

Additions to the deep-sea echiuran (Echiura) fauna of the North-East Atlantic

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ABSTRACT

This report contains descriptions of 10 species of deep-sea bonelliids from the North-East Atlantic of which three are indeterminate species. The specimens were collected during the BENGAL cruises that were undertaken between September 1996 and October 1998 in the Porcupine Abyssal Plain. A new monotypic genus *Bengalus* n. gen. is erected to accommodate *B. longiductus* n. gen., n. sp. and another new species, *Jakobia densopapillata* n. sp., is here described. The main distinguishing features of *B. longiductus* n. gen., n. sp. include the presence of a single, elongated, tubular gonoduct on the right side of the nerve cord with a stalked gonostome located near the distal end of the gonoduct; a thick integument covered with microscopic papillae; tubular anal vesicles and the absence of ventral setae. *Jakobia densopapillata* n. sp. is distinguished by possessing a thick integument that is densely covered with prominent papillae over the entire surface of the trunk; a truncate proboscis with the lateral margins uniting proximally to form a funnel around the mouth; a single V-shaped gonoduct on the right side of the nerve cord with an anteriorly directed gonostome; tubular anal vesicles and the absence of ventral setae. The paper includes the first records of the occurrence of *Zenkevitchiola brevirostris* Murina, 1978 and *Achaetobonellia maculata* Fisher, 1953 from the North Atlantic Ocean.

KEY WORDS

Echiura,
deep-sea fauna,
North-East Atlantic,
new genus,
new species.

RÉSUMÉ

Additions à la faune profonde d'échiures (Echiura) de l'Atlantique nord-est.

Cet article contient les descriptions de 10 espèces de Bonelliidae de l'Atlantique nord-est parmi lesquels trois sont indéterminées. Ces spécimens ont été récoltés durant les campagnes BENGAL entre septembre 1996 et octobre 1998 dans la plaine abyssale de Porcupine. Un nouveau genre, *Bengalus* n. gen., est établi pour accueillir *B. longiductus* n. gen., n. sp. et une autre espèce nouvelle, *Jakobia densopapillata* n. sp., est décrite. Les caractères distinctifs principaux de *B. longiductus* n. gen., n. sp. incluent la présence d'un seul gonoducte allongé et tubulaire sur le côté droit de la corde nerveuse avec un gonostome pédonculé situé près de l'extrémité distale du gonoducte; un tégument épais couvert de papilles microscopiques; des vésicules anales tubulaires et l'absence de soies ventrales. *Jakobia densopapillata* n. sp. se distingue par la possession d'un tégument épais densément couvert de papilles proéminentes sur toute la surface du tronc; un proboscis tronqué avec les marges latérales s'unissant de façon proximale pour former un entonnoir autour de la bouche; un seul gonoducte en forme de V sur le côté droit de la corde nerveuse avec un gonostome dirigé antérieurement; des vésicules anales tubulaires et l'absence de soies ventrales. Cet article inclut les premières mentions de *Zenkevitchiola brevirostris* Murina, 1978 et *Achaetobonellia maculata* Fisher, 1953 de l'Atlantique nord-est.

MOTS CLÉS

Echiura,
faune profonde,
Atlantique nord-est,
genre nouveau,
espèces nouvelles.

INTRODUCTION

This is a second report on deep-sea echiurans (Phylum Echiura) collected during the BENGAL cruises that were undertaken between September 1996 and October 1998 in the North-East Atlantic. The first report (Biseswar 2005) contains descriptions of seven species of deep-sea bonelliids of which *Achaetobonellia ricei* Biseswar, 2005 was new to science. The area chosen to conduct this programme was located in the Porcupine Abyssal Plain, centred at 48°50'N, 16°30'W, at a depth of 4850 m. The specimens were received through the courtesy of J. Galeron of the Centre national de Tri d'Océanographie biologique (CENTOB), IFREMER, Brest, France, for the purpose of identification.

Specifically, the objectives of the research project were to: 1) identify, quantify and model the principal processes within the abyssal benthic boundary layer which intercede between the incoming organic and inorganic flux and its incorporation

into the permanent sedimentary record; 2) understand how the physics, chemistry and biology of the abyssal boundary layer respond to and modify the incoming chemical signal from the overlying surface layers, and thus affect the palaeoceanographic record in the underlying sediment; and 3) obtain a qualitative and quantitative analysis of the structure and activity of all the size classes of the benthic community in order to investigate the seasonal evolution.

The participants of the project were interested mainly in two size classes of the benthic community, the megafauna collected by a beam trawl and the macrofauna sampled by an USNEL box corer.

This report contains descriptions of 10 species of deep-sea bonelliids of which three are indeterminate species whose status remains to be resolved. A new bonelliid genus *Bengalus* n. gen. is erected for *B. longiductus* n. gen., n. sp. and a new species, *Jakobia densopapillata* n. sp., is figured and described. This is a first report on the occurrence

of *Zenkevitchiola brevirostris* Murina, 1978 and *Achaetobonellia maculata* Fisher, 1953 in the Atlantic Ocean.

The nomenclature used here follows that of Stephen & Edmonds (1972), DattaGupta (1976) and Nishikawa (1998). From the reports by DattaGupta (1981), Biseswar (1992) and the present studies on deep-sea echiurans indicate that the Atlantic Ocean has a rich and diverse echiuran fauna. It is felt that more intensive collections in this region in the future will reveal many new species and new records.

