

**CHORDODASYS RIEDLI GEN. NOV., SPEC. NOV.
A MACRODASYOID GASTROTRICH
WITH A CHORDOID ORGAN**

by

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Résumé

Chordodasys est un nouveau genre de Gastrotriches Macrodasyoïdes, provenant d'un sable grossier situé à 41 m de profondeur, au large de Beaufort (Caroline du Nord, Etats-Unis). La différence principale entre *Chordodasys* et les autres genres des Dactylopodaliidae (famille dans laquelle il est placé provisoirement) est la différenciation de la cuticule dorsale en plaques et en épines et la présence, dans la partie postérieure du corps, d'un organe chordoïde, inconnu jusqu'à présent chez les Gastrotriches.

Introduction

Since the fundamental work of Remane on marine Gastrotrichs (1927, etc.), the Macrodasyoidea have increased to 24 genera. Especially during the recent years, several new genera have been added (Clausen 1965, 1968; Swedmark 1967; d'Hondt 1968). On the American Coast, however, the group has been almost entirely neglected except for Wieser's paper (1957) and some recent work on the East Coast fauna by Hummon (1966, 1968). Studies of interstitial fauna on North Carolina coasts (see also Riedl 1969, Sterrer 1969), produced a large amount of Gastrotrich material composed predominantly of new forms. This paper, dealing with one of the few new genera, is intended to be the first in a series of papers describing this fauna. At the present stage of investigation, it can be pointed out that differences between the European fauna and those of the East Coast of North America are usually restricted to the species level.

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DESCRIPTION

Locality.

Type locality: Beaufort, N.C. Sample taken on Eastward Cruise E 48-68, Station No. 10999, lat. 34°45'0 N, long. 75°45'0 W on Nov. 25th, 1968.

Depth: 41 m. (2 specimens). Further locality: Eastward Cruise, Station No. 11567, lat. 34°18'0 N, long. 76°13'6 W on March 18th, 1969. Depth: 40 m. (12 specimens).

Substratum: clean coarse sand with shell particles.

Type material.

Holotype U.S.N.M. 40816 and paratypes U.S.N.M. 40817 through 40822, deposited in the Division of Worms, National Museum of Natural History, Washington, D.C.

Associated fauna.

At the type locality, several undescribed species of the following Gastrotrich genera have been encountered: *Crasiella* Clausen 1968, *Lepidodasys* Remane 1926, *Paradasys* Remane 1934, *Urodasys* Remane 1926, *Dactylopodalia* Remane 1926, *Diplodasys* Remane 1936, *Tetranchyroderma* Remane 1926, *Ptychostomella* Remane 1926, and *Pseudostomella* Swedmark 1956. Other groups comprise: Turbellaria (among them several undescribed "polyolithophorous" species, see Sterrer 1966), Gnathostomulida (*Austrognatharia* Sterrer, *Haplognathia* Sterrer), Nematoda, Archiannelida (Protodrilidae), Solenogastres, Acochlidiacea (*Microhedyle*), Bryozoa (*Cupuladria doma* d'Orbigny).

Material.

13 mature specimens and 1 juvenile were found and studied alive by squeeze preparation. Extraction was made according to Sterrer (1968). In order to characterize the relative position of organs, the method introduced by Rieger & Sterrer (1968) is followed; it takes the length of the animal as 100 units (U 0 - U 100), U 0 being the anterior tip of the animal.

External feature and behavior

The total length of *Ch. riedli* ranges from 490-580 μm . The width of the angular head is 60 μm , its length is 70 μm . It is well delimited by the first pair of lateral spines. From here to the end of the pharynx the body measures 40-50 μm in width (spines not included). It then gradually widens, reaching a maximum of 60 μm between U 40 - U 70. From U 80 (which is also the posterior limit of the cuticularized structures), the body tapers in three steps to 20 μm at the base of the caudal appendages. The latter form two distinct feet, with a length of about 36 μm (including posterior tubules) and an almost constant breadth of 7-10 μm , broadening slightly at the base of the posterior tubules. The body is dorso-ventrally flattened, thus extremely band-like. The animal is highly transparent and colorless, except for the reddish brown pharynx and the yellowish gut.

In the dish *Ch. riedli* moves continually, the body remaining quite rigid. Active motions are confined to a bow-like bending of the whole body, slight lateral nodding of the head, and an occasional energetic upward tossing of the tail region. The latter movement, executed by the chorda-muscular mechanism of the tail, might be connected with the copulation behavior (here unknown) as described in *Turbanella* (Teuchert 1969). Its adhesive ability is not very efficient.

Ciliation

The dorsal surface of the head is richly provided with sensory cilia. Some short, stiff cilia flank the mouth opening, whereas longer ones, usually in groups of 2-3 insert on small papillae atop the two paired obtuse-angled corners of the lateral margin of the head. Similar cilia with a widened base are situated in paired groups in front and behind the tentacles. Most of the dorsal ciliation, however, is com-

