

On the Amagini (Annelida: Ampharetidae) of Moscow and St.-Petersburg collections with description of three new species

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ABSTRACT: Taxonomy of eight ampharetids of the tribe Amagini is discussed on the basis of huge museum collections of Moscow and St.-Petersburg (more than 2000 specimens from about 250 samples). It is shown that species of monotypic genera *Neopaiwa*, *Paiwa*, and *Weddelia* are junior synonyms of *Samythopsis grubei*. *Mexamage* and *Paramage* are junior synonyms of *Amage*. Thus, the tribe includes genera *Amage*, *Grubianella*, and *Samythopsis*. *Amage levensteinae* sp.n., *Amage clemi* sp.n., and *Amage ceshici* sp.n. from the abyssal depths are described. *Amage asiatica*, *Grubianella klugei* and *Samythopsis grubei* are re-described based on the type material.

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KEY WORDS: *Amage*, *Amagopsis*, *Grubianella*, *Mexamage*, *Neopaiwa*, *Paiwa*, *Paramage*, *Samythopsis*, *Weddelia*.

Об Amagini (Annelida: Ampharetidae) в коллекциях Москвы и Санкт-Петербурга с описанием трёх новых видов

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РЕЗЮМЕ: Обсуждена таксономия восьми родов амфаретид трибы Amagini на основе обширных коллекция Москвы и Санкт-Петербурга (более 2000 экземпляров из примерно 250 проб). Показано, что виды монотипичных родов *Neopaiwa*, *Paiwa* и *Weddelia* — младшие синонимы *Samythopsis grubei*. *Mexamage* и *Paramage* — младшие синонимы *Amage*. Таким образом, триба включает три рода: *Amage*, *Grubianella* и *Samythopsis*. Описаны *Amage levensteinae* sp.n., *Amage clemi* sp.n. и *Amage ceshici* sp.n. из абиссали. Переописаны *Amage asiatica*, *Grubianella klugei* и *Samythopsis grubei* на основе типового материала.

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KEY WORDS: *Amage*, *Amagopsis*, *Grubianella*, *Mexamage*, *Neopaiwa*, *Paiwa*, *Paramage*, *Samythopsis*, *Weddelia*.

Introduction

The family Ampharetidae Malmgren, 1866 is a unique and distinct group of marine annelids that inhabits the World Ocean from tropics to Arctic and Antarctic, from the intertidal to 8292 m deep (personal observation). They are deposit-feeders and can achieve a number of several thousand specimens per square meter. Their usual sizes are 1–3 cm, up to a maximum of 10 cm. Ampharetids is one of the few families of Polythaeta including real freshwater species that can not only live in fresh water, but also pass a full life cycle there and achieve mass development.

At the same time, the taxonomy of Ampharetidae (including Melinninae) is far from stable condition. According to WORMs, there are 99 nominal genera in the family, of which 62 are accepted as valid (Read, Fauchald, 2022a, b). In my opinion, based on morphology, however, no more than 30 are valid (Jirkov, 2011, 2018). Within family there are several more or less distinct group, Holthe (1986) erected for them eight tribes. One of them, Amagini, includes genera having middle lobe of prostomium anteriorly incised or with horns and without longitudinal ridges. Holthe included in Amagini eight genera: *Amage* Malmgren, 1866; *Amagopsis* Pergament et Chlebovitch in Chlebovitch, 1964; *Grubianella* McIntosh, 1885; *Mexamage* Fauchald, 1972; *Paramage* Caullery, 1944; *Samythopsis* McIntosh, 1885, *Emaga* Hartman, 1978 and *Egamella* Fauchald, 1972. The aim of the paper is based on the review of more than 200 samples and more than 2000 specimens deposited in the collections of four museums in Moscow and St.-Petersburg to clarify the taxonomic status and ranges of these genera, as well as *Neopaiwa* Hartman, Fauchald, 1971; *Paiwa* Chamberlin, 1919 and *Weddelia* Hartman, 1967. *Emaga* and *Egamella* do not include in this paper because they too different from other Ampharetidae, so more data are needed to clarify their taxonomic status. Preferably re-description of the type material, which is currently not possible.

Materials and methods

The study has been based mainly on collections of Zoological Institute, P.P. Shirshov Institute of

Oceanology, Department of General Ecology and Hydrobiology of M.V. Lomonosov Moscow State University and Zoological Museum of M.V. Lomonosov Moscow State University. Additionally, type of *Samythopsis grubei* has been examined in Natural History Museum. Previously published data (Jirkov, 2001, 2011, 2018; Schüller, Jirkov, 2013; Schiaparelli, Jirkov, 2021) were also taken into account. Examined specimens are listed in the species descriptions (the number of specimens is given in brackets) and in Supplement, the ranges of species with a large number of finds are also pictured in maps.

Photographs were produced at the P.P. Shirshov Institute of Oceanology, the Russian Academy of Science, Moscow, using a Leica DFC490 camera mounted on either a Leica M165C stereomicroscope, or a Leica DMI 4000B compound microscope; at the Department of Invertebrate Zoology, Biological Faculty, Moscow State University, using a Leica DFC425C camera mounted on a Leica DMI 5000B compound microscope; at the MNCN, through a Leica DFC550 camera mounted on a Leica MZ16A stereomicroscope. To increase contrast, specimens were stained with methylene blue (water solution). All uncini in each block are from single neuropodia. For scanning electron microscopy (SEM), specimens stored in 70–75% ethanol were placed in 100% ethanol, then in 100% acetone and then critical point dried using CO₂ as a transition fluid. Once dry, the specimens were sputter coated with gold. SEM micrographs were taken with a Camscan S-2 Cambridge instrument Scanning Electron Microscope. The SEM photographs were taken at the M.V. Lomonosov User Facilities Center, Moscow State University.

Abbreviations and terminology

ORGANISATIONS.

NHM — Natural History Museum, former British Museum (Natural History).

DGEH — Department of General Ecology and Hydrobiology, Moscow Lomonosov State University, Russia.

IO RAN — P.P. Shirshov Oceanological Institute of the Russian Academy of Science, Moscow, Russia.

ZIN — Zoological Institute of the Russian Academy of Science, St-Petersburg, Russia.

ZMUM — Zoological Museum of M.V. Lomonosov Moscow State University

TAXONOMIC.

AU — abdominal unciniger; C — chaetiger; S — segment; TC — thoracic chaetiger; TU — thoracic unciniger. The number following the abbreviation refers to the number of the segment (e.g. AU1 means the 1st abdominal unciniger).

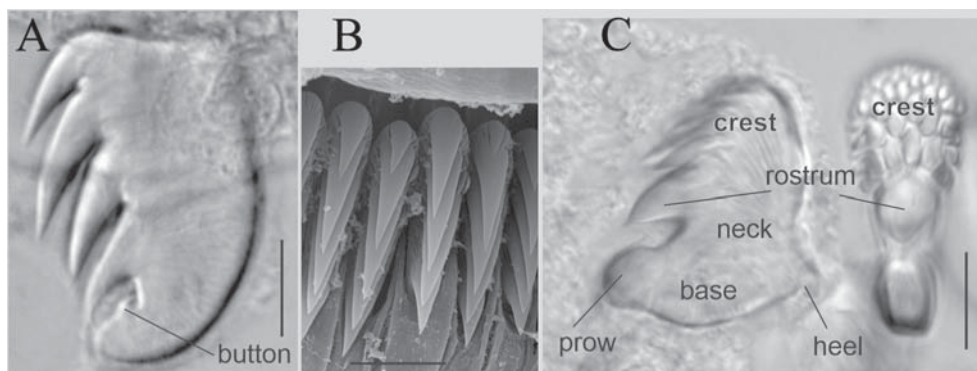


Fig. 1. Uncini and terminology of uncinal parts used in this paper. A, B — *Amage asiatica* TUI Odissey st.34.1A; C — *Samythopsis gribei* AU1 Vitjaz st.5624. Scale bars: 10 μ m.
 Рис. 1. Неврохеты и термины, используемые для их описания в этой статье. A, B — *Amage asiatica* TUI Одиссей 34.1A; C — *Samythopsis gribei* AU1 Витязь 5624. Масштаб: 10 μ m.

The nomenclature of uncinal parts is shown in Fig. 1.

Base — plate to which other parts are attached.

Button — short projection of the upper part of the base below the rostrum.

Crest — a series of usually transverse rows of teeth above the rostrum.

Heel — the posterior part of the base at the footing of the neck, forming an angle to which back tendon is attached.

Neck — part connecting teeth (rostrum+ crest) and the base.

Prow — anterior part of the uncinal base.

Avicular uncini — uncini with a large rostrum (also called a beak or fang) and one or more rows of teeth above, progressively decreasing in size and increasing in number (Fig. 1C).

Pectinate uncini — uncini with series of equal teeth arranged like a comb (Fig. 1A, B).

Paleae — notochaetae of S2. Some authors (for example, McIntosh, 1885; Chamberlin, 1919; Hartman, 1967; Hartman, Fauchald, 1971) accept as paleae only enlarged chaetae. However, there is a cline in development of S2 notochaetae (for illustration see Jirkov, 2001, p.440) and the meaning “enlarged” is rather subjective and is the source of confusion. See also Jirkov (2011).

Rostrum — biggest tooth, closest to prow.

Results

Family Ampharetidae Malmgren, 1866

Amagini Holthe, 1986 emended

DIAGNOSIS. Middle lobe of prostomium anteriorly incised or with horns, without longitudinal

ridges. Nephridial papillae mid-dorsally posterior to branchiae absent. Modified noto- and neuropodia absent. Neuropodia of two types: tori and pinnuli, the change is abrupt. Uncini similar throughout the body, without a sharp change when changing the type of neuropodial type.

REMARKS. 1. Holthe (1986) original diagnosis: “Tentacles smooth. Prostomium usually with a pair of more or less developed frontal ridges. Paleae present or absent. Abdominal notopodial rudiments usually present. As shown below tentacles are not always smooth. Frontal ridges are not really ridges like those of *Amphicteis*, it is more correct to name them horns. According to ICZN diagnosis is “A statement in words that purports to give those characters which differentiate the taxon from other taxa with which it is likely to be confused”. Characteristics such as “present or absent” and “usually present” should not be used in diagnosis because they cannot differentiate the taxon from other taxa. Thus, I have emended the original diagnosis.

2. These characters usually are included in generic diagnosis, but due variation within genera can't be part of the diagnosis. Tentacles smooth. Paleae absent, if present, poorly developed. Abdominal notopodial rudiments usually present.

3. With minor variations in all species of the tribe, the branchiae are separated by a wide gap; in each group, the places of attachment of branchostyles are located almost segmentally and the tribe as a whole is characterized by a more pronounced connection of the branchiae with the corresponding segment than in other Ampharetidae, although, the evidence of this connection varies from species to species and from specimen to specimen. Therefore, establishment of the genus *Mexamage* for the species with a well-developed connection of segments and branchiae, as Fauchald (1972) and Williams

Table 1. List of *Amage s. lato* species with species characters.
Таблица 1. Список видов *Amage s. lato* и их таксономические признаки.

Species	TU	AU	pairs of branchiae
<i>Amage madurensis</i> (Caullery, 1944)	9	11	4
<i>Amage corrugata</i> (Fauchald, 1972)	11	?	4
** <i>Amage clemi</i> Jirkov sp.n.	11	7	4
* <i>Amage auricula</i> Malmgren, 1866	11	8	4
<i>Amage sibogae</i> Caullery, 1944	11	9	4
<i>Amage gallasii</i> Marion, 1875	11	9	3?
** <i>Amage micropaleata</i> Schüller et Jirkov, 2013	11	9	4
<i>Amage scotica</i> Clark, 1952	11	9	4
<i>Amage ehlersi</i> Reuscher, Fiege et Imajima, 2015	11	10	4
<i>Amage sculpta</i> Ehlers, 1908	11	9–11	4
* <i>Amage scutata</i> Moore, 1923	11	10	3
<i>Amage tumida</i> Ehlers, 1887	11	10	4
<i>Amage arieticornuta</i> Moore, 1923	11	11	4
<i>Amage longibranchiata</i> Hartman, 1960	11	11	4
** <i>Amage ceshici</i> sp.n.	11	11–12	4
** <i>Amage asiatica</i> Uschakov, 1955	11	12 (11–13)	4
<i>Amage perfecta</i> Moore, 1923	11	12	4
* <i>Amage anops</i> (Johnson, 1901)	11	13–15	4
<i>Amage tasmanensis</i> (Holthe, 2000)	12	11	4
<i>Amage delus</i> (Chamberlin, 1919)	12	12	4
<i>Amage longitorus</i> Reuscher, Fiege et Imajima, 2015	12	13	3
<i>Amage benhami</i> Reuscher, Fiege et Wehe, 2009	12	15	4
** <i>Amage giacomobovei</i> Schiaparelli et Jirkov, 2021	12	16	4
** <i>Amage levensteinae</i> sp.n.	12	15–21	4
<i>Amage pusilla</i> Verrill, 1873	?	?	4

Species investigated by me: ** — type material, * — non type material.

