THREE NEW GASTROTRICHS FROM THE SWEDISH WEST COAST

by

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Résumé

Ce travail concerne trois Gastrotriches Macrosyoidea nouveaux pour la science trouvés dans le mésopsammon de la côte W. de Suède : *Cephalodasys lobocercus* n.sp. ; *Tetranchyroderma suecica* n.sp. ; rappelant par sa forme générale *T. apus* Remane, mais s'en distinguant par les deux expansions pédieuses caudales : *Paradasys turbanelloides* n.sp. ; espèce très intéressante, qui combine les caractères de *Paradasys* et de *Turbanella.*

On cite également quelques animaux de la faune associée aux Gastrotriches.

Abstract

This paper describes three new species of Gastrotricha Macrodasyoidea discovered in autumn 1959 during a visit to Kristineberg Zoological Station. They are all members of the marine interstitial fauna and were found in medium to fine grained sand dredged from depths of to 22 metres both at Hållö and the Väderöarna.

CEPHALODASYS LOBOCERCUS n. sp.

Adult specimens of *Cephalodasys lobocercus* (Fig. 1) are from 1.7 to 2.3 mm. long when moving freely by ciliary action. The breadth at the widest point varies from .12 to .16 mm. The body narrows slightly toward the posterior end where there is a well defined caudal lobe 40 to 50 μ long. The head is 80 to 100 μ long and rounded at the anterior end. The posterior end is marked off from the rest of the body by a shallow ventro-lateral groove on either side. There are no cephalic appendages other than the anterior adhesory tubules, 15 to 22 in number. These are situated on the ventral surface and arranged irregularly, though there is often a rough alignment into two paired transverse rows on each side (Fig. 2).

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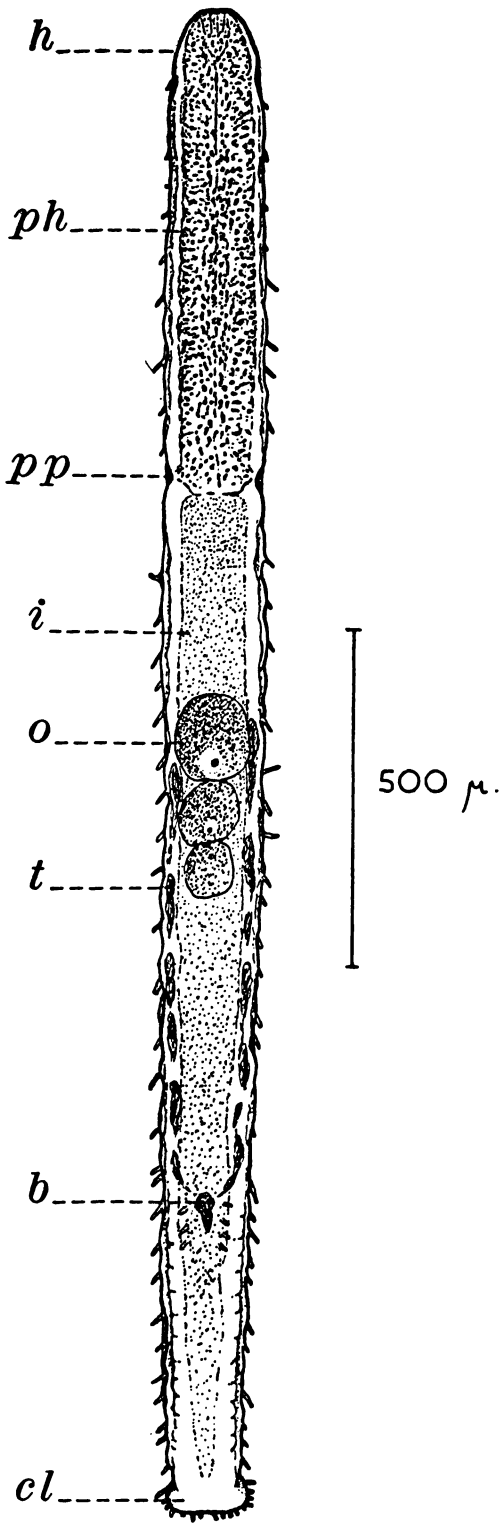

The lateral tubules are up to 15 μ long when unextended and have oblique ends. There are two lateral rows on each side of the animal. The more ventral row of up to 40 tubules extends as far forward as the head groove, but the more dorsal row of up to 30 tubules extends only to within 100 μ of the head groove (Fig. 2). In the region of the bursa copulatrix there are additional adhesory tubules on the dorsal surface (Fig. 1). There are about half the length of the lateral tubules and arranged in a longitudinal row of 3 to 5 near each side on the bursa.

