleft; apically rounded, submarginal setae on apex of each lobe.

MALE. Unknown

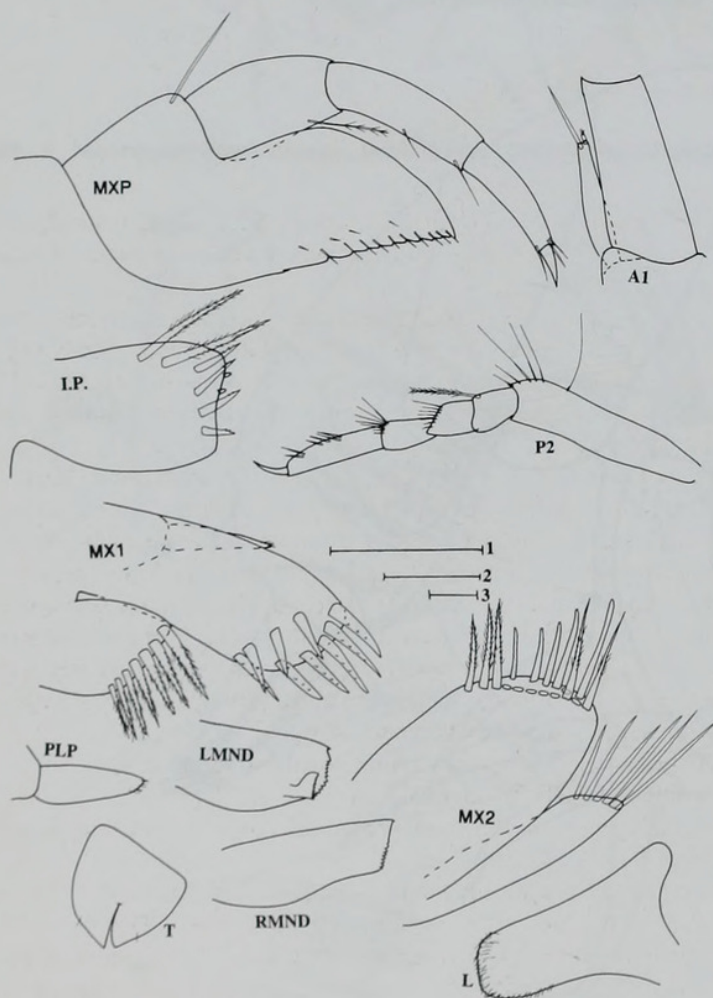


Fig. 12 *Andaniopsis africana* sp. nov., holotype: PLP, MX 1 & MX2: scale 1, L, LMND, MND & T: scale 2; MXP & A1: scale 1 on fig. 14, P2: scale 3.

REMARKS. The present species is described herein in *Andaniopsis* as it resembles *Andaniopsis nordlandica* in some important characters: 1) transverse and toothed incisor and laterally expanded lacinia mobilis on the mandible, 2) reduced palp of the first maxilla, 3) general morphology of the maxilliped, 4) a large epistomal plate and 5) relatively long labrum with a well developed right lobe. However, the present species possesses a cleft telson, a character not found in *nordlandica* or in the closely related genus *Andaniella* Sars, 1895.

In 1967, Barnard described an immature specimen from a 'unknown genus and species' (Barnard 1967: 150). Although the epistome and labrum were damaged, and he did not describe the telson, the present species seems to be at least closely related to Barnard's specimen, if not even belonging to the same species. As some essential appendages were damaged, and since it has not been possible to examine the specimen, Barnard's specimen is referred to as an uncertain synonymy of the present new species. The only character that, at present, appears to separate Barnard's specimen as a distinct species from *africana*, is the unexpanded basis on pereopod 6 (expanded for *africana*).

ETYMOLOGY. The present species is the first species in the genus to be recorded from the southern hemisphere and more specifically from the coast of South Africa, hence its name *africana*.

### ***Bathystegocephalus* Schellenberg, 1926**

*Bathystegocephalus* Schellenberg, 1926: 221

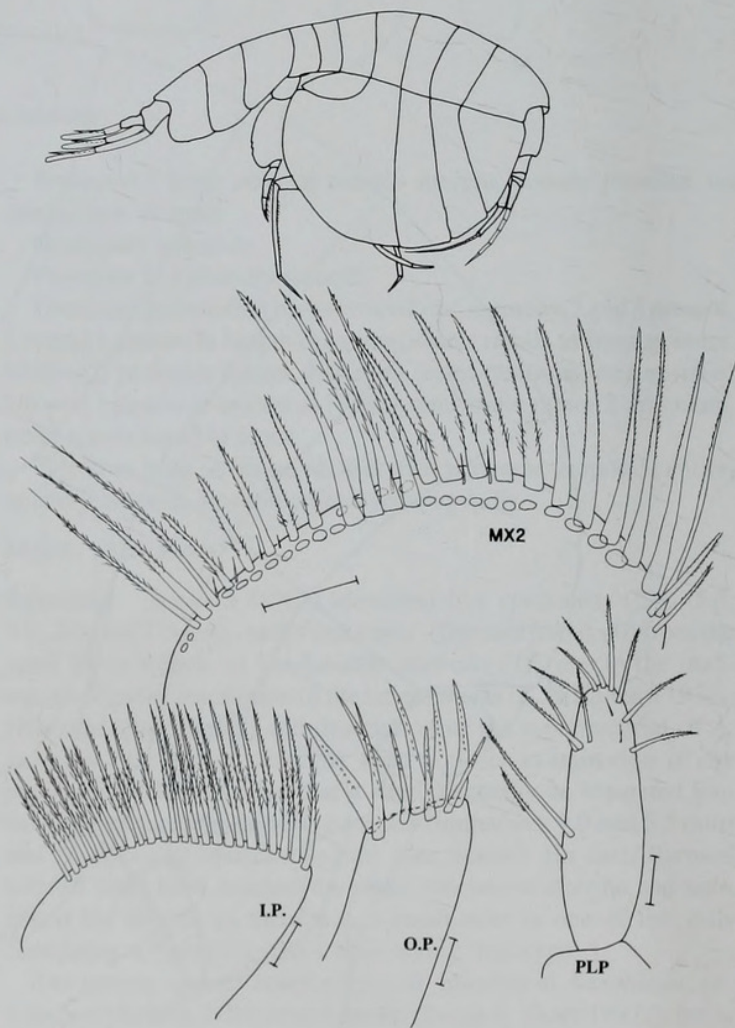


Fig. 13 *Bathystegocephalus globosus*, female (8mm) syntype.



*Bathystegocephalus globosus* (Walker, 1909)

(Figs 13–15)

*Stegocephalus globosus* Walker 1909*Stegocephaloides valdiviae* Strauss ?1909*Bathystegocephalus globosus* Schellenberg, 1926*Bathystegocephalus globosus* Pirlot 1933*Bathystegocephalus globosus* Birstein & Vinogradov 1964

MATERIAL EXAMINED. Syntypes, BMNH 1909.1.29.17–31 (15 specimens: females and juveniles, 4.5–10mm)

DISTRIBUTION. Indian Ocean.

DESCRIPTION. Biology: pelagic.

Rostrum absent.

Antennae elongate. Antenna 1 shorter than antenna 2; flagellum 6-articulate; accessory flagellum article 2 absent. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 elongate, article 3 and 4 geniculate; article 4 shorter than article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) produced into a large conspicuous medial keel.

Mouthparts not elongate or pointed.

Mandible incisor triangular; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, oval, apex reaching beyond outer plate; outer plate distally rectangular; ST in two parallel rows, first marginal and second submarginal, ST first row with 5 setae, ST 1 ordinary (similar to ST 2–4), ST 1–5 with one setae absent, ST 6

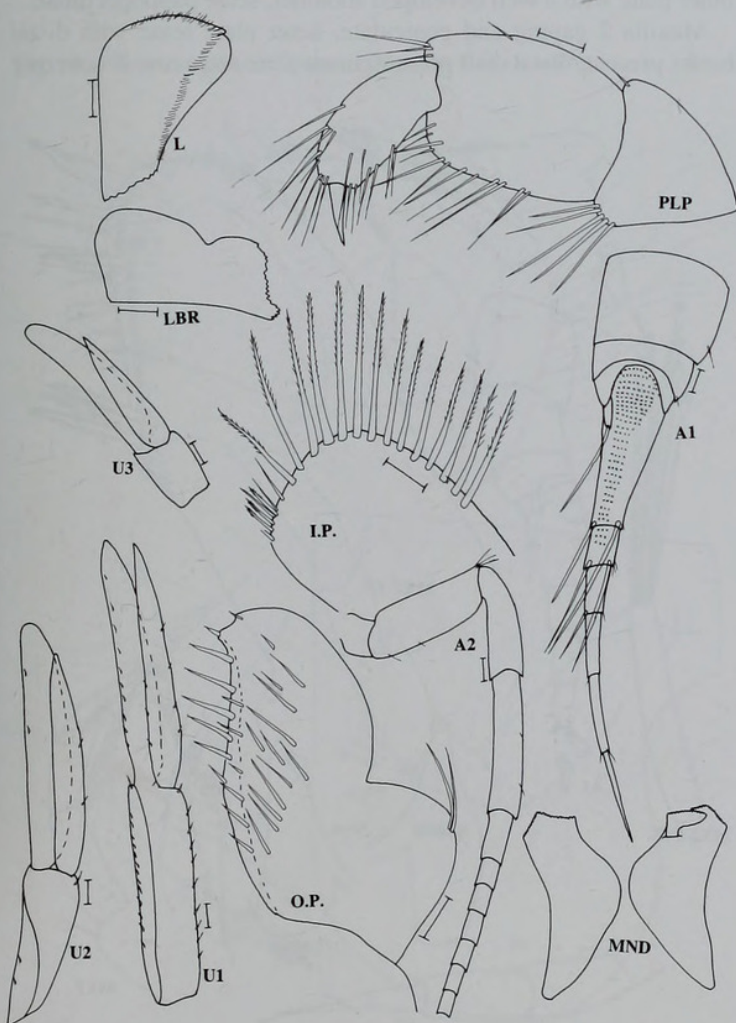


Fig. 14 *Bathystegocephalus globosus*, female (8mm) syntype.

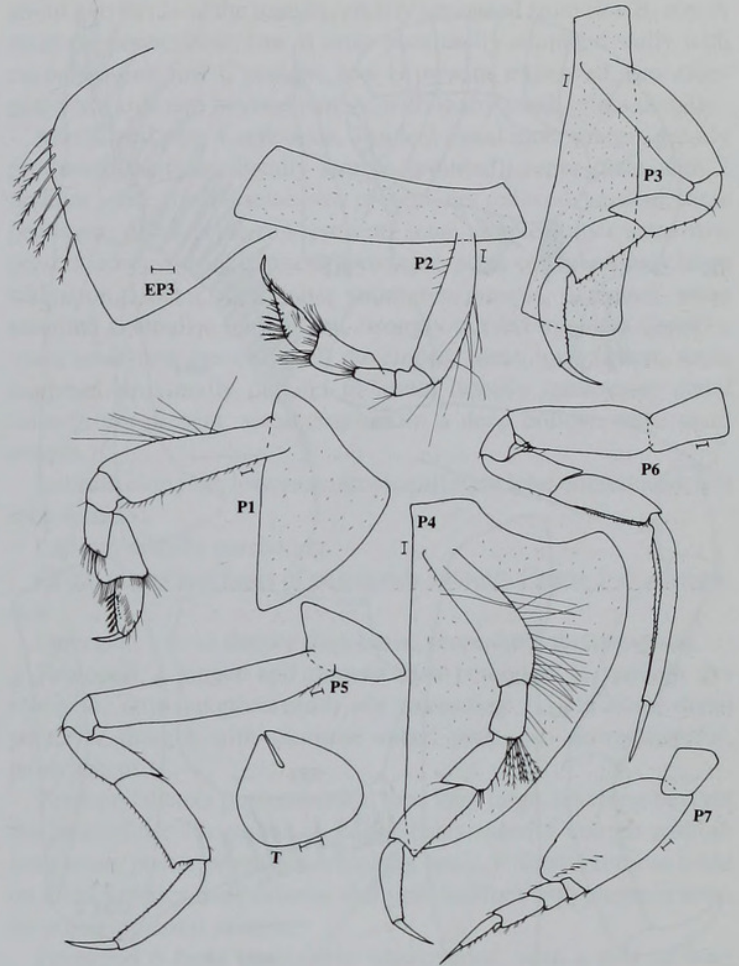


Fig. 15 *Bathystegocephalus globosus*, female (8mm) syntype.

absent, gap between ST 5 and ST 7 present, ST A–D present and part of second row; inner plate with a weakly developed shoulder, setae pappopectinate.

