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On Some Species of Gnathostomulida From Bimini, Bahamas

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INTRODUCTION

The first known species of gnathostomulids, *Gnathostomula paradoxa* and *Gnathostomaria lutheri*, were described by Ax (1956) from European coasts and were initially placed in a new order of the Turbellaria. Shortly thereafter Gerlach (1958) discovered another species, *Gnathostomula maldivarum*, in the Indian Ocean. In 1961, Ax proposed the rank of class for this group of benthic marine worms, which are characterized by a flagellated epidermis and a complicated muscular pharynx provided with cuticular jaws and a basal plate. In the same year Mamkaev (1961) described *Gnathostomula murmanica* from the Barents Sea; this taxon, however, was later placed in the synonymy of *Gnathostomula paradoxa* by Ax (1965). Since 1965, 16 more species have become known from the eastern North Atlantic and the Mediterranean Sea as a result of the extensive investigations by Sterrer (1965, 1966a, 1966b, 1968), who also established the additional genera *Austrognathia*, *Pterognathia*, and *Mesognatharia*.

The gnathostomulid fauna of the western Atlantic Ocean has remained poorly investigated, and *Gnathostomula axi* Kirsteuer (1964) has hitherto been the only known species from the coasts of the Americas. It was first found off Venezuela and was later also reported from Puerto Rico and from the Red Sea (Riedl, 1966), as well as from the Mediter-

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FIG. 1. Map of Bimini, showing collecting stations.

ranean Sea (Sterrer, 1965). With the new species described in the present paper, the number of species reported from the western Atlantic is increased to five. It is expected that this number will grow, because Riedl (personal communication) has recently discovered a comparatively rich gnathostomulid fauna, including several new species, along the coast of North Carolina.

MATERIAL AND METHODS

The material on which the present article is based was collected during a four-week stay at the Lerner Marine Laboratory on Bimini in July and August, 1967. Although the main objective of the field work

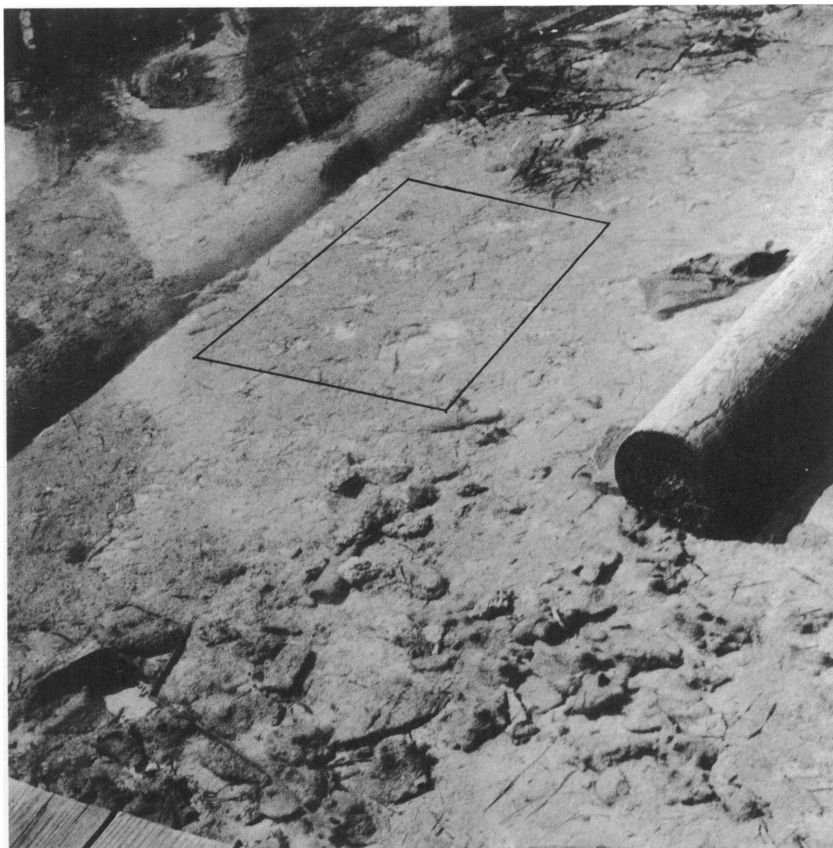


FIG. 2. Collecting area in front of the Laboratory, station 1. Substrate samples were taken from within the outlined square.

was the study of the nemertean fauna of the area, a number of sediment samples were taken, and examined particularly for gnathostomulids. The resulting collection comprises *Gnathostomula axi* and four new species which are described herein as *Gnathostomula peregrina*, *Austrognathia sterreri*, *Mesognatharia bahamensis*, and *Pterognathia grandis*.

The sediment samples were obtained from three different localities (fig. 1). Station 1 was on the lagoon coast of North Bimini, immediately in front of the Laboratory, approximately 2 meters south of the small jetty (fig. 2). The bottom substrate consisted of sand mixed with detritus and was overlain by a thin stratum of detritus and small patches of fili-form algae. At low tide this area was covered by about 0.2 meter of

water. The species found here are *Gnathostomula axi*, *Mesognatharia bahamensis*, and *Pterognathia grandis*.

Station 2 was situated in the northeastern corner of the outer lagoon, near the entrance to Bonefish Creek. Samples of detritus mixed with a small quantity of sand were taken from open areas between the *Thalassia* vegetation at a depth of about 0.5 meter. The species that occurred here are *Gnathostomula peregrina* and *Austrognathia sterreri*.

Station 3 was about midway in Bonefish Creek on East Bimini. From the eastern bank of this mangrove channel, samples of sand mixed with detritus and decomposing mangrove leaves were taken at a depth of 0.5 meter. *Gnathostomula peregrina*, *Austrognathia sterreri*, and *Mesognatharia bahamensis* are the species found in these samples.

For all samples only the uppermost layer (about 20 mm. in thickness) of bottom substrate was collected. The material together with sea water was then placed in glass jars, and, after it had settled, small samples of the surface sediment as well as the filiform algae (station 1) were examined under a dissecting microscope. All specimens of *Gnathostomula axi*, *G. peregrina*, *Austrognathia sterreri*, and *Mesognatharia bahamensis* were found in the sediments, but *Pterognathia grandis* occurred only on the algae.

