

# New Harpacticoida (Crustacea, Copepoda) from the North Atlantic Ocean. V. Three New Species of *Metahuntemannia* Smirnov (Cletodidae)

GERD SCHRIEVER

Zoologisches Museum der Universität Kiel, Kiel, F.R.G.

Accepted 6 August 1984

Schriever, G. 1984. New Harpacticoida (Crustacea, Copepoda) from the North Atlantic Ocean. V. Three new species of *Metahuntemannia* Smirnov (Cletodidae).—*Zool. Scr.* 13: 277–284.

*Metahuntemannia triarticulata* sp.n., *M. arctica* sp.n. and *M. bifida* sp.n. are described. *M. triarticulata* and *M. arctica* belong to the 'spinosa' group within the genus *Metahuntemannia* Smirnov. From the closely related species, *M. triarticulata* differs in the possession of 3-segmented Enp P3, *M. arctica* in the segmentation of the A1, and both new species in the setation of their swimming legs P1–P5. *M. bifida* belongs to the 'talpa' group within *Metahuntemannia* and differs from the closely related species in the setation of the swimming legs P2–P4. The species relationships and the phylogeny within the genus are discussed. All species were collected at the Iceland–Faroe Ridge from depths between 435 and 2500 m.

Gerd Schriever, Zoologisches Museum der Universität Kiel, Hegewischstr 3, D-2300 Kiel 1, F.R.G.

## Introduction

This paper is the fifth in a continuing series on Harpacticoida from the North Atlantic Ocean. Three new species of *Metahuntemannia* Smirnov, 1946, *M. triarticulata* sp.n., *M. arctica* sp.n. and *M. bifida* sp.n., are described here.

With the description of these three new species all *Metahuntemannia* species from the material so far collected from the Iceland–Faroe Ridge have been described.

## Material and methods

The three species were collected in 1966 during cruise 98 of F.R.V. *Anton Dohrn* at the Iceland–Faroe Ridge by Dr Hj. Thiel of the University of Hamburg. A description of the investigations in that area and first results on the meio- and macrofauna are given by Thiel (1971), and further information about material and methods is presented by Schriever (1982). The nomenclature and descriptive terminology adopted is that of Lang (1948, 1965) and Wells (1976). The illustrations of the harpacticoids were prepared with the aid of a drawing tube. Type specimens are deposited in Zoologisches Museum Kiel (ZMK). The investigation area is shown in Fig. 1, the stations are listed in Table I.

## Descriptions

### *Metahuntemannia triarticulata* sp.n. (Figs. 2–3)

*Type locality.* Iceland–Faroe Ridge, 63°06' N, 06°27' W, F.R.V. *Anton Dohrn* cruise 98, Sta. 491, depth 1540 m; leg. Thiel, 20 July 1966.

*Material.* 1 ♀ Sta. 491; 1 ♀ Sta. 490; 1 ♂ Sta. 486; 1 ♂ Sta. 510. Holotype, dissected ♀ on slide, A1-Fu, ZMK Cop. No. 1344. Allotype, dissected ♂ on slide, A1-Fu, ZMK Cop. No. 1345. Paratypes, dissected ♀ on slide, A1-Fu, ZMK Cop. No. 1346, and dissected ♂ on slide, A1-Fu, ZMK Cop. No. 1347.

*Etymology.* The specific name *triariculata* refers to the 3-segmented Enp P3.

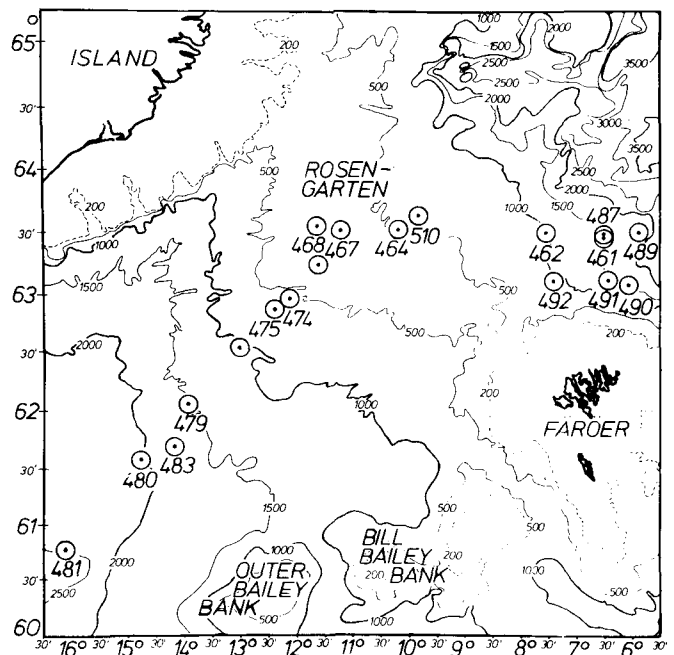


Fig. 1. Investigation area and stations of F.R.V. *Anton Dohrn* cruise 98, 1966 (from Thiel 1971).

