

**ONE NEW GENUS AND THREE NEW SPECIES OF THE AMPHARETIDAE  
(POLYCHAETA: TERESELLIDA) FROM THE BIOSHELF PROJECT**

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**ABSTRACT**

One new, strongly aberrant and probably non-tubicolous ampharetid genus, *Andamanella* with one species, *A. bellis*, and two new species in established genera, *Auchenoplax andamana* and *Sosane jirkovi*, are described from the BIOSHELF Project in the Andaman Sea. The taxonomy of the genus *Auchenoplax* is discussed. The number of genera in the family is discussed.

**INTRODUCTION**

The family Ampharetidae belongs to the polychaete order Terebellida (Terebellomorpha). The family is found mainly in marine waters; a few species occur in fresh-water. Ampharetids are found in all marine biogeographical regions of the world (Holthe 1986a). A bathymetric distribution from 400 m above sea level to 10,000 m below sea level, is given by Holthe 2000.

A discussion of the order's taxonomy with a catalogue and bibliography is given by Holthe 1986a.

**MATERIAL AND METHODS**

For a description of the BIOSHELF Project and detailed sampling information see Aungtonya and Eibye-Jacobsen (2002) in this volume. The material is kept at the Phuket Marine Biological Center (PMBC) or the Zoological Museum, Copenhagen (ZMUC).

**TAXONOMY**

***Andamanella* n. gen.**

**Type species:** *Andamanella bellis* n. sp., by monotypy.

**Diagnosis:** Ampharetids with one or few smooth tentacles. Three pairs of branchiae, no paleae. Thorax laterally clearly segmented, abdomen not. Notopodia with capillaries in both thorax and abdomen. No neurochaetae. No ventral shields, anterior part of venter forming a distinct keel.

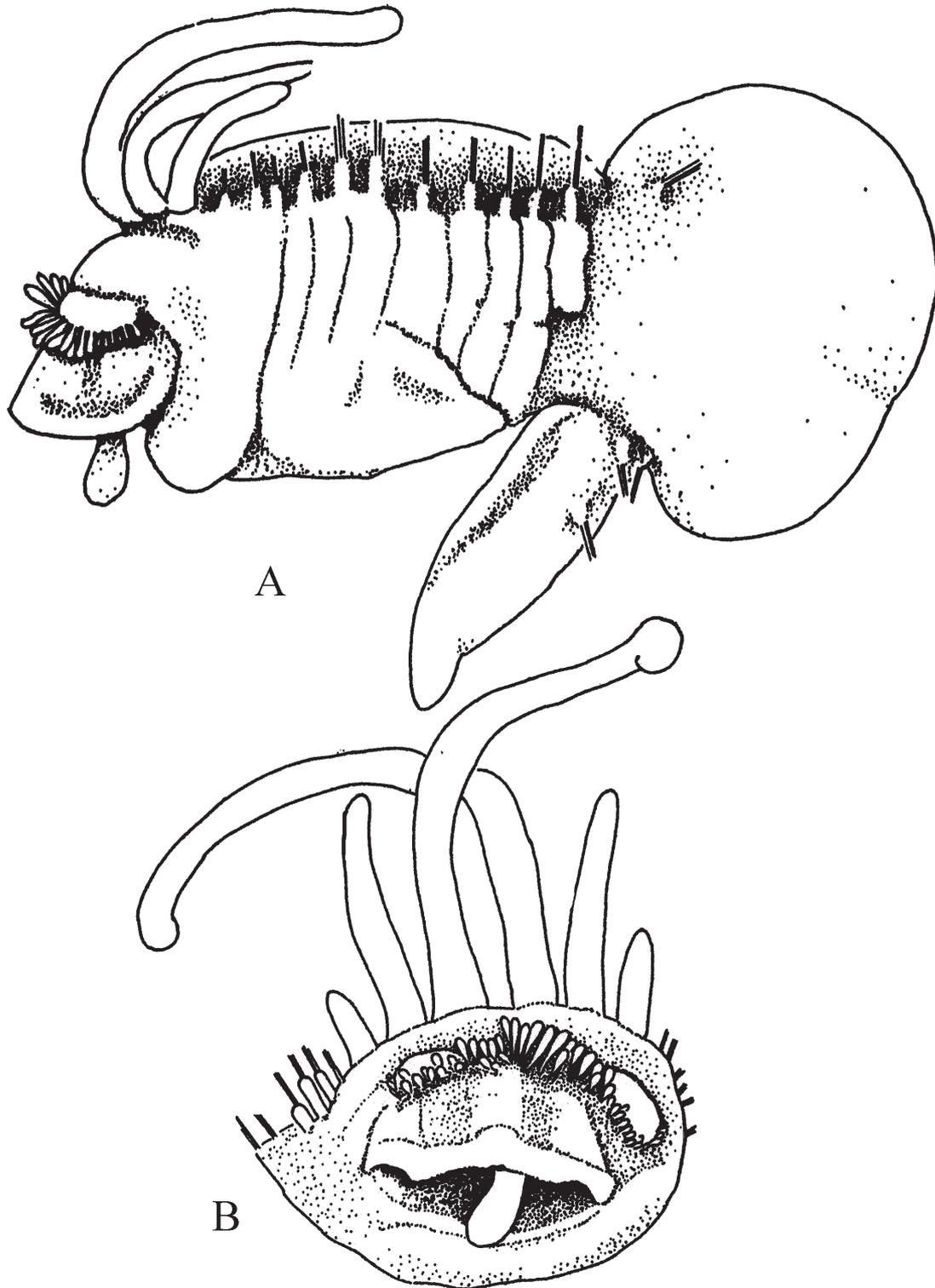
**Etymology:** Generic name diminutive (feminine) and reflecting the type locality, the Andaman Sea.