Maxilla 2 outer plate absent, inner plate setae row A covering the entire margin, appressed to row B, row A setae pappopectinate; row B setae proximally pappose, distally with cusps present; row C present; row D present, 1–3 long setae distally, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate without nodular setae; medial setae-row present, reduced, transverse, setae pectinate; distal setae-row present, reduced, setae simple; inner setae-row present, setae conspicuously large, cuspidate; outer plate outer setae-row present, marginal, setae attached normally, setae short and straight; inner setae-row present, well developed, setae long robust, slender, parallel to outer row but widely separated proximally; distal setae-group present, setae attached normally, long robust.

Labrum very short; lobes symmetrical and reduced.

Labium distally broad, oval.

Coxal plates and basis of pereopods covered with very short setules. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subovate.

Pereopod 2 general appearance like pereopod 1; ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subovate palm absent.

Pereopod 4 coxa posteroventral lobe medium sized, not reaching the base of the 7th pereon segment; basis anterior margin without long setae, posterior margin with long setae, without plumose setae



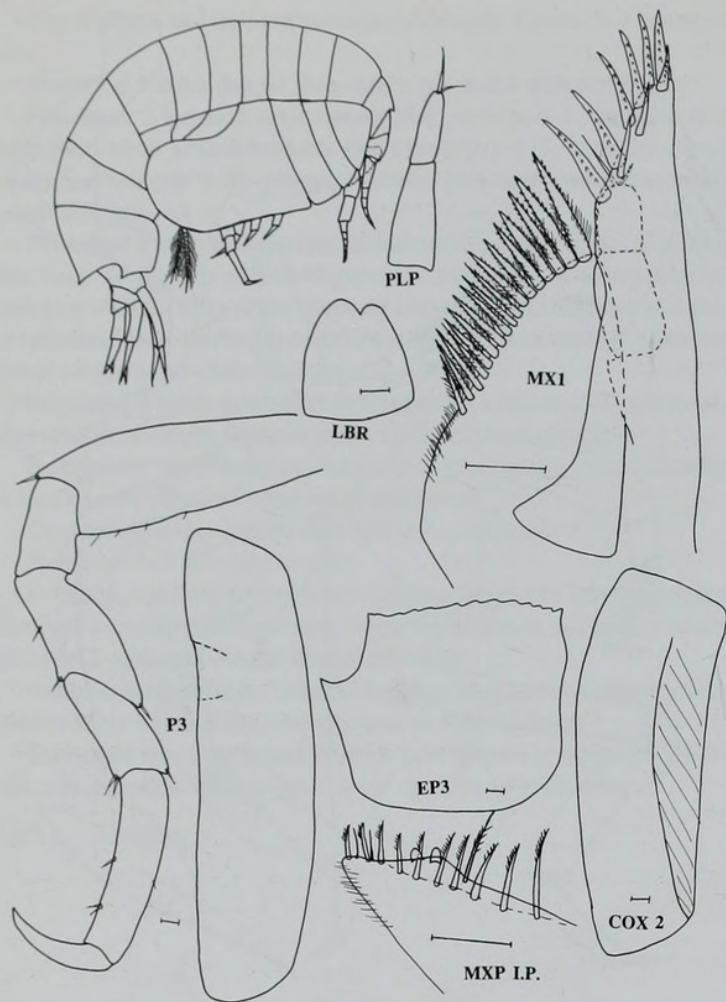


Fig. 16 *Phippsia gibbosa*, immature female, Bioice st. 570.

on distal anterior and posterior margins; ischium with plumose setae on posterior distal margin.

Pereopod 6 elongate, basis posteriorly expanded, expansion rudimentary, without a row of long plumose setae; carpus and propodus anteriorly concave.

Pereopod 7 basis anterior margin straight, distally rounded, with a medial row of long setae.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 absent. Uropod 1 peduncle shorter than rami, outer ramus longer than inner. Uropod 2 peduncle shorter than rami, outer ramus longer than inner. Uropod 3 peduncle shorter than half the length of rami, outer ramus 1-articulate, outer ramus longer than inner.

Telson as long as broad, as long as peduncle uropod 3, cleft, apically rounded, no submarginal setae on apex of each lobe.

MALE. Pereopod 2 and urosome ordinary (similar to females).

REMARKS. The present species is distinguishable from all other stegocephalid species by its elongate pereopod 6, reduced outer plate of maxilla 2 and the triangular shape of the mandibular incisor. In addition to this, its long and round coxae 1–4 give the anterior part of the body a conspicuously globular shape.

### *Phippsia* Stebbing, 1906

*Aspidopleurus* Sars, 1895: 203 (homonym, Pisces)

*Phippsia* Stebbing, 1906: 89 (replacement name)

### *Phippsia gibbosa* (Sars, 1883)

(Figs 16–19)

*Stegocephalus gibbosa* Sars 1883

*Aspidopleurus gibbosa* Sars 1895

MATERIAL EXAMINED. Description based upon immature female, Bioice st. 570 (see Berge & Vader 1997d), checked with type (see Remarks).

DISTRIBUTION. North Atlantic.

DESCRIPTION. Biology: not pelagic, has been found on living *Lophelia* sp. (see Sars 1895 and W. Vader pers. com.).

Rostrum very small.

Antennae short. Antenna 1 longer than antenna 2; flagellum 6-articulate; accessory flagellum article 2 absent. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 shorter than article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) produced into a large conspicuous medial keel.

Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 2-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in a pseudocrown (see below), ST first row with 6 setae (ST1–5, ST7), ST 1 conspicuously enlarged, gap between ST 5 and ST 7 absent; ST A and B present, located distally, part of first row, ST C present, ST D absent; inner plate with a well developed shoulder, setae pappopectinate.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft present; inner plate setae row A covering

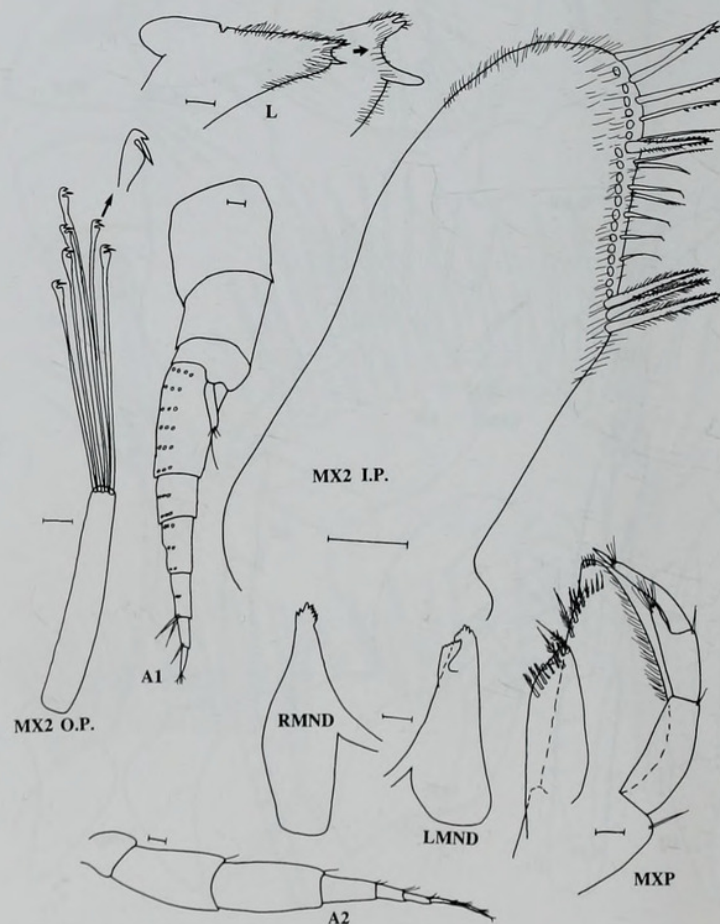


Fig. 17 *Phippsia gibbosa*, immature female, Bioice st. 570.



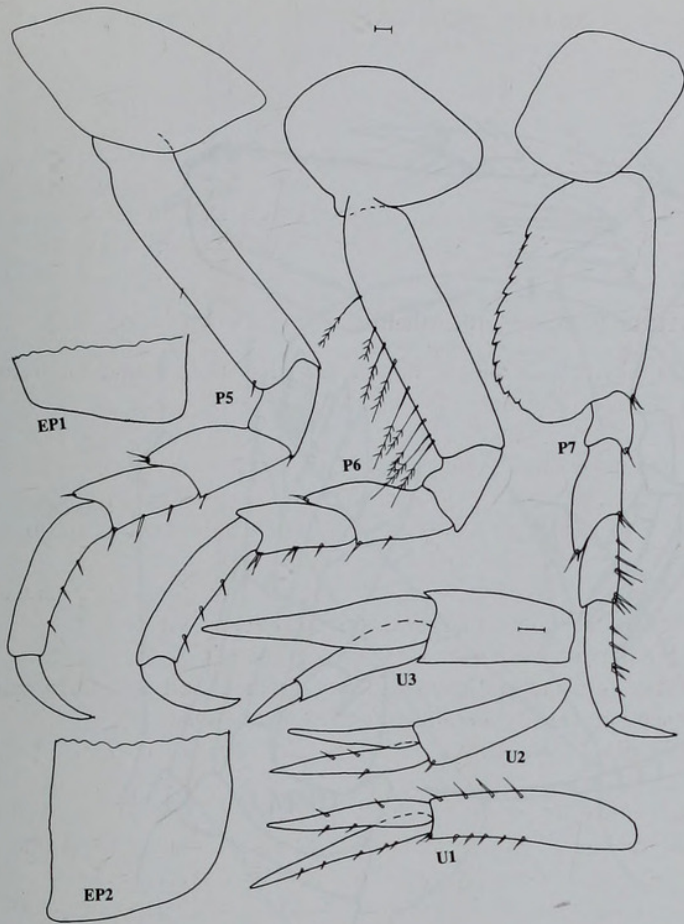


Fig. 18 *Phippsia gibbosa*, immature female, Bioice st.570.

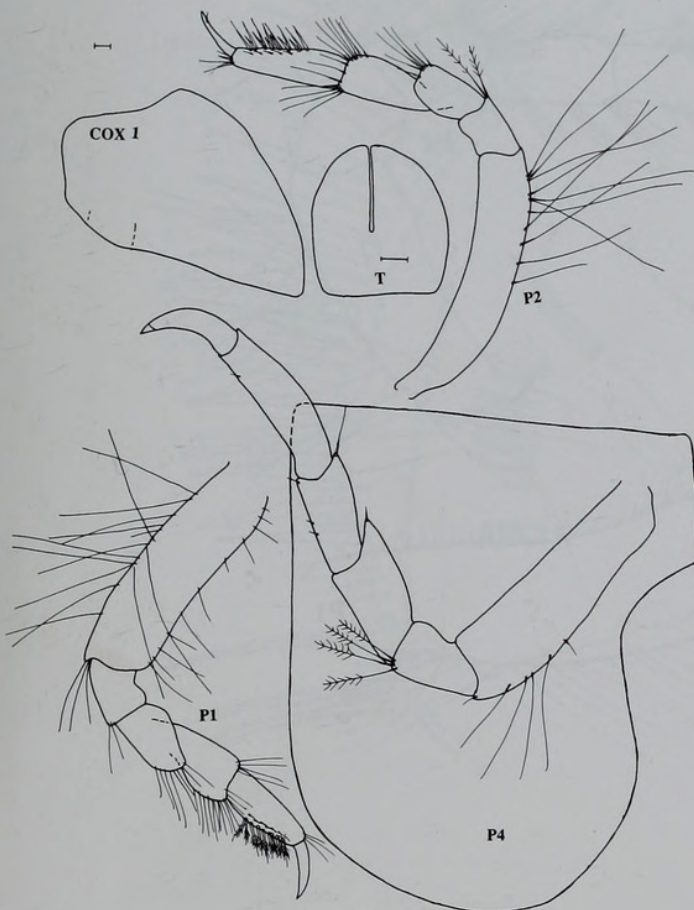


Fig. 19 *Phippsia gibbosa*, immature female, Bioice st.570.

about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally simple, distally with cusps present; row C present; row D present, expanded, row elongated towards and beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distal inner margin greatly produced, dactylus distally simple (pointed); inner plate with 2 nodular setae; medial setae-row present, not reduced, vertical, setae pectinate; distal setae-row present, setae simple; inner setae-row present, row reduced to one or two setae, setae conspicuously large and strong; outer plate outer setae-row present, marginal, setae attached normally, setae short, strongly curved upwards (hooks); inner setae-row present, well developed, setae long robust, setae pappose, proximally parallel to outer, distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical; right lobe not reduced, left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subrectangular.