(1987) did, seems insufficiently justified. Usually, the attachment points of the branchostyles are shifted forward by one segment, except for the C3 branchostyles, so the C4 branchostyles often seem to be attached to C3. The attachment points of the branchostyles C3, C5 and C6 form a longitudinal row on each side of the body, the distances between the attachment points of each pair gradually decreases caudally. The attachment points of the C4 branchostyles are usually located medial to this row at the level between the attachment points of the C3 and C5 branchostyles.

The tribe includes the genera *Amage*, *Grubianella* and *Samythisis*.

Amage Malmgren, 1866

Type species: *Amage auricula* Malmgren, 1866 by monotypy.

synonyms:

Mexamage Fauchald, 1972 (type species *Mexamage* by original designation);

Paramage Caullery, 1944 (type species *Paramage* by monotypy).

DIAGNOSIS. Middle lobe of prostomium anteriorly incised or with horns, without longitudinal

ridges. Nephridial papillae behind and ventrally few anterior notopodia, absent mid-dorsally posterior to branchiae, usually hardly visible. Modified notopodia and neuropodia absent. Neuropodia of two types: all thoracic tori, all abdominal pinnuli. Uncini pectinate and similar throughout the body, without a sharp change when changing the type of neuropodial structure.

REMARKS. Following characters usually are included in generic diagnosis, but due variation within genera can't be part of the diagnosis. Buccal tentacles smooth. Four (seldom 3) pairs of branchiae. Paleae absent or very small. Progressive reduction of the abdomen is characteristic for the genus, in the species with the most reduced abdomen reduction reaches the greatest extent in the family: its length does not exceed 1/3 of the total body length and is approximately equals to the maximum body width (in the order Terebellomorpha, only Pectinariidae have a more reduced abdomen — scaphe) (Jirkov, 2001).

Number of AU usually constant within a species.

Within the genus (and some species), the entire cline from the relatively well-developed first notopodia to their rudiments can be found. Therefore, it seems unreasonable to establish the genus *Param-*

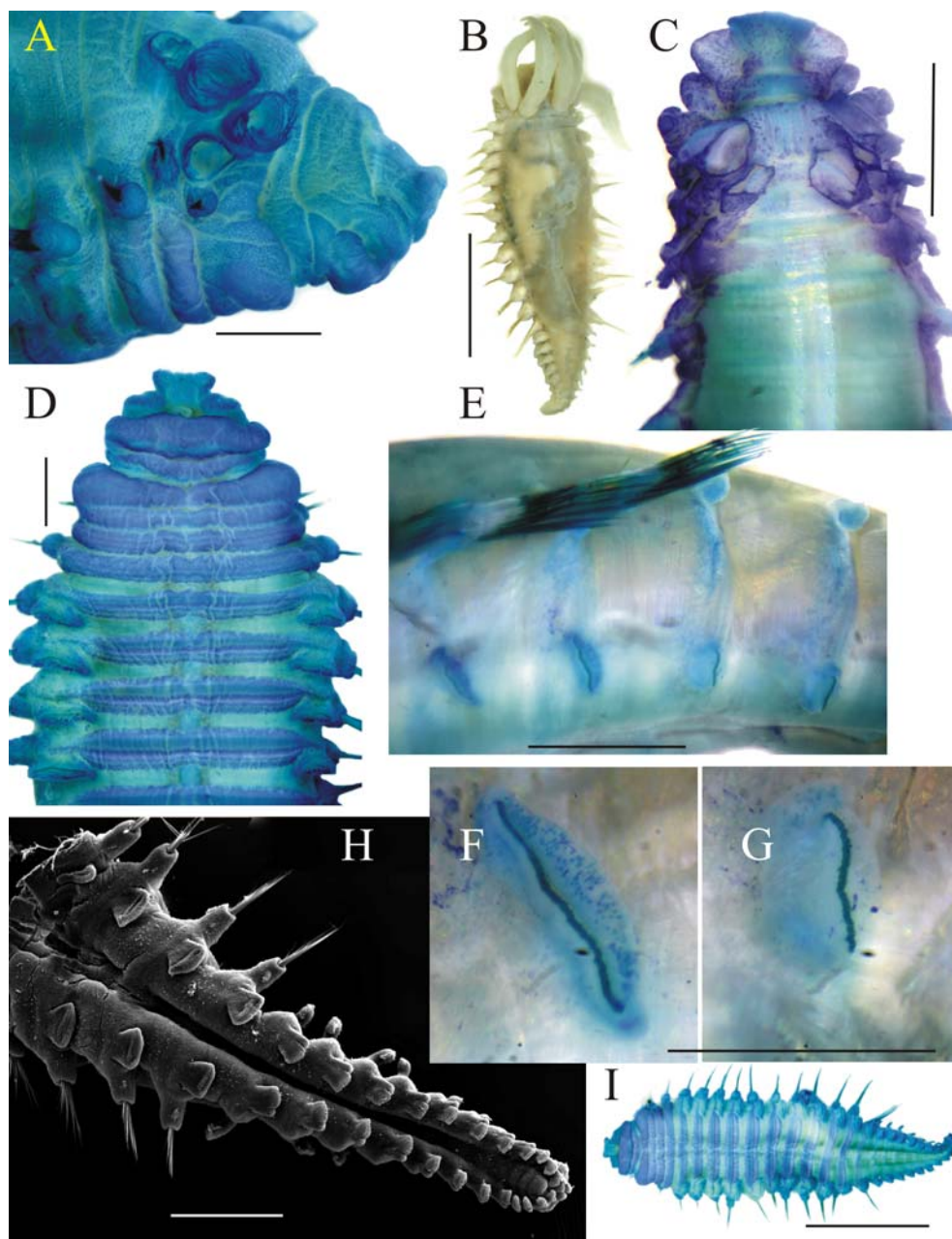


Fig. 2. External morphology of *Amage asiatica* Uschakov, 1955.

A — lateral view; B, C — dorsal view; D — ventral view; E — thorax–abdomen junction; F — last thoracic neuropodium; G — AU1 neuropodium; H — posterior thorax and abdomen, ventral view; I — ventral view. Scales: A, D, H, F, G — 1 mm; B, I — 5 mm; C, E — 2 mm. A, B, D, I — Vitjaz st.608, C, E–G — ZIN 29 syntype, H — Odissei st.34.1A.

Рис. 2. Внешняя морфология *Amage asiatica* Uschakov, 1955.

A — вид сбоку; B, C — вид со спины; D — вентральный вид; E — граница торакса–абдомена; F — последняя торкальная невроподия; G — невроподия AU1; H — задняя часть торакса и abdomen, вентральный вид; I — вентральный вид. Масштаб: A, D, H, F, G — 1 мм; B, I — 5 мм; C, E — 2 мм. A, B, D, I — Витязь 608, C, E–G — ZIN 29 синтип, H — Одиссей 34.1A.

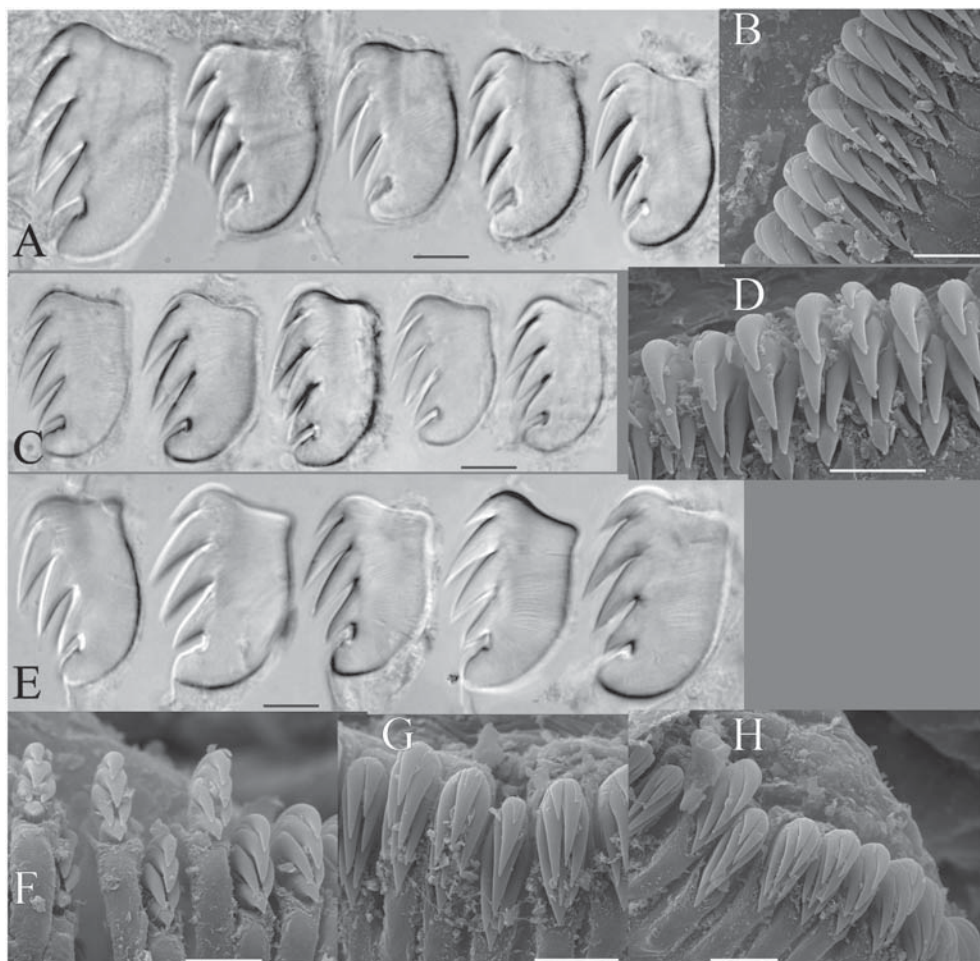


Fig. 3. Uncini of *Amage asiatica* Uschakov, 1955.

A, B — TU1; C, D — TU11; E, F — AU1; G — AU6; H — AU8. Scales: 10 μ m. Odissei st.34.1A.

Рис. 3. Неврохеты of *Amage asiatica* Uschakov, 1955

A, B — TU1; C, D — TU11; E, F — AU1; G — AU6; H — AU8. Масштаб: 10 μ m. Одиссей 34.1A.

age Caullery, 1944 for worms with reduced 1–2 first notopodia.

In summary, 25 taxa of species rank are known in the genus *Amage*, including the species described herein. The taxonomic characters of the species are given in Table 1, corrections are made, if necessary, justified in the descriptions of the species given below.

Amage asiatica Uschakov, 1955

Figs 2–5.

Amage asiaticus Uschakov, 1955: 377–378, fig. 140, types: ZIN; type locality: Sea of Japan and the Okhotsk Sea, 28–2900 m, details see Supplement; Levenstein, 1961: 170 (partim, only one specimen from 510 m).

Amage anops — Annenkova, 1938: 202; Uschakov, 1950: 221 — non Johnson, 1901.

MATERIAL: 63 samples (more than 200 specimens, including types) see Supplement.

The middle lobe of the prostomium T-shaped, with distinct lateral horns. The oral tentacles numerous, short, smooth, expanded at the end. Paleae absent, their podial lobe not pronounced. 4 pairs of smooth cirriform branchiae. The attachment points of the branchostyles not quite correctly pictured in the original description (Uschakov, 1955, fig. 140b). In reality, the two first pairs form a transverse line, the third located behind them, between the inner and outer, the fourth behind and slightly medial to the third. The branchial groups separated by a gap approximately equal to 1.5 branchophore diameters. In

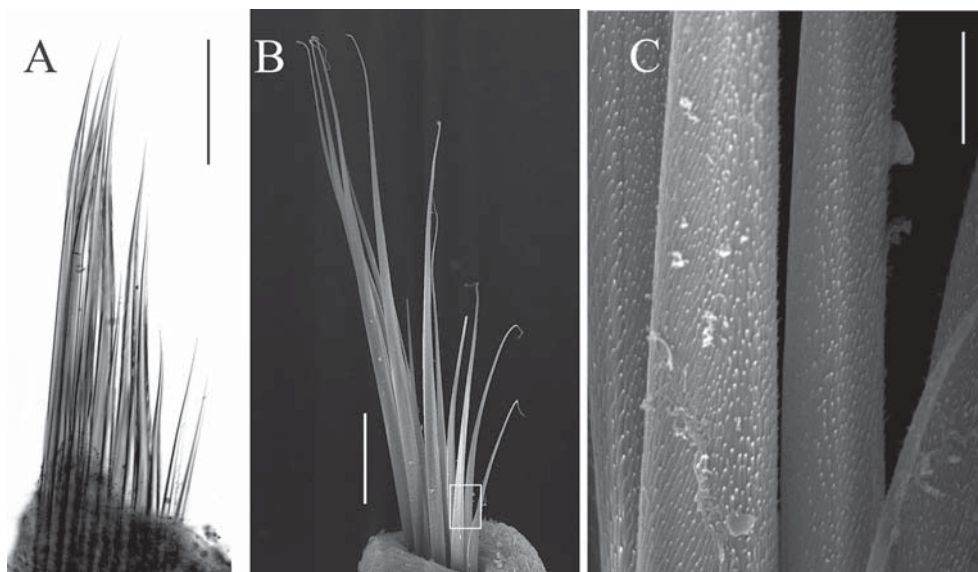


Fig. 4. Notochaetae of *Amage asiatica* Uschakov, 1955.