ACKNOWLEDGMENTS

I wish to thank Mr. Robert F. Mathewson, Resident Director of the Lerner Marine Laboratory, for his interest and kind cooperation, and Dr. Klaus Rützler, Smithsonian Institution, for his assistance on various occasions in the field and laboratory during our stay on Bimini. I am also deeply indebted to Dr. Wolfgang Sterrer, University of Vienna, and Dr. Rupert Riedl, University of North Carolina, for providing me with unpublished data on species of Gnathostomulida that they have recently found.

SYSTEMATIC ACCOUNT

GENUS *GNATHOSTOMULA* AX, 1956

TYPE SPECIES: *Gnathostomula paradoxa* Ax, 1956, eastern North Atlantic, by original designation.

Gnathostomula axi Kirsteuer, 1964

Figures 3, 4

Gnathostomula axi KIRSTEUER, 1964, p. 437, figs. 1–9. STERRER, 1965, p. 791, fig. 6. RIEDL, 1966, p. 152, figs. 7, 8.

MATERIAL: Eighty mature and a number of juvenile specimens were

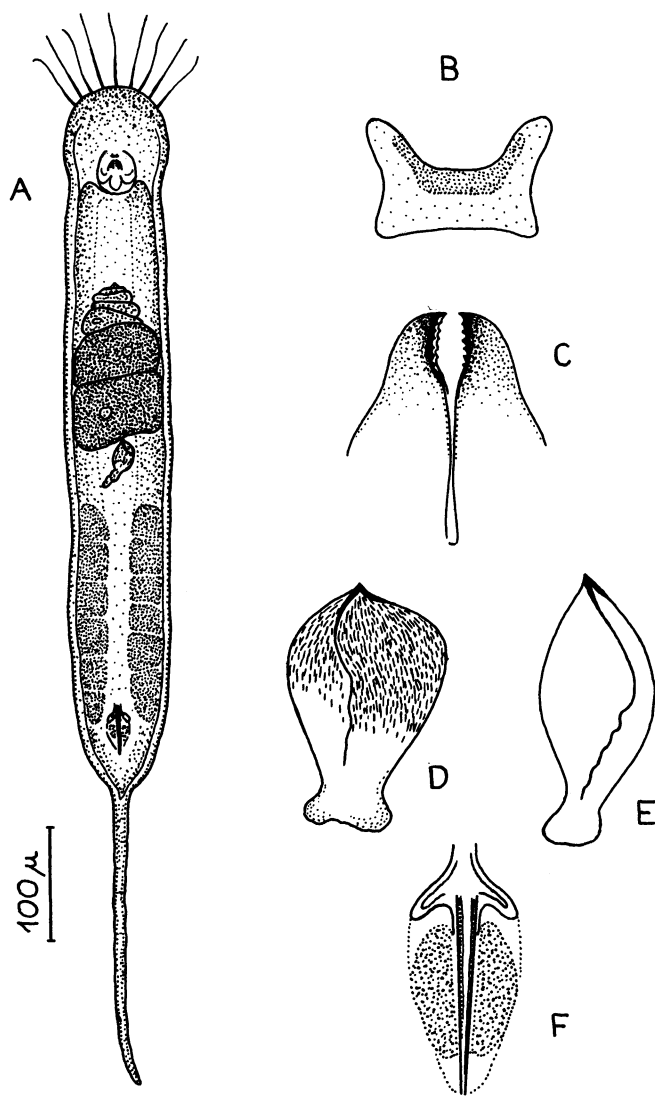


FIG. 3. *Gnathostomula axi* Kirsteuer. A. Dorsal aspect of living animal. B. Basal plate. C. Jaws. D, E. Bursa seminalis. F. Male copulatory organ.

found in July and August and studied alive. Fifty-five mature specimens were fixed and preserved and deposited at the American Museum of Natural History (A.M.N.H. No. 569).

DESCRIPTION: The living mature animals measure 700 to 900 μ when

moving about, but are capable of contracting to half of their length when disturbed. The known size of this species ranges from 400 μ (Riedl, 1966, Red Sea) to 1000 μ (Sterrer, 1965, Mediterranean Sea). The general appearance of the species is shown in figure 3A, drawn from a sketch from life. The head is disklike and only slightly demarcated from the remainder of the body, which is almost cylindrical and ends in a comparatively long and slender caudal appendage. Nine sensory flagella are arranged along the anterior margin of the head, but none was found on the caudal appendage, where they were observed in specimens from the Red Sea and the Mediterranean Sea. The color of the animals is a yellowish white, often with a slight greenish tinge.

In internal organization the specimens from Bimini agree in general with those from Venezuela (Kirsteuer, 1964). The jaws (fig. 3C) are double-edged and serrated, and rest on a pharyngeal muscle complex consisting of a median bulbus and two lateral muscle bundles which insert in the wall of the pharynx. The basal plate may vary in shape and structure, as was shown by Sterrer (1965, fig. 6). In the present animals the basal plate (fig. 3B) is similar in outline to that found in the specimens from Venezuela. The strongly cuticularized anterior section, however, is smaller and resembles more closely the basal plate in Mediterranean representatives of the species (Sterrer, 1965, fig. 6c, e).

The bursa seminalis in most of the examined specimens from Bimini has a configuration as originally described for *Gnathostomula axi*, i.e., with three cuticularized, longitudinal ridges meeting at the anterior end of the organ, and a soft, irregular, sacklike, posterior bursa end (fig. 3D, E). In a few animals, however, only two ridges could be ascertained, and in the larger specimens a very delicate cuticularized collar surrounds the posterior part of the bursa, giving it a more definite, conical shape (fig. 4B). The latter details were also observed by Sterrer (1965, fig. 6h) in Mediterranean specimens.

The single ovary lies in front of the bursa and dorsal to the intestine, the largest egg invariably closest to the tip of the bursal organ. The follicular testes are arranged in two lateral rows in the posterior half of the body and reach back to the male copulatory organ. The latter (fig. 3F) is typically provided with a cuticular penis stylet (60 μ long), which is partly covered by a mantle of granulated secretion. In accordance with prior observation, the vas deferens is folded around the proximal end of the penis stylet.