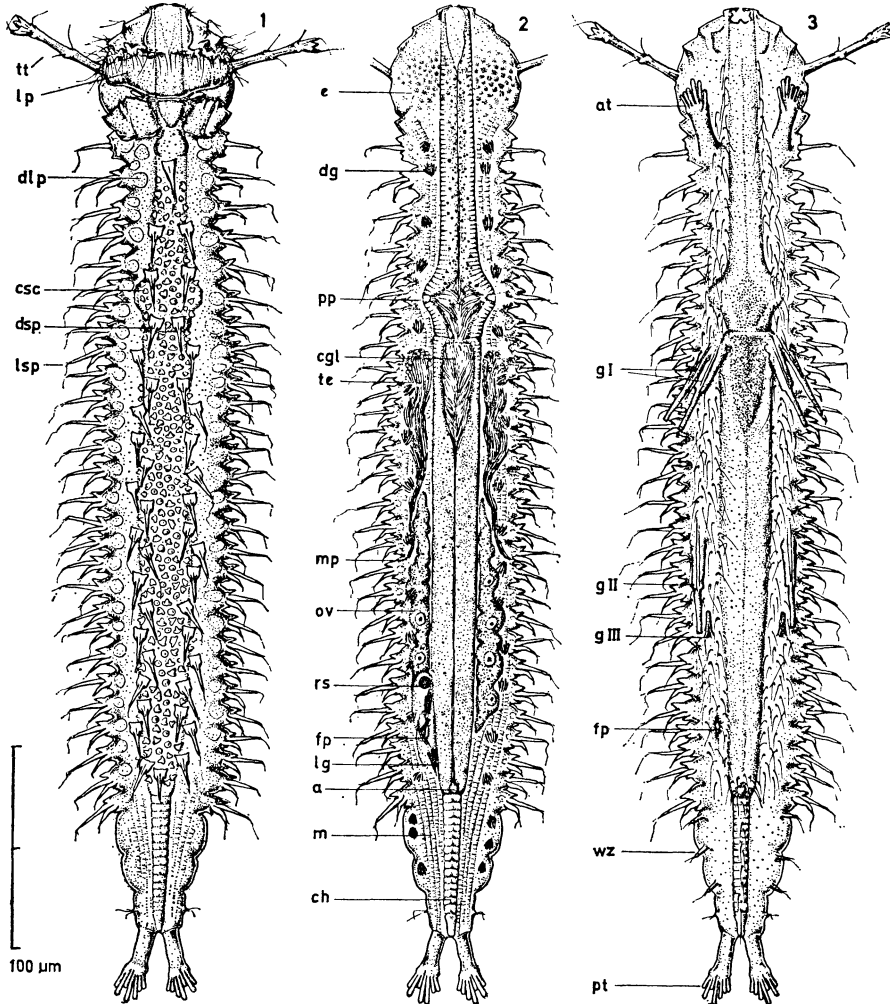


FIG. I
Chordodasys riedli

1 - dorsal view ; 2 - inner organization ; 3 - ventral view (all in the same scale).

Abbreviations used in figures : a - anus ; at - anterior tubules ; cgl - ciliated gut lumen ; ch - chorda ; csc - cone-like scales ; dg - dorsal glands ; dlp - dorso-lateral plates ; dsp - dorsal spines ; e - epithelium ; fp - female pore ; g - gut ; g I-III - groups of ventrolateral tubules ; lg - large glands ; lp - large plate ; lsp - lateral spines ; m - striated muscles ; mp - male pore ; ov - ovary ; pp - pharyngeal pori ; pt - posterior tubules ; rs - receptaculum seminis ; te - testes ; tt - tentacles ; vc - ventral ciliation ; wz - "Wimperzapfen".

posed of a pair of roughly triangular lateral areas which extend medially from the base of the tentacles and are connected by a narrow but dense transverse row of cilia the maximum length of which is 20 μm .

The ventral ciliation (Fig. I, 3) forms two ventrolateral longitudinal bands of irregularly arranged, single cilia (15 μm long). The two rows connect at the anus, leaving the epithelium beneath the intestinal tract non-ciliated. The anus itself is surrounded by a cluster of cilia. At the position of the anus (U 80), the ventral body surface bends sharply dorsally producing a still flatter caudal region (Fig. II, 4). Continuing from the anus under the "chorda", is a longitudinal ventral groove in the median line (Fig. II, 6). It contains a row of few cilia extending to the base of the feet (which lack cilia). The peculiar sensory hairs characterizing the cuticularized structures and some of the tubules will be referred to below.

Tentacles

A pair of tentacles (with which term no homology is intended) is situated midway along the lateral border of the head (Fig. II, 11; Plate I, 14). Their length is 45-48 μm . They have an oblique, articulation-like swelling halfway along their length and another terminally from which three finger-like appendages originate. All three fingers are strengthened by short (4 μm) rod-like structures. Inserted on the swellings, on top and between the two outer fingers, are single sensory cilia, which always arise from a small peg-shaped base. The tentacles, usually extended antero-laterally and vibrating slightly, can be bent posteriorly until they touch the lateral body surface.

Tubules

The anterior adhesive organ is situated ventrally, immediately behind the head (Fig. I, 3; Fig. II, 11). It is hand-like, up to 40 μm long and carries a constant number of 6 tubules sharing a common base. Beginning medially, number 1 (7-8 μm), similar to a thumb of a hand, is somewhat isolated, as it originates closer to the common base than do the other tubules. No. 2 is 10 μm long; No. 3, 10-14 μm , whereas Nos. 4-6 are of equal length (5-7 μm). Fibers of striated muscles coming from the body musculature proceed into the base.

Four pairs of ventrolateral tubules (Fig. I, 3; Fig. II, 4) are present of which the two anterior are joined proximally (group I), whereas the other two pairs lie close together but are isolated from each other (groups II and III). All these tubules differ mainly in shape and appearance.