All the specimens examined have been deposited in the Muséum national d'Histoire naturelle, Paris (MNHN).

SYSTEMATICS

Family BONELLIIDAE Lacaze-Duthiers, 1858
Genus *Charcotus* DattaGupta, 1981

Charcotus charcotus DattaGupta, 1981
(Fig. 1A, B)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 3, Discovery 229, stn 13200#94, 48°50.99'N, 16°26.03'W, 4847 m, 25.VII.1997, 1 ♀.

DESCRIPTION

Colour of trunk is pink in preserved state. Only basal stump of proboscis is attached to trunk, rest is missing. Mouth in an oral cup formed by inflection of lateral margins of proboscis proximally (Fig. 1A). Trunk cylindrical, 76 mm in length and 7 mm across broadest part. Body wall is damaged in middle region of trunk. Genital pore is located about 9 mm away from anterior end of trunk (Fig. 1A). Integument is thick and opaque, densely covered with flattened, elongated papillae.

Single oval gonoduct is located on right side of nerve cord; gonostome is at distal tip (Fig. 1B). Except for muscular pharynx and oesophagus rest of alimentary canal is missing including blood vascular system. Only distal part of one anal vesicle was found in coelom. It is tubular with sparsely distributed ciliated funnels.

REMARKS

The species *Charcotus charcotus* was erected by DattaGupta (1981) based on specimens from the North-East Atlantic. This species is distinguished by the presence of a truncate proboscis; mouth in an oral cup; single gonoduct with distally located gonostome and tubular anal vesicles. Except for some minor differences the present specimen closely approaches the description provided by DattaGupta (1981).

Charcotus charcotus appears to be closely related to *Eubonellia longistomum* DattaGupta, 1981 in possessing a single gonoduct with a distally located gonostome, tubular anal vesicles and in lacking ventral setae. *Charcotus charcotus*, however, differs in possessing a proboscis which forms an oral funnel proximally.

Torbenwolffia galathea Zenkevitch, 1966 and *Pseudoikedella achaeta* (Zenkevitch, 1958) are two other species that have been recorded at this station (Biseswar 2005).

Genus *Jakobia* Zenkevitch, 1958

TYPE SPECIES. — *Jakobia birsteini* Zenkevitch, 1958.

Jakobia similaris DattaGupta, 1981
(Fig. 1C, D)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 5, Discovery 231, stn 13368#53, 48°49.98'N, 16°33.53'W, 4842 m, 19.III.1998, 1 ♀.

DESCRIPTION

Colour of preserved specimen is grey. Only basal stump of proboscis is still attached to trunk, rest is missing. Mouth opens on round muscular projection (Fig. 1C). Anterior half of trunk is considerably distended, posterior half is narrow about 5 mm in diameter. Trunk is 53 mm long and 10 mm across broadest part. Integument is thin and transparent. Papillae microscopic at anterior end, rest of trunk is smooth. Gonopore is located a few millimetres away from anterior tip of trunk (Fig. 1C). Ventral setae absent.

Internally, single gonoduct is located on right side of nerve cord. Gonoduct consists of two sharply bent sections with gonostome directed anteriorly (Fig. 1D). Neurointestinal vessel is single throughout. Segment of gut between mouth and point of attachment of neurointestinal vessel is very long. Cloacal chamber is thick and bulbous.

Anal vesicles missing, probably damaged.

REMARKS

The specimen could be easily recognised as a species of the genus *Jakobia* by the nature of the gonoduct which consists of two sharply bent sections. The species *J. similis* was described originally by Datta-Gupta (1981) from a single specimen collected in the North Atlantic at a depth of 3000 m. According to this author, the proboscis is long and flat with a disc-like tip and the anal vesicles are branched.

Despite significant differences in the dermal papillae and the structure of the gonoduct, the present specimen has been placed in *J. similis*. Additional material in the future from that region might reveal that the specimen on hand is new to science.

Jakobia densopapillata n. sp. (Fig. 1E-H)

TYPE MATERIAL. — Holotype: Porcupine Abyssal Plain, BENGAL 3, Discovery 229, stn 13200#70, 48°51.62'N, 16°31.80'W, 4845 m, 19.III.1998, 1 ♀.

Paratypes: BENGAL 5, Discovery 231, stn 13368#52, 48°48.3'N, 16°25.97'W, 4839 m, 19.III.1998, 1 ♀.

BENGAL 6, Discovery 237, stn 13627#11, 48°47.82'N, 16°40.37'W, 4847 m, 1.X.1998, 1 ♀.

ETYMOLOGY. — The species name is based on the papillae which are very prominent and densely distributed over entire surface of trunk.

DESCRIPTION

Colour of proboscis is cream, trunk is beige in preserved state. Proboscis of holotype is 30 mm long; distal half is flattened and tapers at tip; in proximal half, lateral margins curl inwards giving it a tubular appearance (Fig. 1E). Mouth is surrounded laterally and ventrally by well developed lips. Probosces missing in both paratypes. Trunk is cylindrical. In holotype trunk is 97 mm in

length and 19 mm across broadest part. In larger paratype trunk is 78 mm long and 10 mm at broadest part. Corresponding measurements of smaller specimen are 54 and 12 mm. Body wall is thick and opaque. Papillae densely distributed over entire surface of trunk. Posterior end of trunk covered with raised, rounded papillae; over rest of trunk, papillae are flattened and somewhat elongated. Single gonopore is located a few millimetres away from anterior end of trunk (Fig. 1E). Ventral setae absent.