A — TC7; B, C — TC12. Scales: A — 0.2 mm, B — 0.1 mm, C — 0.01 mm. Odissei st.34.1A.

Рис. 4. Нотохеты *Amage asiatica* Uschakov, 1955

A — TC7; B, C — TC12. Масштаб: A — 0,2 мм, B — 0,1 мм, C — 0,01 мм. Одиссей 34.1A.

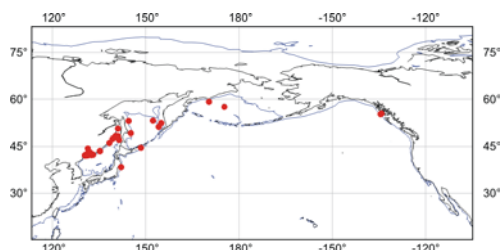


Fig. 5. Map showing sampling stations with specimens of *Amage asiatica* Uschakov, 1955.

500 m isobath is shown.

Рис. 5. Карта находок *Amage asiatica* Uschakov, 1955.

Показана 500 м изобата.

the gap between the branchia, segmentation not pronounced, but longitudinally folding. The first transverse fold runs between the last branchiae. The outer branchophore from the anterior pair associated with notopodia TC1, the third branchophore with notopodia TC2=C5 and the fourth branchophore with notopodia TC3=C6. Branchostyles from cylindrical to more or less distinctly flattened, up to distinctly leaf-shaped, smooth. The first pairs of notopodia small, but quite distinct. Nephridial papillae in the lower part of the notopodia of the first three TU hardly visible. 14 TC, notopodial cirri absent. 11

TU. Continuous ventral shields with two white stripes distinct to TU11, they intensely colored with methylene blue. The size of neuropodia on the entire thorax approximately the same. 11–13 AU (90% — 12). All abdominal neuropodia pinnuli. AU1 neuropodia about half the size of the last thoracic neuropodia. Rudimentary notopodia club-shaped, distinct, notopodial cirri absent. Pygidium with two short lateral antennae. The notochaetae (Fig. 4) smooth, with a narrow two-sided border gradually disappearing towards the top. Dental formula of thoracic uncini (Fig. 3A–D), R:2:1:many, most distal row irregular; posterior abdominal uncini (Fig. 3E–H) with 3–5 rows of progressively shorter secondary teeth. On the base of uncini there is a button as a thin filament, usually directed inside, it looks elastic; in photos of a compound microscope it poorly visible because it adheres to the base of the uncinus. Up to 40 mm long. The tube made of detritus, the outer surface shaggy.

REMARKS. The descriptions of *A. perfecta* Moore, 1923 and *A. asiatica* Uschakov, 1955 are very brief. In the descriptions of both species it is written that species has 10 AU. There is also a drawing TU7 uncini of *A. asiatica*, where 6 teeth are drawn (in fact there are 5), and the description of *A. perfecta* says “uncini have five teeth” (Moore, 1923: 210). Since it is the same, it is impossible to understand how these species differ based on available information. For the time being, due poor descrip-

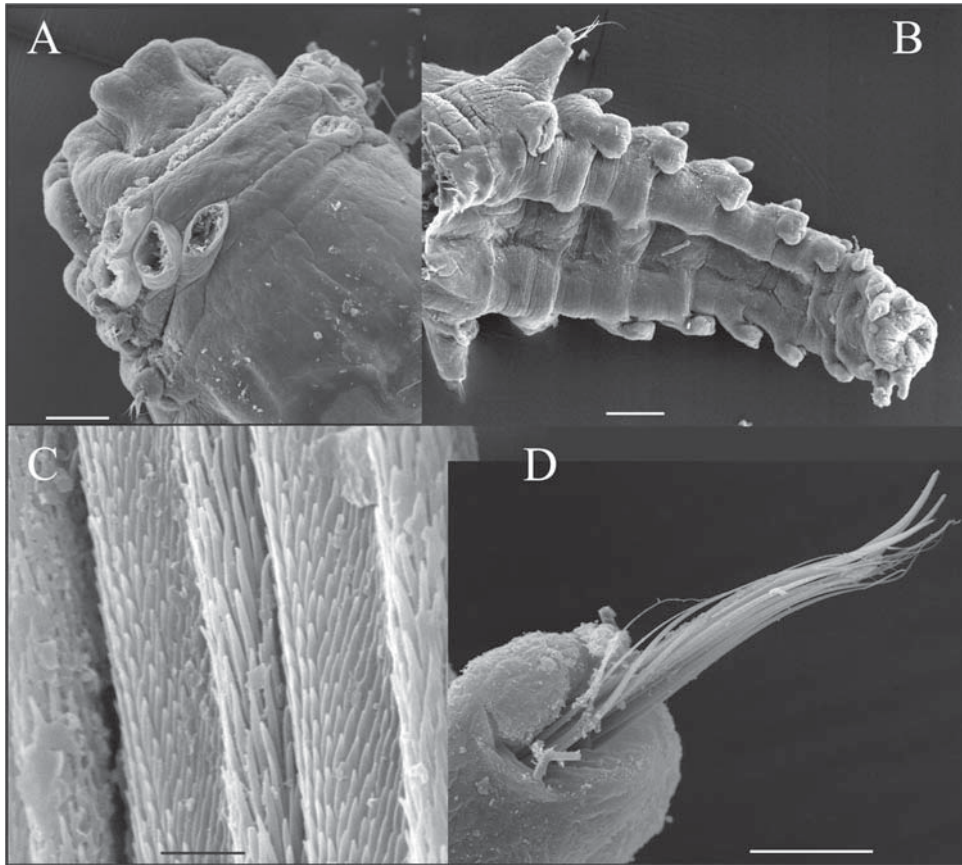


Fig. 6. External morphology and notochaetae of *Amage auricula* Malmgren, 1866.

A — dorsal view, showing position of branchial scars typical for the Amagini; B — abdomen, ventral view; C, D — notopodium and detail of notochaetae. Scales: A, B — 0.3 mm, C — 3 μ m, D — 0.1 mm. SP-22 st.69

Рис. 6. Внешняя морфология и нотохеты *Amage auricula* Malmgren, 1866.

A — дорсальный вид, показывающий позицию мест прикрепления бранхиостилей, типичную для Amagini; B — abdomen, ventral view; C, D — нотоподия и деталь строения нотохет. Масштаб: A, B — 0,3 мм, C — 3 μ m, D — 0,1 мм. СП-22 ст.69.

tion *A. perfecta* should be considered as *nomen dubium*, although perhaps it is a senior synonym of *A. asiatica*. Re-description of type is necessary to solve the problem.

DISTRIBUTION. Northern Pacific, slope and neighboring shelf (Fig. 5).

Amage auricula Malmgren, 1866

Figs 6–8.

Amage auricula Malmgren, 1866: 371 (type: not in any Swedish museum, probably lost (Holthe, 1986a) type locality: Bohuslan, Sweden); Augener, 1928: 781–782; Chlebovitch, 1964: 176; Hartmann-Schröder, 1971: 452; Holthe, 1986a: 75–76, fig. 31, map 30; 1986c: 232; Jirkov, 1989: 107, fig. 21. 2; 2001: 459, fig., map — non

Marenzeller, 1884: 198–199, Taf. II, Fig. 6; Hesse, 1917: 120–121; Hartman, 1945: 44; Day, 1973: 115; Amoureux, 1982: 201; Imajima, Hartman, 1964: 330.

Amage auricula — Zatsëpin, 1948:151, table XXX-VII, 18; Uschakov, 1955: 452.

MATERIAL: 107 samples (about 2000 specimens) see Supplement.

The middle lobe of the prostomium with distinct but short lateral horns. About 20 smooth oral tentacles. Paleae absent. 4 pairs of branchiae. The attachment points of the branchostyles typical for the tribe: two form a transverse line, the third located behind them, between the inner and outer, the fourth behind and slightly medial to the third. The branchial groups separated by gap approximately equal to 1.5 branchophore diameters. In the gap between the branchi-

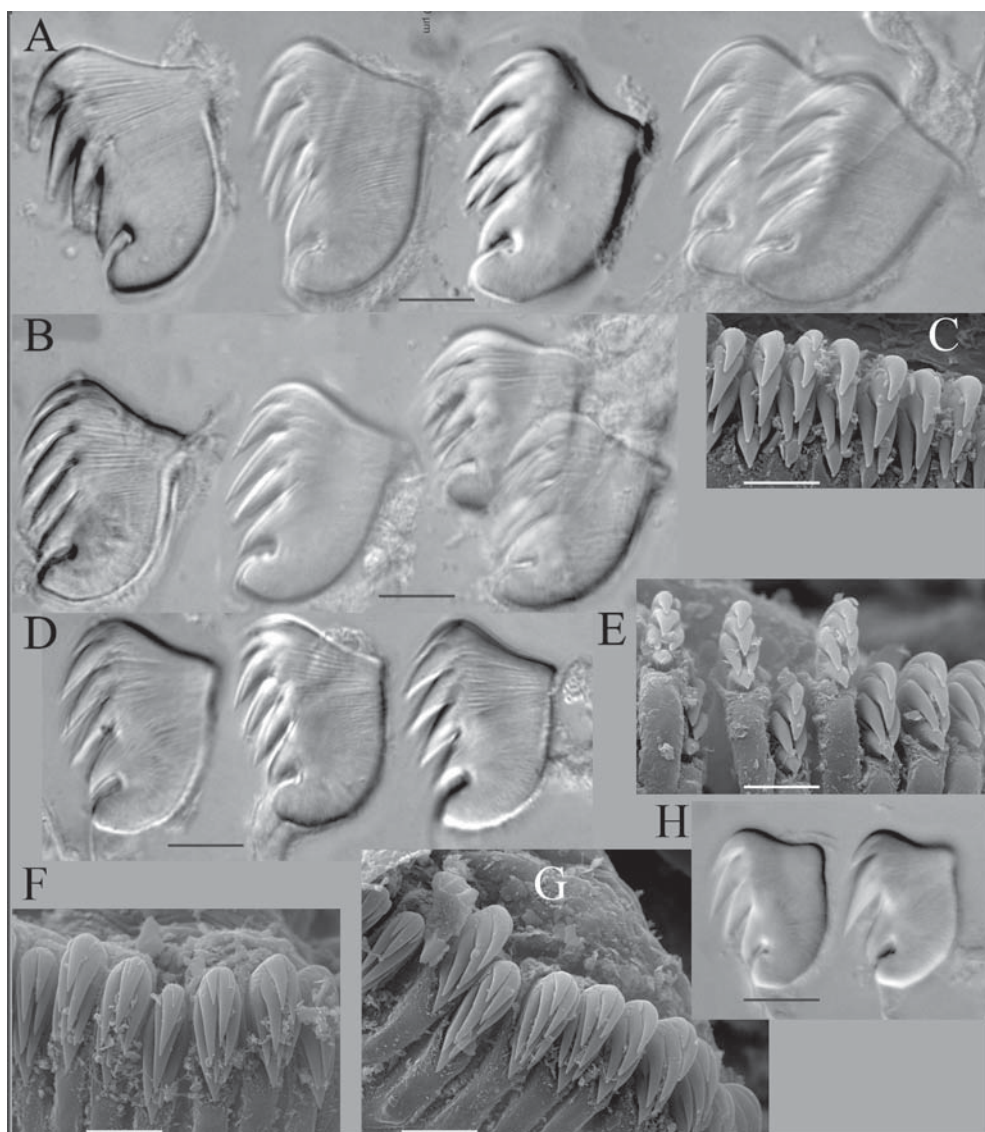


Fig. 7. Uncini of *Amage auricula* Malmgren, 1866.

A — TU1, B, C — TU11; D, E — AU1, F — AU6, G, H — AU8. All scales: 10 μ m. SP-22 st.69.

Рис. 7. Неврохеты *Amage auricula* Malmgren, 1866.