Group I, situated at U 35, immediately behind the end of the pharynx, comprises two pairs of tubules of equal length (38 μm) but different shape (Fig. II, 7). The exterior tubule, 4 μm wide at the base, gradually tapers to 2 μm towards the blunt end. Its base is connected with that of the interior tubule which can be described as paddle-shaped, consisting of a thick proximal (7 μm) part and a thin distal

(2 μm) part—the distinct delimitation being situated midway along the length of the tubule. In the proximal part, striated musculature could be seen. Both tubules contain two delicate, cuticular stiffening rods which protrude 10 μm into the body interior, ending close to the pharynx-gut limit.

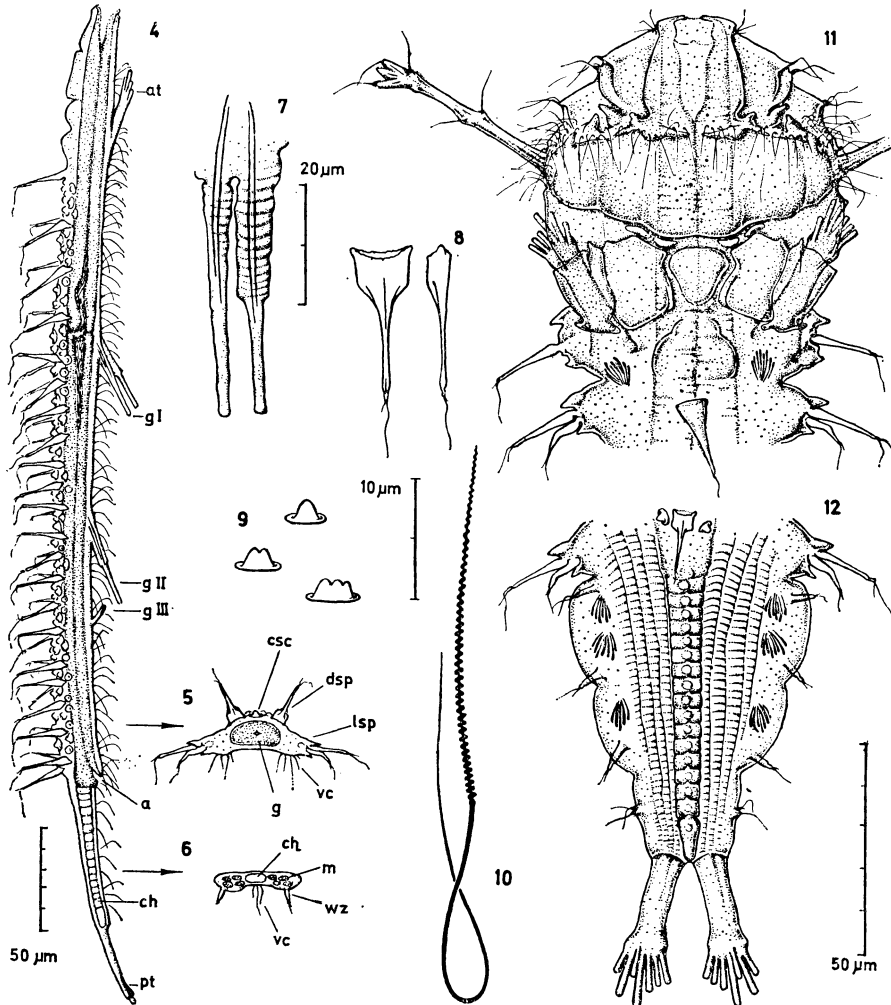


FIG. II
Chordodasys riedli

4 - lateral view (tentacles and lateral spines omitted); 5-6 - schematic cross section; 7 - left pair of ventro lateral tubules, group I (dorsal view); 8 - dorsal shovel-like spine (dorsal and lateral view); 9 - cone-like scales; 10 - sperm; 11 - anterior region (dorsal view); 12 - posterior region (dorsal view); (4-6, 8-10 and 11-12 in same scale).

Group II, situated at U 55 and overlapping the male genital pores, consists of one pair of tubules; these are somewhat longer (41 μm) than the interior pair of group I, but their paddle-shape as well as their internal structure corresponds exactly.

Group III is found at U 63 (which also marks the distal end of group II). It consists of one pair of simple and short (12 μm) tubules which, in contrast to group I and II, point frontally.

Furthermore, small tubule-like appendages ("Wimperzapfen" in Remane 1927), of regular shape and arrangement occur ventrolaterally in the tail region (Fig. I, 3; Fig. II, 12). Their total length of 7 μm is divided into a thicker base of 5 μm and a thinner delimited and rounded tip of 2 μm , the latter always carrying one shorter and one longer very active cilium. Three such pairs lie close to the lateral edge of the tail region in almost constant distance from each other (about U 81, 85, and 89). One pair of somewhat different protuberances can regularly be found on the lateral border near the bases of the (posterior) feet. These are small pyramidal projections which are provided with 2-3 very motile cilia (8 μm long).

The posterior tubules originate on the distal portion of the feet (Fig. II, 12; Plate I, 15). Seven tubules are present of which, beginning medially, numbers 1, 2, 5, and 7 are of equal length (5-6 μm); 4 and 6 are 14-15 μm and number 3 has a length of 10-11 μm . This pattern was found to be identical in most of the specimens, except for a few, where on one or both feet, only 6 tubules could be ascertained. The condition of these specimens, however, suggests that these differences might be attributed to mutilation during preparation rather than to actual morphological differences.