Pereopod 2 longer and thinner than pereopod 1; ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe very large, reaching beyond the base of the 7th pereon segment; basis anterior margin without long setae, posterior margin with long setae, without plumose setae on distal anterior and posterior margins; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly unexpanded, with a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, no medial row of setae.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present. Uropod 1 peduncle longer than rami, outer ramus longer than inner. Uropod 2 peduncle as long as rami, outer ramus shorter than inner. Uropod 3 peduncle longer than half the length of rami, outer ramus 2-articulate, outer ramus shorter than inner.

Telson longer than broad, longer than peduncle uropod 3, cleft; apically rounded, no submarginal setae on apex of each lobe.

MALE. Unknown.

REMARKS. Records at The Natural History Museum, London (see also Thurston & Allen, 1969) state that a type specimen of the present species is stored there, but that the validity of its status as a syntype is doubtful. The specimen in question was collected by G.O.Sars from the west coast of Norway, but the absence of a date leaves some doubt as to its type status.

The present species is easily distinguished from all other stegocephalid species due to its peculiar gibbous pleonite 3. For a revision of this genus, see Berge & Vader (2000).

### *Phippsiella* Schellenberg, 1925

*Phippsiella* Schellenberg 1925: 200

### *Phippsiella rostrata* K.H. Barnard, 1932

(Figs 20–21)

*Phippsiella rostrata* K.H. Barnard 1932: 76



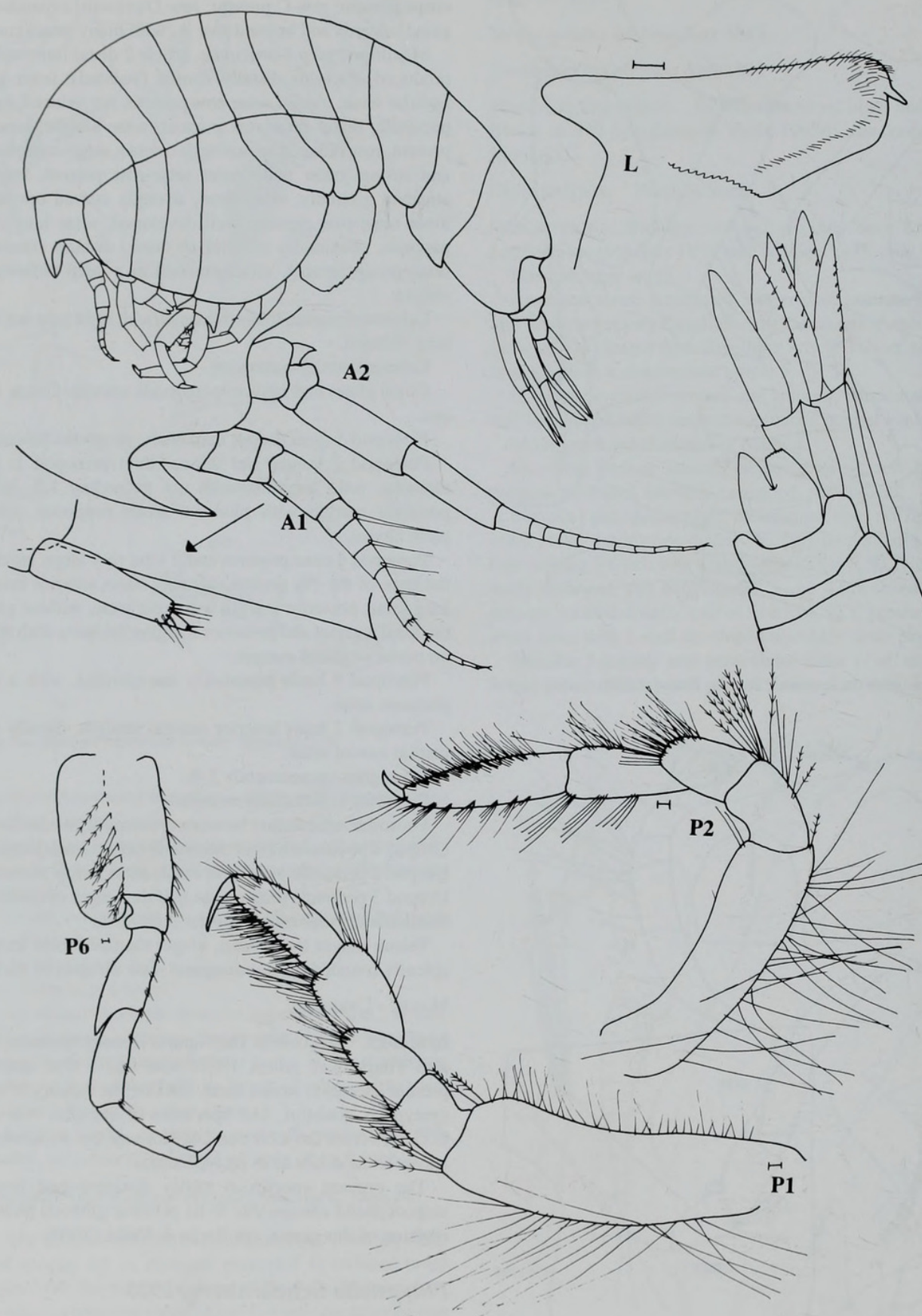


Fig. 20 *Phippsiella rostrata*, Habitus: female (17mm) paratype, Urosome & L: male 17mm) paratype.



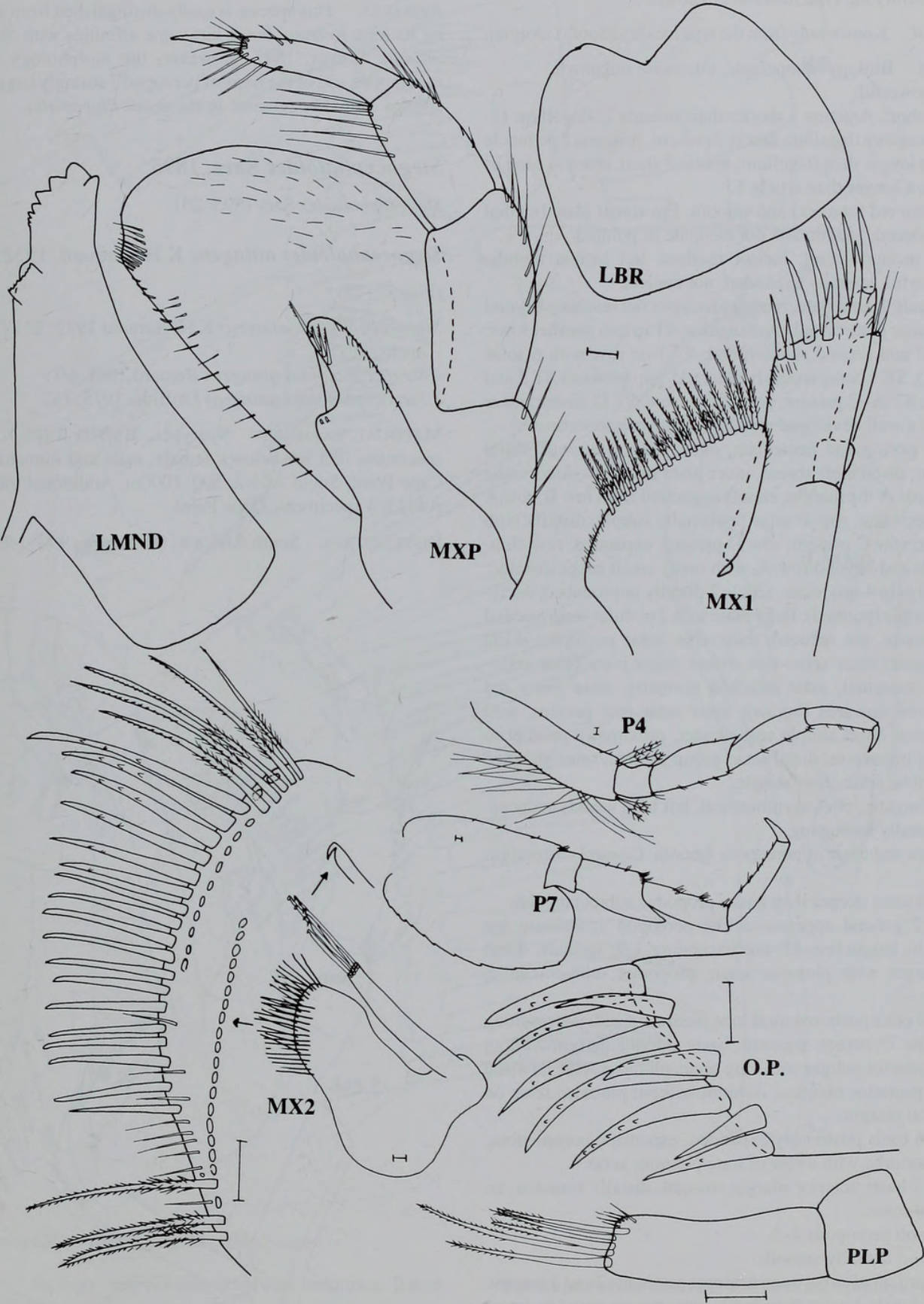


Fig. 21 *Phippsiella rostrata*, male (17mm) paratype.



**MATERIAL EXAMINED.** Syntypes, BMNH 1936.11.2.585–587; Discovery St 158 (see K.H. Barnard 1932), 1 male and 2 females (17–18 mm). Only the type material is known.

**DISTRIBUTION.** Known only from the type locality (South Georgia).

**DESCRIPTION.** Biology: not pelagic, otherwise unknown.

Rostrum powerful.

Antennae short. Antenna 1 shorter than antenna 2; flagellum 11-articulate; accessory flagellum article 2 present. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 longer than article 5.

Epistome curved (convex) and smooth. Epistomal plate (medial keel) not produced. Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 2-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in two parallel rows, first marginal and second submarginal, ST first row with 6 setae (ST1–5, ST7), ST 1 conspicuously enlarged, gap between ST 5 and ST 7 present; ST A–C present, part of first row, ST D absent; inner plate without a well developed shoulder, setae pappopectinate.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present; distal cleft absent; inner plate setae row A covering about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally simple, distally with cusps present; row C present; row D present, expanded, row elongated towards and beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate with 2 nodular setae; medial setae-row present, not reduced, transverse, setae pectinate; distal setae-row absent; inner setae-row absent; outer plate outer setae-row present, marginal, setae attached normally, setae short and strongly curved upwards (hooks); inner setae-row present, well developed, setae short simple and slender, proximally parallel to outer, distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical, left lobe weakly reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subrectangular.

Pereopod 2 general appearance like pereopod 1, ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe medium sized, not reaching the base of the 7<sup>th</sup> pereon segment; basis anterior margin without long setae, posterior margin with long setae, plumose setae on distal anterior and posterior margins; ischium without plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion conspicuous, rounded posteriorly, with a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, no medial row of setae.

Oostegites on pereopods 2–5.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present.

Uropod 1 peduncle longer than rami, outer ramus equal to inner. Uropod 2 peduncle longer than rami, outer ramus equal to inner. Uropod 3 peduncle longer than rami, outer ramus 1-articulate, outer ramus equal to inner.

Telson longer than broad, longer than peduncle uropod 3, cleft; apically open, no submarginal setae on apex of each lobe.

**MALE.** Pereopod 2 propodus equally sized in males and females. Urosome ordinary (similar to females).

**REMARKS.** This species is easily distinguished from all congeners by its long rostrum, but it has some affinities with *Stegocephalus inflatus* Krøyer, 1842. However, the morphology of both the mouthparts and of the basis of pereopod 7 strongly suggests that this species should be retained in the genus *Phippsiella*.

