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ON FOUR SPECIES OF ECHIURA FROM THE VENEZUELA BASIN

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INTRODUCTION

The material which forms the basis of this report was received for the purpose of identification from Dr. Kevin B. Briggs, Head : Biology, Department of the Navy, Naval Ocean Research and Development Activity, NSTL, Mississippi, U.S.A. These animals were collected in trawls from the Venezuela Basin by the biology team of the department. Most of the specimens are very much damaged, nevertheless, identities of four species could be determined and reported here. The identified echiurans have been deposited to the Museum of the Zoological Survey of India.

List of the species

Thalassematidae

Arhynchite Sato : *A. inamoenus* Fisher, 1946.

Bonellidae

Bonellia Rolando : *B. suhmii* Selenka, 1885

Kurchatovus DattaGupta : *K. epeedentatus* DattaGupta, 1986

Amalosoma Fisher : *A. eddystonense* Stephen, 1956

Arhynchite inamoenus Fisher, 1946
(Fig. 1)

Arhynchite inamoenus Fisher, 1946 : 247-249.
Arhynchite inamoenus : Stephen & Edmonds, 1972 : 418.

Material : 2 females and 1 male, NORDA 334-station 32 ; collected 27 × 81 : locality coordinates 15°04'N 69°03'W, depth 4000m ; 1 female, station 35 ; collected 25 × 81 :

locality not given, depth 3939m : 1 female, station 38 ; collected 27×81 : locality 15°03'N 69°13'W, depth 3950m ; 1 female, station 40 ; collected 3 XII 81 : locality not given.

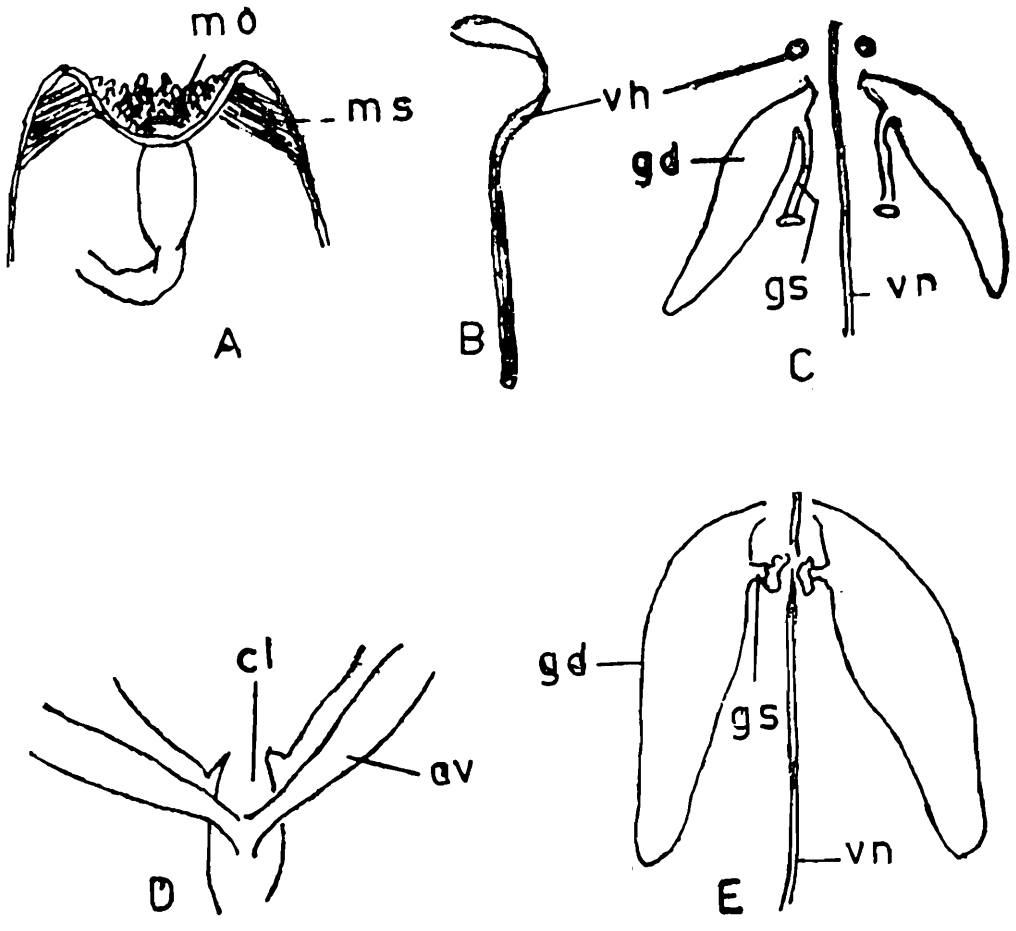

Fig. 1. A-D, *Arhynchite inamoenus*. A, anterior tip of the trunk, B, ventral hook, C, gonoducts, D, anal vesicles. E, gonoducts, *Amalosoma eddystonense*.
av—anal vesicle, cl—cloacal chamber, gd—gonoduct, gs—gonostome, mo—mouth, ms—muscles acting as retractors, vh—ventral hook, vn—ventral nerve cord.