The juvenile animals are 300 to 350 μ in length and bear only four sensory flagella on the anterior margin of the comparatively large head (fig. 4A). On the caudal appendage sensory flagella are lacking. The

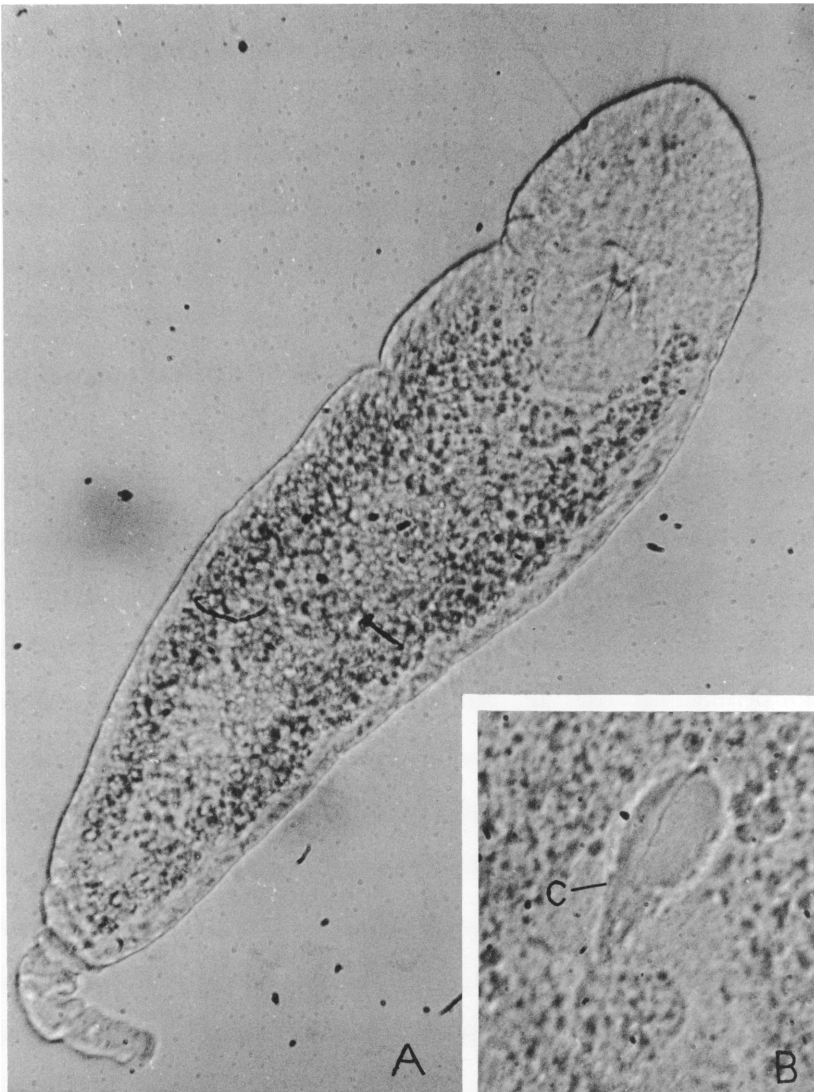


FIG. 4. *Gnathostomula axi* Kirsteuer. A. Dorsal aspect of living juvenile specimen. B. Bursa seminalis with posterior conical portion surrounded by delicate cuticular collar (c).

jaws have two edges, but a serration could not be seen, and details of the basal plate were also not ascertained. The intestine occupies the total postpharyngeal portion of the body, and there are no indications

of either female or male reproductive systems.

REMARKS: As far as the bursa seminalis of *Gnathostomula axi* is concerned, the following different structures and shapes are known: two cuticularized ridges in the Mediterranean specimens, two or three ridges in specimens from the western Atlantic, and three or four ridges in specimens from the Red Sea. A soft and irregular, sacklike posterior portion of the bursa as well as a definite cylindrical or conical shape of this part was observed in specimens from all three geographic regions. The latter differences obviously depend on the stage of maturity of the animal (Sterrerr, 1965; Riedl, 1966). Initially soft and irregular in shape, the posterior part of the bursa becomes cylindrical or conical with increasing age and is surrounded by large cells, a situation found in the comparatively small specimens (400 to 600 μ long) from the Red Sea (Riedl, 1966, fig. 8e). The next step seems to be the formation of a cuticular collar around the proximal part of the bursa (probably originating from the cell material mentioned above), being first of a delicate nature as seen in the larger specimens (800 to 900 μ long) from Bimini (fig. 4B) and then becoming strongly cuticularized as found by Sterrer (1965, fig. 6j) in the largest known specimens (1000 μ long) from the Mediterranean Sea. In this last stage of the bursa a fibrous ring may also surround the tip of the organ. There are no observations, however, that permit the correlation of the number of cuticularized ridges on the surface of the anterior part of the bursa with a certain stage of development of this organ.

RANGE: Western Atlantic: Los Roques, Venezuela (Kirsteuer, 1964), Luminescent Bay, Puerto Rico (Riedl, 1966), Bimini, Bahamas. Mediterranean Sea: Rovinj, northern Adriatic Sea (Sterrerr, 1965). Red Sea: Suez and Al-Ghardaqa, Egypt (Riedl, 1966).

***Gnathostomula peregrina*, new species**

Figures 5, 6

MATERIAL: Eight mature specimens were collected in August and studied alive.

TYPES: Holotype, one specimen, A.M.N.H. No. 562; paratypes, seven specimens, A.M.N.H. No. 563.

TYPE LOCALITY: Bimini, lagoon.

DESCRIPTION: The living worms are 560 μ long and 70 to 80 μ wide. The appearance of this species is shown in figure 5A. There is a distinct narrowing behind the head, and then the body gradually widens, reaching its greatest width in the middle of the testes region. The posterior end of the body forms a comparatively short tail. The color is a semi-