A — TU1, B, C — TU11; D, E — AU1, F — AU6, G, H — AU8. Масштаб: 10 μ m. СП-22 ст.69.

ae segmentation not pronounced, but longitudinally folding. The first transverse fold runs between the last branchiae. The connection of 3 branchophores with notopodia C5 and 4 branchophores with notopodia C6 distinct. Branchostyles cirriform, smooth. The first pairs of notopodia small, but quite distinct. Nephridial papillae not noticeable. 14 TC, 11 TU. The abdomen very short, 8 AU (extremely rare, in less than 1% 9 AU) with large club-shaped rudimen-

tary notopodia, without neuropodial cirri. The size of neuropodia on the thorax gradually decreases three times caudally, neuropodia AU1 about 1.5–2 times smaller than the last neuropodia of the thorax, caudally the size of neuropodia gradually decreases. All thoracic neuropodia tori, abdominal pinnuli. Pygidium with two thick anal cirri and several rounded papillae. Notochaetae narrow bilimbated. Uncini (Fig. 7): thoracic uncini in profile with 4–5 teeth in

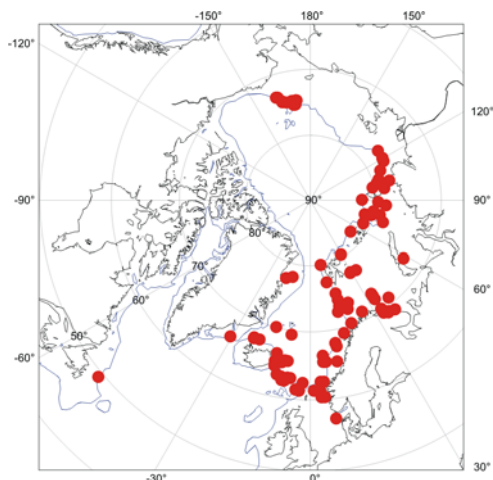


Fig. 8. Map showing sampling stations with specimens of *Amage auricula* Malmgren, 1866. 500 m isobath is shown.

Рис. 8. Карта находок *Amage auricula* Malmgren, 1866.

Показана 500 м изобата.

one row except for the middle, where teeth in two rows, with a small button; small teeth covering large ones are clearly visible in SEM photographs, but this structure not obvious under a compound microscope. Uncini AU1 similar to thoracic ones, but uncini with double rows of teeth begin to appear more caudally, uncini of different shapes are present in the same neuropodium up to the AU8. Up to 12 mm long. The tube made of loose detritus, thick in the anterior part, flattened, slightly rounded in front, and rapidly but smoothly tapering posteriorly; the thickness of its walls less than the inner diameter, the outer surface shaggy.

DISTRIBUTION. The Arctic Ocean (slope and neighboring shelf). Skagerrak, Newfoundland? (specimen poorly preserved) (Fig. 8).

UNLIKELY REPORTS. The finds outside the range specified above are highly likely based on misidentification. Hartman (1945) described for her material of *A. auricula* from North Carolina 14 AU, these data were repeated by Day (1973). Amoureux (1982) reported for his *A. auricula* 9 AU. Taking into consideration very small individual variation of AU numbers obviously these authors dealt with species other than *A. auricula*.

The finding of a species from Japan is based on a single specimen studied by Marenzeller (1884: 199) having «Die acht letzten Segmente ohne Haarborstenbündel». The remaining data (Hessle, 1917; Imajima, Hartman, 1964) are based on Marenzeller (1884) data. Judging by the fact that a species with

eight AU is absent in extensive Russian collections, the presence of *A. auricula* s.str. in the waters of Japan, in my opinion, is excluded. Marenzeller (1884) probably had either an undescribed species with a more southern range or an ugly specimen of already known species.

Amage auricula sibogae differs from *A. auricula* by the number of TU, nine instead eight, this difference is enough for species rank. Also, their ranges are far away: *A. auricula* lives within the Arctic Ocean while *A. auricula sibogae* has been described from the Java Sea. So, I think no reason to accept *A. auricula sibogae* as subspecies of *A. auricula*, and it should be taxon of species rank.

Amage levensteinae sp.n.

Figs 9, 10.

Ampharetidae gen. sp. Levenstein, 1978: 84.

MATERIAL (IO RAN collection): RV Mendeleev cruise 16, st.1290, 54°34'S 159°24'E, trawl Sigsbee, 5370–5410 m, 23.1.1976 (holotype + 29 paratypes), Mendeleev cruise 16, st.1292, 54°49'S 159°16'E, trawl Galathea, 5400 m, 24.1.1976 (30 paratypes), RV Vitjaz cruise 14, st.2208, trawl Sigsbee, 49°29'N 158°41'E, 7210–7230 m, 22.06.1953 (8), Vitjaz cruise 39, st.5608, trawl Sigsbee, 46°05'N 153°46'W, 7180–7210 m, 22.07.1966 (4), Vitjaz cruise 40, st.5617, trawl Sigsbee, 45°32'N 153°46'W, 6700 m, 6.8.1966 (2), Vitjaz cruise 45, st.6111, 56°17'N 137°51'W, 2880 m, 16.05.1969 (1).

The middle lobe of the prostomium straight anteriorly, without lateral horns. About 20 smooth oral tentacles. Paleae absent, the rudimentary paleal tubercle much smaller than 1st notopodia. 4 pairs of branchiae. The attachment points of the two branchostyles form a transverse line, the third located behind them, between the inner and outer, the fourth behind and slightly medial to the third. The outer branchophore from the anterior pair associated with the notopodia TC1, the third with the notopodia TC2, the fourth with TC3. The branchial groups separated by a gap approximately equal to 1.5 branchophore diameters. Branchostyles cirriform, smooth, very easily falling off, almost equal in length to the thorax. The first pairs of notopodia small, but quite distinct. Nephridial papillae located behind and laterally of notopodia TC2–TC4, usually invisible. 15 TC, 12 TU. The abdomen longer than the thorax, of 15–21 AU (10 of 18 — 16AU) with small club-shaped rudimentary notopodia, there may be very small neuropodial cirri on AU1, cirri absent on subsequent segments. All thoracic neuropodia tori, abdominal arepinnuli. The size of the neuropodia on the thorax gradually triples caudally, on the abdominal neuropodia also decrease caudally, and the length of the segments gradually decreases. Pygidium with two

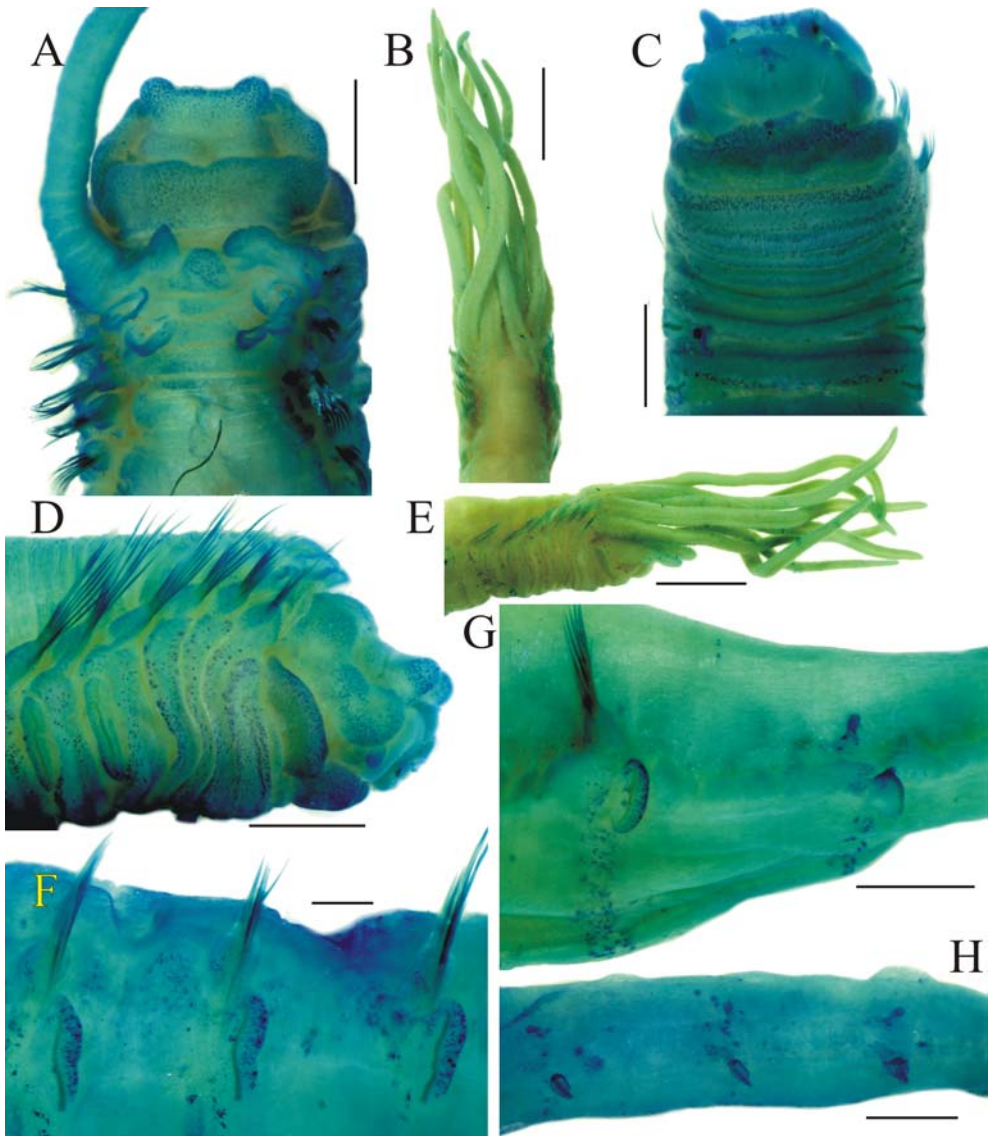


Fig. 9. External morphology of *Amage levensteinae* sp.n.

A, B — dorsal view; C — ventral view; D, E — lateral view; F — thoracic parapodia; G — thorax–abdomen junction; H — abdominal parapodia. Scales: A, C, D, G, H — 0.5 mm; B, E — 1 mm; F — 0.2 mm. D — holotype, other Mendeleev st.1290.

Рис. 9. Внешняя морфология *Amage levensteinae* sp.n.

A, B — дорсальный вид; C — вентральный вид; D, E — вид сбоку; F — торакальные параподии; G — граница торакса и живота; H — абдоминальные параподии. Масштаб: A, C, D, G, H — 0,5 мм; B, E — 1 мм; F — 0,2 мм. D — голотип, прочие Менделеев 1290.

thin anal antennae and several rounded papillae. Notochaetae (Fig. 10H–I) a narrow bilimbate. Uncini (Fig. 10 A–G) pectinate, with single rostrum and 2–5 rows of progressively shorter secondary teeth. Up to 22 mm long. The tube made of detritus, with

transversely oriented inlays of larger particles, cylindrical, tapering caudally; the thickness of its walls by an order of magnitude smaller than the inner diameter.

ETYMOLOGY: The species is named after Soviet polychaetologist RaisaYakovlevna Levenstein

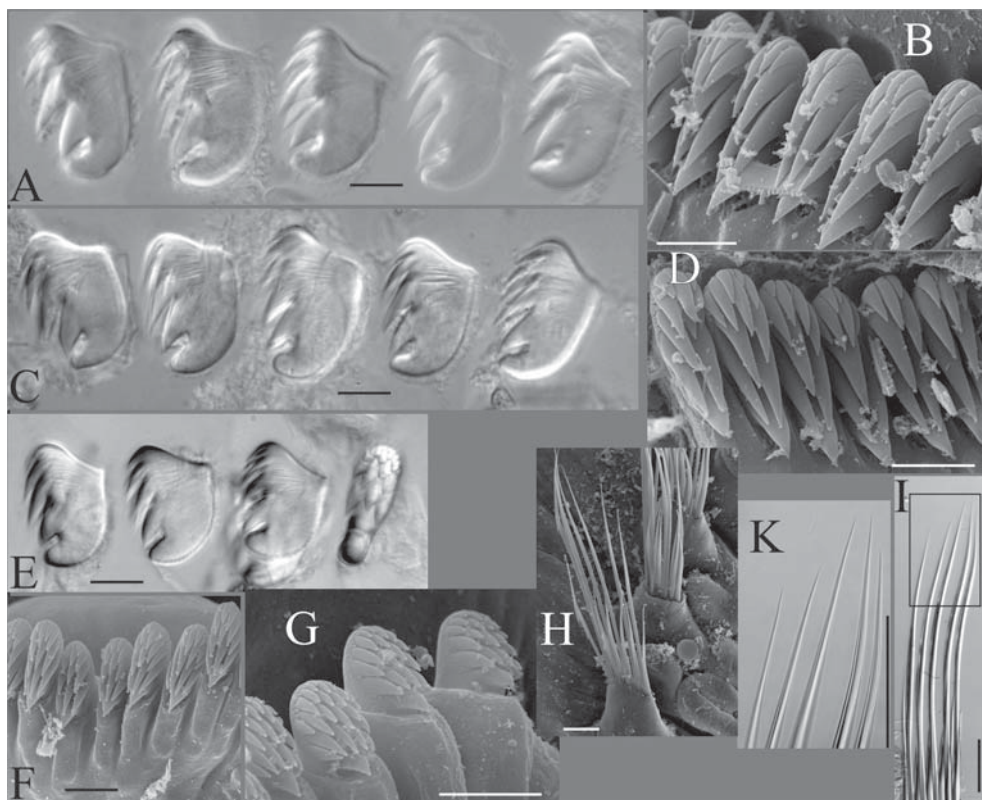


Fig. 10. Chaetae of *Amage levensteinae* sp.n.