Description : The preserved specimens are greyish pink in colour, cylindrical in shape, without a proboscis and measures 25-40mm in length and 6-10mm across the broadest part. The anterior tip of the trunk is pushed in to form a shallow cup in the centre of which opens the mouth. The inner body wall lining of this shallow cup is connected with the opposite body wall by means of a few strong muscles which probably act as retractors (Fig. 1, A). Two large ventral hooks are located close to the mouth ; the shaft of the hooks is 10-12 mm long and the bent tip is golden yellow

in colour, blunt and flattened. In some specimens two additional hooks of smaller size are present. Body wall is thick ; small flattened papillae are sparsely but uniformly distributed. Papillae are raised and dense surrounding the mouth.

Internally, the intestine and associated parts are decomposed or damaged owing to which the gut and the vascular system could not be studied. A strong interbasal muscle connects the two shafts of the hooks, also the shafts of the additional hooks where these are present. A pair of stout radiating muscles originate from the body wall in the vicinity of the genital pore in all the specimens. Gonoducts are two in number, 6-7mm long and tubular in females and small and oval in the male. Gonostome is basal and simple annular gonostomal lip is borne on a stalk which in some specimens is fairly long. In two female specimens dark pigments are there in the gonostome. Anal vesicles are two small tubes which in the specimen of station 35 are surrounded by yellow glandular tissue. The two vesicles join before opening into the cloaca by a single aperture.

Remarks : In the genus *Arhynchite* proboscis is absent or deciduous. In none of the present specimens a proboscis is present ; proboscis is absent in the original description of *A. inamoenus*. The animals of the present collection are smaller in size and from much deeper waters compared with those of the original description which were collected from depths of 70-450m off southern California (type locality : Monterey Bay). The gonostomal lip is leaf like or expanded with lacinated border in *A. arhynchite*, *A. hiscocki*, *A. puggetens*, and *A. californicus*. Gonostomal lip is simple annular in both *A. inamoenus* and *A. rugosus* ; in the latter species, however, the anus is set on a low knob like protuberence besides ampulla like tubercles or papillae on the body wall.

Bonellia suhmii Selenka, 1885

Bonellia suhmii Selenka, 1885 : 9-10.
Bonellia suhmii : Stephen & Edmonds, 1972 : 376-377.

Material : 1 female, NORDA-334, station 66 ; collected 11 × 81 : locality coordinates not given, depth 5900m.

Discription : The preserved specimen is yellowish white in colour and long and cylindrical in shape. The posterior part of the specimen is damaged, nevertheless, the animal could be of the order of 40mm in length and 7mm across the broadest part. A proboscis and ventral hooks are absent. Body wall is thick, small rounded papillae are confined to the anterior end and transverse wrinkles throughout the body. Genital aperture is in a circular pit located about 4mm away from the mouth. Body wall surrounding the genital pit is smooth and thick. Mouth opening is a transverse oval slit.

Internally, only a small part of the fore gut is preserved. Single gonoduct is oval in shape and located on the right side of the ventral nerve cord. Gonostome is basal, simple gonostomal lip is borne on a short stalk. Anal vesicles could not be studied as the parts are missing.

Remarks : In *B. suhmii* proboscis is unknown and ventral hooks absent. Single gonoduct is perhaps the only criterion on the basis of which the species *suhmii* has been placed under the genus *Bonellia* which is also characterised by the presence of a well developed proboscis and 2 ventral hooks. Bonellidan genera with single gonoduct and without ventral hooks are *Achaetobonellia* (Fisher, 1953), *Choanostomellia* (Zenkevitch, 1964), *Eubonellia* (Fissher, 1946), *Ikedella* (Monro, 1927), *Jakobia* (Zenkevitch, 1958), *Nellobia* (Fisher, 1946), *Sluiterina* (Monro, 1927) and *Torbenwolffia* (Zenkevitch, 1966). Proboscis is anteriorly bilobed in *Achaetobonellia*. Gonoduct is characteristically folded in *Jakobia*, also the anterior tip of the proboscis is expanded in the form of a disc. In the rest of the genera the proboscis is well developed and variously modified. *B. suhmii* appears to be nearest to *Nellobia eusoma* (Fisher, 1946 : pp. 258—259) both of which are without proboscis or ventral hooks but with single gonoduct and basal gonostome. However, in *B. suhmii* the anal vesicles are two simple tubes covered with short stalked funnels and in *N. eusoma* the anal vesicles are two crescentic pouches the free border of which is produced into unequal dendritic divisions. The type locality of the species is