The arrangement of the posterior tubules is shown in figure 3. The number in the adult varies from 20 to 25, the larger specimens having the most tubules.

The fairly extensible mouth (Fig. 2) leads into pharynx 600 to 700 μ long. The pharyngeal pores are easily seen close to the hind end of the pharynx. The gut narrows towards the anus, which opens ventrally immediately anterior to the caudal lobe. The pharynx occupies about one third of the total length of the digestive tract.

Epidermal glands are closely packed on the dorsal surface, which they cover nearly completely, though they are absent from the caudal lobe.

FIG. 1

Cephalodasys lobocercus n. sp. Adult animal, dorsal view.

h : head; *i :* intestine; *o :* oocytes; *b :* bursa ; *c.l :* caudal lobe ; *ph. :* pharynx ; *p.p :* pharyngeal pore ; *t : testis.*

The head has a dorsal covering of cilia but otherwise the ciliation is restricted to the ventral surface, which has an entire covering on the anterior three fifths. In the posterior region the ciliation is restricted to two latero-ventral bands. The underside of the caudal lobe is densely ciliated.

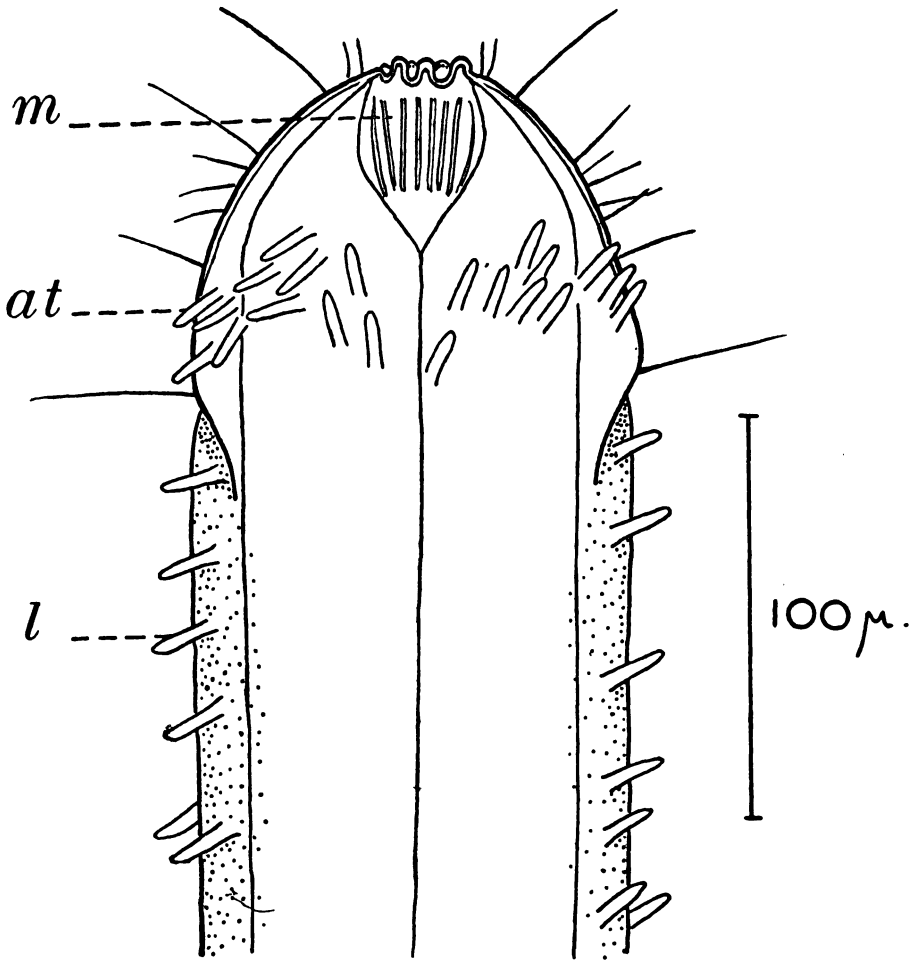

FIG. 2
Cephalodasys lobocercus n. sp. Anterior region, ventral view.
a.t: anterior adhesory tubules; *l.t:* lateral adhesory tubules; *m:* mouth cavity.