Table I. Stations of F.R.V. *Anton Dohrn* cruise 98, 1966

Sta. no.	Lat. (N)	Long. (W)	Depth (m)	Date
462	63°30'	07°34'	1000	1 July
481	63°46'	16°06'	2500	9 July
486	63°16'	11°37'	435	16 July
487	63°29'	06°32'	1510	17 July
489	63°30'	06°05'	1850	18 July
490	63°04'	06°05'	1685	19 July
491	63°06'	06°27'	1540	20 July
492	63°06'	07°25'	985	21 July
510	63°38'	09°48'	600	24 July

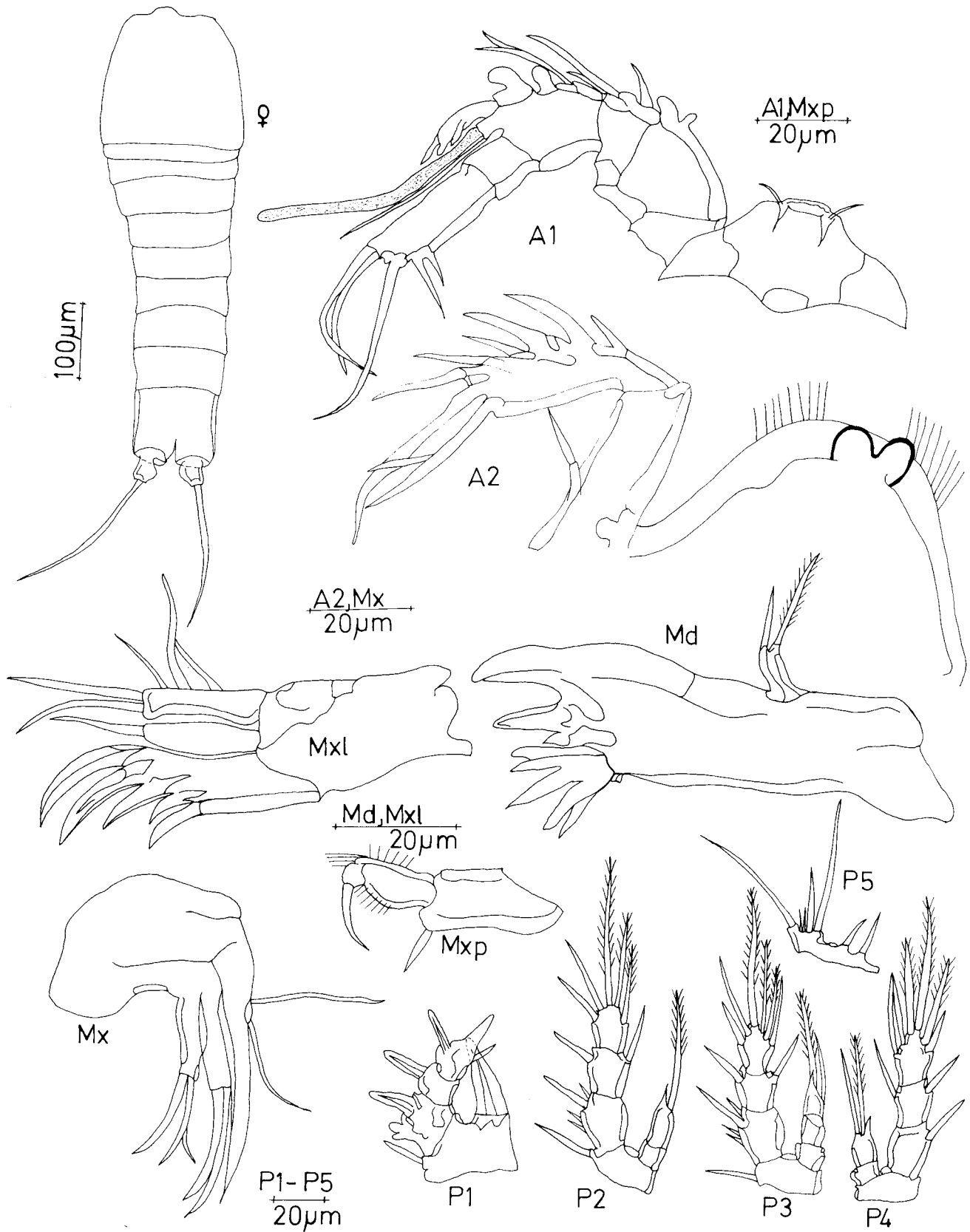


Fig. 2. *Metahuntemannia triarticulata* sp.n. ♀.

*Description of the female* (Figs. 2-3)

Length 560 μm. Body squat, rostrum prominent with 1 seta on each side of the rounded apex. Genital segment undivided. Pseudoperculum with fine hairs. Caudal rami (Fig. 3) quadratic, bearing 1 well developed seta.