***Andamanella bellis* n. sp.**

Fig. 1A–B

**Material examined:** BIOSHELF st. C-1/BC, 9°00' N, 98°03' E, 40 m, muddy sand with shell fragments, 20 Apr 1996 (holotype, PMBC 18547).

**Description:** Body very short and thick (Fig. 1A). Holotype complete, body 5.5 mm long and 1.2 mm high. Prostomium rounded, slightly folded with large nuchal arches with numerous papillae anteriorly. One large, smooth, club-shaped tentacle protruding from mouth. Three pairs of smooth branchiae arranged in one transverse row (Fig. 1B). Very narrow space between right and left branchiae. Branchial bases hardly discernible. Thorax firm. Three first chaetigerous segments fused with peristomium, the following eight thoracic segments clearly segmented laterally with



**Figure 1** *Andamanella bellis* n. gen., n. sp., holotype: A. Lateral view. B. Frontal view.

notopodia bearing capillary chaetae. Ventrally there is a keel running from segment II to 10<sup>th</sup> chaetigerous segment. No neuropodia. Abdomen soft, anterior part inflated in holotype, posterior part tapering. No segmentation can be seen on abdomen. Four pairs of notopodia with capillary chaetae present, no neuropodia. Pygidium rounded, without appendages. Colour in alcohol pale yellowish.

**Etymology:** *bellis*, noun in apposition, the name of a flower in the works of Plinius, meaning the beautiful, adopted by Linnaeus as the generic name for the daisy, and befitting the first ampharetid described with “eyelashes”.

**Remarks:** This new genus and species is clearly an ampharetid, and seems to belong to the subfamily Ampharetinae. It bears no resemblance to any known ampharetid. The unusual shape and the lack of ventral glands and uncini suggest that this animal is non-tubicolous. Terebellomorphs without tubes are found in the related family Terebellidae, e.g., *Lysilla* Malmgren, 1866 and *Hauchiella* Levinsen, 1893. Of these the former lacks uncini, the latter is completely without chaetae. Observations on live *Lysilla loveni* Malmgren, 1866 show that this species moves through soft sediment by peristalsis (Holthe 1986b).

Nuchal organs are quite common among the Ampharetidae, but no other species has papillae beneath the nuchal organs.

The inflation of the abdomen could be an artefact caused by sampling and fixation.

The presence of one large tentacle is known in *Amythasides macroglossus* Eliason, 1955 in the Ampharetinae, and in several species among the Melinninae (Holthe 1986b). There is no character connecting the new genus to the smaller and rather well-defined subfamily Melinninae; hence I propose that it should be placed in the larger and more diverse subfamily Ampharetinae.

There is no observation on how *A. bellis* lives; it is only possible to deduce from its morphology that it is free living in the muddy sediment. Among the Terebellida this mode of life is chiefly known in the terebellid subfamily Polycirrinae. This probable synapomorphy, as well as the complete

lack of uncini found also in *Lysilla* and *Hauchiella*, must, however, represent convergence.

### *Auchenoplax* Ehlers, 1887

*Auchenoplax* Ehlers, 1887: 208.