### *Stegocephaloides* Sars, 1895

*Stegocephaloides* Sars 1895: 201

#### *Stegocephaloides attingens* K.H. Barnard, 1932

(Figs 22–25)

*Stegocephaloides attingens* K.H. Barnard 1932: 131 (3 of 4 specimens only)

? *Stegocephaloides attingens* Barnard 1961: 60

? *Stegocephaloides attingens* Griffiths 1975: 167

**MATERIAL EXAMINED.** Syntypes, BMNH 1928.4.13.41–44; 3 specimens (but see below): female, male and immature, 5–8 mm, Cape Point, South Africa, 500–1000m. Additional material: SAM A4423, 4 specimens, Cape Point.

**DISTRIBUTION.** South Africa to (?) Angola, 990–1400m.

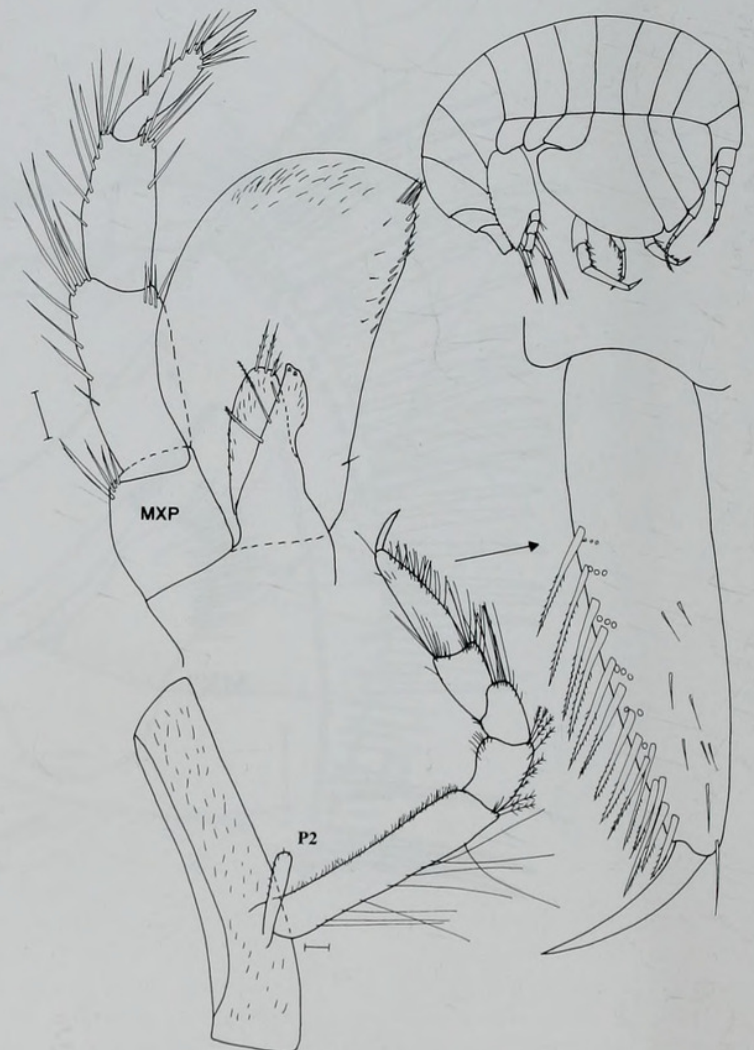


Fig. 22 *Stegocephaloides attingens*, female (8mm) cotype.



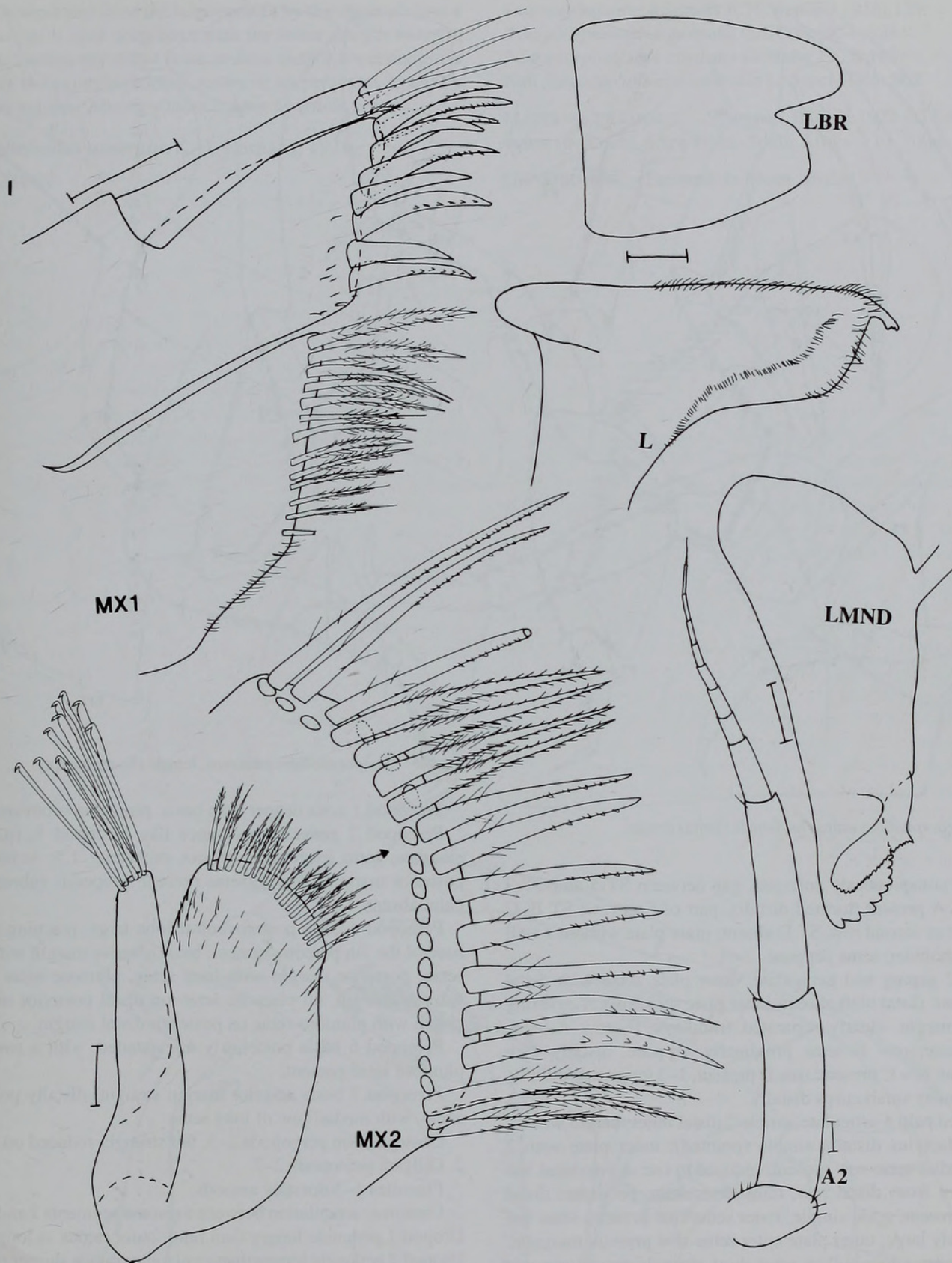


Fig. 23 *Stegocephalides attingens*, female (8mm) cotype.

DESCRIPTION. Biology: not pelagic, otherwise unknown. Based on cotype, female 8 mm.

Rostrum very small.

Antennae short. Antenna 1 equal to antenna 2; flagellum 4-articulate; accessory flagellum article 2 absent. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 about as long as 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) not produced. Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate and apex reaching beyond outer plate; outer plate distally rectangular; ST in a pseudocrown, ST first row with 6 setae (ST1–5,



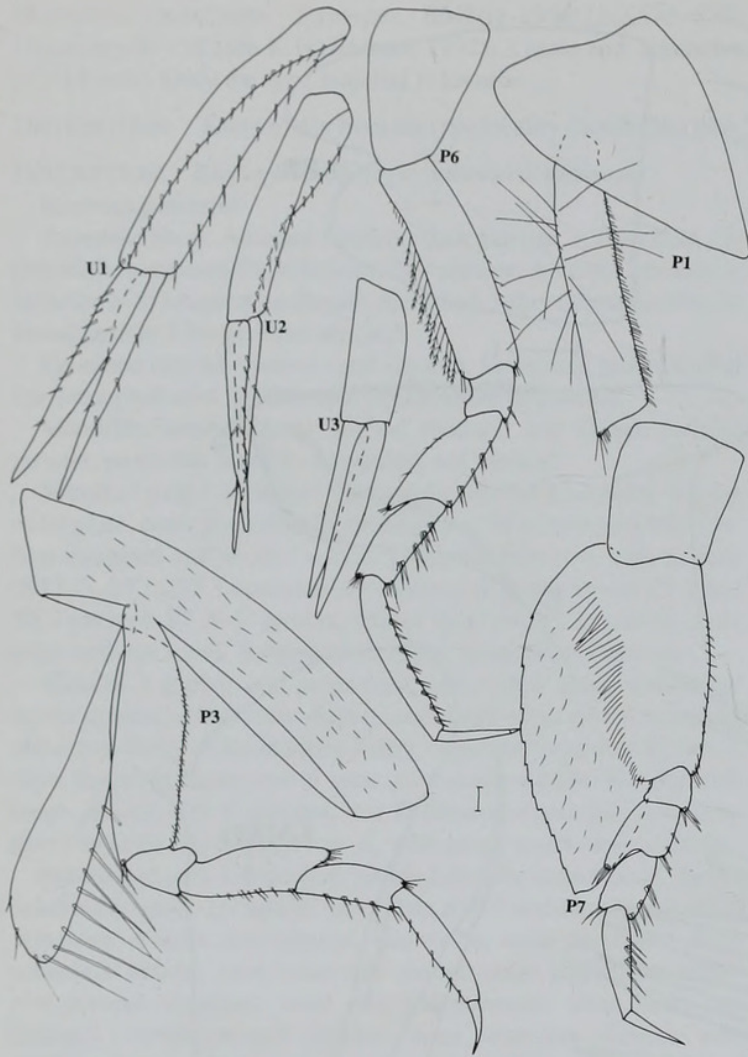


Fig. 24 *Stegocephalides attingens*, female (8mm) cotype.

ST7), ST 1 conspicuously enlarged, gap between ST 5 and ST 7 present; ST A present, located distally, part of first row; ST B–C present, part of second row, ST D absent; inner plate without a well developed shoulder, setae pappose.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft absent; inner plate setae row A covering the entire margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally pappose, distally with cusps present; row C present; row D present, 1–3 long setae distally, setae with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distal inner margin weakly produced, dactylus distally simple (pointed); inner plate with 2 nodular; medial setae-row present, reduced to one or two setae but differentiated from distal row, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row present, setae not conspicuously large; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short, strongly curved upwards (hooks); inner setae-row present but strongly reduced, setae short simple and slender, proximally parallel to outer, distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical, right lobe not reduced, left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods covered with simple setae. Coxae 1–3 contiguous.

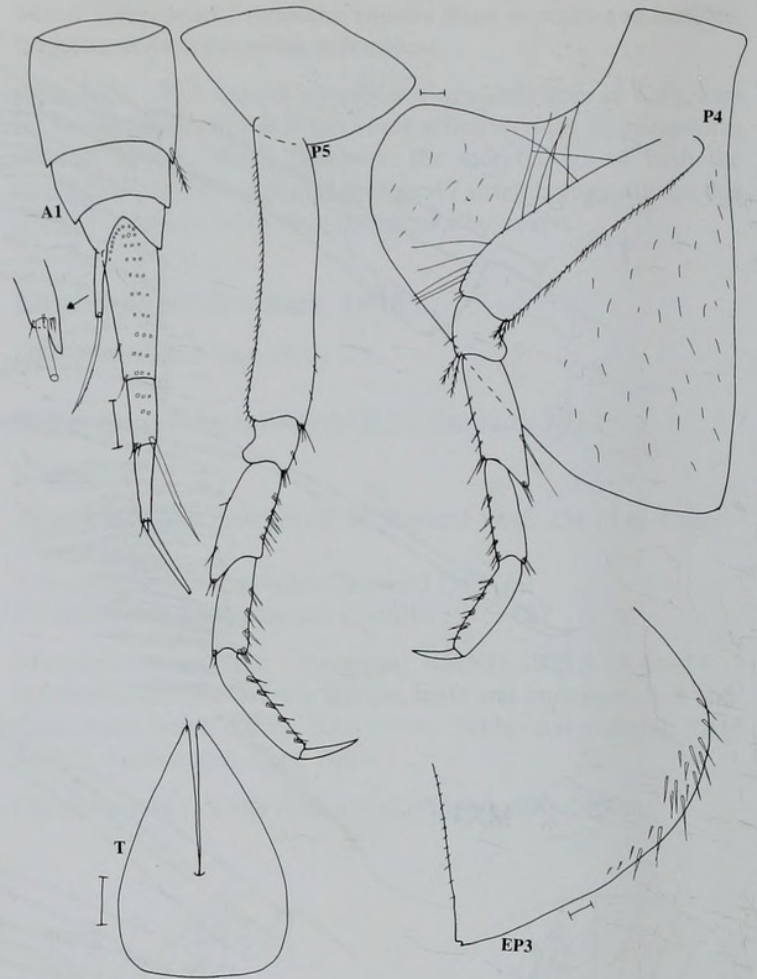


Fig. 25 *Stegocephalides attingens*, female (8mm) cotype.