Single gonoduct is located on right side of nerve cord. Gonoduct consists of two sharply bent sections lying close together and fused to each other (Fig. 1F, G). Muscular tube in gonoduct is also sharply bent to form a V. Gonostome is directed anteriorly with petaloid gonostomal lips (Fig. 1F). Except for anterior part of foregut and hindgut, rest of intestine is missing including blood system. Anal vesicles tubular covered with ciliated funnels. In holotype only left anal vesicle is present (Fig. 1H), right one is missing, probably damaged.

REMARKS

An important distinguishing feature of the genus *Jakobia* is the presence of a single gonoduct consisting of two sharply bent sections in the form of a V, with arms that lie close together and partly fuse. Two species are currently known in this genus, namely *J. birsteini* and *J. similis*.

The new species, *J. densopapillata* n. sp. differs significantly from *J. birsteini* in the structure of the proboscis. According to the description provided by Zenkevitch (1958) the proboscis of *J. birsteini* consists of a flattened "head" bearing a sensory structure and the stem of the proboscis is oval in transverse section. The new species also differs in the structure of the gonoduct and anal vesicles. In *J. birsteini* the middle section of the gonoduct, containing the eggs, is distended and the anal vesicles are sac-like structures.

The new species differs from *J. similis* in the nature of the body wall and the anal vesicles. According to DattaGupta (1981) the body wall of *J. similis* is thin and the anal vesicles are branched. Furthermore, the papillae at the posterior end of the trunk of *J. similis* are small.