**Type species:** *Auchenoplax crinita* Ehlers, 1887: 209, pl. 44, figs. 10–16.

**Remarks:** The type species was also described by Fauvel (1936) and by Hartman (1965) with figures. Its congeners are *A. mesos* Hutchings, 1977 and *A. rullieri* Holthe, 1986. These species are discussed below.

### *Auchenoplax andamana* n. sp.

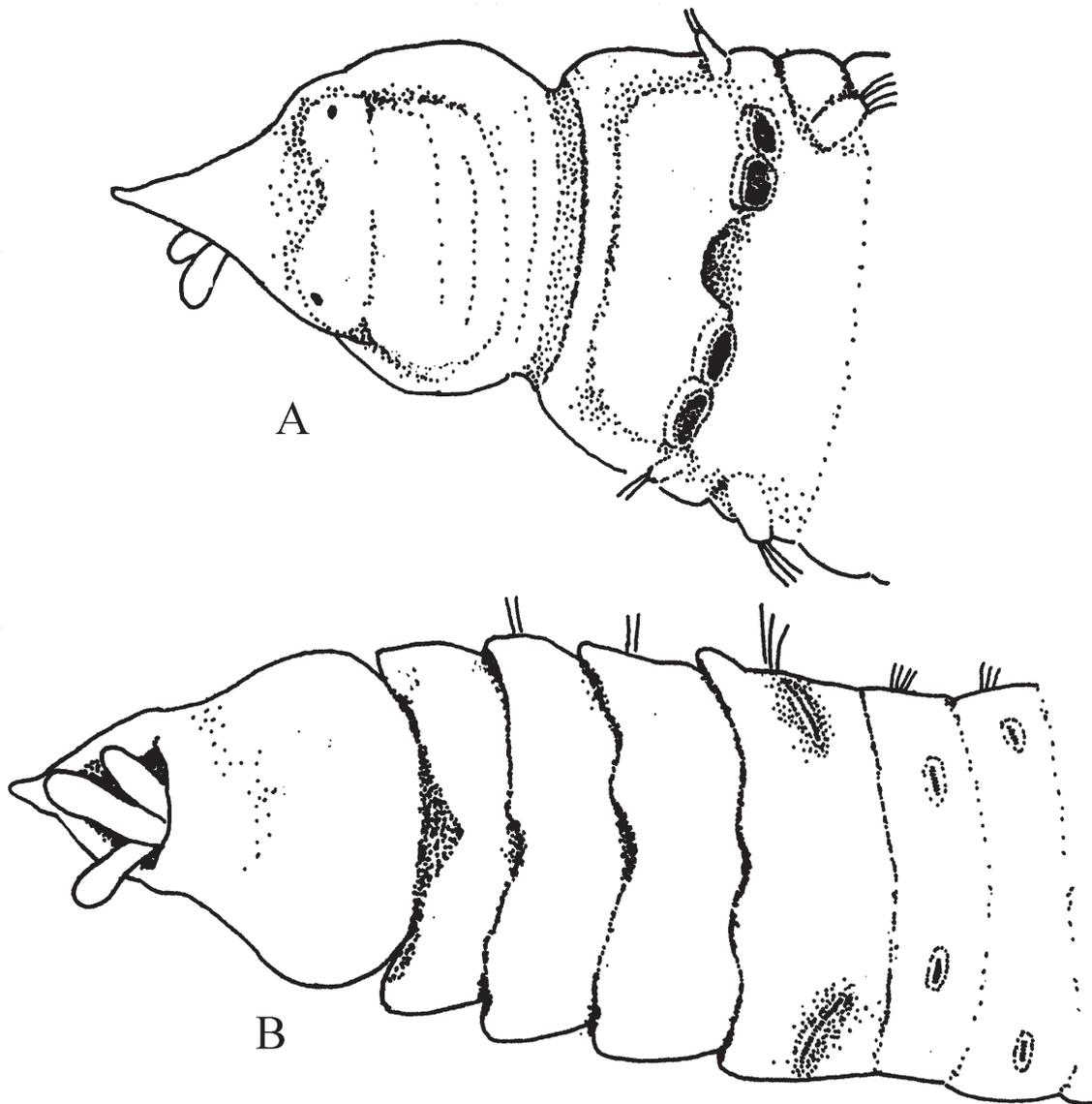
Fig. 2A–B

**Material examined:** BIOSHELF st. A-2/OS, 9°32' N, 97°50' E, 66 m, sandy mud, 18 Apr 1996 (2, PMBC 18548); st. C-1/BC, 9°00' N, 98°03' E, 40 m, muddy sand with shell fragments, 20 Apr 1996 (1, PMBC 18549); st. C-2/OS, 9°01' N, 98°03' E, 39 m, muddy sand, 20 Apr 1996 (1, PMBC 18550); st. G-2/OS, 8°00' N, 98°10' E, 63 m, muddy sand, 23 Apr 1996 (1, PMBC 18551); st. H-1/OS, 7°45' N, 98°16' E, 31 m, mud, 9 May 1996 (8, PMBC 18552); st. I-1/OS, 7°30' N, 98°57' E, 38 m, mud, 3 May 1996 (2, PMBC 18553); st. RN-3/BC, 7°30' N, 98°17' E, 72 m, muddy sand, 8 May 1996 (1, PMBC 18554); st. RY-1/BC, 7°36' N, 98°19' E, 55 m, sand with shell fragments, 8 May 1996 (2 paratypes, ZMUC-POL-1178); st. RY-3/BC, 7°36' N, 98°25' E, 49 m, muddy sand, 8 May 1996 (1, PMBC 18555); st. PB-5/OS, 7°52' N, 98°8' E, 21 m, sand with shell fragments, 22 Apr 1997 (holotype, PMBC 18556); st. PB-8/BC, 7°45' N, 98°52' E, 19 m, sand with shell fragments, 22 Apr 1997 (1, PMBC 18557).

**Description:** Body long, cylindrical. Holotype complete, 11 mm long and 0.5 mm wide. Prostomium acute, triangular, fused with peristomium. Dorsally a low transverse ridge with a pair of eye-spots widely apart (Fig. 2A). Few, smooth, club-shaped tentacles (Fig. 2B). Fused

branchial base covering dorsum of segments II and III. Two pairs of branchiae in close lateral groups widely apart. Branchiae long, filiform, reaching back to abdomen. Segments III and IV with notopodia bearing a few capillaries. Segment V with notopodia and long neuropodial tori.

Segment VI and following 10 segments (partly concealed by tube in holotype) with notopodia and short neuropodial tori. Very few, long abdominal segments with small neuropodial pinnulae. No rudimentary notopodia in abdomen. Pygidium cylindrical, without appendages. Notochaetae