Sensory hairs are distributed along the length of the body. They are commoner in the head region where they reach 50 μ in length. The sensory hairs in te region of the bursa also attain this length, but elsewhere on the body the sensory hairs rarely exceeded 35 μ.

The reproductive system of *Cephalodasys lobocercus* is similar to that of *C. maximus* Remane. Both ovary and bursa copulatrix

are dorsal. The adult carries a maximum of four ripe eggs, more usually only two or three, situated half way along the body. The eggs, which do not exceed 130 μ diameter, seem to be liberated

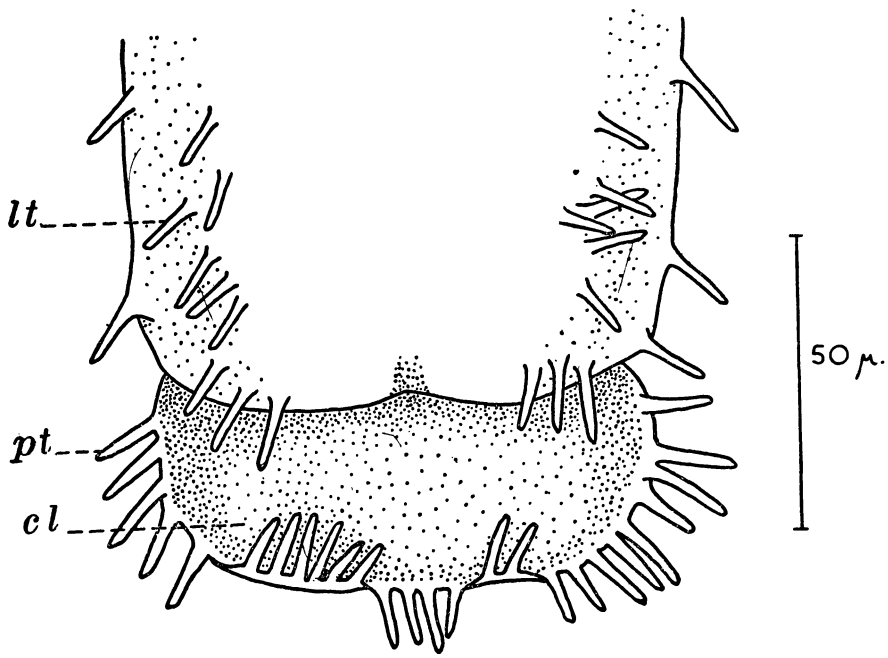

FIG. 3
Cephalodasys lobocercus n. sp. Posterior region, ventral view.
c.l: caudal lobe; *l.t:* lateral adhesory tubules; *p.t:* posterior adhesory tubules.

by rupture of the body wall. Like the eggs, the bursa is situated further forward than in *C. maximus*. The bursa wall is composed of large cells. In two specimens where the bursa contained spermatozoa the cells forming the anterior wall had been cytolysed. This

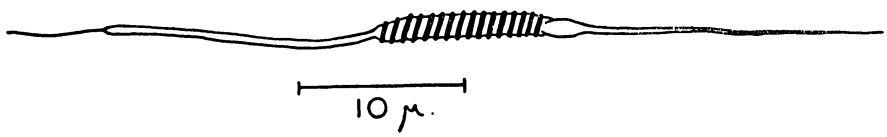

FIG. 4
Spermatozoon of *Cephalodasys lobocercus* n. sp.

may be necessary before the spermatozoa can reach the ova. No internal opening of the bursa has been observed in other specimens.

The testes are paired lateral organs (Fig. 1) extending from the mid body backwards to the bursa copulatric. A. spermatozoon of *C. lobocercus* is shown in figure 4.