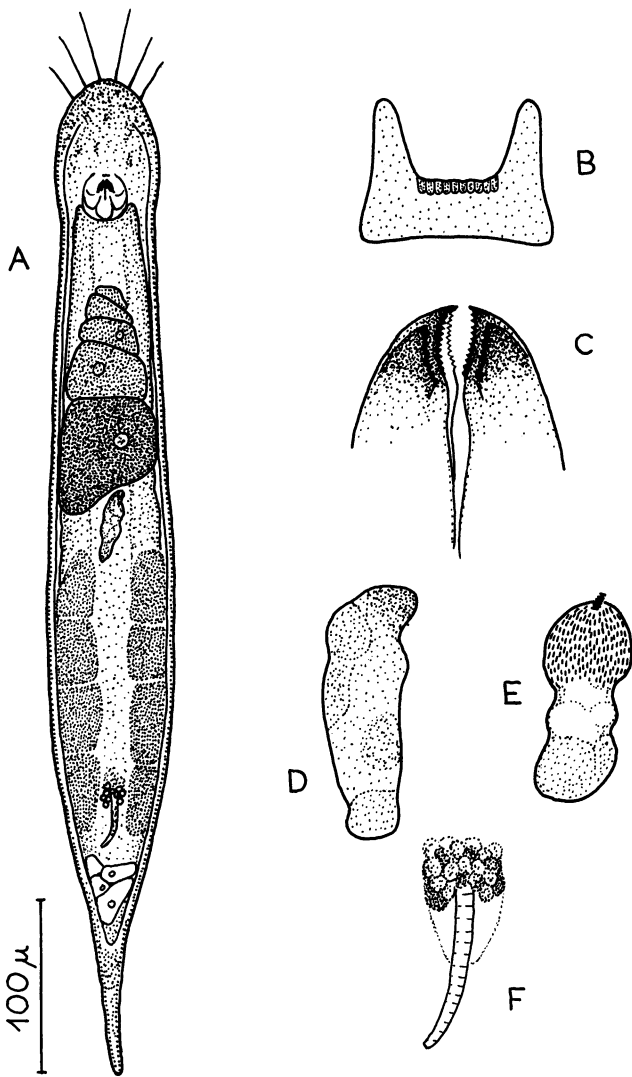


FIG. 5. *Gnathostomula peregrina*, new species. A. Dorsal aspect of living animal. B. Basal plate. C. Jaws. D, E. Bursa seminalis. F. Male copulatory organ.

transparent yellowish white. In most of the animals, however, the intestine, filled with green, spherical food particles, shone through, thus giving the impression of a greenish body coloration.

The jaws (fig. 5C) have three serrated edges and are associated with

a trimerous pharyngeal musculature, as is typical for the genus. The basal plate (fig. 5B) has two conspicuous anterolateral protrusions. Between them the anterior part of the basal plate is strongly cuticularized, and its surface is corrugated.

The single ovary is dorsal to the intestine in the anterior half of the body. A short distance behind the last and largest ovum follows a bursa seminalis which in the majority of the examined animals consists of an anterior bulbous part with a terminal, cuticular, spiral-shaped mouth-piece (figs. 5E, 6A) and a posterior part which is variable in shape. In two specimens, however, the whole bursa is of irregular shape and lacks cuticular structures (figs. 5D, 6C).

The testes are follicular and lateral in position. They extend from the level of the bursa back to the male copulatory organ. The latter is a tubule, narrowing toward the distal end, and with clusters of granular secretion around its proximal part (fig. 5F). The organ is quite flexible and can bend up to 90 degrees from the median line (fig. 6A, B).

In all the studied specimens four or five conspicuous, large (10 to 15 μ) cells are present posterior to the intestine, where they fill almost the entire space between the body walls in the transient region of the trunk to the tail (fig. 6A, B). This arrangement has not been previously reported for any other species of gnathostomulid. Large (up to 15 μ) vacuolized cells were described by Ax (1965) from *Gnathostomula paradoxa*. In the latter species, however, they are between the body wall and the dorsal and lateral sides of the pharynx. The functional importance of these cells is unknown, but Ax (*loc. cit.*) considers two possibilities: one is as an excretory function, and the other would be as a supportive organ similar to the entodermal, chordoid supportive structure which is found in the anterior part of the body of various proseriate Turbellaria. Despite the fact that in the present species the cell material under question is at the opposite, posterior end of the intestine, the assumption of a supportive nature of the cells seems a more likely function when the different positions of the animal shown in figure 6A and 6B are compared.

REMARKS: The present new species is placed in the genus *Gnathostomula* with some reservation because of the presence of a flexible male copulatory organ lacking a stylet. Otherwise the anatomical features of the new species comply with the diagnosis of the genus (Ax, 1956) which hitherto has comprised three species: *Gnathostomula paradoxa* Ax, 1956; *G. maldivarum* Gerlach, 1958; and *G. axi* Kirsteuer, 1964.

Gnathostomula peregrina is distinguished from *G. axi* by the much shorter caudal appendage, by the possession of jaws with three serrated edges,

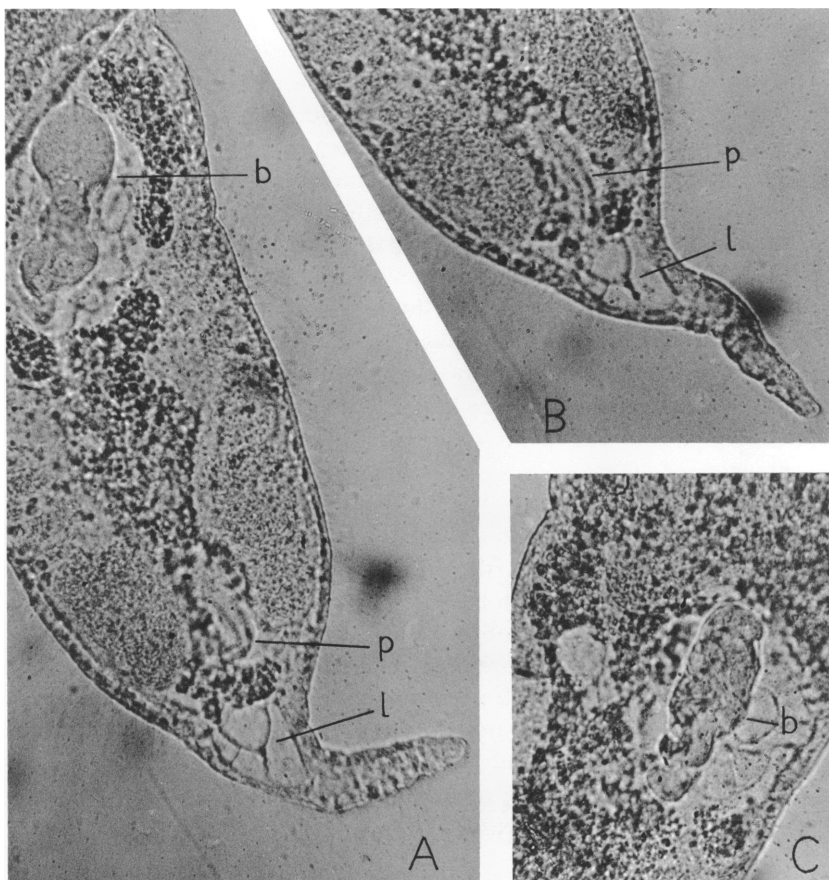


FIG. 6. *Gnathostomula peregrina*, new species. A, B. Posterior part of body in dorsal view, demonstrating the flexibility of the male copulatory organ and the position of the "large cells." C. Undifferentiated, soft bursal organ as found in two specimens. Abbreviations: b, bursa; l, large cells, p, penis.