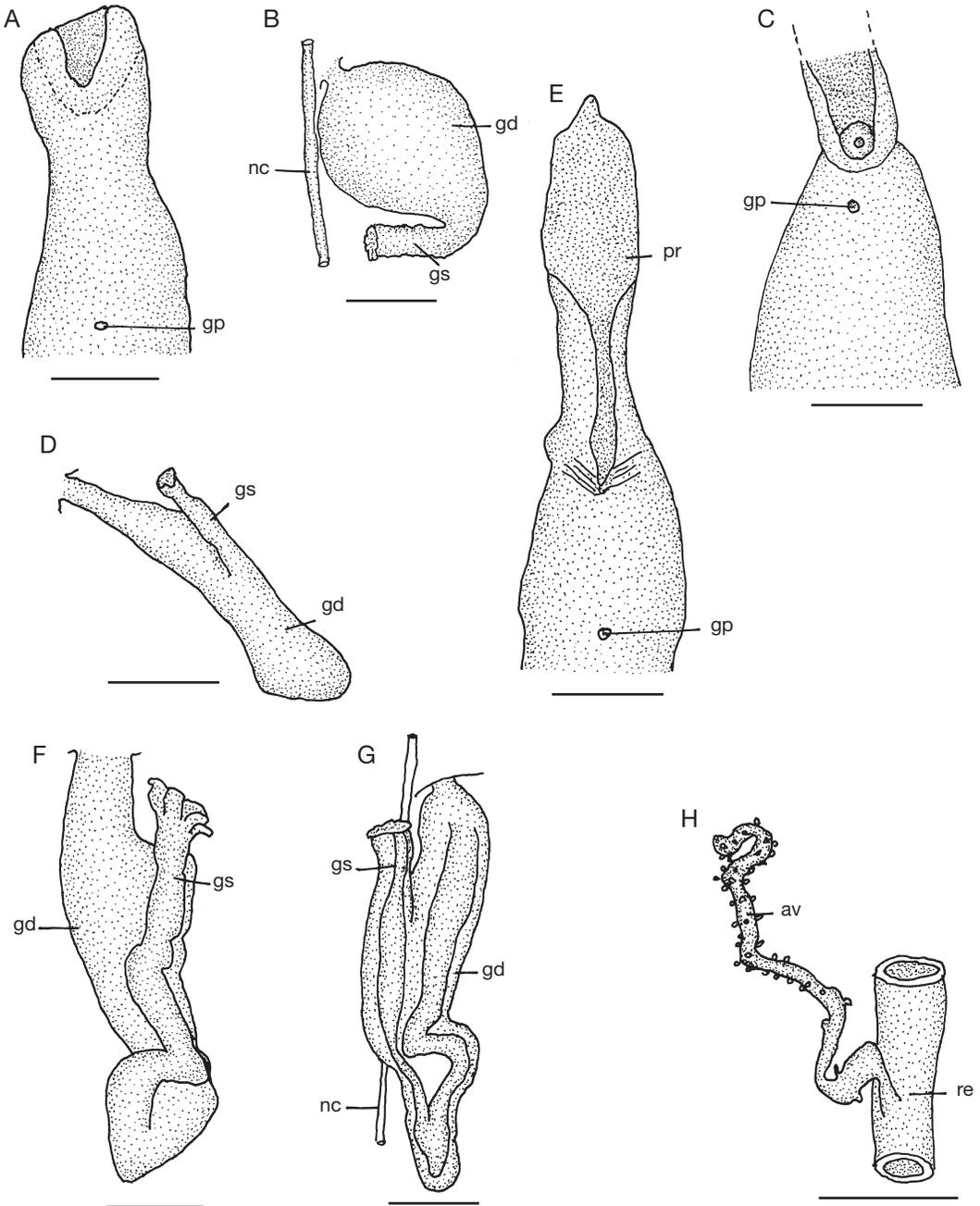


FIG. 1. — **A, B**, *Charcotus charcotus* DattaGupta, 1981; **A**, ventral view of anterior part of female; **B**, gonoduct; **C, D**, *Jakobia similis* DattaGupta, 1981; **C**, ventral view of anterior part of female; **D**, gonoduct; **E-H**, *Jakobia densopapillata* n. sp.; **E**, ventral view of anterior part of female; **F, G**, gonoducts; **H**, anal vesicle. Abbreviations: **av**, anal vesicle; **gd**, gonoduct; **gp**, gonopore; **gs**, gonostome; **nc**, nerve cord; **pr**, proboscis; **re**, rectum. Scale bars: A, 4 mm; B, 0.5 mm; C, F, 3 mm; D, G, 1 mm; E, H, 2 mm.

Genus *Eubonellia* Fisher, 1946*Eubonellia noratlanticum* DattaGupta, 1981
(Fig. 2A-D)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BENGAL 2, Discovery 226, stn 13078#11, 48°53.19'N, 16°35.98'W, 4844 m, 12.III.1997, 2 ♀♀.

DESCRIPTION

Colour of proboscis and trunk of preserved specimens is light pink. Distal tip of proboscis of larger specimen is damaged. In smaller specimen only basal stump of proboscis is still attached to trunk. Proximally, lateral margins of proboscis curl inwards giving it a tubular appearance (Fig. 2A). Trunk of larger specimen measures 66 mm in length and 12 mm across broadest part. Corresponding measurements of smaller specimen are 40 and 10 mm. Integument is thick and opaque at extremities of trunk where longitudinal muscles are arranged in bands, but thin and transparent in middle region of trunk. To unaided eye integument appears smooth but under magnification elongated papillae are visible in contracted regions of trunk, aligned roughly in transverse rows. Proboscis and trunk covered with elongated finger-like outgrowths, occurring either singly or in clusters (Fig. 2A). Genital pore is a transverse slit located about 8 mm away from anterior end of trunk (Fig. 2A).

Gonoduct single, sac-like, located on right side of nerve cord (Fig. 2B). Gonostome terminal, resembling short flared vase on a long stalk (Fig. 2B). Alimentary canal long and coiled forming several loops. Contents of gut fine sand not moulded into faecal pellets. Dorsal and neurointestinal vessels arise from wall of foregut without ring sinus (Fig. 2C). Dorsal vessel prominent, passing anteriorly dorsal to oesophagus and pharynx and entering proboscis. Neurointestinal vessel is single throughout (Fig. 2C). Anal vesicles small and branching (Fig. 2D).

REMARKS

The genus *Eubonellia* is distinguished by the presence of a bifurcate proboscis, absence of ventral setae, and a single gonoduct (right) with a distally located gonostome. The species *Eubonellia noratlanticum* is based on specimens from the North Atlantic collected

at a depth of 3800 m. The present specimens closely approach the description provided by DattaGupta (1981) except for minor differences in the papillae and anal vesicles. The elongated outgrowths on the proboscis and trunk in the present specimens are probably epizoans. Some epizoans have been reported to occur on soft-skinned animals such as polychaete worms. *Eubonellia noratlanticum* appears to be close to *E. valida*, described by Fisher (1946). According to DattaGupta, the proboscis of *E. valida* is long, broad and flat and distally ends in two narrow limbs.

Genus *Bengalus* n. gen.

TYPE SPECIES. — *Bengalus longiductus* n. sp.

ETYMOLOGY. — The genus is named after the BENGAL cruises that were undertaken in the Porcupine Abyssal Plain in the North-East Atlantic.

DIAGNOSIS. — Bonelliids with single, elongated, tubular gonoduct on right side of nerve cord with stalked gonostome located on one side near distal end of gonoduct; no ventral setae; anal vesicles tubular opening into cloacal bulb.

Bengalus longiductus n. sp.
(Fig. 2E-G)

TYPE MATERIAL. — Holotype: Porcupine Abyssal Plain, BENGAL 2, Discovery 226, stn 13078#11, 48°53.19'N, 16°35.98'W, 4844 m, 1.IV.1997, sexually mature ♀. Paratype: BENGAL 2, Discovery 226, stn 13078#06, 48°44.55'N, 16°32.77'W, 4838 m, 30.III.1997, 1 ♀.

ETYMOLOGY. — The species is named on account of the presence of a long gonoduct.