A1 5-segmented, second segment small. Aesthetasc on segment 3. Setation as figured. A2 with allobasis, Exp 1-segmented, small, with 1 seta. Md praecoxa with bidentate pars incisiva. Palpus reduced to a small segment with 2 setae. Mx1 arthrite of praecoxa with 5 terminal claw-like setae. Coxa and basis with a strong spine and 1 and 2

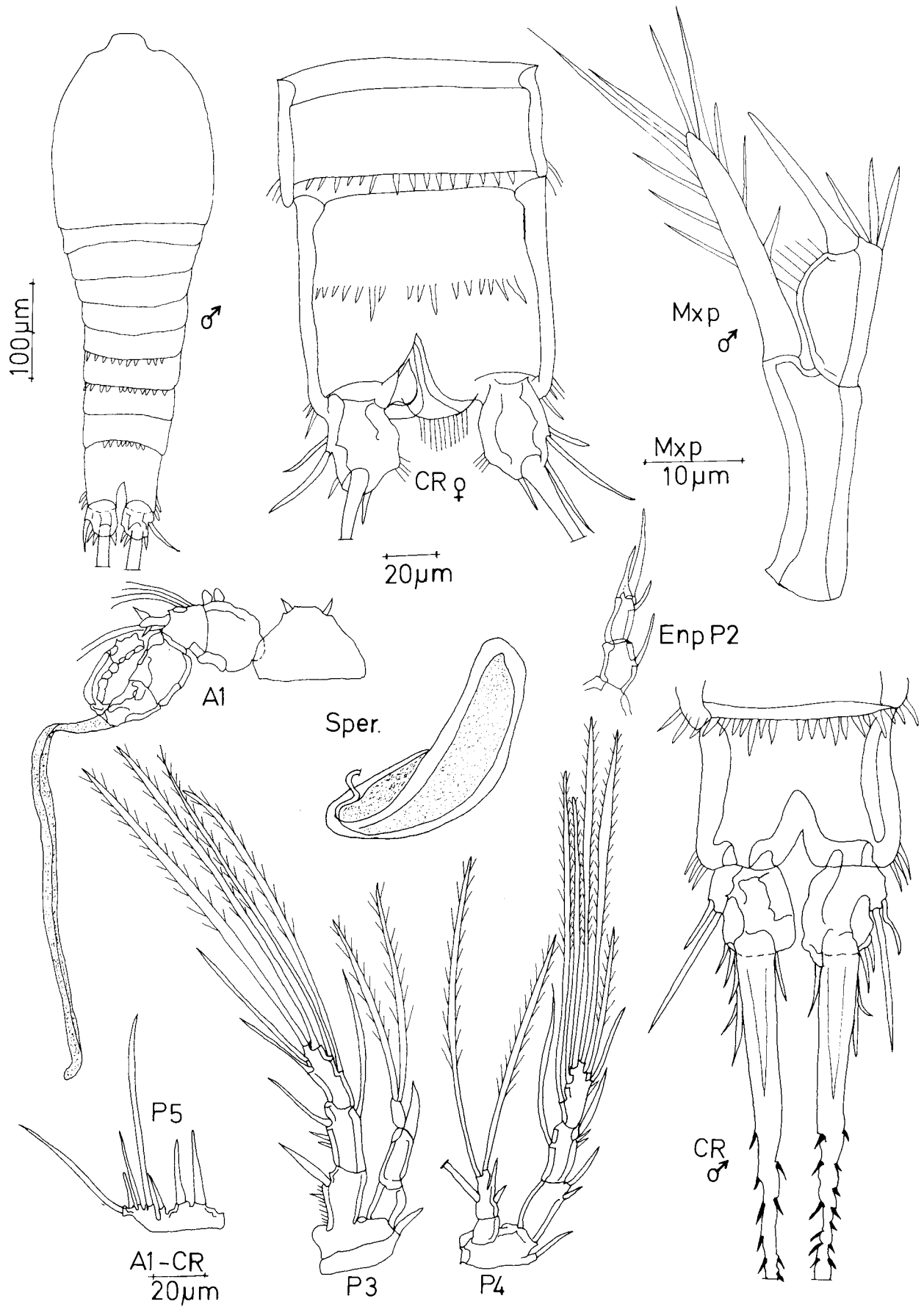


Fig. 3. *Metahuntemannia triarticulata* sp.n. ♂, except caudal rami (CR) ♀.

setae, respectively. Enp and Exp represented by 2 and 1 setae. Mx syncoxa with 2 endites, with 2 setae each. Enp 1-segmented with 2 setae. Mxp basis with a strong spine at the outer distal corner. Enp with a row of fine hairs at the inner and outer edge and 4 minute setae at the distal inner corner, terminating in a strong claw, prehensile. P1 Exp 3-segmented with strong spines at the external edges of segment 1 and 2. Segment 3 bears 1 strong outer and 1 strong terminal spine and a normal inner seta. The Enp is represented by a blunt spine (bs) which is equal in length to the whole Exp. P2–P4 Exp 3-segmented, Enp P2 and P4 2-segmented, Enp P3 3-segmented. Setation as figured and listed below.