Cuticularized structures

The dorsal body surface, with the exception of the approximately 105 μm long tail region carrying the feet, is almost entirely covered with several varieties of 1. plates, 2. spines, and 3. scales (Fig. I, 1).

1. Plates.

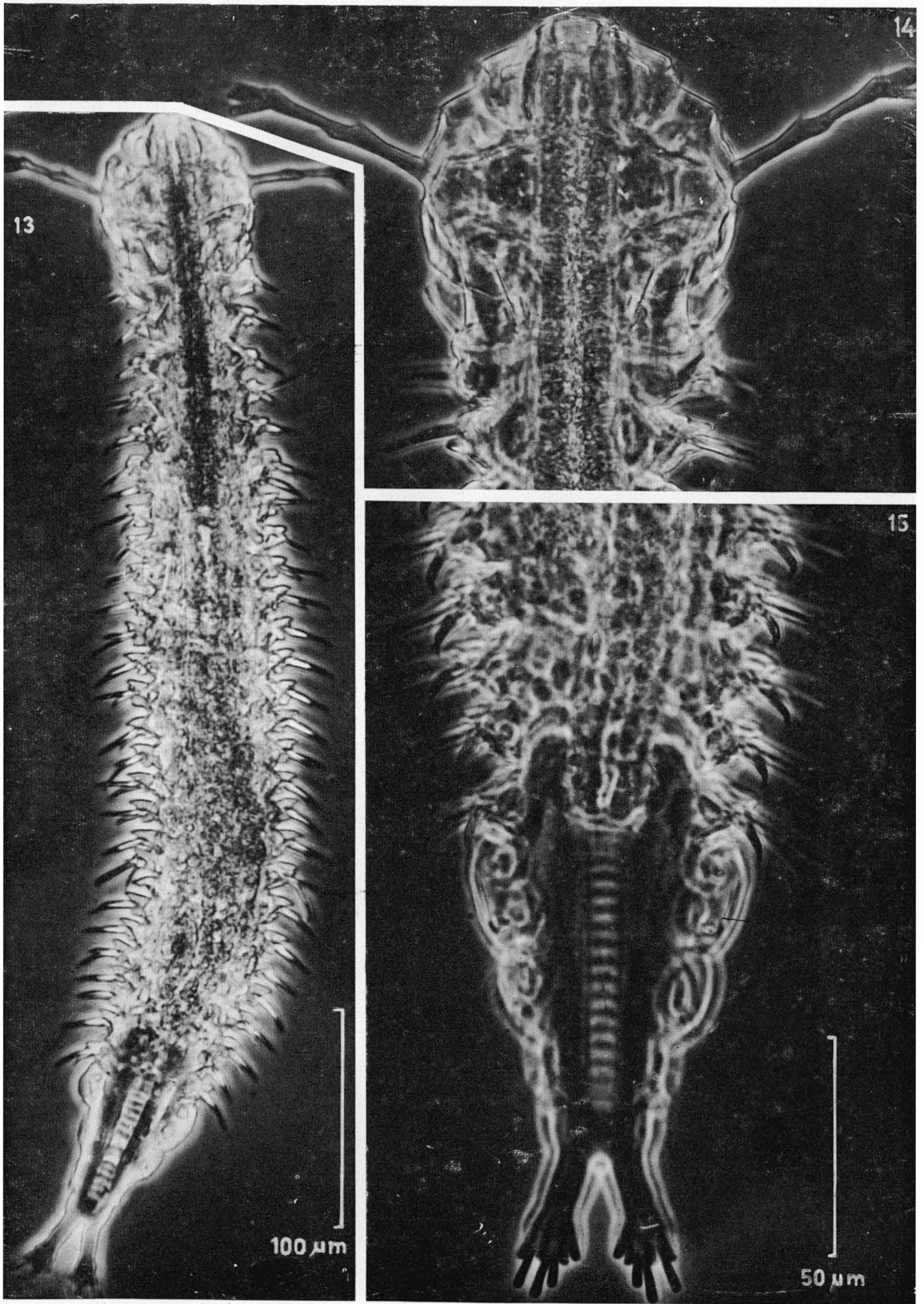
The head can be roughly described as being polygonal and slightly longer than broad (Plate I, 14; Plate II, 16, 17). Between the terminal mouth opening and the tentacle, its outline forms two nearly identical steps whose prominent ridges extend caudally towards the large plate. The cuticle of the head is richly sculptured and shows a complicated pattern of plates, ridges and projections. Thus the delimitation of single plates could not always be established with certainty. About half of the surface of the head is covered by one large plate, which consists of a broad transverse part extending between tentacle bases and an anterior longitudinal part covering the buccal cavity. The anterior boundary of the transverse part is provided with a symmetrically arranged assemblage of thorn-like structures, of which the