DESCRIPTION

Colour of proboscis of preserved specimen is cream, trunk is light pink. Only basal stump of proboscis is attached to trunk, distal part is missing. Junction of proboscis and trunk is stout. Lateral margins of proboscis curl inwards proximally but do not fuse to form funnel around mouth (Fig. 2E). Mouth is an oval aperture located on round muscular projection. Trunk is cylindrical. In holotype trunk measures 41 mm in length and 8 mm across broadest

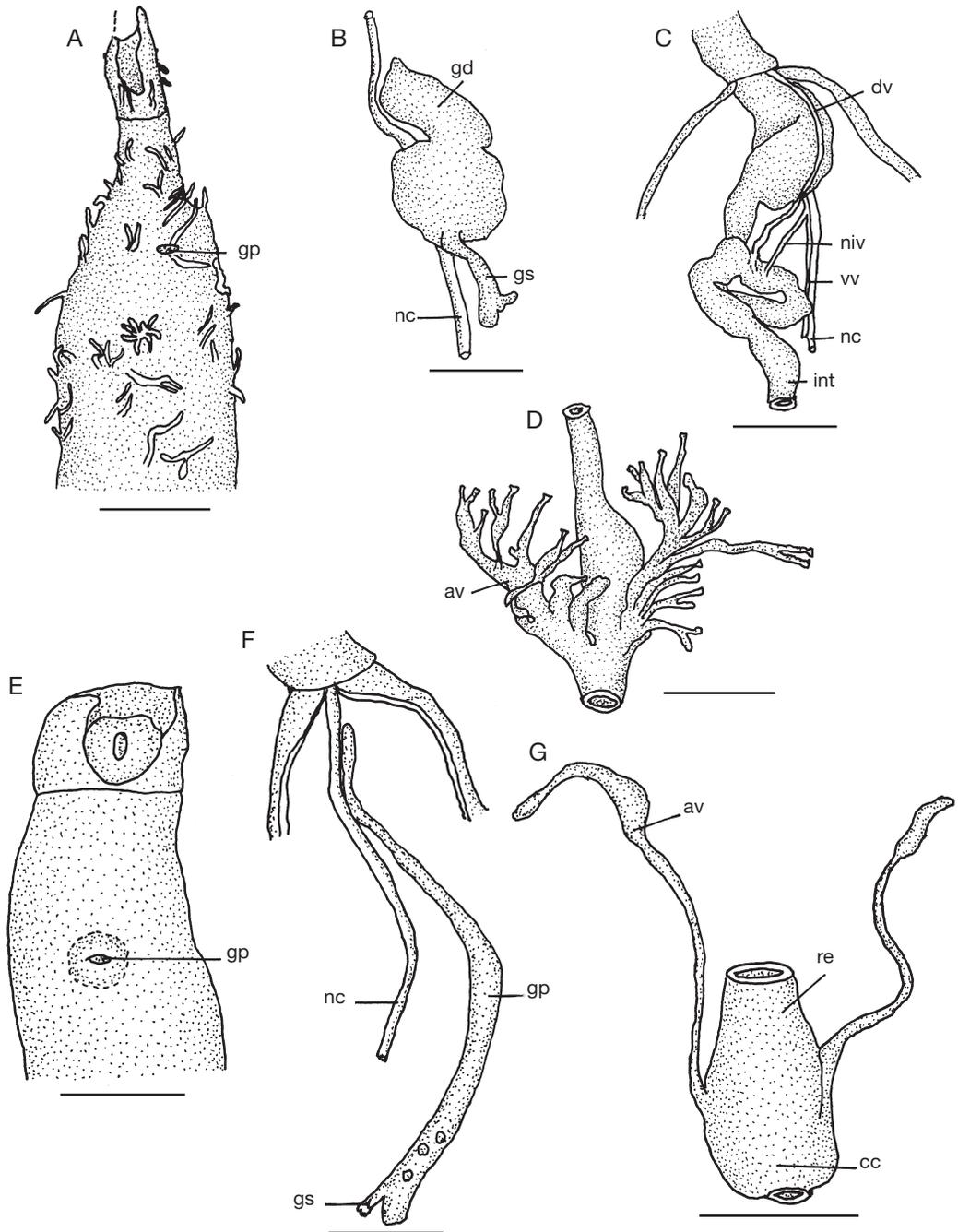


FIG. 2. — **A-D**, *Eubonellia noratlanticum* DattaGupta, 1981; **A**, ventral view of anterior part of female; **B**, gonoduct; **C**, anterior end of trunk cavity showing the blood system; **D**, anal vesicles; **E-G**, *Bengalus longiductus* n. gen., n. sp.; **E**, ventral view of anterior part of female; **F**, gonoduct; **G**, anal vesicle. Abbreviations: **av**, anal vesicle; **cc**, cloacal chamber; **dv**, dorsal vessel; **gd**, gonoduct; **gp**, gonopore; **gs**, gonostome; **int**, intestine; **nc**, nerve cord; **niv**, neurointestinal vessel; **re**, rectum; **vv**, ventral vessel. Scale bars: **A**, **C**, **F**, 3 mm; **B**, 1.5 mm; **D**, **G**, 1 mm; **E**, 2 mm.

part. Corresponding measurements of paratype are 60 and 7 mm. Integument is thick and opaque. Papillae are microscopic, more closely aggregated at extremities of trunk. Genital pore is conspicuous transverse slit located on round eminence of body wall about 6 mm away from anterior end of trunk (Fig. 2E). Ventral setae absent.

Gonoduct single, elongated, tubular, about three-quarters length of trunk, on right side of nerve cord (Fig. 2F). Gonoduct of holotype contains few round eggs. Gonostome stalked, located on one side near distal end of gonoduct, with minute lobes around margin (Fig. 2F). Except for foregut, rest of intestine and blood system damaged in holotype. In paratype, foregut is straight tube. Pharynx is somewhat dilated, clearly demarcated from oesophagus. Intestine filled with fine sand not moulded into faecal pellets. Cloacal chamber is thick and bulbous. In paratype dorsal vessel is long, passing anteriorly and entering proboscis. Neurointestinal vessel arises as single vessel and splits into two vessels which open separately into ventral vessel. Anal vesicles small, tubular, slightly distended distally, opening into cloacal bulb (Fig. 2G). Distal ends of vesicles fastened to body wall by thin mesenteric strands.

