Revision of the Genus *Macellicephala* McIntosh and the Subfamily Macellicephalinae Hartmann-Schröder (Polychaeta: Polynoidae)

MARIAN H. PETTIBONE

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ABSTRACT

Pettibone, Marian H. Revision of the Genus *Macellicephala* McIntosh and the Subfamily Macellicephalinae Hartmann-Schröder (Polychaeta: Polynoidae). *Smithsonian Contributions to Zoology,* number 229, 71 pages, 36 figures, 1976.—Some 37 species of Polychaeta, collected from widely scattered, world-wide areas, mostly from deep water, have been referred, either directly or indirectly, to *Macellicephala* McIntosh or included in the subfamily Macellicephalinae, as revised by Hartmann-Schröder. These species are reviewed and revised herein, based in large part on a reexamination of the original material. A single species is referred to *Euarche* Ehlers, as a new combination in the Polyodontidae (=Acoetidae). The other species are retained in the Polynoidae and placed in seven subfamilies, five of which are new (Macellicephaloidinae, Macelloidinae, Bathyedithinae, Polaruschakovinae, Bathymacellinae) and the other two emended (Macellicephalinae, Harmothoinae). Of the 17 genera involved, three are emended (*Macellicephala, Macellicephaloides, Macelloides*), ten are new (*Bathykermadeca, Bathyeliasona, Bathyvitiazia, Bathyfauvelia, Bathycatalina, Bathykurila, Bathyedithia, Polaruschakov, Bathylevensteina, Gesiella*), one is given a new name (*Bathymacella,* for *Macella* Averincev); two are considered to be doubtful (*Herdmanella* Darboux, *Sinantenna* Hartmann-Schröder), and a synonym is referred to *Austrolaenilla* Bergström. Of the 36 polynoid species, 17 are revised, 13 as new combinations, three as synonyms and one as a new species (*Polaruschakov reyssi);* seven species are considered to be doubtful.

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Contents

	Page
Introduction	1
Summary of the Literature	1
Species Designations	3
Acknowledgments	5
Family POLYNOIDAE Malmgren, 1867	5
Key to the Subfamilies of Polynoidae	5
Subfamily MACELLICEPHALINAE Hartmann-Schröder, 1971, emended	6
General Characteristics of Subfamily Macellicephalinae	6
Key to the Genera of Macellicephalinae	7
Genus *Macellicephala* McIntosh, 1885, emended	8
Key to the Species of *Macellicephala*	10
Macellicephala mirabilis (McIntosh, 1885)	10
Macellicephala violacea (Levinsen, 1887)	12
Macellicephala remigata (Moore, 1910)	15
Macellicephala aciculata (Moore, 1910)	16
Macellicephala atlantica Støp-Bowitz, 1948	17
Macellicephala longipalpa Uschakov, 1957	17
Macellicephala laubieri Reyss, 1971	18
Bathykermadeca, new genus	19
Bathykermadeca hadalis (Kirkegaard), new combination	20
Bathyeliasona, new genus	23
Key to the Species of *Bathyeliasona*	24
Bathyeliasona abyssicola (Fauvel), new combination	25
Bathyeliasona kirkegaardi (Uschakov), new combination	27
Bathyeliasona nigra (Hartman), new combination	30
Bathyvitiazia, new genus	33
Bathyvitiazia pallida (Levenstein), new combination	33
Bathyfauvelia, new genus	34
Bathyfauvelia affinis (Fauvel), new combination	35
Bathycatalina, new genus	38
Bathycatalina filamentosa (Moore), new combination	38
Bathykurila, new genus	40
Bathykurila zenkevitchi (Uschakov), new combination	40
MACELLICEPHALOIDINAE, new subfamily	42
Genus *Macellicephaloides* Uschakov, 1955, emended	42
Key to the Species of *Macellicephaloides*	43
Macellicephaloides grandicirra Uschakov, 1955	44
Macellicephaloides vitiazi Uschakov, 1955	44
Macellicephaloides verrucosa Uschakov, 1955	47
Macellicephaloides uschakovi Levenstein, 1971	48
MACELLOIDINAE, new subfamily	48
Genus *Macelloides* Uschakov, 1957, emended	51
Macelloides antarctica Uschakov, 1957	51

	Page
BATHYEDITHINAE, new subfamily	53
Bathyedithia, new genus	53
Bathyedithia berkeleyi (Levenstein), new combination	53
POLARUSCHAKOVINAE, new subfamily	55
Polaruschakov, new genus	55
Key to the Species of *Polaruschakov*	56
Polaruschakov polaris (Uschakov), new combination	56
Polaruschakov reyssi, new species	58
BATHYMACELLINAE, new subfamily	58
Bathymacella, new name	58
Bathymacella uschakovi (Averincev), new combination	60
Subfamily HARMOTHOINAE Horst, 1917, emended	60
Key to the Genera of Harmothoinae	61
Bathylevensteina, new genus	62
Bathylevensteina bicornis (Levenstein), new combination	62
Gesiella, new genus	63
Gesiella jameensis (Hartmann-Schröder), new combination	64
Genus *Austrolaenilla* Bergström, 1916	66
Austrolaenilla hastulifera (Fauvel, 1936)	66
Doubtful Harmothoinae	66
Herdmanella gracilis Ehlers, 1908	66
Macellicephala paucidentata Eliason, 1962	66
Macellicephala nationalis sensu Hartman, 1967	66
Doubtful Polynoidae	66
Genus *Herdmanella* Darboux, 1900	66
Herdmanella ascidiodes (McIntosh, 1885)	67
Genus *Sinantenna* Hartmann-Schröder, 1974, emended	67
Sinantenna macrophthalma (Fauvel), new combination	67
Indeterminable Polynoidae	68
Macellicephala grimaldii Fauvel, 1913	68
Macellicephala (?) *incerta* Fauvel, 1915	68
Family POLYODONTIDAE (=ACOETIDAE)	68
Genus *Euarche* Ehlers, 1887	68
Euarche maculosa (Treadwell), new combination	68
Literature Cited	69

Revision of the Genus *Macellicephala* McIntosh and the Subfamily Macellicephalinae Hartmann-Schröder (Polychaeta: Polynoidae)

Marian H. Pettibone

Introduction

The species of Polynoidae covered herein have been reported from scattered world-wide localities, mostly from deep water, including bathyal and abyssal depths. The earlier records, particularly, were based for the most part on single specimens or fragments, often in poor condition, due to their fragile integument, brittle and delicate setae, and, no doubt, to the conditions under which they were collected. Thus, it is not surprising that most of the species were incompletely described and that some of them must remain indeterminable.

Based on an examination of the original material where possible, I have reviewed all the species that have been ascribed, directly or indirectly, to the genus *Macellicephala* or the subfamily Macellicephalinae, as given in various reviews of the species. These include the very useful catalog of Hartman (1959, 1965) and additional publications by Knox, Reyss, Uschakov, Levenstein, Averincev, and Hartmann-Schröder, as indicated in the following summary.

SUMMARY OF THE LITERATURE.—In connection with the description of a new species of *Macellicephala* from the Central Arctic Basin, *M. arctica,* Knox (1959:105) reviewed some of the species referred to the genus and included a chart giving their diagnostic characters, where reported, and a key to the species. Further, Knox (1959:107) pointed out that it appeared that the species of *Macellicephala* did not form a natural group and might have been independently derived from other polynoid genera with the adoption of a bathypelagic mode of life, but that their relationships could not be determined until more material was available for comparison.

Reyss (1968:323) reported on two species of *Macellicephala* from the submarine canyons of the Mediterranean and reviewed the records of some of the known species, dividing them into upper bathyal, lower bathyal and abyssal groups. Later, Reyss (1971:243) described two new species of *Macellicephala* from the abyssal region of the Mediterranean, reviewed the species of the genus, and divided them into three groups, based on a few anatomical characters, as well as their vertical and geographic distributions.

By far the greatest contributions to our knowledge of deep and cold water polynoid species have been made by several Soviet workers in their reports on various expeditions, extending from the Arctic to the Antarctic, such as Uschakov (1950, 1955, 1962,

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1971), Levenstein (1961a,b, 1962, 1966, 1971a,b, 1972, 1973), Chlebovitsch (1964), and Averincev (1972). Uschakov (1971:39) included a preliminary key to the species of *Macellicephala* and suggested that species of this genus and other closely related genera, characteristic of great oceanic depths, might be placed in a separate subfamily. Levenstein (1971b) reviewed the species of the genera *Macellicephala* and *Macellicephaloides*.

Hartmann-Schröder (1971:75) established the subfamily Macellicephalinae, with *Macellicephala* McIntosh 1885 as the type genus. More recently, Hartmann-Schröder (1974) added three genera to the subfamily: *Macellicephaloides* Uschakov 1955, *Macelloides* Uschakov 1957, and *Macella* Averincev 1972. *Macellicephala* was emended by including *Herdmanella* Darboux 1900 as a synonym, establishing a new subgenus *Sinantenna* for three species of *Macellicephala,* and describing a new species from the Canary Islands. Based on the literature, the known species were listed under their respective genera and subgenera and the particular features of different species, as far as known, were included in a table, which was a modified and enlarged version of the one given by Knox (1959). The list of species is fairly complete, except for the two new species of *Macellicephala* from the Mediterranean, added by Reyss (1971).

In her revision, Hartmann-Schröder (1974) included the following genera and subgenera in the subfamily Macellicephalinae: *Macellicephala* (*Macellicephala*) McIntosh 1885, with *Herdmanella* Darboux 1900 as a synonym, and 19 species; *Macellicephala* (*Sinantenna*) Hartmann-Schröder 1974, with three species; *Macellicephaloides* Uschakov 1955, with five species; *Macelloides* Uschakov 1957, with a single species; *Macella* Averincev 1972, with a single species.

Of the genera listed above, only *Macellicephala* is retained in the subfamily Macellicephalinae in the present revision. Of the 19 species listed by Hartmann-Schröder under *Macellicephala* (*Macellicephala*), 13 are retained in the subfamily: of these, six species (*M. aciculata, M. atlantica, M. longipalpa, M. mirabilis, M. remigata, M. violacea*) remain in *Macellicephala;* three species (*M. abyssicola, M. kirkegaardi, M. nigra*) are referred to *Bathyeliasona* new genus; one species (*M. affinis*), to *Bathyfauvelia* new genus; one species (*M. hadalis*), to *Bathykermadeca* new genus; one species (*M. pallida*), to *Bathyvitiazia* new genus; and one species (*M. zenkevitchi*), to *Bathykurila* new genus. Of the remaining six species, three (*M. ascidioides, M. grimaldii, M. incerta*) are considered to be indeterminable; one species (*M. bicornis*) is referred to *Bathylevensteina,* a new genus in the Harmothoinae; one species (*M. jameensis*), to *Gesiella* new genus, also in the Harmothoinae; and one species (*M. polaris*), to *Polaruschakov* new genus, in a new subfamily Polaruschakovinae.

Of the three species listed under *Macellicephala* (*Sinantenna*), only the type-species as designated by Hartmann-Schröder (1974), *M. macrophthalma,* is retained in the genus *Sinantenna.* Due to the poor and incomplete condition of the holotype and only known specimen, both the genus and subfamily are considered doubtful. For the other two species, one (*M. paucidentata*) is a doubtful species of Harmothoinae and the other *(M. arctica)* is referred to *Polaruschakov polaris* in the Polaruschakovinae.

Of the five species listed under *Macellicephaloides,* four (*M. grandicirra, M. verrucosa, M. vitiazi,* and *M. uschakovi*) are retained and referred to the new subfamily Macellicephaloidinae. The other species (*M. berkeleyi*) is referred to *Bathyedithia* new genus in the new subfamily Bathyedithinae.

The single species listed under *Macelloides* (*M. antarctica*) is referred to the new subfamily Macelloidinae. The single species listed under *Macella* (*M. uschakovi*) is referred to *Bathymacella* new name in the new subfamily Bathymacellinae.

Two additional species from the Mediterranean were described as species of *Macellicephala* by Reyss (1971) but were not considered by Hartmann-Schröder in her revisory study: *M. laubieri* is retained in *Macellicephala; M. annae* is referred to *Bathyfauvelia affinis* in the Macellicephalinae. A specimen from the Mediterranean, reported by Reyss (1968) as *Macellicephala arctica* Knox, was examined and is referred herein to *Polaruschakov reyssi,* new species, in the Polaruschakovinae.

Both *Macellicephala eltanina* Hartman and *M. nationalis* sensu Hartman were excluded from *Macellicephala* by Uschakov (1971) and Reyss (1971). The two species were indicated as being close to *Harmothoe* by Hartmann-Schröder (1974). Based on a study of the holotype, *M. eltanina* is referred to *Austrolaenilla hastulifera* (Fauvel) in Harmothoinae. *M. nationalis* is considered to be a doubtful member of the Harmothoinae. *Herd-*

manella gracilis Ehlers was considered by Hartmann-Schröder to include juveniles of *Harmothoe*-like species, thus a doubtful species of Harmothoinae.

Polynoe (?) *filamentosa* Moore, from Southern California, is referred herein to *Bathycatalina,* new genus in Macellicephalinae.

Macellicephala maculosa Treadwell was previously removed from the family Polynoidae and referred to *Eupanthalis* in the Polyodontidae (=Acoetidae) by Hartman (1938). Based on a study of the holotype, it is referred herein to *Euarche maculosa.*

SPECIES DESIGNATIONS.—Thirty-six of the 37 species covered in this report were originally described under *Polynoe (Macellicephala)* (1 species), *Oligolepis* (1 species), *Polynoe* (?) (4 species), *Macellicephala* (21 species), *Herdmanella* (2 species), *Macellicephaloides* (5 species), *Macelloides* (1 species) and *Macella* (1 species). A new species of *Polaruschakov,* new genus, is added, based on a specimen originally identified as *Macellicephala arctica.*

The species are listed below under their original designations in the different genera, along with their type-localities, location of type specimens, where known, and their subsequent and present designations. Museum abbreviations are listed under "Acknowledgments."

ORIGINAL DESIGNATION	SUBSEQUENT AND PRESENT DESIGNATIONS
Polynoe (Macellicephala) mirabilis McIntosh, 1885; New Zealand, 1280 m; holotype in London (BMNH)	Referred to *Macellicephala* by Wirén (1901); to Macellicephalinae by Hartmann-Schröder (1971); holotype examined
Oligolepis violacea Levinsen, 1887; Kara Sea, 90 m; types not found	Referred to *Macellicephala* by Wirén (1901); as synonym of *M. mirabilis* by Fauvel (1913); specimens from type-locality examined; as *M. violacea*
Polynoe (?) *ascidioides* McIntosh, 1885; south of Australia, 4755 m; holotype in London (BMNH)	Designated as type-species of *Herdmanella* by Darboux (1900); to *Macellicephala* by Hartmann-Schröder (1974); holotype examined; doubtful Polynoidae
Polynoe (?) *aciculata* Moore, 1910; Southern California, 1004–1070 m; holotype in Washington (USNM)	Holotype examined and referred to *Macellicephala* (?) by Hartman (1938); holotype examined
Polynoe (?) *filamentosa* Moore, 1910; Southern California, 611–1097 m; holotype in Washington (USNM)	Generic status doubtful by Hartman (1959); holotype examined and referred to *Bathycatalina* in Macellicephalinae
Polynoe (?) *remigata* Moore, 1910; Southern California, 611–1097 m; holotype in Washington (USNM)	Holotype examined and referred to *Macellicephala* by Hartman (1938); holotype examined
Macellicephala abyssicola Fauvel, 1913; North Atlantic in Gulf of Gascony, 4380 m; holotype in Monaco (MOM)	Holotype examined and referred to *Bathyeliasona* in Macellicephalinae
Macellicephala grimaldii Fauvel, 1913; North Atlantic off Azores, 204 m; holotype in Monaco (MOM)	Doubtful Polynoidae
Macellicephala (?) *macrophthalma* Fauvel, 1913; North Atlantic in Gulf of Gascony, 4780 m; holotype in Monaco (MOM)	Designated as type-species of *M. (Sinantenna)* by Hartmann-Schröder (1974); referred to *Sinantenna;* doubtful Polynoidae
Macellicephala affinis Fauvel, 1914; North Atlantic off Madeira, 0–2380 m; holotype in Monaco (MOM)	Holotype examined and referred to *Bathyfauvelia* in Macellicephalinae
Macellicephala (?) *incerta* Fauvel, 1915; North Atlantic off Azores, 0–3000 m; holotype in Monaco (MOM)	Doubtful species by Knox (1959); doubtful Polynoidae
Macellicephala maculosa Treadwell, 1931; Philippine Islands, 194 m; holotype in Washington (USNM)	Holotype examined and referred to *Eupanthalis* in Polyodontidae by Hartman (1938); holotype examined and referred to *Euarche*
Macellicephala atlantica Støp-Bowitz, 1948; North Atlantic 1100 m; types in Bergen (ZMUB)	Types examined
Macellicephala zenkevitchi Uschakov, 1955; NW Pacific, 8100 m; types in Leningrad (ZIASL)	Types examined and referred to *Bathykurila* in Macellicephalinae

Macellicephala hadalis Kirkegaard, 1956; Kermadec Trench, 6660–6720 m; types in Copenhagen (UZMC) and Washington (USNM)	Paratype examined (USNM) and referred to *Bathykermadeca* in Macellicephalinae
Macellicephala longipalpa Uschakov, 1957; Arctic Ocean, 420–2245 m; types in Leningrad (ZIASL)	Specimens from type-locality examined (USNM)
Macellicephala polaris Uschakov, 1957; Arctic Ocean, 2245 m; holotype in Leningrad (ZIASL)	Holotype examined and referred to *Polaruschakov* in Polaruschakovinae
Macellicephala arctica Knox, 1959; Arctic Ocean, 0–730 m; type not found	Referred to *M. (Sinantenna)* by Hartmann-Schröder (1974); referred to *Polaruschakov polaris* in Polaruschakovinae
Macellicephala bicornis Levenstein, 1962; Tonga Trench, 9735–9875 m; types in Moscow (IOASM)	Paratype examined and referred to *Bathylevensteina* in Harmothoinae
Macellicephala paucidentata Eliason, 1962; Skagerrak, Denmark, 478 m; holotype in Uppsala (ZIUU)	Referred to *M. (Sinantenna)* by Hartmann-Schröder (1974); holotype examined; doubtful species in Harmothoinae
Macellicephala eltanina Hartman 1967; Antarctic off South Sandwich Islands, 2553–2575 m; holotype in Los Angeles (AHF)	Excluded from *Macellicephala* by Uschakov (1971) and Reyss (1971); close to *Harmothoe* by Hartmann-Schröder (1974); holotype examined and referred to *Austrolaenilla hastulifera* in Harmothoinae
Macellicephala nationalis sensu Hartman, 1967; off South America, 567–3806 m; specimens in Los Angeles (AHF)	Excluded from *Macellicephala* by Uschakov (1971) and Reyss (1971); close to *Harmothoe* by Hartmann-Schröder (1974); doubtful Harmothoinae
Macellicephala kirkegaardi Uschakov, 1971; North Pacific, 7180 m; types in Leningrad (ZIASL)	Paratype examined and referred to *Bathyeliasona* in Macellicephalinae
Macellicephala pallida Levenstein, 1971; NW Pacific, 3816 m; holotype in Moscow (IOASM)	Holotype examined and referred to *Bathyvitiazia* in Macellicephalinae
Macellicephala annae Reyss, 1971; Mediterranean, 2090 m; holotype in Leningrad (ZIASL)	Holotype examined and referred to *Bathyfauvelia affinis* in Macellicephalinae
Macellicephala laubieri Reyss, 1971; Mediterranean, 2665 m; types in Leningrad (ZIASL)	Types examined
Macellicephala (Macellicephala) jameensis Hartmann-Schröder, 1974; Canary Islands, lava tunnel; types in Hamburg (ZMH)	Paratypes examined and referred to *Gesiella* in Harmothoinae
Herdmanella gracilis Ehlers, 1908; Indian Ocean off East Africa, 1500–2000 m; types not found	Perhaps juveniles of *Harmothoe*-like species by Hartmann-Schröder (1974); juveniles of doubtful species of Harmothoinae
Herdmanella nigra Hartman, 1967; Antarctic off South Sandwich Islands, 2553–2575 m; types in Los Angeles (AHF)	Referred to *Macellicephala* by Hartmann-Schröder (1974); types examined and referred to *Bathyeliasona* in Macellicephalinae
Macellicephaloides grandicirra Uschakov, 1955; NW Pacific, 8100–9950 m; types in Leningrad (ZIASL)	Placed in Macellicephalinae by Hartmann-Schröder (1974); specimen from type-locality examined (USNM) and referred to Macellicephaloidinae
Macellicephaloides verrucosa Uschakov, 1955; NW Pacific, 7210–7231 m; types in Leningrad (ZIASL)	Same as above
Macellicephaloides vitiazi Uschakov, 1955; NW Pacific, 7210–8430 m; types in Leningrad (ZIASL)	Same as above
Macellicephaloides berkeleyi Levenstein, 1971; North Pacific, 7000 m; types in Moscow (IOASM)	Placed in Macellicephalinae by Hartmann-Schröder (1974); paratype examined and referred to *Bathyedithia* in Bathyedithinae

Macellicephaloides uschakovi Levenstein, 1971; NW Pacific, 8120 m; types in Moscow (IOASM)	Placed in Macellicephalinae by Hartmann-Schröder (1974); specimen from type-locality examined and referred to Macellicephaloidinae
Macelloides antarctica Uschakov, 1957; Antarctic in Davis Sea, 660 m; holotype in Leningrad (ZIASL)	Placed in Macellicephalinae by Hartmann-Schröder (1974); holotype examined and referred to Macelloidinae
Macella uschakovi Averincev, 1972; Australian-Antarctic Trench, 4540 m; types in Leningrad (ZIASL)	Placed in Macellicephalinae by Hartmann-Schröder (1974); paratype examined and referred to *Bathymacella* in Bathymacellinae
Macellicephala arctica.—Reyss, 1968 (not Knox); Mediterranean, 750 m	Referred to *Polaruschakov reyssi* new species in Polaruschakovinae; holotype in Washington (USNM)

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Family POLYNOIDAE Malmgren, 1867

Horst (1917) divided the very large group of Polynoidae into three subfamilies: Iphioninae, Lepidonotinae, and Harmothoinae. This was followed by Hartman (1959) in her catalog. Hartmann-Schröder (1971) added the subfamily Macellicephalinae for *Macellicephala* and, in 1974, emended it by adding some additional established genera, described chiefly from bathyal and abyssal depths. The last named subfamily proved to be a heterogenous grouping of species and is emended herein, with the addition of five new subfamilies.

Key to the Subfamilies of Polynoidae

1. Prostomium without median or lateral antennae (Figures 31*a*, 32*a*, 33*a*). With notosetae 2
   Prostomium with median antenna; without lateral antennae; with or without frontal filaments (Figures 1*a*, 25*a*, 29*a*) 3
   Prostomium with 3 antennae; medium antenna with ceratophore in middle of prostomium or in anterior notch; lateral antennae inserted ventral to median antenna (Figures 34*a,b*, 35*a*, 36*a,b*). With notosetae 4
2. Prostomial palps with large rounded palpophores and moderately long styles (Figure 31*a*). Parapodia with notopodia short, subconical; neuropodia large, subconical, with short projecting acicular processes (Figure 31*d,g,j*). Pharynx with 2 pairs of jaws with denticled bases and 9 pairs of papillae, middorsal and midventral ones elongate, cirriform (as in Polyodontidae; Figure 31*b*) ..... BATHYEDITHINAE
   Palps without large palpophores, with long tapered styles (Figure 32*a*). Parapodia with both noto- and neuropodia with elongate acicular processes (Figure 32*b–d*). Pharynx with 2 pairs of jaws with smooth bases and 7 pairs of papillae, none elongate ..... POLARUSCHAKOVINAE

3. Parapodia with notopodia greatly reduced; without notosetae; neuropodia very long, tapering distally and forming deeply cut, subequal presetal and postsetal lobes (lepidasthenoid; Figure 30*a,b*). Pharynx with 4 narrow denticled plates nearly encircling pharynx subdistally, with numerous short papillae (Figure 29*d*) ..... MACELLOIDINAE

   Parapodia with notopodia forming very long projecting acicular lobes enclosing very stout notoacicula; without notosetae; neuropodia subconical, with short projecting acicular processes (Figure 25*g,h*). Pharynx with pair of fused dorsal jaws and pair of ventral jaws, with 10 papillae—2 dorsal and 3 lateral pairs, midlateral ones elongate, cirriform (superficially resembling Alciopidae; Figure 26*c*) ..... MACELLICEPHALOIDINAE

   Parapodia with both noto- and neuropodia with elongate acicular processes; with notosetae (Figure 1*c,d*). Pharynx of usual polynoid type, with 2 pairs of jaws and up to 9 pairs of papillae, none elongate (Figure 8*b*) ..... MACELLICEPHALINAE

4. Palps small, subconical, ventral to cirrophores of tentacular cirri (not visible dorsally; Figure 34*a,b*). Parapodia with notopodia low, rounded, with digitiform acicular processes on lower side; neuropodia deeply cut dorsally and ventrally, with diagonally truncate presetal and shorter rounded postsetal lobes (arctonoid; Figure 34*g,h*). Pharynx without papillae (pleated folds), without jaws ..... BATHYMACELLINAE

   Palps long, tapering (missing on *Bathylevensteina;* Figure 36*a*). Parapodia with both noto- and neuropodia with elongate acicular processes (Figures 35*b,c*, 36*f-h*). Pharynx of usual polynoid type, with 2 pairs of jaws and 9 pairs of papillae (number in *Bathylevensteina?*) ..... HARMOTHOINAE

Subfamily MACELLICEPHALINAE Hartmann-Schröder, 1971, emended

TYPE GENUS.—*Macellicephala* McIntosh, 1885.

The following seven genera are included in the subfamily: *Bathycatalina,* new genus, with one species; *Bathyeliasona,* new genus, with three species; *Bathyfauvelia,* new genus, with one species and one synonym; *Bathykermadeca,* new genus, with one species; *Bathykurila,* new genus, with one species; *Bathyvitiazia,* new genus, with one species; *Macellicephala* McIntosh, with seven species.

GENERAL CHARACTERISTICS OF SUBFAMILY MACELLICEPHALINAE

SEGMENTS.—The segments are relatively few in number in the different genera: 15 *(Bathykurila),* 17 *(Bathyvitiazia),* 17 or 18 *(Bathyeliasona),* 18 *(Macellicephala),* 19–21 *(Bathyfauvelia),* 21 *(Bathykermadeca)* or 24 *(Bathycatalina).* The modified first or tentacular segment has a distinct or indistinct acicular lobe, with a few setae *(Bathycatalina, Bathyfauvelia),* a transverse row of more numerous setae *(Bathyeliasona),* or no setae *(Bathykermadeca, Bathykurila, Bathyvitiazia, Macellicephala).*

ELYTRA, ELYTROPHORES, DORSAL CIRRI, DORSAL TUBERCLES.—The elytra are readily deciduous and, thus, are usually missing. Where known, they lack tubercles and papillae. Their number and position are indicated by the raised bulbous elytrophores and are herein considered to be definite in number for each genus, as they are for the currently accepted, short-bodied, polynoid genera, such as *Lepidonotus, Harmothoe, Gattyana,* etc. In the diagnosis for *Macellicephala,* as given in Knox (1959), Hartmann-Schröder (1971, 1974) and others, the elytra are indicated as 8 to 13 pairs. In the present study, the definite number of elytra serves as one of the characters for separating these short-bodied species into different genera. The elytra and elytrophores consist of 7 pairs *(Bathykurila),* 8 pairs *(Bathyeliasona, Bathyvitiazia),* 9 pairs *(Bathyfauvelia, Bathykermadeca, Macellicephala),* or 12 pairs *(Bathycatalina).* They appear on segments 2, 4,5, 7, and continue on alternate segments. Two pairs of tentacular cirri appear on the modified first segment, with dorsal cirri on segments 3, 6, 8, continuing on alternate segments, except for the posterior segments where they may be present on one to four consecutive segments, in the different genera. The dorsal cirri usually have relatively short cylindrical cirrophores and long styles, the latter often missing. In *Bathykurila,* however, the dorsal cirri have relatively long cylindrical cirrophores and short styles. The dorsal tubercles on the cirrigerous segments, corresponding in position to the elytrophores of the elytragerous segments, may be indistinct, large, conical to bulbous. In *Bathycatalina* and *Bathyfauvelia,* the dorsal tubercles are modified, forming cirriform ciliated branchial structures.

PROSTOMIUM AND TENTACULAR SEGMENT.—The prostomium is rather deeply bilobed, oval to subpyriform in shape. The median antenna usually has a large ceratophore inserted on the middle of the prostomium or in the anterior notch, with a long style (often missing). In *Bathykermadeca,* the ceratophore is rather small. Lateral antennae are absent. Paired frontal filaments are present or absent; they are variable in size, appearing as slender filiform structures on the rounded or subtriangular anterior

Key to the Genera of Macellicephalinae

1. Dorsal tubercles on cirrigerous segments forming cirriform ciliated branchial structures (Figures 21*f*, 23*c*). Ceratophore of median antenna large; first or tentacular segment with small projecting acicular lobes and few setae (Figures 21*c*, 23*a*). Notosetae stout, spinous, with blunt tips (Figures 21*b*, 22*d*, 23*d*). Neurosetae flattened, transparent, with serrations along lateral borders. (Figures 22*e,k*, 23*e*). Pygidium small, subglobular (Figure 21*d*). Jaw plates of pharynx without minute teeth 2

   Dorsal tubercles on cirrigerous segments indistinct or otherwise 3

2. Segments 19–21. Elytra 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with 2–4 posterior segments with dorsal cirri. Notopodia shorter than neuropodia (Figure 21*e*). Pharynx with 9 pairs of dorsal and ventral papillae ..... ***Bathyfauvelia,*** new genus

   Segments 24. Elytra 12 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15, 17, 19, 21 and 23. Notopodia subequal to neuropodia (Figure 23*c*). Pharynx with papillae (number?—damaged) ..... ***Bathycatalina,*** new genus

3. Elytra 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17. First or tentacular segment achaetous (Figure 3*a,c*) 4

   Elytra 8 pairs, on segments 2, 4,5, 7, 9, 11, 13 and 15. Ceratophore of median antenna large (Figure 13*a,f*). Notopodia shorter than neuropodia (Figures 13*b,c*, 20*f*). Notosetae more slender than neurosetae, with blunt tips (Figures 13*d*, 20*g*). Neurosetae flattened, transparent, with serrations along lateral borders and blunt tips (Figures 13*e*, 20*h*) 5

   Elytra 7 pairs, on segments 2, 4,5, 7, 9, 11 and 13. Segments 15. Prostomium with frontal filaments; ceratophore of median antenna large; first or tentacular segment with projecting acicular lobes, without setae (Figure 24*a*). Notopodia subequal to neuropodia (Figure 24*c,f,g*). Notosetae stout, with single row of widely spaced spines (Figure 24*h*). Neurosetae more slender than notosetae, with 2 rows of spines along one side (Figure 24*i*). Pygidium large, bulbous, wedged between parapodia of posterior two segments. Pharynx with 8 pairs of papillae—7 dorsal and ventral, 1 lateral ..... ***Bathykurila,*** new genus

4. Segments 18. Prostomium with or without paired frontal filaments; ceratophore of median antenna large; tentacular segment with small or indistinct acicular lobes (Figures 1*a*, 3*a-f*). Notopodia shorter than neuropodia (Figure 4*d,g*). Pygidium bulbous, medial to greatly reduced parapodia of posterior segment (Figure 3*g*). Pharynx with 9 pairs of dorsal and ventral papillae (Figure 8*b*) ..... ***Macellicephala*** McIntosh

   Segments 21. Prostomium with paired, tapered frontal filaments; ceratophore of median antenna small; tentacular segment with projecting acicular lobes (Figure 11*a*). Notopodia subequal to neuropodia (Figure 12*a,c,e*). Pygidium elongate, cylindrical, encircled by long parapodia of posterior 4 segments (Figure 11*c*). Pharynx with 8 pairs of papillae—7 dorsal and ventral, 1 lateral ..... ***Bathykermadeca,*** new genus

5. Segments 17. Prostomium without frontal filaments; first or tentacular segment without distinct acicular lobes, achaetous (Figure 20*a*). Notosetae slender, delicate, flattened, with serrations along lateral borders (Figure 20*g*). Neurosetae not greatly expanded, with widely spaced lateral serrations (Figure 20*h*). Pygidium oval, truncate, posterior to elongate parapodia of posterior segment (Figure 20*b*). Pharynx with 6 pairs (?) of dorsal and ventral papillae; jaw plates with row of small teeth (Figure 20*c*) ..... ***Bathyvitiazia,*** new genus

   Segments 17 or 18. Prostomium with frontal filaments; first or tentacular segment with distinct acicular lobes and transverse rows of setae (Figures 13*a,f*, 15*a*). Notosetae stout, with spinous rows (Figures 13*d*, 16*d*). Neurosetae greatly expanded, with close-set lateral serrations (Figures 13*e*, 16*e*). Pygidium elongate, enclosed in large parapodia of posterior segment, with prominent paired depressed areas and pair of subtriangular lobes or cirri (Figures 13*g*, 15*f*). Pharynx with 9 pairs of dorsal and ventral papillae; jaw plates without minute teeth (Figure 15*h*) ..... ***Bathyeliasona,*** new genus

prostomial lobes. The paired palps are long and tapered. Eyes are lacking. The first or tentacular segment is more or less fused to the prostomium; it may be distinct dorsally as a wide or narrow band, or it may be indistinct. Two pairs of tentacular cirri with distinct cirrophores are situated lateral to the prostomium; their styles are long, similar to those of the median antenna (often missing). As indicated above, the acicular lobes may be indistinct or rather prominent, with setae absent, few, or more numerous, in the different genera.

PARAPODIA, VENTRAL CIRRI.—The parapodia are as long as or longer than the body width, subbiramous, with the notopodia shorter than the neuropodia *(Bathyeliasona, Bathyfauvelia, Bathyvitiazia, Macellicephala),* or biramous, with the noto- and neuropodia subequal in length *(Bathycatalina, Bathykermadeca, Bathykurila);* both rami are subconical, with elongate acicular processes. The notosetae are few to moderate in number, usually stouter than the neurosetae. The neurosetae are usually very numerous, long, delicate, flattened (often broken or missing). The ventral or buccal cirri of segment 2 are attached basally on the parapodia, lateral to the mouth, with distinct short cirrophores; the styles are similar to those of the tentacular cirri and longer than the following ventral cirri. On *Bathyeliasona,* the buccal cirri are only slightly longer than the following ventral cirri. The ventral cirri are short, tapered, usually attached to the middle of the neuropodia. In *Bathyeliasona,* the ventral cirri are attached closer to the distal tips of the neuropodia.

PHARYNX, PYGIDIUM.—The pharynx is of the usual polynoid type, with 2 pairs of jaws and relatively few, subequal papillae: 9 dorsal and ventral pairs *(Bathyeliasona, Bathyfauvelia, Macellicephala);* 8 pairs—7 dorsal and ventral, 1 lateral *(Bathykermadeca, Bathykurila).* In *Bathycatalina* and *Bathyvitiazia,* the pharynx was damaged and the number of papillae could not be determined. In *Bathyvitiazia,* the jaw plates are provided with a row of small teeth. The pygidium is variable in position and size. The parapodia of the posterior segment may be greatly reduced *(Macellicephala)* or only slightly reduced. The pygidium, with its dorsal anus, may be enclosed in a variable number of posterior segments, with a pair of anal cirri (usually broken off).

Genus *Macellicephala* McIntosh, 1885, emended

Oligolepis Levinsen, 1887 [type-species: *0. violacea* Levinsen, 1887, by monotypy; gender: feminine].

TYPE-SPECIES.—*Polynoe (Macellicephala) mirabilis* McIntosh, 1885, by monotypy. Gender: feminine. =*Macellicephala mirabilis* (McIntosh).

DIAGNOSIS.—Body short, broad, flattened, fusiform; segments 18 (first achateous). Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17. Prostomium deeply bilobed, with or without paired frontal filaments; without lateral antennae; median antenna with large ceratophore in middle of prostomium and long style; paired palps long, tapered, smooth; without eyes. First or tentacular segment distinct dorsally; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores and single small acicular lobe; achaetous. Segment 2 with buccal cirri longer than following ventral cirri, attached to basal parts of parapodia lateral to mouth. Parapodia subbiramous, with shorter notopodia and long neuropodia, both rami with elongate acicular processes. Notosetae few to moderate in number, smooth or spinous, with blunt tips. Neurosetae very numerous, delicate, transparent, flattened. Dorsal cirri with large cylindrical cirrophores and long styles; ventral cirri short. Nephridial papillae usually larger and bulbous on segments 10, 11 and 12. Pygidium medial to greatly reduced parapodia of segment 18. Pharynx with 9 pairs of papillae and 2 pairs of jaws.

Macellicephala McIntosh was included under Aphroditidae (sensu lato) or Aphroditidae: Polynoinae by Fauvel (1913), Uschakov (1955), Levenstein (1962), Day (1967), Reyss (1971), and others. It was placed in the Polynoidae: Lepidonotinae by Hartman (1959:92) and under Polynoidae: Macellicephalinae by Hartmann-Schröder (1971:51). *Oligolepis* Levinsen was referred to *Macellicephala* by Wirén (1901:253). Hartmann-Schröder (1974:76, 81) considered *Herdmanella* Darboux to be a synonym of *Macellicephala;* the former is considered herein to be a doubtful genus, based on a doubtful type-species. The following seven species are retained in *Macellicephala: M. mirabilis* (McIntosh, 1885), as *Polynoe (Macellicephala) mirabilis;* off North Island, New Zealand, in 1280 meters; *M. violacea* (Levinsen, 1887), as *Oligolepis violacea,* Kara Sea, in 90 meters; *M. aciculata* (Moore, 1910), as *Polynoe* (?) *aciculata,* off southern California, in

1004 to 1070 meters; *M. remigata* (Moore, 1910), as *Polynoe* (?) *remigata,* off southern California, in 611 to 1097 meters; *M. atlantica* Støp-Bowitz, 1948, North Atlantic, in 1100 meters; *M. longipalpa* Uschakov, 1957, Arctic Ocean, in 420 to 2245 meters; *M. laubieri* Reyss, 1971, Mediterranean, in 2665 meters.

General Characteristics of Species.—The body is generally robust, flattened, fusiform, slightly tapered anteriorly and posteriorly, with parapodia longer than the body width. It is relatively short and composed of 18 segments, the first one being achaetous and the last one with the parapodia much reduced (McIntosh, 1885, pl. 16: fig. 1; Levinsen, 1887, pl. 25: figs. 1,2; Wirén, 1907, pl. 1: figs 1,2; Støp-Bowitz, 1948, fig. 2*a*).

The nine pairs of elytra (usually missing when collected) are borne on prominent elytrophores medial to notopodia of elytrageous segments 2, 4, 5, 7, 9, 11, 13, 15 and 17 (Figures 1*a,c,* 3*c,g,* 8*a,c*). Where observed, the elytra are large, oval, presumably covering the dorsum, soft, smooth, without tubercles or papillae.

Dorsal cirri are borne on cirrigerous segments 3, 6, 8, 10, 12, 14, 16 and 18; the cirrophores are long, cylindrical, attached posteriorly to the notopodia, thus, more lateral than the elytrophores; the styles (often missing) are long, filiform, smooth, extending beyond the tips of the neurosetae (Figures 1*d,* 2*b,* 3*c,g,* 6*b,* 8*d*). The dorsal tubercles, corresponding in position to the elytrophores, are large, bulbous, digitiform to subconical, or small to absent (Figures 3*c,g,* 4*d,g,* 5*c*).