and by the configuration of the bursal organ. The new species is different from *G. maldivarum* in having the edges of the jaws serrated and in lacking hooks on the basal plate. A bursa was not described for *G. maldivarum*. Finally, *G. peregrina* differs from *G. paradoxa* in lacking pronounced lateral protrusions on the basal plate and in different cuticular fine structures on the bursa.

The male copulatory organ of the new species is quite different from the one in *Gnathostomula paradoxa* and *G. axi* (it is not known in *G. mal-*

divarum) in lacking a stylet. As mentioned above, it does not fit the diagnosis for the genus and would, in combination with the other features, justify the creation of a new genus for the species presented here. There are, however, observations (Riedl, 1966, and personal communication) that indicate that in species of *Gnathostomula* the tubular part of the male copulatory organ is progressively cuticularized from proximal to distal end. Furthermore, the beginning of the formation of a male copulatory organ and the cuticularization of a stylet apparently occur at different ontogenetic stages in different species. Sterrer (1966a), for instance, reported that a complete stylet was found in some juvenile (500 μ long) specimens of *Gnathostomula paradoxa* which still had an immature ovary and no traces of a bursa, whereas Riedl (1966) found some specimens of *Gnathostomula axi* with a complete female reproductive system but with a still incomplete penis stylet. The latter author also examined a specimen only 300 μ in length of presumably the same species, which had a well-developed bursa but no sign of a male copulatory organ.

In consideration of the following: that the mode of formation of a penis stylet is not known with certainty, that only seven specimens of the present species were available for examination, that these animals were kept alive and under observation for only a short period of time, and that all anatomical features except the configuration of the male copulatory organ comply with the diagnosis for the genus *Gnathostomula*, the new species is referred to the latter genus. This arrangement, however, may become subject to change when examination of a larger series of specimens demonstrates the absence of a penis stylet throughout the life of the species under discussion.

GENUS *AUSTROGNATHIA* STERRER, 1965

TYPE SPECIES: *Austrognathia riedli* Sterrer (1965), northern Adriatic Sea, by original designation.

***Austrognathia sterreri*, new species**

Figure 7

MATERIAL: Four mature specimens were found in August and studied alive.

TYPE: Holotype, one specimen, A.M.N.H. No. 564.

TYPE LOCALITY: Bimini, lagoon.

DESCRIPTION: The living animals are 900 to 1000 μ long, with a maximum width of 100 μ . The color is a light greenish yellow with the darker ovary shining through. Figure 7A shows the general appearance of the new species, drawn from life. The head region is not distinctly

demarcated from the remainder of the body and bears seven sensory flagella. Three of the flagella are approximately $70\ \mu$ long, and the other four reach about half of this length. No sensory flagella are present at the blunt posterior end of the body.

The jaws (fig. 7C) have three edges, of which the middle one is serrated and the two outer edges are only slightly corrugated. The jaws are approximately $25\ \mu$ long and are attached to a trimerous pharyngeal musculature which is very similar to that in the genus *Gnathostomula*. Two pharyngeal glands are present anterolateral to the pharynx bulbus. The basal plate is slender and 20 to $23\ \mu$ wide (fig. 7B). As in *Austrognathia riedli* (Sterrer, 1965, fig. 1e), it has two lateral protuberances on its anterior side, but it lacks medial anterior and posterior protrusions. The narrow middle part is strongly cuticularized and shows a corrugated surface.

The intestine is wide and uniform and extends backward to the posterior end of the body. The single ovary lies dorsal to the intestine in the anterior half of the body. A short distance behind the ovary a porus occurs on the dorsal side of the body, and underneath it a soft, sack-shaped structure is found (fig. 7A) which presumably represents a bursa seminalis. A bursa-like organ with a more definite shape, as was observed by Sterrer (1965, fig. 5g, h) in some specimens of *Austrognathia riedli*, is wanting in the present species.

Testes of the shape and arrangement as otherwise characteristic for the Gnathostomulida have not been found so far in *Austrognathia*. There are, however, hyaline and more or less conical structures embedded in a section of loose parenchyme immediately in front of the male copulatory organ. These "conuli" could be atypical giant sperms or spermatophores (Sterrer, 1965). In the new species eight to 12 conuli are present. They are short, mushroom-shaped (fig. 7D), and measure $20\ \mu$ in diameter.

The muscular penis (fig. 7E) is more slender than the one in *Austrognathia riedli* but agrees otherwise with the description of the organ by Sterrer (1965). The granulated secretion which covers the proximal part of the penis is distinctly divided into a zone of fine, and a zone of coarse, granules. The length of the male copulatory organ is 60 to $65\ \mu$.

REMARKS: Hitherto only one species has been known in the genus *Austrognathia*; it was described by Sterrer (1965) as *A. riedli* from the Adriatic Sea. In 1966 Riedl reported the presence of this species in the Red Sea. Owing to some differences in the general appearance and in the internal organization, Riedl referred to the specimens from the Red