REMARKS

The new genus *Bengalus* n. gen. is nearest to the genus *Charcotus* in possessing a single gonoduct, tubular anal vesicles and in lacking ventral setae. In both genera, the anal vesicles open into a cloacal bulb. In the genus *Bengalus* n. gen., however, the gonoduct is long and tubular and the gonostome is located on one side near the distal end of the gonoduct. Furthermore, in the genus *Charcotus* the mouth is located in an oral cup formed by the inflection of the lateral margins of the proboscis proximally and the body wall is covered with thick papillae.

Genus *Zenkevitchiola* Murina, 1978

Zenkevitchiola brevirostris Murina, 1978
(Fig. 3A-C)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 2, Discovery 226, stn 13078#11, 48°53.19'N, 16°35.98'W, 4844 m, 1.IV.1997, 2 ♀♀.

DESCRIPTION

Colour of proboscis is white, trunk is pink in preserved state. Proboscis is truncate, lateral margins curl inwards forming a shallow groove. Proboscis of larger female is 14 mm in length; trunk is 24 mm long and 8 mm across broadest part. In smaller female with trunk length of 10 mm, proboscis is only 4 mm long. Proximal end of proboscis forms a cup with slit on ventral side (Fig. 3A). Trunk is sac-like with bulbous posterior end (Fig. 3A). Papillae microscopic, more clearly discernible in contracted region of trunk, aligned roughly in transverse rows. Integument is very thin and transparent. Coils of gut visible through body wall (Fig. 3A). Ventral setae absent.

Internally, single minute, gonoduct (Fig. 3B) is located on right side of nerve cord.

Gonostome on long stalk, basal in position. Alimentary canal not highly coiled; gut contents consist of fine sand not moulded into faecal pellets. Neurointestinal vessel is single throughout. Anal vesicles two, small blind-ending tubes opening on either side of cloacal chamber (Fig. 3C).

REMARKS

The species *Z. brevirostris* is described originally from a single female collected at a depth of 755 m from southern Tasmania by Murina (1978). The present specimens are considered to be *Z. brevirostris* on account of the thin and transparent body wall, non-bifid proboscis, single gonoduct with a basally located gonostome, tubular anal vesicles and the absence of ventral setae. Minor differences are apparent in the size of the specimens and in the distribution of the dermal papillae. According to the description provided by Murina (1978), low rounded papillae are present on the anterior third and posterior quarter of the trunk.

This is a first report on the occurrence of this species in the Atlantic.

Genus *Achaetobonellia* Fisher, 1953

Achaetobonellia maculata Fisher, 1953
(Fig. 3D-F)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 3, Discovery 229, stn 13200#94, 48°47.29'N, 16°32.23'W, 4851 m, 26.VII.1997, 1 ♀.