The prostomium is oval to subpyriform, wider than long, deeply bilobed on the anterior half, and forming bulbous frontal lobes from which may emerge a pair of delicate filaments; the latter may be withdrawn or broken off (Figures 2*a,* 3*a-d,f*). The frontal filaments appear to be lacking in some species (Figures 8*a,* 9*a,b*). They have been variously referred to as frontal horns, cephalic peaks or lateral antennae. However, they are not comparable to lateral antennae with distinct ceratophores or to cephalic peaks or horns, as found in polynoids such as *Harmothoe,* or to lateral antennae borne on distinct narrower extensions of the prostomium, as in *Lepidonotus.* Thus, the terms above do not seem to be appropriate for species of *Macellicephala.* The median antenna has a long, cylindrical ceratophore attached to the middle of the prostomium at the base of the anterior notch; the style is long, slender, smooth and tapering. The paired ventral palps are stout, long, smooth and tapering. Eyes appear to be lacking on all known species.

The first or tentacular segment is distinct dorsally, with two pairs of tentacular cirri lateral to the prostomium, each with cylindrical cirrophores and long styles (Figures 1*a,* 3*c,* 8*a*). On the medial side of the paired cirrophores is a single, small acicular lobe (Figure 3*f*); setae are lacking. Medial to the palps and ventral to the prostomium, there may be a bulbous upper lip (Figure 9*a,b*) or a bi- to trilobed bulbous facial tubercle (Figures 1*b,* 2*a,* 3*e,f*). The second or buccal segment bears the first pair of elytra, biramous parapodia lateral to the mouth, and ventral or buccal cirri attached to the basal part of the neuropodia on distinct cirrophores; the styles extend to the tips of the neuropodia or beyond, thus, longer than the following ventral cirri (Figures 1*a,* 3*c,e,* 4*a,* 8*a,c*).

The subbiramous parapodia consists of shorter, smaller notopodia on the anterior dorsal faces of the longer, larger neuropodia (Figures 1*c,d,* 4*a,d,g,* 6*a-c,* 9*c,d*). The notopodia are subconical, with projecting acicular processes on the lower part. The neuropodia are subconical, with long projecting presetal acicular processes. The notosetae are few to moderate in number, usually stouter than the neurosetae, smooth or with distinct to faint spines or spinous rows, with blunt tips (Figures 1*e,* 5*d,* 6*d,* 7*a,* 9*e*). The neurosetae are very numerous, forming brushlike bundles; they are long, delicate, transparent, relatively slender basally and flattened distally, with faint spinous rows and blunt, somewhat pointed or slightly hooked tips (Figures 1*f,* 4*c,f,* 7*b,* 9*f*). Because of their flattened condition, they are variable in appearance depending on the angle at which they are viewed. The ventral cirri are short and attached on the middle of the neuropodia (Figures 4*d,g,* 9*c,d*).

The bulbous pygidium is situated between reduced parapodia of segment 18, which bears large dorsal cirrophores (the styles of the dorsal cirri are evidently large but are usually missing), small notopodial acicular lobes and few notosetae; the neuropodia and ventral cirri may be small or lacking; the anus is dorsal to a pair of large anal cirrophores; the styles of the anal cirri are probably long but usually are missing (Figure 3*g*).

The nephridial papillae begin about segment 5;

they are small and inconspicuous, except sometimes on segments 10, 11 and 12, where they are large and bulbous, evidently associated with reproduction (Figure 4*g*). According to Wirén (1907), *M. violacea* is hermaphroditic; the female portion occupies segments 2–11 and the male portion, segments 9–12 in the region of the enlarged nephridial papillae (Wirén, 1907, pl. 1: fig. 2).

The large muscular pharynx, often of dark purplish color, occupies about the anterior third of the body. When extended, the opening is encircled with nine pairs of papillae and two pairs of dark amber-colored jaws, thus of the usual polynoid type (Figures 8*a,b*, 9*b*).

The integument usually appears smooth but it may be minutely papillate medial to the bases of the elytrophores and dorsal cirrophores, as well as on the neuropodia (Figures 1*a*, 6*c*, 8*a*).

The following key to the species of *Macellicephala* must necessarily be preliminary due to the incomplete material available and the condition of some of the specimens. Some of the species are based on single and/or somewhat damaged specimens. The integument may appear to be minutely papillate or smooth, when worn. The minute frontal filaments on the prostomium may appear to be absent when withdrawn or broken off on damaged specimens. The papillae on the pharynx may appear to be absent *(M. atlantica)*, perhaps due to wear or damage.

Key to the Species of *Macellicephala*

1. Dorsal tubercles distinct. With trilobed facial tubercle (Figure 3*b,e,f*). Pharynx with 9 pairs of papillae. Prostomium with minute frontal filaments (Figures 3*a-d,f*, 5*a*). Body smooth, not papillate 2
   Dorsal tubercles small to absent. Neurosetae with faint to distinct spinous rows along lateral borders (Figures 1*f*, 2*e*, 6*e*, 7*b*, 8*f*, 9*f*, 10*e*) 3
2. Dorsal tubercles digitiform to subconical (Figures 3*c,g*, 4*d,g*). Neurosetae smooth or with faint indications of spinous rows along one side, with slightly hooked tips (Figure 4*c,f*). Notosetae stouter than neurosetae, smooth or with faint indications of spinous rows (Figure 4*b,e*) ..... ***M. violacea***
   Dorsal tubercles large and bulbous (Figure 5*c*). Neurosetae with faint spinous rows along lateral borders and subtriangular tips (Figure 5*e*). Notosetae of two types, shorter and smooth, and longer with distinct spinous rows (Figure 5*d*) ..... ***M. remigata***
3. Notosetae with 2 rows of spines (Figures 6*d*, 7*a*). Without facial tubercle. Prostomium without frontal filaments 4
   Notosetae smooth or with faint to distinct spinous rows. Pharynx with 9 pairs of papillae 5
4. Body papillate, with raised ridges medial to elytrophores and dorsal tubercles (Figure 6*c*). Pharynx with 9 pairs of papillae ..... ***M. aciculata***
   Body smooth. Pharynx without papillae (worn?) ..... ***M. atlantica***
5. Notosetae stouter than neurosetae, smooth (Figures 1*e*, 2*d*). Facial tubercle 2–3 lobed (Figures 1*b*, 2*a*). Body minutely papillate (Figure 1*a*). Prostomium with minute frontal filaments (Figure 2*a*) ..... ***M. mirabilis***
   Notosetae subequal to or more slender than neurosetae. Without facial tubercle but with bulbous upper lip (Figures 8*a*, 9*a,b*, 10*a*). Prostomium without frontal filaments (Figures 8*a*, 9*a,b*, 10*a*) 6
6. Body minutely papillate (Figures 8*a*, 9*a,b*). Notosetae smooth or with faint indication of spinous rows (Figures 8*e*, 9*e*) ..... ***M. longipalpa***
   Body smooth (Figure 10*a*). Notosetae with faint spinous rows (Figure 10*d*) ..... ***M. laubieri***

Macellicephala mirabilis (McIntosh, 1885)

FIGURES 1, 2

Polynoe (Macellicephala) mirabilis McIntosh, 1885:121, pl. 16: fig. 1, pl. 12A: figs. 9–11; 1905:59.

Macellicephala mirabilis.—Augener, 1932:100.—Monro, 1936: 100.—Day, 1967:45, fig. 1.3.n-p.—Averincev, 1972:112.

Macellicephala (Macellicephala) mirabilis.—Hartmann-Schröder, 1974: 76, 84.

MATERIAL EXAMINED.—New Zealand, off North Island, 37°34′S, 179°22′E, 1280 m, blue mud, *Challenger* sta. 169, 10 July 1874, holotype (BMNH 1885: 12: 1: 100).

South Africa, off Cape Point Lighthouse, 860 m, 1 specimen (BMNH 1924: 7: 21: 12; reported by McIntosh, 1905).

South Georgia, mouth of Stromness Harbor, 155–178 m, green mud and sand, *Discovery* sta. 144, 2 specimens (BMNH 1936: 2: 8: 488; reported by Monro, 1936).

DESCRIPTION.—Length of holotype about 25 mm, width including setae 18 mm, segments 18. Dorsal tubercles on cirrigerous segments small to absent (Figure 2*b*). Bulbous frontal lobes of prostomium with minute frontal filaments visible (Figure 2*a*), withdrawn or broken (Figure 1*a,b*). Median antenna with style extending beyond palps. Palps long, tapered. Tentacular cirri long, extending beyond palps. Facial tubercle medial to bases of palps, consisting of 2 to 3 rounded tubercles or bulbous areas (Figures 1*b*, 2*a*).

Parapodia typical (Figures 1*c,d*, 2*b,c*). Notosetae moderate in number, stouter than neurosetae, thin, brittle, flattened, smooth, with blunt tips (Figures 1*e*, 2*d*; McIntosh, 1885, pl. 12A: fig. 9). Neurosetae delicate, (Figures 10, 11). Dorsal cirri with styles extending beyond tips of neurosetae, with slight subterminal enlargements and filamentous tips (McIntosh, 1885, pl. 16: fig. 1).

Reduced parapodia of segment 18 lateral to pygidium, consisting of large cirrophores of dorsal cirri and notopodia, with neuropodia lacking (McIntosh, 1885, pl. 16: fig. 1). Nephridial papillae on segments 10, 11 and 12 large and bulbous. Body minutely papillate medial to bases of elytrophores and dorsal cirrophores (Figure 1*a*).

REMARKS.—Fauvel (1913:6, 1914b:39) referred Levinsen's Arctic species, *Oligolepis violacea,* to McIntosh's Antarctic species, *Macellicephala mirabilis.* Based on a study of specimens from the two regions, the species are considered to be distinct. The specimen from off the Azores, in 1095 meters, upon which Fauvel made his identification, was examined (MOM) and found to be in poor shape, with most of the setae missing; the prostomium appeared to have distinct ceratophores for the lateral antennae, thus, differing from *Macellicephala.* The record is, therefore, considered to be doubtful.

The records of *M. mirabilis* from Arctic regions, which included Levinsen's species in synonymy, are referred herein to *Macellicephala violacea* (Levinsen). These include the records of Augener (1933) from the Barents Sea; Uschakov (1950, 1955) from the Okhotsk Sea and Kurile-Kamchatka Trench; Chlebovitsch (1964) from Franz Josef Land; Levenstein (1971b, 1972, 1973) from the Japanese and

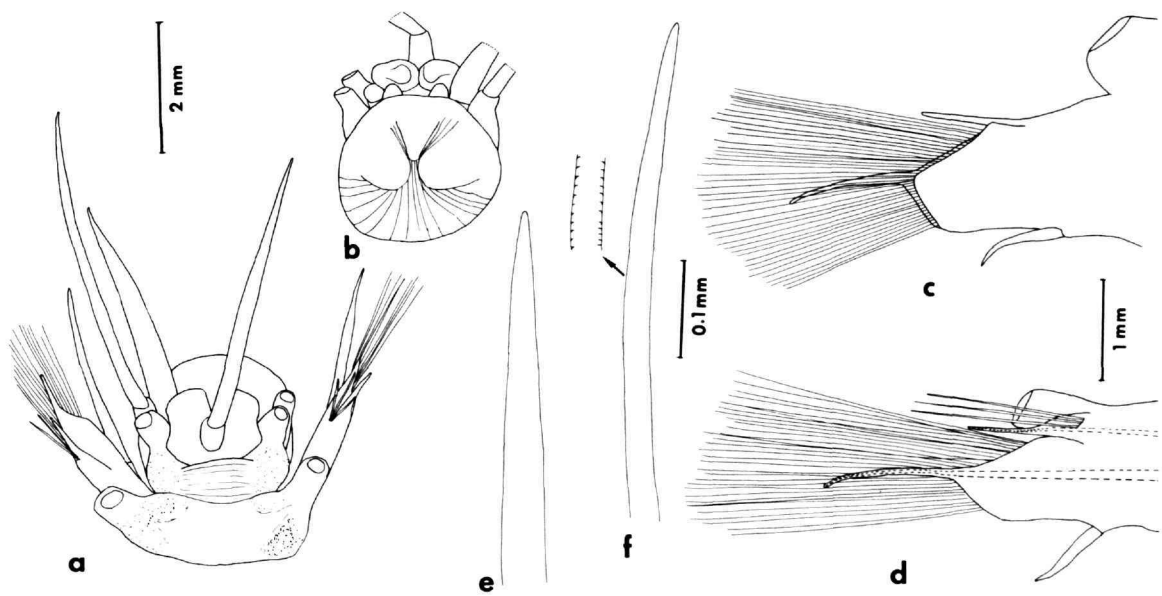

FIGURE 1.—*Macellicephala mirabilis* (holotype, BMNH 1885: 12: 1: 100): *a,* anterior end, dorsal view, pharynx partially extended; styles of left dorsal, right dorsal and ventral tentacular cirri, and right palp missing; *b,* same, ventral view; *c,* elytragerous parapodium, posterior view; notosetae missing; *d,* cirrigerous parapodium,, anterior view; style of dorsal cirrus missing; internal acicula dotted; *e,* notoseta; *f,* neuroseta, with detail of small portion.

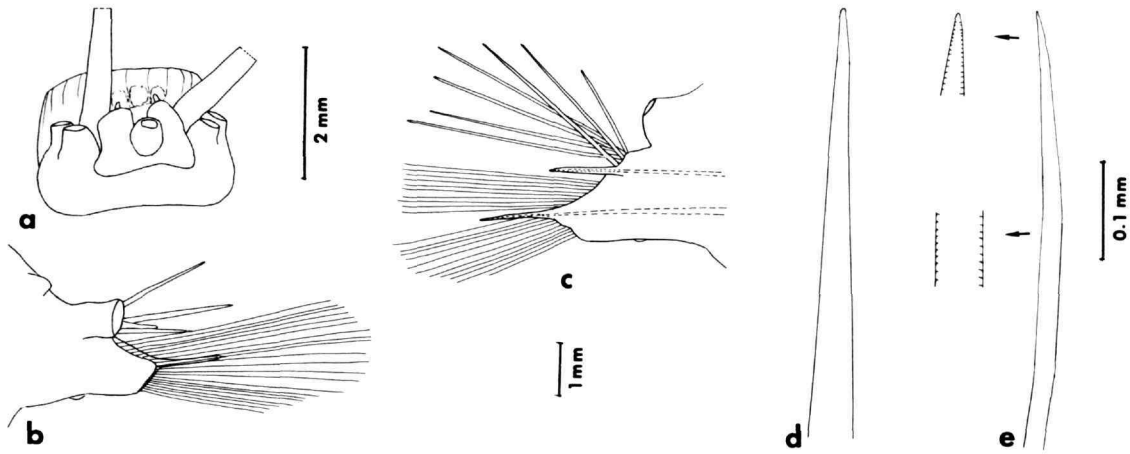

FIGURE 2.—*Macellicephala mirabilis* (BMNH 1924: 7: 21: 12): *a*, anterior end, dorsal view, pharynx partially extended; styles of median antenna and tentacular cirri missing; tips of palps not shown; *b*, cirrigerous parapodium, posterior view; styles of dorsal and ventral cirri missing; *c*, elytragerous parapodium, anterior view; style of ventral cirrus missing; internal acicula dotted; *d*, notoseta; *e*, neuroseta, with detail of small portions.

Aleutian Trenches and Laptev Sea;; and Fauchald (1974) from Western Norway.

The record of *M. mirabilis* from the Mediterranean in 600 and 650 meters, by Reyss (1968:323), needs to be checked; unfortunately, the specimens have been lost (letter of February 1972 from Dr. Reyss).

DISTRIBUTION.—Antarctic: off New Zealand, South Africa, South Georgia, Princess Astrid Coast, in 155 to 1280 meters.

Macellicephala violacea (Levinsen, 1887)

FIGURES 3, 4

Oligolepis violacea Levinsen, 1887:290, pl. 25: figs. 1–4.

Macellicephala violacea.—Wirén, 1901:253; 1907:289, pls. 1, 2.—Ditlevsen, 1917:39.

Macellicephala mirabilis.—Augener, 1933:206, fig. 1.—Uschakov, 1950:156, fig. 2; 1955:312; 1969a:2.—Chlebovitsch, 1964: 168.—Levenstein, 1971b:21, figs. 2–4; 1973:129, 130, 131, 133.—Fauchald, 1974:9 [not McIntosh, 1885].

Macellicephala (Macellicephala) violacea.—Hartmann-Schröder, 1974:76.

MATERIAL EXAMINED.—Kara Sea, sta. 14, 1931, 1 specimen (ZIASL 5981; as *M. mirabilis* by Uschakov, 1950).

Barents Sea, *Willem Barents* Expedition in 1878–1879, 2 specimens (RNHL 377). 72°14′08″N, 22°30′09″E, 283.5 m, clay with stones; Fourth "Willem Barents" Expedition, sta. 9, 30 June 1891, 1 specimen (RNHL; as *M. mirabilis* by Augener, 1933).

Spitsbergen, Klas Bellen Bay, Swedish Spitsbergen Expedition in 1908, sta. 101, 14 August 1908, 1 specimen (ZIUU).

NE Greenland, mouth of Franz Josef Fjord, 200–300 m, mud, Swedish Zoological Polar Expedition in 1900, sta. 25, 14 August 1900, 4 specimens (ZIUU; reported by Wirén, 1901, 1907).

Western Norway, Hardangerfjorden, Indre Samlafjorden, off Hesthamar, 60°26′05″N, 06°33′50″E, 210–250 m, fine and coarse sand, few rocks, sta. 67–56, 24 August 1956, 1 specimen (ZMUB). Sörfjorden, between Kvitno and Melland, 60°10′48″N, 06°33′48″E, 396 m, sta. ZF 63, 9 May 1957, 1 specimen (ZMUB). Sörfjorden, east of Kvitno-Måge, 60°11′N, 06°34′E, 390 m, soft bottom, sta. 30–63, 12 June 1963, 1 specimen (ZMUB). Sörfjorden, outer part between Eidnes and Kjeken, 60°20′30″N, 06°38′40″E, 360–340 m, mud, sta. 6–64, 20 August 1964, 1 specimen (ZMUB). Eidfjorden, South of Vangsbygd, 60°28′55″N, 06°51′18″E, 460–454 m, sta. 8–65, 19 August 1965, 1 specimen (ZMUB) (as *M. mirabilis* by Fauchald, 1974).

Kurile Kamchatka Trench, 44°07′N, 149°34′E, 6135 m, *Vitiaz* sta. 5633, 1 specimen (USNM 51973; exchange from IOASM; as *M. mirabilis* by Levenstein, 1971b).

DESCRIPTION.—Largest specimen from Barents Sea (RNHL 377) 40 mm long, 20 mm wide with parapodia, 30 mm wide with setae, segments 18. Largest specimen from Western Norway (ZMUB) 17 mm long, 7 mm wide with parapodia, 11 mm wide with setae, segments 18. Two elytra on specimen from Barents Sea (RNHL 377) large (probably covering

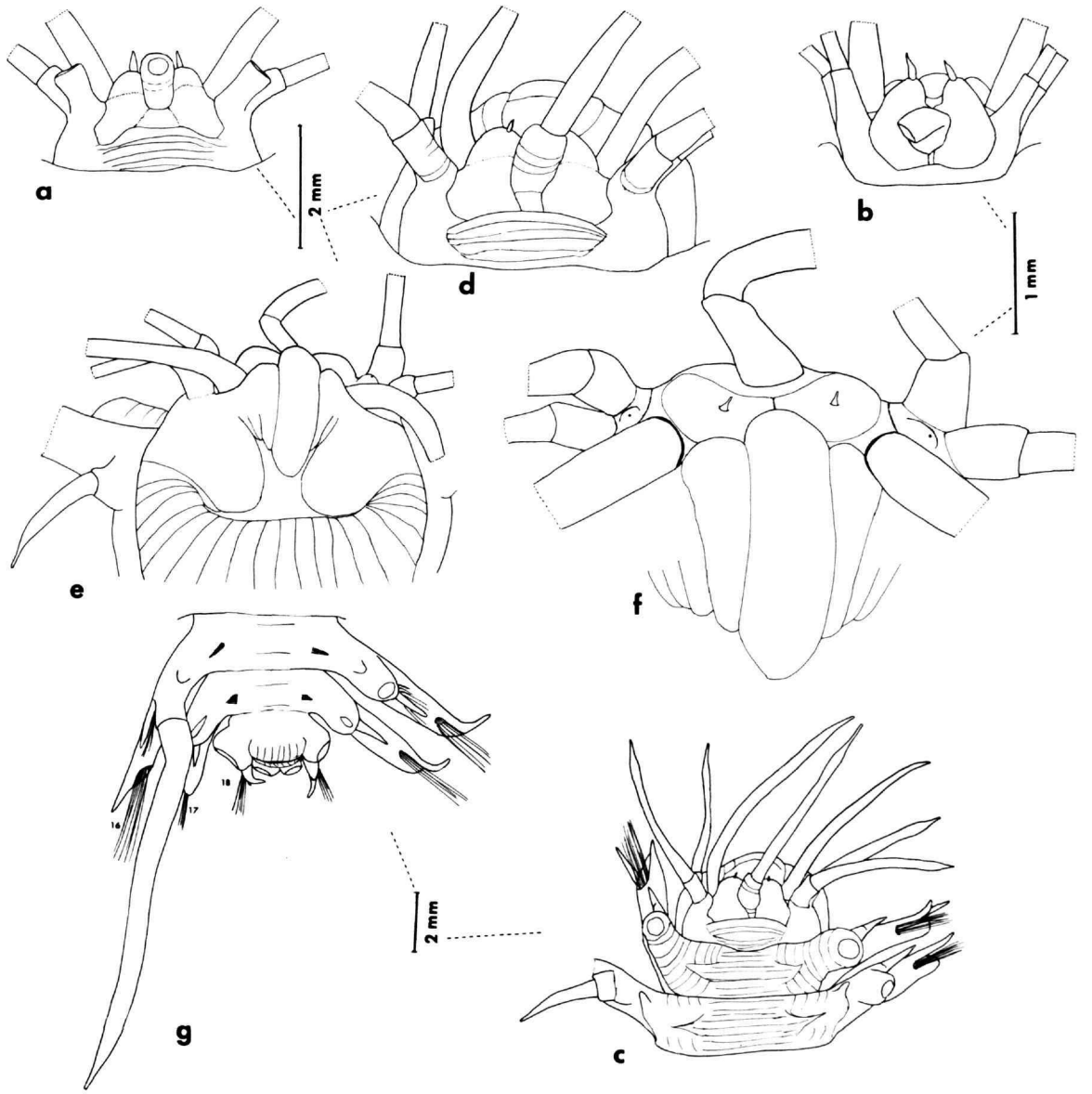

FIGURE 3.—*Macellicephala violacea* (*a*, from Spitsbergen, ZIUU; *b*, from western Norway, sta. 67–56, ZMUB; *c–g*, from Barents Sea, RNHL 377): *a*, anterior end, dorsal view; styles of median antenna and dorsal tentacular cirri missing; only bases of palps and ventral tentacular cirri shown; *b*, anterior end, dorsal view; style of median antenna missing; only bases of palps and tentacular cirri shown; *c*, prostomium and anterior three segments, dorsal view; *d*, prostomium and tentacular segment of same, dorsal view; *e*, ventral view of anterior end; *f*, anteroventral view of portion of same, enlarged; *g*, posterior end, dorsal view; styles of left dorsal cirrus (segment 18) and right dorsal cirri (segments 16, 18) and anal cirri missing; elytra (segment 17) missing.

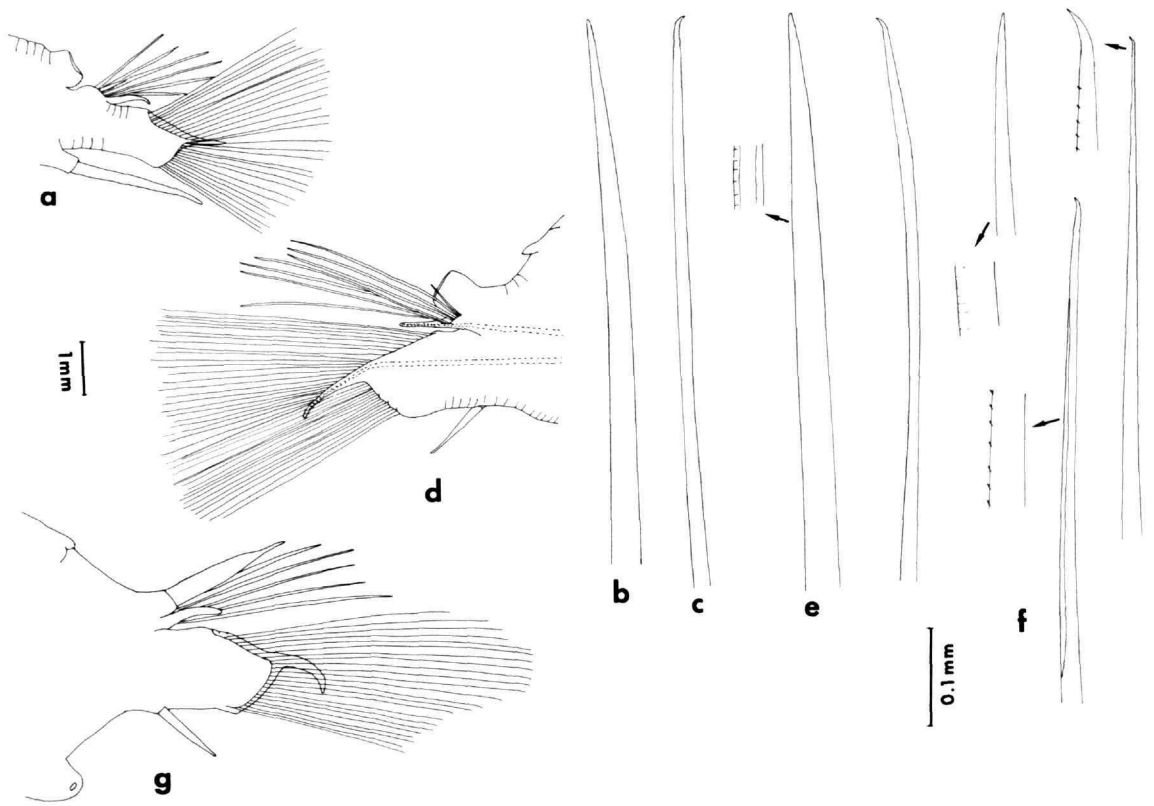

FIGURE 4.—*Macellicephala violacea* (from Barents Sea, RNHL 377): *a*, right elytragerous parapodium (segment 2), posterior view; *b*, notoseta from same; *c*, neuroseta from same; *d*, right cirrigerous parapodium (segment 6), anterior view; style of dorsal cirrus missing; internal acicula dotted; *e*, notoseta from same, with detail of small portion; *f*, four neurosetae from same, with detail of small portions; *g*, right cirrigerous parapodium (segment 10), posterior view, showing enlarged nephridial papilla.

dorsum), oval, soft, smooth, without tubercles or papillae (according to Levinsen, elytra minute, not covering middorsum). Dorsal tubercles on most of cirrigerous segments distinct, digitform to subconical (Figures 3*c,g*, 4*d,g*). Narrower anterior lobes of prostomium with minute frontal filaments, sometimes partially withdrawn (Figures 3*a-d,f*). Median antenna with style long, with subterminal enlargement and filamentous tip. Palps about same length or shorter than median antenna. Dorsal and ventral tentacular cirri subequal in length, slightly shorter than median antenna (Figure 3*c;* Wirén, 1907, pl. 1: fig. 3). Trilobed facial tubercle medial to bases of palps (Figure 3*b,e,f*).

Parapodia typical (Figures 3*c,g*, 4*a,d,g;* Wirén, 1907, pl. 2: figs. 1,2). Notosetae moderate in number, stouter than neurosetae, clear, fragile, smooth or with faint indications of spinous rows, with blunt tips (Figure 4*b,e;* Levinsen, 1887, pl. 25: fig. 4s; Wirén, 1907, pl. 1: fig. 7). Neurosetae flattened, needle-like, clear or with faint indications of spinous rows along one side, distally tapering rather abruptly to slightly hooked tips (Figure 4*c,f;* Levinsen, 1887, pl. 25: fig. 4i; Wirén, 1907, pl. 1: figs. 5,6).

Dorsal cirri with styles variable in length (mostly missing), tapering gradually to filamentous tips (Figure 3*c,g*). Reduced parapodia of segment 18, lateral to pygidium, consisting of large dorsal cirro-

phores, notopodia with notosetae, and ventral cirri; neuropodia lacking (Figure 3*g*). Nephridial papillae large on segments 10, 11 and 12 (Figure 4*g*). Body smooth, not papillate.

REMARKS.—The type of *Oligolepis violacea* Levinsen from the Kara Sea was not located; it is not in the Zoological Museum, Copenhagen. However, a specimen from near the type-locality (ZIASL 5981) was available for study. Fauvel (1914b:39) considered Levinsen's species to be a synonym of *Macellicephala mirabilis* McIntosh from New Zealand. As indicated in the above synonymy for *M. violacea,* a number of polychaete workers agreed with Fauvel's conclusions.

The specimens, identified as *M. violacea* by Ditlevsen (1937:15) and Wesenberg-Lund (1953:27), were examined (UZMC) and are referred herein to *M. longipalpa.*

DISTRIBUTION.—Widely distributed in Arctic: Kara, Laptev, Barents and Greenland Seas, Franz Josef Land, Spitsbergen, Jan Mayen, NE Iceland, Western Norway, Aleutian and Kurile-Kamchatka Trenches, Okhotsk Sea, in 46 to 8400 meters.

Macellicephala remigata (Moore, 1910)

FIGURE 5

Polynoe (?) remigata Moore, 1910:365, pl. 31: figs. 47–51.
Macellicephala remigata.—Hartman, 1938:122.
Macellicephala (Macellicephala) remigata.—Hartmann-Schröder, 1974:76, 80, 84.

MATERIAL EXAMINED.—Southern California, off Santa Catalina Island, 611–1097 m, gray sand and rocks, *Albatross* sta. 4407, 9 April 1904, holotype (USNM 17220).

DESCRIPTION.—Length of holotype 15 mm, width including parapodia 7 mm, segments 18 (not incomplete, as indicated by Moore, 1910). Dorsal tubercles on cirrigerous segments large, bulbous (Figure 5*c;* Moore, 1910, pl. 31: fig. 48). Narrower anterior lobes of prostomium with minute frontal filaments (Figure 5*a;* overlooked by Moore, 1910; observed by Hartman, 1938). Median antenna with style missing. Palps rather short and tapered. Remaining left dorsal tentacular cirrus longer than palps. Small trilobed facial tubercle medial to bases of palps.

Parapodia typical (Figure 5*a-c*). Notosetae relatively few in number (3–6; mostly missing), slightly

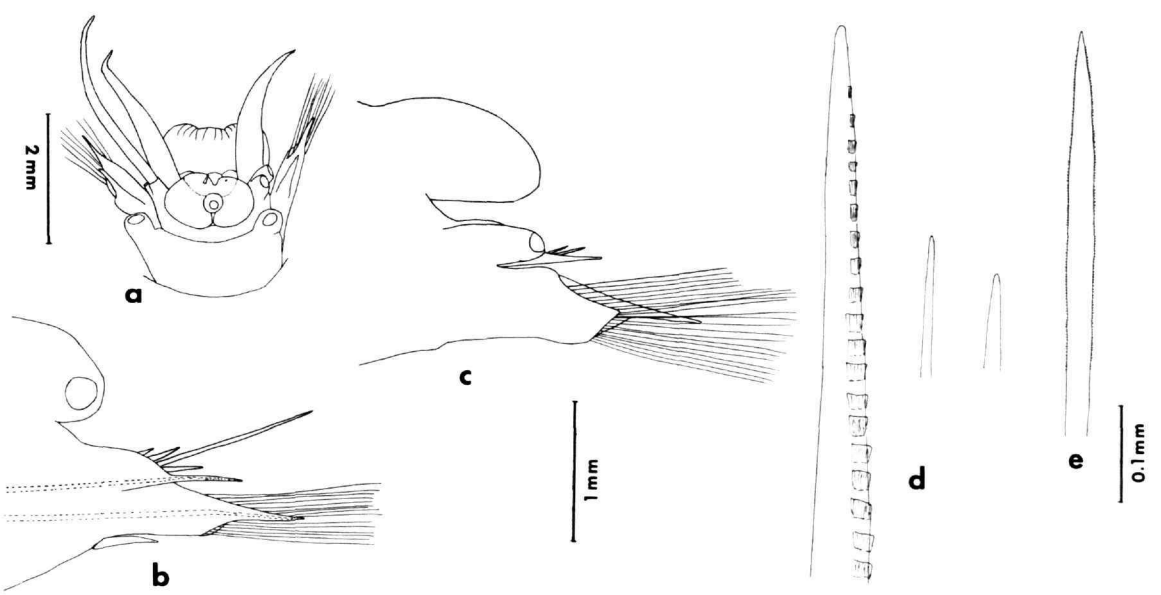

FIGURE 5.—*Macellicephala remigata* (holotype, USNM 17220): *a,* anterior end, dorsal view, pharynx partially extended; styles of median antenna, right tentacular and left ventral tentacular cirri missing; right prostomial filament broken off or withdrawn; *b,* left elytragerous parapodium, anterior view; internal acicula dotted; *c,* right cirrigerous parapodium, posterior view; all but 2 notosetae missing; *d,* two short, smooth and one long, spinous notosetae; *e,* neuroseta.

stouter than neurosetate, pale yellow, with blunt tips; shorter ones appearing smooth; longer ones with distinct spinous rows (Figure 5*d;* Moore, 1910, pl. 31: fig. 49). Neurosetae delicate, flattened, appearing smooth or with faint serrations along margins, with pointed tips (Figure 5*e;* Moore, 1910, pl. 31: figs. 50, 51). Styles of dorsal cirri missing (Figure 5*c;* Moore, 1910, pl. 31: fig. 48; Moore evidently mistook dorsal tubercles for dorsal cirrophores).

Reduced parapodia of segment 18, lateral to pygidium, consisting of notopodia and dorsal cirrophores only. Nephridial papillae larger on segments 9, 10 and 11. Body smooth, not papillate.

REMARKS.—Moore's species was referred to *M. mirabilis* by Knox (1959:106).

DISTRIBUTION.—Northeastern Pacific (off southern California), in 611 to 1097 meters.

Macellicephala aciculata (Moore, 1910)

FIGURE 6

Polynoe (?) *aciculata* Moore, 1910:367, pl. 31: figs. 57, 58.
Macellicephala (?) *aciculata.*—Hartman, 1938:122, fig. 39f.
Macellicephala (Macellicephala) aciculata.—Hartmann-Schröder, 1974:76, 80, 84.

MATERIAL EXAMINED.—Southern California, off Point Loma Light, vicinity of San Diego, 1004–1070 m, green mud, *Albatross* sta. 4352, 14 March 1904, holotype (USNM 17405).

DESCRIPTION.—Length of holotype 9 mm, width including parapodia 4 mm, segments 18. Dorsal tubercles on cirrigerous segments slightly bulbous to inconspicuous. Narrower anterior lobes of prostomium with indications of minute frontal filaments (poor condition). Median antenna with style missing. Right ventral tentacular cirrus long, slender, tapered, with subterminal enlargement. No apparent facial tubercle (pharynx fully extended and poor condition).

Parapodia typical (Figure 6*a-c;* Moore, 1910, pl. 31: fig. 57). Notosetae few (?); all but one missing, stouter than neurosetae basally, with 2 rows of spines (Figure 6*d*). Neurosetae delicate, colorless, slender basally, expanded and flattened distally and tapered to blunt tips, with margins serrated (Figure 6*e;* Moore, 1910, pl. 31: fig. 58). Styles of dorsal cirri long, extending beyond tips of neurosetae (Figure 6*b*). Ventral cirri missing.

Parapodia of segment 18, lateral to pygidium, consisting of dorsal cirrophores and notopodia. Nephridial papillae somewhat larger on segments 10, 11 and 12 (poor condition). Body somewhat papillate dorsally, with raised ridges medial to elytrophores and dorsal tubercles (Figure 6*c*).

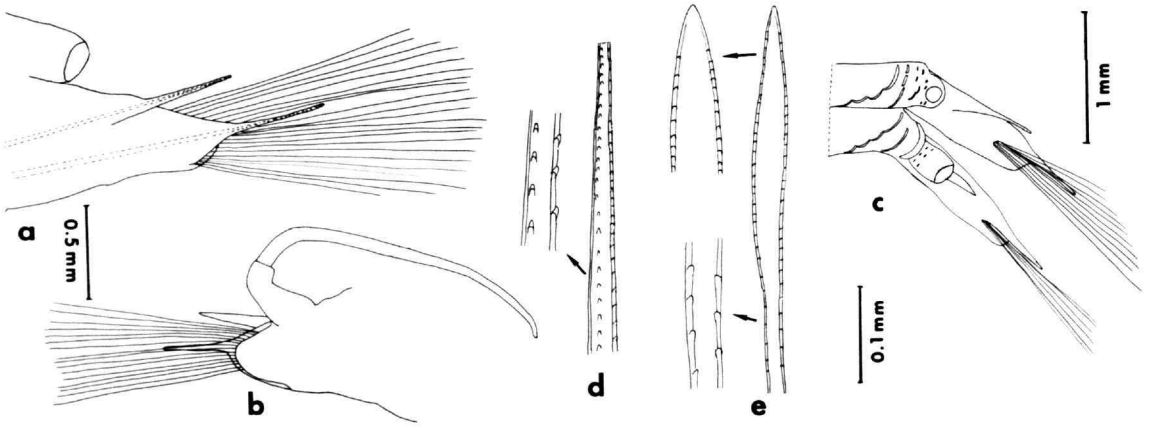

FIGURE 6.—*Macellicephala aciculata* (holotype, USNM 17405): *a*, left elytragerous parapodium, anterior view; ventral cirrus missing; internal acicula dotted; *b*, left cirrigerous parapodium, posterior view; ventral cirrus missing; *c*, right half of segments 15 and 16, dorsal view; notosetae all missing; *d*, notoseta with broken tip, with detail of small portion; *e*, neuroseta, with detail of small portions.

DISTRIBUTION.—Northeastern Pacific (off southern California), in 1004 to 1070 meters.

Macellicephala atlantica Støp-Bowitz, 1948

FIGURE 7

Macellicephala atlantica Støp-Bowitz, 1948:6, fig. 2a–e.
Macellicephala (Macellicephala) atlantica.—Hartmann-Schröder, 1974:76, 80, 84.

MATERIAL EXAMINED.—North Atlantic, 42°59'N, 51°15'W, 1100 m, *Michael Sars* sta. 70, 30 June 1910, holotype and 2 paratypes (ZMUB 41436/7, all in poor condition).

DESCRIPTION.—Length of three types 8–10 mm, widths with parapodia 2–5 mm, segments 18. Dorsal tubercles on cirrigerous segments inconspicuous. Bulbous anterior lobes of prostomium without frontal filaments (withdrawn or broken off?). Median antenna with style missing. Palps missing. Styles of tentacular cirri missing. Without facial tubercle (poor condition).

Parapodia typical (Støp-Bowitz, 1948, fig. 2a,b). Notosetae few in number, stouter than neurosetae, with 2 rows of spines along one side and blunt tips (Figure 7*a;* Støp-Bowitz, 1948, fig. 2c). Neurosetae transparent, flattened, with serrations along both borders and blunt tips (Figure 7*b*, Støp-Bowitz, 1948, fig. 2d). Styles of dorsal cirri all missing.

Reduced parapodia of segment 18, lateral to pygidium, consisting of dorsal cirrophores and notopodia. Nephridial papillae small, none enlarged (poor condition). Extended pharynx with 2 pairs of jaws, without papillae (poor condition; worn off?). Body smooth, not papillate.

DISTRIBUTION.—North Atlantic, in 1100 meters.