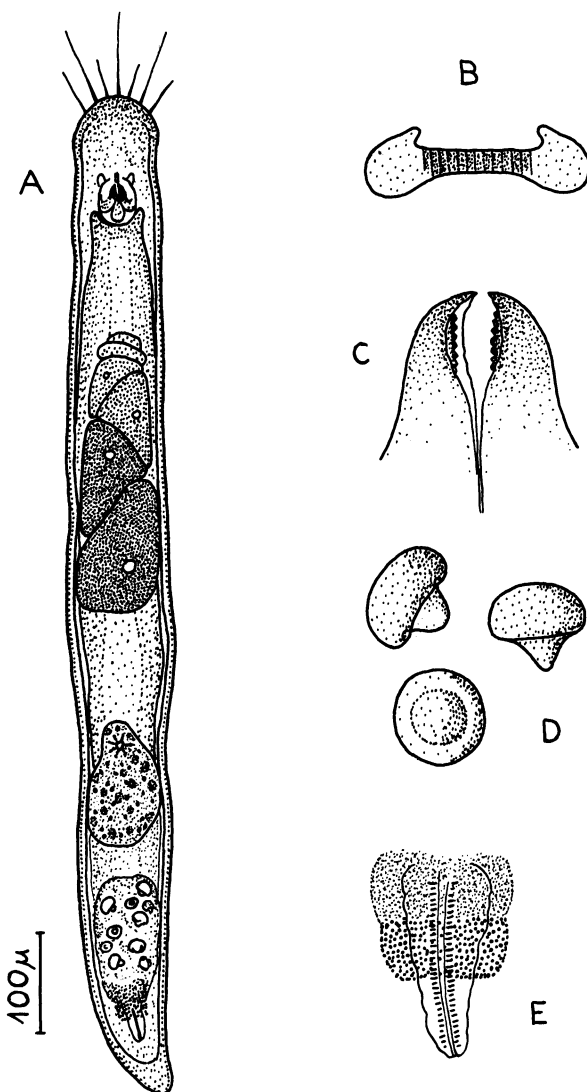


FIG. 7. *Austrognathia sterreri*, new species. A. Dorsal aspect of living animal. B. Basal plate. C. Jaws. D. Conuli. E. Male copulatory organ.

Sea as *A. riedli* forma *marisrubri* and to the ones from the Adriatic Sea as *A. riedli* forma *adriatica*. Riedl (*loc. cit.*) mentioned that further knowledge of specific characteristics within the genus might make it necessary to separate the two forms as distinct species. This separation was

recently proposed, but not yet executed, by Sterrer (personal communication) after he had examined additional materials from the Adriatic Sea.

The present new species, *Austrognathia sterreri*, is distinguished from *A. riedli* *sensu* Sterrer (1965) by the fine structure of the basal plate and the jaws and by the shape of the bursa as well as the conuli; the latter are drop-shaped in *A. riedli*.

In Riedl's specimens from the Red Sea a round structure (Riedl, 1966, fig. 6a, e) overlapping the anterior end of the conuli area was observed and considered to be the place of conuli formation. Morphologically this structure resembles the bursa in the present species, but in the latter the organ is clearly separated from the section containing the conuli. A bursa was not found in the animals from the Red Sea. Mushroom-shaped conuli of equal size are present in the Red Sea specimens and in *A. sterreri*. Riedl (*loc. cit.*), however, reported that the conuli are capable of changing form in one to five seconds and occur also as long and slender cones after passing intermediate stages. A similar transformation was not observed in *A. sterreri*, but, as only four specimens were available for examination, the occurrence of this phenomenon cannot yet be definitely excluded. At the present time it is not possible to decide if the Red Sea form is conspecific with *A. sterreri*.

GENUS *MESOGNATHARIA* STERRER, 1966

TYPE SPECIES: *Mesognatharia remanei* Sterrer (1966b), eastern North Atlantic, by monotypy.

***Mesognatharia bahamensis*, new species**

Figure 8

MATERIAL: Four mature specimens were collected in July and August and studied alive.

TYPES: Holotype, one specimen, A.M.N.H. No. 565; paratype, one specimen, A.M.N.H. No. 566.

TYPE LOCALITY: Bimini, lagoon.

DESCRIPTION: The living animals measure 900 μ in length and about 70 μ in width. The color is a semitransparent yellowish white. A head lobe bearing seven sensory flagella is slightly demarcated from the remainder of the body, the narrowed end of which is rounded and without a tail (fig. 8A). No sensory flagella are present around the posterior end of the body.

The jaws are spoon-shaped and delicately serrated along their round

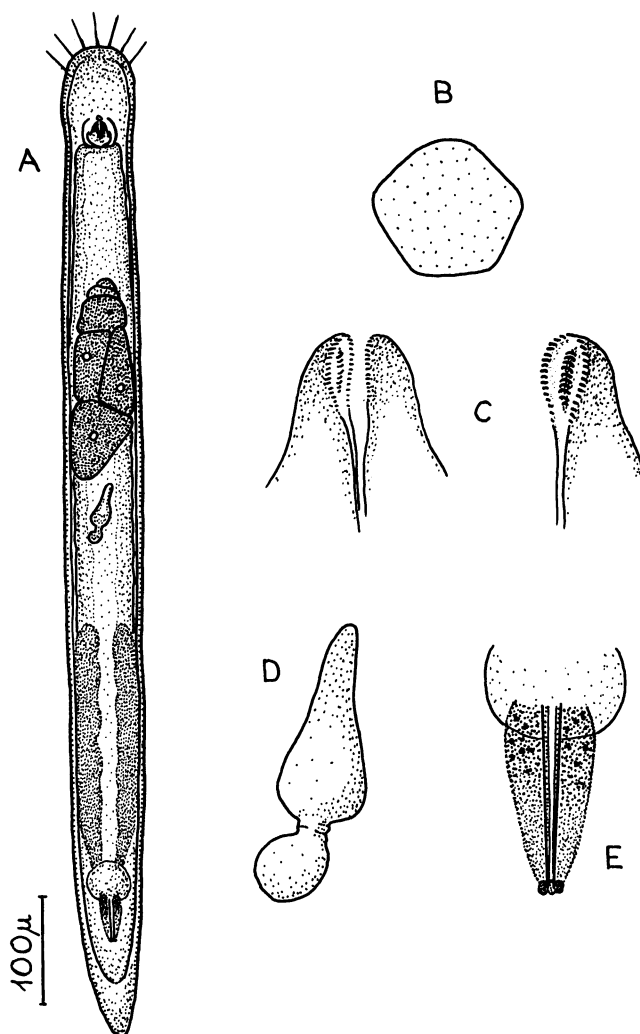


FIG. 8. *Mesognatharia bahamensis*, new species. A. Dorsal aspect of living animal. B. Basal plate. C. Jaws. D. Bursa seminalis. E. Male copulatory organ.

edges (fig. 8C). From the inner, concave side of each jaw arises a median, corrugated ridge. The jaws rest on a pharyngeal median muscle bulbus, but lateral musculature connecting the jaws with the wall of the pharynx was not discernible. The basal plate (fig. 8B) is of almost regular pentagonal shape and does not show areas of stronger cuticularization.