Spine and setal formula:

	Exp	Enp
P1	0.0.111	bs
P2	0.1.122	0.010
P3	0.1.312	0.0.020
P4	0.1.312	0.020

P5 Benp and Exp fused, Exp slightly prominent. Benp with 2 setae, Exp with 4 setae, outer 2 very small.

#### Description of the male (Fig. 3)

Male with spermatophore, length 480  $\mu\text{m}$ . Body squat, as in female. Rostrum small, prominent. Caudal rami quadratic with 1 well developed plumose spine. Only the differences to the female are reported.

A1 6-segmented, long aesthetasc on segment 4, haplocerate. Mxp basis with a large strong plumose spine. Spine longer than Enp. Enp with a row of fine hairs at the outer edge and 3 small setae at the distal inner corner, terminating in a claw, prehensile. P1 as in female, but with 2 inner setae on Exp segment 3. P2–P4 segmentation as in female, but Enp P3 modified and Enp P2 and P4 setation different to female, as figured and listed below.

Spine and setal formula:

	Exp	Enp
P1	0.0.211	bs
P2	0.1.122	1.120
P3	0.1.312	0.mod.020
P4	0.1.312	1.310

P5 Benp and Exp fused, slightly prominent. Benp with 3 setae, Exp with 3 setae, outer one small.

#### Remarks

*M. triarticulata* sp.n. belongs to the 'spinosa' group and differs from the closely related species *M. mediterranea* Soyer, 1970 and *M. pseudomagniceps* Schriever, 1983 in the possession of a 3-segmented Enp P3 and in the setation of the swimming legs P1–P5. The new species differs from *M. dovpori* Bodin, 1968 in the Mxp and in the small fused segment derived from the basis and Enp of the Mdp. The male is smaller than the female and shows obvious sexual dimorphism in the A1, the setation of Enp segment and a modified segment 2 Enp P3, but it shows less dimorphism in the Mxp than does *M. pseudomagniceps*. Wells' (1976, p. 155) keys can be amended to include *M. triarticulata* by

adding the codons ♀ 3:bs/3:3:/2:2/5:6:6/1:2 and ♂ 3:bs/3:3:3/2:2/5:6:6/3:4.

#### *Metahuntemannia arctica* sp.n. (Figs. 4–5)

*Type locality.* Iceland–Faroe Ridge, 63°30'N, 05°55'W, F.R.V. *Anton Dohrn* cruise 98, Sta. 489, depth 1825 m; leg. Thiel, 18 July 1966.

*Material.* 1 ♀ Sta. 489, holotype dissected on slide, A1–Fu, ZMK Cop. No. 1348.

*Etymology.* The specific name *arctica* refers to the location of the type locality in the arctic part of the North Atlantic Ocean.

#### Description of the female (male unknown)

Length 650  $\mu\text{m}$ . Body squat, rostrum small with 1 seta on each side of the rounded apex. Genital segment undivided. Abdominal segments each with a row of setae ventrally. Caudal rami little shorter than broad, with 1 strong apical seta.

A1 5-segmented, segment 2 and 4 small, segment 3 with strong spines and bearing the aesthetasc. A2 with allobasis, Exp small, 1-segmented with 1 seta. Enp with 4 terminal and 3 medial setae. Md praecoxa with bidentate pars incisiva. Palpus reduced to a small segment with 2 setae. Mx1 arthrite of praecoxa with 5 terminal claw-like setae. Enp represented by 2, Exp by 1 setae. Mx syncoxa with 2 endites, with 2 setae each. Enp 1-segmented with 2 setae. Mxp basis with a strong spine at the outer distal corner. Enp with a row of fine hairs at the outer edge and 2 minute setae at the inner distal corner, terminating in a strong claw, prehensile. P1 Exp 3-segmented with strong spines at the external edges of all segments. Segment 3 bears a strong spine and a normal internal seta. The Enp is represented by a blunt spine (bs) which is equal in length to the whole Exp. P2–P4 Exp 3-segmented, Enp lacking. Exp. P4 segment 2 with inner seta, terminal seta Exp P2 segment 3 lost during preparation. Setation as figured and listed below.

Spine and setal formula:

	Exp	Enp
P1	0.0.111	bs
P2	0.0.022	
P3	0.0.022	
P4	0.1.022	

P5 Benp and Exp fused, both branches slightly prominent. Benp with 2 setae, inner one plumose, Exp with 3 setae, decreasing in length from inner to outer.