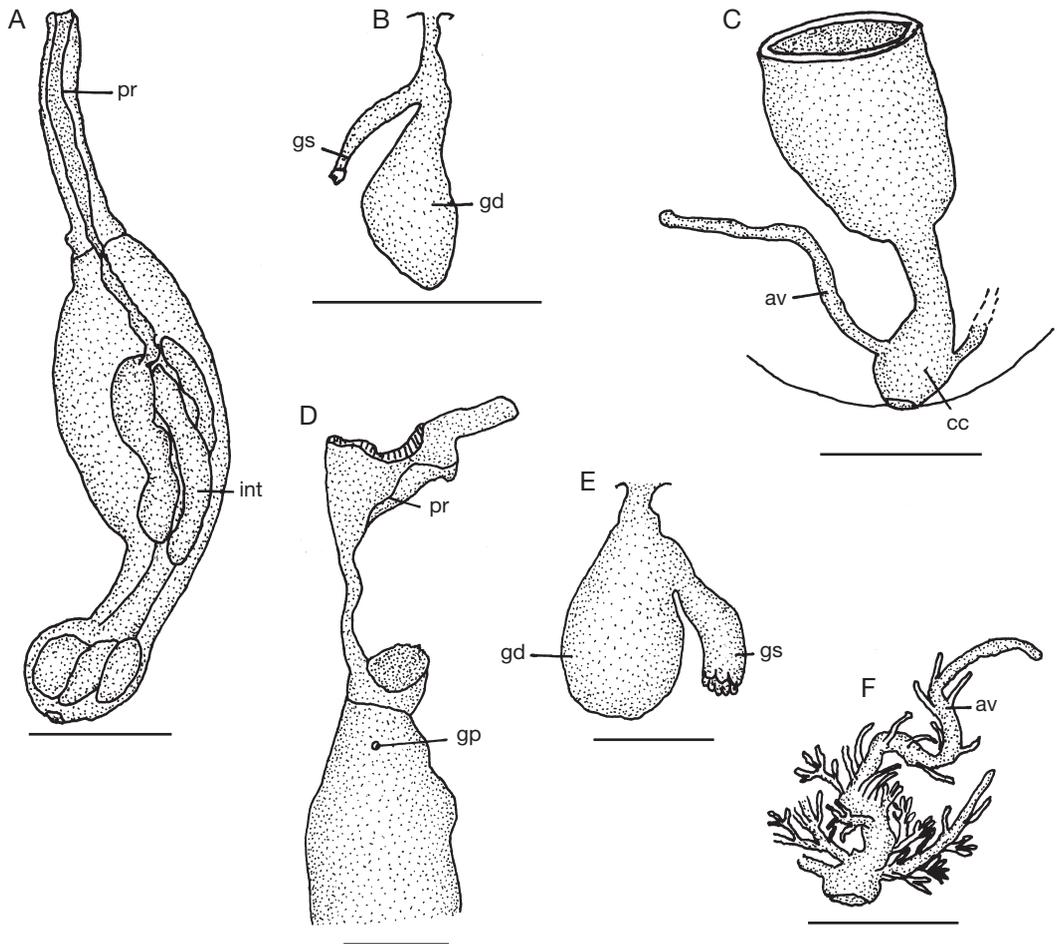


FIG. 3. — **A-C**, *Zenkevitchiola brevirostris* Murina, 1978; **A**, ventral view of female; **B**, gonoduct; **C**, anal vesicle; **D-F**, *Achaetobonellia maculata* Fisher, 1953; **D**, ventral view of anterior part of female; **E**, gonoduct; **F**, anal vesicle. Abbreviations: **av**, anal vesicle; **cc**, cloacal chamber; **gd**, gonoduct; **gp**, gonopore; **gs**, gonostome; **int**, intestine; **pr**, proboscis. Scale bars: A, 3 mm; B, 0.5 mm; C, E, 1 mm; D, 5 mm; F, 2 mm.

DESCRIPTION

Colour of preserved specimen is light pink. Proboscis is 22 mm long, bilobed distally; right lobe is damaged as well as major part of stem (Fig. 3D). Proximally, lateral margins of proboscis unite to form narrow lower lip ventral to mouth. Trunk is cylindrical, 79 mm long and 11 mm at broadest part. Integument is opaque. To unaided eye integument appears smooth but under magnification, minute papillae are visible at anterior end of trunk. Single genital pore is located a few millimetres away from mouth (Fig. 3D). Ventral setae absent.

Internally, single oval gonoduct is located on left side of nerve cord (Fig. 3E). Gonostome is sub-basal in position with small lobes around margin. Only foregut is intact, rest of alimentary canal is missing including blood vascular system. Anal vesicles branch at least three times before terminating in ciliated funnels (Fig. 3F).

REMARKS

The genus *Achaetobonellia* is distinguished by the following characters: presence of a bifid proboscis; single gonoduct with a sub-basally located

gonostome; anal vesicles numerous arborescent structures and the absence of ventral setae. This genus contains a single species, namely, *Achaetobonellia maculata* described by Fisher (1953) from a single specimen collected from Gilbert Islands in the South Pacific.

Except for differences in the size and shape of the gonoduct and the structure of the proboscis, the specimen on hand conforms with the description provided by Fisher (1953). The genus *Torbenwolffia* Zenkevitch, 1966 seems to be close to *Achaetobonellia* but differs from the latter in possessing anal vesicles that are tubular and unbranched. Furthermore, the gonoduct in *Torbenwolffia* is located on the right side of the nerve cord (Zenkevitch 1966).

Achaetobonellia maculata of the present collection is the first report since its discovery and first record of its occurrence in the Atlantic.

Torbenwolffia galathea Zenkevitch, 1966 is another species that has been recorded at this station (Biseswar 2005).

Genus *Prometor* Fisher, 1948

Prometor sp. (Fig. 4A)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 2, Discovery 226, stn 13078#11, 48°53.19'N, 16°35.98'W, 4844 m, 1.IV.1997, 1 ♀.

DESCRIPTION

Colour of proboscis is cream, trunk is pink in preserved specimen. Proboscis is truncate, 0.5 mm long, slightly flattened distally with straight anterior margin (Fig. 4A). Lateral margins of proboscis fuse at base forming cup leading to mouth; cup with small lobes around margin (Fig. 4A). Trunk is cylindrical, 13 mm in length, covered with conspicuous, raised papillae (Fig. 4A). Body wall thick and opaque, damaged at posterior end of trunk. Ventral setae one pair, golden-yellow in colour. Each seta consists of cylindrical shaft with flattened and slightly curved terminal blade (Fig. 4A).

Except for anal vesicles, rest of internal organs missing. Anal vesicles are two slender tubes opening into cloacal bulb and bearing long stalked funnels

REMARKS

The present specimen has been assigned to the genus *Prometor* on account of the presence of a cup at the base of the proboscis that leads to the mouth; a truncated proboscis; unbranched anal vesicles and two well developed ventral setae. Unfortunately the gonoducts and other internal organs were missing in the specimen. According to the descriptions provided by Fisher (1948), Zenkevitch (1957), Hartman & Barnard (1960) and Saiz-Salinas *et al.* (2000) there are two gonoducts that open to the exterior by means of a common genital pore.

Four species are currently known in the genus *Prometor*. The specimen on hand differs from all the species in the genus in possessing a cup with lobes around the margin. In view of this important difference it seems very likely that the present specimen represents an undescribed species. However, it is considered undesirable to erect a new species on the basis of a single incomplete specimen. Additional material in the future will help resolve its taxonomic position.