**Figure 2** *Auchenoplax andamana* n. sp., holotype: A. Dorsal view of anterior part, branchiae lost. B. Ventral view of anterior part.

capillary, limbate. Thoracic uncini pectinate with 4 or 5 rows of 2 teeth, 10 mm long. Colour in alcohol very pale yellowish. Tube very thin, encrusted with sand grains.

**Remarks:** *A. andamana* differs from *A. crinita* and *A. mesos* by having only one pair of long neuropodial tori, and from *A. rullieri* by having a protostomial ridge with eye-spots.

The presence of notopodia and a few capillaries in segments III and IV disagrees with Fauchald's (1977) generic diagnosis. I am, however, convinced that this does not justify the erection of a new genus, as *Auchenoplax* is otherwise one of the best defined genera of the family. In a case like this it is preferable to alter the generic diagnosis.

*Auchenoplax mesos* Hutchings, 1977

*Auchenoplax mesos* Hutchings, 1977: 4, fig. 2 a–c.

**Remarks:** Hutchings' (1977) description of this species is contradictory to her own generic diagnosis regarding the number and arrangement of branchiae. On my request, Dr. Hutchings kindly checked the holotype, and stated: "The holotype has 2 branchial scars on each side – *i.e.*, 2 pairs of branchiae – this conforming to the generic description." (Hutchings pers. comm.)

*Auchenoplax rullieri* Holthe, 1986

Ampharetidae gen. et sp. indet. Rullier 1972: 138–139, fig. 31.

*Auchenoplax rullieri* Holthe, 1986: 93.

**Remarks:** This species is incompletely known, as Rullier (1972) did not identify his specimen as belonging to the genus *Auchenoplax*, but listed it as Ampharetidae gen. et sp. indet. However, he wrote a description and provided a figure of the animal. He discussed its affinity to three other ampharetid genera, suggested a possible new genus, but did not erect one. Upon studying Rullier's description and figures, I was in no doubt that this worm is an *Auchenoplax* and belonged to an undescribed species (Holthe 1986a).

*Sosane* Malmgren, 1866

*Sosane* Malmgren, 1866: 367.