Macellicephala longipalpa Uschakov, 1957

FIGURES 8, 9

Macellicephala violacea.—Ditlevsen, 1937:15.—Wesenberg-Lund, 1953:27 [part?; not *Oligolepis violacea* Levinsen, 1887].
Macellicephala longipalpa Uschakov, 1957:1663, 1671, fig. 4A–D.—Chlebovitsch, 1964:168.
Macellicephala (Macellicephala) longipalpa.—Hartmann-Schröder, 1974:76, 80, 84.

MATERIAL EXAMINED.—Kara Sea, SP–4, sta. 2, 1 specimen (ZIASL 3718). Kara Sea, 1931, 1 specimen (USNM 43623; exchange from ZIASL 3536).

West Greenland, north of Umanak, 70°51'N, 52°01'W, 733 m, *Godthaab* Expedition, sta. 144, 5 September 1928, 1 specimen (USNM 51969, exchange from UZMC; as *M. violacea* by Ditlevsen, 1937).

East Greenland, Kejser Josephs Fjord, SW of Cape Franklin, 320 m, *Godthaab* Expedition, sta. 96, 13 August 1902, 1 specimen (USNM 51968, exchange from UZMC; as *M. violacea* by Wesenberg-Lund, 1953).

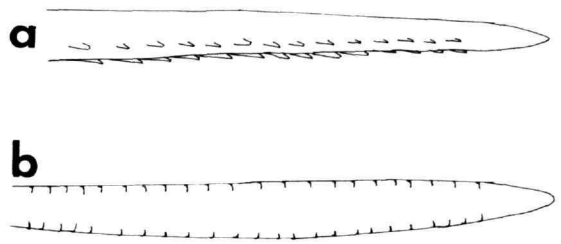

FIGURE 7.—*Macellicephala atlantica* (paratype, ZMUB 41437): *a*, notoseta; *b*, neuroseta. [Not to scale.]

DESCRIPTION.—Length of specimen from Kara Sea (USNM 43623) 20 mm, width with parapodia 10 mm, segments 18. Length of specimen from East Greenland (USNM 51968) 24 mm, width with parapodia 10 mm, width with setae 16 mm, segments 18. Length up to 30 mm, according to Uschakov (1957). Dorsal tubercles on cirrigerous segments inconspicuous. Bulbous anterior lobes of prostomium without frontal filaments (Figures 8*a*, 9*a,b*). Median antenna with style long, tapering. Palps tapered, very long (longer than median antenna). Dorsal and ventral tentacular cirri subequal in length, slightly shorter than median antenna. Without distinct facial tubercle but with bulbous upper lip (Figure 9*a,b*).

Parapodia typical (Figures 8*a,c,d*, 9*a-d*). Notosetae few (up to 6), subequal to or more slender than neurosetae, clear, fragile, smooth or with faint indications of spinous rows, with blunt tips (Figures 8*e*, 9*e;* Uschakov, 1957, fig. 4c). Neurosetae flat, transparent, denticulate along parallel sides, with tapered blunt tips (Figures 8*f*, 9*f;* Uschakov, 1957, fig. 4D). Styles of dorsal cirri missing.

Parapodia of segment 18 reduced, lateral to pygidium, consisting of large dorsal cirrophores, small notopodial acicular lobes, slightly longer neuropodial acicular lobes and ventral cirri. Nephridial papillae on segments 10, 11 and 12 large, bulbous. Body and parapodial lobes minutely papillate (Figures 8*a*, 9*a,b*).

DISTRIBUTION.—Arctic: Kara Sea, Franz Josef Land, Spitsbergen, East and West Greenland, in 120 to 2245 meters.

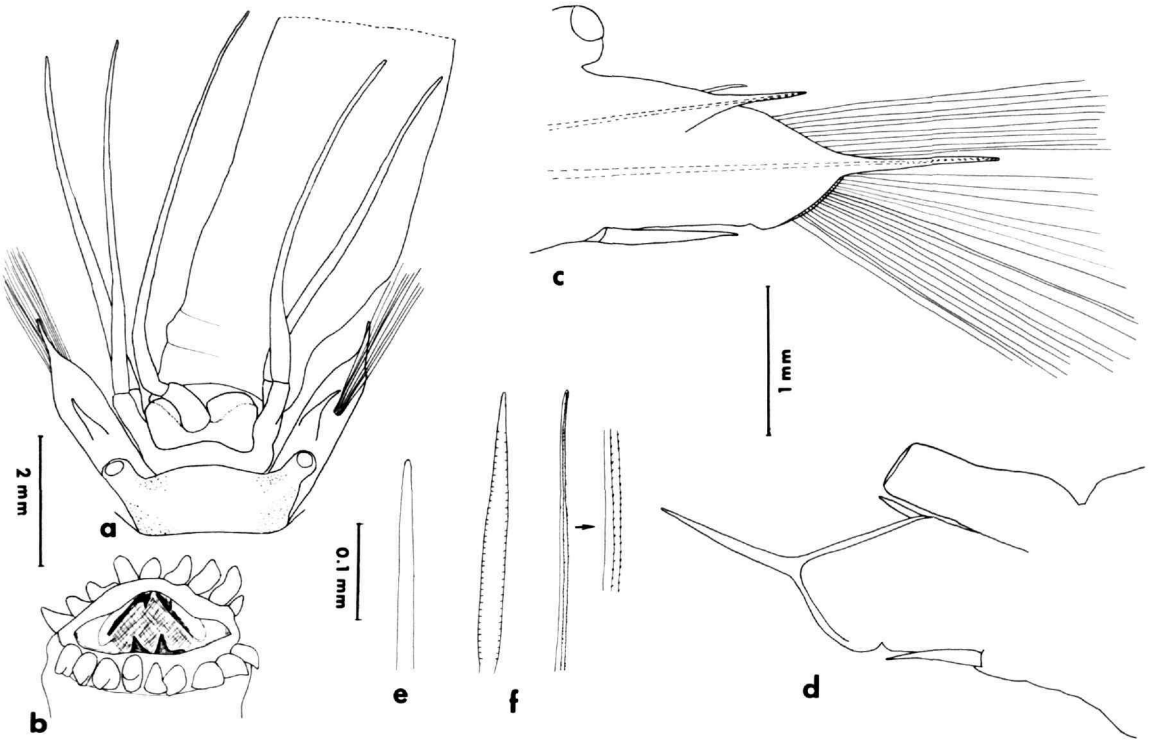

FIGURE 8.—*Macellicephala longipalpa* (USNM 43623): *a*, anterior end, dorsal view, pharynx fully extended (basal end only shown); palps missing; *b*, distal end of extended pharynx, ventral view; *c*, left elytragerous parapodium of segment 2, anterior view; internal acicula dotted; *d*, left cirrigerous parapodium of segment 3, anterior view; style of dorsal cirrus and setae missing; *e*, notoseta; *f*, neurosetae, face and profile views, with detail of small portion.

Macellicephala laubieri Reyss, 1971

FIGURE 10

Macellicephala laubieri Reyss, 1971:244, figs. 1, 2.

MATERIAL EXAMINED.—Mediterranean, 40°59.3'N, 05°03'E, 2665 m, N. O. *Jean Charcot*, sta. DS 10, 1970, holotype and 3 paratypes (ZIASL 36643).

DESCRIPTION.—Length of holotype 5 mm, width including setae 4 mm, segments 18 (not 19, as indicated in Reyss, 1971). Dorsal tubercles on cirrigerous segments inconspicuous. Bulbous anterior lobes of prostomium without frontal filaments (Figure 10*a;* Reyss, 1971, figs. 1,2A). Style of median antenna missing. Palps very long. Dorsal and ventral tentacular cirri subequal in length, about half as long as palps. Without distinct facial tubercle but with bulbous upper lip.

Parapodia typical (Figure 10*a-c;* Reyss, 1971, figs. 1,2A,B). Notopodia short, subconical, with projecting acicular processes (notopodium not limited to notoaciculum and notosetae, as indicated by Reyss, 1971). Notosetae few (up to 5), about as stout as neurosetae basally, with faint transverse spinous rows and blunt tips (Figure 10*d;* Reyss, 1971, fig. 2C). Neurosetae enlarged and flattened distally, denticulate along parallel sides, with tapered blunt tips (Figure 10*e;* Reyss, 1971, fig. 2D-G). Styles of dorsal cirri missing.

Parapodia of segment 18, lateral to pygidium, reduced (poor condition). Nephridial papillae on segments 10, 11 and 12 wide. Body smooth, not papillate.

DISTRIBUTION.—Mediterranean, in 2447 to 2699 meters.

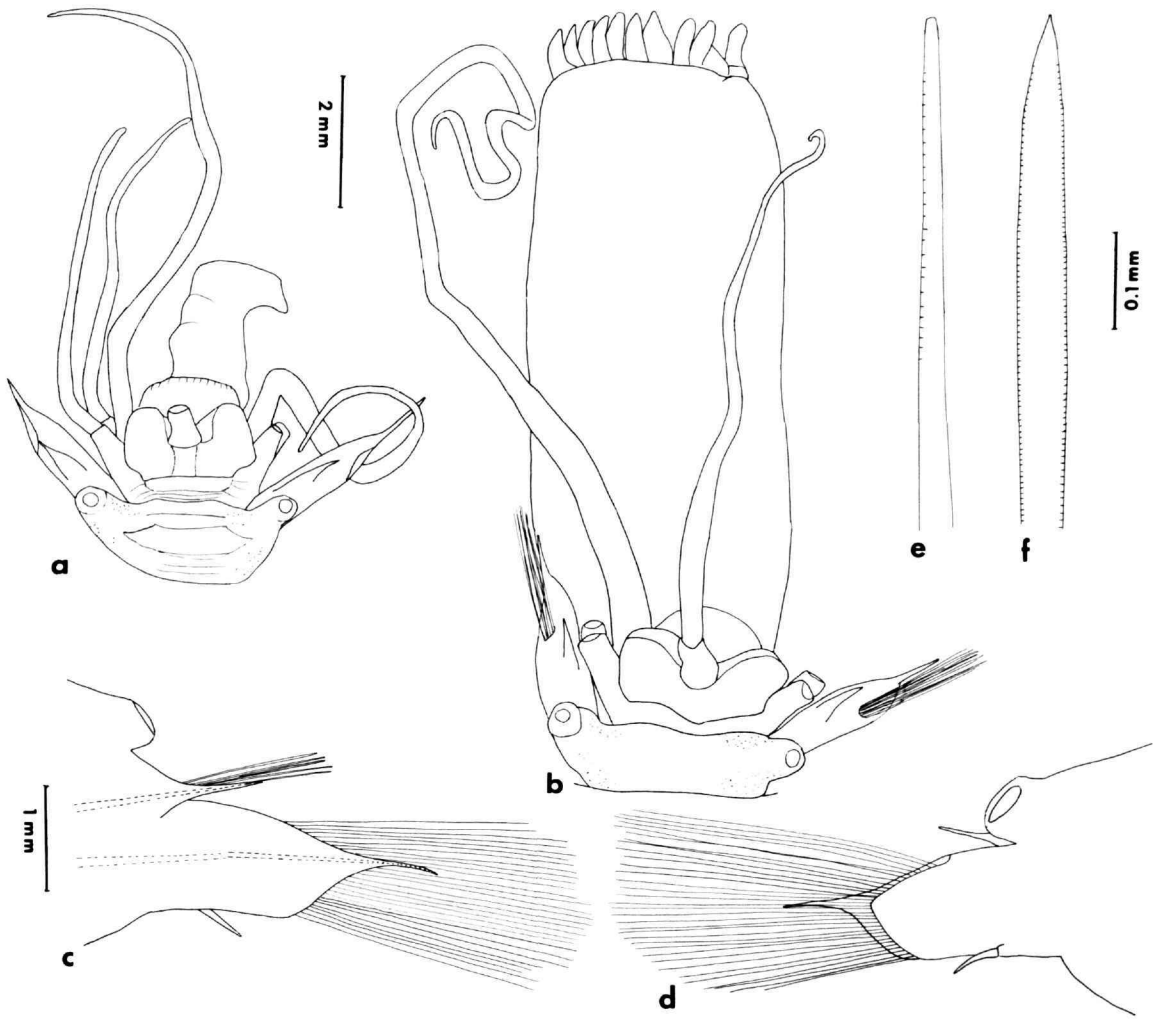

FIGURE 9.—*Macellicephala longipalpa* (*a*, USNM 51969; *b–f*, USNM 51968): *a*, anterior end, dorsal view, pharynx fully extended and broken off; styles of median antenna and right tentacular cirri missing; *b*, anterior end, dorsal view, pharynx fully extended; tentacular cirri and right palp missing; *c*, left elytragerous parapodium, anterior view; internal acicula dotted; *d*, left cirrigerous parapodium, posterior view; style of dorsal cirrus missing; *e*, notoseta (tip worn); *f*, neuroseta.

Bathykermadeca, new genus

TYPE-SPECIES:—*Macellicephala hadalis* Kirkegaard, 1956. Gender: feminine.

DIAGNOSIS.—Body short, broad, flattened, fusiform; segments 21 (first achaetous). Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on segments 18, 20,21 (both elytra and dorsal cirri lacking on segment 19). Prostomium deeply bilobed, with frontal filaments; ceratophore of median antenna inserted in anterior notch; paired palps long, tapered; without eyes. First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores, with projecting acicular lobe, without setae. Segment 2 with buccal cirri attached to basal parts of parapodia lateral to ventral mouth, longer than

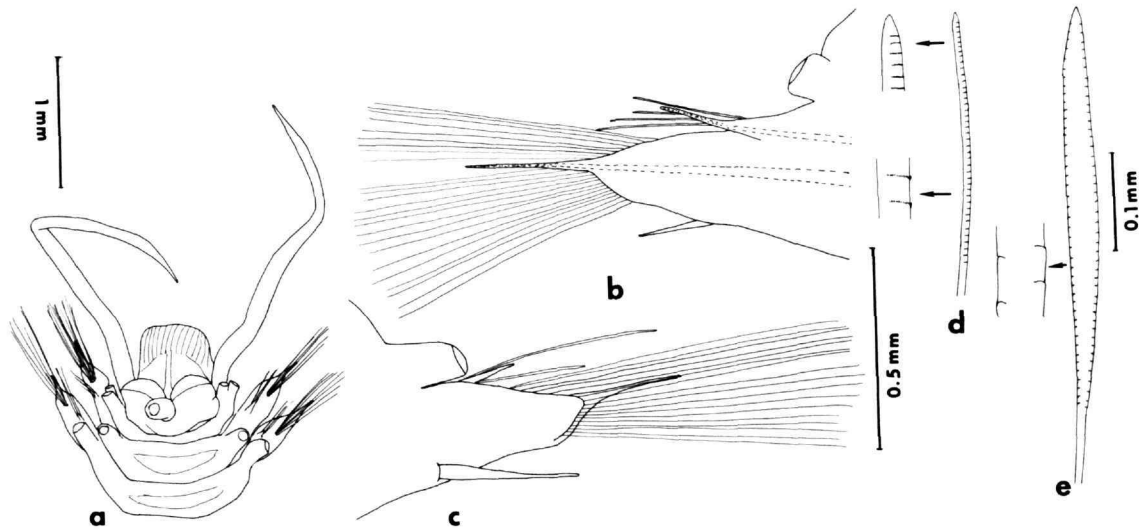

FIGURE 10.—*Macellicephala laubieri* (holotype, ZIASL 36643): *a*, anterior end, dorsal view, pharynx partially extended; styles of median antenna, tentacular and dorsal cirri missing; *b*, right elytragerous parapodium, anterior view; internal acicula dotted; *c*, right cirrigerous parapodium, posterior view; style of dorsal cirrus missing; *d*, notoseta, with detail of small portions; *e*, neuroseta, with detail of small portion.

following ventral cirri (?—missing). Parapodia biramous, with notopodia subequal to neuropodia, both rami with elongate acicular processes. Notosetae stout, with 2 rows of spines and blunt tips. Neurosetae stout, tapering to blunt tips, with 2 rows of spines along one side. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short, attached near middle of neuropodia. Dorsal tubercles on cirrigerous segments inconspicuous. Six pairs of nephridial papillae large (on segments 12–17). Pygidium elongate, cylindrical, with anus on segments 18/19, encircled by parapodia of segments 18–21, with pair of anal cirri (missing). Pharynx with 8 pairs of papillae—7 dorsal and ventral, 1 lateral, and 2 pairs of jaws.

A single species is referred to *Bathykermadeca: B. hadalis* (Kirkegaard), as *Macellicephala hadalis* Kirkegaard, 1956. South Pacific, in Kermadec Trench, in 6660 to 6720 meters.

Bathykermadeca hadalis (Kirkegaard), new combination

FIGURES 11, 12

Macellicephala hadalis Kirkegaard, 1956:64, figs. 1–3 [part].—Reyss, 1971:250 [part].

Macellicephala (Macellicephala) hadalis.—Hartmann-Schröder, 1974:76, 84 [part].

MATERIAL EXAMINED.—South Pacific, Kermadec Trench, 35°51'S, 178°31'W, 6660–6720 m, *Galathea* Expedition sta. 658, 20 February 1952, paratype (USNM 51977; exchange from UZMC).

DESCRIPTION.—Length of paratype (USNM 51977) 34 mm, width with parapodia 20 mm, segments 21. According to Kirkegaard, length of largest specimen 62 mm, width 25 mm, segments 21. Body broad, flat, oval, fusiform, with parapodia as long as body width (Kirkegaard, 1956, fig. 2).

Elytra (all missing) and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on segments 18, 20,21 (both elytrophores and dorsal cirrophores lacking on segment 19). Dorsal tubercles on cirrigerous segments inconspicuous.

Prostomium deeply incised anteriorly, forming long conical lobes, tapering anteriorly to pointed frontal filaments (Figure 11*a,b;* Kirkegaard, 1956, figs. 1,2). Median antenna with small cylindrical ceratophore in posterior part of prostomial notch, much shorter than prostomial lobes; style short, tapered (according to Kirkegaard but absent on paratype examined). Paired palps long, smooth, tapered

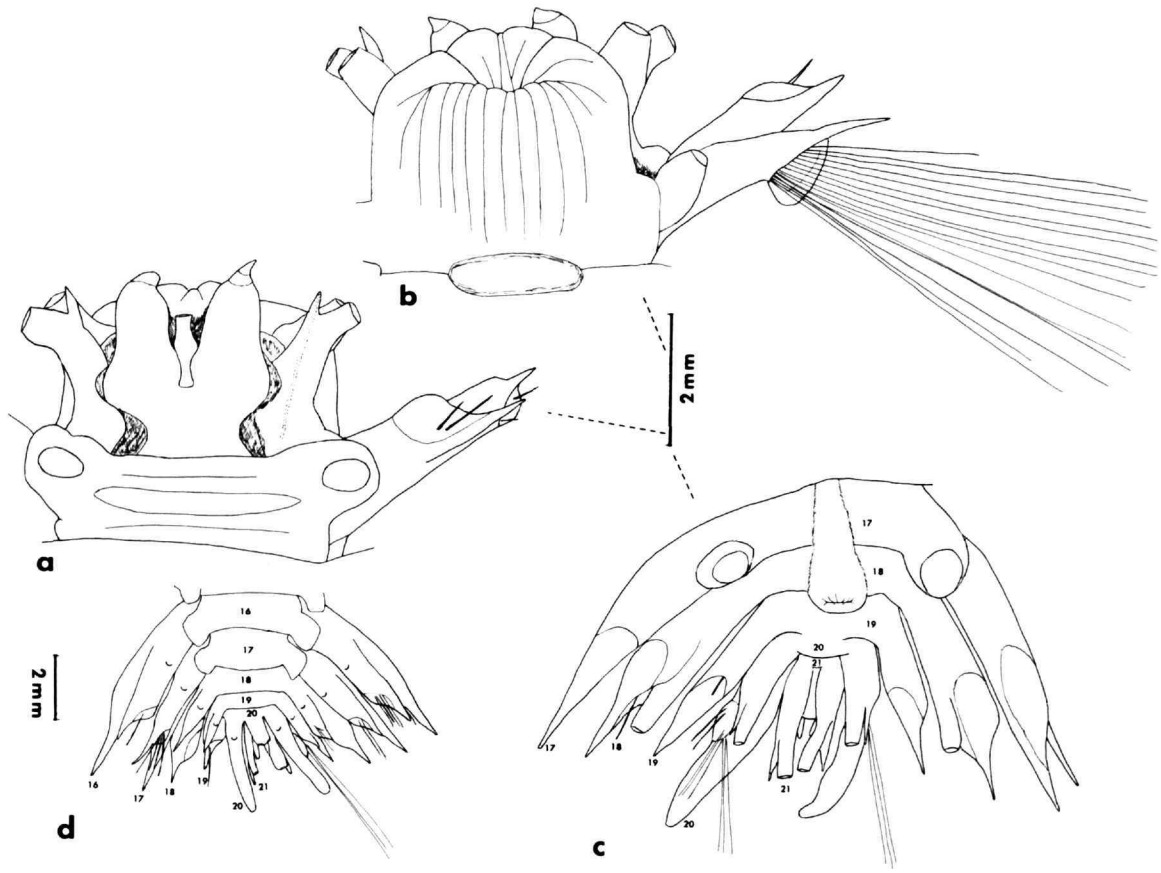

FIGURE 11.—*Bathykermadeca hadalis* (paratype, USNM 51977): *a*, dorsal view of prostomium and anterior two segments; all appendages missing; parapodium of left segment 2 not shown; internal aciculum of right I dotted; *b*, same, ventral view; parapodium of right segment 2 not shown; style of ventral buccal cirrus missing; *c*, dorsal view of pygidium and posterior segments (17–21); neuropodia mostly hidden by longer notopodia; elytra (segment 17), styles of dorsal cirri (segments 18, 20, 21) and most of setae missing, both elytrophores and dorsal cirrophores absent on segment 19; *d*, same, ventral view (segments 16–21); styles of ventral cirri missing; segment 21 indistinct midventrally, except for parapodia (very small digitiform neuropodia near posterior cylindrical pygidial lobe).

(according to Kirkegaard; absent on paratype examined). Eyes lacking. Tentacular segment visible dorsally but fused to prostomium; uniramous tentacular parapodia lateral to prostomium, with projecting acicular lobe, without setae; 2 pairs of tentacular cirri with cylindrical cirrophores and long, smooth, tapering styles (according to Kirkegaard but lacking on paratype examined; Figure 11*a,b*). Without distinct facial tubercle. Ventral buccal cirri of segment 2 with large cirrophores attached ventrally on neuropodia, lateral to mouth; styles missing (Figures 11*b*, 12*a*). Some of neurosetae extra long, more slender than following neurosetae, with bilateral rows of spines (Figure 12*a,b*).

Parapodia biramous, with rami subequal in length (Figure 12*c,e*). Notopodia bulbous basally, with projecting acicular processes; neuropodia subconical, with projecting presetal acicular processes. Notosetae moderate in number, forming radiating bundles, some stouter than neurosetae, iridescent,

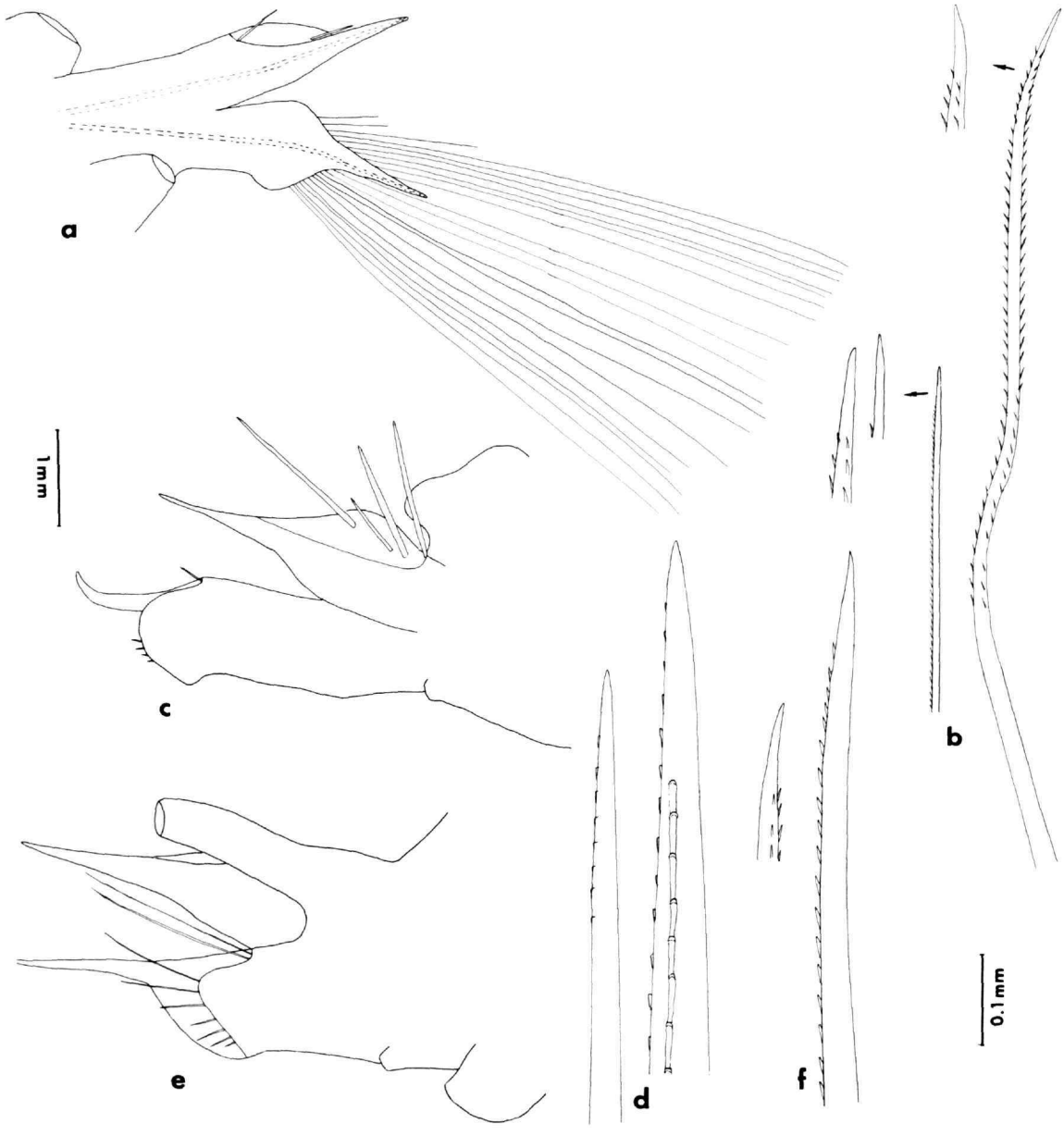

FIGURE 12.—*Bathykermadeca hadalis* (paratype, USNM 51977): *a*, elytragerous parapodium of segment 2, anterior view; most of notosetae, elytron, and style of ventral buccal cirrus missing; internal acicula dotted; *b*, short and long neurosetae from same, with detail of small portions; *c*, left elytragerous parapodium from segment 4, posterior view; elytron, style of ventral cirrus, and most of setae missing; *d*, shorter and longer notosetae from same; *e*, left cirrigerous parapodium from segment 14, posterior view; styles of dorsal and ventral cirri, and most of setae missing; *f*, tips of shorter and longer neurosetae from same.

fragile, with 2 rows of spines and tapering to blunt tips (Figure 12*d*). Neurosetae stout, with 2 rows of spines along one side, with tapered, bare, blunt tips (Figure 12*f*). Dorsal cirri with long cylindrical cirrophores on posterodorsal sides of notopodia; styles long, smooth, tapering (according to Kirkegaard, but missing on paratype examined; Figure 12*e*). Ventral cirri attached near middle of parapodia; styles small, filiform (according to Kirkegaard; missing on paratype examined).

Six pairs of nephridial papillae large, projecting on ventral side of segments 12 to 17 (Figures 11*d*, 12*e*). Pygidium elongate, with large anus on dorsal side of segments 18 and 19, encircled by parapodia of segments 18–21 and ending posteriorly in cylindrical lobe, with pair of anal cirri (styles missing; Figure 11*c,d*). Parapodia of posterior segments shorter and somewhat modified: noto- and neuropodia of last elytragerous segment (17) subequal in length; cirrigerous segment 18 with neuropodia smaller than notopodia; segment 19 with still smaller parapodia and lacking both elytrophores and cirrophores (corresponding to underdeveloped elytragerous segment); cirrigerous segment 20 with small notopodia, very long notosetae, and very long neuropodia with rounded tips; cirrigerous segment 21 with small notopodia and very small, digitiform neuropodia, with ventral cirri lacking. Pharynx (cut open on paratype, USNM 51977) large, muscular, occupying about one-third of body length; opening encircled with 7 pairs of large dorsal and ventral papillae and lateral pair, with 2 pairs of jaws.

REMARKS.—One of the 41 fragments, collected in the Kermadec Trench in 8210–8300 meters at *Galathea* station 649 and reported as *M. hadalis* by Kirkegaard, was examined (USNM 30005; exchange from UZMC). It consists of an anterior fragment in rather poor condition. The anterior end and pharynx agree with *Macellicephala mirabilis* but the specimen is not sufficiently complete to make a positive identification. The Kermadec Trench is close to the type-locality of the latter species.

DISTRIBUTION.—South Pacific (Kermadec Trench), in 6660 to 8300 meters.

Bathyeliasona, new genus

TYPE-SPECIES.—*Macellicephala abyssicola* Fauvel, 1913. Gender: feminine.

DIAGNOSIS.—Body short, broad, flattened, fusiform; segments 17 or 18 (first setigerous). Elytra and prominent elytrophores 8 pairs, on segments 2, 4,5, 7, 9, 11, 13 and 15, with dorsal cirri on posterior 2–3 segments. Prostomium bilobed, with frontal filaments; ceratophore of median antenna inserted in anterior notch; paired palps long, tapered; without eyes. First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores and uniramous setigerous lobes with notosetae. Segment 2 with buccal cirri attached to basal parts of parapodia lateral to ventral mouth, slightly longer than following ventral cirri. Parapodia biramous, with shorter notopodia and longer neuropodia, both rami with elongate acicular processes. Notosetae stout, spinous, more slender than neurosetae, with blunt tips. Neurosetae greatly expanded and flattened distally, forming paddle-like swimming setae. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short, attached near distal tips of neuropodia. Nephridial papillae small or few sometimes enlarged. Pygidium prominent, with dorsal anus, paired depressed areas and pair of anal lobes or cirri. Pharynx with 9 pairs of papillae and 2 pairs of jaws.

ETYMOLOGY.—The genus is named for Dr. Anders Eliason, noted Swedish polychaete systematist whose works include one of the early publications on deep-sea polychaetes (1951, Reports of the Swedish Deep-sea Expedition).

The following three species are referred to *Bathyeliasona: B. abyssicola* (Fauvel), as *Macellicephala abyssicola* Fauvel, 1913, Gulf of Gascony, in 4380 meters; *B. kirkegaardi* (Uschakov), as *Macellicephala kirkegaardi* Uschakov, 1971, Aleutian Trench, in 7180 meters; *B. nigra* (Hartman), as *Herdmanella nigra* Hartman, 1967, South Sandwich Islands, in 2553–2575 meters.

GENERAL CHARACTERISTICS.—The body is robust, flattened, fusiform, slightly tapered anteriorly and posteriorly, with very long parapodia—much longer than the body width (Fauvel, 1914b, pl. 1: fig. 9; Hartman, 1967, pl. 3A). It is relatively short and composed of a definite number of segments: 17 (in *B. kirkegaardi*) or 18 (in *B. abyssicola* and *B. nigra*); the first or tentacular segment is uniramous, with a prominent bundle of notosetae (Figures 14*a,b*, 15*a*, 18*a,c*); the parapodia of the posterior segments are only slightly reduced (Figures 13*g*, 15*f,g*, 18*e,f*). The

eight pairs of elytra (all missing) are borne on prominent button-like elytrophores medial to the notopodia of elytragerous segments 2, 4,5, 7, 9, 11, 13 and 15, with dorsal cirri on 2 to 3 posterior segments (Figure 13*f,g*). Dorsal tubercles on the cirrigerous segments are indistinct.

The prostomium is about as wide as long, deeply bilobed, forming tapered or rounded lobes with frontal filaments (Figures 13*a,f,* 14*a–c,* 15*a,* 17*a,* 18*a–d*), referred to as filiform frontal horns by Fauvel (1913) and Uschakov (1971), as prominent frontal peaks by Hartman (1967), and as lateral antenna by Hartmann-Schröder (in press). The ceratophore of the median antenna is long, cylindrical, inserted in the anterior notch; the style (often missing) is long, slender and tapered (Figure 17*a*). Eyes are lacking. The first or tentacular segment is fused with the prostomium, a narrow band being visible dorsally; two pairs of tentacular cirri with prominent cirrophores are situated lateral to the prostomium, associated with distinct, low, subconical setigerous lobes bearing transverse rows of notosetae (Figures 13*a,f,* 14*a,b,* 15*a,* 17*a,* 18*a,c*). A distinct facial tubercle is lacking. The ventral buccal cirri of segment 2 are attached basally on the neuropodia lateral to the mouth and are only slightly longer than the following ventral cirri, thus, not as long as those commonly found in the polynoids (Figures 14*c,* 15*b,* 18*b*).

The biramous parapodia, with stout, golden internal acicula, are stout and elongate—much longer than the body width (Figures 13*b,c,g,* 14*a,d,* 15*b,f,g,* 16*a,f,* 17*b,c,* 18*b,c,e,f,* 19*a,b*). The notopodia are smaller and shorter than the neuropodia; they are larger and rounded basally, tapering to elongate acicular processes. The longer neuropodia have a projecting presetal acicular process with rounded to truncate subacicular and diagonally truncate supraacicular setigerous parts. When the neurosetae are torn away, as they often are in collections, there may be some rounded projections in the setigerous slits (Figure 13*b,c*). These protrusions were referred to as crests of papillae by Fauvel (1914b, pl. 3: figs. 4,5). The notosetae are moderate in number, stout, with spinous rows and blunt tips (Figures 13*d,* 14*e,* 15*d,* 16*b,d,* 17*d,* 19*c,d*). The neurosetae form fan-shaped bundles (Figure 14*d*). They are more slender basally, greatly expanded and flattened distally, transparent, with serrated lateral borders, tapering subdistally to subtriangular tips (Figures 13*e,* 14*f,* 16*c,e,* 17*e,* 19*e,f*). The neurosetae are fragile and may be entirely missing (Figure 13*c*) or only a few may remain (Figure 17*b*). The dorsal cirri have long cylindrical cirrophores posterior to the bases of the notopodia; the styles are filiform, long, extending beyond the neurosetae, with slender clavate papillae; the ventral cirri are short, attached near the ventral distal tips of the neuropodia (Figures 13*c,* 16*f,* 19*b*).

The nephridial papillae begin on segment 5; they are usually small (Figures 15*g,* 18*f;* few larger, in *B. nigra*). The pygidium is enclosed in the long parapodia of the posterior segment, with dorsal anus, pair of large oval depressed areas and posterior paired subtriangular to subconical anal lobes (Figures 13*g,* 15*f,g,* 18*e,f*). The pharynx is about a third of the body length, dark violet to purplish in color, with the opening encircled by nine pairs of papillae and two pairs of strong jaws (Figures 15*h,* 18*c*).

Key to the Species of *Bathyeliasona*

1. Segments 17. Anterior prostomial filaments slender, filiform (Figures 15*a,* 17*a*). Notopodia of posterior segment (17) shorter than neuropodia, as in preceding segments (Figure 15*f*). Flattened neurosetae very wide (more than 0.2 mm in width; Figures 16*e,* 17*e*). Nephridial papillae all small ..... ***B. kirkegaardi***

   Segments 18. Anterior prostomial filaments wider, subulate or tapered (Figures 13*a,f,* 14*a–c,* 18*a,c,d*) 2

2. Notopodia of posterior two segments (17, 18) nearly as long as neuropodia, differing from preceding segments (Figure 13*g*). Flattened neurosetae more slender (about 0.1 mm in width; Figures 13*e,* 14*f*). Nephridial papillae all small ..... ***B. abyssicola***

   Notopodia of posterior segments shorter than neuropodia, as in preceding segments (Figure 18*e,f*). Flattened neurosetae very wide (more than 0.2 mm in width; Figure 19*f*). Nephridial papillae on segments 10, 11 and 12 enlarged ..... ***B. nigra***

Bathyeliasona abyssicola (Fauvel), new combination

FIGURES 13, 14

Macellicephala abyssicola Fauvel, 1913:7, fig. 2,A–D; 1914b:41, pl. 1: fig. 9, pl. 3: figs. 4,5,18–20; 1923:44, fig. 15,d–g.—Eliason, 1951:132.—Belloc, 1953:2.—Knox, 1959:106, 107.—Levenstein, 1961a:151 [part]; 1966:10 [part]; 1972:172, 174 [part].—Reyss, 1971:250 [part].—Uschakov, 1971:38, 40, fig. F.
Macellicephala (Macellicephala) abyssicola.—Hartmann-Schröder, 1974:76, 84 [part].

MATERIAL EXAMINED.—North Atlantic, Gulf of Gascony, 4380 m, sta. 2964, 20 July 1910, holotype (MOM). Off Canary Islands, 29°48′ to 30°05′N, 17°39′ to 17°18′W, 4255–4267 m, sta. 313, 16 June 1948, O. Nybelin, collector, 1 specimen (NMG 10984; reported by Eliason, 1951). Off NW Africa, 22°31′ to 22°41′N, 23°28′ to 23°10′W, 4867–4872 m, sta. 319, 21 June 1948, O. Nybelin, collector, 1 specimen (NMG 10985; reported by Eliason, 1951).

North Pacific, Bering Sea, 3980 m, P. Uschakov, collector, 1952, 1 specimen (ZIASL 13758; reported by Levenstein, 1961a).

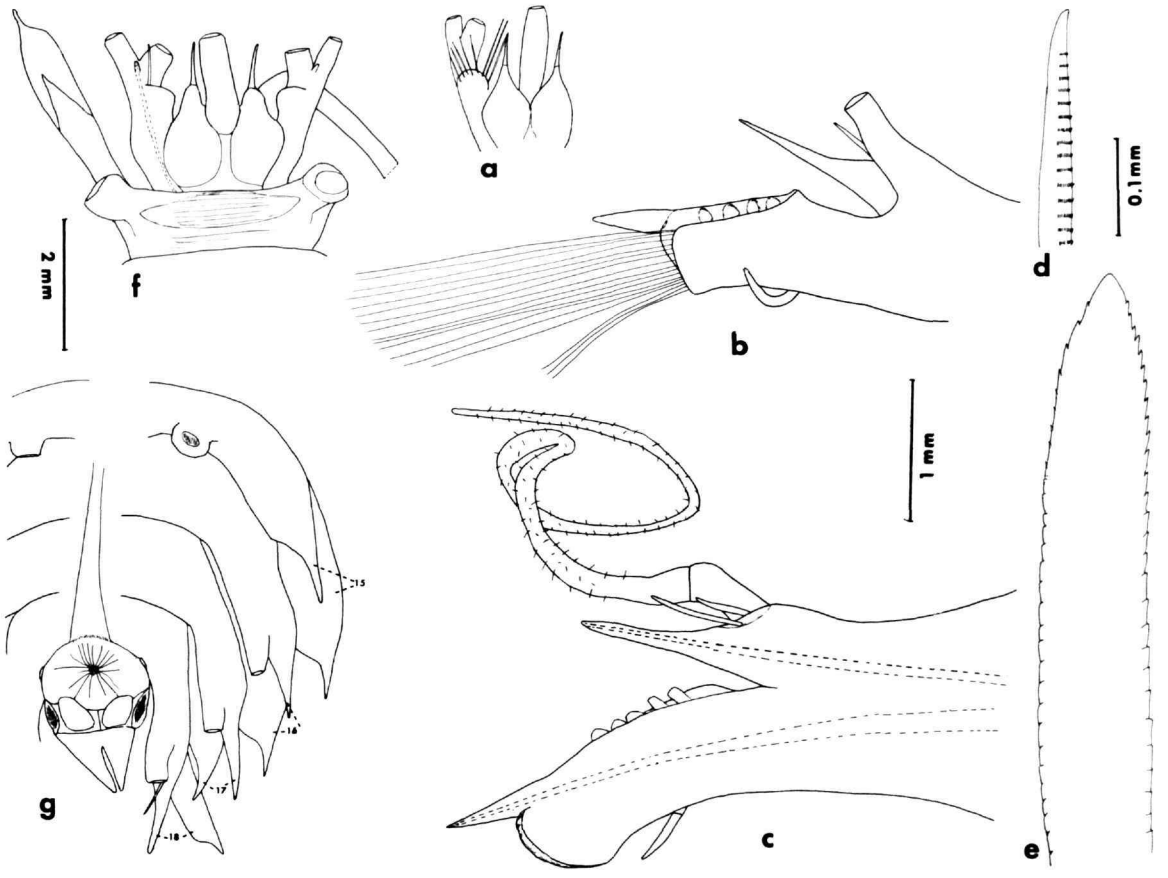

FIGURE 13.—*Bathyeliasona abyssicola* (*a–e*, holotype of *Macellicephala abyssicola*, MOM; *f,g*, specimen from NW Africa, NMG 10985): *a*, prostomium and left tentacular parapodium, styles of median antenna, tentacular cirri and palps missing (not to scale); *b*, cirrigerous parapodium, posterior view; style of dorsal cirrus missing; upper group of neurosetae and all but one notoseta broken away; *c*, cirrigerous parapodium, anterior view; internal acicula dotted; all neurosetae and all but two notosetae broken away; *d*, tip of notoseta; *e*, tip of neuroseta; *f*, prostomium and first two segments; dorsal view; all setae, except single notoseta on left segment 1, broken off; styles of median antenna, tentacular cirri and left palp missing; distal part of right palp and right parapodium of segment 2 not shown; internal aciculum on left I dotted; *g*, dorsal view of pygidium and right side of posterior four segments (15–18).