Genus *Alomasoma* Zenkevitch, 1958

Alomasoma sp. (Fig. 4B)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BEN-GAL 5, Discovery 231, stn 13368#48, 48°49.64'N, 16°30.12'W, 4841 m, 17.III.1998, 1 ♀.

DESCRIPTION

Colour of trunk cream, proboscis white in preserved state. Proboscis truncate, 0.75 mm long, flattened and rounded distally; lateral margins curl inwards and unite proximally forming narrow lower lip ventral to mouth (Fig. 4B). Trunk oval (Fig. 4B), 2.5 mm long and 2 mm across broadest part. Integument smooth, thin and transparent. Ventral setae absent.

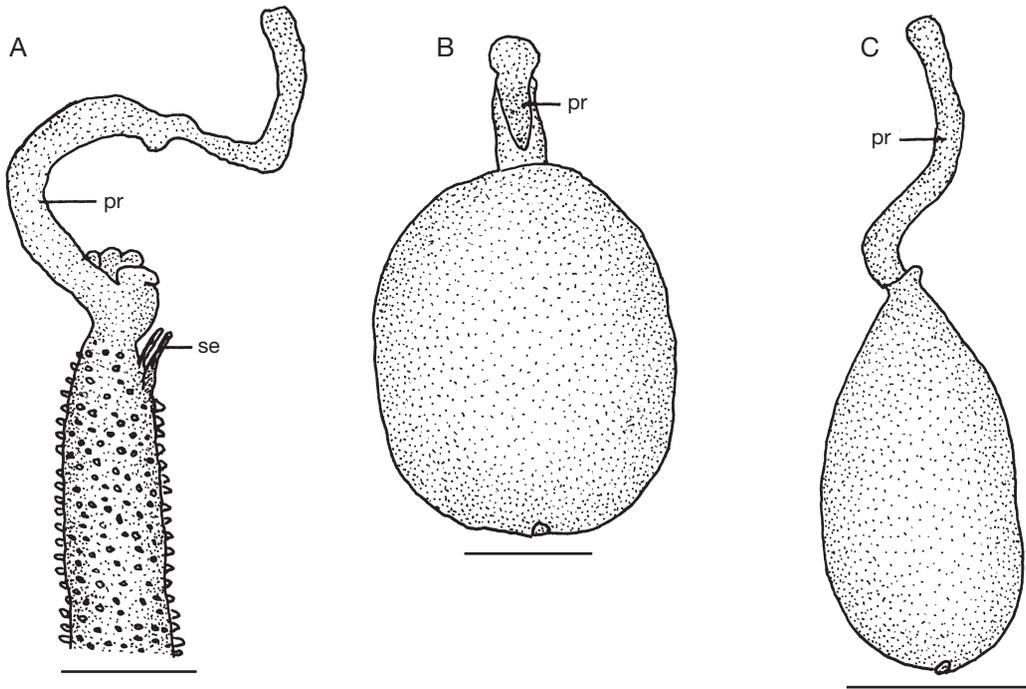


FIG. 4. — **A**, *Prometor* sp., lateral view of anterior part of female; **B**, *Alomasoma* sp., ventral view of female; **C**, *Bruunellia* sp., ventral view of female. Abbreviations: **pr**, proboscis; **se**, seta. Scale bars: A, C, 0.5 mm; B, 1 mm.

Gonoducts one pair, sac-like with eggs which unite proximally and open to exterior by single genital aperture. Gonostomes basal in position. Intestine filled with fine sand not moulded into faecal pellets. Rest of internal organs damaged.

REMARKS

The present specimen has been assigned to the genus *Alomasoma* Zenkevitch, 1958 on account of the presence of two gonoducts which unite proximally and open to the exterior via a common gonopore. This sexually mature specimen with a trunk length of 2.5 mm is extremely small in comparison with all the other species described in the genus. Therefore, it seems very likely that the specimen on hand represents an undescribed species. However, it is undesirable to erect a new species on the basis of single, incomplete individual. Additional material in the future will probably shed more light on its taxonomic position.

Genus *Bruunellia* Zenkevitch, 1966

Bruunellia sp. (Fig. 4C)

MATERIAL EXAMINED. — Porcupine Abyssal Plain, BENGAL 5, Discovery 231, stn 13368#47, 48°51.63'N, 16°25.18'W, 4844 m, 16.III.1998, 1 ♀.

DESCRIPTION

Colour of proboscis and trunk is cream in preserved specimen. Trunk is oval (Fig. 4C), 1 mm long and 0.4 mm at broadest part. Proboscis almost as long as trunk, round in transverse section and without ventral groove (Fig. 4C). Mouth located at base of proboscis. Integument is smooth, thin and transparent, coils of gut visible. Ventral setae absent.

Internally, there is a single, tubular gonoduct on right side of nerve cord with basally located gonostome. Gut contents moulded into oval faecal pellets. Cloacal bulb is present. Anal vesicles not seen, probably damaged.

REMARKS

The present specimen is extremely small with a trunk length of only 1 mm and it seems very likely that it is a juvenile. This specimen has been assigned to the genus *Bruunellia* on account of the structure of the proboscis which is round in cross-section. There is only one species in the genus *Bruunellia*, namely, *B. bandae* described by Zenkevitch (1966). The original description provides no information on the gonoducts, anal vesicles and blood vascular system. A detailed study of additional material in the future will shed more light on its taxonomic position.

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