Pereopod 1 coxa deeper than basis; propodus subovate.

Pereopod 2 general appearance like pereopod 1; ischium not elongate, ratio length:breadth not exceeding 1.5; ischium distal posterior margin plumose setae present; propodus subrectangular; palm absent.

Pereopod 4 coxa posteroventral lobe large, reaching about the base of the 7th pereon segment; basis anterior margin without long setae, posterior margin with long setae, plumose setae on distal anterior margin, no plumose setae on distal posterior margin; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly unexpanded, with a row of long plumose setae present.

Pereopod 7 basis anterior margin straight, distally pointed and acute, with medial row of long setae.

Oostegites on pereopods 2–5, but strongly reduced on pereopod 2. Gills on pereopods 2–7.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 absent. Uropod 1 peduncle longer than rami, outer ramus as long as inner. Uropod 2 peduncle longer than rami, outer ramus shorter than inner. Uropod 3 peduncle longer than half the length of rami, outer ramus 1-articulate, outer ramus longer than inner.

Telson longer than broad, longer than peduncle uropod 3, cleft, apically pointed, submarginal setae on apex of each lobe.

MALE. Pereopod 2 propodus larger in males than in females. Urosome ordinary (similar to females).

REMARKS. The distally acute basis on pereopod 7 is a character state only shared with *Stegocephaloides auratus* (Sars, 1883), but *S.*



*atingens* is separated from the latter species by the shape of coxa 4 (*S. auratus* has a very deep coxa with the lower margin straight, whereas in *S. attingens* coxa 4 is not as deep and the lower margin is curved), by the strongly reduced oostegite on pereopod 2, and by article 4 on antenna 2 being almost as long as article 5.

***Stegocephaloides australis* K.H. Barnard, 1916**

(Figs 26–28)

*Stegocephaloides australis* K.H. Barnard 1916: 129

? *Stegocephaloides australis* Griffiths 1974: 324

? *Stegocephaloides australis* Griffiths 1975: 167

Non *Stegocephaloides australis* Ledoyer 1986: 962

MATERIAL EXAMINED. Syntypes, BMNH 1928.4.13.45–48; 4 females (6–8 mm), Cape Point, South Africa, 110–200m.

DISTRIBUTION. Endemic to South Africa.

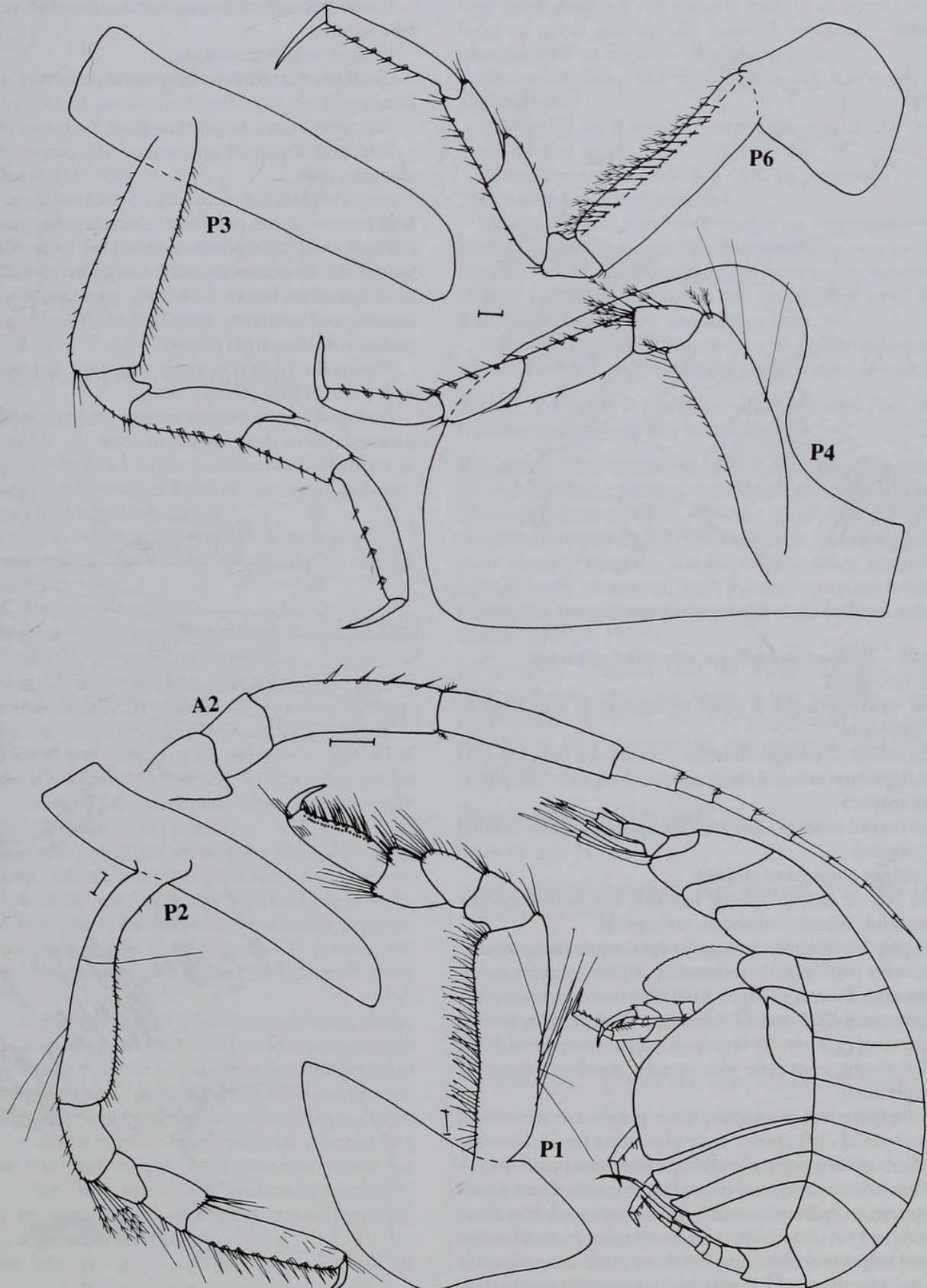


Fig. 26 *Stegocephaloides australis*, female (7mm) cotype.



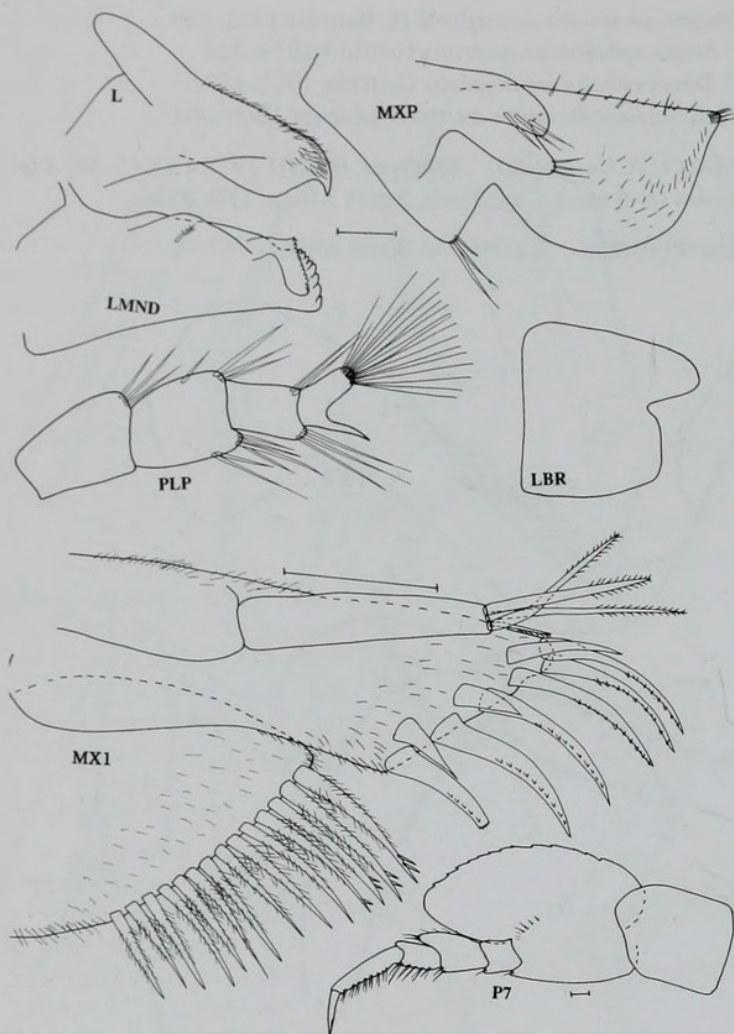


Fig. 27 *Stegocephalooides australis*, female (7mm) cotype.

DESCRIPTION. Biology: not pelagic, otherwise unknown.

Rostrum very small.

Antennae short. Antenna 1 equal to antenna 2; flagellum 5-articulate; accessory

flagellum article 2 absent. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 as long as article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) not produced.

Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in a pseudocrown, ST first row with 6 setae (ST1–5, ST7), ST 1 conspicuously enlarged, gap between ST 5 and ST 7 present; ST A present, located distally and part of first row, ST B present, part of second row, ST C present, ST D absent; inner plate with a weakly developed shoulder, setae pappopectinate.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft absent; inner plate setae row A covering about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally pappose, distally with cusps present; row C present; row D present, expanded, row elongated towards and beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distal inner margin weakly produced, dactylus distally cleft with one pointed and one heavily setose part; inner plate with 2 nodular setae; medial setae-row

present, reduced to one or two setae but differentiated from distal row, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row present, setae not conspicuously large; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short, strongly curved upwards (hooks); inner setae-row present but strongly reduced, setae short simple and slender, proximally parallel to outer row and distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical, right lobe not reduced, left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subrectangular.

Pereopod 2 general appearance like pereopod 1, ischium not elongate, ratio

length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe large, reaching about the base of the 7th pereon segment; basis anterior margin without long setae, posterior margin with long setae, plumose setae on distal anterior and posterior margins; ischium with plumose setae on posterior distal margin present.

Pereopod 6 basis posteriorly expanded, expansion rudimentary, with a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, with a medial row of short and robust setae.

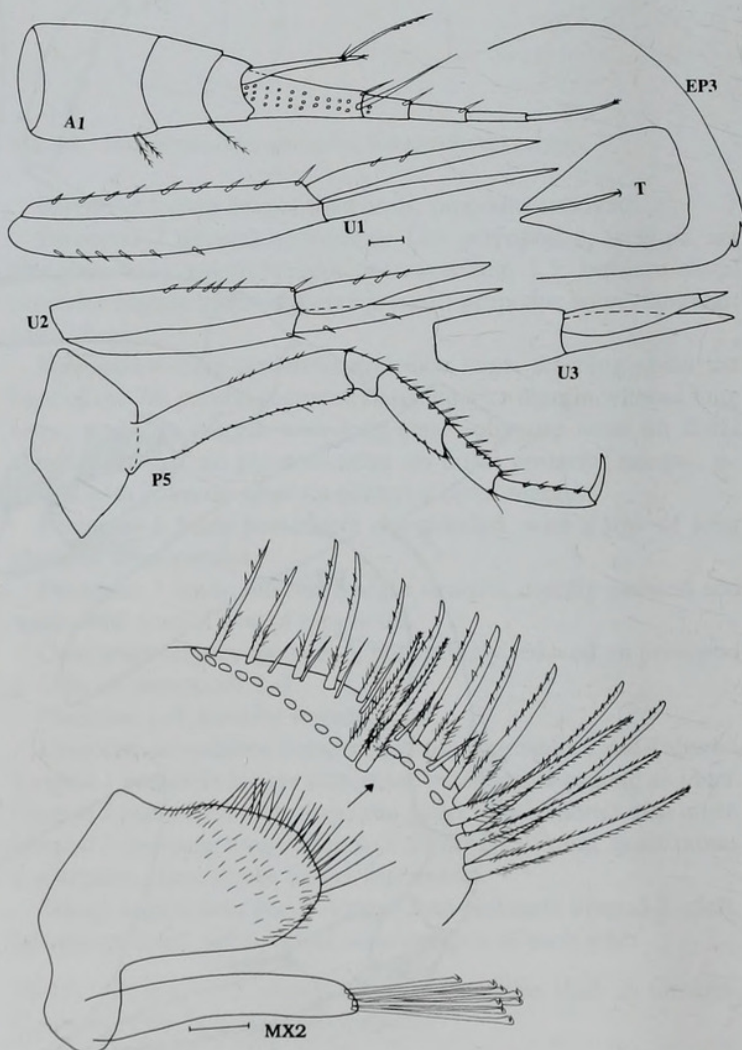


Fig. 28 *Stegocephalooides australis*, female (7mm) cotype.