A–G — uncini: A — TU1; B — TU2; C — TU12; D — TU4; E, F — 1AU; G — AUlast; K–L — notochaetae: H — TC5; K, L — TC14. Scales: A–G — 10 μm, H–L — 0.1 mm. Mendeleev st.1290

Рис. 10. Chaetae of *Amage levensteinae* sp.n.

A–G — неврохеты: A — TU1; B — TU2; C — TU12; D — TU4; E, F — 1AU; G — последнего AU; K–L — нотохеты: H — TC5; K, L — TC14. Масштаб: A–G — 10 μm, H–L — 0,1 мм. Менделеев 1290.



(Fig. 11), who found, but did not described this species.

DIFFERENTIAL DIAGNOSIS. The new species differs from others having 12TU by the largest number of AU in the genus (see Table 1). Only one known species has 16AU (but no more) — *A. giacomovei*. The new species differs from it in the shape of the prostomium and the absence of spherical antennae on the notopodia, a smaller number of teeth on the top of the thoracic uncini (visible only on the scan). In addition, the new species is much deepwater: *A. giacomovei* is known from the depths of 290–500 m, while the *A. levensteinae* from 2880–7230 m, mainly deeper 5000 m.

DISTRIBUTION. Abyssal – upper hadal zone of the Pacific Ocean.

Fig. 11. Raisa Yakovlevna Levenstein.

Рис. 11. Раиса Яковлевна Левенштейн.

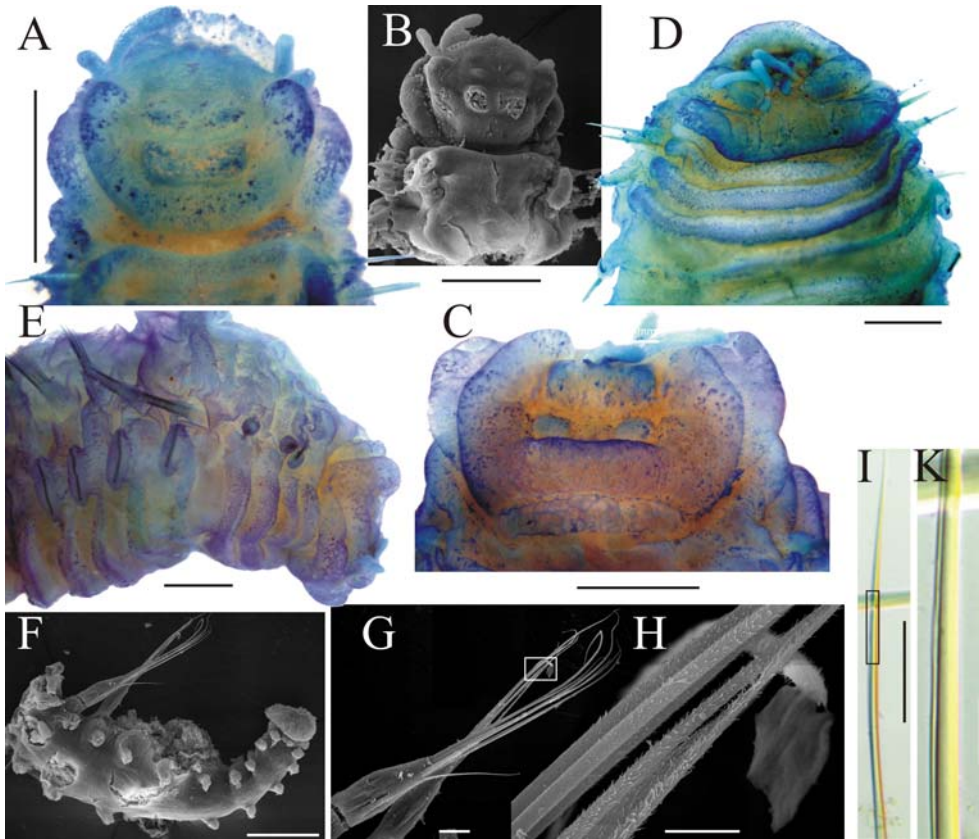


Fig. 12. External morphology and notochaetae of *Amage clemi* sp.n.

A–C — dorsal view; D — ventral view; E — lateral view; F — last two TU and abdomen; G — last two notopodia; H — detail of notochaetae; I — notochaetae; K — its detail. A, B, F–K — Vitjaz st.3114, C–E — Vitjaz st.4191. Scales: A–F — 0.5 mm; G, I — 0.1 mm; H, K — 20 μ m.

Рис. 12. Внешняя морфология и нотохеты *Amage clemi* sp.n.

A–C — дорсальный вид; D — вентральный вид; E — вид сбоку; F — два последних торакальных сегмента и abdomen; G — последние две нотоподии; H — детали нотохеты; I — нотохета; K — её деталь. A, B, F–K — Витязь 3114, C–E — Витязь 4191. Масштаб: A–F — 0,5 мм; G, I — 0,1 мм; H, K — 20 μ m.

Amage clemi sp.n.

Figs 12, 13.

MATERIAL: RV Vitjaz cruise 19, st.3114, 48° 43'2"N 160°55'9"E 5500 m, 27.8.1954 (1 paratype); Vitjaz cruise 20, st.3225, 37°51'2"N 144°13'E, 5300 m, 1.5.1955 (2 paratypes); Vitjaz cruise 29, st.4191, 1°55'S 83°05'1"W, 4460 m, 8.12.1958 (holotype & paratype).

All five specimens poorly preserved. The middle lobe of the prostomium anteriorly with a notch and small lateral horns. The oral tentacles few, short and smooth. Paleae absent, the rudimentary paleal tubercle not noticeable. 4 pairs of branchiae. The attachment points of the two branchostyles form a transverse line, the 3rd located behind them, be-

tween the inner and outer ones, the 4th behind and slightly medial to the 3rd. The 3rd branchophore clearly associated with the notopodia TC2, the 4th — TC3, the connection of the first two branchophores with segments not clear. The branchial groups separated by a wide gap approximately equal to the diameter of the branchophore. The branchophores preserved in one of the paratypes (Vitjaz 29.4191) (the first three pairs) cirriform, smooth, equal in length to half the length of the thorax. The first pairs of notopodia small, but quite distinct, notopodia without cirri. Nephridial papillae invisible. 14 TC, 11 TU. Continuous ventral shields distinct. The abdomen at least twice as short as the thorax, 7 AU with large club-shaped rudimentary notopodia, neuropodial cirri are absent. All

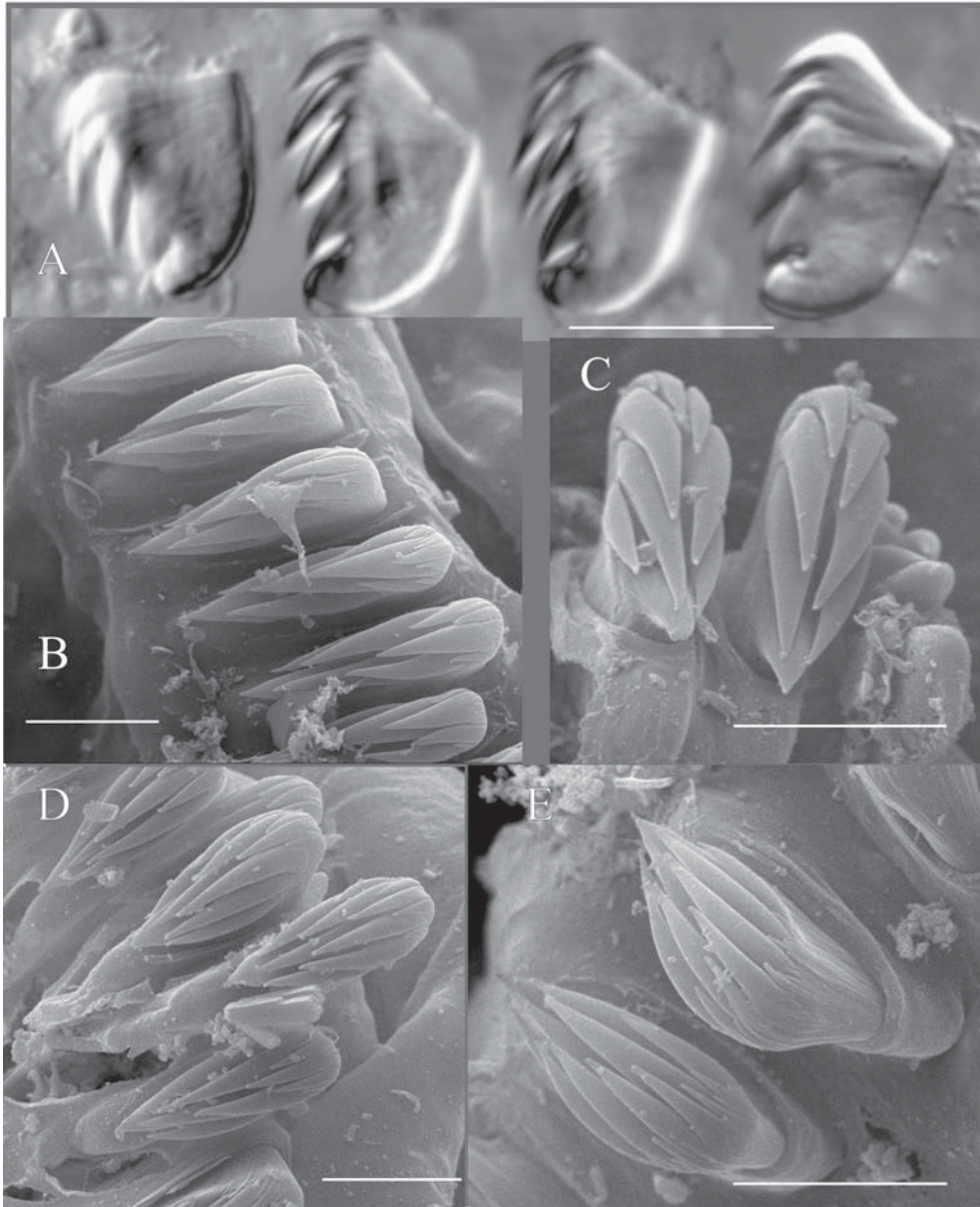


Fig. 13. Uncini of *Amage clemi* sp.n.

A, B — TU1; C — TU11; D — AU1; E — AU7. Vitjaz st.3114. All scales: 10 μ m.

Рис. 13. Неврохеты *Amage clemi* sp.n.

A, B — TU1; C — TU11; D — AU1; E — AU7. Витязь 3114. Масштаб: 10 μ m.

thoracic neuropodia tori, abdominal are pinnuli. The size of the neuropodia on the thorax gradually decreases caudally, the last thoracic neuropodium is 1.5 times smaller than the first. Pygidium without cirri. Notochaeta very narrow unilimbate. Uncini (Fig. 13) with teeth in two rows on the thorax and

three or four on the abdomen. Up to 22 mm long. The tubes missing.

ETYMOLOGY: Species is named after my son Clements (we call him Clim).

DIFFERENTIAL DIAGNOSIS. Differs from other species of the genus by a lowest number of AU

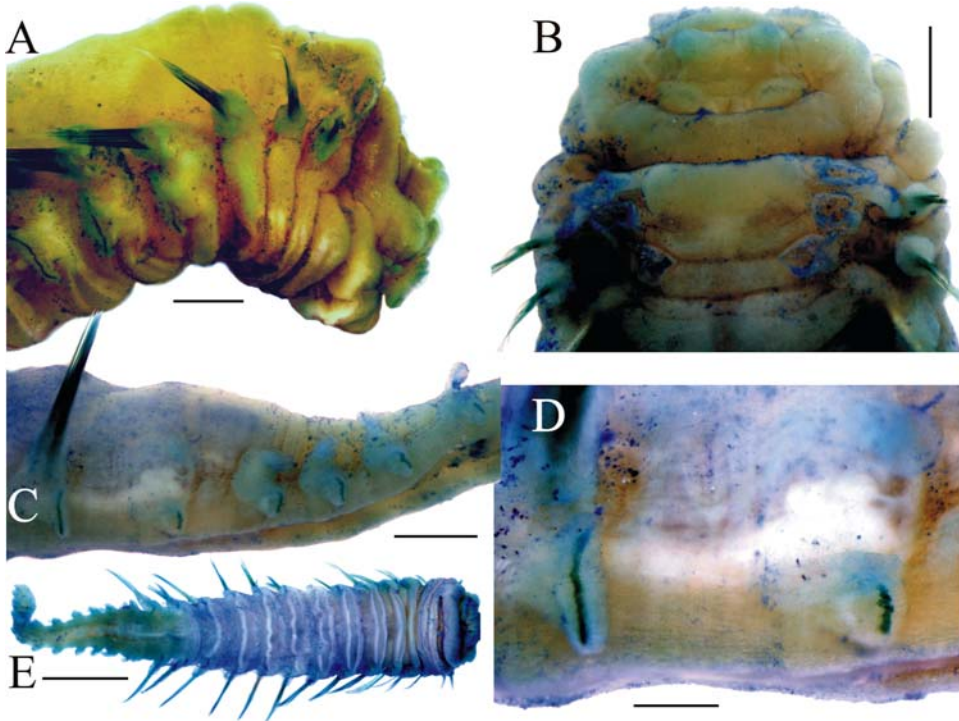


Fig. 14. External morphology of *Amage ceshici* sp.n.