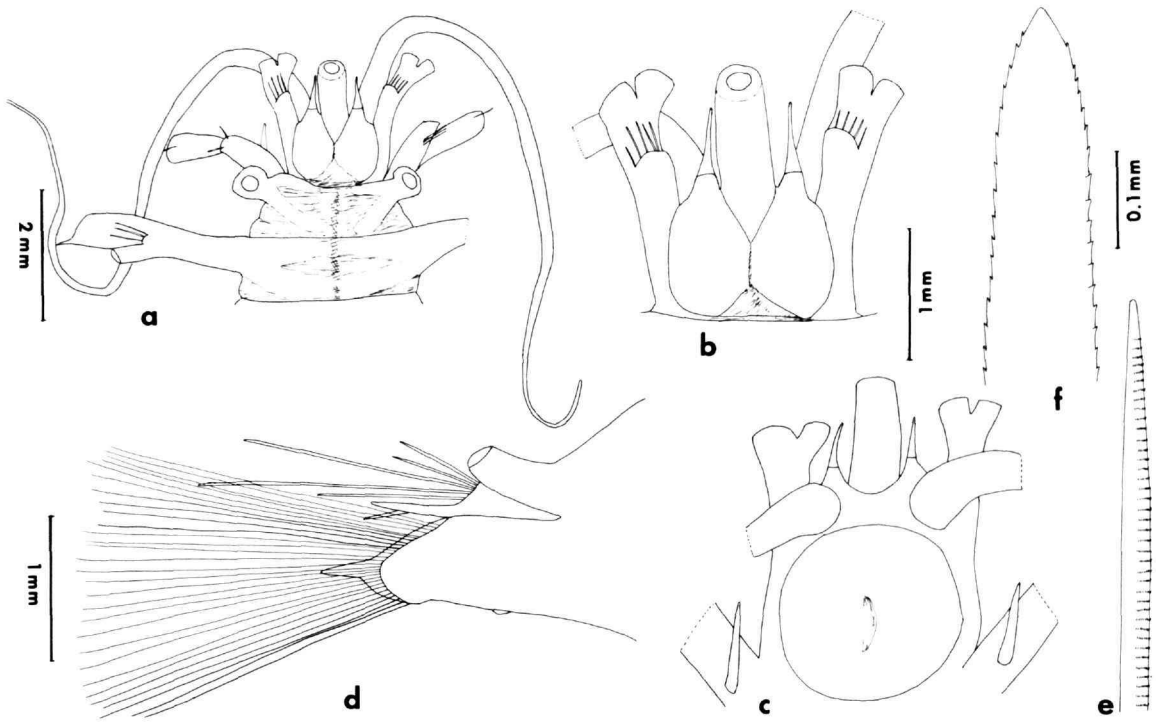

FIGURE 14.—*Bathyeliasona abyssicola* (from Bering Sea, ZIASL 13758): *a*, prostomium and anterior three segments, right side only partially shown; styles of median antenna, tentacular and dorsal cirri missing; most of setae missing; *b*, dorsal view of prostomium and tentacular segment; tips of notosetae broken; *c*, ventral view of same, pharynx partially extended; bases of parapodia 2, including ventral buccal cirri, indicated; *d*, cirrigerous parapodium, posterior view; styles of dorsal and ventral cirri missing; *e*, notoseta; *f*, tip of neuroseta.

DESCRIPTION.—According to Fauvel (1913), length of holotype 28 mm, width with parapodia 10 mm, segments 18. Length of specimen from NW Africa (NMG 10985) 24 mm, width with parapodia 11 mm, segments 18. Length of specimen from Bering Sea (ZIASL 13758) 19 mm, width with parapodia 8 mm, segments 18.

Bilobed prostomial lobes tapering anteriorly to subulate frontal filaments; ceratophore of median antenna long, cylindrical, with style missing; palps very long, filiform, smooth, extending to about segment 8 (Figures 13*a,f*, 14*a–c;* Fauvel, 1914b, pl. 3: fig. 18). Inner side of tentacular parapodia with small projecting acicular lobe and truncate setigerous lobe with transverse row of up to 8 notosetae (sometimes partly missing or with tips broken; Figures 13*a,f*, 14*a,b;* Fauvel, 1914b, pl. 3: fig. 18).

Parapodia typical (Figures 13*b,c,g;* 14*a,d;* Fauvel, 1914b, pl. 3: figs. 4,5). Neuropodia of two posterior segments only slightly longer than notopodia (Figure 13*g*). Notosetae moderate in number (about 10), short to long, with numerous spinous rows and blunt bare tips (Figures 13*d*, 14*e;* Fauvel, 1914b, pl. 3: fig. 19). Neurosetae wide, flattened, serrated along lateral borders (Figures 13*e*, 14*f;* Fauvel, 1914b, pl. 3: fig. 20). Pygidium enclosed in parapodia of segment 18, with posterior paired subtriangular anal lobes (Figure 13*g*).

REMARKS.—The record of *M. abyssicola* from the Kermadec Trench by Kirkegaard (1956:64) is referred herein to *Bathyeliasona kirkegaardi;* the record from the Banda Trench was based on a proboscis only and thus doubtful; the specimens from the Sunda Trench were not examined. The

records of *M. abyssicola* from the Java and Bougenville Trenches by Levenstein (1961b:136; 1971b:19; 1972:172, 174) are also considered to be doubtful, because they were based on defective specimens.

DISTRIBUTION.—North Atlantic (Gulf of Gascony, off Canary Islands, off NW Africa), North Pacific (Bering Sea, Aleutian Trench), in 3830 to 7180 meters.

Bathyeliasona kirkegaardi (Uschakov), new combination

FIGURES 15–17

Macellicephala abyssicola.—Kirkegaard, 1956:64 (part?) [not Fauvel, 1913].

Macellicephala kirkegaardi Uschakov, 1971:37, figs. A–E.—Levenstein, 1971b:24, 30, fig. 4b [part]; 1972:172 [part];

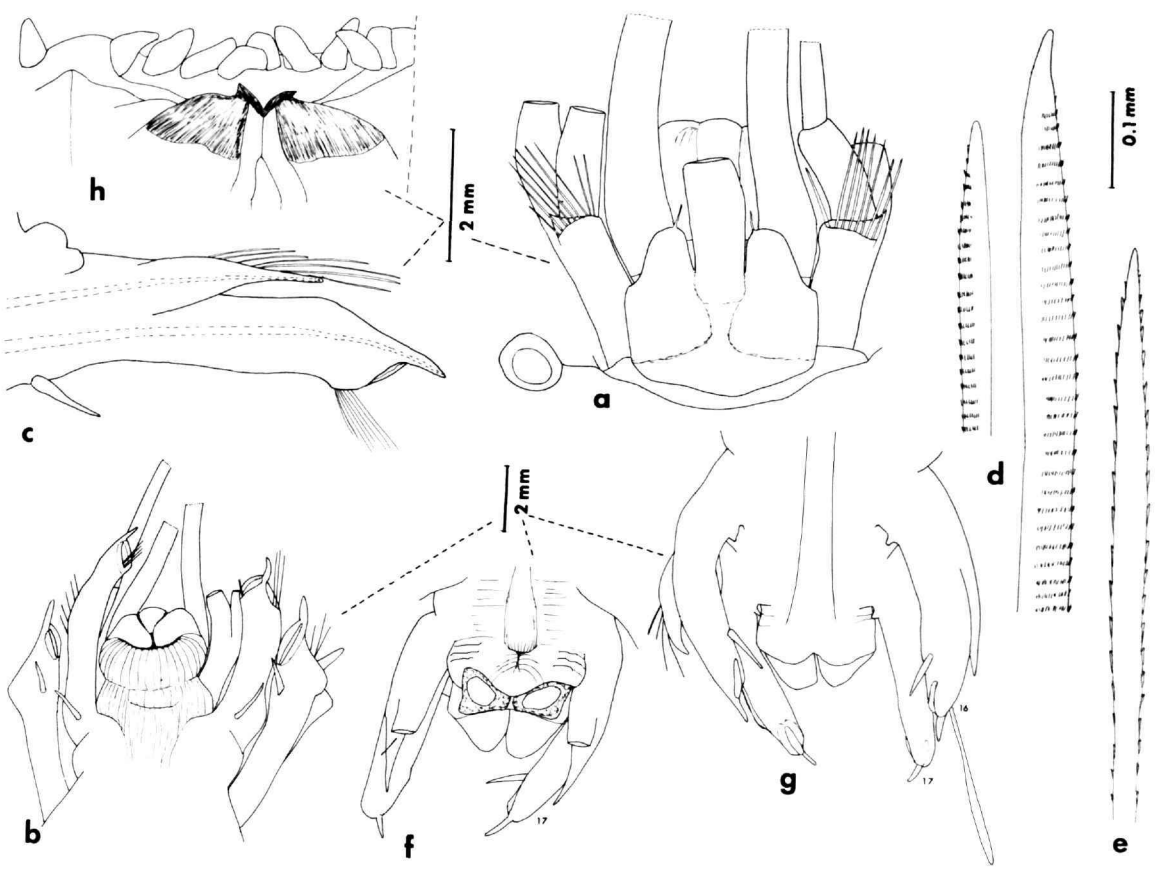

FIGURE 15.—*Bathyeliasona kirkegaardi* (*a–g*, holotype and paratype, ZIASL 13757; *h*, specimen from *Vitiaz* sta. 6145, USNM 51970): *a*, anterior end, dorsal view; style of median antenna and all tentacular cirri missing, except right dorsal one; bases of palps and tentacular cirrus only shown; *b*, ventral view of prostomium and anterior three segments; bases of palps and right dorsal tentacular cirrus only shown; most of setae missing or with broken tips; *c*, left elytragerous parapodium from segment 2, anterior view; internal acicula dotted; neurosetae missing except for lower group; *d*, shorter and longer notosetae from same; *e*, neuroseta from same; *f*, pygidium and posterior segment (17) of holotype, dorsal view; styles of dorsal and anal cirri and setae missing; *g*, pygidium and posterior two segments (16, 17) of paratype, ventral view; most of setae missing; *h*, inner view of distal part of dorsal half of pharynx, cut open along dotted line.

1973:129.—Reyss, 1971:251.—Hartmann-Schröder, 1975:53, figs. 9–15.

Macellicephala (Macellicephala) kirkegaardi.—Hartmann-Schröder, 1974:76, 84.

MATERIAL EXAMINED.—Southwest Pacific, Kermadec Trench, 32°20′S, 176°54′W, 6620 m, *Galathea* sta. 650, 31 December 1952, 1 specimen (USNM 51972; exchange from UZMC; as *M. abyssicola* by Kirkegaard, 1956).

North Pacific, Aleutian Trench, 52°26′N, 170°54′E, 7180 m, *Vitiaz* sta. 3357, 1955, paratype (ZIASL 13757). 51°09′07″N, 174°35′E, 7250 m, *Vitiaz* sta. 6145, 1969, 1 specimen (USNM 51970; exchange from IOASM; reported by Levenstein, 1971b).

Northeastern Atlantic, off Portugal, 42°10.7′N, 14°20.8′W, 5275 m, *Meteor 3*, sta. 38, 19 March 1966, Thiel, collector, 2 specimens (USNM 52071; exchange from ZMH; reported by Hartmann-Schröder, 1975).

DESCRIPTION.—Length of paratype (ZIASL 13757) 50 mm, width with parapodia 30 mm, segments 17. Length of specimen from *Vitiaz* sta. 6145 (USNM 51970) 47 mm, width with parapodia 23 mm, segments 17. Length of specimen from Kermadec

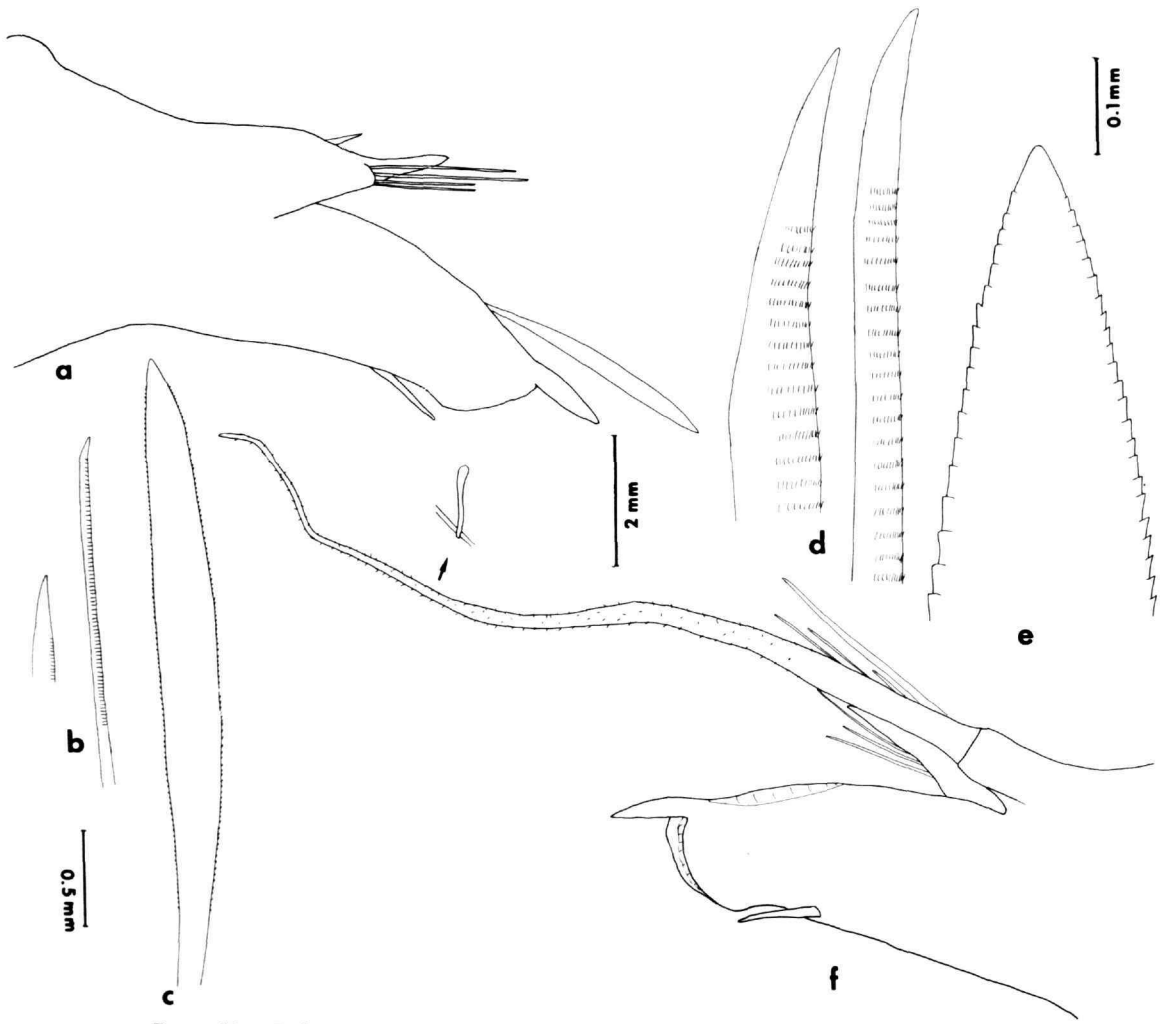

FIGURE 16.— *Bathyeliasona kirkegaardi* (paratype, ZIASL 13757): *a*, left elytragerous parapodium from segment 7, anterior view; single neuroseta remaining; *b*, short, stouter and longer, more slender notosetae from same; *c*, neuroseta from same; *d*, notosetae from same, more highly magnified; *e*, tip of neuroseta from same, more highly magnified; *f*, left cirrigerous parapodium from segment 12, posterior view, with detail of clavate papilla; all neurosetae missing.

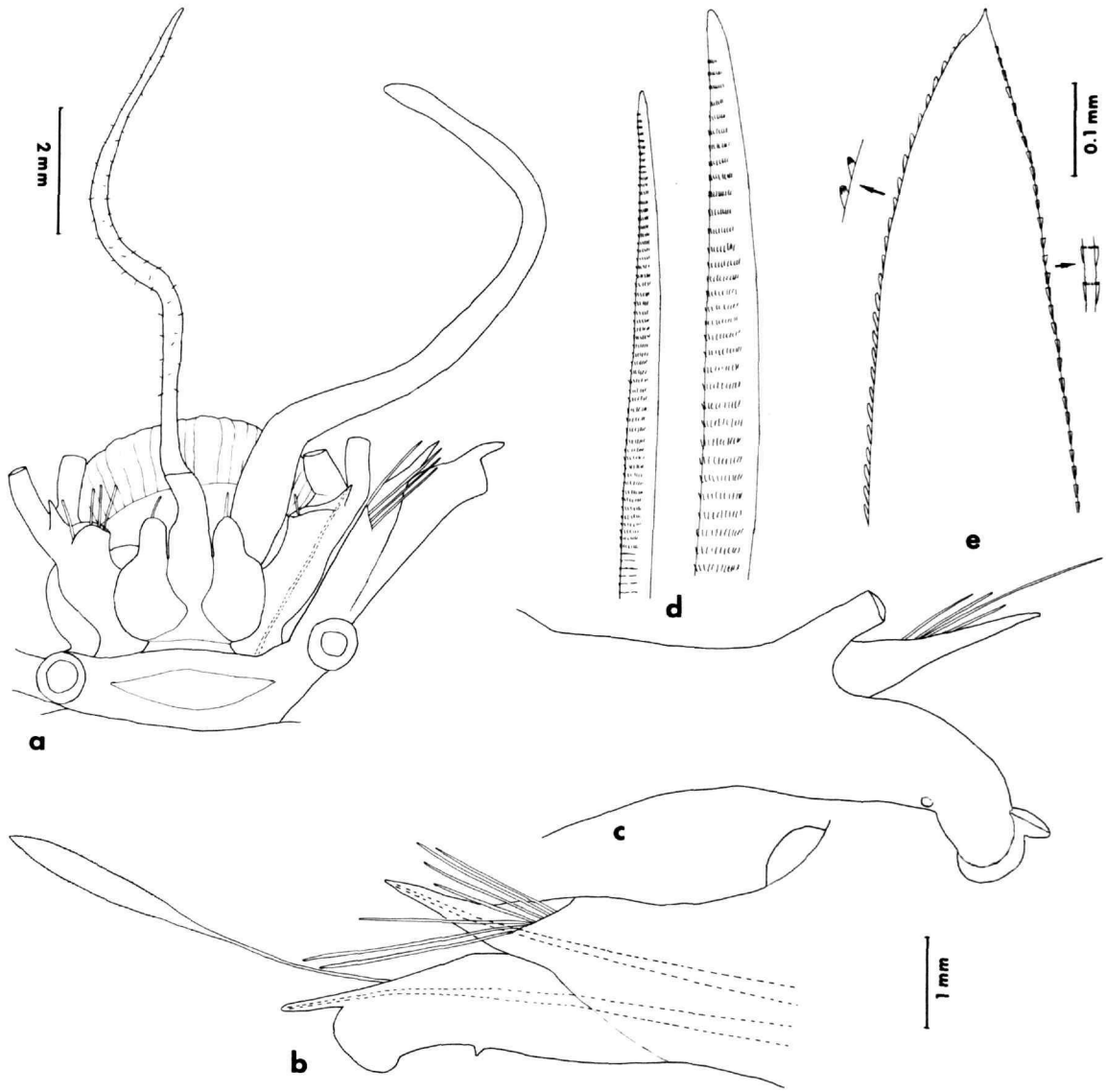

FIGURE 17.—*Bathyeliasona kirkegaardi* (from Kermadec Trench, USNM 51972): *a*, anterior end, dorsal view; styles of tentacular cirri and left palp missing; setae mostly missing or with tips broken; internal aciculum on right segment 1 dotted; *b*, right elytragerous parapodium, anterior view; internal acicula dotted; style of ventral cirrus missing; single neuroseta remaining; *c*, right cirrigerous parapodium, posterior view; styles of dorsal and ventral cirri missing; all neurosetae and most of notosetae missing; *d*, shorter and longer notosetae; *e*, tip of neuroseta, with detail of small portions.

Trench (USNM 51972) 38 mm, width with parapodia 20 mm, segments 17.

Bilobed prostomial lobes rounded, with minute filiform frontal filaments; ceratophore of median antenna long, cylindrical, with style long, tapered, with minute papillae; palps very long, smooth, extending to about segment 8 (Figures 15*a,b*, 17*a*; Uschakov, 1971, fig. A; Hartmann-Schröder, 1975, fig. 9). Tentacular parapodia with conical projecting acicular lobe and truncate setigerous lobe with transverse row of notosetae (up to 14); styles of tentacular cirri long, slender, with minute clavate papillae (Figures 15*a*, 17*a*; Uschakov, 1971, fig. A; Hartmann-Schröder, 1975, fig. 9).

Parapodia typical (Figures 15*c*, 16*a,f*, 17*b,c*; Uschakov, 1971, fig. B; Hartmann-Schröder, 1975, fig. 12). Neuropodia of posterior segments longer than notopodia, similar to more anterior parapodia (Figure 15*f,g*; Uschakov, 1971, fig. C; Hartmann-Schröder, 1975, fig. 11). Notosetae moderate in number (up to 20), variable in length and width, with numerous spinous rows and blunt bare tips (Figures 15*d*, 16*b,d*, 17*d*; Uschakov, 1971, fig. D; Hartmann-Schröder, 1975, fig. 13). Neurosetae of segment 2 not as wide as on following segments (Figure 15*e*). Neurosetae very wide, with serrated lateral margins (Figure 16*c,e*, 17*e*; Uschakov, 1971, fig. E; Hartmann-Schröder, 1975, fig. 14).

Pygidium enclosed in parapodia of segment 17, with posterior paired subconical anal lobes (Figure 15*f,g*; Uschakov, 1971, fig. C; Hartmann-Schröder, 1975, fig. 11). Female specimen from Aleutian Trench (USNM 51970) with grapelike bunches of small eggs; large bubble-like eggs free in body cavity, 1–2 mm in diameter, with transparent, thin, tough, flexible membranes and filled with oil globules.

REMARKS.—Uschakov (1971) noted that his new species, *Macellicephala kirkegaardi*, was rather close to *M. abyssicola* Fauvel but pointed out some significant differences between the two species. Uschakov also indicated that quite possibly the records of *M. abyssicola* by Kirkegaard (1956) from the Banda, Java and Kermadec Trenches referred rather to *M. kirkegaardi*. I was able to substantiate Uschakov's supposition, at least in part, based on an examination of a specimen from *Galathea* station 650 in the Kermadec Trench (USNM 51972). The record of *M. abyssicola* from the Banda Trench, in 7250–7290 meters, by Kirkegaard (1956), however, appears to be doubtful, since it was based on a proboscis only. The specimens from the Sunda Trench, in 7130–7160 meters, were not examined. Hartmann-Schröder (1975) reported an extension of the species to the Northeastern Atlantic off Portugal; two of the specimens were kindly sent to me for examination (USNM 52071).

DISTRIBUTION.—North Pacific (Aleutian Trench), Southwest Pacific (Kermadec Trench), Indo-Pacific (Sunda Trench—Kirkegaard), Northeastern Atlantic (off Portugal), in 5275 to 7250 meters.

Bathyeliasona nigra (Hartman), new combination

FIGURES 18, 19

Herdmanella nigra Hartman, 1967:25, pl. 3A–D.
Macellicephala (Macellicephala) nigra.—Hartmann-Schröder, 1974:76, 81, 84.

MATERIAL EXAMINED.—Antarctic, South Sandwich Islands, 58°51'S, 27°13'W, 2553–2575 m, *Eltanin* sta. 610, 8 May 1963, holotype and paratype (AHF 21, 22).

REMARKS.—The type material of *Herdmanella nigra* consists of a smaller holotype (pharynx retracted; right elytragerous parapodium of segment 7 cut off and free in vial; all neurosetae and most of notosetae missing; AHF 21) and a larger paratype (pharynx fully extended; left cirrigerous parapodium from segment 8 cut off and free in vial; notosetae and neurosetae present in some parapodia; AHF 22). There are a number of discrepancies between the types and their description and figures. Hartman's plate 3A, showing the entire animal in dorsal view, was apparently drawn from the holotype, with pharynx retracted, although more setae are shown on the figure than are now present. Plate 3B was indicated as drawn from the "eighth parapodium, in posterior view"; however, it appears to be the elytragerous parapodium from segment 7 of the holotype, in anterior view, with setae added from the cirrigerous parapodium from segment 8 of the paratype. The notoseta (plate 3C) shows a more pointed tip than was observed on the paratype by me (Figure 19*c,d*). The neurosetae (plate 3D) were described as much more "slender than the notosetae, distally pointed and spinous along the free length"; there are no neurosetae remaining on the holotype; on the paratype, the neurosetae are greatly ex-

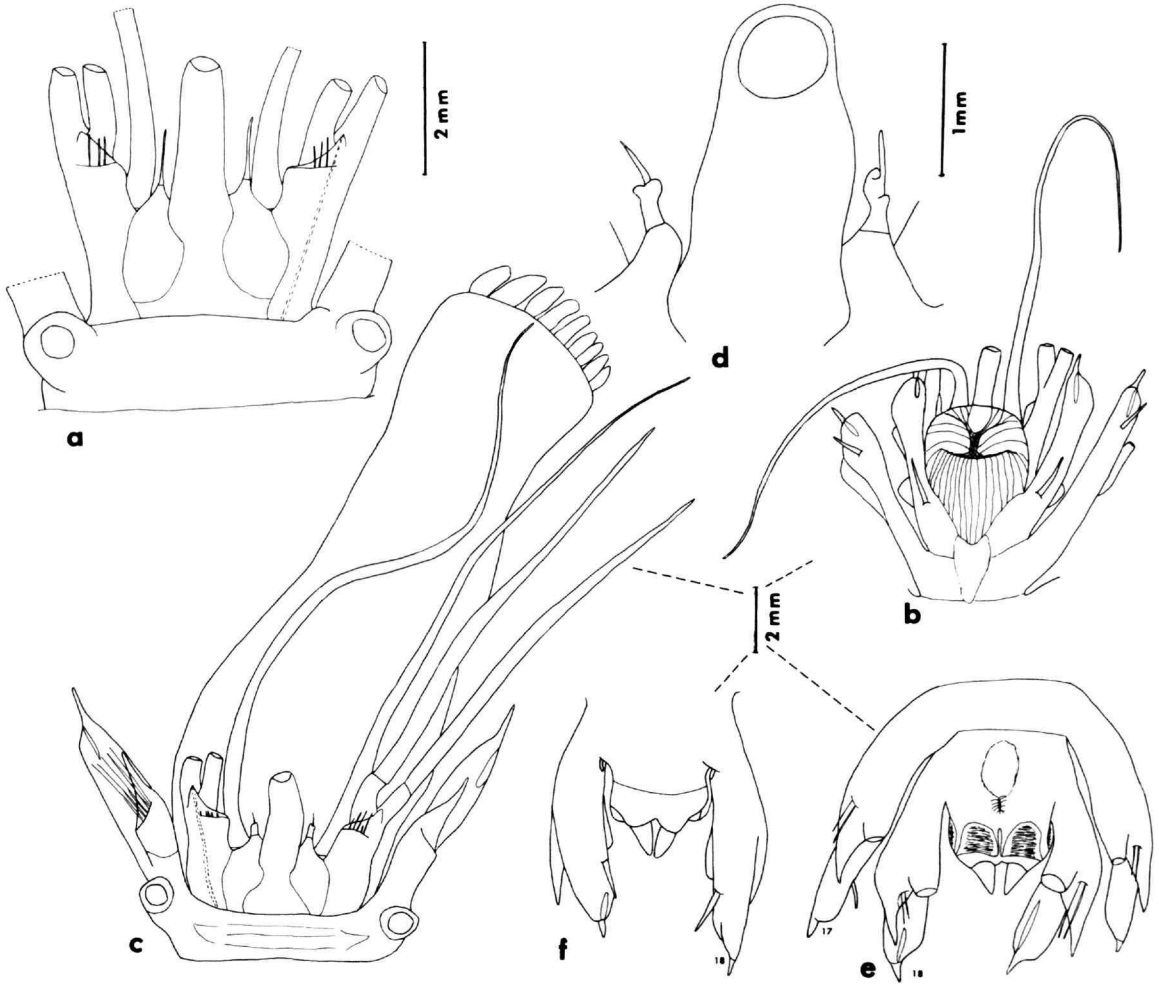

FIGURE 18.—*Bathyeliasona nigra* (*a,b,* holotype, AHF 21; *c–e,* paratype, AHF 22): *a,* dorsal view of prostomium and tentacular segment; right internal aciculum dotted; segment 2 partially shown; styles of median antenna and tentacular cirri missing; only bases of palps shown; *b,* ventral view of prostomium and anterior three segments; *c,* dorsal view of prostomium and anterior two segments, with pharynx fully extended; styles of median antenna and left tentacular cirri missing; internal aciculum of left first segment dotted; most of setae missing or broken; *d,* portion of anterior part of prostomium, enlarged; *e,* dorsal view of pygidium and posterior two segments (17, 18); styles of dorsal cirri and most of setae missing; *f,* ventral view of pygidium and posterior segment (18).

panded and flattened distally, paddle-like (Figure 19*e,f*).

The small specimen from South Orkney Islands, in 298–403 m, included questionably under *Herdmanella nigra* by Hartman (1967:25) as "?13: 5, sta. 1084 (1 jv)," was examined (AHF); it appears to be a small specimen of *Macellicephala* sp., in rather poor condition.

DESCRIPTION.—Length of holotype (AHF 21) 38 mm, width with parapodia 19 mm, segments 18. Length of paratype (AHF 22) 44 mm, width with parapodia 28 mm, segments 18. Both specimens

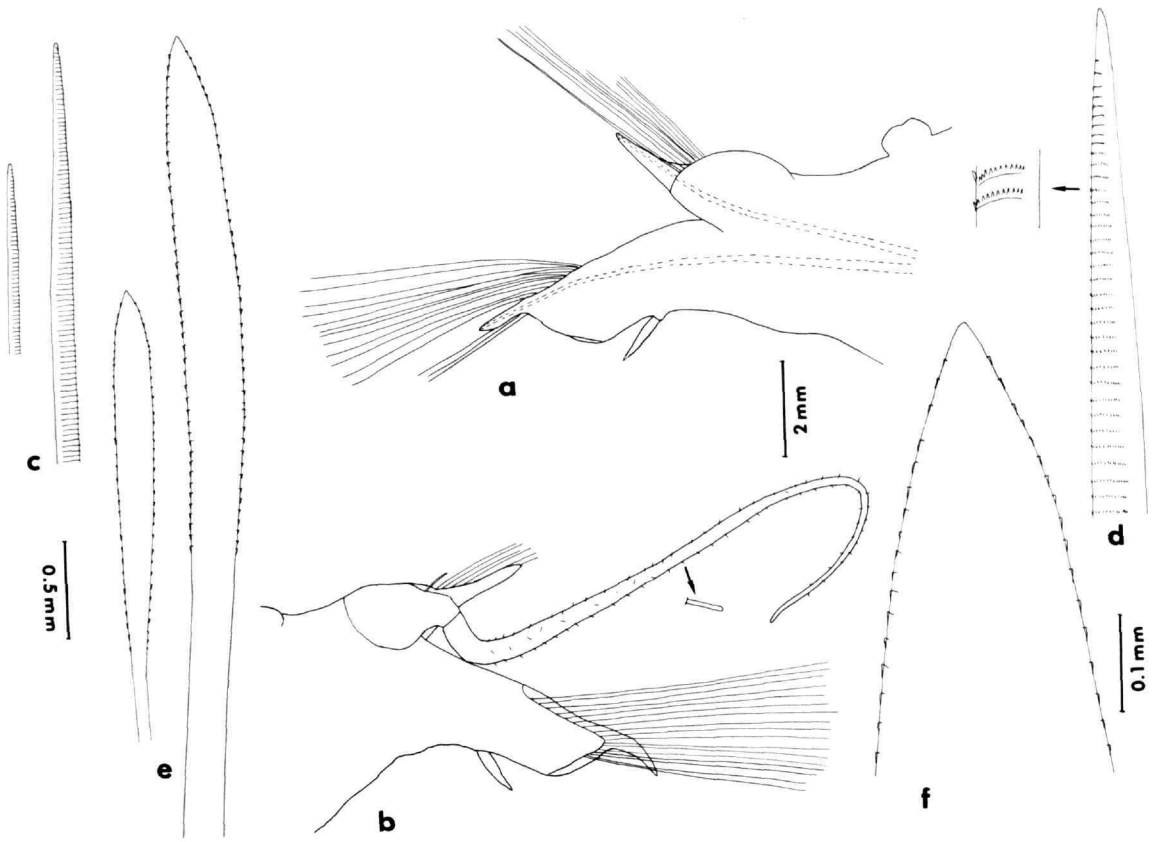

FIGURE 19.—*Bathyeliasona nigra* (paratype, AHF 22): *a*, right elytragerous parapodium from segment 7, anterior view; internal acicula dotted; *b*, right cirrigerous parapodium from segment 10, posterior view, with detail of clavate papilla; *c*, short and long notosetae; *d*, notoseta, more highly magnified, with detail of small portion; *e*, short and long neurosetae; *f*, tip of neuroseta, more highly magnified.

dark slaty-black in color (referring to specific name).

Bilobed prostomial lobes of holotype tapering to subulate frontal filaments (Figure 18*a*); frontal filaments of paratype irregularly thickened more basally, with slender distal filaments (Figure 18*c,d*). Ceratophore of median antenna long, cylindrical, with style missing; palps very long, tapering, smooth, extending to about segment 8 or to tips of extended pharynx (Figure 18*a–d*). Inner side of tentacular parapodium with subconical acicular lobe and truncate setigerous lobe with transverse row of up to 6 notosetae (tips mostly broken); dorsal pair of tentacular cirri about as long as extended pharynx; ventral pair slightly shorter (Figure 18*a,c*).

Parapodia typical (Figures 18*b,c,e,f;* 19*a,b*). Neuropodia of posterior segment longer than notopodia, similar to more anterior parapodia (Figure 18*e,f*). Notosetae moderate in number (about 12), stout, short to long, with numerous spinous rows and blunt bare tips (Figure 19*c,d*). Neurosetae very wide, flattened, with serrated lateral margins (Figure 19*e,f*). Nephridial papillae small, cylindrical on segments 5–9, 13–18 (Figure 18*f*) and large, wide on segments 10–12. Pygidium enclosed in parapodia of segment 18, with posterior paired subconical anal lobes or cirri (Figure 18*e,f*).

DISTRIBUTION.—Antarctic (South Sandwich Islands), in 2553 to 2575 meters.

Bathyvitiazia, new genus

TYPE-SPECIES.—*Macellicephala pallida* Levenstein, 1971. Gender: feminine.

DIAGNOSIS.—Body short, flattened, fusiform; segments 17 (first achaetous). Elytra and small elytrophores emerging near bases of notopodia (similar in position to cirrophores of dorsal cirri on cirrigerous segments), 8 pairs, on segments 2, 4,5, 7, 9, 11, 13 and 15, with dorsal cirri on posterior 2 segments. Prostomium slightly bilobed, without frontal filaments or lateral antennae; ceratophore of median antenna inserted in middle of prostomium; paired palps short; without eyes. First or tentacular segment fused to prostomium, 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores, without setae. Segment 2 with buccal cirri attached to basal parts of parapodia, lateral to ventral mouth; styles longer than following ventral cirri. Parapodia biramous, with notopodia shorter than neuropodia, both rami with elongate acicular processes. Notosetae slender, delicate, transparent, flattened, with blunt tips and serrations along lateral borders. Neurosetae stouter than notosetae, flattened, transparent, with blunt tips and widely spaced serrations along lateral borders. Dorsal cirri with short cylindrical cirrophores and long styles; ventral cirri short, attached near middle of neuropodia. Without distinct dorsal tubercles on cirrigerous segments. Nephridial papillae indistinct, none enlarged. Pygidium oval, truncate, with dorsal anus and pair of anal cirri. Pharynx with 6 pairs (?) of papillae and 2 pairs of jaws; jaw plate with row of small teeth.

A single species is referred to *Bathyvitiazia: B. pallida* (Levenstein), as *Macellicephala pallida* Levenstein, 1971b, northwest Pacific, in Kamchatka Trench, in 3816 meters.

Bathyvitiazia pallida (Levenstein), new combination

FIGURE 20

Macellicephala pallida Levenstein, 1971b:24, fig. 5a–e.
Macellicephala (Macellicephala) pallida.—Hartmann-Schröder, 1974:76, 84.

MATERIAL EXAMINED.—Northwest Pacific, Kamchatka Trench, 24°59.5'N, 115°21.8'W, 3816 m, clayey mud, *Vitiaz* sta. 4263, holotype (IOASM).

The holotype and only known specimen of *M. pallida* is in poor condition, especially anteriorly, with most of the setae missing. The elytrophores are situated close to the bases of the notopodia, similar in size and position to the cirrophores of the dorsal cirri, thus making it difficult to distinguish with confidence the elytragerous and cirrigerous segments when the styles of the dorsal cirri or elytra are missing. I have assumed that the more posterior segments are cirrigerous, following the pattern usual in other polynoids.

DESCRIPTION.—Length of holotype 18 mm, width with setae 7 mm, segments 17. Body short, flattened, fusiform, with parapodia as long as body width. Elytra (all missing) and low cylindrical elytrophores, attached near bases of notopodia (Figure 20*d,e*), 8 pairs, on segments 2, 4,5, 7, 9, 11, 13 and 15, with dorsal cirri on posterior two segments. Without dorsal tubercles on cirrigerous segments.

Prostomium slightly bilobed, without frontal filaments or lateral antennae (Figure 20*a;* Levenstein, 1971b, fig. 5a). Median antenna with ceratophore (torn) attached to middle of prostomium, with style missing. Paired palps comparatively short, tapered, smooth; without eyes. First or tentacular segment with uniramous parapodia lateral to prostomium, without setae; 2 pairs of tentacular cirri with distinct cirrophores; styles of dorsal tentacular cirri longer and ventral ones shorter than palps. Without distinct facial tubercle but with bilobed oval lobe ventral to prostomium (Figure 20*a*). Ventral buccal cirri of segment 2 attached-to basal parts of neuropodia lateral to mouth; styles longer than following ventral cirri; setae all missing.