Oostegites on pereopods 2–5. Gills on pereopods 2–7.  
Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 absent.  
Uropod 1 peduncle longer than rami, outer ramus as long as inner.  
Uropod 2 peduncle longer than rami, outer ramus as long as inner.  
Uropod 3 peduncle longer than half the length of rami, outer ramus 2-articulate, outer ramus as long as inner.

Telson longer than broad, longer than peduncle uropod 3, cleft, apically pointed, no submarginal setae on apex of each lobe.

MALE. Unknown.

REMARKS. This species is distinguished from all other stegocephalid species by the very peculiar dactylus on its maxilliped palp (see figure 27).

*Stegocephaloides calypsonis* sp. nov.

(Figs 29–30)

MATERIAL EXAMINED. Holotype, female, 4 mm, BMNH 1992:1483:17, 10°38'N 65°32'W, 1400m, Calypso exp 7<sup>th</sup>. October 1979. Paratypes, 18 specimens, BMNH 1992:1483:17 (details, as above). Additional material: BMNH 1992:1484:15, 11 specimens, 10°31'N 64°45'W, 1300m, Calypso exp. 5<sup>th</sup> October 1979

DISTRIBUTION. Known only from the type locality.

DESCRIPTION. Biology: not pelagic, otherwise unknown.

Rostrum very small.

Antennae elongate. Antenna 1 longer than antenna 2; flagellum 6-articulate; accessory flagellum article 2 present. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3

short, about as long as broad; article 4 shorter than article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) not produced.

Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in a pseudocrown, ST first row with more than 6 setae (ST1–5 expanded, ST7), ST 1 conspicuously enlarged, gap between ST 5 and ST 7 absent; ST A present, located distally and part of first row, ST B present, part of second row, ST C present, ST D absent; inner plate without or with a weakly developed shoulder, setae pappose.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft absent; inner plate setae row A covering about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally pappose, distally with cusps present; row C present; row D present, expanded, row elongated towards and beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distally unproduced, dactylus distally simple (pointed); inner plate with 1 nodular setae; medial setae-row present, reduced to one or two setae but differentiated from distal row, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row present, setae not conspicuously large; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short and straight; inner setae-row present but strongly reduced, setae short and simple, proximally parallel to outer and distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical; right lobe not reduced; left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1; ischium elongate, ratio length:breadth exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe medium sized, not reaching the base of the 7<sup>th</sup> pereon segment; basis anterior margin without long setae, posterior margin with long setae present, no plumose setae on distal anterior and posterior margins; ischium without plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly unexpanded, without a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, no medial row of setae.

Oostegites on pereopods 2–5. Gills on pereopods 2–7.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 absent.  
Uropod 1 peduncle longer than rami, outer ramus shorter than inner.  
Uropod 2 peduncle shorter than rami, outer ramus shorter than inner.  
Uropod 3 peduncle longer than half the length of rami, outer ramus 2-articulate, outer ramus shorter than inner.

Telson longer than broad, as long as peduncle uropod 3, cleft, apically rounded, no submarginal setae on apex of each lobe.

MALE. Pereopod 2 propodus larger in males than in females. Urosome ordinary (similar to females).

REMARKS. *Stegocephaloides calypsonis* is a rather small species, but with somewhat elongate appendages (antennae and pereopods). The arrangement of ST on maxilla 1 is similar to that found in *S. christianiensis* (Boeck, 1871), but the presence of a second article on outer ramus of uropod 3 and the rounded lower margin of coxa 4 indicate some relationship with *S. attingens* (outer ramus articulation absent, but with rounded coxa), *S. boxshalli* (see below) and *S. camoti* (Barnard, 1967).

ETYMOLOGY. Named after the French oceanographic vessel 'Calypso' from which the material was sampled. Galan (in his unpublished 1984 Ph.D. thesis) originally used the name *calypsae*, but this is here emended to the grammatically more correct *calypsonis*.

*Stegocephaloides boxshalli* sp. nov.

(Figs 31–33)

*Stegocephaloides attingens* K.H. Barnard 1932: 131 (1 out of 4 specimens only)

MATERIAL EXAMINED. Holotype, SAM A43988, male, Cape Point 20<sup>th</sup> of August 1903.

Paratypes, SAM A43988, 3 specimens. Additional material: BMNH 1928.4.13.41–44, female ~7mm: Cape Point, South Africa, 500–1000m.

DISTRIBUTION. Known only from Cape Point, South Africa.

DESCRIPTION. Biology: not pelagic, otherwise unknown.

Rostrum very small.

Antennae short. Antenna 1 longer than antenna 2; flagellum 5-articulate; accessory flagellum, article 2 present. Antenna 2 peduncle (articles 3–5) as long as flagellum; article 3 short, about as long as broad; article 4 longer than article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) not produced.

Mouthparts not elongate or pointed.



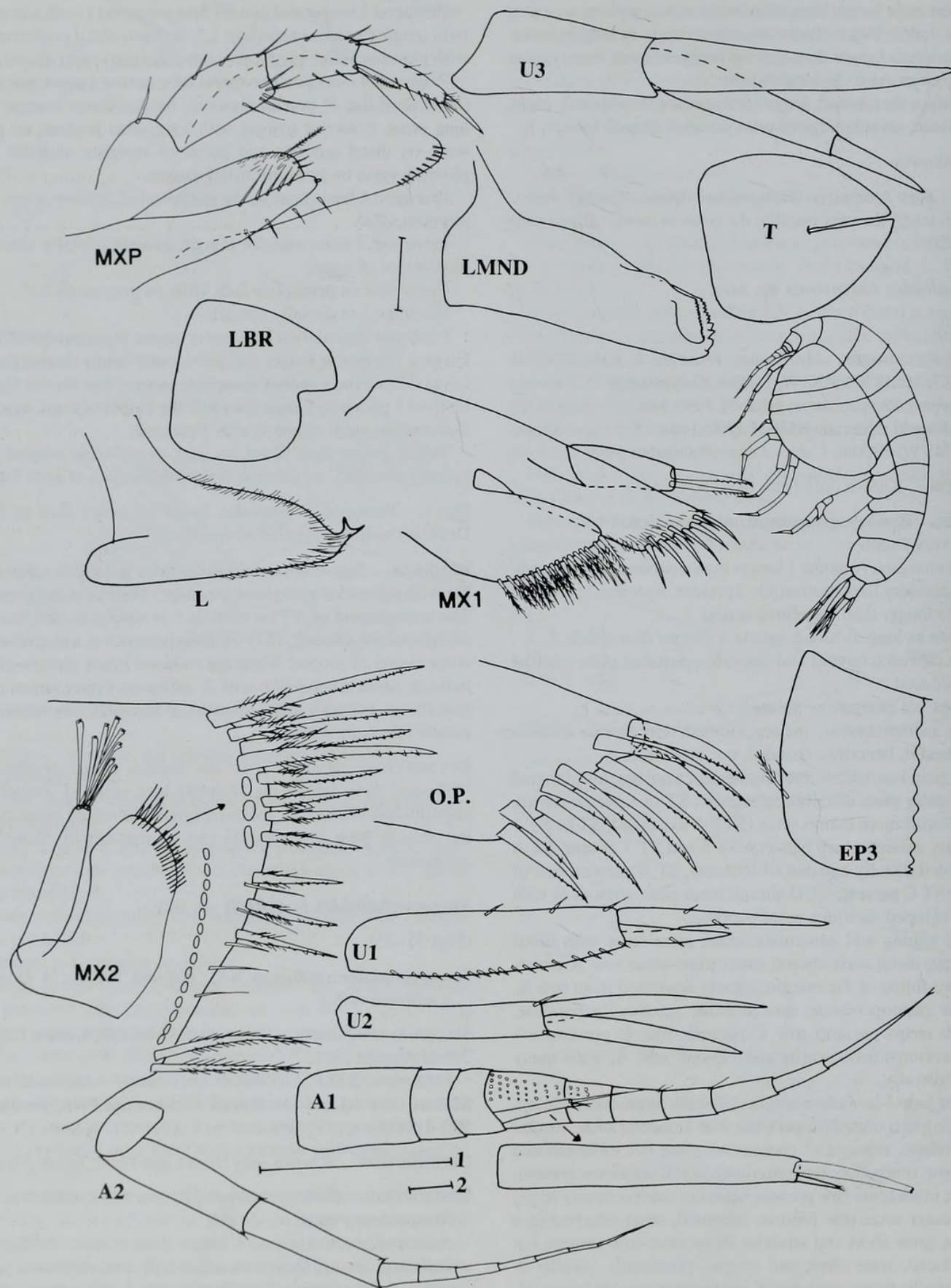


Fig. 29 *Stegocephalooides calypsonis* sp. nov., holotype.



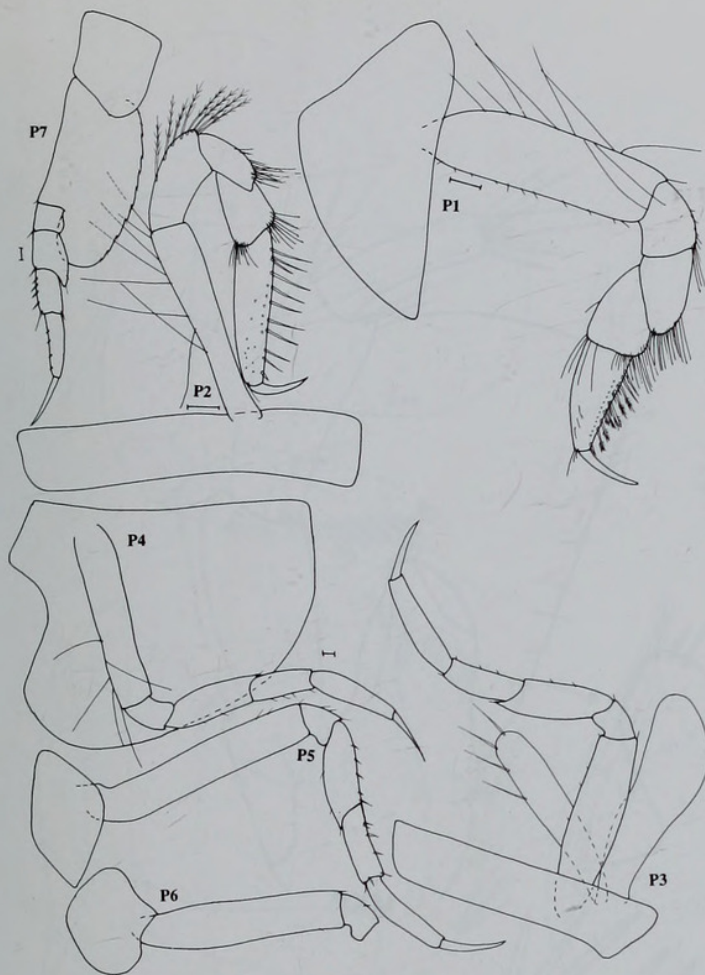


Fig. 30 *Stegocephalooides calypsonis* sp. nov., holotype.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in two parallel rows, first marginal and second submarginal, ST first row with 7 setae (ST1–5, ST7 and an additional ST located medially on outer plate), ST 1 ordinary (similar to ST 2–4), gap between ST 5 and ST 7 present; ST A–C, part of second row, ST D absent; inner plate with a well developed shoulder, setae pappopectinate.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft absent; inner plate setae row A covering about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally simple, distally with cusps present; row C present; row D present, expanded and elongated beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distal inner margin weakly produced, dactylus distally simple (pointed); inner plate with 2 nodular setae; medial setae-row absent, distal setae-row present, setae simple; inner setae-row present, row reduced to one or two setae, setae not conspicuously large; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short and strongly curved upwards (hooks); inner setae-row present but strongly reduced, setae short simple and slender, proximally parallel to outer and distally transverse; distal setae-group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical; right lobe not reduced; left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods covered with very short setules. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1, ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subovate, palm absent.