A— lateral view; B — dorsal view; C — last toracic and five abdominal segments; D — the same enlarged showing change of neuropodial shape at thorax–abdomen junction ventral view; E — ventral view. Holotype. Scales: A–C — 0.5 mm. D — 0.2 mm, E — 2 mm.

Рис. 14. Внешняя морфология *Amage ceshici* sp.n.

A— вид сбоку; B — дорсальный вид; C — последний торакальный и пять первых абдоминальных сегментов; D — то же, увеличено, иллюстрирует изменение формы невроподий на границе торакса и живота, вентрально; E — вентральный вид. Голотип. Масштаб: A–C — 0,5 мм. D — 0,2 мм, E — 2 мм.

(7). Only *Egamella quadribranchiata* Fauchald, 1972 also has 7 AU, but it has two, not four pairs of branchiae.

DISTRIBUTION. Abyssal of the North and South Pacific Ocean, off Chile.

Amage ceshici sp.n.
Figs 14, 15.

Amage asiaticus — Levenstein, 1961: 170 (partim) — non Uschakov, 1955.

MATERIAL: RV Vitjaz cruise 5, st.542 (11 paratypes), the Bering Sea, 60°12'N 179°48'E, 27.08. 1950, 1400 m; cruise 24, st.3594 (holotype + 14 paratypes), east to Japan, 40°54'N 144°53'E, 23.05. 1957, 3990 m.

The middle lobe of the prostomium anteriorly with a notch and poorly developed lateral horns. The oral tentacles short and smooth. Paleae absent, the rudimentary paleal tubercle not noticeable. 4 pairs of

branchiae. The attachment points of the two branchostyles form a transverse line, the 3rd is located behind them, between the inner and outer, the 4th behind and slightly medial to the 3rd. The 3rd branchophore clearly associated with the notopodia TC2, the 4th — TC3, the connection of the first two branchophores with segments not clear. The branchial groups separated by a very wide gap, approximately equal to the width of the group and with distinct segmentation. Only the 3rd and 4th branchostyles have been preserved in one specimen, they are cirriform, smooth, equal in length to a 1/3 of the length of the thorax. The first pairs of notopodia small, but quite distinct, notopodia without cirri. Nephridial papillae invisible. 14 TC, 11 TU. Continuous ventral shields distinct to TU10, with two white stripes in the anterior part of the thorax and one or two in the posterior, they intensely colored with methylene blue. Shield on the last TU absent. The abdomen shorter than the thorax, 11–12 AU (st.542



Fig. 15. Uncini of *Amage ceshici* sp.n.

A, B — TU1; C — TU11; D — AU1. All scales 10 μ m. Vitjaz st.3594.

Рис. 15. Неврохеты *Amage ceshici* sp.n.

A, B — TU1; C — TU11; D — AU1. Масштаб: 10 μ m. Витязь 3594.

— 11 AU, st.3594 — 2 worms 11 AU, 5 worms 12 AU + 8 dry worms) with large club-shaped rudimentary notopodia, neuropodial cirri absent. All thoracic neuropodia tori, abdominal pinnuli. The size of the neuropodia on the thorax almost does not decrease caudally, on the abdomen the size of the neuropodia decreases caudally, and the length of the segments gradually decreases. Pygidium with two thick short anal cirri and several rounded papillae. Uncini (Fig. 15) TU1 with teeth in one row, only the upper one can have an additional small one. Uncini of AU1 much smaller, and the upper teeth are double. Up to 22 mm long.

ETYMOLOGY: Species is named after my son Innocentius (we call him Ceshic).

DIFFERENTIAL DIAGNOSIS. Five other nominal *Amage* species with 11 TU may have 11 or 12 AU. *A. longibranchiata* differs from the rest of the species by the 3rd segment greatly expanded laterally and by very long branchiae. The new species differs from *Amage asiatica* by the shape of thoracic

uncini, which are: with one row of teeth *A. ceshici* sp.n. (Fig. 14B), while in *A. asiatica* uncini have one of teeth double (Fig. 3D). Also, the new species differ by the absence of ventral shields ventrally at the last TU. This character has not been used before, but my study of more than 200 specimens of *A. asiatica*, including the types, and 7 specimens of the new species (the other were poorly preserved) showed that it is not variable: all specimens of *A. asiatica* had this ventral shields on TU11, whereas all specimens of the new species lacked the ventral shields. By the absence of this ventral shields, as well as the absence of notopodial cirri, the new species also differs from *A. anops*, for which Berkeley (1929) also reported 12 AU, which, however, was not confirmed by other authors (Banse, 1979; Hilbig, 2000). The new species differs from *A. arieticornuta* by the shape of uncini and the comparative size of thoracic neuropodia. *A. arieticornuta* has rostrum several times smaller than the teeth above it (Moore, 1923, Pl. XVIII, 17) while all teeth of *A. ceshici* sp.n. are equal. Also “two

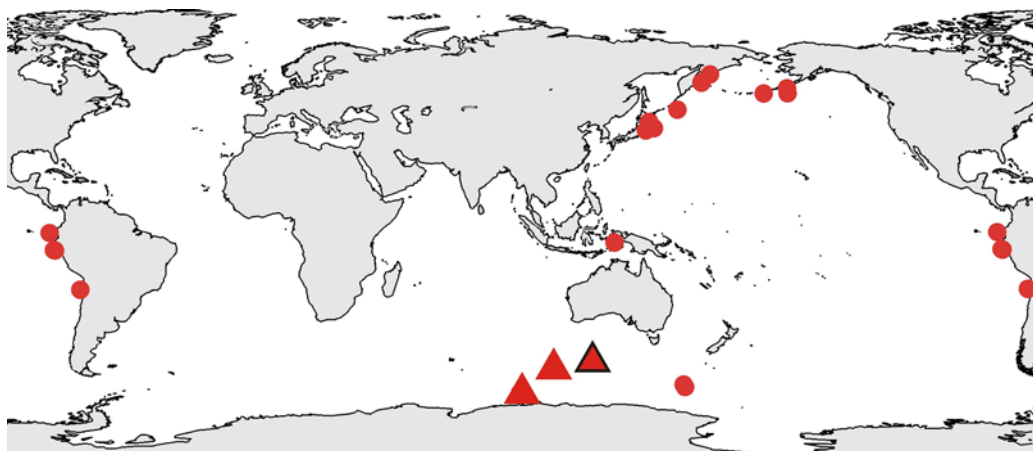


Fig. 16. Map showing sampling stations with specimens of *Grubianella antarctica* McIntosh, 1885. Triangles — type localities.

Рис. 16. Карта находок *Grubianella antarctica* McIntosh, 1885. Треугольники — типовые местности.

the last thoracic [neuropodia] being fully 50% larger than the first? (Moore, 1923: 209), while thoracic neuropodia of *A. ceshici* sp.n. are of the same size throughout the thorax.

DISTRIBUTION. Known only from the type localities.

Grubianella McIntosh, 1885

Type species: *Grubianella antarctica* McIntosh, 1885 by monotypy.

synonym: *Amagopsis* Pergament et Chlebovitch in Chlebovitch, 1964 type species: *Amagopsis klugei* Pergament et Chlebovitch, 1964 in Chlebovitch, 1964 by original designation.

DIAGNOSIS. Middle lobe of prostomium anteriorly with poor developed horns, without longitudinal ridges. Nephridial papillae mid-dorsally posterior to branchiae absent. Modified noto- and neuropodia absent. Thoracic and AU1 neuropodia tori, other abdominal pinnuli. Uncini avicular.

REMARK. Deepwater genus, bathyal and abyssal.

Grubianella antarctica McIntosh, 1885

Grubianella antarctica McIntosh, 1885: 432–434, pl.48 1, 2; pl. 27A 6, syntypes NHM type locality the Southern Ocean, details see Supplement; Jirkov, 2018: 361–363, fig. 12, 13.

Amagopsis cirratus Kucheruk, 1976: 97–98, fig.3, 4 (map) types IO RAN type locality: the Bay of Alaska, 51°40'N 163°00'W, 4860 m; 1981: 43, fig. 4 (map); Levenstein, 1978: 83–84.

MATERIAL: 19 samples (48 specimens), including type material of both species, see Supplement.

ADDITION TO DESCRIPTION. The end of the abdomen is usually (but not always!) swollen to varying degrees. 23–24 AU. Up to 48 mm, the species is noticeably larger than *G. klugei*. The tube is cylindrical, slightly denser than that of *G. klugei*, silty-detritus, with hardly noticeable transverse thin secretory lines that are apparently reflecting the process of its construction.

REMARKS. Jirkov (2018) in the caption to Fig. 12 indicates that these are images of the holotype. However, the images are of the holotype of *Amagopsis cirratus*, not *Grubianella antarctica*.

DISTRIBUTION. Widely distributed in the Pacific, Indian, and Southern Oceans (Fig. 16), can be expected in the Atlantic Ocean, everywhere at abyssal, 3880–6240 m.

Grubianella klugei (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964) Figs 17–20.

Amagopsis klugei Chlebovitch, 1964: 176–177, fig. 1, types ZIN, type localities the Arctic Ocean, North to Svalbard, Franz Josef Land and the Laptev Sea, details see Supplement; Holthe 1986: 77–78, fig. 32, map 31; 1986b: 228; Jirkov, 1980: 231; 1989: 108.

Grubianella klugei — Jirkov, 2001: 479, map; Parra et al., 2014: 322, fig. 4B.

MATERIAL: 27 samples (62 specimens) see Supplement.

The original description is enough informative, only some additional remarks are necessary, mainly

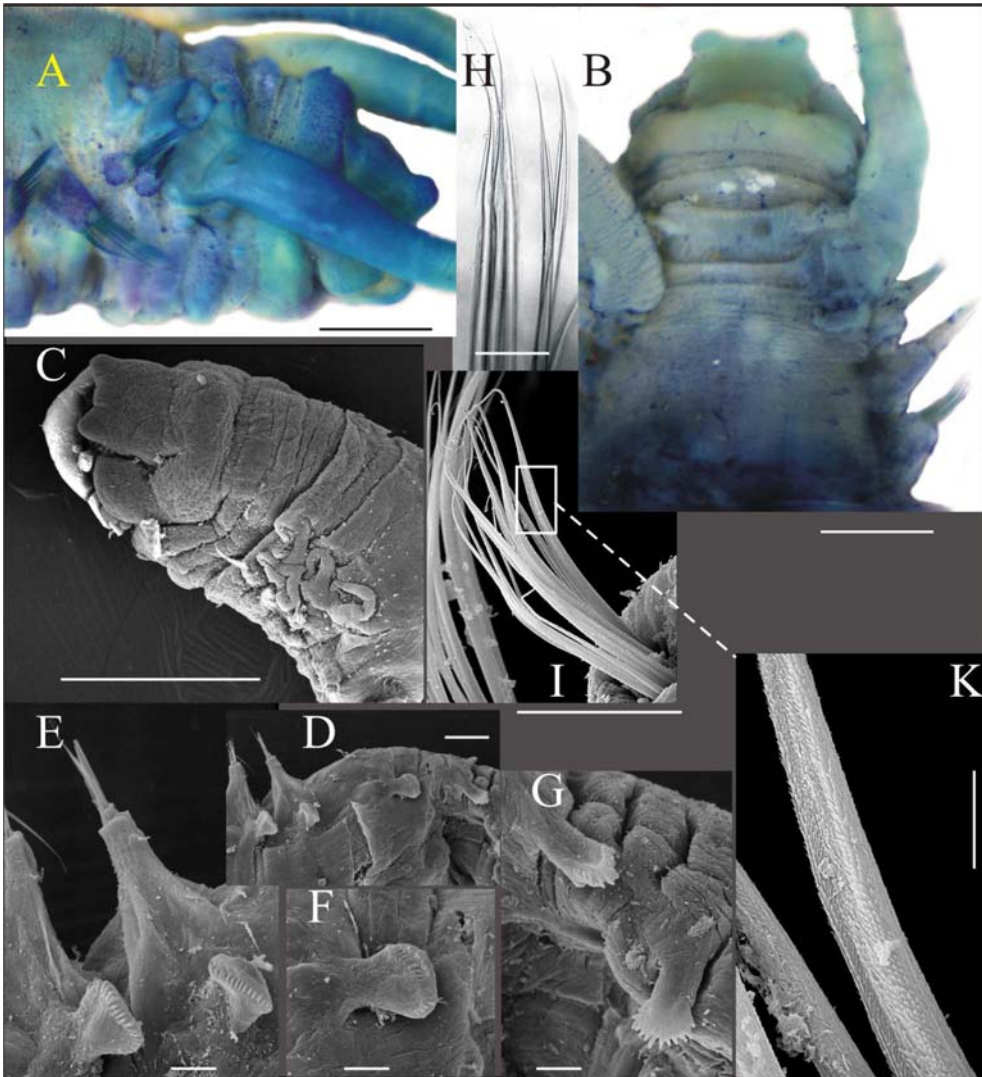


Fig. 17. External morphology of *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964).