#### Remarks

*M. arctica* sp.n. shows the same setation and segmentation of the A1 and P1–P5 as *M. dovpori*, but differs from this species in the segmentation of the basis Mdp, which is reduced to a small fused segment, and in the setation of Exp P4 segment 2. From the closely related species *M. gorbunovi* Smirnov, 1946 and *M. drzycimskii* Soyer, 1970, *M. arctica* differs in the segmentation of the swimming legs P1–P5. These differences justify the description of *M. arctica* as a new species. *M. arctica* has the same codon in Wells' (1976, p. 155) keys as *M. gorbunovi* and *M. spinosa* (Klie, 1941), i.e. 3:bs/3:3:3/0:0/4:4:4/na:na.

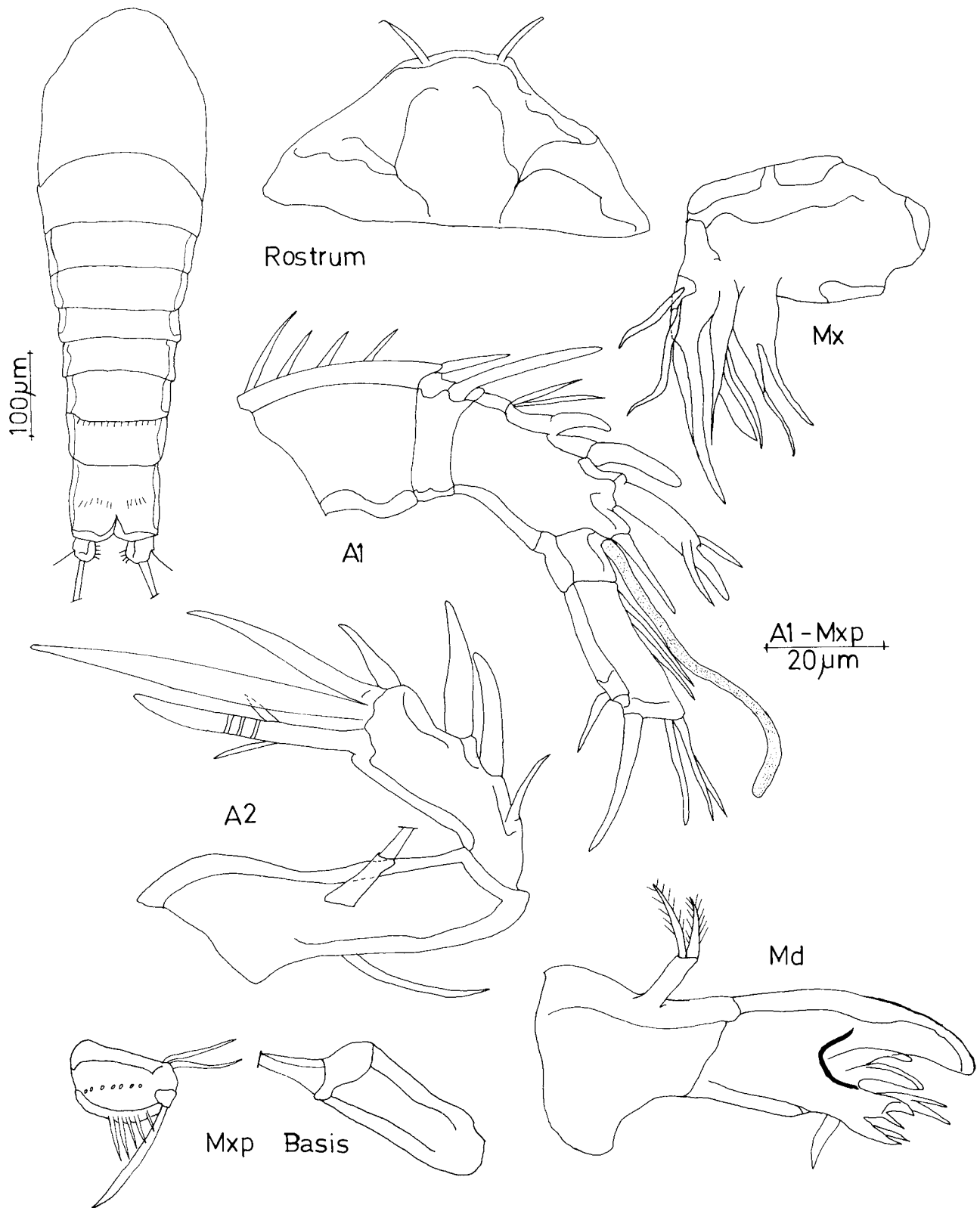


Fig. 4. *Metahuntemannia arctica* sp.n. ♀.

***Metahuntemannia bifida* sp.n.** (Fig. 6)

*Type locality.* Iceland–Faroe Ridge, 63°06'N, 07°25'W, F. R. V. *Anton Dohrn* cruise 98, Sta. 492, depth 985 m; leg. Thiel, 21 July 1966.

*Material.* 1 ♀ Sta. 492, 1 ♀ Sta. 462, 1 Copepodite Sta. 481, 1 Copepodite Sta. 487. Holotype dissected ♀ on slide, A1–Fu, ZMK Cop. No. 1349. Paratype undissected ♀ without abdomen, in glycerin, ZMK Cop. No. 1350. 2 Copepodites, in glycerin, ZMK Cop. Nos. 1351–1352.