The ovary lies dorsal to the wide intestine in the anterior half of the body. In three of the examined animals a bursa seminalis was found close to the posterior end of the ovary, but in the fourth specimen a bursa was lacking. The bursa of the present species is soft and without any cuticular surface structures. The anterior part of the organ is pear-shaped, and the posterior part is sacciform (fig. 8D).

The male reproductive system consists of the laterally arranged tubular testes, a vesicula seminalis, and a copulatory organ. The last is in the form of a penis stylet (50 μ long) which is surrounded by a thick mantle of densely packed granules (fig. 8E).

REMARKS: *Mesognatharia bahamensis* differs from *M. remanei* (Sterrer, 1966b), the hitherto only recorded species of the genus, by the median corrugated ridge on the inner side of the spoon-shaped jaws, and by the pentagonal shape of the basal plate. Further diagnostic features for the new species are the configuration of the bursa, which lacks cuticular structures, and the mantle of granulated secretion around the penis stylet.

GENUS *PTEROGNATHIA* STERRER, 1966

TYPE SPECIES: *Pterognathia swedmarki* Sterrer (1966a), eastern North Atlantic, by original designation.

***Pterognathia grandis*, new species**

Figures 9, 10

MATERIAL: Fifteen mature specimens were collected in August and studied alive.

TYPES: Holotype, one specimen, A.M.N.H. No. 567; paratypes, 14 specimens, A.M.N.H. No. 568.

TYPE LOCALITY: Bimini, lagoon.

DESCRIPTION: With a length of 2260 to 3500 μ and a width of 115 to 140 μ , this is the largest known species of gnathostomulids. The color of the animals is uniformly bright red. When disturbed, the animals do not contract much but curl up, leaving only the anterior part of the body straight (fig. 10A). There is no distinctly demarcated head. The preoral region is comparatively short (one-seventh of the body length) and tapers gradually toward the blunt anterior end (fig. 10B). At the level of the mouth the body reaches its normal width which decreases only slightly near the rounded posterior end of the body (fig. 9A). The flagella of the epidermis are approximately 25 μ long. Outstanding sensory flagella as common at least on the head in the species of other genera have so far not been described for *Pterognathia* and are

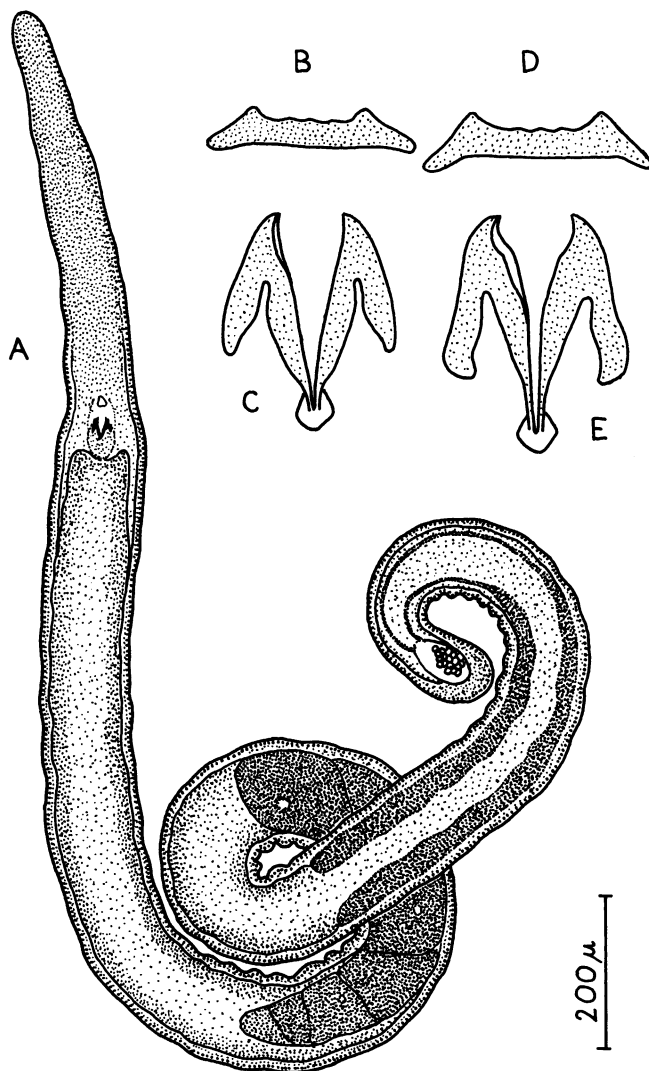


FIG. 9. *Pterognathia grandis*, new species. A. Dorsal aspect of living animal. B, C. Basal plate and jaws of small specimens. D, E. Basal plate and jaws of large specimens.

also lacking in the present species.

The jaws (figs. 9C, E, 10C) are pincer-like, as is typical for the genus (Sterrer, 1966a). They join proximally in a symphysis, and laterally