PLATE I

Chordodasys riedli

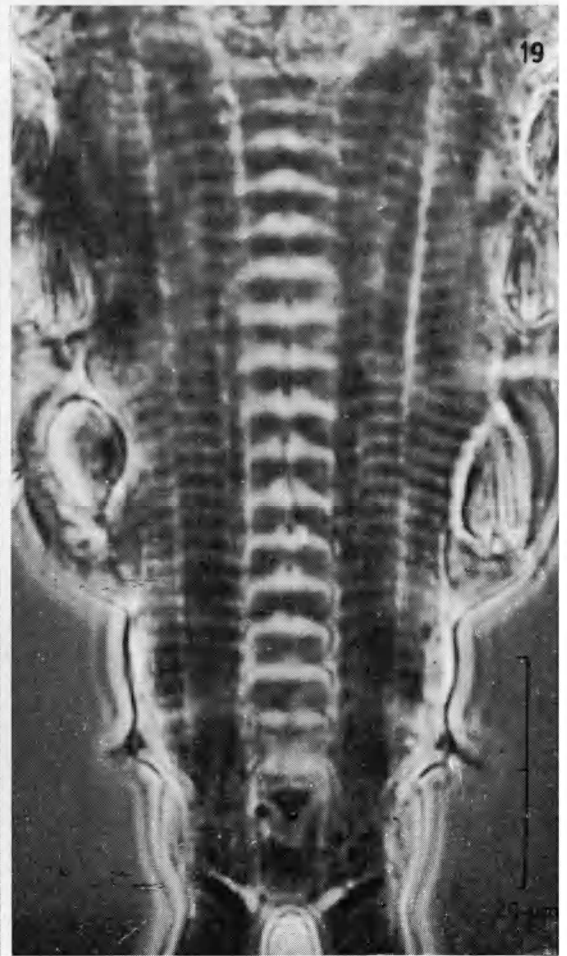
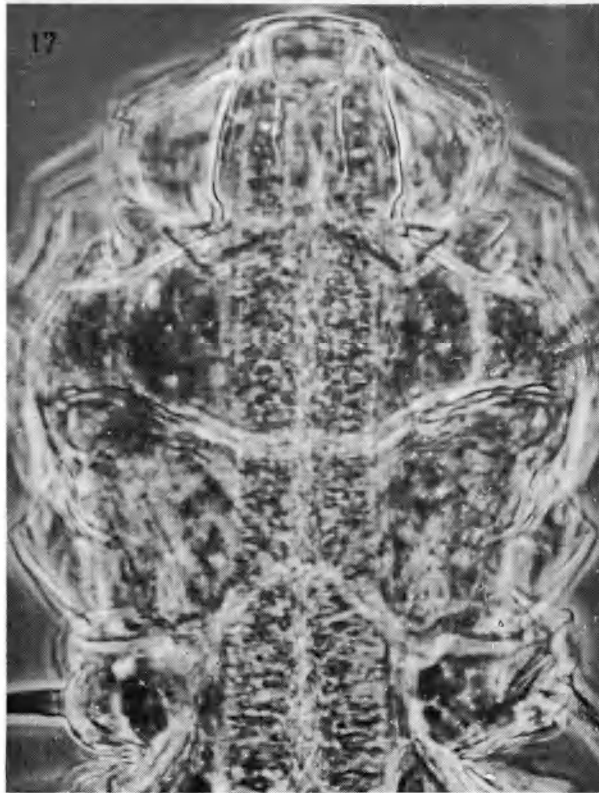
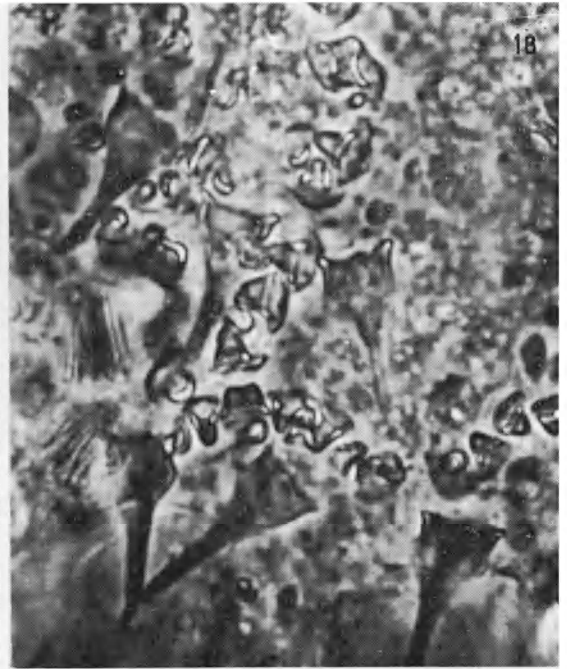
Photographs of live specimens in phase contrast.

13 - total view; 14 - anterior region; 15 - posterior region (14-15 in the same scale).



C. SCHÖPFER-STERRER

PLATE I



most obvious is a median spine pair pointing medially, without touching each other. Posteriorly, the large plate is delimited by a transverse groove, which is deepest in its median portion, where it contains two pairs of tiny, superficially embedded plates. It is followed by a group of 6 smaller and also symmetrically arranged plates. Two of these are situated in the median line, of which the anterior is triangular and very delicate, the posterior more rounded and bilobed. Lateral to the triangular part, there are two pairs of polygonal plates, the outermost reaching and forming the body outline. Ovoid plates, barely distinct from the cuticle and covering the base of the spines, were also observed all along the dorsolateral body surface. Their diameter ranges from 8-15 μm .

2. Lateral spines.

The spines lie along the body sides starting immediately behind the head and extending to the beginning of the tail region (Fig. I, 1; Fig. II, 11, 12). There are 28 paired groups of spines, each pair consisting of two parts arising from a common base. The anterior spine is up to 20 μm long, thin (2 μm) and slightly curved. The posterior and more ventral spine is about 16 μm long, up to 4 μm thick and sharply curved in its distal part. The two spines articulate on an 8-12 μm wide base, which itself bears a thorn-like protuberance both in front and behind the spines. The base of the anterior-most spine is somewhat broader (18 μm) and in all observed animals carried only the thinner spine, which seems to be the natural condition. In some specimens, a considerable number of spines were broken away at their basal articulation.