Pereopod 4 coxa posteroventral lobe large, reaching about the base of the 7<sup>th</sup> pereon segment; basis anterior margin without long setae, posterior margin with long setae, no plumose setae on distal anterior and posterior margins; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion rudimentary, with a row of long plumose setae.

Pereopod 7 basis anterior margin straight, distally rounded, with a medial row of short and robust setae.

Oostegites on pereopods 2–5. Gills on pereopods 2–7.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present. Uropod 1 peduncle longer than rami, outer ramus longer than inner. Uropod 2 unknown. Uropod 3 peduncle longer than rami, outer ramus 2-articulate, outer ramus shorter than inner.

Telson as long as broad, longer than peduncle uropod 3, cleft, apically rounded, no submarginal setae on apex of each lobe.

MALE. Pereopod 2 propodus larger in males than in females. Urosome ordinary (similar to females).

REMARKS. All five specimens were unfortunately lost in the mail after examination of the material, but before the description of the species was entirely finished. Four slides made from the holotype represent the only remaining material. Thus figures of uropod 2, epimeral plate 1 & 2 and habitus are not available.

The present species has some affinities to *S. attingens* (see above), reflected in the fact that all five specimens registered for this species had initially been identified as *S. attingens* (indeed, the one specimen identified by K.H. Barnard (1932) was among the type material of *S. attingens*). The two species are, however, separated by the basis of pereopod 7 (*S. boxshalli* is not pointed distally), by uropod 3 (*S. boxshalli* has a 2-articulate outer ramus) and by the shorter and more rounded telson of *S. boxshalli*. Furthermore, *S. boxshalli* can be separated from all other stegocephalid species by the presence of an additional ST on the outer margin of maxilla 1 outer plate.

ETYMOLOGY. The present species is named after Prof. Geoff Boxshall (Natural History Museum in London) for his support and help with the first authors' work on his Ph.D. thesis.

### *Stegocephalooides ledoyeri* sp. nov.

(Figs 34–36)

*Stegocephalooides australis* Ledoyer 1986:962 (non *S. australis* K.H. Barnard)

MATERIAL EXAMINED. Holotype, SAM A15598, female 8mm. 27°59.5'S 32°40.8'E, collected 22<sup>nd</sup> May 1976. Additional material: 14 specimens identified as *S. australis*, see Ledoyer 1986:962.

DISTRIBUTION. Known from South Africa and Madagascar.

DESCRIPTION. Biology: not pelagic, otherwise unknown.

Rostrum very small.

Antennae short. Antenna 1 shorter than antenna 2 and longer than antenna 2; flagellum 6-articulate; accessory flagellum article 2 present. Antenna 2 peduncle (articles 3–5) longer than flagellum; article 3 short, about as long as broad; article 4 shorter than article 5.

Epistome curved (convex) and smooth; epistomal plate (medial keel) not produced.



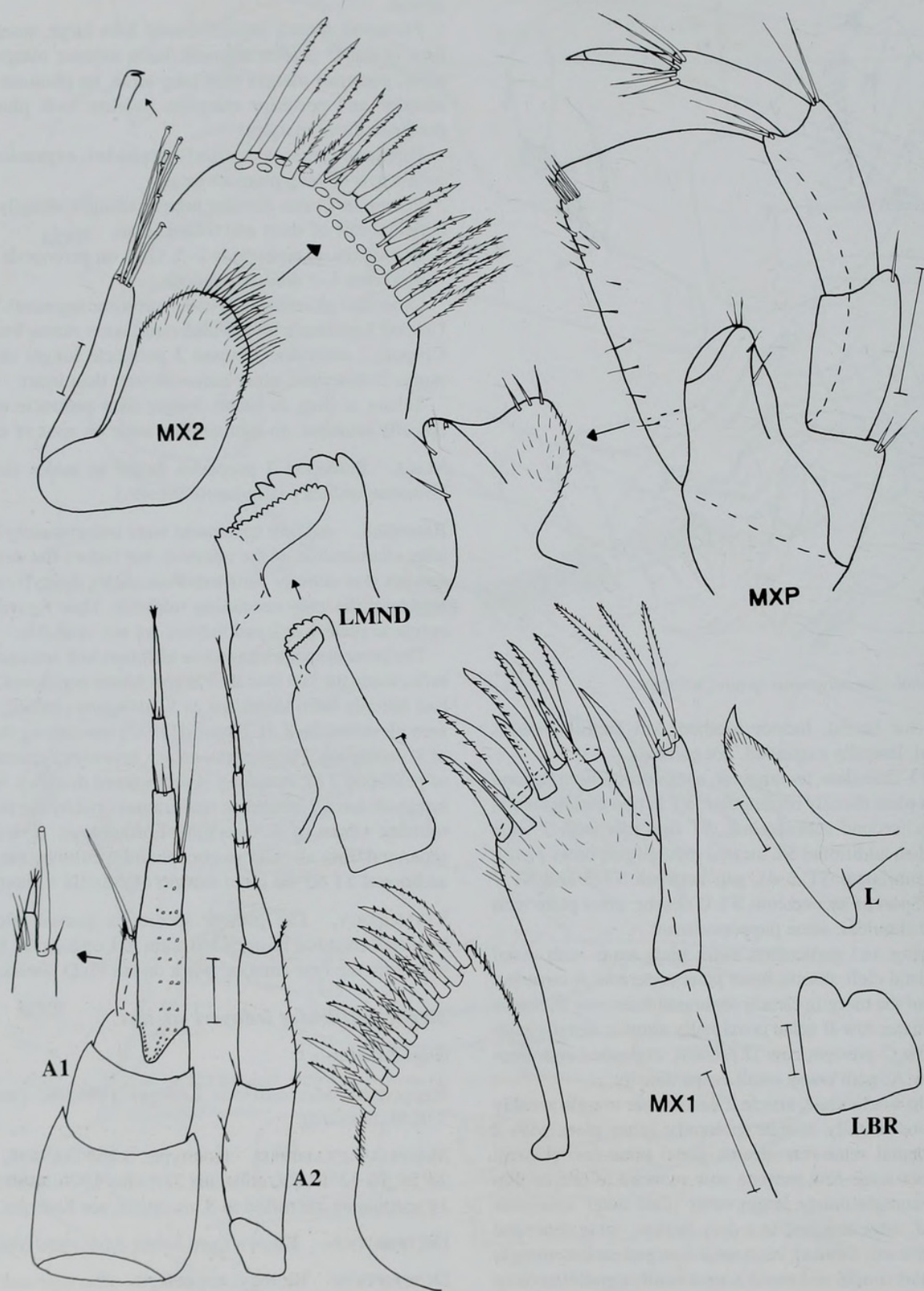


Fig. 31 *Stegocephalooides boxshalli* sp. nov., holotype.



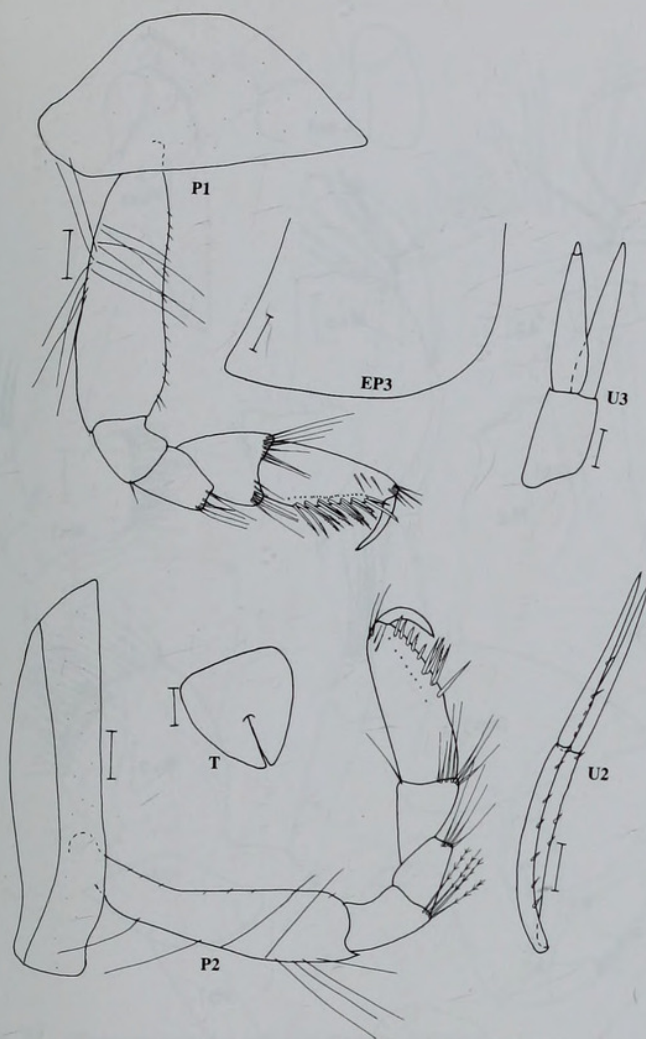


Fig. 32 *Stegocephalooides boxshalli* sp. nov., holotype.

Mouthparts not elongate or pointed.

Mandible incisor lateral; incisor toothed; left lacinia mobilis present, powerful, laterally expanded, not conical.

Maxilla 1 palp 1-articulate, rectangular, apex not reaching beyond outer plate; outer plate distally rectangular; ST in a pseudocrown, ST first row with 6 setae (ST1–5, ST7), ST 1 conspicuously enlarged; ST A present; located distally and part of first row, ST B–C present, part of second row, ST D absent; inner plate with a weakly developed shoulder, setae pappopectinate.

Maxilla 2 gaping and geniculate, outer plate setae with distal hooks present, distal cleft absent; inner plate setae row A covering about two thirds of the margin, clearly separated from row B, row A setae pappopectinate; row B setae proximally pappose, distally with cusps present; row C present; row D present, expanded and elongated beyond row A, with many small cusps distally.

Maxilliped palp 4-articulate, article 2 distally produced, distal inner margin weakly produced, dactylus distally simple (pointed); inner plate with 2 nodular setae; medial setae-row present, reduced to one or two setae but differentiated from distal row, transverse, setae pectinate; distal setae-row present, setae simple; inner setae-row present, setae not conspicuously large; outer plate outer setae-row present, marginal, setae attached in a deep hollow, setae short and strongly curved upwards (hooks); inner setae-row present but strongly reduced, setae short, simple and slender, proximally parallel to outer and distally transverse; distal setae-

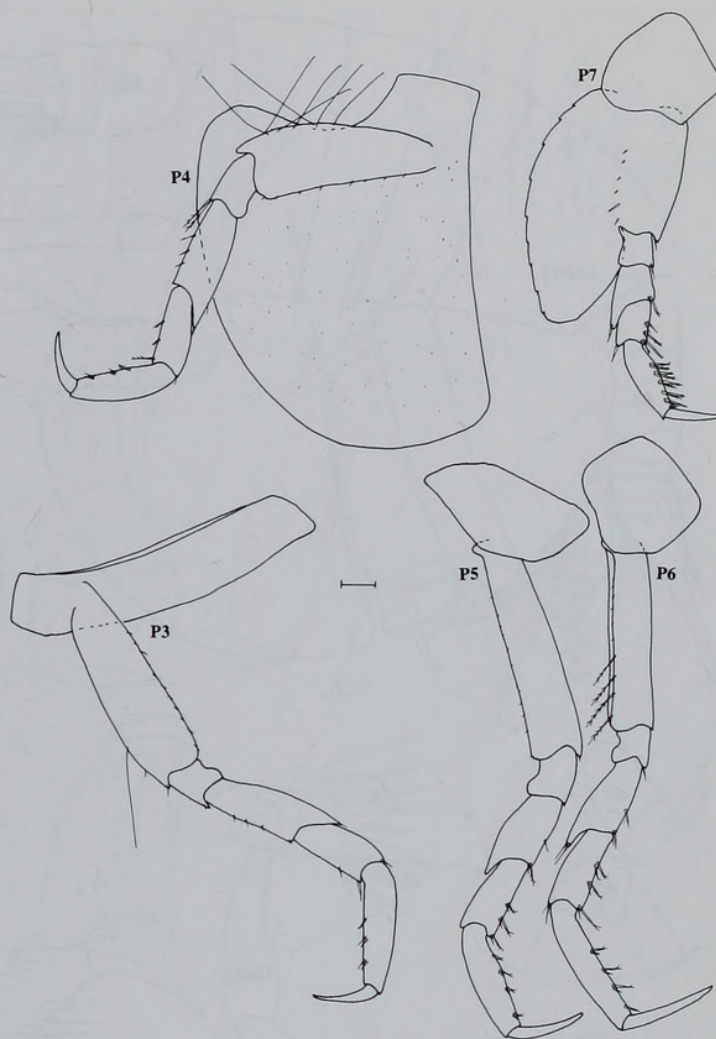


Fig. 33 *Stegocephalooides boxshalli* sp. nov., holotype.

group present, setae attached in a deep hollow, setae short simple.