Biramous parapodia with notopodia shorter than long neuropodia, wider basally, tapering to digitiform acicular processes; neuropodia subconical, with long subtriangular presetal acicular processes (Figure 20*d–f;* Levenstein, 1971b, fig. 5c). Notosetae numerous, slender, delicate, transparent, flattened, with blunt tips and serrations along lateral borders (Figure 20*g;* Levenstein, 1971b, fig. 5d). Neurosetae numerous, forming fan-shaped bundles, long, flattened, transparent, wider than notosetae, with blunt tips and prominent serrations along lateral borders (Figure 20*h;* Levenstein, 1971b, fig. 5e). Dorsal cirri with short cylindrical cirrophores on posterodorsal bases of notopodia; styles long, smooth, tapered, extending beyond tips of neuropodia (Figure 20*f*); ventral cirri short, slender, tapering (Figure 20*e*).

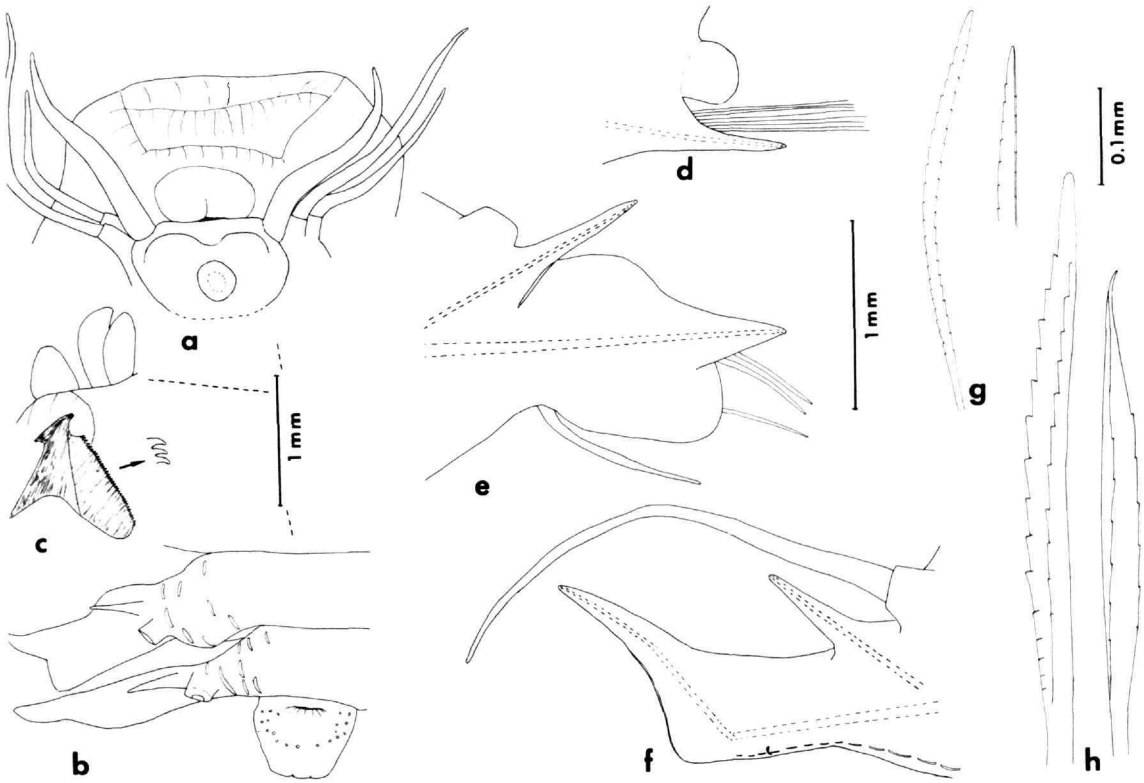

FIGURE 20.—*Bathyvitiazia pallida* (holotype, IOASM): *a*, dorsal view of prostomium and tentacular segment, pharynx partially extended; posterior border damaged (dotted); ceratophore of median antenna torn near base (dotted), with style missing; *b*, dorsal view of pygidium and left side of posterior two segments (16, 17); styles of dorsal and anal cirri and setae missing; *c*, portion of pharynx showing few papillae and one of jaws, with detail of few teeth; *d*, right elytragerous notopodium from segment 9, posterior view (neuropodium missing); internal aciculum dotted; *e*, left elytragerous parapodium from segment 11, anterior view; elytron, all of notosetae and most of neurosetae missing; internal acicula dotted; *f*, left cirrigerous parapodium from segment 14, posterior view; style of ventral cirrus and setae missing; internal acicula dotted (neuroaciculum bent); *g*, two notosetae from segment 9; *h*, two neurosetae from segment 11.

Nephridial papillae indistinct, none enlarged. Pygidium oval, truncate, with dorsal anus and pair of anal cirri (missing; Figure 20*b*). Pharynx large, muscular, with large vesicular papillae around opening (6 pairs?) and 2 pairs of amber-colored jaws; border of jaw plate with row of small teeth (about 32; Figure 20*c;* Levenstein, 1971b, fig. 5b). Body with ciliated bands or ridges on various parts of body: transverse ciliated patches on ventroposterior sides of neuropodia (Figure 20*f*); dorsal side of pygidium and posterior two segments medial to notopodia (Figure 20*b*).

DISTRIBUTION.—North Pacific (Kamchatka Trench), in 3816 meters.

Bathyfauvelia, new genus

TYPE-SPECIES.—*Macellicephala affinis* Fauvel, 1914. Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform; segments 19–21 (first setigerous). Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on posterior 2–4 segments. Prostomium bilobed, with frontal filaments (some-

times withdrawn or missing); ceratophore of median antenna inserted in anterior notch; paired palps long, tapered; without eyes. First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores, with small projecting acicular lobe and few notosetae. Segment 2 with buccal cirri attached to basal parts of parapodia lateral to ventral mouth, longer than following ventral cirri. Parapodia biramous, with notopodia shorter than neuropodia, both rami with elongate acicular processes. Notosetae stout, spinous, with blunt tips. Neurosetae flattened, transparent, serrated along lateral borders. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short, attached near middle of neuropodia. Dorsal tubercles on cirrigerous segments tapered distally, forming cirriform, ciliated branchial-like processes. Nephridial papillae small. Pygidium small, subglobular, with pair of anal cirri. Pharynx with 9 pairs of papillae and 2 pairs of jaws.

REMARKS.—One species and one synonym are referred to *Bathyfauvelia: B. affinis* (Fauvel), as *Macellicephala affinis* Fauvel, 1914a; North Atlantic, off Madeira, in 0 to 2380 meters. (Synonym: *Macellicephala annae* Reyss, 1971; Mediterranean, in 2090 meters.)

The ciliated cirriform dorsal tubercles on the cirrigerous segments, along with nine pairs of elytra, distinguish *Bathyfauvelia* from other closely related genera.

ETYMOLOGY.—The genus is named for the late Pierre Fauvel, eminent French worker on the Polychaeta, whose numerous publications include some of the early studies on bathyal polychaetes.

Bathyfauvelia affinis (Fauvel), new combination

FIGURES 21, 22

Macellicephala affinis Fauvel, 1914a:6, figs. 3,4; 1932:11, pl. 1: figs. 1–7.—Belloc, 1953:3.—Uschakov, 1957:1666, fig. 3A–D.—Knox, 1959:106, 107.—Chlebovitsch, 1964:168.—Reyss, 1971: 250.—Levenstein, 1971b:19, fig. 1a–e [part]; 1972:171, 177 [part].—Paul and Menzies, 1974:254.

Macellicephala annae Reyss, 1971:248, fig. 3A–E.

Macellicephala (Macellicephala) affinis.—Hartmann-Schröder, 1974:76, 84 [part].

MATERIAL EXAMINED.—North Atlantic, off Madeira, 0–2380 m, mud, expedition of 1913, sta. 3118, holotype of *Macellicephala affinis* (MOM).

Mediterranean, 42°14'N, 04°28'E, 2090 m, *Jean Charcot* sta. DS 12, 1970, holotype of *Macellicephala annae* (ZIASL 36644).

Arctic Basin, near Wrangel Island, 2245 m, SP–2, sta. 2, P. Uschakov, collector, 1 specimen (ZIASL 7/1008; reported by Uschakov, 1957). North of Jan Mayen, 72°01'N, 08°33'W, 2400 m, mud, Swedish Zoological Polar Expedition, 20 July 1900, 1 specimen (ZIUU; identified as *Macellicephala violacea* by Bergström; unpublished data).

DESCRIPTION.—Length of holotype of *M. affinis* 7 mm, width with parapodia 3 mm, segments 19 (not 18, as indicated by Fauvel). Length of holotype of *M. annae* 8 mm, width with parapodia 3 mm, segments 21, last 2 small. Length of specimen from Arctic Basin (ZIASL 7/1008) 12 mm, width with parapodia 6 mm, segments 19. Length of specimen from off Jan Mayen (ZIUU) 10 mm, width with parapodia 5 mm, segments 19. Body flattened, fusiform, slightly tapering anteriorly and posteriorly, with parapodia longer than body width (Fauvel, 1932, pl. 1: fig. 1; Reyss, 1971, fig. 3A).

Elytra (all missing) and large cylindrical elytrophores 9 pairs (not 8 pairs, as indicated by Fauvel), on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on posterior 2–4 segments. Dorsal tubercles on cirrigerous segments, beginning on segment 6, elongated, forming ciliated cirriform branchial-like processes (Figures 21*a,d,f*, 22*b,h;* Fauvel, 1932, pl. 1: figs. 1,2; Uschakov, 1957, fig. 3A,B; Levenstein, 1971b, fig. 1c).

Prostomium deeply bilobed, with anterior lobes tapered, rounded, with minute frontal filaments (sometimes withdrawn; called frontal horns by Fauvel, Uschakov, and Reyss); ceratophore of median antenna large, cylindrical, in anterior notch of prostomium, with style long, filiform, papillate (according to Fauvel, but broken off on specimens examined); palps long, tapered, smooth; without eyes (Figures 21*c*, 22*a,f;* Fauvel, 1932, pl. 1: fig. 1; Uschakov, 1957, fig. 1A; Levenstein, 1971b, fig. 1a; Reyss, 1971, fig. 3A). First or tentacular segment fused to prostomium, with narrow band visible dorsally; uniramous parapodia with small projecting acicular lobe, few notosetae (2–4; sometimes broken off), and 2 pairs of long tentacular cirri attached to cylindrical cirrophores. Without distinct facial tubercle (pair of divergent lobes forming bilobed facial tubercle, according to Fauvel—perhaps projecting lateral lips?); upper lip with scattered low papillae (Figure 22*a,g*). Ventral buccal

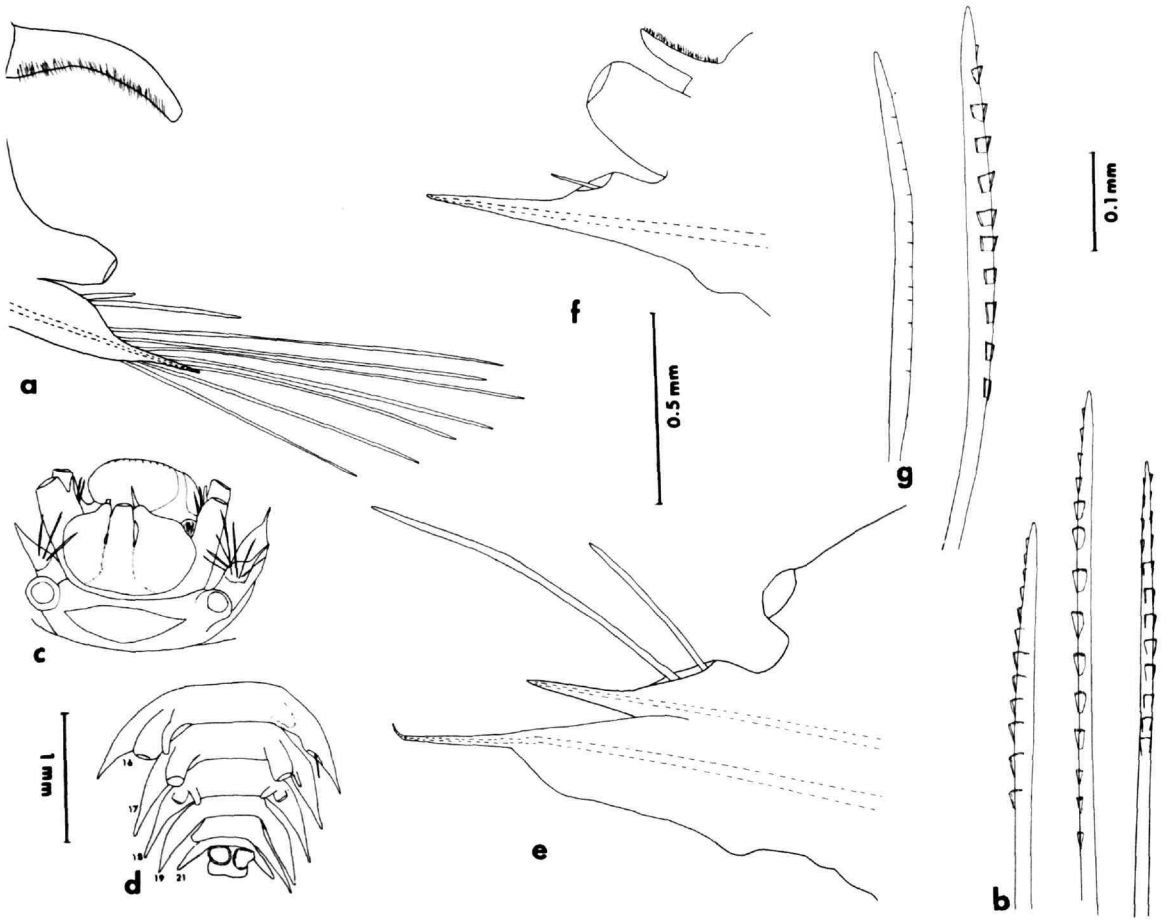

FIGURE 21.—*Bathyfauvelia affinis* (*a,b*, holotype of *Macellicephala affinis*, MOM; *c–g*, holotype of *M. annae*, ZIASL 36644): *a*, notopodium of cirrigerous parapodium, anterior view (neuropodium broken off); internal aciculum dotted; *b*, three notosetae; *c*, dorsal view of prostomium and anterior two segments, pharynx partially extended; palps, styles of median antenna and tentacular cirri and neurosetae of segment 2 missing; *d*, dorsal view of posterior segments (16–21) and pygidium; neuropodia, elytra, styles of dorsal cirri and most of setae missing; cirrophore and dorsal tubercle of right segment 16 broken off; notopodia of segments 19–21 incomplete (poor shape); *e*, left elytragerous parapodium from segment 4, posterior view; most of setae and ventral cirrus missing; internal acicula dotted; *f*, left notopodium from cirrigerous segment 12, posterior view; neuropodium and all but one notoseta broken off; internal aciculum dotted; *g*, two notosetae.

cirri of segment 2 with large cirrophores attached basally on neuropodia lateral to mouth (styles broken off; Figure 22*g*).

Biramous parapodia stout, long (Figures 21*a,c–f*, 22*a–c,h,i;* Fauvel, 1932, pl. 1: figs. 1–3; Uschakov, 1957, fig. 3A,B; Levenstein, 1971b, fig. 1b,c; Reyss, 1971, fig. 3 A,B). Notopodia shorter than neuropodia, subconical, with long projecting acicular processes; neuropodia subconical, with long projecting presetal acicular processes. Notosetae moderate in number, stout, with spinous rows and blunt bare tips (Figures 21*b,g*, 22*d,j;* Fauvel, 1932, pl. 1: figs. 5–7;

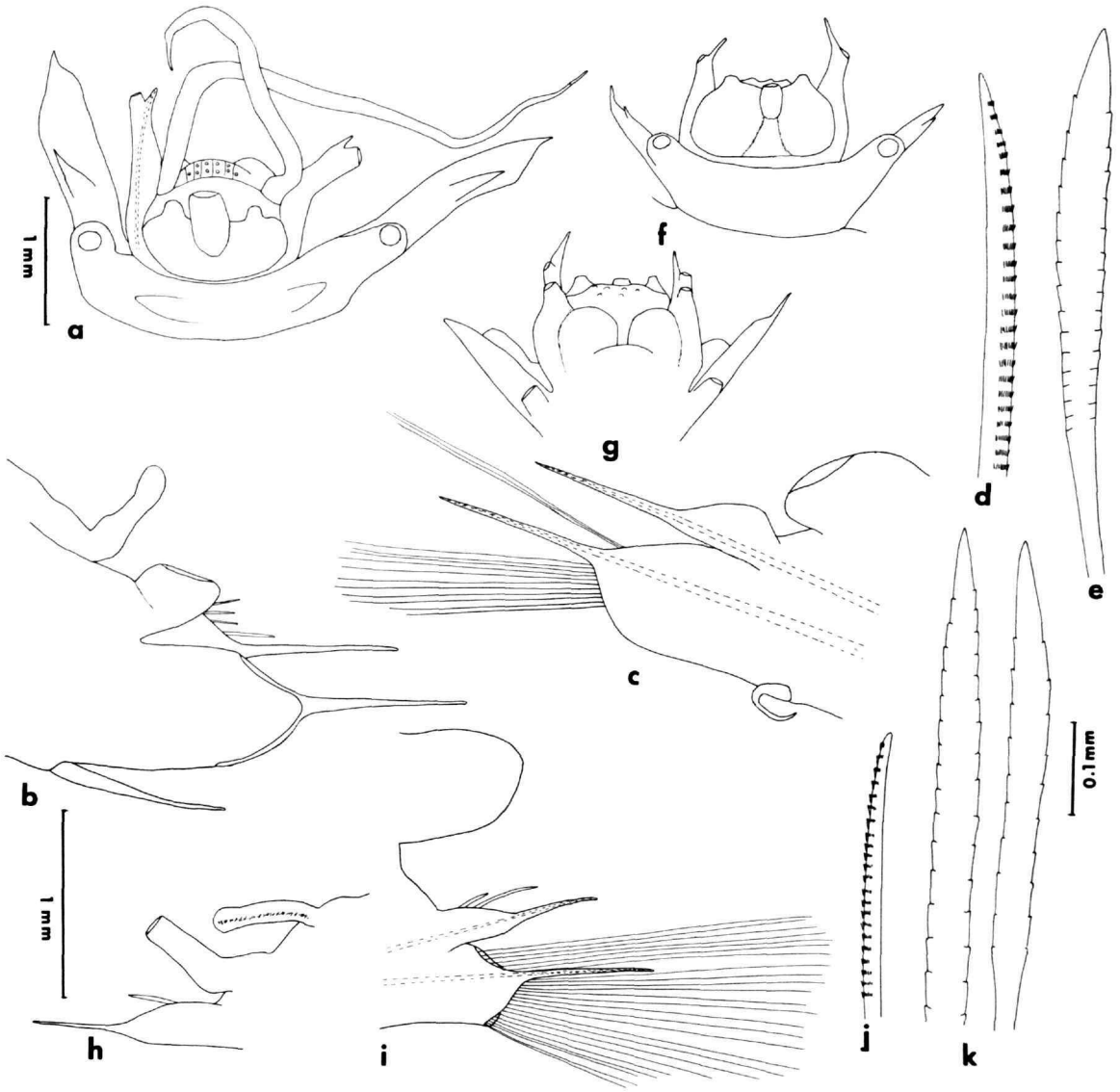

FIGURE 22.—*Bathyfauvelia affinis* (*a–e*, specimen from Arctic Basin, ZIASL 7/1008; *f–k*, specimen from north of Jan Mayen, ZIUU): *a*, anterior end, dorsal view; prostomial frontal filaments, styles of median antenna and tentacular cirri, and all setae missing; internal aciculum of left segment 1 dotted; *b*, cirrigerous parapodium, posterior view; style of dorsal cirrus and most of setae missing; *c*, elytragerous parapodium, anterior view; most of setae missing; internal acicula dotted; *d*, notoseta; *e*, neuroseta; *f*, dorsal view of prostomium and first two segments, all appendages and setae missing; *g*, ventral view of same; *h*, left cirrigerous notopodium, posterior view; style of dorsal cirrus and all but one of notosetae missing; *i*, left elytragerous parapodium, anterior view; ventral cirrus and most of notosetae missing; internal acicula dotted; *j*, notoseta; *k*, two neurosetae.

Uschakov, 1957, fig. 1c; Levenstein, 1971b, fig. 1d; Reyss, 1971, fig. 3c,d). Neurosetae numerous, elongate, flattened distally, transparent, crenulate along lateral borders (Figure 22*e,k;* Fauvel, 1932, pl. 1: fig. 4; Uschakov, 1957, fig. 3d; Levenstein, 1971b, fig. 1e; Reyss, 1971, fig. 3e). Dorsal cirri with long cylindrical cirrophores attached near bases of notopodia (styles broken off); ventral cirri short, subulate, attached near middle of neuropodia (Figures 21*a,f,* 22*b,h*).

Nephridial papillae small, inconspicuous, beginning on segment 6. Pygidium subglobular, between parapodia of posterior small segments, with pair of anal cirri (styles broken off; Figure 21*d;* Fauvel, 1932, pl. 1: fig. 1). Pharynx (cut open on specimen from Arctic Basin) with 9 pairs of papillae and 2 pairs of jaws.

Remarks.—The characteristic cirriform dorsal tubercles were overlooked on the holotype of *M. annae* by Reyss (1971; there are 21 segments, instead of 19, as in the other specimens of *B. affinis,* although the last two are small); there are 9 pairs of elytra on both species (reported erroneously as 8 pairs by Fauvel). *Macellicephala annae* is referred herein to *B. affinis.*

The specimen from the Java Trench, identified as *M. affinis* by Levenstein (1961b:136), was examined (IOASM); it is a small specimen, in poor condition; it does not agree with Fauvel's species.

Distribution.—North Atlantic (off Madeira), Mediterranean, Arctic (Jan Mayen, Franz Josef Land, Wrangel Island), Kurile-Kamchatka Trench, in 0 to 2090–5495 meters; perhaps bathypelagic.

Bathycatalina, new genus

Type-Species.—*Polynoe* (?) *filamentosa* Moore, 1910. Gender: feminine.

Diagnosis.—Body short, flattened, fusiform; segments 24 (first setigerous). Elytra and prominent elytrophores 12 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15, 17, 19, 21 and 23. Prostomium bilobed; ceratophore of median antenna inserted in anterior notch; paired palps (missing); without eyes. First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores, with small projecting acicular lobe and few notosetae. Segment 2 with buccal cirri attached to basal parts of parapodia lateral to mouth, longer than following ventral cirri. Parapodia biramous, with notopodia subequal in length to neuropodia, both rami with elongate acicular processes. Notosetae stout, spinous, with blunt tips. Neurosetae flattened, transparent, serrated along lateral borders. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short, attached near middle of neuropodia. Dorsal tubercles on cirrigerous segments tapered distally, forming digitiform, ciliated branchial-like processes. Nephridial papillae indistinct. Pygidium small, subglobular, with pair of anal cirri. Pharynx with papillae (number?—damaged) and 2 pairs of jaws.

A single species is referred to *Bathycatalina: B. filamentosa* (Moore), as *Polynoe* (?) *filamentosa* Moore, 1910, off southern California, in 611–1097 meters.

The ciliated digitiform dorsal tubercles on the cirrigerous segments, along with twelve pairs of elytra, distinguish *Bathycatalina* from other closely related genera.

Bathycatalina filamentosa (Moore), new combination

Figure 23

Polynoe (?) *filamentosa* Moore, 1910:366, pl. 31: figs. 52–56.—Hartman, 1938:123.

Material Examined.—Southern California, off Santa Catalina Island, 611 to 1097 m, *Albatross* sta. 4407, 9 April 1904, holotype (USNM 17221).

Description.—Length of holotype 17 mm, width with parapodia 5 mm, segments 24. Body short, flattened, fusiform, tapering anteriorly and posteriorly, with parapodia as long as body width.

Elytra (all missing) and elevated elytrophores 12 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15, 17, 19, 21 and 23. Dorsal tubercles on cirrigerous segments, beginning on segment 6, elongate, forming digitiform, ciliated branchial-like processes (Figure 23*c*).

Prostomium deeply bilobed, with anterior lobes rounded, without frontal filaments (anterior margin damaged); ceratophore of median antenna large, cylindrical, in anterior notch of prostomium; style missing; palps missing; without eyes (Figure 23*a*). First or tentacular segment fused to prostomium; uniramous parapodia with projecting acicular lobes and few notosetae (up to 3); 2 pairs of tentacular cirri with cylindrical cirrophores; styles missing (Figure 23*a*). Without distinct facial tubercle. Ven-

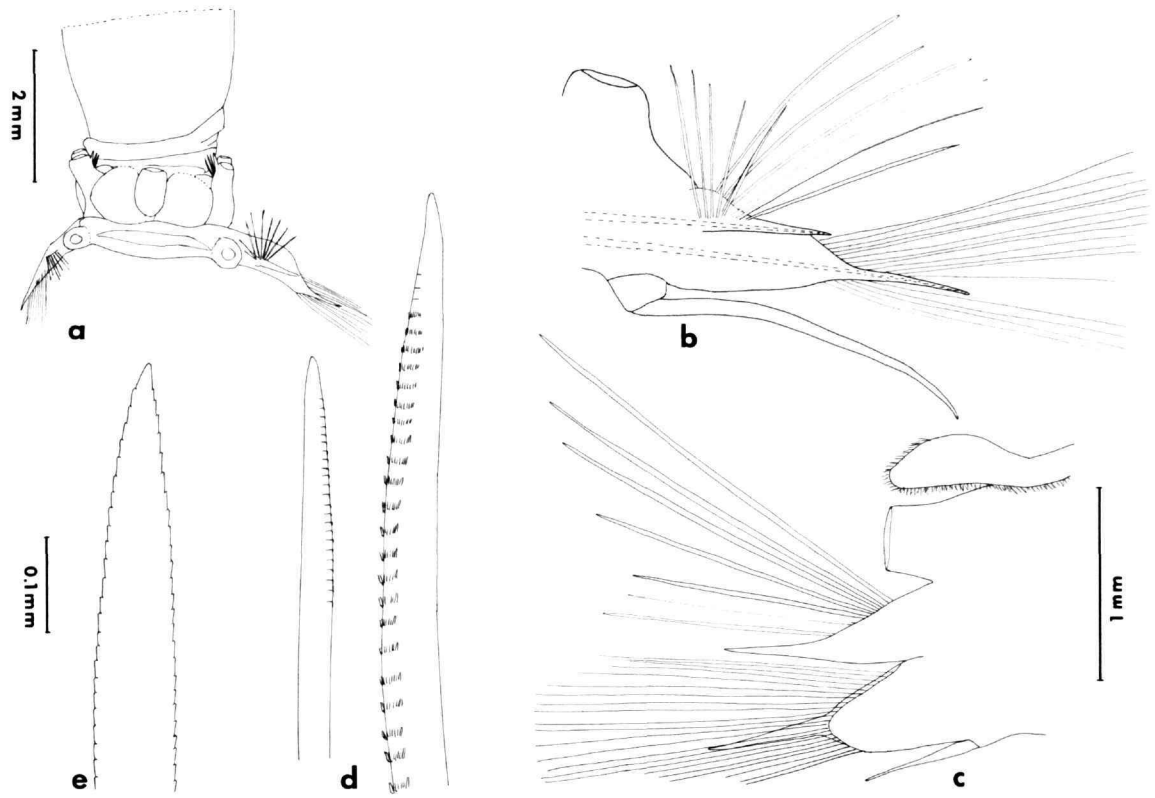

FIGURE 23.—*Bathycatalina filamentosa* (holotype, USNM 17221): *a*, dorsal view of prostomium and first two segments, pharynx fully extended (base only shown); all appendages missing; anterior margin of prostomium in poor condition (dotted); *b*, right elytragerous parapodium from segment 2, anterior view; *c*, right cirrigerous parapodium, posterior view; style of dorsal cirrus missing; *d*, short and longer notosetae; *e*, tip of neuroseta.

tral buccal cirri on segment 2 with large cirrophores attached basally on neuropodia, lateral to mouth; styles longer than following ventral cirri, extending beyond tips of neuropodia (Figure 23*b*).

Biramous parapodia stout, long (Figure 23*c;* Moore, 1910, pl. 31: fig. 52). Notopodia subconical, with long projecting acicular processes, subequal in length to neuropodia. Neuropodia subconical, with long projecting presetal acicular processes. Notosetae numerous, stout, forming radiating bundles; some notosetae short, more slender, with low spinous rows; others longer—some as long as neurosetae, stouter, with spinous rows more pronounced; both types with blunt bare tips (Figure 23*d;* Moore, 1910, pl. 31: figs. 53, 54). Neurosetae very numerous, forming dense brushlike bundles, flattened distally, thin, transparent, with serrated lateral margins (Figure 23*e;* Moore, 1910, pl. 31: figs. 55, 56). Dorsal cirri with cylindrical cirrophores attached near bases of notopodia (styles missing); ventral cirri short, subulate, attached near middle of neuropodia (Figure 23*c*).

Nephridial papillae indistinct. Pygidium subglobular, between parapodia of two posterior segments, with pair of anal cirri (styles missing). Extended pharynx with papillae on distal margin (number?—pharynx damaged) and 2 pairs of jaws.

DISTRIBUTION.—Northeastern Pacific (off southern California), in 611 to 1097 meters; perhaps bathypelagic.

Bathykurila, new genus

TYPE-SPECIES.—*Macellicephala zenkevitchi* Uschakov, 1955. Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform; segments 15 (first achaetous). Elytra and prominent elytrophores 7 pairs, on segments 2, 4,5, 7, 9, 11 and 13, with dorsal cirri on segments 14,15 (or lacking on 15). Prostomium deeply bilobed, with frontal filaments; ceratophore of median antenna inserted in anterior notch; paired palps long, tapered; without eyes. First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores, with projecting acicular lobe, without setae. Segment 2 with buccal cirri attached to basal parts of parapodia, lateral to mouth; styles longer than following ventral cirri. Parapodia biramous, with notopodia subequal to or longer than neuropodia, both rami with elongate acicular processes. Notosetae stout, with single row of widely spaced spines and blunt tips. Neurosetae more slender than notosetae, with 2 rows of spines along one side. Dorsal cirri with long cylindrical cirrophores and short styles, ventral cirri short, attached near middle of neuropodia. Dorsal tubercles on cirrigerous segments large, conical to bulbous. Some nephridial papillae larger than others (4 pairs, on segments 10–13). Pygidium large, bulbous, wedged between parapodia of segments 14 and 15, with pair of anal cirri. Pharynx with 8 pairs of papillae—7 dorsal and ventral, and 1 lateral; 2 pairs of jaws.

A single species is referred to *Bathykurila: B. zenkevitchi* (Uschakov), as *Macellicephala zenkevitchi* Uschakov, 1955, northwest Pacific, in Kurile-Kamchatka Trench, in 8100 meters.

Bathykurila zenkevitchi (Uschakov), new combination

FIGURE 24

Macellicephala zenkevitchi Uschakov, 1955:313, fig. 1a–d.—Knox, 1959:106.—Reyss, 1971:250.—Levenstein, 1971b:24; 1973:130.

Macellicephala (Macellicephala) zenkevitchi.—Hartmann-Schröder, 1974:76, 84.

MATERIAL EXAMINED.—Northwest Pacific, Kurile-Kamchatka Trench, 8100 m, *Vitiaz* sta. 162, 1949, 2 syntypes (ZIASL 787).

DESCRIPTION.—Length of two syntypes 15 and 21 mm, width with parapodia 9 mm, width with setae 12 mm, segments 15. Body flattened, fusiform.

Elytra (all missing) and large prominent elytrophores (Figure 24*a,c,g*) 7 pairs, on segments, 2, 4,5, 7, 9, 11 and 13, with dorsal cirri on posterior 1–2 segments (last segment very small, apparently lacking dorsal cirri). Dorsal tubercles on cirrigerous segments large, bulbous (segment 3) to conical (Figure 24*a,f*).

Prostomium deeply bilobed, forming subtriangular anterior lobes with slender frontal filaments (Figure 24*a,b;* called cephalic peaks by Uschakov, 1955, fig. 1a). Median antenna with oval ceratophore in anterior notch, with short, filiform style; ceratophore connected posteriorly to pair of thickened or slightly raised, diagonal areas. Paired palps long, tapered, smooth, emerging ventral to tentacular parapodia. Without eyes. Tentacular segment fused to prostomium, not visible dorsally (Figure 24*a,b*). Uniramous parapodia lateral to prostomium, with 2 pairs of tentacular cirri; styles wider basally, with long slender tips, subequal in length to palps; prominent conical acicular lobe medial to and extending beyond cirrophores of tentacular cirri, without setae. Ventral buccal cirri of segment 2 with prominent cirriphores attached to ventral bases of parapodia, lateral to mouth; styles much longer than following ventral cirri, extending beyond tips of neurosetae (Figure 24*a–c*); noto- and neurosetae similar to those of following segments, except latter more slender (Figure 24*d,e*).

Parapodia biramous, with notopodia as long as or longer than neuropodia (Figure 24*a–c,f,g;* Uschakov, 1955, fig. 1b). Notopodia expanded subdistally, with projecting acicular processes on lower part; neuropodia subconical, with projecting presetal acicular processes. Notosetae moderate in number, short to longer, forming radiating bundles, stouter than neurosetae, with row of widely spaced teeth (4–14) along one side and blunt tips (Figure 24*d,h;* Uschakov, 1955, fig. 1c). Neurosetae numerous, forming fan-shaped bundles, long, slender, with 2 rows of spines and slightly tapered to blunt or pointed tips (Figure 24*e,i;* Uschakov, 1955, fig. 1d). Dorsal cirri with long cylindrical cirrophores attached posterodorsally on notopodia and extending beyond them; styles rather short, wider basally, with long filiform tips (Figure 24*a,f*). Ventral cirri attached on middle of neuropodia, short, tapered.

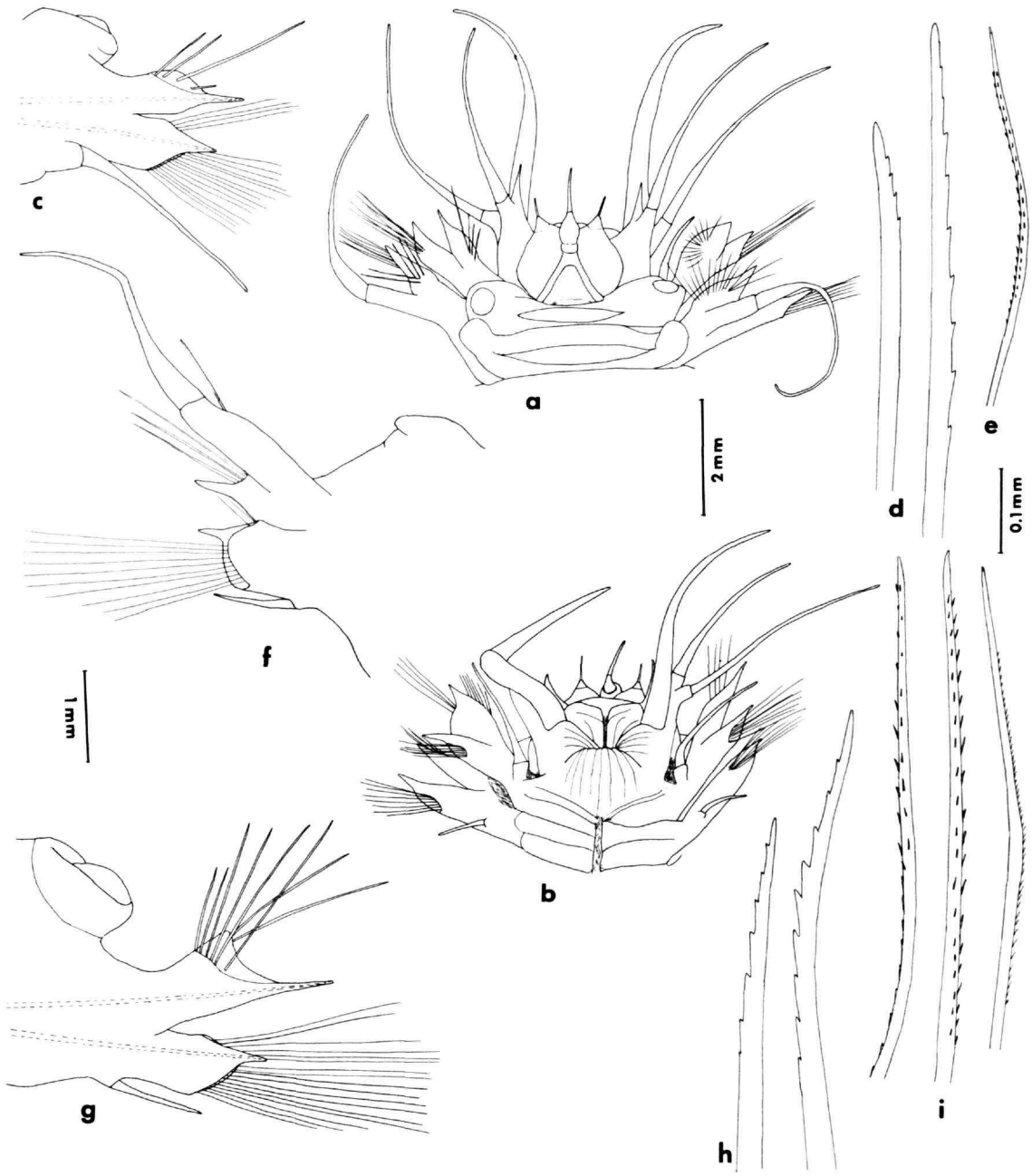

FIGURE 24.—*Bathykurila zenkevitchi* (syntype, ZIASL 787): *a*, dorsal view of prostomium and anterior three segments; *b*, same, ventral view; *c*, left parapodium from segment 2, anterior view; internal acicula dotted; *d*, shorter and longer notosetae from same; *e*, neuroseta from same; *f*, left cirrigerous parapodium, posterior view; *g*, left elytragerous parapodium, anterior view; internal acicula dotted; *h*, shorter and longer notosetae; *i*, upper, middle and lower neurosetae.

Four pairs of nephridial papillae on segments 10–13, somewhat larger than others. Pygidium large, bulbous, wedged between parapodia of posterior two segments, with pair of anal cirri. Pharynx (dissected) with opening encircled by 8 pairs of papillae—7 dorsal and ventral and one lateral, with 2 pairs of jaws.

DISTRIBUTION.—Northwest Pacific (Kurile-Kamchatka and Japan Trenches), in 6670 to 8135 meters.

MACELLICEPHALOIDINAE, new subfamily

TYPE-GENUS.—*Macellicephaloides* Uschakov, 1955.

Macellicephaloides was placed in the Lepidonotinae by Hartman (1959:93), in her catalog, and in the Macellicephalinae by Hartmann-Schröder (1974:75), in her revisionary study of the subfamily. The absence of lateral antennae, the different type of pharynx and parapodia would separate *Macellicephaloides* from Lepidonotinae. The last two mentioned features separate it from Macellicephalinae.