All spines move actively and independently, although muscle insertions could only be assumed. It is very probable that the base of the spines is provided with a single, small rounded gland of homogeneous content, which discharges at the tip of the spines. The latter regularly bear delicate but well delimited epidermal papillae (2 μm long) where usually one or two short (3 μm) and one long (10 μm) cilium arise. These cilia always perform a ciliary beat.

3. Dorsal spines and scales.

The lorication of the dorsal body surface extends from behind the head (U 15) to the anal region (U 80). It is restricted to a distinct longitudinal swelling, convex in cross section (Fig. I, 1; Fig. II, 4). Behind the head it is 25 μm wide, then gradually increases to 40 μm in the midbody region. Its lateral margin is bordered with a row of

PLATE II

Chordodasys riedli

Photographs of live specimens in phase contrast.

16 - plates of the head; 17 - same position somewhat lower; 18 - shovel-like spines and cone-like scales immediately in front of tail region; 19 - chordoid organ and striated muscles (16-17 and 18-19 in the same scale).

19-20 shovel-like spines. The two rows frontally and caudally converge towards an additional median spine.

The anterior-most spine is followed by three pairs covering the pharynx region, of which the third pair is closer to each other, apparently allowing for the openings of the pharyngeal pores.

The shovel-like spines, with a maximum length of 18 μm , are attached by a tiny base to the body surface to which they are perpendicular (Fig. IV, 8). Their proximal part, roughly rectangular (5-6 μm long and 7-8 μm wide) has an ovoid or rhomboid base of which the corrugated edges, laterally drawn into rounded apophyses, articulate with the body surface.

The distal part of the scale is extended to form an 11 μm long spine with a longitudinal ridge. In agreement with the lateral spines, a delicate plasmatic axis runs to the tip of the spine, where it emerges to form a little knob-like cap (2 μm). The latter regularly carries a short and a longer (7 μm) cilium, which join the ciliary beat. The anterior-most spine with regard to its outline, holds an intermediate position between the lateral and dorsal spines. It is more elongated and triangular, without a well delimited distal part. In lateral view the entire spine is seen to lie in one plane, i.e. the basal part and the spine being in one line.

In addition to these two longitudinal rows of dorsal spines, a second type of cuticularized structures is represented on the dorsal swelling. It consists of cone-like scales which cover nearly the entire space between the spine rows. These cones have their basal discs implanted into the dorsal body surface and their tips pointing upwards. The cone-shaped scales, considerably smaller and more abundant than the dorsal spines occur in three different types; the most common consists of a round base (about 5 μm diameter) with recurved edges, bearing a central rounded cone of about 4-5 μm height (Fig. II, 9). The other types differ from this description insofar as the cone is bi- or tripartite and sits on a slightly larger base of about 7 μm .

Digestive tract

The terminally situated mouth opens into a cavity of moderate size (Fig. I, 2). The pharynx comprises a little less than one-third of the total gut length and broadens towards its posterior end, where the 15 μm wide pharyngeal pores originate (U 30). The interior surface of the pores, as well as of the adjoining pharynx lumen (which widens considerably in this region), is provided with a dense ciliation of long and very active cilia, whose beat is directed mediocaudally, i.e. away from the pore opening towards the gut. Except for one specimen with a wide opening, the transition between pharynx and gut was usually tightly closed, suggesting the presence of a powerful constrictor-muscle. The circular musculature of the pharynx, in any case, is very distinct. The gut between U 35 and U 43 (at least) has a wide lumen and is also densely ciliated. The lumen in the remainder of the gut is quite small and consequently the presence of cilia in those regions could not be established with certainty (in one specimen, the gut was seen to be ciliated also at U 70). However, cilia are presumed

to be associated with the entire gut epithelium. The outer sides of the gut are nearly parallel, about 25 μm from each other and narrow as they approach the anus. The latter is situated at U 80, marking the limit between the loricated body and the bare tail region.

Chordoid organ

The tail region is characterized by a peculiar chordoid organ which, as a continuation of the gut, is situated in the median axis (Fig. II, 12; Plate I, 14; Plate II, 19). Its length is 70 μm , width proximally 9 μm , distally 7 μm . It consists of 17-18 links. These are disc-shaped and 3-4 μm long, except for the last, which is cone-shaped and 7 μm long. The frontal part of each link is provided with a knob-like protuberance, which fits into a corresponding depression in the foregoing link, thus reminiscent of a simple articulation. The median part of each disc is almost completely occupied by a nucleus. The whole organ is cartilaginous in appearance.

Body musculature

The entire body, from the head to the base of the (posterior) feet, seems to be surrounded by a sheath of striated longitudinal muscles, apparently thickened ventrolaterally. The muscles are quite visible ventrally but not sufficiently clear for a detailed analysis of individual fibers. As already mentioned above, some muscles diverge into the adhesive tubules. The longitudinal muscles are best developed in the tail region, where the "chorda" is accompanied on each side by a bundle of rather strong fibers which end caudally in a transverse septum at the base of the feet. Circular muscles (which usually are very delicate) were not observed.

Dorsal glands

Dorsolaterally, the epidermis contains a paired row of ovoid glands about 7-12 μm in size, which are tightly packed with parallel rod-like inclusions. Their number and distribution varied from specimen to specimen. In two specimens, the tail region contained three pairs of these glands in a regular arrangement. Similar but much larger glands, which probably belong to the female genital organs will be referred to below.