**Type species:** *Sosane sulcata* Malmgren, 1866: 368, pl. 26, fig. 79.

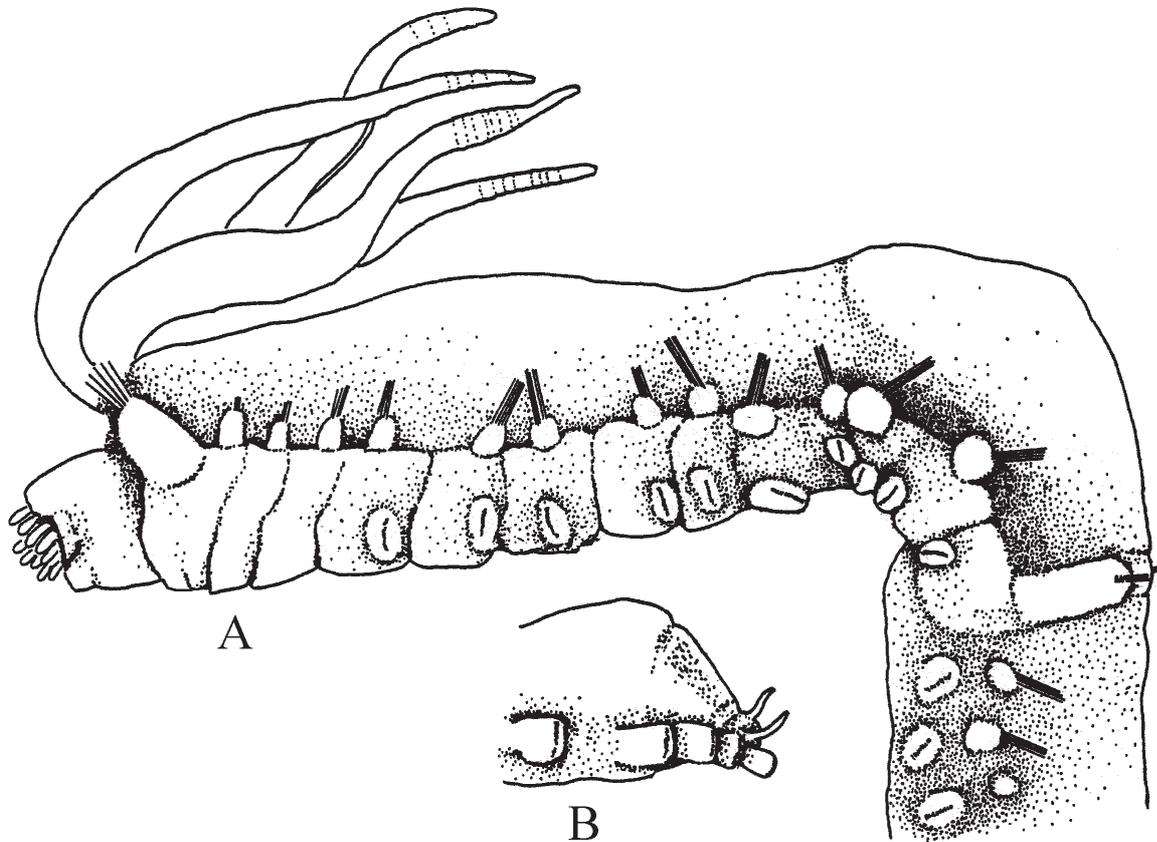
*Sosane jirkovi* n. sp.

Fig. 3A–B

**Material examined:** BIOSHELF st. G-2/OS, 8°00' N, 98°10' E, 63 m, muddy sand, 23 Apr 1996 (holotype, PMBC 18558).

**Description:** Holotype complete, 22 mm long and 2 mm wide. Body long and slender, almost cylindrical (Fig. 3A). Abdomen not tapering, only the two last segments narrower than the preceding (Fig. 3B). Prostomium simple with a swollen brim above the mouth. Tentacles uniform, small and club-shaped. Four pairs of rather thick branchiae. Branchial bases very low, giving the impression of the branchiae rising directly from the dorsum. Short, stout paleae, 10–12 on each side on large notopodia pointing obliquely forwards. Following three segments with small notopodia bearing capillaries. Twelve thoracic segments with neuropodia bearing capillaries and neuropodia bearing uncini. Third from last thoracic segment with elevated and transformed notopodia meeting at mid-dorsum and bearing few but very stout notochaetae (may have been broken in holotype). Small rudimentary notopodia in anterior part of abdomen. Eleven abdominal segments with uncinigerous pinnulae. Three last abdominal segments with overlapping pinnulae. Pygidium with a pair of small cirri (Fig. 3B). Holotype a ripe female with large eggs (150 µm in diameter) showing through the body wall. Colour in alcohol pale pinkish yellow.