Genus *Macellicephaloides* Uschakov, 1955, emended

TYPE-SPECIES.—*Macellicephaloides grandicirra.* Uschakov, 1955, designated by Hartman (1959: 93). Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform; segments 16–21 (first achaetous). Elytra and small, highly displaced elytrophores 8 pairs, on segments 2, 4,5, 7, 9, 11, 13 and 15. Prostomium fused with tentacular segment, bilobed, without lateral antennae, with or without paired frontal filaments; median antenna with large ceratophore in middle of prostomium and long style; paired palps with elongated palpophores; without eyes. Tentacular segment completely fused to posterior part of prostomium; 2 pairs of tentacular cirri with distinct cirrophores, without acicular lobes or setae. Segment 2 with buccal cirri only slightly longer than following ventral cirri, attached to basal parts of parapodia, posterolateral to mouth. Parapodia subbiramous, with long, projecting achaetous notopodial acicular lobes and subconical neuropodia with short projecting acicular processes. Neurosetae numerous, slender, tapering to fine tips, with 2 rows of spines. Dorsal cirri with long cylindrical cirrophores and short styles; ventral cirri small, attached to neuropodia subdistally. Nephridial papillae small to indistinct. Pygidium medial to large parapodia of posterior 1–3 segments. Pharynx with 10 papillae—2 dorsal and 3 lateral pairs, middle lateral pair elongate, cirriform; dorsal jaws fused; pair of ventral jaws.

Four species are retained in the genus *Macellicephaloides* Uschakov, all originally described from the Kurile-Kamchatka Trench: *M. grandicirra* Uschakov, 1955, Kurile-Kamchatka Trench, in 8100–9960 meters; *M. verrucosa* Uschakov, 1955, Kurile-Kamchatka Trench, in 7210–7230 meters; *M. vitiazi* Uschakov, 1955, Kurile-Kamchatka Trench, in 7210–8420 meters; *M. uschakovi* Levenstein, 1971, Kurile-Kamchatka Trench, in 8120 meters.

Levenstein (1962:1143) referred some fragments, collected in the Mariana Trench in 10,630 to 10,710 meters, to *Macellicephaloides* species; the record is based on a few stout acicula and a pharynx showing the characteristic, elongate, cirriform lateral papillae.

Macellicephaloides berkeleyi Levenstein, 1971, is herein assigned to a new genus, *Bathyedithia,* and new subfamily, Bathyedithinae.

GENERAL CHARACTERISTICS.—The body is generally robust, flattened ventrally, arched dorsally, slightly tapered anteriorly and posteriorly, with parapodia longer than the body width. It is relatively short and composed of 16 (*M. verrucosa, M. vitiazi*), 17 (*M. grandicirra*) or 20–21 (*M. uschakovi*) segments, the first one being achaetous (Uschakov, 1955, figs. 3a, 4a; Levenstein, 1971b, fig. 4c,d).

The elytra (all missing) number eight pairs, borne on small, button-like elytrophores medial to the notopodia of segments 2, 4,5, 7, 9, 11, 13 and 15 (Figures 25*a,g,* 26*a,g,i,* 27*a–c,* 28*a*). Dorsal cirri are borne on segments 3, 6, 8, 10, 12, 14 and 16 (or to the end of the body). The cirrophores of the dorsal cirri are attached posterior to the bases of the notopodia; they are cylindrical, moderately long to very long; the styles are relatively short, appearing as terminal appendages on the elongate cirrophores (Figures 25*b,h,j,* 26*h,* 27*b,d,* 28*d,f*). The dorsal tubercles, corresponding in position to the elytrophores, are usually absent; they are nodular in *M. verrucosa* (Figure 27*b,d*).

The prostomium is relatively small, bilobed,

forming two anterior oval lobes, somewhat withdrawn into and fused to the first or tentacular segment (Figures 25*a,b*, 26*a,b*, 27*a*, 28*a,b*). The median antenna has a large cylindrical ceratophore attached to the middle of the prostomium, with style short to long and tapering; lateral antennae are lacking; minute frontal filaments are usually absent (may be present in *M. grandicirra*, Figure 25*a*). The palps have elongate palpophores, which are inflated or bulbous dorsally, and tapered palpostyles; eyes are lacking. The tentacular segment encloses the prostomium, with lateral parapodia forming cirrophores for the dorsal and ventral tentacular cirri; the styles are rather short and tapering; acicular lobes and setae are lacking (Figures 25*a,b*, 26*a,b*, 27*a*, 28*a,b*). The second or buccal segment bears the first pair of elytrophores, biramous parapodia, and ventral or buccal cirri attached to the basal part of the neuropodia on small cirrophores posterolateral to the ventral mouth; the styles are short, subulate, somewhat larger than the following ventral cirri (not as long as usually found in the Polynoidae; Figures 25*a,b*, 26*a,b*, 28*a,b,e*).

The subbiramous parapodia are longer than the body width; the notopodia are represented by prominent acicular lobes containing very stout, yellow acicula, the tips of which may break through and project beyond the lobes, far beyond the neuropodia; the latter have longer presetal subconical lobes extending into short digitiform to subtriangular processes and shorter subconical postsetal lobes (Figures 25*a,b,g,h,j*, 26*a,b,f–i*, 27*a–d*, 28*a,b,d–g*). Notosetae are absent. Neurosetae are numerous, forming fan-shaped bundles, delicate, slightly wider more basally, tapering distally to slender tips, with 2 rows of spines (Figures 25*h,i*, 26*h,j*, 27*c,e*, 28*f–h*). The ventral cirri (except for the buccal cirri on segment 2) are small, tapered, and attached distally, just medial to the neurosetae (Figures 25*g,h*, 26*h*, 27*c*, 28*f,g*).

The somewhat elongate bulbous pygidium, with a dorsal anus, is medial to a variable number of posterior segments; the posterior parapodia are long, not reduced in size; anal cirri are apparently lacking (Figures 25*j*, 26*f*, 27*b*, 28*d*). The nephridial papillae are not especially enlarged and may be indistinct (Figure 25*h*).

The very large muscular pharynx occupies the anterior third of the body. The pharyngeal opening has papillae and jaws but they differ from the usual type and arrangement found in the Polynoidae. There are four subequal dorsal papillae and three pairs of dorsolateral papillae of unequal size, the middle pair being longer (greatly elongated and cirriform in *M. vitiazi* and *M. verrucosa*); the ventral part of the pharynx may be differentiated into a pair of collar-like or scroll-like ventral folds (Figures 25*c–e*, 26*c*, 28*c*). The pharynx is armed with a dorsal jaw consisting of 2–3 fused pieces, and a pair of ventral jaws (Figures 25*f*, 26*c–e*, 28*c*). The elongate lateral papillae on the stout muscular pharynx have the superficial appearance of some members of the pelagic polychaete family Alciopidae, rather than to some representatives of the aphroditoid families Polyodontidae (=Acoetidae) and Bathyedithinae of the Polynoidae, described herein, with their elongate middorsal and midventral papillae.

The integument usually appears smooth or somewhat wrinkled; in *M. verrucosa*, segmental middorsal nodular tubercles are present, in addition to nodular dorsal tubercles on the cirrigerous segments (Figure 27*b,d*).

Key to the Species of *Macellicephaloides*

1. Segments 16. Cirrophores of dorsal cirri not greatly elongate (Figures 26*h*, 27*d*). Pharynx with middle lateral papilla (number 2) greatly elongate, cirriform (Figure 26*c*). Pygidium enclosed by parapodia of posterior segment (Figures 26*f*, 27*b*) 2

   Segments 17. Without dorsal tubercles on cirrigerous segments; without middorsal tubercles. Cirrophores of dorsal cirri greatly elongate, flattened, extending far beyond neuropodia (Figure 25*b,h,j*). Pharynx with middle lateral papilla (number 2) moderately elongate (Figure 25*c–e*). Pygidium enclosed by parapodia of posterior two segments (Figure 25*j*) ..... ***M. grandicirra***

   Segments 20–21. Without dorsal tubercles on cirrigerous segments; without middorsal tubercles. Cirrophores of dorsal cirri extending beyond neuropodia, not greatly elongate (Figure 28*f*). Pharynx with middle lateral papilla (number 2) moderately elongate (Figure 28*c*). Pygidium enclosed by parapodia of posterior three segments (Figure 28*d*) ..... ***M. uschakovi***

2. Without dorsal tubercles on cirrigerous segments; without segmental middorsal tubercles ..... ***M. vitiazi***

With paired nodular dorsal tubercles on cirrigerous segments 6–14; with segmental middorsal nodular tubercles on segments 3–15 (Figure 27*b,d*) ..... ***M. verrucosa***

Macellicephaloides grandicirra Uschakov, 1955

FIGURE 25

Macellicephaloides grandicirra Uschakov, 1955:314, fig. 2a–d.—Levenstein, 1971b:26.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—Northwest Pacific, Kurile-Kamchatka Trench, *Vitiaz* sta. 2217, 1953, 1 specimen (USNM 43624; exchange from ZIASL 2/789; identified by Uschakov).

DESCRIPTION.—Length of specimen from *Vitiaz* sta. 2217 (USNM 43624) 35 mm, width of body 6 mm, width including parapodia 16 mm, segments 17. According to Uschakov, length of largest specimen 65 mm, width including parapodia 25 mm, segments 17. Elytrophores small, situated close to dorsal bases of long parapodia (Figure 25*a,g;* Uschakov, 1955, fig. 2a). Dorsal tubercles lacking.

Bilobed prostomium with minute frontal filaments (on specimen examined; Figure 25*a;* not mentioned by Uschakov; sometimes absent, withdrawn or broken off?); style of median antenna long, extending posteriorly to segment 2; palps with cylindrical palpophores, slightly bulbous dorsally, with styles subequal in length to tentacular cirri. Cirrophores of ventral tentacular cirri longer than dorsal ones; styles rather short, tapered, shorter than median antenna (Figure 25*a,b*). Tentacular segment contributing to lobulated upper, lateral and lower lips of mouth (Figure 25*a,b*).

Stout notopodial acicular lobes extending to tips of neuropodia or slightly beyond (Figure 25*a,b,g,h*); in more posterior parapodia, notopodial acicular lobes extending far beyond neuropodia (Figure 25*j*). Neurosetae with slightly hooked tips (Figure 25*i;* Uschakov, 1955, fig. 2c). Dorsal cirri with greatly elongate, flattened, beltlike cirrophores extending far beyond neuropodia, with rather short styles; cirrophores of posterior segment shorter than neuropodia (Figure 25*b,h,j;* Uschakov, 1955, fig. 2a,b—separation of cirrophores and styles not indicated).

Pygidium clavate, tubular, medial to elongate parapodia of posterior two segments; parapodia of last segment with shorter dorsal cirrophores (styles missing; Figure 25*j*). Nephridial papillae short, wide, slightly raised, none especially enlarged (Figure 25*g,h*).

Pharynx with 4 large, rounded dorsal papillae (indicated as "d" on figures), 3 pairs of dorsolateral papillae, more dorsal pair (number 1 on figure) similar in size to dorsal papillae, middle pair (number 2) more elongate, and more ventral pair (number 3) smallest; pair of large collar-like ventrolateral folds (vF; Figure 25*c–e;* Uschakov, 1955, fig. 2d). Jaws consisting of single dorsal one formed of 3 fused parts and subtriangular ventral pair (Figure 25*f;* Uschakov, 1955, fig. 2e).

DISTRIBUTION.—Northwest Pacific (Kurile-Kamchatka Trench), in 8100 to 9950 meters.

Macellicephaloides vitiazi Uschakov, 1955

FIGURE 26

Macellicephaloides vitiazi Uschakov, 1955:318, fig. 4a–e.—Levenstein, 1971b:27, fig. 4c.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—Northwest Pacific, Kurile-Kamchatka Trench, 46°N, 153°27'E, 7295 meters, *Vitiaz* sta. 5608, 1 specimen (USNM 51971; exchange from IOASM; Levenstein, identified).

DESCRIPTION.—Length of specimen from *Vitiaz* station 5608 (USNM 51971) 68 mm, width with parapodia 20 mm, segments 16. According to Levenstein, largest specimen up to 80 mm, width up to 30 mm. Elytrophores small, situated close to bases of long parapodia (Figure 26*a,g*). Dorsal tubercles lacking.

Bilobed prostomium without frontal filaments; style of median antenna long, extending posteriorly to segment 2; palps with palpophores bulbous on dorsal part, with tapered subulate styles (Figure 26*a,b;* Uschakov, 1955, fig. 4a). Cirrophores of ventral tentacular cirri longer than dorsal ones; styles rather short, tapered, shorter than median antenna (Figure 26*a,b*). Tentacular segment contributing to lobulated upper and lateral lips; segment 2 contributing to lower lip; styles of buccal cirri missing (Figure 26*b*).

Stout notopodial acicular lobes shorter than neuropodia on anterior segments (Figure 26*a,g,h;* Uschakov, 1955, fig. 4c); much stouter and longer,

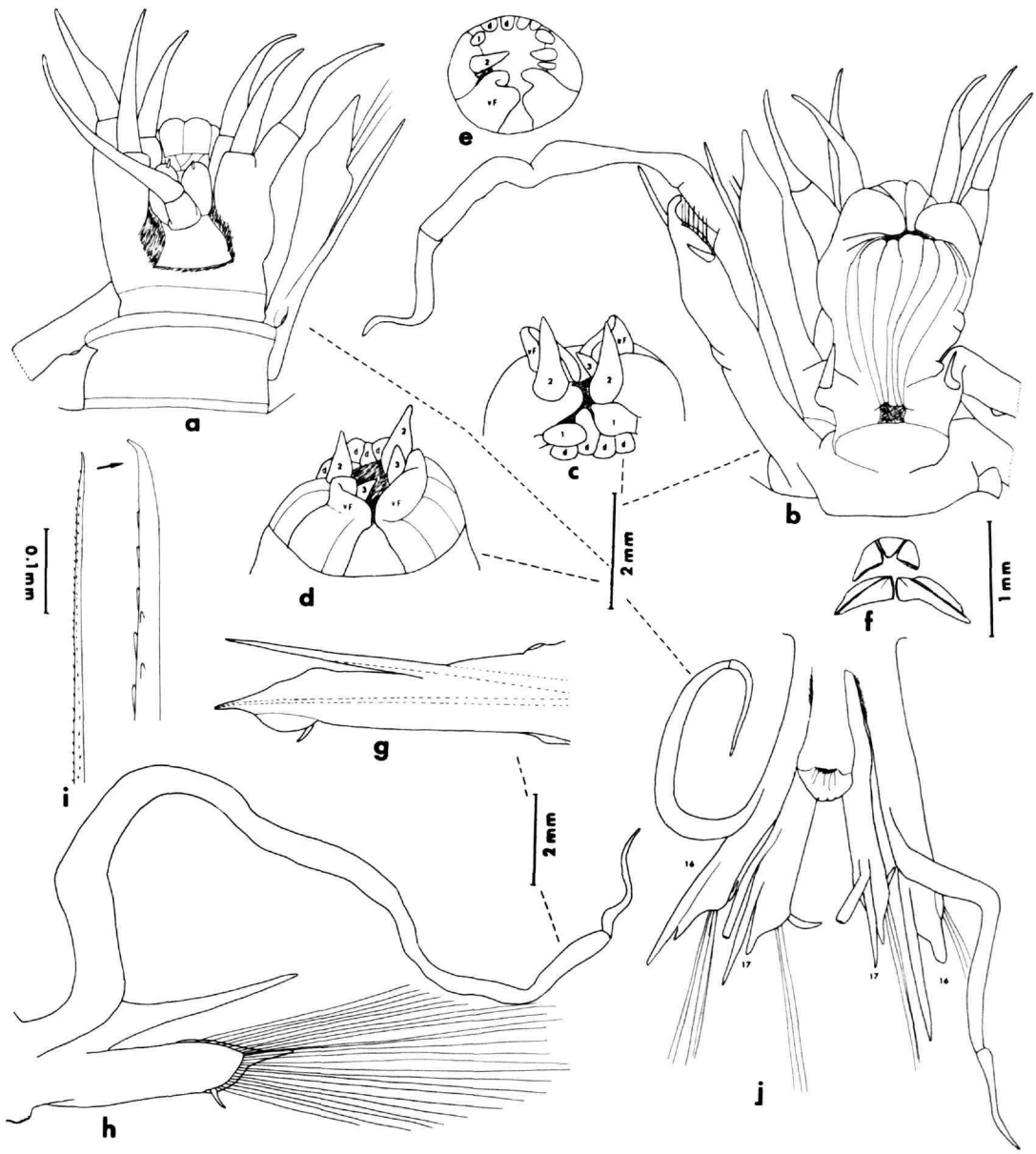

FIGURE 25.—*Macellicephaloides grandicirra* (USNM 43624): *a*, dorsal view of prostomium and anterior two segments; only base of left parapodium of segment 2 shown; *b*, ventral view of prostomium and anterior three segments; left side only partially shown; *c*, dorsal view of dissected pharynx, showing four dorsal papillae (d), three pairs of lateral papillae (1–3; left 3 hidden from view) and pair of large collarlike ventrolateral folds (vF); *d*, same, ventral view (lateral first pair of papillae hidden from view); *e*, diagrammatic frontal view showing arrangement of pharyngeal papillae and ventrolateral folds; *f*, jaws of pharynx, dissected; *g*, right elytragerous parapodium from segment 9, anterior view; internal acicula dotted; neurosetae all missing; *h*, right cirrigerous parapodium from segment 10, posterior view; *i*, neuroseta, with detail of small portion; *j*, dorsal view of pygidium and posterior two segments (16, 17); styles of dorsal cirri of segment 17 missing.

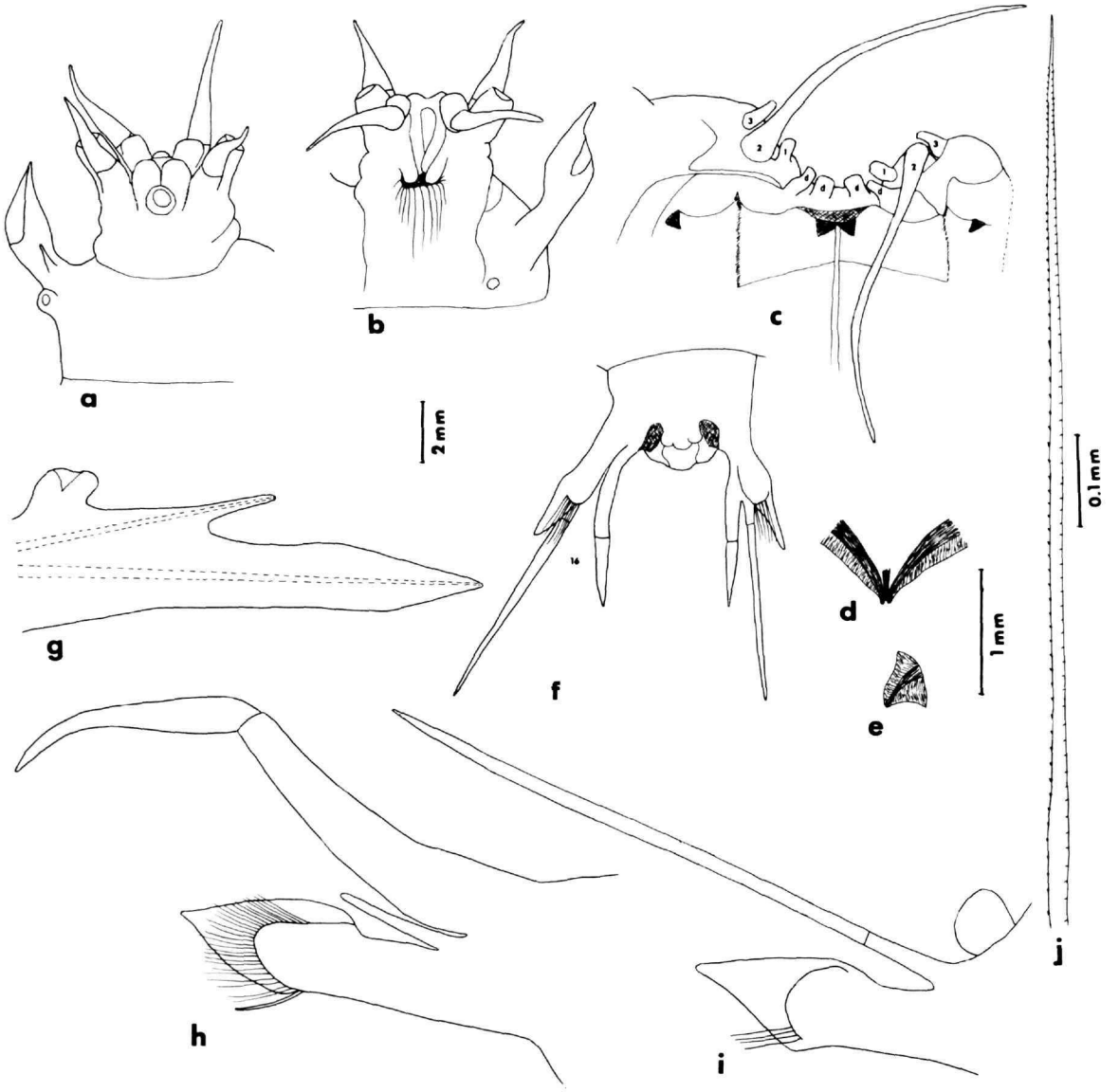

FIGURE 26.—*Macellicephaloides vitiazi* (USNM 51971; all same magnification, except for jaws and neuroseta): *a*, dorsal view of prostomium and anterior two segments; right parapodium of segment 2 not shown; styles of median antenna and ventral tentacular cirri and neurosetae missing; *b*, same, ventral view; *c*, distal end of pharynx, cut open along midventral line, showing jaws and papillae: 4 dorsal (d) and 3 lateral pairs (1–3); *d*, dorsal pair of jaws; *e*, one of ventral jaws; *f*, ventral view of pygidium and posterior segment (16); *g*, left elytragerous parapodium from segment 4, anterior view; ventral cirrus and neurosetae missing; internal acicula dotted; *h*, left cirrigerous parapodium from segment 10, posterior view; *i*, left elytragerous parapodium from segment 15, posterior view; ventral cirrus and most of neurosetae missing; *j*, neuroseta.

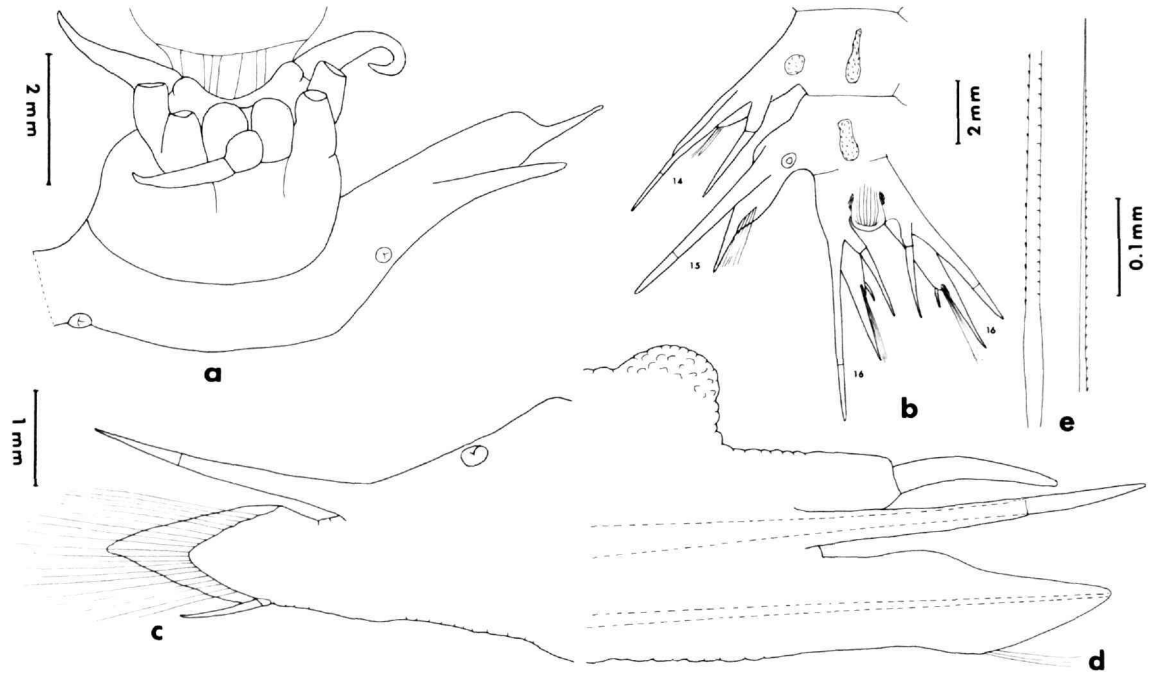

FIGURE 27.—*Macellicephaloides verrucosa* (USNM 51974): *a,* dorsal view of prostomium and anterior two segments; pharynx extended and torn off; left parapodium of segment 2 not shown; styles of tentacular cirri and neurosetae missing; *b,* dorsal view of pygidium and posterior three segments (14–16); right side not completely shown; *c,* left elytragerous parapodium from segment 5, posterior view; *d,* left cirrigerous parapodium from segment 10, anterior view; ventral cirrus and most of neurosetae missing; internal acicula dotted; *e,* more basal part and tip of neuroseta.

extending far beyond parapodia, on posterior segments (14–16; Figure 26*f,i;* Uschakov, 1955, fig. 4d). Neurosetae with slender pointed tips (Figure 26*j;* Uschakov, 1955, fig. 4e). Dorsal cirri with long cirrophores extending as far as or beyond neuropodia and shorter styles (Figures 26*f,h;* Uschakov, 1955, fig. 4c).

Pygidium rounded, wedged between bases of large parapodia of posterior segment (Figure 26*f*). Nephridial papillae indistinct.

Pharyngeal papillae consisting of 4 dorsal subequal ones and 3 pairs of lateral ones, more dorsal and more ventral ones (numbers 1 and 3 on figure) subequal to dorsal papillae, middle one (number 2) very long, cirriform; without ventral folds (Figure 26*c;* Uschakov, 1955, fig. 4a,b). Dorsal pair of jaws fused medially; ventral subtriangular pair of jaws distinct (Figure 26*c–e*).

DISTRIBUTION.—Northwest Pacific (Kurile-Kamchatka Trench), in 7000 to 8430 meters.

Macellicephaloides verrucosa Uschakov, 1955

FIGURE 27

Macellicephaloides verrucosa Uschakov, 1955:316, fig. 3a–e.—Levenstein, 1971b:26; 1973:129, 131, 132, 133, 134.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—Northwest Pacific, Kurile-Kamchatka Trench, 45°30′N, 153°33′E, 8015 m, *Vitiaz* sta. 5616, 1 specimen (USNM 51974; exchange from IOASM; identified by Levenstein).

DESCRIPTION.—Length of specimen from *Vitiaz* sta. 5616 (USNM 51974) 27 mm, width with parapodia 16 mm, segments 16. According to Uschakov (1955), length of largest specimen 40 mm, width

with parapodia 18 mm, segments 16. Elytrophores small, inconspicuous (Figure 27*a–c*). Roughened nodular dorsal tubercles on cirrigerous segments 6–14 (Figure 27*b,d*). In addition, integument of body somewhat wrinkled, with large wrinkled nodular middorsal tubercles on segments 3–15 (Figure 27*b;* Uschakov, 1955, fig. 3a).

Bilobed prostomium without frontal filaments; style of median antenna short, subulate; palps with palpophores bulbous dorsally, with tapered styles (Figure 27*a;* Uschakov, 1955, fig. 3b). Cirrophores of ventral tentacular cirri longer than dorsal ones; styles subequal to median antenna. Tentacular segment contributing to lobulated upper, lateral and lower lips of mouth.

Stout notopodial acicular lobes extending beyond neuropodia, longer on more posterior segments (Figure 27*b–d;* Uschakov, 1955, fig. 3a,d). Neurosetae with slender sharp tips (Figure 27*e;* Uschakov, 1955, fig. 3e). Dorsal cirri with rather short cirrophores and longer styles, not extending much beyond neuropodia (Figure 27*b,d*).

Cylindrical pygidium wedged between large parapodia of posterior segment (Figure 27*b*). Nephridial papillae rather indistinct, none enlarged. Pharynx (broken off on specimen examined) similar to that described for *M. vitiazi;* middle pair of lateral papillae greatly elongated, cirriform (Uschakov, 1955, fig. 3a,c).

DISTRIBUTION.—Northwest Pacific (Sea of Japan, Kurile-Kamchatka Trench), in 6156 to 8015 meters.

Macellicephaloides uschakovi Levenstein, 1971

FIGURE 28

Macellicephaloides uschakovi Levenstein, 1971b:27, figs. 4d, 6a–d.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—Northwest Pacific, Kurile-Kamchatka Trench, 43°54'N, 149°43'E, 8120 m, *Vitiaz* sta. 5629, 1 specimen (USNM 51978; exchange from IOASM; identified by Levenstein).

DESCRIPTION.—Length of specimen from *Vitiaz* station 5629 (USNM 51978) 38 mm, width of body 4 mm, width with parapodia 12 mm, segments 21. According to Levenstein (1971b), length up to 47 mm, width with parapodia up to 16 mm, segments 20–21. Elytrophores small, situated close to bases of parapodia (Figure 28*a*). Dorsal tubercles lacking.

Bilobed prostomium without frontal filaments; style of median antenna rather long, extending to segment 2; palps with palpostyles bulbous dorsally and curved ventrally, with slender styles (Figure 28*a,b*). Cirrophores of tentacular cirri subequal in length, with styles shorter than median antenna (Figure 28*a,b;* Levenstein, 1971b, fig. 6a). Tentacular segment contributing to lobulated upper, lateral and lower lips of ventral mouth (Figure 28*b*).

Stout notopodial acicular lobes extending to tips of neuropodia or somewhat beyond, especially on more posterior segments (Figure 28*a,d–g;* Levenstein, 1971b, fig. 6a,c). Neurosetae tapering to slender blunt tips (Figure 28*h;* Levenstein, 1971b, fig. 6d). Dorsal cirri with long cylindrical cirrophores extending beyond neuropodia, with shorter styles (Figure 28*f*); cirrophores of more posterior segments about equal to or shorter than neuropodia (cirrophores lacking on last segment; Figure 28*d*).

Pygidium oval, encircled by parapodia of posterior three segments (19–21); parapodia of segment 21 smaller, overlapping posterior part of segment 20, with dorsal cirrophores lacking (Figure 28*d*). Nephridial papillae small, rounded, none especially enlarged. Pharynx with 4 subequal dorsal papillae and 3 pairs of lateral papillae, middle pair (number 2) considerably longer than other two pairs (1 and 3), continuous ventrally with pair of scroll-like, more or less undulate ventrolateral folds (Figure 28*c;* Levenstein, 1971b, fig. 2b). Dorsal pair of jaws joined medially; ventral pair of jaws distinct (Figure 28*c*).

DISTRIBUTION.—Northwest Pacific (Kurile-Kamchatka Trench), in 8120 meters.

MACELLOIDINAE, new subfamily

TYPE-GENUS.—*Macelloides* Uschakov, 1957.

REMARKS.—Uschakov (1957:1670) noted a superficial resemblance of *Macelloides* Uschakov to *Macellicephala* McIntosh and *Macellicephaloides* Uschakov but separated it from these two genera, mainly on the basis of the long, chitinous, denticled platelets of the pharynx. Uschakov suggested that *Macelloides* might possibly connect the Polynoidae with the Aphroditidae (=Hermionidae). Hartman (1959:93) placed *Macelloides* in Lepidonotinae and Hartmann-Schröder (1974:75, 82, 85), in Macellicephalinae. Macelloidinae is distinguished from the other subfamilies of Polynoidae on the characters of the pharynx, prostomium, and parapodia.

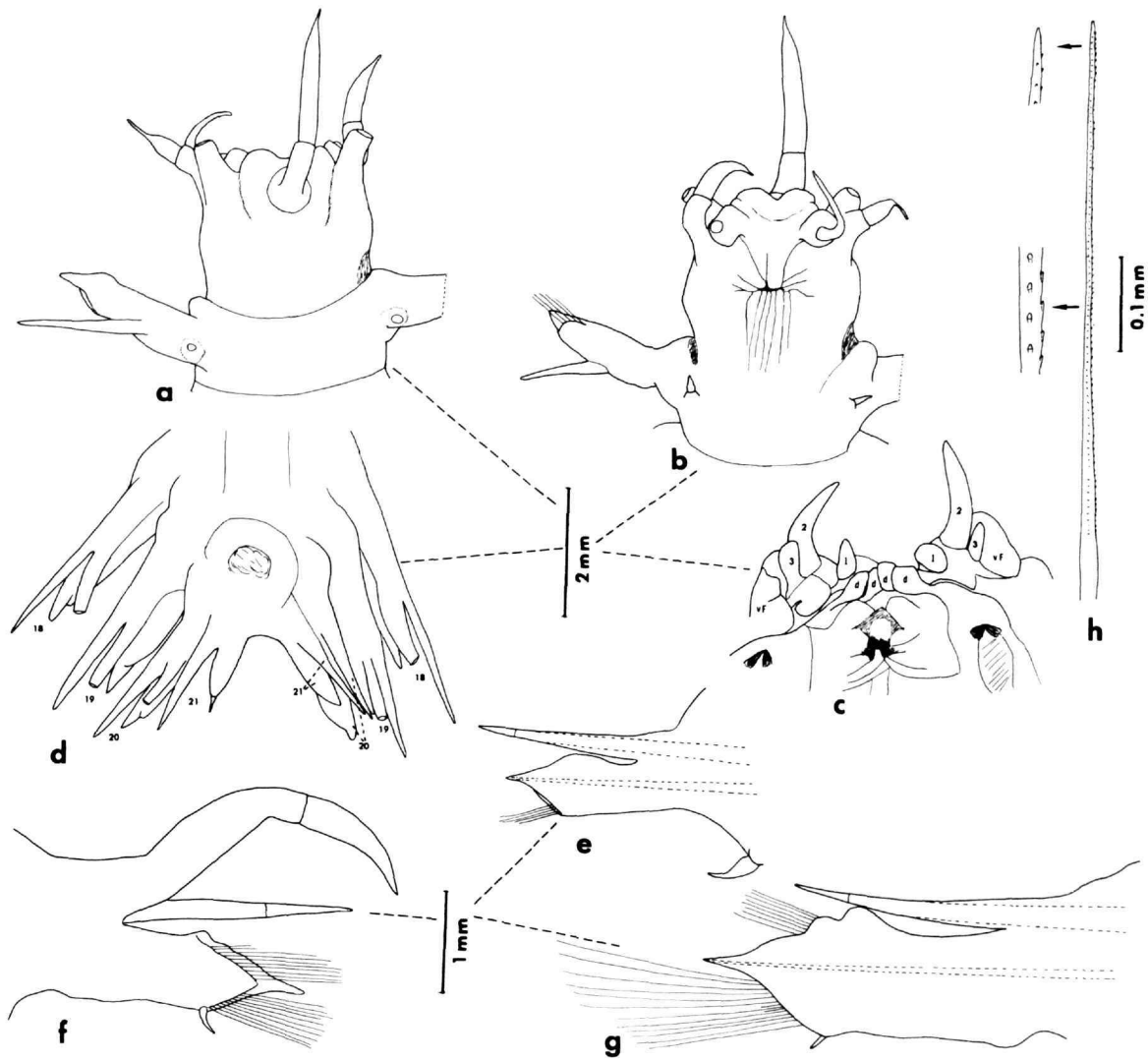

FIGURE 28.—*Macellicephaloides uschakovi* (USNM 51978): *a*, dorsal view of prostomium and anterior two segments; only base of right parapodium of segment 2 shown; styles of right palp and dorsal tentacular cirri and neurosetae missing; *b*, ventral view of same; only base of left parapodium of segment 2 shown; *c*, distal end of pharynx, cut open along midventral line, showing jaws and papillae: 4 dorsal (d), three lateral pairs (1–3), and pair of scroll-like ventrolateral folds (vF); *d*, dorsal view of pygidium and four posterior segments (18–21); styles of dorsal cirri and neurosetae missing; *e*, right elytragerous parapodium from segment 2, anterior view; neurosetae missing or broken; internal acicula dotted; *f*, right cirrigerous parapodium from segment 3, posterior view; *g*, right elytragerous parapodium from segment 7, anterior view; tips of neurosetae mostly broken or missing; internal acicula dotted; *h*, neuroseta, with details of small portions.

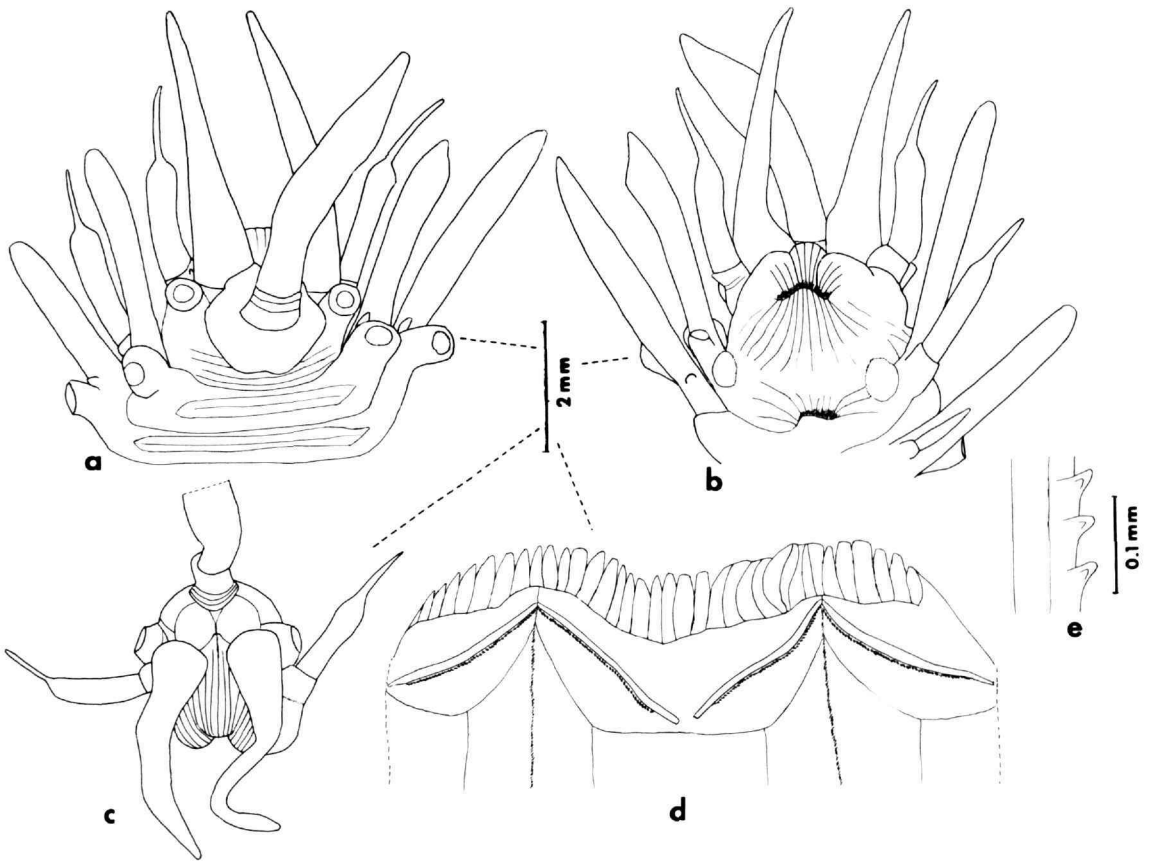

FIGURE 29.—*Macelloides antarctica* (holotype, ZIASL 5212): *a*, dorsal view of prostomium and anterior three segments; elytra, styles of dorsal tentacular and dorsal cirri missing; *b*, same, ventral view; styles of right ventral cirri of segments 2 (buccal) and 3 missing; *c*, frontal view of prostomium and tentacular segment; styles of dorsal tentacular cirri missing; basal part of median antenna shown; *d*, distal end of pharynx, cut open along middorsal line (dotted), showing platelike papillae and paired V-shaped denticled jaw plates; *e*, portion of denticled jaw plate.

PHARYNX.—Instead of the usual two pairs of stout, interlocking chitinous jaws, characteristic of the majority of Polynoidae, the pharynx is equipped with four, long, slender, denticled, chitinous jaw-plates, nearly encircling subdistally the inner wall of the massive muscular pharynx; the plates are joined laterally, forming paired V-shaped plates (Figure 29*d*,*e*; Uschakov, 1957, fig. 7B,C). In addition, there are numerous platelike distal papillae around the opening of the pharynx, instead of the usual nine pairs of oval papillae. It was not possible to determine the exact number of papillae on the holotype of *M. antarctica*, but they are not branched or as numerous as they are in the Aphroditidae.