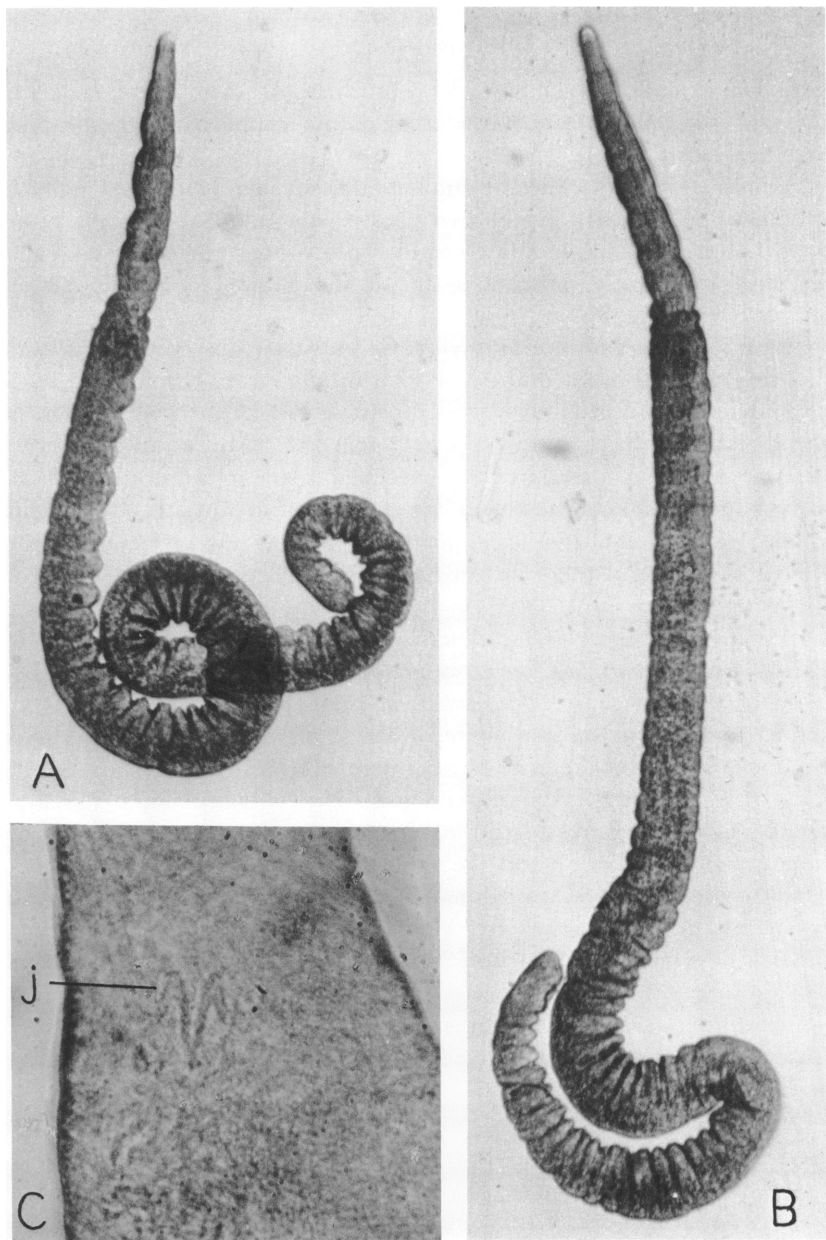


FIG. 10. *Pterognathia grandis*, new species. A. Typical attitude of animal when disturbed (lateral view). B. Same animal as in A but starting to move (anterior two-thirds of body in dorsal view). C. Mouth region with jaws (j).

each jaw extends into a winglike apophysis. At their distal ends the jaws are pointed. Details of the musculature connected with the jaws were not ascertainable.

In most of the specimens examined the shape of the basal plate is as shown in figure 9D. In the two smallest animals, however, the basal plate has less-pronounced laterocaudal protrusions (fig. 9B), and also the jaws are slightly different as far as the outlines of the apophyses are concerned (fig. 9C).

The intestine is uniform and wide. Gonads were observed in the form of a single dorsal ovary and two lateral tubular testes. From each testis a vas deferens proceeds toward the posterior end of the body, where in one specimen a vesicula seminalis is present (fig. 9A). Coarse granulated secretion, which in this particular specimen seems to be inside the vesicula seminalis, is also present in the same area in the other specimens which lack a seminal vesicle. A male genital pore was not found in the present species, and there is also no indication whatever of a bursa or of a penis.

REMARKS: Sterrer (1966a) described four species of *Pterognathia*, of which one, *P. ruberrima*, shows some similarity to the new species because of the red color. *Pterognathia ruberrima*, however, is considerably smaller and reaches only a length of 750 μ , of which one-fifth accounts for the preoral body region. Furthermore, the posterior portion of the body of *P. ruberrima* is transparent and colorless except for a few pigmented spots. Other distinguishing features for the two species are the shapes of the basal plate and the configurations of the jaws.

Seven additional species belonging to the genus are being described by Sterrer (in press). Dr. Sterrer kindly provided information contained in his article, and a comparison showed that none of the seven species is conspecific with the new species, described herein, from Bimini.

An additional, but also different, species of *Pterognathia* was recently discovered by Dr. Riedl, who generously furnished unpublished data for comparison.

LITERATURE CITED

Ax, P.

- 1956. Die Gnathostomulida, eine rätselhafte Wurmgruppe aus dem Meeres-sand. Akad. d. Wiss. u. d. Lit. Mainz, Abhandl. d. math.-naturw. Kl., vol. 8, pp. 1-32.
- 1961. Verwandtschaftsbeziehungen und Phylogenie der Turbellarien. Ergeb. d. Biol., vol. 24, pp. 1-68.
- 1965. Zur Morphologie und Systematik der Gnathostomulida. Untersuchungen an *Gnathostomula paradoxa* Ax. Zeitschr. zool. Syst. Evolut.-forsch., vol. 3, pp. 259-276.

GERLACH, S.

1958. Ein neuer Vertreter der Gnathostomulida (Turbellaria?) aus dem Meeressand der Malediven. Kieler Meeresforsch., vol. 14, pp. 175–176.

KIRSTEUEK, E.

1964. Eine neue Gnathostomulide aus der Mangroveregion des Archipels Los Roques, Venezuela. Zool. Anz., vol. 172, pp. 436–440.

MAMKAEEV, Y. V.

1961. A new representative of the gnathostomulids: *Gnathostomula murmanica* sp. n. Dok. Akad. Nauk SSSR, vol. 141, pp. 1501–1504.

RIEDL, R.

1966. Faunistische Studien am Roten Meer im Winter 1961/62. III. Die Aufsammlungen in Suez und Al-Ghardaqa, nebst einigen Bemerkungen über Gnathostomulida. Zool. Jahrb. Syst., vol. 93, pp. 139–157.

STERREK, W.

1965. *Gnathostomula axi* Kirsteuer und *Austrognathia* (ein weiteres Gnathostomuliden-Genus) aus der Nordadria. Zeitschr. Morph. Ökol. Tiere, vol. 55, pp. 783–795.

- 1966a. *Gnathostomula paradoxa* Ax und Vertreter von *Pterognathia* (ein weiteres Gnathostomuliden-Genus) von der schwedischen Westküste. Arkiv f. Zool., vol. 18, pp. 405–412.

- 1966b. Neue Gnathostomulida. Veröffentl. Inst. Meeresforsch. Bremerhaven, special vol. 2, pp. 201–208.

- [In press.] Beiträge zur Kenntnis der Gnathostomulida. I. Anatomie und Morphologie des Genus *Pterognathia* Sterrer. Arkiv f. Zool.