*Etymology.* The specific name *bifida* refers to the bifid rostrum.

*Description of the female* (male unknown)

Length 500 µm. Body cylindrical, last abdominal segment longer than others. Rostrum short, bifid, like a small shovel, which together with a 1-segmented Enp P1 is characteristic for the species within the 'talpa' group (Becker *et al.* 1979). Caudal rami very short, nearly quadratic, with 1 terminal seta.

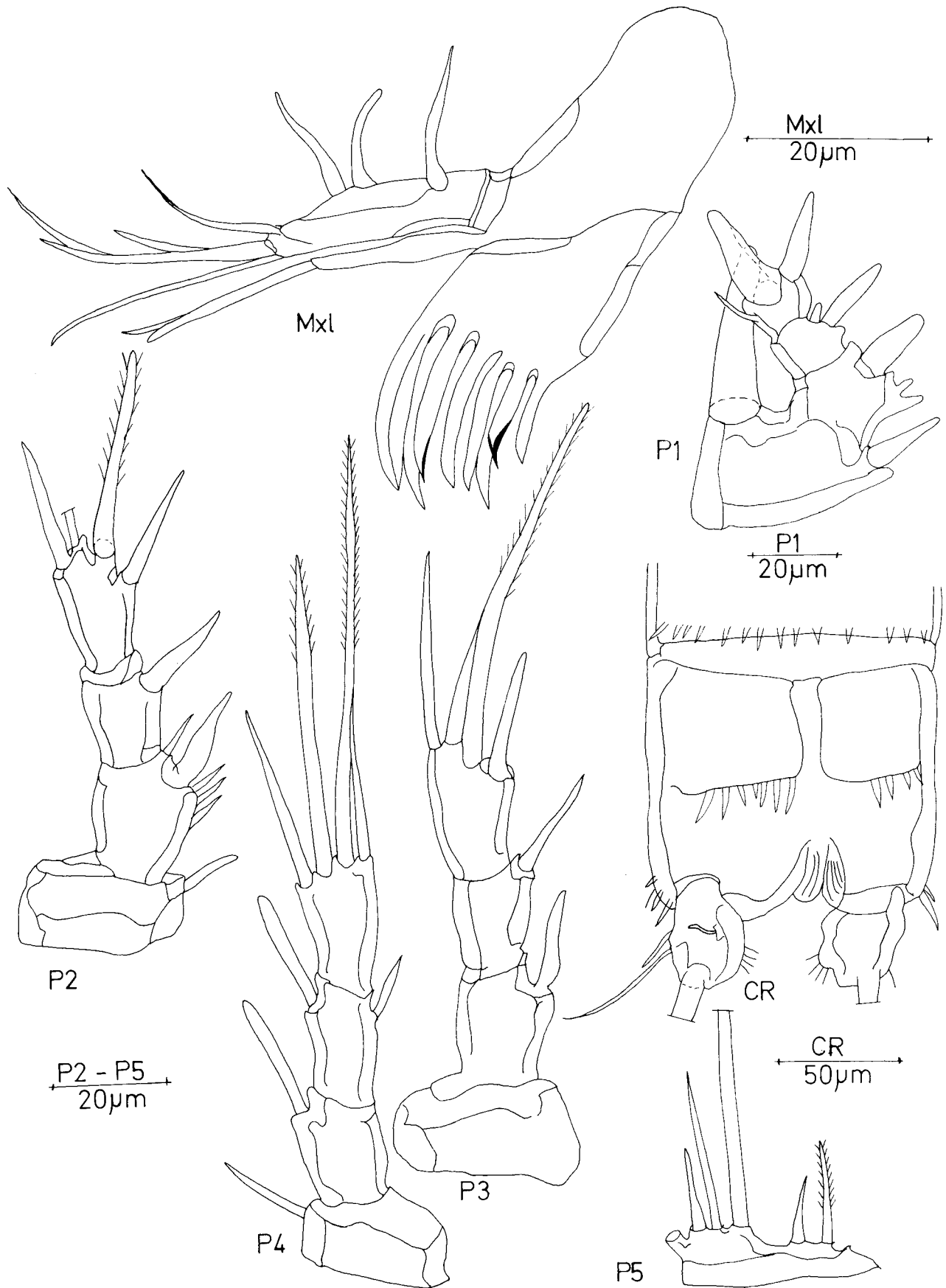


Fig. 5. *Metahuntamannia arctica* sp.n. ♀.