PROSTOMIUM.—The anterior end of the prostomium extends anteroventrally, forming rounded lobes between the bases of the median antenna and palps (Figure 29*a*,*c*). The lobes correspond in position to the ceratophores of the lateral antennae in those polynoids that show ventral insertion of these structures. However, there are no distinct lateral antennae in *Macelloides*, as found in the Harmothoinae, and there are no terminally inserted lateral antennae as in the Lepidonotinae.

PARAPODIA.—The greatly elongated parapodia are similar to those of *Lepidasthenia* Malmgren in having greatly reduced notopodia, represented by very small conical lobes and notoacicula, without notosetae; the long neuropodia are distally deeply cut dorsally and ventrally, forming subequal presetal and postsetal lobes (Figure 30*a,b*). However, the neurosetae differ from those found in *Lepidasthenia,* in that they are stout, long, needle-like (Figure 30*c*). On the holotype of *M. antarctica,* the neurosetae were not emergent but were visible when the dorsal setal slit was spread apart (Figure 30*a*). Perhaps the neurosetae can be protruded and withdrawn. The parapodia of *Macelloides* differ from those found in the Macellicephalinae, where they are biramous, both rami having long, projecting acicular processes.

At present, Macelloidinae is represented only by the type-species, *Macelloides antarctica* Uschakov, endemic in the deeper waters of the Antarctic. It may represent a distinct line in the Polynoidae, but it does not appear to be a connecting link to the Aphroditidae.

Genus *Macelloides* Uschakov, 1957, emended

TYPE-SPECIES.—*Macelloides antarctica* Uschakov, 1957, by monotypy. Gender: feminine.

DIAGNOSIS.—Body large, stout, flattened, with very long parapodia; segments 30 (first achaetous). Elytra and prominent elytrophores 15 pairs, on segments 2, 4,5, 7, continuing on alternate segments. Dorsal tubercles on cirrigerous segments indistinct. Prostomium oval, bilobed, extending anteroventrally and forming rounded lobes, without lateral antennae or frontal filaments; median antenna with large ceratophore in middle of prostomium, with long style; paired palps long, tapered; without eyes. First or tentacular segment fused to prostomium, visible dorsally; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores and single small acicular lobe; achaetous. Segment 2 with buccal cirri longer than following ventral cirri, attached to basal parts of parapodia, posterolateral to mouth. Parapodia subbiramous, with small notopodia and notoacicula, without notosetae; neuropodia very long, tapered distally, forming deeply cut, subequal presetal (acicular) and postsetal lobes (i.e., lepidasthenoid). Neurosetae long, stout, needle-like. Dorsal cirri with short cylindrical cirrophores; styles missing; ventral cirri short. Nephridial papillae four pairs, on segments 9–12. Pygidium wedged between parapodia of posterior two segments. Pharynx with numerous papillae and four narrow denticled plates nearly encircling pharynx subdistally.

The genus is monotypic, represented by the type-species: *Macelloides antarctica* Uschakov, 1957; Davis Sea, Antarctic, in 660 meters.

Macelloides antarctica Uschakov, 1957

FIGURES 29, 30

Macelloides antarctica Uschakov, 1957:1670, 1672, fig. 7A–D; 1962:147, pl. 1i–l.—Hartmann-Schröder, 1974: 82, 85.

MATERIAL EXAMINED.—Antarctic, Davis Sea, near Wilkes Land, 65°14′S, 107°33′W, 660 m, muddy sand with stones, *Ob* sta. 23, holotype (ZIASL 5212).

DESCRIPTION.—Length of holotype 36 mm, width including parapodia 20 mm, segments 30. Body large, stout, flattened, with deep midventral groove and very long parapodia—longer than body width (Figure 30*a,b,d,e*).

Elytra and prominent bulbous elytrophores 15 pairs, on segments 2, 4,5, 7, continuing on alternate segments (Figures 29*a,* 30*a,e*). Elytra (much contracted) soft, delicate, without tubercles or papillae. Dorsal tubercles on cirrigerous segments indistinct.

Prostomium rounded, bilobed, extending anteroventrally and forming rounded lobes between bases of median antenna and palps (Figure 29*a–c;* Uschakov, 1957, fig. 7A; referred to as prostomial peaks by Hartmann-Schröder, 1974). Median antenna with stout cylindrical ceratophore attached to middle of prostomium; style rather short, stout, tapering distally. Paired palps stout, smooth, tapering, about as long as median antenna. Without eyes. First or tentacular segment fused to prostomium, visible dorsally as narrow ring; uniramous short parapodia lateral to prostomium, with very small acicular lobe, without setae; 2 pairs of tentacular cirri lateral to prostomium, with short cirrophores; styles of ventral tentacular cirri (dorsal pair missing) shorter than median antenna, cylindrical, with long filamentous tips (Figure 29*a–c*). Without distinct facial tubercle. Ventral buccal cirri of segment 2 with large cirrophores attached basally on neuropodia, posterolateral to mouth; styles similar to ventral tentacular cirri, longer than following ventral cirri (Figure 29*a,b*); paired bulbous spherical areas me-

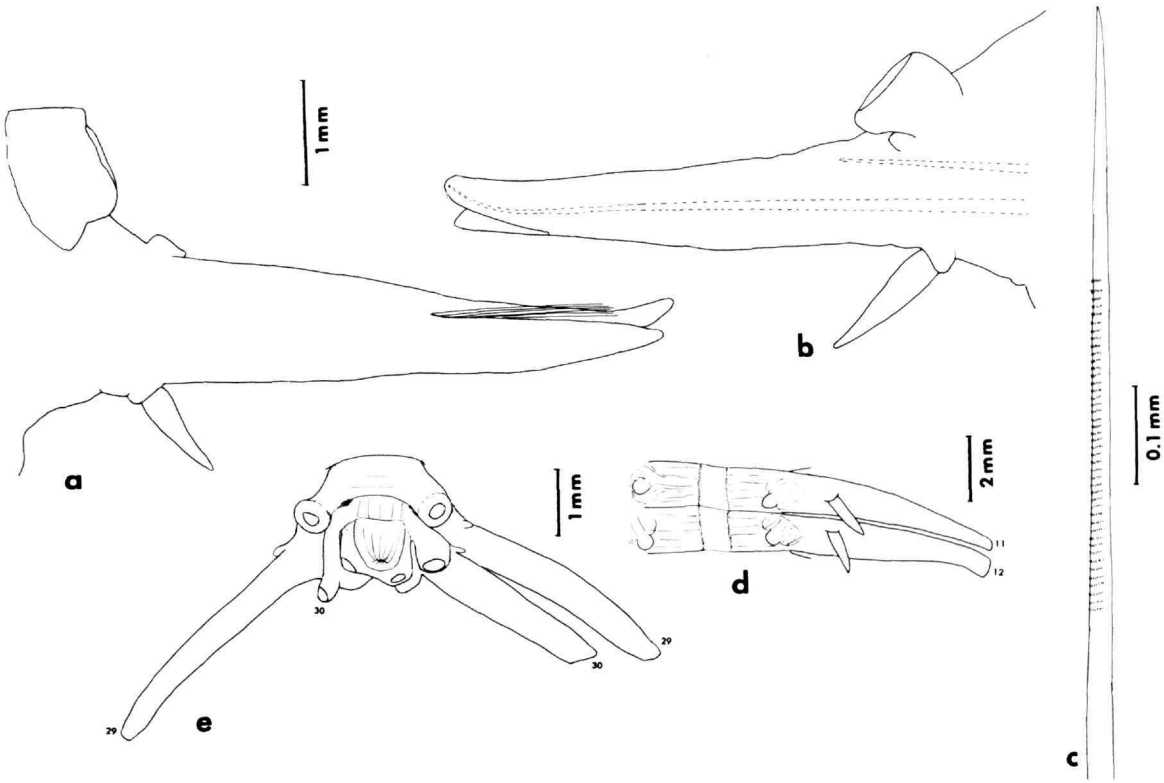

FIGURE 30.—*Macelloides antarctica* (holotype, ZIASL 5212): *a*, elytragerous parapodium, posterior view; *b*, cirrigerous parapodium, anterior view; style of dorsal cirrus missing; internal acicula dotted; *c*, neuroseta, removed from neuropodial slit; *d*, ventral view of segments 11 and 12; right parapodia not shown; *e*, dorsal view of pygidium and posterior two segments (29,30); left neuropodium of segment 30 had been cut off; elytra, styles of dorsal and anal cirri missing.

dial to cirrophores of buccal cirri (erroneously referred to as globular ventral cirri by Uschakov and Hartmann-Schröder). Buccal segment contributing to lower lip of mouth, with depressed area midventrally (Figure 29*b*).

Parapodia subbiramous; notopodia represented by very small conical lobes and notoacicula, without notosetae; neuropodia longer than body width, tapering distally, deeply cut dorsally and less so ventrally, forming slightly longer presetal acicular and postsetal rounded lobes (Figures 29*a,b*, 30*a,b,d,e*). Neurosetae not exposed but visible within dorsal slits of neuropodial lobes (Figure 30*a;* perhaps capable of being extended and withdrawn). Neurosetae very long, stout, needle-like, with faint spinous rows, tapering gradually to long, bare, pointed tips (Figure 30*c;* incorrectly drawn by Uschakov, 1957; fig. 7D) Dorsal cirri with large, short, cylindrical cirrophores, attached posterodorsally to small notopodia; styles all missing (Figures 29*a*, 30*b,e*). Ventral cirri attached to neuropodia at same level as notopodia, short, subulate (Figures 29*b*, 30*a,b,d*).

Nephridial papillae small, oval, on segments 9–12 (Figure 30*d*). Pygidium short, wedged between parapodia of posterior two segments, with dorsal anus and pair of anal cirri (styles missing; Figure 30*e*). Pharynx large, muscular, nearly half length of body. Distal opening (cut open) encircled by numerous platelike papillae (overlooked by Uschakov) and four, narrow, curved, denticled plates; two plates joined laterally, forming pair of V-shaped jaws en-

circling inner wall of pharynx subdistally, except for small middorsal and midventral areas (Figure 29*d;* Uschakov, 1957, fig. 7B). Jaw-plates with series of prominent denticles along one side (Figure 29*e;* about 30 denticles per plate, according to Uschakov).

DISTRIBUTION.—Antarctic (Davis Sea), in 660 meters.

BATHYEDITHINAE, new subfamily

TYPE-GENUS.—*Bathyedithia,* new genus.

In the only known species of *Bathyedithia, B. berkeleyi* (Levenstein), the pharynx resembles that of members of the Polyodontidae (=Acoetidae), rather than the Polynoidae, having elongate cirriform middorsal and midventral papillae and two pairs of jaws with denticled bases. In *Macellicephaloides,* the pharynx is furnished with a pair of lateral cirriform papillae, superficially resembling the condition found in the pelagic phyllodociform family Alciopidae. The prostomium in *Bathyedithia* lacks both median and lateral antennae.

Bathyedithia, new genus

TYPE-SPECIES.—*Macellicephaloides berkeleyi* Levenstein, 1971. Gender: feminine.

DIAGNOSIS.—Body short, flattened, fusiform; segments 25–26 (first achaetous). Elytra (all missing) and large elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on posterior 8–9 segments. Prostomium bilobed, without lateral and median antennae; paired palps with large rounded palpophores; without eyes. Tentacular segment indistinct dorsally; 2 pairs of tentacular cirri with distinct cirrophores, without acicular lobes or setae. Segment 2 with buccal cirri much longer than following ventral cirri, attached to basal parts of parapodia. Parapodia subbiramous; notopodia short, subconical, with small tuft of slender notosetae; neuropodia large, subconical, with short projecting presetal acicular processes. Neurosetae numerous, stouter than notosetae, flattened, tapering to more slender tips, with 2 rows of spines. Dorsal cirri with short cylindrical cirrophores and very long styles; ventral cirri short, attached to middle of neuropodia. Nephridial papillae indistinct. Pygidium medial to large parapodia of posterior two segments. Pharynx with 9 pairs of dorsal and ventral papillae; middle ones elongate, cirriform; 2 pairs of interlocking jaws, with denticled bases (pharynx similar to members of aphroditoid family Polyodontidae or Acoetidae).

A single species is assigned to *Bathyedithia: B. berkeleyi* (Levenstein), as *Macellicephaloides berkeleyi* Levenstein, 1971; Aleutian Trench, in 7000 meters.

ETYMOLOGY.—The genus is named for the late Edith Berkeley who, together with her husband Cyril, for whom the type-species was named, contributed greatly to our knowledge of North Pacific Polychaeta.

Bathyedithia berkeleyi (Levenstein), new combination

FIGURE 31

Macellicephaloides berkeleyi Levenstein, 1971a:1429, fig. 1a–d; 1971b:29, fig. 7a–d.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—North Pacific, Aleutian Trench, 50°48.6'N, 173°29'W, 7000 m, clayey mud, *Vitiaz* sta. 6085, 1 May 1969, syntype of *Macellicephaloides berkeleyi* (IOASM).

DESCRIPTION.—Body flattened, slightly tapered anteriorly and posteriorly, with parapodia as long as body width, thick, closely appressed, having general appearance of pelagic phyllodocids. Length of syntype examined (IOASM) 29 mm, width with parapodia 13 mm, segments 25. According to Levenstein (1971a), length 28–30 mm, width 10–12 mm, segments 25–26.

Elytra (all missing) and large elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on posterior 8–9 segments (Figure 31*a,d,j*). Dorsal tubercles on cirrigerous segments absent, except for large pair on segment 6 (Figure 31*g*).

Prostomium bilobed, forming subtriangular frontal lobes, without median or lateral antennae; palps with large, rounded palpophores and moderately long, tapered styles; eyes lacking (Figure 31*a;* Levenstein, 1971a, fig. 1a). First or tentacular segment indistinct dorsally, with uniramous parapodia lateral to prostomium and fused to palpophores, without distinct acicular lobes or setae; 2 pairs of tentacular cirri with distinct cirrophores; styles of dorsal pair shorter than palps; styles of ventral pair about twice as long as dorsal pair; without facial tubercle (Figure 31*a;* Levenstein, 1971a, fig. 1a). Seg-

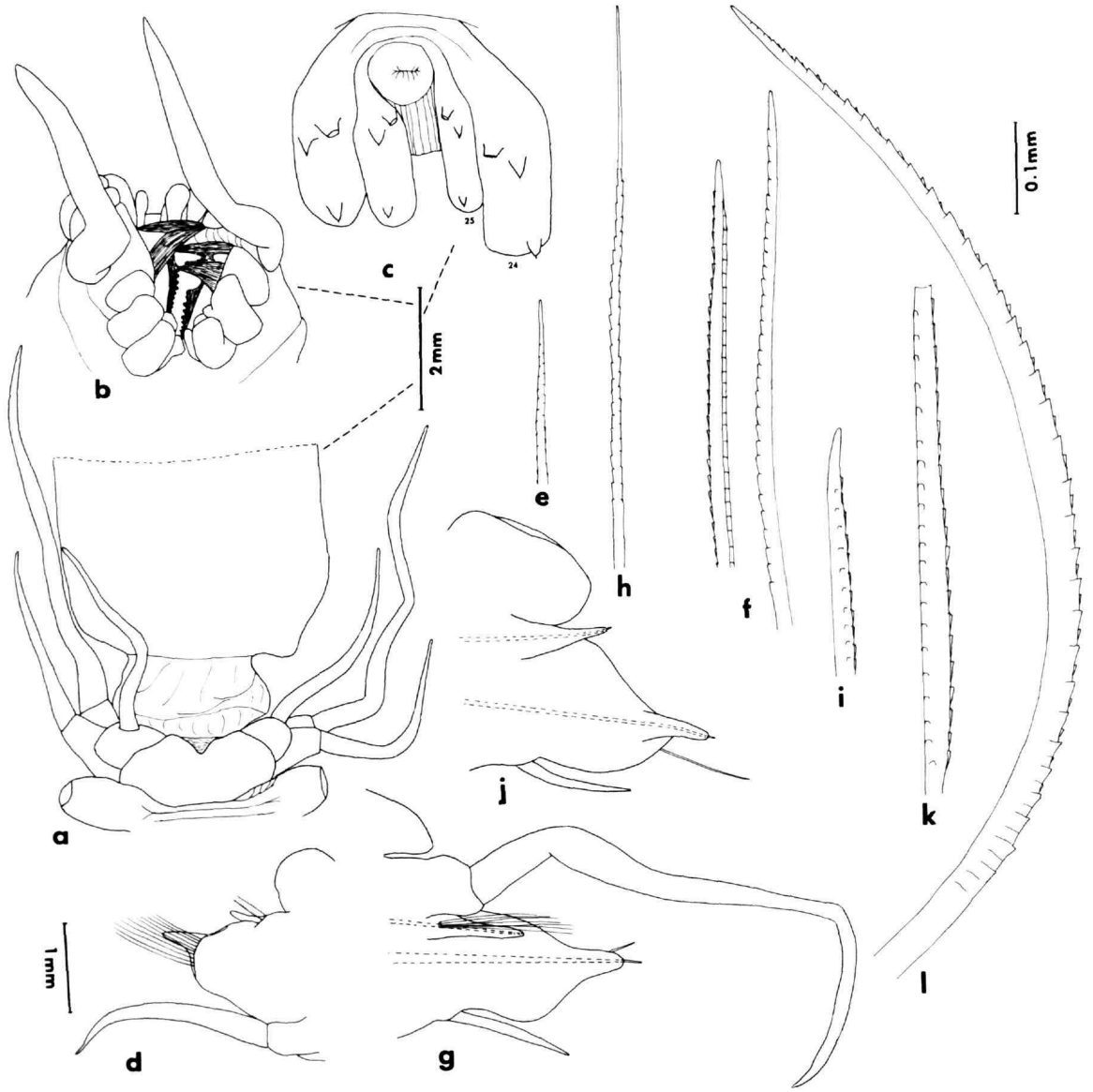

FIGURE 31.—*Bathyedithia berkeleyi* (syntype, IOASM): *a*, dorsal view of prostomium and anterior two segments, with pharynx fully extended (only basal part shown); parapodia of segment 2 not shown; *b*, lateral view of distal end of extended pharynx; *c*, dorsal view of pygidium and posterior two segments (24,25); styles of dorsal cirri missing; *d*, left elytragerous parapodium from segment 2, posterior view; *e*, notoseta from same; *f*, upper and middle neurosetae from same; *g*, left cirrigerous parapodium from segment 6, anterior view; internal acicula dotted; most of neurosetae missing; *h*, notoseta from same; *i*, upper neuroseta from same; *j*, left elytragerous parapodium from segment 17, anterior view; internal acicula dotted; all of notosetae and most of neurosetae missing; *k*, lower neuroseta from same, with tip broken; *l*, lower neuroseta from segment 23.

ment 2 with buccal cirri longer than following ventral cirri and attached to basal parts of parapodia (Figure 31*d;* Levenstein, 1971a, fig. 1a); notosetae (Figure 31*e*) and neurosetae (Figure 31*f*) similar to those of following segments.

Parapodia subbiramous; notopodia small, subconical, with projecting acicular processes; neuropodia large, subconical, upper part diagonally truncate, lower part rounded, with short, projecting, presetal acicular processes (Figure 31*g,j;* Levenstein, 1971a, fig. 1b); neuropodia of few posterior segments rounded, bulbous, directed posteriorly (Figure 31*c*). Notosetae (mostly missing) forming small tufts on upper sides of notopodia, thin, flattened, with 2 rows of denticles and long bare slender tips (Figure 31*e,h;* Levenstein, 1971a, fig. 1c). Neurosetae (mostly missing) numerous, forming fan-shaped bundles, stouter than notosetae, flattened, with spinous rows along both sides and tapered to rather short, bare tips; lower neurosetae somewhat stouter than upper ones (Figure 31*f,i,k,l;* Levenstein, 1971a, fig. 1d). Dorsal cirri with short cylindrical cirrophores and long styles extending far beyond tips of neuropodia (Figure 31*g;* Levenstein, 1971a, fig. 1a,b); ventral cirri short, tapered, attached to middle of neuropodia (Figure 31*g,j*).

Pygidium forming rounded lobe with dorsal anus and truncate posterior part, medial to parapodia of posterior two segments (24, 25; Figure 31*c*); anal cirri lacking (broken off?). Nephridial papillae indistinct.

Pharynx (incorrectly figured and described by Levenstein, 1971a, fig. 1a) large, muscular, about third of body length; terminal opening encircled with 9 pairs of dorsal and ventral papillae, lateral pairs smaller than others and middle pair much longer and larger, cirriform (Figure 31*b;* cirriform papillae indicated as lateral in position by Levenstein, instead of dorsal and ventral); two pairs of dorsal and ventral interlocking jaws with denticled basal parts (each with about 8 teeth; Figure 31*b;* latter overlooked by Levenstein).

DISTRIBUTION.—North Pacific (Aleutian Trench), in 7000 meters.

POLARUSCHAKOVINAE, new subfamily

TYPE-GENUS.—*Polaruschakov,* new genus.

Polaruschakovinae agrees in most respects with Macellicephalinae, though differing by the absence of median and lateral antennae. The pharynx is of the usual polynoid type, with two pairs of jaws and seven pairs of papillae, none enlarged, thus distinct from Bathyedithinae, where the jaws of the pharynx have denticled bases and the median pair of the dorsal and ventral papillae are elongate, cirriform.

Polaruschakov, new genus

TYPE-SPECIES.—*Macellicephala polaris* Uschakov, 1957. Gender: masculine.

DIAGNOSIS.—Body flattened, fusiform; segments variable in number (21–25; first achaetous). Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on posterior 4–8 segments. Cirrigerous segment 6 with pair of unique flattened scale-like structures. Prostomium bilobed, without median or lateral antennae; paired palps long, tapered; without apparent eyes (or pair of large eyes lacking pigment). First or tentacular segment fused to prostomium; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores and single small acicular lobe; achaetous. Segment 2 with buccal cirri attached to basal parts of parapodia lateral to mouth, longer than following ventral cirri. Parapodia subbiramous, with short notopodia and long neuropodia, both rami with elongate acicular processes. Notosetae more slender than neurosetae, spinous. Neurosetae numerous, delicate, transparent, flattened. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short. Nephridial papillae small. Pygidium small, medial to reduced parapodia of posterior segments. Pharynx with 7 pairs of papillae and 2 pairs of jaws.

The following two species and one synonym are referred to *Polaruschakov: P. polaris* (Uschakov), new combination, as *Macellicephala polaris* Uschakov, 1957, Arctic, in 2245 meters. (Synonym: *Macellicephala arctica* Knox, 1959, Arctic, in 0–730 meters); *P. reyssi* new species, as *Macellicephala arctica* Knox by Reyss (1968), Mediterranean, in 750 meters.

ETYMOLOGY.—The genus is named for Professor P. V. Uschakov in recognition of his outstanding contributions to the study of the Polychaeta.

GENERAL CHARACTERISTICS.—The body is robust, flattened, spindle-shaped, slightly tapered anteriorly and posteriorly, with parapodia longer than the body width. It is relatively short and composed of a

variable number of segments (21–25), the first one being achaetous, and the posterior ones much reduced and difficult to count. The elytra (all missing) numbering 9 pairs, are borne on prominent elytrophores medial to the notopodia of elytragerous segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on a variable number of posterior segments (4–8). On segment 6, medial to the cirrophores of the dorsal cirri, is a pair of unique, flat, scale-like lobes (Figures 32*a*, 33*a*).

The prostomium is wider than long, bilobed, forming rounded lobes, lacking median and lateral antennae. The tentacular segment is fused with the prostomium, a narrow band being visible dorsally, with two pairs of tentacular cirri with prominent cirrophores lateral to the prostomium (Figures 32*a*, 33*a*). The ventral buccal cirri of segment 2 are attached basally on the neuropodia lateral to the mouth and extend beyond the distal tips of the parapodia (Figures 32*a,b*, 33*a,b*).

The subbiramous parapodia consist of small conical notopodia on the anterodorsal sides of the neuropodia, with projecting acicular processes; the long neuropodia are subconical with projecting presetal acicular processes (Figures 32*a–d*, 33*a–d*). The notosetae are more slender than the neurosetae, with spinous rows. The neurosetae are numerous, forming brushlike bundles; they are delicate, flattened, and spinous. The dorsal cirri have cylindrical cirrophores attached posterior to the notopodia; the ventral cirri are short and subulate (Figures 32*c,d*, 33*a,d*). The dorsal tubercles on the cirrigerous segments are small to absent.

The pygidium is small, with the anus situated between the reduced parapodia of the posterior segments; presumably there is a pair of anal cirri (missing). The nephridial papillae are small to inconspicuous; none appear to be enlarged. The pharynx was not extended, but, when cut open, there appear to be seven pairs of papillae and two pairs of jaws.

Key to the Species of *Polaruschakov*

Prostomium deeply bilobed, with lobes separated by wide gap (Figure 32*a*). Notosetae few in number (2–6), with blunt tips (Figure 32*b,d,e*) ..... ***P. polaris***

Prostomium subcordiform, with shallow anterior notch (Figure 33*a*). Notosetae more numerous on some anterior segments, with capillary tips (Figure 33*a, c, e*) ..... ***P. reyssi,*** new species

Polaruschakov polaris (Uschakov), new combination

FIGURE 32

Macellicephala polaris Uschakov, 1957:1664, 1672, fig. 5.—Knox, 1959:114.—Reyss, 1971:250.

Macellicephala arctica Knox, 1959:106, 114, pl. 1: figs. 1–6.—Reyss, 1968:323 [part]; 1971:252 [part].—Levenstein, 1972: 172 [part].

Macellicephala (Macellicephala) polaris.—Hartmann-Schröder, 1974:76, 84.

Marcellicephala (Sinantenna) arctica.—Hartmann-Schröder, 1974:80, 84 [part].

MATERIAL EXAMINED.—Polar Basin, north of Wrangel Island, 77°44.2'N, 189°42'E, 2245 m, silt, pebbles, broken stones, SP-2, sta. 2, 22–23 May 1950, holotype of *Macellicephala polaris* (ZIASL 1009).

DESCRIPTION.—Length of holotype of *M. polaris* 16 mm, width with parapodia 6 mm, width with setae 9 mm, segments 25, last ones very small. According to Knox (1959), length of holotype of *M. arctica* 8.5 mm, width with parapodia 1.4 mm, width with setae 3.3 mm, segments 22. Body colorless. Prostomium deeply bilobed, forming globular lobes; palps long, tapered, smooth (Figure 32*a*). Eyes lacking (pair of very large eyes with outline of lenses but no pigment, according to Knox, 1959, for *M. arctica*). Dorsal and ventral tentacular cirri subequal in length, shorter than palps, tapered, smooth (papillate, according to Knox, 1959). Without distinct facial tubercle. Paired scalelike lobes on segment 6, wide, thickened, soft, subrectangular (Figure 32*a*). Notosetae few in number (2–6), more slender than neurosetae, with rather widely spaced spinous rows and blunt rounded tips (Figure 32*e;* Uschakov, 1957, fig. 5c); notosetae with 2 rows of spines (according to Knox, 1959, pl. 1: figs. 3,4). Neurosetae numerous, transparent, slightly expanded and flattened distally, with bilateral series of widely spaced spines and blunt rounded tips (Figure 32*f;* Uschakov, 1957, fig. 5d; Knox, 1959,

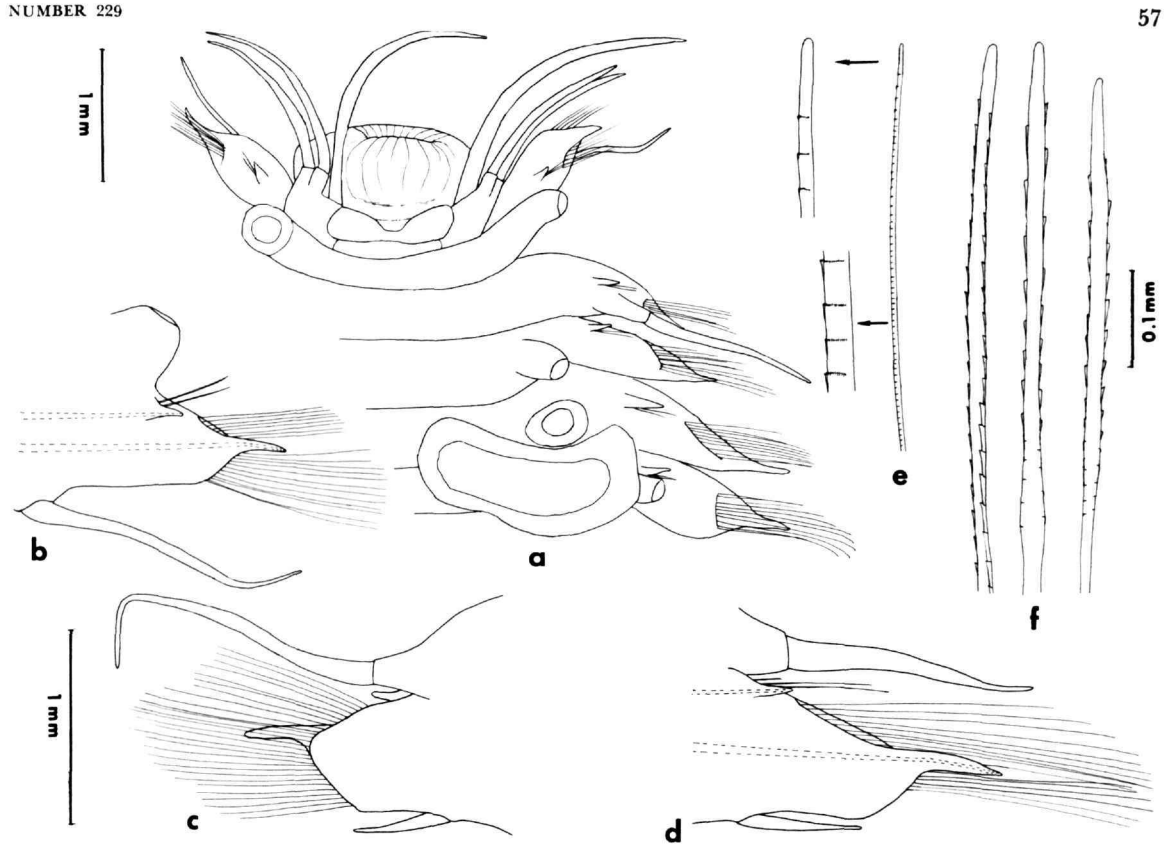

FIGURE 32.—*Polaruschakov polaris* (holotype, ZIASL 1009): *a*, dorsal view of prostomium and anterior 6 segments, pharynx partially extended; elytra and style of dorsal cirrus of segment 6 missing; left side only partially shown; *b*, elytragerous parapodium from segment 2, anterior view; internal acicula dotted; *c*, cirrigerous parapodium from segment 3, posterior view; *d*, middle cirrigerous parapodium, anterior view; internal acicula dotted; *e*, notoseta, with detail of small portions; *f*, three neurosetae.

pl. 1: figs. 5,6). Dorsal cirri with long, tapered styles extending beyond tips of neuropodia (Figure 32*a,c,d*). Dorsal tubercles on cirrigerous segments small, subconical. Nephridial papillae small, distinct after segment 10.

REMARKS.—The holotype of *Macellicephala arctica* Knox, collected in the Arctic near Fletcher's Ice Island, T-3, station 92A, 82°48'N, 93°W, in 730 to 0 meters, was not found in the Allan Hancock Foundation where, according to the original citation, it was to have been deposited (K. Fauchald and J. L. Mohr, in corr.). *Macellicephala arctica* seems to agree in all essential respects with *M. polaris*. According to Knox (1959:114), *M. arctica* differed from *M. polaris* in the presence of eyes, fewer segments, and more numerous notosetae. Knox's specimen was perhaps a juvenile, as it was smaller (8.5 mm in length), with fewer segments (22) than the holotype of *M. polaris* (16 mm in length, with 25 segments). The notosetae were only slightly more numerous in *M. arctica* (6) than in *M. polaris* (2–3). The so-called large, colorless eyes of *M. arctica* would correspond to the globular prostomial lobes described for *M. polaris*.

For *M. polaris*, Uschakov indicated that the median antenna was just not preserved. However, there is no indication on the holotype of a ceratophore for a median antenna, which is usually firmly attached and does not easily become detached or torn.

The specimen from the Mediterranean, identified

as *M. arctica* by Reyss (1968, 1971) was not described; it was examined and is referred herein to *P. reyssi* new species.

DISTRIBUTION.—Arctic, in 730 (or less?) to 2245 meters.

Polaruschakov reyssi, new species

FIGURE 33

Macellicephala arctica.—Reyss, 1968:323 [part]; 1971:244 [part].—Levenstein, 1972:172 [part; not Knox, 1959].
Macellicephala (Sinantenna) arctica.—Hartmann-Schröder, 1974:81 [part; not Knox, 1959].

MATERIAL EXAMINED.—Mediterranean, submarine canyon off Banyuls-sur-Mer, Rech Lacaze-Duthiers, 42°28'N, 03°28'E, 750 m, sta. EP 5, D. Reyss, collector, holotype (USNM 52225; exchange from COB).

DESCRIPTION.—Length of holotype 14 mm, width with parapodia 4 mm, width with setae 6 mm, segments 23, last one very small. Body and parapodia with patches of black pigment. Prostomium cordiform, with shallow anterior notch; palps long, tapering, smooth; without eyes (Figure 33*a*). All but right dorsal tentacular cirri missing or broken; style long, tapering, smooth, shorter than palps. Without distinct facial tubercle but with somewhat lobulated upper lip (Figure 33*a,b*). Paired scalelike lobes on segment 6, wide, thickened, soft, elongate-oval (Figure 33*a*). Notosetae moderate in number on anterior five setigerous segments, few or lacking more posteriorly (Figure 33*a,c,d*). Notosetae slender, tapering to capillary tips, with spinous rows (Figure 33*e*). Neurosetae slender, slightly stouter than notosetae, transparent, iridescent, flattened distally, spinous along lateral borders, with bare, slightly tapered, blunt tips (Figure 33*f*). Styles of dorsal cirri all missing, except for left parapodium of segment 3 (Figure 33*a*). Dorsal tubercles on cirrigerous segments inconspicuous. Nephridial papillae indistinct.

ETYMOLOGY.—The species is named for Dr. Daniel Reyss, who collected the holotype and presented it to the Smithsonian Institution.

DISTRIBUTION.—Mediterranean, in 750 meters.

BATHYMACELLINAE, new subfamily

TYPE-GENUS.—*Bathymacella,* new name for *Macella* Averincev, 1972, preoccupied.

Averincev (1972:111) placed his new genus *Macella* close to *Macellicephala* McIntosh, *Macellicephaloides* Uschakov, and *Macelloides* Uschakov. The distinguishing character that separated *Macella* from the other three genera was the complete absence of chitinous jaws on the pharynx. Hartmann-Schröder (1974:75, 81, 85) placed *Macella,* along with the other three genera, in the subfamily Macellicephalinae.

Based on a study of the paratype of the type-species of *Macella, M. uschakovi,* it was noted that lateral prostomial antennae were present, not absent, as indicated by Averincev in his original description. The ceratophores of the lateral antennae are small, rounded, and inserted ventrally to the large ceratophore of the median antenna; these structures were referred to as lateral prostomial horns by Averincev. The styles of the lateral antennae were missing but their places of attachment were observed. The presence of lateral antennae and their ventral insertion would place *Bathymacella* closer to the Harmothoinae, rather than the Macellicephalinae. The parapodia and setae of *Bathymacella,* however, differ from that found in both subfamilies.

The unique feature of the new subfamily is the structure of the pharynx, indicated by the complete absence of jaws. The opening of the pharynx is encircled with pleated folds, not distinct papillae, as generally found in the Polynoidae.

At present, the subfamily Bathymacellinae is represented by the type-species, *Bathymacella uschakovi* (Averincev), endemic in the deeper waters of the Antarctic.

Genus *Bathymacella*, new name

Macella Averincev, 1972, preoccupied by *Macella* Walker, 1858, in Lepidoptera, and by *Macella* Stål, 1875, in Orthoptera [see Neave, 1940:2].

TYPE-SPECIES.—*Macella uschakovi* Averincev, 1972. Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform, with short, thick parapodia; segments 18 (first achaetous). Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17; elytra round, transparent, without tubercles or papillae. Dorsal tubercles on cirrigerous segments large, nodular. Prostomium subtriangular, bilobed; median antenna with large ceratophore in anterior notch,

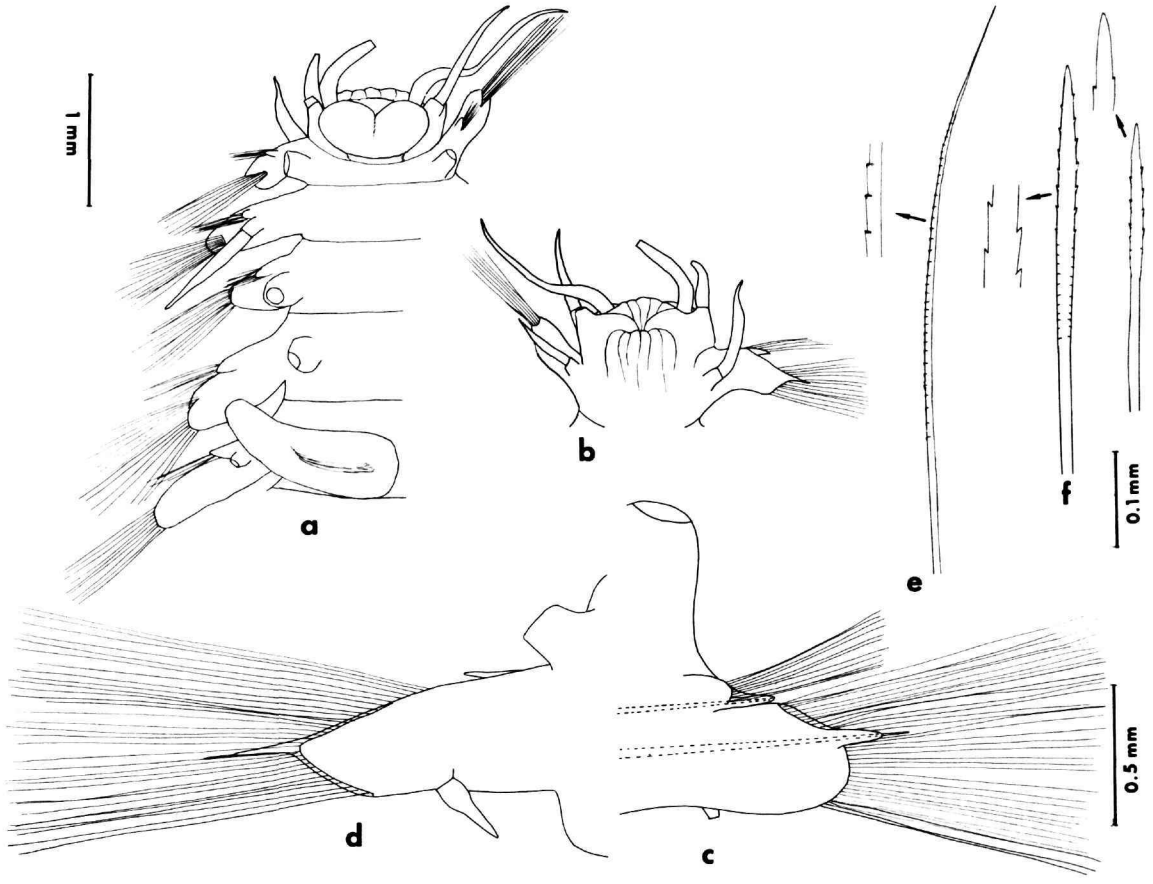

FIGURE 33.—*Polaruschakov reyssi*, new species (holotype, USNM 52225): *a*, dorsal view of prostomium and anterior 6 segments; right ventral tentacular cirrus and style of dorsal cirri of segment 6 missing; tips of left palp and left tentacular cirri broken; right side only partially shown; *b*, ventral view of anterior end; *c*, left elytragerous parapodium of segment 5, anterior view; style of ventral cirrus missing; internal acicula dotted; *d*, left cirrigerous parapodium of segment 14, posterior view; notosetae and style of dorsal cirrus missing; *e*, notoseta, with detail of small portion; *f*, two neurosetae, with detail of small portions.

with short style; lateral antennae with small ceratophores ventral to ceratophore of median antenna (styles missing); palps small, subconical, ventral to cirrophores of tentacular cirri; without eyes. First or tentacular segment fused to prostomium, not visible dorsally, with two pairs of tentacular cirri lateral to prostomium, with large cirrophores and short styles, without acicular lobes or setae; without facial tubercle. Segment 2 with ventral buccal cirri longer than following ventral cirri, attached to basal parts of parapodia, posterolateral to mouth. Parapodia biramous; notopodia low, rounded, with digitiform acicular lobes on lower side; neuropodia deeply cut dorsally and ventrally, forming diagonally truncate, longer presetal and shorter postsetal rounded lobes. Notosetae more slender than neurosetae, with spinous rows and blunt tips. Neurosetae more slender (upper ones) and stouter, with slightly hooked bare tips and spinous rows. Dorsal cirri with short cylindrical cirrophores and short, tapering styles; ventral cirri short. Pygidium rounded, posterior to last segment, with pair of anal cirri.