A — lateral view; B — dorsal view; C — dorso-lateral view showing position of branchial scars typical for the Amagini; D — thorax–abdomen junction, lateral view of last two thoracic and two first abdominal segments; E — last two thoracic parapodium; F — 1st abdominal parapodium, G — 2nd and 3rd abdominal parapodia; H, I — notopodium TC6, K — enlarged view of chaeta. Scales: A–C — 1 mm, D — 0.3 mm, E–I — 0.1 mm, K — 10 μ m. A, B — holotype, C–K — Sevastopol st.1055.

Рис. 17. Внешняя морфология *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964).

A — вид сбоку; B — дорсальный вид; C — дорсо-латеральный вид, показывающий позицию мест прикрепления бранхиостилей, типичную для Amagini; D — граница торакса и живота, вид сбоку двух последних торакальных и двух первых абдоминальных сегментов; E — последние две торакальные параподии; F — первая абдоминальная параподия; G — вторая и третья абдоминальные параподии; H, I — нотоподия TC6, K — деталь нотохеты. Масштаб: A–C — 1 мм, D — 0,3 мм, E–I — 0,1 мм, K — 10 μ м. A, B — голотип, C–K — Севастополь 1055.

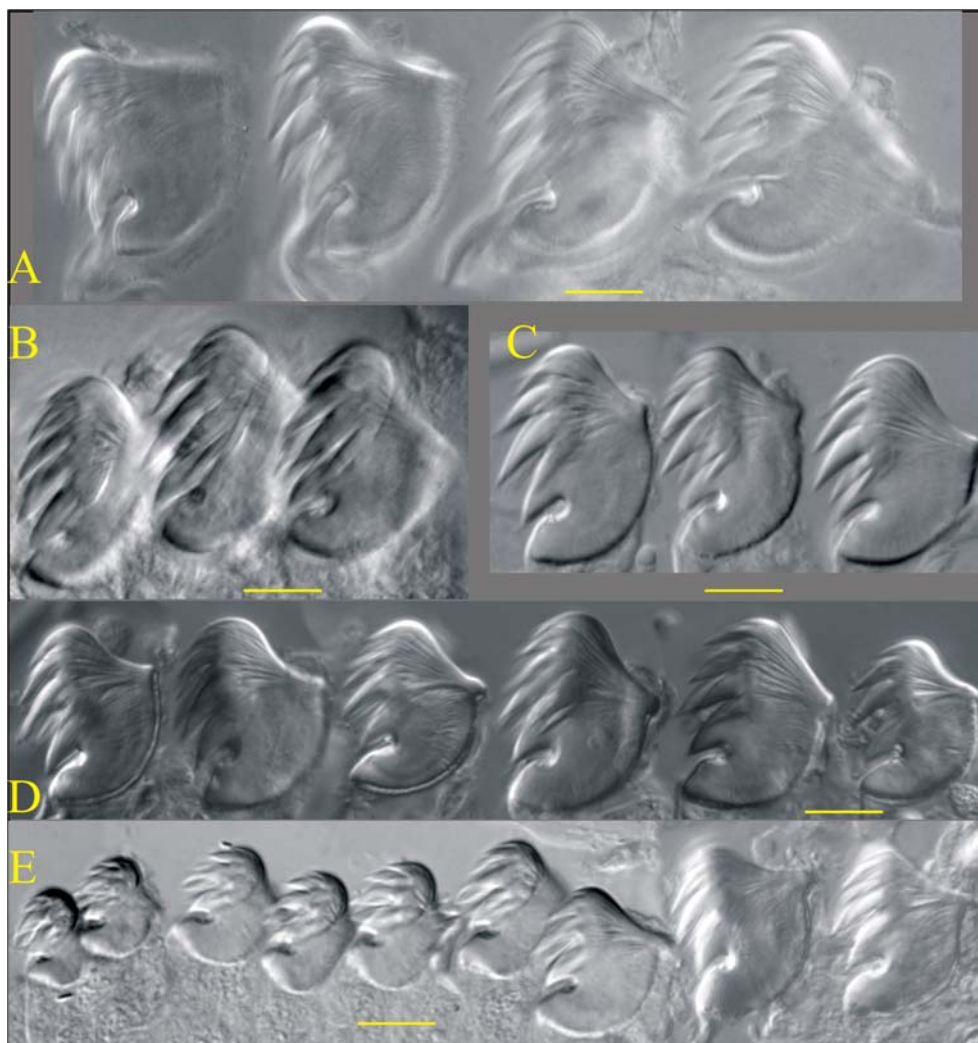


Fig. 18. Uncini of *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964), compound microscope.

A — TU1, B — TU11, C — AU1, D — AU2, E — AUlast. Scale: 10 μ m. Sevastopol st.1055

Рис. 18. Неврохеты *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964), световой микроскоп.

A — TU1, B — TU11, C — AU1, D — AU2, E — последний AU. Масштаб: 10 μ m. Севастополь 1055.

because chaetae have not been figured and described in details. Neuropodia of the thorax and AU1 tori, all other abdominal pinnuli. The species very similar to *G. antarctica*, but differs by the absence of notopodial cirri (compare fig. C and fig. 12B in Jirkov (2018)). The holotype has 21 AU. Notochaetae narrow bilimbate. Uncini (Figs 18, 19) avicular with a poorly visible button, with numerous teeth in several rows.

DISTRIBUTION (Fig. 20). Arctic deep water, mainly slope. 213–3540 m.

REMARKS. Material from RV Like st. 137 mentioned in the original description is absent in ZIN collection.

Samythopsis McIntosh, 1885

Type species: *Samythopsis grubei* McIntosh, 1885 by monotypy.

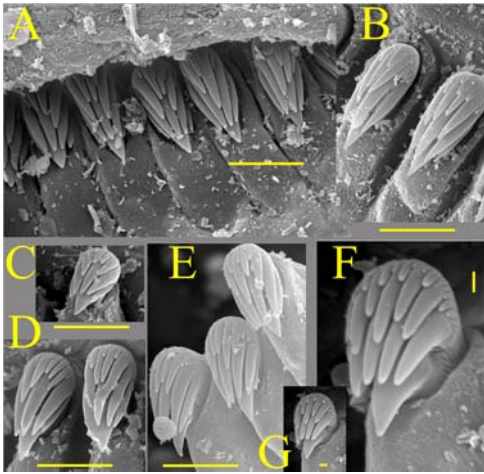


Fig. 19. Uncini of *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964), SEM. A — TU1, B — TU11, C, D — AU1, E — AU2, F, G — AUlast. Scale: 10 μ m, except F — 1 μ m. Sevastopol st.1055.

Рис. 19. Неврохеты *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964), СЭМ. А — TU1, В — TU11, С, D — AU1, E — AU2, F, G — последний AU. Масштаб: 10 μ m, за исключением F — 1 μ m. Севастополь.1055.

synonyms:

Neopaiwa Hartman et Fauchald, 1971 (type species: *Neopaiwa cirrata* Hartman et Fauchald, 1971 by original designation);

Paiwa Chamberlin, 1919 (type species: *Paiwa abyssii* Chamberlin, 1919 by original designation);

Weddellia Hartman, 1967 (type species: *Weddellia profunda* Hartman, 1967 by original designation).

DIAGNOSIS. Middle lobe of prostomium anteriorly incised without longitudinal ridges. Nephridial papillae mid-dorsally posterior to branchiae absent. Modified noto- and neuropoda absent. Neuropodia of two types: thoracic tori, abdominal pinnuli. Abdominal neuropodia with very long cirri, longer than width of segment. Uncini avicular.

Samythopsis grubei McIntosh, 1885
Figs 21–22.

Samythopsis grubei McIntosh, 1885: 435–436, pl. XLVIII 3, pl. XXVIIa 8, type locality South Pacific Ocean, off Chile, 34°07'S 73°56'W, 2225 m.

Paiwa abyssii Chamberlin, 1919: 459–461, pl. 76, fig. 7–9; pl. 77, figs 9, 10, type locality South Pacific Ocean, off Chile, 35°17'S 85°20'W, 4087 m (2235 fms), numerous; Kucheruk, 1981: 44.

Weddellia profunda Hartman, 1967: 164–165, pl. 48, type locality Atlantic sector of Antarctica South Sandwich

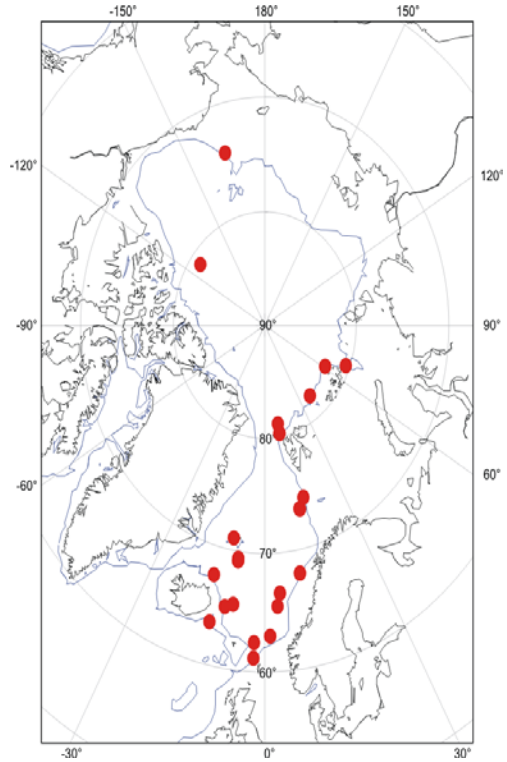


Fig. 20. Map showing sampling stations with specimens of *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964). 500 m isobath is shown. Triangles — type localities, blue outlined holotype, black outlined paratypes.

Рис. 20. Карта находок *Grubianella klugei* (Pergament et Chlebovitch, 1964 in Chlebovitch, 1964).

Показана 500 м изобата. Треугольники — типовые местности.

Basin, 58°55' to 58°54'S; 27°13' to 27°06'W, 2553–2575 m (3).

Neopaiwa cirrata Hartman, Fauchald, 1971: 159–160, pl. 26, figs a–g, type locality North of Bermuda, 34°39'N 66°26'W, 5007 m (2 fgm.).

MATERIAL: 9 samples (44 specimens, including syntypes of *Samythopsis grubei* NHM 85.12.1.325) see Supplement.

The middle lobe of the prostomium with short but distinct lateral horns. About 20 oral tentacles covered with small papillae. The paleae developed to varying degrees: from completely absent with a barely noticeable paleal tubercle (a vestige of notopodia) to almost equal to TC1 notopodia. Four pairs of branchiae. In *Samythopsis grubei*, the places of attachment of branchostyles located in the same way as in the examined *Amage* and *Grubianella* species:

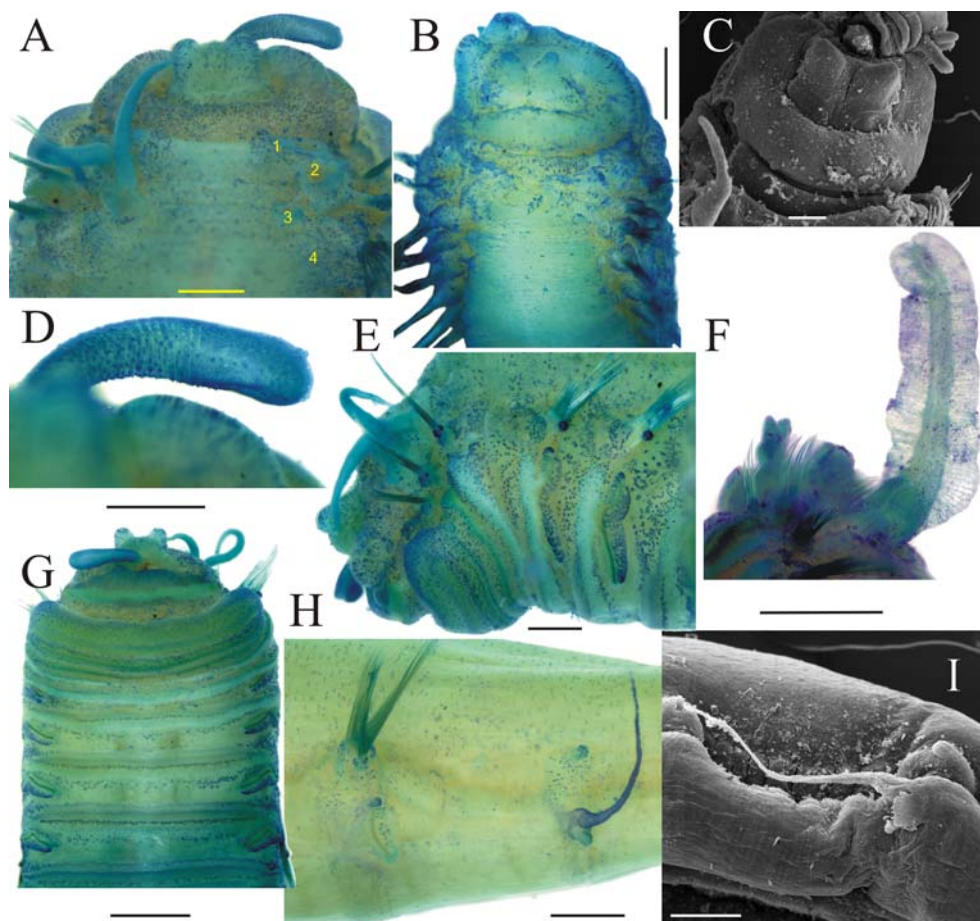


Fig. 21. External morphology of *Samythopsis grubei* McIntosh, 1885.