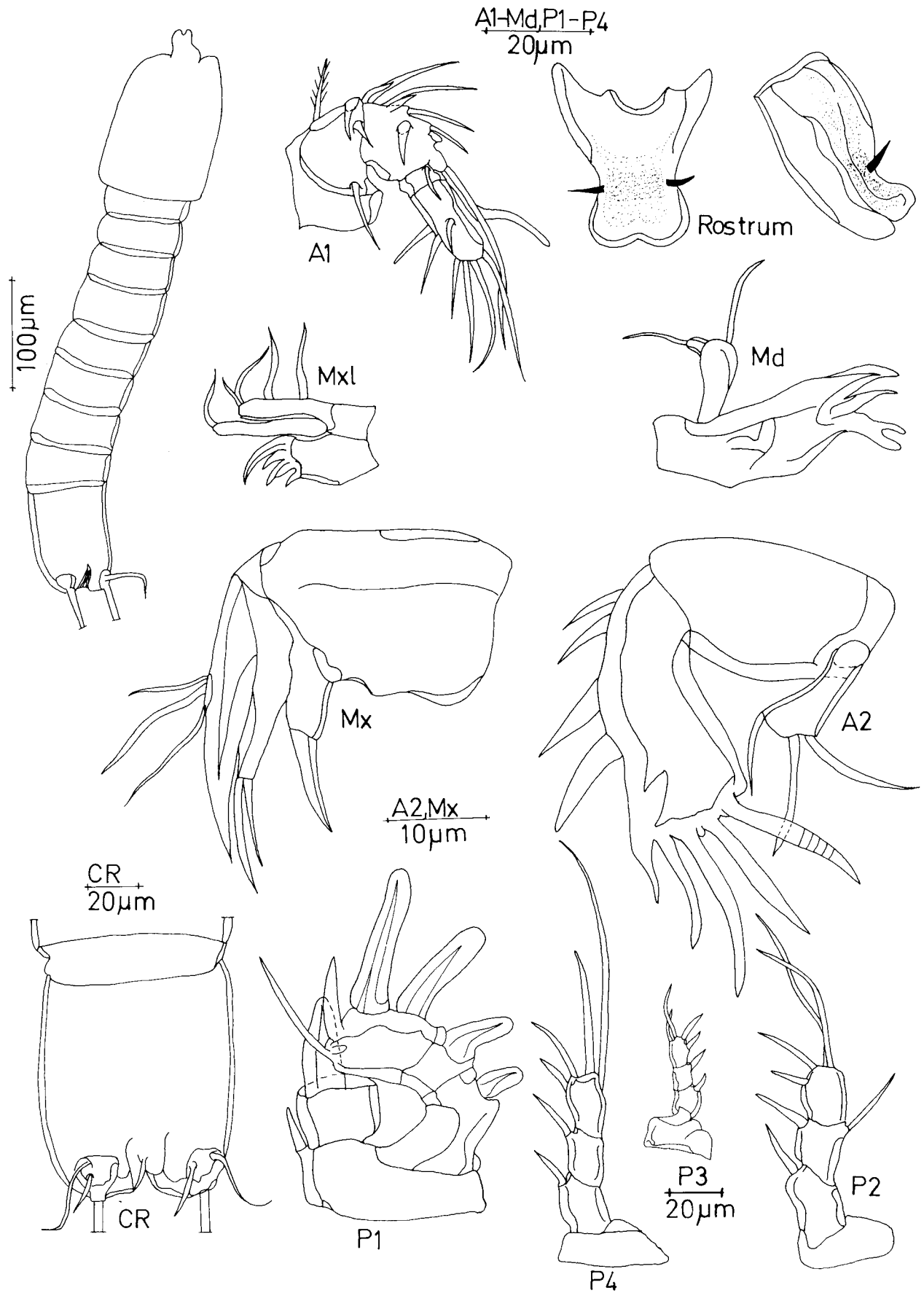


Fig. 6. *Metahuntemannia bifida* sp.n. ♀.

A1 5-segmented without strong spines at segments 2 and 3, small and squat. Segment 4 short, segment 3 with aesthetasc. A2 with allobasis, bearing a 1-segmented Exp with 3 setae. Enp with 5 terminal and 2 medial setae. Mx1 arthrite of praecoxa with 5 claw-like setae. Basis with 1, coxa with 2 setae. Exp and Enp each represented by 1 seta. Mx syncoxa with 2 endites. First and second with 2 setae each, third lost during preparation. Enp small, 1-segmented with 3 setae. Mxp lost during preparation. P1 Exp 3-segmented, with strong spines at the external edges of each segment. In addition to a short strong spine, a normal plumose seta is present terminally. Enp 1-segmented, squat with a strong spine. P2–P4 all Exp 3-segmented, Exp P2 segment 2 with 1 inner seta. All Enp lacking. Setation as figured and listed below.

Spine and setal formula:

	Exp	Enp
P1	0.0.022	010
P2	0.1.022	
P3	0.0.022	
P4	0.0.022	
P5	lacking.	

#### Remarks

*M. bifida* sp.n. belongs to the 'talpa' group (Becker *et al.* 1979) within *Metahuntemannia* and is closely related to *M. curticauda* Becker *et al.*, 1979. It differs from this species in the presence of 2 outer setae on segment 3 Exp P2–P4. Wells' (1976, p. 155) keys can be amended to include *M. bifida* by the addition of the codon 3:1/3:3:3/0:0/4:4:4/na:na.