Genital organs

1. Male organs.

The paired testes extend from U 37 (somewhat behind pharynx end) to U 58 where the vasa deferentia terminate (Fig. I, 2). They are closely packed with sperms, especially in their anterior portion; posteriorly, they turn gradually into the vasa deferentia. The latter, from their ventrolateral position, curve dorsally towards the body

surface. In 90 p. 100 of the specimens observed they ended at the body surface between the bases of the 17th and 18th lateral spines. With great probability this suggests the presence of two separate dorsolateral male openings.

The sperm are divided into a distinct spiralized head and a tail (Fig. II, 10). The latter measures usually about 50 μm (42-51 μm). The head (constant length, 35 μm) has a very tight spiralization with about 50-55 windings.

2. Female organs.

A well delimited egg of the usual appearance was not recorded in any of the specimens. Instead, a rather diffuse tissue extending laterally to the gut was found between about U 48 and U 68 (Fig. I, 2). It is characterized by a coarse, grainy structure which is reminiscent of yolk material. It regularly contains several scattered nuclei of considerable diameter (11-12 μm) and with conspicuous nucleoli (2 μm), as they are typical for an ovary. Behind this ovary and partly embedded in its lobes, there is an elongated organ with finely granular walls situated on the left body side. Its anterior part (at about U 65) has a globular cavity of 12 μm diameter, which is usually filled with concentrically arranged and very active sperms. This organ (which is obviously a receptaculum seminis) widens caudally into a bursa which at about U 72 opens into a round or ovoid-shaped (up to 15 μm long) ventrolateral female pore (vagina). The bursa was quite regularly accompanied by 4-5 bundles of tightly packed slender rods. These bundles displayed exactly the same arrangement in all specimens: number 1 behind the receptaculum seminis and close to the gut, followed by number 2 in a similar position; nos. 3 and 4 in oblique position near the vagina, with tips pointing towards each other, and no. 5 behind, a constant distance of 20 μm from the anus. The shape and contents of these bundles is similar to that of the dorsal glands; the single rods, however, are 15 μm long, which is three times the length of those of the dorsal glands.

DIAGNOSIS

Chordodasys nov. gen.

Macrodasyoid with well delimited head bearing one pair of tentacles. Posterior end extended in two distinct feet, with posterior tubules on the distal part. Anterior adhesive organ hand-like, only ventrolateral tubules are present, in small numbers. Entire dorsal body surface with exception of tail region, covered with cuticularized plates, spines and scales. Broad pharyngeal pores at posterior end of pharynx. Pharynx and gut lumen at least partly ciliated. In continuation of the gut behind the anus, a significant chordoid organ is developed. Paired testes; vasa deferentia with two separate lateral openings. Bursa copulatrix at the left side of the gut behind the paired ovary.

Chordodasys riedli nov. spec.

Body up to 603 μm long, head and broadest body part 60 μm ; pharynx: total gut length ratio slightly less than one-third; tentacles with 3 finger-like appendages. Anterior adhesive organ composed of 6 tubules on a long common base; two pairs of long ventrolateral tubules behind pharynx end, one similar pair behind the middle of the body followed by one short pair; 6-7 posterior tubules on each foot. Cuticle organized in various plates, paired groups of lateral spines, dorsal shovel-like spines and cone-like scales. Sperm up to 90 μm , spiralized head 35 μm . Chordoid organ 70 μm long and consisting of 17-18 discs.

DISCUSSION

The systematics of Gastrotricha are particularly difficult, partly due to gaps in the notion of systematically important structures. The lack of knowledge can be attributed mostly to the extremely small size and rareness of the organisms. Internal features such as the genital organs or the ciliation of the gut, in fact, are very difficult to establish based on little material (in the present species, for instance, the gut ciliation was first noticed in the third specimen). This dilemma, therefore, is mirrored in the present division of the class into families, which becomes more and more provisional with every new genus described (as literally expressed in Swedmark, 1967, p. 327 and Clausen, 1968, p. 63). Most of the family diagnoses already overlap. On the basis of the data available, however, a revision would be premature. I therefore also prefer to place *Chordodasys* "provisionally" into the family Dactylopodaliidae.

In the following discussion, comparisons with representatives of the families Turbanellidae and Dactylopodaliidae are emphasized. This can be justified by a higher number of comparable features within these two families.

Apart from the chordoid organ, which, as such, is unique in the class Gastrotricha, *Chordodasys* assembles characters of several different genera. The external appearance comes closest to that of *Xenodasys* Swedmark 1967, *Dinodasys* Remane 1927, *Pseudoturbanella* d'Hondt 1968, and *Dactylopodalia cornuta* Swedmark 1956. With these genera *Chordodasys* shares the delimited head bearing tentacles, the elongated body and the slender posterior end forming two extended feet.

The tentacles of *Chordodasys* are very similar to those of *Dinodasys* and *Xenodasys*, but in both genera the finger-like appendages are missing. Remane describes "transverse wrinkles" in the "tentacles" of *Dinodasys*, which might correspond to the swellings in those of *Chordodasys*. The insertion of the tentacles close to the posterior end of the head in *Dinodasys* and *Pseudoturbanella* seems to stress Remane's suggestion of a homology with similar structures in *Turbanella*. In *Xenodasys* and *Chordodasys*, however, the tentacles lie closer

to the anterior part of the head and are much more clearly delimited. The additional pair of lateromedian tentacles in *Xenodasys* is missing in *Chordodasys*.