A, B, C — dorsal views, numbers in A show branchial scars; D — buccal tentacle from A; E — lateral view; F — branchia; G — ventral view; H — thorax–abdomen junction; I — AU3. Scales: A, B, E, H — 0.5 mm, C, D, I — 0.3 mm, G, F — 1 mm. F — Vitjaz st. 6136, other — Vitjaz st.5624.

Рис. 21. Внешняя морфология *Samythopsis grubei* McIntosh, 1885.

A, B, C — дорсальный вид, числа в A — номера бранхофоров; D — увеличенная ротовая щупальца из A; E — вид сбоку; F — жабра; G — вентральный вид; H — граница торакса и живота; I — AU3. Масштаб: A, B, E, H — 0,5 мм, C, D, I — 0,3 мм, G, F — 1 мм. F — Витязь 6136, прочие — Витязь 5624.

the first pair forms a transverse line; the branchophores of the 3rd pair located behind the first pair, between the inner and outer, the 4th behind and slightly medial to the 3rd. The outer branchophore from the anterior pair associated with notopodia TC1, the 3rd with notopodia TC2, the 4th with TC3. 17 TC, 14 TU. The branchial groups separated by an interval approximately equal to 1.5 branchophore diameters. Branchostyles, like in all Ampharetinae, easily lost, not a single examined specimen had them all preserved. The few preserved branchostyles have a central trunk, on both sides of which there is a wide

border (Fig. 21F). The notopodia of segments without neuropodia is slightly less than the subsequent ones. Notopodia of segments with neuropodia with small spherical cirri, intensely stained with methylene blue. Nephridial papillae invisible. 17 TC, 14 TU. Among the 44 investigated specimens, 17 had whole abdomens with 20–22 AU, the last abdominal segments often wider than the preceding ones. McIntosh (1885) does not specify the AU number, the syntypes do not have posterior abdomens. Hartman (1967) reported 23 AU for *W. profunda*. Hartman, Fauchald (1971) reported at least 18 AU for *N.*

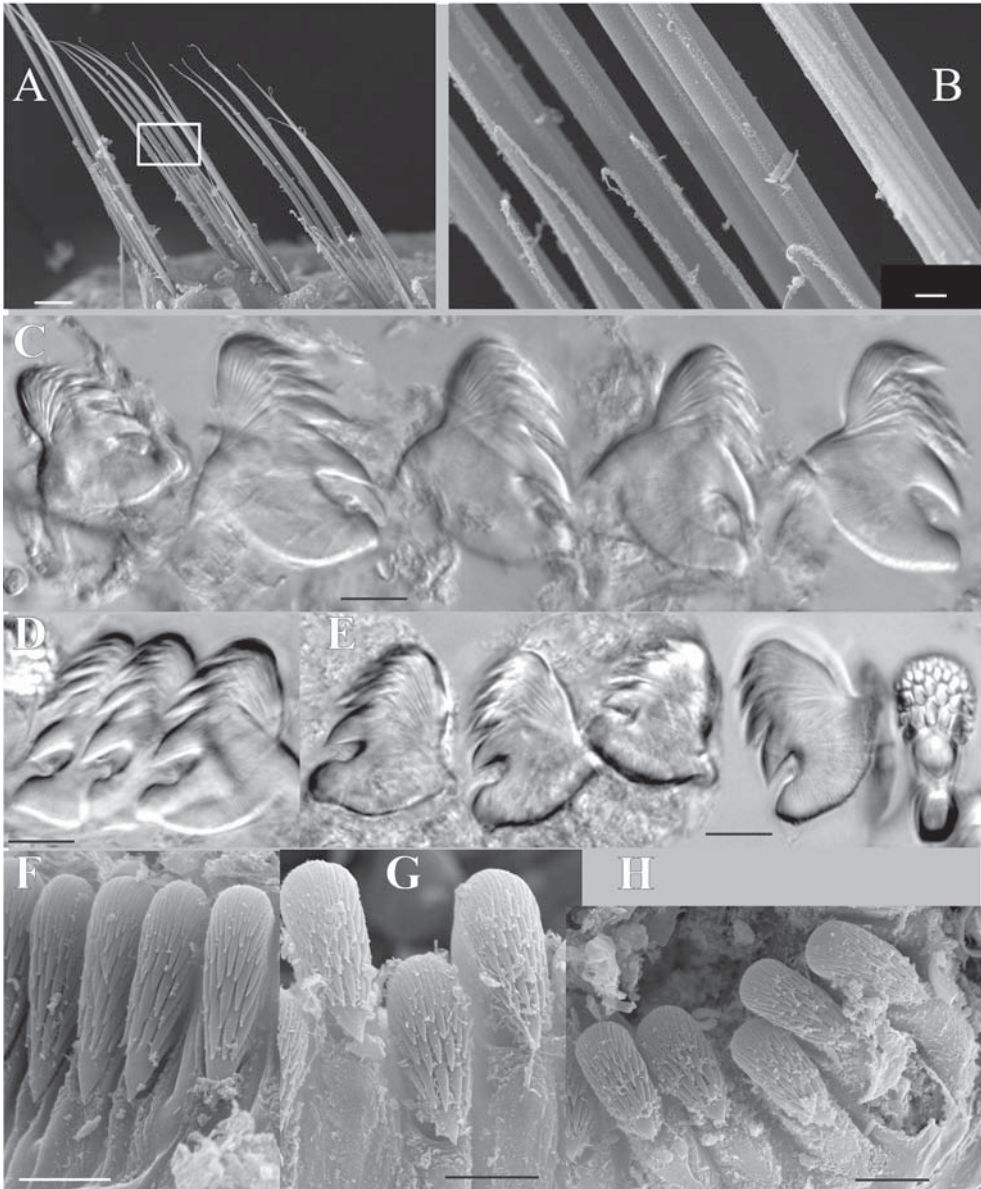


Fig. 22. Chaetae of *Samythopsis grubei* McIntosh, 1885.

A — notochaetae; B — details; C–H — uncini: C — TU1, D — TU14, E — AU1, F — TU, G — AU3, H — AU last. Scales: A — 0.1 mm, other — 10 μ m. Vitjaz st.5624.

Рис. 21. Щетинки *Samythopsis grubei* McIntosh, 1885.

A — нотохеты; B — увеличенный фрагмент A; C–H — неврохеты: C — TU1, D — TU14, E — AU1, F — TU, G — AU3, H — последнего AU. Масштаб: A — 0,1 мм, прочие — 10 μ m. Витязь 5624.

cirrata. Neuropodia TU1 two to three times larger than the last thoracic ones. All thoracic neuropodia tori. All abdominal neuropodia pinnuli, with very long (longer than the width of the body in this place) dorsal neuropodial cirri (may be lost), intensely

stained in methylene blue, short cirri may be on the last thoracic segments. Pygidium with two long thin lateral cirri. Notochaetae (Fig. 22A, B) narrow bilimbate. Uncini (Fig. 22C–H) avicular: above the main tooth rows of smaller teeth arranged in a



Fig. 23. Map showing sampling stations with specimens of *Samythopsis grubei* McIntosh, 1885 500 m isobath is shown. Type localities inscribed.

Рис. 23. Карта находок *Samythopsis grubei* McIntosh, 1885 Показана 500 м изобата. Типовые местности подписаны.

semicircle, decreasing in size apically and laterally. Thoracic and abdominal uncini generally similar, but the abdominal ones have more small teeth on top of the main one. Up to 45 mm long. The tube made of silt, cylindrical, almost without inlays, very long (up to 10 cm or more).

DISTRIBUTION. Deep-sea, widespread in the pre-continental abysses, 2225–5220 m (Fig. 23).

REMARKS. *Samythopsis grubei* has been described as new genus and species three more times: as *Paiwa abyssii* Chamberlin, 1919, *Weddellia profunda* Hartman, 1967, and *Neopaiwa cirrata* Hartman, Fauchald, 1971. Each time the described species was allocated to a new genus. Only the description by Chamberlin (1919) compared it with *Samythopsis grubei*, whereas Hartman (1967) and Hartman and Fauchald (1971) did not even mention McIntosh's species, and, describing *Neopaiwa*, did not mention *Weddellia*. The arguments for synonymy are given below.

Only Chamberlin (1919) who examined numerous specimens has been able to determine correct number of branchiae. McIntosh, Hartman and Fauchald had available only fragments of 2–3 specimens, probably that is why they cannot find second branchial scars on S3. As far as I know, no ampharetids have a single pair of branchiae on S3. McIntosh (1885) overlooked the second branchiae of anterior pair in his species, which resulted in *Paiwa* later being described as a new genus. I have found fourth branchiae on syntypes only on stained worms and after specially looking for.

***Paiwa abyssii*.** Type localities of *P. abyssii* and *S. grubei* both species are located off the Pacific coast of South America about 3500 from each other. Although Chamberlin (1919: 459) directly stated

“No paleae present” apparently, he, like many other authors, considered only sharply enlarged S2 notochaetae as paleae, whereas in this species notochaetae S2 are smaller than the notochaeta of the next segment. He writes: “The setae of the first segment are fewer and much shorter... The uncinigerous tori begin on the fifth setigerous somite” “Uncini beginning on the sixth somite”, from which it follows that the first notopodia are on S2, and the notopodia S2 are paleae. Therefore, in the accepted here terminology, *P. abyssii* has 17 TC and small paleae. Specimens collected about 500 km from the type locality of *P. abyssii* agree well with description of *P. abyssii* and syntypes of *S. grubei*. Because no characters distinguish *P. abyssii* from *S. grubei*, I propose to consider these species synonyms.

***Weddellia profunda*.** Hartman (1967), like Chamberlin (1919), wrote: “Paleae are absent”, which, as in the case of *P. abyssii*, apparently means that she did not consider S2 notochaeta as paleae. She incorrectly stated that “*Weddellia* differs from *Paiwa* in having thoracic uncini with teeth in several rows” (Hartman, 1967). Really Chamberlin (1919: 461) described uncini of his species: “In frontal view it is seen that there is at the apex a transverse series of three teeth, below this a second series of three, then one of two, while the lowermost tooth is single. The usual formula, beginning with the reduced lower tooth, is thus 1+1+2+3+3”. As the number of teeth above the rostrum progressively increased posteriorly, while no description gives the number of the segment from which uncini were taken from, it is impossible to evaluate the differences between uncini described for all four species. Hartman (1967: 163–164) indicated for *Weddellia profunda* “Branchiae number three pairs they are inserted on the first

three successive setigerous segments". Since ampharetids have branchiae formed by outgrowths of S2, S3, S4 and S5 and when reducing the number of branchiae always S5 branchiae are lost, most likely, Hartman, like McIntosh, did not notice the second pair on S3 in the three specimens she had. Thus, because no characters distinguish *Weddellia profunda* from *Samythopsis grubei*, they should be considered synonyms.

Neopaiwa cirrata. Hartman, Fauchald (1971) wrote "Paleae are absent", but on Pl. 26a paleae are drawn and their indication "Thoracic uncini are first present from setiger 5" supports this. They also believed that "It differs [from *Paiwa abyssii*] in... thoracic uncini are first present from setiger 5 instead of 6", which is not true, as Chamberlin wrote "The uncinigerous tori begin on the fifth setigerous somite". Although Hartman, Fauchald (1971) reported three pairs of branchiae for their species, it is highly likely that they, like McIntosh, did not notice the second branchia of the first pair in their three fragments. It is strange that describing a new species, they not only did not mention *Samythopsis grubei*, but also ignored *Weddellia profunda* described by Hartman four years earlier. Thus, *Neopaiwa cirrata* should be accepted as a junior synonym of *Samythopsis grubei* as there is no character to separate them.

Supplementary data. The following Table is available online.

Table. Finds of the species most common in investigated material.

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