Labrum elongate; lobes asymmetrical, right lobe not reduced, left lobe reduced.

Labium distally narrowing.

Coxal plates and basis of pereopods smooth. Coxae 1–3 contiguous.

Pereopod 1 coxa deeper than basis; propodus subovate.

Pereopod 2 longer and thinner than pereopod 1, ischium not elongate, ratio length:breadth not exceeding 1.5, ischium distal posterior margin with plumose setae; propodus subrectangular, palm absent.

Pereopod 4 coxa posteroventral lobe large, reaching about the base of the 7th pereon segment; basis anterior margin without long setae, posterior margin with long setae, plumose setae on distal anterior margin, no plumose setae on distal posterior margin; ischium with plumose setae on posterior distal margin.

Pereopod 6 basis posteriorly expanded, expansion rudimentary, with a row of long plumose setae present.

Pereopod 7 basis anterior margin straight, distally rounded, with a medial row of short and robust setae.

Oostegites on pereopods 2–5. Gills on pereopods 2–7.

Pleonites 1–3 dorsally smooth.

Urosome: articulation between urosome segments 2 and 3 present. Uropod 1 peduncle longer than rami, outer ramus as long as inner. Uropod 2 peduncle as long as rami, outer ramus shorter than inner.



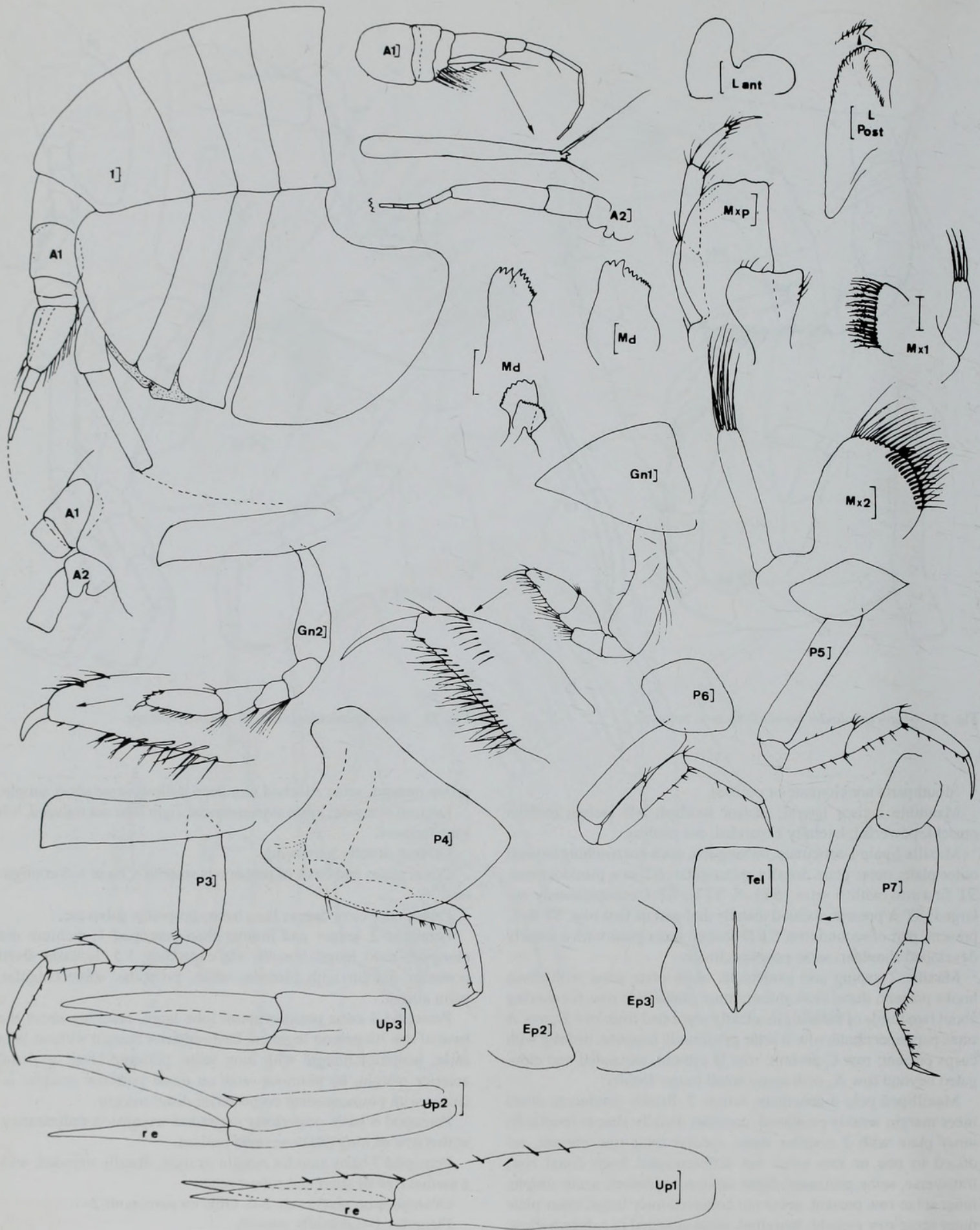


Fig. 34 *Stegocephalooides ledoyeri* sp. nov., from: Ledoyer 1986:963, fig.379 '*Stegocephalooides australis*'.



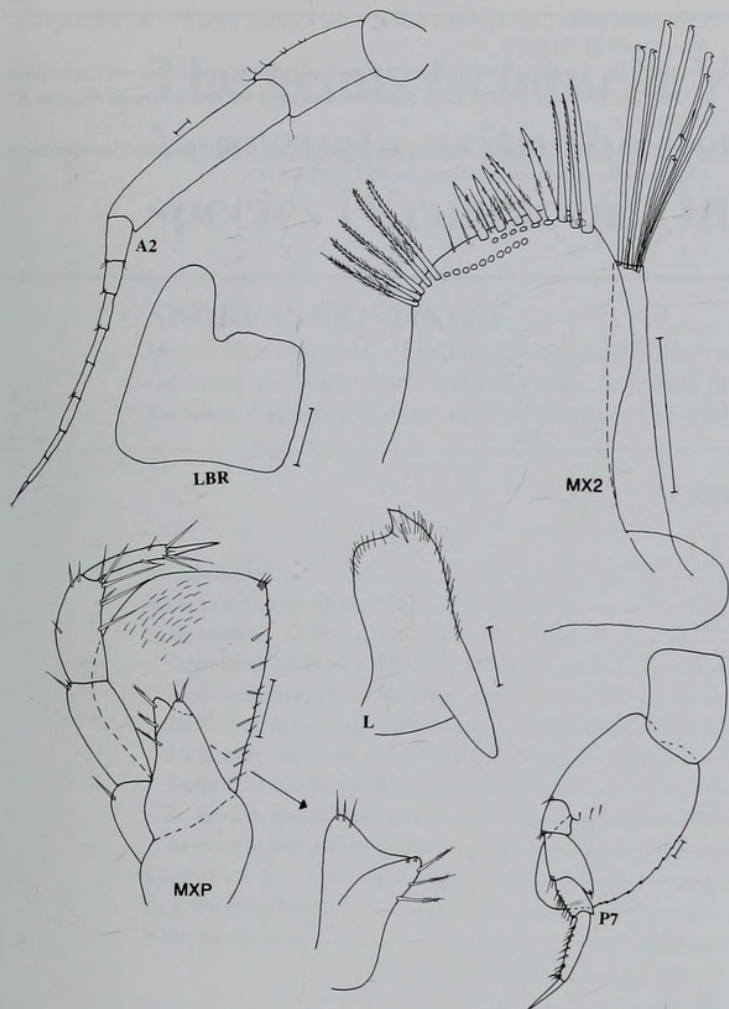


Fig. 35 *Stegocephaloides ledoyeri* sp. nov., holotype.

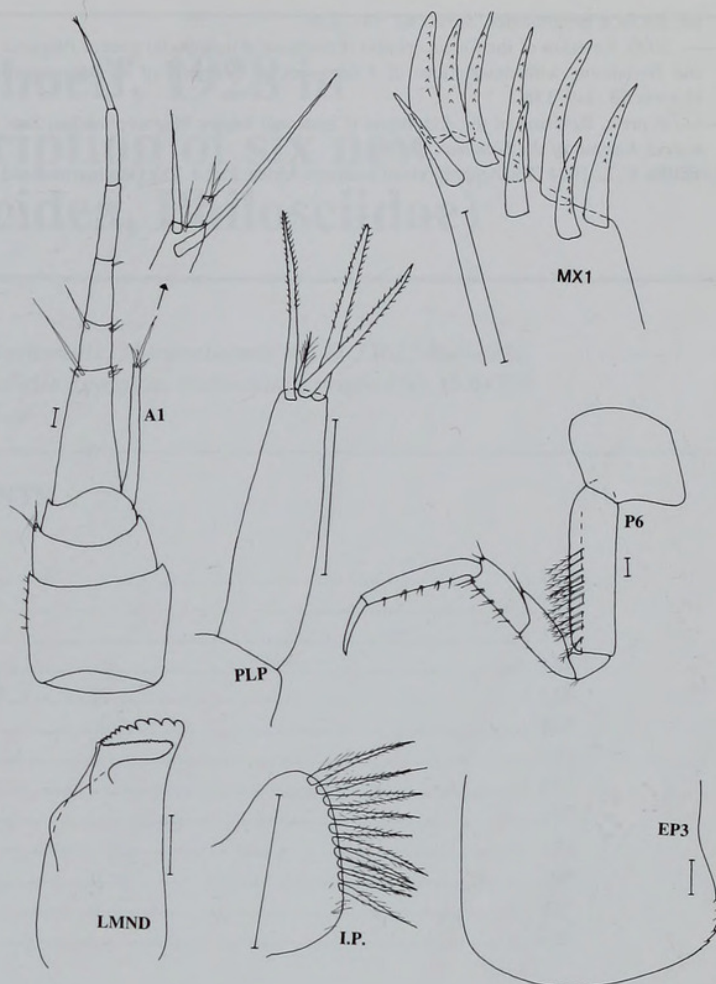


Fig. 36 *Stegocephaloides ledoyeri* sp. nov., holotype.

Uropod 3 peduncle longer than half the length of rami, outer ramus 1-articulate, outer ramus longer than inner.

Telson longer than broad, longer than peduncle uropod 3, cleft, apically pointed, no submarginal setae on apex of each lobe.

MALE. Pereopod 2 propodus larger in males than in females. Urosome ordinary (similar to females).

REMARKS. The present species is distinguished from all other *Stegocephaloides* species by the combination of a distally rounded basis of pereopod 7 and a short article 4 on the peduncle of the second antenna (about 1/2 the length of article 5).

ETYMOLOGY. This species is named after Prof. M. Ledoyer, who first described material of this species (Ledoyer 1986:962, identified as *Stegocephaloides attingens*).

## DISCUSSION

The present paper is part of series that will lead to a complete revision of the family (Berge & Vader, in press.), that will also include a cladistic analysis of all its species. Thus, the species treated herein are described without any further reference to their phylogenetic relationships. Consequently, some of these species may, in future, be transferred to different genera.

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