Hand-like arrangement of the anterior tubules occurs in *Paraturbanella*, *Turbanella*, and *Pseudoturbanella* (regarding the Turbanellidae) and in *Dactylopodalia typhle* Remane 1927, whereas *Dinodasys* has a transverse row of anterior tubes and *Xenodasys* has none at all.

The small number of lateral tubules is shared with *Desmodasys* (here they are completely lacking), *Pseudoturbanella*, *Paraturbanella* and *Dendrodasys*. A pair (or paired group) of longer lateral tubules behind the end of the pharynx are found in *Pseudoturbanella* and also in *Pleurodasys* and *Turbanella cirrata* Papi 1957. The latter two, however, also have normal lateral tubules in considerable number. The particular shape of the two pairs of tubules (broad proximal and narrow distal part) agrees quite well with similar tubules of almost the same length in *Paraturbanella teissieri* Swedmark 1954 (see Boaden, 1963, Fig. 6) and with somewhat shorter ones found in *Dendrodasys*; in both, however, they are situated close behind the head. As to the position of group II and III of the ventrolateral tubules, no similarity could be found.

Two distinct posterior feet are present in *Pseudoturbanella*, *Dinodasys*, *Xenodasys*, and *Dactylopodalia*. *Xenodasys*, particularly with the feet being longer than broad and the tubules situated only at their posterior edge, can again be considered as being closely related.

As far as the striated musculature is concerned, Wilke (1954) already established that this feature is probably of much wider occurrence in the Gastrotricha than is actually reported and therefore of less taxonomical value.

The band-like contents in the dorsal glands, on the other hand, connect *Chordodasys* with *Desmodasys* and *Paraturbanella*.

As far as the cuticularized structures are concerned, similarities with the genera mentioned above are very few. Only the cuticular plates which characterize the head of *Xenodasys* can directly be compared with the intricate pattern of the plates in *Chordodasys*. Besides this genus, in the Macrodasyoidea scales, spines or plates are present in *Acanthodasys*, *Lepidodasys*, and *Diplodasys*. Due to substantial differences in shape and arrangement, the scales of the two latter genera can be excluded from closer comparison. At most a remote similarity between the lateral spines of *Diplodasys* and those of *Chordodasys* could be admitted. Further affinities of superficial characters lie in the two cuticular structures of *Acanthodasys*, which also has scales and long pointed spines.

All the genera cited above contrast to the new genus in lacking the chordoid organ. No structure of such position and appearance is present within the Aschelminthes. Within the Plathelminthes, structural correspondences are known from Turbellaria. Among the Proseriata several species, notably *Polystiliphora filum* Ax (see Ax 1966, fig. 15, 16) possess a rod- or club-shaped chordoid organ which is derived from the entoderm. These structures, however, extend from the anterior end of the gut frontally, often superposing the brain,

and usually end close to the anterior tip of the body. Turgescent tissues of less distinct differentiation are reported by Ax from several representatives of the interstitial fauna, including the gastrotrich genera *Macrodasys* and *Urodasys* (Ax, 1966). Here the ectodermal cells of the anterior body region are partly vacuolated, but the different position as well as the much higher organizational level of the organ of *Chordodasys* do not allow further comparison. Recent observations by Teuchert (1968) on the chordoid nature of the paired Y-Organ, which in this case is derived from mesodermal material, are a further proof that turgescent tissues of supporting function are as widely spread in Gastrotricha as in many other groups of the interstitial fauna. In contrast to this more passive protectional function, against the mobile substratum, the strong muscular sheath surrounding the "chorda" in *Chordodasys* suggests a much more active function. An antagonism between "chorda" and muscles is ostensible, resulting in a bending of the tail or of the body, if the posterior tubules are attached to the substratum.

In two major respects, striking similarity exists between *Chordodasys* and *Dendrodasys*. The latter genus is the only one possessing cilia in the pharynx and gut (Wilke, 1954, p. 509), furthermore, the vasa deferentia, as this author states, very likely end in two laterally situated male pores.

Since the family Dactylopodaliidae is already heterogenous with respect to one of its main criteria (pharynx completely comprised in the head), it seems advisable to place *Chordodasys* in this family. This presents the opportunity of assembling probably the closest related genera (*Dendrodasys*, *Xenodasys*), and will avoid overloading the hitherto rather homogenous family Turbanellidae.

Acknowledgement

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Summary

Chordodasys represents a new genus of the Macrodasyoidea gastrotrichs from clean coarse sand in 41 m depth, off Beaufort (North Carolina). The main difference between *Chordodasys* and the other genera of the family Dactylopodaliidae (to which it is placed provisionally) is the located dorsal body surface and the presence of a chordoid organ in the tail region, which has not been described as yet within the Aschelminthes.

Zusammenfassung

Mit *Chordodasys* wird ein neues Gastrotrichengenus aus der Ordnung der Macrodasyoidea beschrieben. Es stammt aus reinem Grobsand in 41 m Tiefe, vor Beaufort (Nord Carolina, USA). *Chordodasys* unterscheidet sich von den übrigen Genera der Familie Dactylopodaliidae (zu denen es vorläufig gestellt wird) vor allem durch das beschuppte dorsale Epithel sowie den Besitz eines chordoiden Organs in der Schwanzregion, welche Bildung bisher innerhalb der Aschelminthes unbekannt war.

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