Pharynx without distinct papillae, without jaws.

The genus is monotypic, represented by the type-species: *Bathymacella uschakovi* (Averincev), as *Macella uschakovi* Averincev, 1972; Australian-Antarctic, north of Davis Sea, in 4540 meters.

Bathymacella uschakovi (Averincev), new combination

FIGURE 34

Macella uschakovi Averincev, 1972:112, pl. 7: figs. 1–7.—Hartmann-Schröder, 1974:81, 85.

MATERIAL EXAMINED.—Antarctic, Australian-Antarctic Trench, north of Davis Sea, 59°29'S, 97°06'E, 4540 m, muddy sand, gravel, stones, *Ob* sta. 285, 11 April 1957, paratype (ZIASL 15384).

DESCRIPTION.—Length of paratype 9 mm, width including setae 4 mm, segments 18. According to Averincev, length of holotype 15 mm, width including parapodia 4.5 mm, segments 18. Body flattened, fusiform, tapering anteriorly and posteriorly, with rather short, thick parapodia (Figure 34*a,b*).

Elytra and prominent elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17 (Figure 34*a,c,d,h*). Elytra moderately large, not covering dorsum, rounded, transparent, without papillae or tubercles (Figure 34*k;* Averincev, 1972, pl. 7: fig. 5). Dorsal tubercles on cirrigerous segments, corresponding in position to elytrophores of elytragerous segments, large, nodular (lacking on segment 18; Figure 34*a,c,g;* Averincev, 1972, pl. 7: figs. 2,4).

Prostomium subtriangular, bilobed; median antenna with large, short, cylindrical ceratophore in anterior notch, with short subulate style (missing on paratype); lateral antennae with small, rounded ceratophores ventral to large ceratophore of median antenna, with styles missing (ceratophores called lateral horns of prostomium by Averincev and Hartmann-Schröder); paired palps small, thick, subtriangular to subconical, ventral to cirrophores of tentacular cirri and not visible dorsally; without eyes (Figure 34*a,b;* Averincev, 1972, pl. 7: figs. 1,2). First or tentacular segment fused to prostomium, not visible dorsally; uniramous parapodia lateral to prostomium, without acicular lobes or setae; 2 pairs of tentacular cirri with short, thick cirrophores; styles short, subulate, similar to median antenna (missing on paratype); without distinct facial tubercle (Figure 34*a,b;* Averincev, 1972, pl. 7: figs. 1,2). Second or buccal segment with ventral buccal cirri attached by stout cirrophores on basal parts of neuropodia, posterolateral to mouth, with styles similar to tentacular cirri, longer than following ventral cirri (Figure 34*b,d*). Setae similar to following segments only more slender (Figure 34*e,f*).

Parapodia biramous (Figure 34*g,h;* Averincev, 1972, pl. 7: fig. 4). Notopodia low, rounded, with digitiform acicular lobes on lower side. Neuropodia deeply cut dorsally and ventrally, forming diagonally truncate, longer presetal and shorter postsetal rounded lobes. Notosetae few (1–5), more slender than neurosetae, short to longer, wider basally, tapering gradually to blunt bare tips, with faint spinous rows (Figure 34*e,i;* Averincev, 1972, pl. 7: fig. 6). Neurosetae moderate in number, upper ones more slender than middle and lower ones, with spinous rows and slightly hooked, bare, entire tips (Figure 34*f,j;* Averincev, 1972, pl. 7: fig. 7). Dorsal cirri with short, thick, cylindrical cirrophores posterior to notopodia; styles rather short, tapering, extending beyond tips of neurosetae (Figure 34*a,c,g*). Dorsal cirri of posterior segment with styles longer, jointed, with distal joint enlarged and flattened (Figure 34*c*). Ventral cirri with thick cirrophores and short subulate styles (Figure 34*b,g*).

Nephridial papillae beginning on segment 7, minute on 7, rather large on 8, extra large on 9 and 10, minute on 11 to 18 (long papillae on segments 9 to 12, according to Averincev). Pygidium rounded, posterior to segment 18, with dorsal anus and pair of long anal cirri (missing on paratype; Figure 34*c*). Pharynx (cut open) thick, massive; opening encircled by pleated folds (not definite papillae), without jaws (Averincev, 1972, pl. 7: fig. 3). Large specimen (holotype) with eggs in body cavity (according to Averincev).

REMARKS.—*B. uschakovi* has the general appearance of a commensal polynoid, with parapodia and elytra similar to those found in species of *Arctonoe*.

DISTRIBUTION.—Antarctic (Australian-Antarctic Trench), in 4540 meters.

Subfamily HARMOTHOINAE Horst, 1917, emended

TYPE-GENUS.—*Harmothoe* Kinberg.

Prostomium with 3 antennae; lateral antennae with distinct ceratophores, inserted ventral to ceratophore of median antenna. Parapodia biramous or

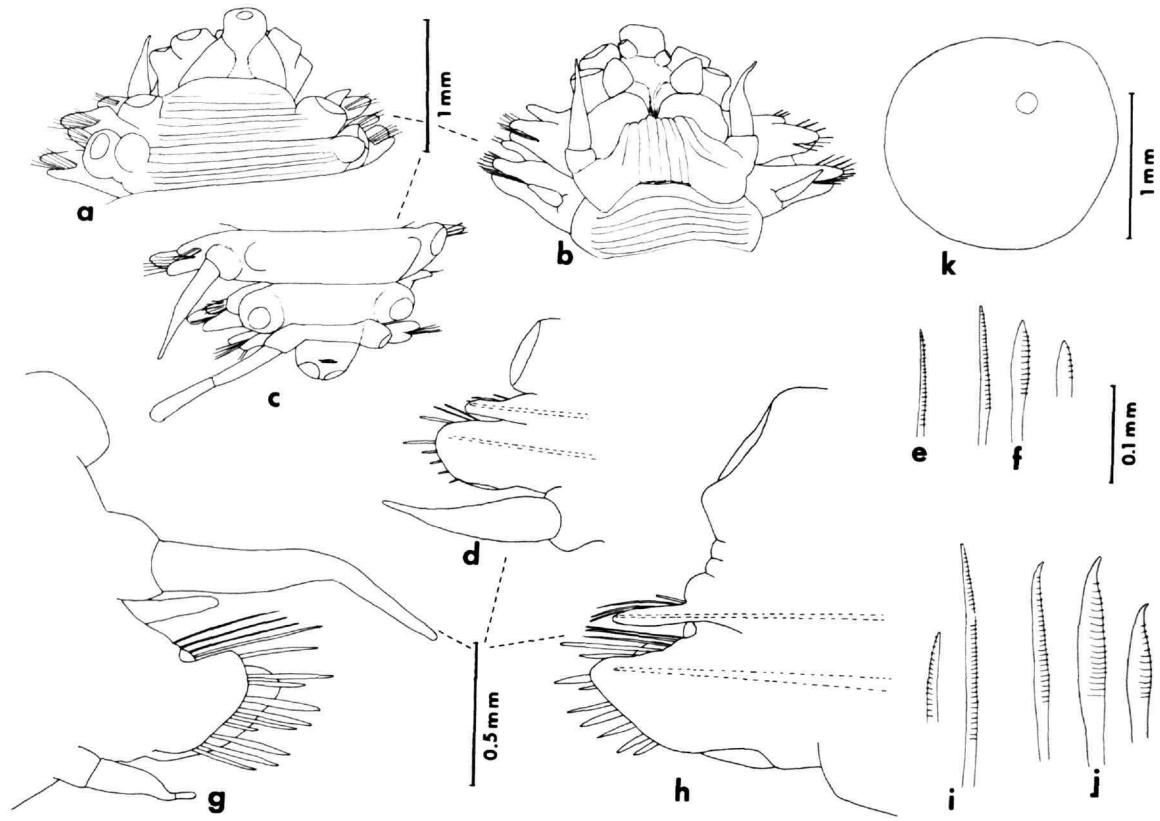

FIGURE 34.—*Bathymacella uschakovi* (paratype, ZIASL 15384): *a*, dorsal view of prostomium and anterior three segments; palps not visible; elytra, styles of antennae, tentacular and dorsal cirri missing; *b*, same, ventral view; *c*, dorsal view of pygidium and posterior three segments (16–18); elytra, styles of right dorsal and anal cirri missing; *d*, right elytragerous parapodium from segment 2, anterior view; internal acicula dotted; *e*, notoseta from same, *f*, upper, middle and lower neurosetae from same; *g*, right cirrigerous parapodium from segment 8, posterior view; *h*, right elytragerous parapodium from segment 9, anterior view; internal acicula dotted; *i*, shorter and longer notosetae from same; *j*, upper, middle and lower neurosetae from same; *k*, elytron.

subbiramous, both rami with elongate acicular processes.

The following genera, pertinent to this study, are included in Harmothoinae: *Austrolaenilla* Bergström, 1916, with one species and one synonym referred to briefly in this report (additional species not considered); *Bathylevensteina* new genus, with one species; *Gesiella* new genus, with one species.

Key to the Genera of Harmothoinae

1. Elytra 15 pairs, on segments 2, 4,5, 7, alternate segments to 23, 26, 29 and 32. Segments 35–48, first achaetous or with few setae. Prostomium with small or indistinct cephalic peaks; lateral antennae inserted ventrally. Neurosetae with long spinous regions and plumose tips ..... ***Austrolaenilla*** Bergström

   Elytra less than 10 pairs, on segments 2, 4,5, 7, and alternate segments. Segments less than 20, first achaetous. Neurosetae flattened, transparent, serrated along lateral borders, with tapered smooth tips (Figures 35*e*, 36*j*) 2

2. Elytra 9 pairs. Segments 18–19. Prostomium without distinct cephalic peaks; lateral antennae inserted lateroventral to ceratophore of median antenna (Figure 36*a,b*). Cirrophores of dorsal cirri with filamentous clavate sensory organs (begin on segment 8; Figure 26*d,e,h*) ... ***Gesiella,*** new genus

Elytra 6 pairs. Segments 12. Prostomium with prominent frontal horns or cephalic peaks; lateral antennae inserted medial to frontal horns and ventral to ceratophore of median antenna (Figure 35*a*). Cirrophores of dorsal cirri without clavate sensory organs (Figure 35*b*) ... ***Bathylevensteina,*** new genus

Bathylevensteina, new genus

TYPE-SPECIES.—*Macellicephala bicornis* Levenstein, 1962. Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform; segments 12 (first achaetous). Elytra and prominent elytrophores 6 pairs, on segments 2, 4,5, 7, 9, and 11. Prostomium bilobed, with prominent frontal horns; lateral antennae with cylindrical ceratophores medial to frontal horns; median antenna with large cylindrical ceratophore in middle of prostomium; paired palps; without eyes. First or tentacular segment fused to prostomium, visible dorsally; 2 pairs of tentacular cirri lateral to prostomium, without setae. Segment 2 with buccal cirri attached to basal parts of parapodia, lateral to mouth. Parapodia biramous, with notopodia shorter than neuropodia, both rami with elongate acicular processes. Notosetae stout, smooth, acicular. Neurosetae stouter than notosetae, flattened, transparent, with long spinous regions and bare tips. Dorsal cirri with long cylindrical cirrophores; ventral cirri short, attached near middle of neuropodia. Without distinct dorsal tubercles on cirrigerous segments. Nephridial papillae indistinct, none enlarged. Pygidium, with anus, wedged between 2 posterior segments, with pair of anal cirri. Pharynx with papillae (number?) and 2 pairs of jaws.

A single species is referred to *Bathylevensteina: B. bicornis* (Levenstein), as *Macellicephala bicornis* Levenstein, 1962; South Pacific, in Tonga Trench, in 9735–9874 meters.

ETYMOLOGY.—The genus is named for Dr. Raisa Levenstein, eminent Soviet worker on the Polychaeta, particularly those from deep and abyssal regions.

Bathylevensteina bicornis (Levenstein), new combination

FIGURE 35

Macellicephala bicornis Levenstein, 1962:1143, fig. 1: 1.—Reyss, 1971:250.

Macellicephala (Macellicephala) bicornis.—Hartmann-Schröder, 1974:76, 84.

MATERIAL EXAMINED.—South Pacific, Tonga Trench, 23°04'S, 174°45.5'W, 9735–9875 m, semifluid mud, *Vitiaz* sta. 3823, syntype (IOASM; poor condition).

DESCRIPTION.—Length of syntype examined 12 mm, width with parapodia 3 mm, segments 12. Body flattened, fusiform, translucent, with parapodia as long as body width. Elytra (all missing) and prominent elytrophores 6 pairs, on segments 2, 4,5, 7, 9 and 11 (Figure 35*a,c*). Dorsal tubercles on cirrigerous segments inconspicuous.

Prostomium bilobed, with subtriangular frontal horns and, more medially, lateral antennae with cylindrical ceratophores, with styles missing (Figure 35*a;* called bifurcate frontal horns by Levenstein, 1962, fig. 1: 1). Median antenna with large cylindrical ceratophore attached to middle of prostomium (style missing). Paired palps (missing; oval places of attachment ventral to frontal horns). Without eyes. Tentacular segment fused to prostomium, visible dorsally; uniramous parapodia lateral to prostomium, without setae; 2 pairs of tentacular cirri with distinct cirrophores; styles long, smooth, tapered (based on remaining right ventral tentacular cirrus; Figure 35*a*). Facial tubercle formed of 3 large conical lobes between prostomium and region of upper lip (Figure 35*a*). Ventral buccal cirri of segment 2 with large cirrophores on bases of neuropodia, lateral to mouth; styles missing.

Parapodia biramous (Figure 35*a–c*). Notopodia shorter than neuropodia, wider basally, with projecting acicular processes. Neuropodia large, subconical, with projecting presetal acicular processes. Notosetae (based on few non-emergent ones) stout, smooth, acicular (Figure 35*d*). Neurosetae numerous (according to Levenstein, but none visible on syntype examined), probably forming fan-shaped bundles. Neurosetae (based on few nonemergent ones) transparent, flattened, with long spinous regions and bare entire tips (Figure 35*e*). Dorsal cirri with long cylindrical cirrophores attached to basal parts

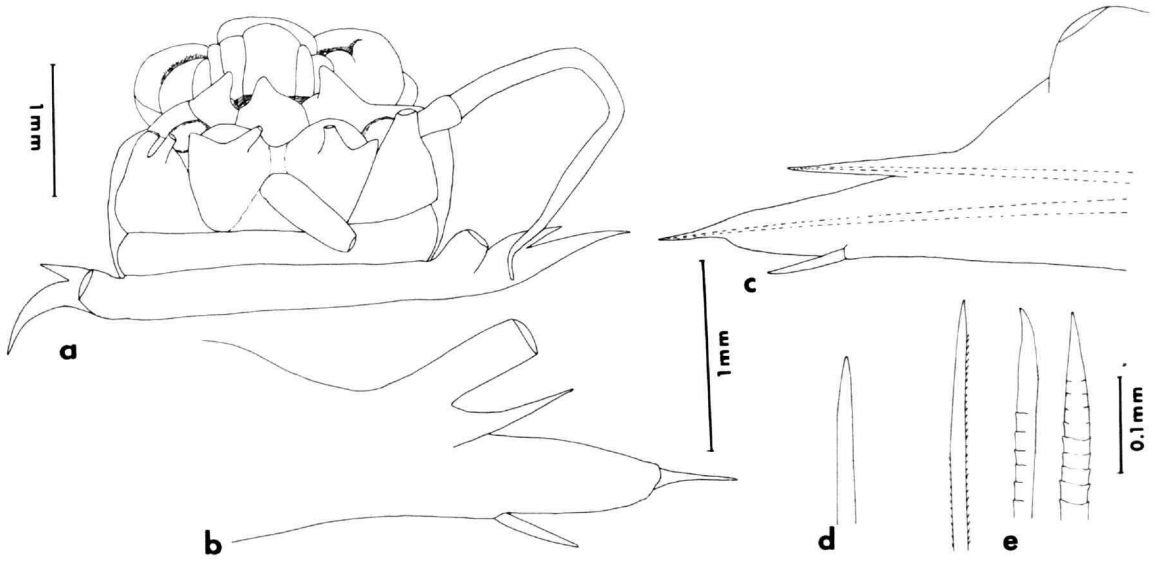

FIGURE 35.—*Bathylevensteina bicornis* (syntype, IOASM): *a*, dorsal view of prostomium and anterior two segments, pharynx partially extended; all appendages, except right ventral tentacular cirrus, and setae missing; *b*, right cirrigerous parapodium from segment 3, posterior view; style of dorsal cirrus and setae missing; *c*, right elytragerous parapodium from segment 11, anterior view; elytron and setae missing; internal acicula dotted; *d*, notoseta (nonemergent); *e*, tips of three neurosetae (nonemergent).

of notopodia; styles missing (Figure 35*b*). Ventral cirri attached to middle of neuropodia, short, tapering (Figure 35*b,c*).

Nephridial papillae not evident (poor condition). Pygidium, with dorsal anus, wedged between parapodia of posterior 2 segments, with pair of anal cirrophores (styles missing). Pharynx long, muscular, with large conical papillae (number?) and 2 pairs of jaws (according to Levenstein, but pharynx missing on syntype examined).

DISTRIBUTION.—South Pacific (Tonga Trench), in 9735–9875 meters.

Gesiella, new genus

TYPE-SPECIES.—*Macellicephala jameensis* Hartmann-Schröder, 1974. Gender: feminine.

DIAGNOSIS.—Body flattened, fusiform; segments 18–19 (first achaetous). Elytra and small elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17. Prostomium bilobed, without distinct cephalic peaks; median antenna with large cylindrical ceratophore in anterior notch; style long, filiform; lateral antennae with distinct ceratophores, inserted lateroventral to ceratophore of median antenna, with minute styles; pair palps long, tapered; without eyes. First or tentacular segment fused to prostomium, not visible dorsally; 2 pairs of tentacular cirri lateral to prostomium, with distinct cirrophores and long styles; without acicular lobes or setae; without facial tubercle. Segment 2 with buccal cirri attached to basal parts of parapodia, posterolateral to ventral mouth, longer than following ventral cirri. Parapodia biramous, with short notopodia and long neuropodia, both rami with elongate acicular processes. Notosetae stouter than neurosetae basally, with series of prominent spinous pockets and blunt tips. Neurosetae numerous, delicate, transparent, flattened, serrated along lateral borders, with tapered tips. Dorsal cirri with cylindrical cirrophores and long styles; ventral cirri short. Dorsal cirrophores, beginning on segment 8, with filamentous, clavate sensory organs. Without distinct nephridial papillae. Pygidium short, rounded, with dorsal anus and pair of long anal cirri. Pharynx with 9 pairs of papillae and 2 pairs of jaws.

ETYMOLOGY.—The genus is named for Dr. Gesa Hartmann-Schröder, eminent worker on the Polychaeta, who first described the unique filamentous sensory organs characteristic of the new genus.

A single species is referred to *Gesiella: G. jameensis* (Hartmann-Schröder), as *Macellicephala jameensis* Hartmann-Schröder, 1974. Canary Islands, in Northeastern Atlantic, in lava tunnels.

Gesiella jameensis (Hartmann-Schröder), new combination

FIGURE 36

Macellicephala (Macellicephala) jameensis Hartmann-Schröder, 1974:76, figs. 1–8.

MATERIAL EXAMINED.—Northeastern Atlantic, Lanzarote, Canary Islands: Jameos del Agua, in lava tunnel, May 1973, Wilckens and Parzefall, collectors, 2 specimens (ZMH 13533). Jameos del Agua, in lava tunnel, November 1973, Wilckens, collector, 2 paratypes (ZMH 13532).

DESCRIPTION.—Length of two paratypes (ZMH 13532) 9–10 mm, width with parapodia 4–5 mm, width with setae 6–7 mm, segments 19. Length of two additional specimens (ZMH 13533) 6–8 mm, width with parapodia 3 mm, width with setae 4–5 mm, segments 18. Body greatly flattened, fusiform, tapered gradually anteriorly and posteriorly, with parapodia about as long as body width (Hartmann-Schröder, 1974, fig. 1). Body colorless to tannish, transparent, with long glassy setae.

Elytra and small rounded elytrophores 9 pairs, on segments 2, 4,5, 7, 9, 11, 13, 15 and 17, with dorsal cirri on segment 18; segment 19, if present, with only remnants of dorsal cirrophores (Figure 36*e*). Elytra large, oval, transparent, smooth, without tubercles or papillae, slightly notched on lateral sides (Hartmann-Schröder, 1974, fig. 4). Without dorsal tubercles on cirrigerous segments.

Prostomium oval, bilobed, wider than long, without distinct cephalic peaks (Figure 36*a–c;* Hartmann-Schröder, 1974, fig. 2). Median antenna with large cylindrical ceratophore in anterior notch of prostomium; style long, slender, tapering. Small lateral antennae lateroventral to ceratophore of median antenna, in form of short, spherical bases or ceratophores and minute terminal styles, directed medially and ventrally (Figure 36*b*). Paired palps slightly thicker and shorter than median antenna. Without eyes. First or tentacular segment fused to prostomium, not visible dorsally; uniramous parapodia lateral to prostomium, without acicular lobes and setae; 2 pairs of tentacular cirri with cylindrical cirrophores and long styles, dorsal pair similar in length to median antenna, ventral pair slightly shorter. Without facial tubercle. Ventral buccal cirri of segment 2 with large cirrophores attached basally on neuropodia, posterolateral to mouth; styles similar to, but shorter than, tentacular cirri, much longer than following ventral cirri (Figure 36*c,f*); neurosetae similar to those of following segments only more slender.

Parapodia biramous, with notopodia much shorter than neuropodia (Figure 36*a,d–h;* Hartmann-Schröder, 1974, figs. 5,6). Notopodia small, subconical, with projecting acicular processes. Neuropodia long, with projecting presetal acicular processes, truncate below and diagonally truncate above acicular processes. Notosetae moderate in number, stouter than neurosetae basally, with prominent spinous pockets and blunt tapered tips (Figure 36*i*). Neurosetae numerous, forming brushlike bundles, long, delicate, flattened, finely toothed along lateral borders, with tapered bare tips (Figure 36*j*). Dorsal cirri with long cylindrical cirrophores attached posterodorsal to notopodia, with styles long, filiform—some up to half length of body (Figure 36*d,e,h;* Hartmann-Schröder, 1974, fig. 1). Accessory filamentous sensory organs attached subdistally on dorsal cirrophores, beginning on segment 8, consisting of long delicate filaments and ciliated distal bulbs (Figure 36*d,e,h;* Hartmann-Schröder, 1974, figs. 1,5–7). Ventral cirri short, tapered. Body with dorsolateral ciliated tufts forming U-shaped patterns, medial to elytrophores and dorsal cirrophores (Figure 36*d*).

Nephridial papillae indistinct. Pygidium short, rounded, with dorsal anus and pair of anal cirri (styles missing; Figure 36*e*). Pharynx large, muscular, extending more than half length of body, with 9 pairs of papillae and 2 pairs of jaws.

REMARKS.—The accessory filamentous sensory organs on the cirrophores of the dorsal cirri are unique in the Polynoidae. They may be broken off on some of the cirrigerous segments and may appear in various stages of regeneration.

DISTRIBUTION.—North Atlantic (Canary Islands), in lava tunnels.

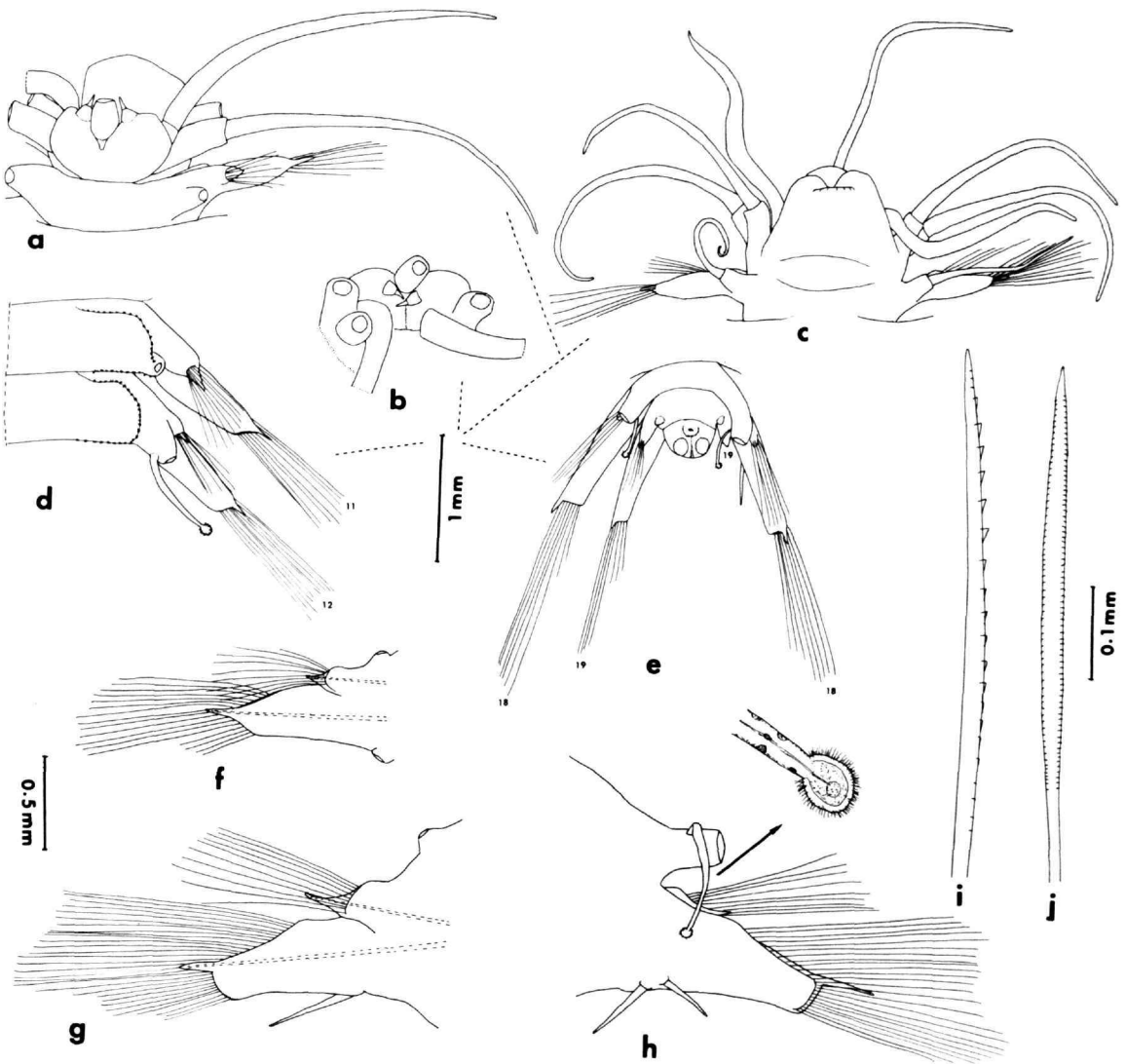

FIGURE 36.—*Gesiella jameensis* (paratypes, ZMH 13532): *a*, dorsal view of prostomium and anterior two segments, pharynx partially extended; styles of median antenna, right ventral tentacular and left dorsal and ventral tentacular cirri missing; left side incompletely shown; *b*, ventral view of prostomium and tentacular segment; styles of median antenna and tentacular cirri missing; only bases of palps shown; *c*, ventral view of anterior end of another specimen (ZMH 13533); *d*, right half of segments 11 and 12, dorsal view; elytron (11) and style of dorsal cirrus (12) missing; *e*, dorsal view of pygidium and posterior two segments (18,19); right neuropodium of segment 19 broken off; styles of dorsal and anal cirri missing; *f*, right parapodium from segment 2, anterior view; elytron and style of ventral buccal cirrus missing; internal acicula dotted; *g*, right elytragerous parapodium from segment 7, anterior view; elytron missing; internal acicula dotted; *h*, right cirrigerous parapodium from segment 8, posterior view, with detail of clavate sensory organ; style of dorsal cirrus missing, abnormal double ventral cirri; *i*, notoseta; *j*, neuroseta.

Genus *Austrolaenilla* Bergström, 1916

Austrolaenilla hastulifera (Fauvel, 1936)

Antinoe hastulifera (Pruvot, MS) Fauvel, 1936:10, pl. 1: figs. 1–6.—Uschakov, 1962:171.
Austrolaenilla hastulifera.—Hartman, 1967:18 [list].
Macellicephala eltanina Hartman, 1967:34, pl. 9: figs. A–F.

MATERIAL EXAMINED.—Antarctic, off South Sandwich Islands, in 2553–2575 m, *Eltanin* sta. 610, holotype of *M. eltanina* (AHF).

REMARKS.—Based on the original description, *M. eltanina* was excluded from *Macellicephala* by Uschakov (1971:37) and Reyss (1971:250). The species was indicated as being close to *Harmothoe* by Hartmann-Schröder (1974:81). Based on a study of the holotype, it is referred herein to *Austrolaenilla hastulifera*. This group will be dealt with in a subsequent report.

Doubtful Harmothoinae

Herdmanella gracilis Ehlers, 1908

Herdmanella gracilis Ehlers, 1908:44, pl. 5: figs. 1–4.

REMARKS.—The species was described from some small specimens collected at *Valdivia* stations 236 and 239 in the Indian Ocean off East Africa, in 1500–2000 meters. No types are known to exist, at least they are not present in the Museums in Berlin or Hamburg (G. Hartwich and G. Hartmann-Schröder, in correspondence). The specimens described and figured by Ehlers appear to be juveniles of a species related to *Harmothoe*, as was suggested also by Hartmann-Schröder (1974:81). *H. gracilis* is considered to be a doubtful species belonging to the Harmothoinae.

Macellicephala paucidentata Eliason, 1962

Macellicephala paucidentata Eliason, 1962:214, fig. 2a–e.
Macellicephala (Sinantenna) paucidentata.—Hartmann-Schröder, 1974:80, 84.

MATERIAL EXAMINED.—Skagerrak, 58°02.5'N, 09°29.5'E, 478 m, sta. 12, 6 June 1933, holotype (ZIUU).

REMARKS.—The holotype is a small (3 mm in length), somewhat damaged specimen of 21 segments. Due to the defective anterior end, I am unable to add anything of note to the original description or to decide on its generic placement, except to indicate that it does not agree with the generic characters of *Macellicephala*. Although it proved difficult to see details of the prostomium, it did appear to have a ceratophore for a median antenna in the anterior notch and ceratophores for lateral antennae, inserted ventrally. It is considered to be a doubtful species of Harmothoinae.

Macellicephala nationalis sensu Hartman, 1967

Macellicephala nationalis.—Hartman, 1967:35, pl. 10A–F.

REMARKS.—The four specimens, in various stages of development, from *Eltanin* stations 315 and 340, south of South America, in 567–568 and 3770–3806 meters, attributed by Hartman to Ehlers (1913), as a new combination, do not agree with the generic characters of *Macellicephala*, as pointed out previously by Uschakov (1971:37) and Reyss (1971:250). Hartmann-Schröder (1974:81) considered Hartman's specimens to be related to *Harmothoe*. The specific name and authors are also confused, the former having been used for some larval forms as "*Chaetosphaera nationalis*," first by Haecker (1898:10) and later by Ehlers (1913:587). Hartman's specimens are to be considered doubtful members of Harmothoinae.

Doubtful Polynoidae

Genus *Herdmanella* Darboux, 1900

TYPE-SPECIES.—*Polynoe* (?) *ascidioides* McIntosh, 1885, by monotypy and original designation. Gender: feminine.

REMARKS.—Three species have been referred to *Herdmanella: H. ascidioides* (McIntosh, 1885); *H. gracilis* Ehlers, 1908; and *H. nigra* Hartman, 1967. In her catalog, Hartman (1959:79) placed the genus under Harmothoinae. Hartmann-Schröder (1974:76, 81) considered *Herdmanella* to be a synonym of *Macellicephala*, in Macellicephalinae. As indicated below, the type-species of *Herdmanella, H. ascidioides*, is considered to be indeterminable, thus making the genus and subfamily questionable. As indicated above, Ehlers' species, *H. gracilis*, is considered to be a doubtful species of Harmothoinae. Hartman's species, *H. nigra*, is re

ferred herein to *Bathyeliasona,* in Macellicephalinae (see above).

Herdmanella ascidioides (McIntosh, 1885)

Polynoe (?) *ascidioides* McIntosh, 1885:109, pl. 32A: figs. 3–5.
Herdmanella ascidioides.—Darboux, 1900:107.—Hartman, 1959:79, 98.
Macellicephala (Macellicephala) ascidioides.—Hartmann-Schröder, 1974:76, 81, 84.

MATERIAL EXAMINED.—South of Australia, 42°42′S, 134°10′E, 4755 m, *Challenger* sta. 160, 13 March 1874, holotype (BMNH 1885: 12: 1: 92).

REMARKS.—The species was described from a single injured specimen, collected from inside the branchial chamber of an ascidian. The description and figures are deficient in a number of respects. The existing holotype consists of a middle fragment of 11 segments, precluding an examination of the anterior and posterior ends which would be necessary to clarify some of the doubtful features. The body is translucent, suggesting a pelagic existence. Uschakov (1971:37) indicated that McIntosh's species possibly belonged to *Macellicephala.* This suggestion was followed by Hartmann-Schröder (1974: 76, 81), as indicated in the above synonymy, although she added that McIntosh's species is still incompletely known. For the present, McIntosh's species and Darboux's genus are to be considered doubtful Polynoidae.

Genus *Sinantenna* Hartmann-Schröder, 1974, emended

TYPE-SPECIES.—*Macellicephala (Sinantenna) macrophthalma* Fauvel, 1913, by original designation. Gender: female.

REMARKS.—The type and only known specimen of *M. macrophthalma* was collected in the Gulf of Gascony in 4780 meters. It is deposited in the museum in Monaco (MOM), according to Belloc (1953:3), but was not available for study. Fauvel (1913) questionably referred the species to *Macellicephala* and suggested that it might belong to a new genus though his material did not allow a determination of certain important features.

Knox (1959:106) noted a close resemblance of *M. macrophthalma* to *M. arctica* Knox, collected off Fletcher's Ice Island in 0 to 730 meters, and stated that their common characters were perhaps of generic importance. Uschakov (1971:39, in key) and Reyss (1971:250) placed the above two species, along with *M. paucidentata* Eliason, collected in the Skagerrak in 478 meters, in a similar group of *Macellicephala* species, based on the absence of a median antenna.

Hartmann-Schröder (1974:76) proposed *Sinantenna* as a subgenus of *Macellicephala* for the above three species, selecting *M. macrophthalma* as the type-species. Knox's species is herein referred to *Polaruschakov polaris,* in Polaruschakovinae. As indicated above, Eliason's species is considered to be a doubtful member of Harmothoinae. *Sinantenna* is retained as a doubtful genus for Fauvel's species.

Sinantenna macrophthalma (Fauvel), new combination

Macellicephala (?) *macrophthalma* Fauvel, 1913:9, fig. 4a–c; 1914b:45, pl. 2: fig. 9, pl. 3: figs. 1–3; 1923:45, fig. 15a–c.
Macellicephala (Sinantenna) macrophthalma.—Hartmann-Schröder, 1974:80, 84.

REMARKS.—The character of the prostomium is somewhat doubtful. According to Fauvel, the slightly bilobed prostomium was characterized by a pair of enormous pigmented eyes with large lenses; the right palp was long, thin and smooth; there was no sign of lateral antennae; the median antenna, in the middle of the prostomium, was torn at the base (Fauvel, 1914b, pl. 3: fig. 1). *S. macrophthalma* has been generally considered to lack the median antenna, i.e., by Knox (1959:106), Uschakov (1971:39, in key), Reyss (1971:250), and Hartmann-Schröder (1974:80). Fauvel indicated, however, that the median antenna was torn on the defective type, not absent; his figure shows the presence of a ceratophore for the median antenna in the middle of the prostomium, even though incomplete.

Fauvel reported the types as having 29 segments, with 13 pairs of elytrophores on segments 2, 4,5, 7, alternate segments to 23, 26, and with dorsal cirri on the posterior 3 segments; parapodia biramous, with short notopodia and long neuropodia, both rami having elongate acicular processes (Fauvel, 1914b, pl. 3: figs. 2,3); without notosetae (perhaps broken off); neurosetae numerous, delicate, transparent, flattened, finely denticled along the lateral borders (Fauvel, 1914b, pl. 3: fig. 9). Fauvel's species must be considered doubtful.

Indeterminable Polynoidae

Macellicephala grimaldii Fauvel, 1913

Macellicephala grimaldii Fauvel, 1913:8, fig. 3a–d; 1914b: 43, pl. 2: figs. 10–16.

REMARKS.—The species was based on a single, small, incomplete specimen of 20+ segments, thus, not agreeing with *Macellicephala*. It was collected off the Azores in 204 meters. According to Belloc (1953:3), the holotype is deposited in the museum at Monaco (MOM).

Macellicephala (?) *incerta* Fauvel, 1915

Macellicephala (?) *incerta* Fauvel, 1915:1, fig. 1*a–d;* 1916:43, pl. 2: figs. 1,2, pl. 4: figs. 15–17.

REMARKS.—As indicated by Fauvel, the species was based on a single anterior fragment of 17 segments, in poor condition, and was questionably referred to *Macellicephala*. It was collected off the Azores in 0–3000 meters and is deposited in the Museum at Monaco, according to Belloc (1953:3). The parapodia and setae were described but the full number of segments and the condition of the prostomium are unknown. The species was excluded from the keys to the species of *Macellicephala* by Knox (1959:106) and Uschakov (1971:36). It seems best to consider it an indeterminable Polynoidae.

Family POLYODONTIDAE (=ACOETIDAE)

Genus *Euarche* Ehlers, 1887

Euarche maculosa (Treadwell), new combination

Macellicephala maculosa Treadwell, 1931:313, fig. 1a–g.
Eupanthalis maculosa.—Hartman, 1938:125.

MATERIAL EXAMINED.—Philippine Islands, Marinduque Island, off Tayabas Light, 13°48'N, 121°43'E, 194 m, *Albatross* sta. D5369, 24 February 1909, holotype (USNM 19543).

REMARKS.—Based on an examination of the holotype, Hartman (1938) correctly referred the species to the aphroditoid family Polyodontidae. Treadwell's species is referred herein to *Euarche* Ehlers, rather than to *Eupanthalis* McIntosh, as given by Hartman. I hope to cover this group in a subsequent report.

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