#### Discussion

Becker (1972) and Schriever (1983) have discussed the relationships of the species within the genus *Metahuntemannia*.

Within the 'spinosa' group *M. triarticulata* is most closely related to *M. mediterranea* and *M. pseudomagniceps*, but differs in the presence of a 3-segmented Enp P3, already known from *M. dovpori* and *M. micracantha* Gamô, 1981 (the latter a member of the 'talpa' group, see Gamô 1981). Within this group only the males of *M. smirnovi* Bodin 1968, *M. pseudomagniceps* and *M. triarticulata* are known. They all show the usual sexual dimorphism of the males within the genus. *M. arctica* is closely related to *M. gorbunovi* and *M. dzrycimskii* but possess a 5-segmented A1 and differing in the setation of the swimming legs P1–P5.

*M. bifida* belongs to the 'talpa' group. This group is

characterized by a 1-segmented Enp P1, and all species possess a shovel-like rostrum which can be used for digging in the soft sediment.

#### Acknowledgements

The investigations on the deep sea Harpacticoida at the Zoologisches Museum Kiel are kindly supported by the Deutsche Forschungsgemeinschaft (Grant Oh 37/3–2). I thank Dr P. Ohm, Zoologisches Museum Kiel, for his confidence in me to work on this project. I have benefited from discussions with Dr G. R. F. Hicks, National Museum of New Zealand, Wellington, and with Prof. Dr W. Noodt, Zoologisches Institut der Universität Kiel who has also improved the manuscript. I am grateful to Dr G. A. Boxshall, British Museum (Natural History), London, for improvement of the English text. Prof. J. B. J. Wells, Wellington, New Zealand, made useful comments on the manuscript.

#### Correction

There are two mistakes in Schriever (1983) which have to be corrected:

(1) In all descriptions on pp. 67, 69, 71, 73, 74, 78 and 82, for Mx, Exp should be replaced by Enp.

(2) On p. 78, *M. pseudomagniceps*, for Mx1, "Enp and Exp 1-segmented, with 2 setae each" should be replaced by "Enp and Exp are represented by 1 seta each."

#### References

- Becker, K.-H. 1972. Eidonomie und Taxonomie abyssaler Harpacticoida (Crustacea, Copepoda). Thesis, Universität Kiel.
- Becker, K.-H., Noodt, W. & Schriever, G. 1979. Eidonomie und Taxonomie abyssaler Harpacticoida (Crustacea, Copepoda). Teil II. *Paramesochridae, Clindropsyllidae und Cletodidae*.—*Meteor-ForschErgebn. (D)* 31: 1–37.
- Bodin, Ph. 1968. Copepodes Harpacticoides des étages bathyal et abyssal du Golf de Gascogne.—*Mém. Mus. natn. Hist. nat., Paris (A)* 55 (1): 1–107.
- Gamô, S. 1981. *Metahuntemannia micracantha* sp.n., a new abyssal harpacticoid Copepod (Crustacea) from East of the Mariana Trench.—*Bull. biogeogr. Soc. Japan* 36: 1–7.
- Klie, W. 1941. Marine Harpacticoiden von Island.—*Kieler Meeresforsch.* 5: 1–44.
- Lang, K. 1948. *Monographie der Harpacticiden*. 2 vols. Nordiska Bokhandeln, Stockholm.
- Lang, K. 1965. Copepoda, Harpacticoida from the California Coast.—*Kungl. svenska vetenskAkad. Handl.* 10(2): 1–566.
- Schriever, G. 1982. Neue Harpacticoida (Crustacea, Copepoda) aus dem Nordatlantik. I. Die Gattung *Thieliella* nov. gen. (Familie Ancorabolidae).—*Meteor-ForschErgebn. (D)* 35: 21–26.
- Schriever, G. 1983. New Harpacticoida (Crustacea, Copepoda) from the North-Atlantic Ocean. III. New species of the family Cletodidae.—*Meteor-ForschErgebn. (D)* 36: 65–83.
- Smirnov, S. 1946. New species of Copepoda Harpacticoida from the Arctic Ocean. (In Russian, English abstract).—*Trudy dreif. Exped. Glavsevmov. Ledokol. Par. "Sedov"* 3: 231–263.
- Soyer, J. 1970. Contribution à l'étude des Copépodes Harpacticoides de Méditerranée Occidentale 3. Découverte du genre *Metahuntemannia* Smirnov.—*Vie Milieu* 21 (2.A): 279–286.
- Thiel, Hj. 1971. Häufigkeit und Verteilung der Meiofauna im Bereich des Island-Faröer-Rückens.—*Ber. dt. wiss. komm. Meeresforsch.* 22: 99–128.
- Wells, J. B. J. 1976. *Keys to aid in the identification of marine harpacticoid copepods*. Department of Zoology, University of Aberdeen.