**Remarks:** This species belongs to *Sosane* s. str., and differs from the other two described species that can be so classified by the shape and bristles of the modified notopodia and by the number of abdominal segments (11) which is 12 in *S. sulcata* Malmgren, 1866 and 14 in *S. wireni* Caullery, 1944.



**Figure 3** *Sosane jirkovi* n. sp., holotype: A. Lateral view of thorax and first abdominal segment. B. Lateral view of posterior part of abdomen and pygidium.

No other species of *Sosane* has as large pale notopodia as *S. jirkovi*.

**Etymology:** This species is named after the Russian polychaetologist Dr. Igor A. Jirkov, who has especially published works on ampharetids.

#### DISCUSSION

The family Ampharetidae is presently one of many monotypic genera. There have been attempts to reduce the number of genera, like that of Day (1964). It has however, turned out to be a difficult task. There are a few large genera, like *Ampharete* and *Amphicteis*, with 25 species each, but according to my up-dated list (<http://www.ntnu.no/~vmzothol/taxa/ampharetidae.htm>) there are as

many as 37 monotypic genera out of a total of 74. 50% monotypic genera in a large family is in my experience impractical, but the system does not primarily exist for the purpose of identification.

To some degree this high number of monotypic genera may reflect nature and the state of evolution within the taxon. Michael Sars (1835) wrote: "notwithstanding I am no devotee of the modern perpetual erecting of new genera, I have in the present work been forced to erect several new genera when I found animals that essentially differed from the hitherto known species." (My translation.) This venerable statement in my opinion justifies the erection of aberrant genera like *Andamanella*, based on one species, and as in this case even one single specimen.

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**REFERENCES**

- Aungtonya, C. and D. Eibye-Jacobsen. 2002. Introduction to the Thai–Danish BIOSHELF sampling project and the Polychaete Workshop held in Phuket, Thailand, June–August 1997. *Phuket Marine Biological Center Special Publication* **24**: 1–12.
- Day, J.H. 1964. A review of the family Ampharetidae (Polychaeta). *Annals of the South African Museum* **48** (14): 97–120.
- Ehlers, E. 1887. Florida-Anneliden. (Report on the annelids of the dredging expedition of the U.S. coast survey steamer Blake). *Memoirs of the Museum of Comparative Zoology, Harvard* **15**: vi + 1–328.
- Fauchald, K. 1977. The polychaete worms. Definitions and keys to the orders, families and genera. *Natural History Museum of Los Angeles County, Science Series* **28**: 1–188.
- Fauvel, P. 1936. Contribution à la faune des annélides polychètes du Maroc. *Mémoires de la Société de Science Naturelle et Physique du Maroc* **43**: 1–143.
- Hartman, O. 1965. Deep-water benthic polychaetous annelids off New England to Bermuda and other North Atlantic areas. *Occasional Papers of the Allan Hancock Foundation* **28**: 1–378.
- Holthe, T. 1986a. Evolution, systematics and distribution of the Polychaeta Terebellomorpha with a catalogue of the taxa and a bibliography. *Gunneria* **55**: 1–236.
- Holthe, T. 1986b. Polychaeta Terebellomorpha. *Marine Invertebrates of Scandinavia* **7**: 1–194.
- Holthe, T. 2000. Bathyal and abyssal Ampharetidae (Annelida Polychaeta) (Sedentary species II). *Galathea Report* **18**: 57–68.
- Hutchings, P.A. 1977. Terebelliform Polychaeta of the families Ampharetidae, Terebellidae and Trichobranchidae from Australia, chiefly from Moreton Bay, Queensland. *Records of the Australian Museum* **31**: 1–38.
- Malmgren, A.J. 1866. Nordiska Hafs-Annulater. Öfversikt av Kungliga Vetenskaps-Akademiens Förhandlingar, Stockholm **22**: 355–410.
- Rullier, F. 1972. Annélides polychètes de Nouvelle-Calédonie recueillies par Y. Plessis et B. Salvat. *Expédition Française sur les Recifs Coralliens de la Nouvelle-Calédonie* **6**: 1–169.
- Sars, M. 1835. Beskrivelser og Iagttagelser over nogle mærkelige eller nye i Havet ved den Bergenske Kyst Levende Dyr af Polypernes, Acephalernes, Radiaternes, Annelidernes og Molluskernes Classer, med en kort Oversigt over de hidtil af Forfatteren sammesteds fundne Arter og deres Forekommen. Bergen. xii + 81 pp.



**NOTES:**