Challenger station 47, off Nova Scotia and later reported from a few localities of the North Atlantic Ocean.

Kurchatovus epeedentatus DattaGupta, 1986

Kurchatovus epeedentatus DattaGupta, 1986 : 145-148.

Material : 2 females, station 58 ; collected 11 IX 81 : locality coordinates 13°42,5'N 67°41,8'W, depth 5008 m ; 1 female, station 91 ; collected 27 XI 81 : locality coordinates 13°30'N 64°45'W, depth 3453 m.

Description : The animals are damaged, 3—8.3 mm in length and 1.5—3 mm in breadth. One specimen of station 58 is glossy white in colour, the rest are sandy grey. A proboscis is absent ; mouth covered dorsally by a rudimentary collar. Body wall is thick and covered with conspicuous papillae. Two hooks with flattened bent tips are located closely ventral to the mouth.

Internally, the intestine is damaged but filled with decaying fibrous material of plant origin. Single oval gonoduct with basal gonostome is located on the left side of the ventral nerve cord posterior to the ventral hooks. A strong interbasal muscle connects the two shafts of the hooks. Anal vesicles could not be studied.

Remarks : The species of the genus *Kurchatovus* are abyssal forms which live in decaying plant material and feed upon the material in which they live (DattaGupta, 1977, 1986 ; Wolff, 1979). Two species namely, *tridentatus* characterised by 3-clawed ventral hooks and *epeedentatus* characterised by single clawed flattened ventral hooks have been assigned to the genus. The type locality of *K. tridentatus* which is also the type species of the genus is Peurto Rico Trench and paratypes from Cayman Trench and Yucatan Basin of the Caribbean deep sea. The type locality of *K. epeedentatus* is Venezuela Basin which is also the locality of one paratype and duplicates ; one paratype was collected from coordinates 12°41,8'S 44°66,6'E, depth 750 m.

Amalosoma eddystonense Stephen, 1956

(Fig. 1, E)

Amalosoma eddystonense Stephen, 1956 : 605-608.
Amalosoma eddystonense : DattaGupta, 1981 : 375.

Material : 2 females including one badly damaged, station 93 ; collected 26 XI 81 : locality coordinates 13°32,3'N 64°40,5'W, depth 3429 m.

Description : Both specimens are cucumber shaped and sand coloured in the preserved state. The complete specimen measures 65 mm in length without the proboscis and around 16 mm across the broadest part. The proboscis appear to be broken at the region of its junction with the trunk and lost. The damaged specimen should be around 60 mm long. Body wall is uniformly thick in the damaged specimen ; but thin in the posterior 2/3 of the body of the complete specimen. Papillae large of irregular outline and arranged more or less in transverse rows on the body wall. Ventral hooks are absent. Genital pit conspicuous where two gonoducts open separately.

Internally, intestine is completely decomposed in both the specimens except a small part of the fore gut and a small part at the cloacal end. Body cavity is filled with soft mud and detritus, also pieces of white coralline rocks. Gonoducts two in number and elongated with basal gonostome ; gonostomal lip simple annular and borne on a short stalk. Only the proximal parts of the wide tubular anal vesicles are present.

Remarks : *A. eddystonense* after its discovery has been reported from two localities of the Bay of Biscay (DattaGupta, 1981). The type locality of the species is Plymouth, England. The more trenchent character of the genus *Amalosoma* is two gonoducts with basal gonostome which open to the exterior separately.

Summary

Four species of Echiura namely, *Arhynchite inamoenus* (Thalassematidae), *Bonellia suhmii*, *Kurchatovus epeedentatus*

and *Amalosoma eddystonense* (Bonellidae) have been listed and described. These animals have been collected from the Venezuela Basin by the biology team of the Department of the Navy, Naval Ocean Research & Development Activity, NSTL, Mississippi, USA.

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