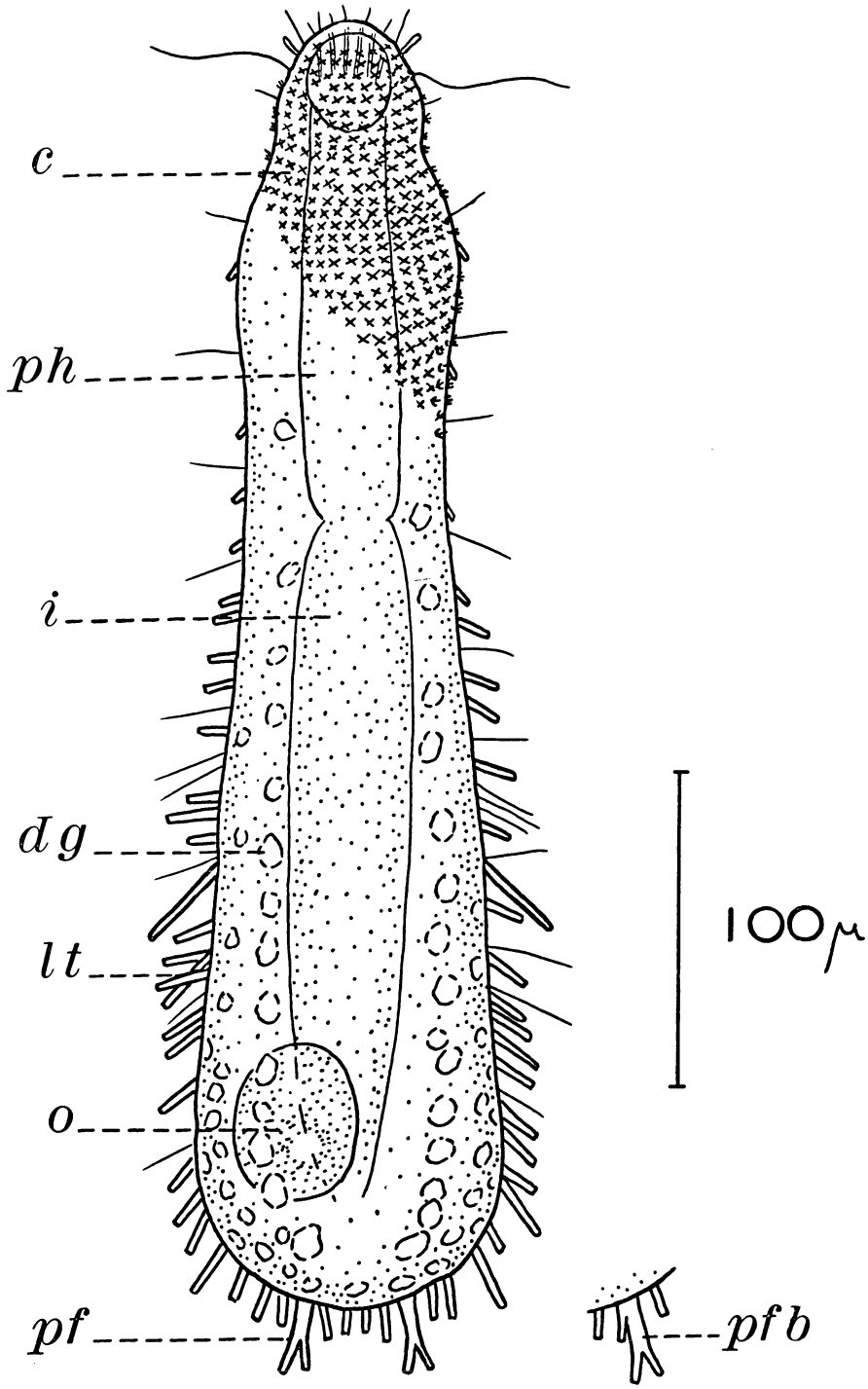

FIG. 5

Tetranchyroderma suecica n. sp.
Adult animal, dorsal view, cuticular hooks omitted from posterior region.

c: cuticular hooks; *d.g:* dorsal glands; *i:* intestine; *l.t:* lateral adhesory tubules; *o:* oocyte; *p.f:* posterior foot; *p.f.b:* posterior foot with three tubules.

TETRANCHYRODERMA SUECICA n. sp.

This species belongs to the section of the genus *Tetranchyroderma* which possesses five pronged cuticular hooks (pentancres). The adult reaches a maximum length of 450 μ but mature specimens have been found which are only 380 μ long. The appearance of the body when freely moving may be described as that of an elongated pear, as shown in figure 5. The mouth can be widened so that

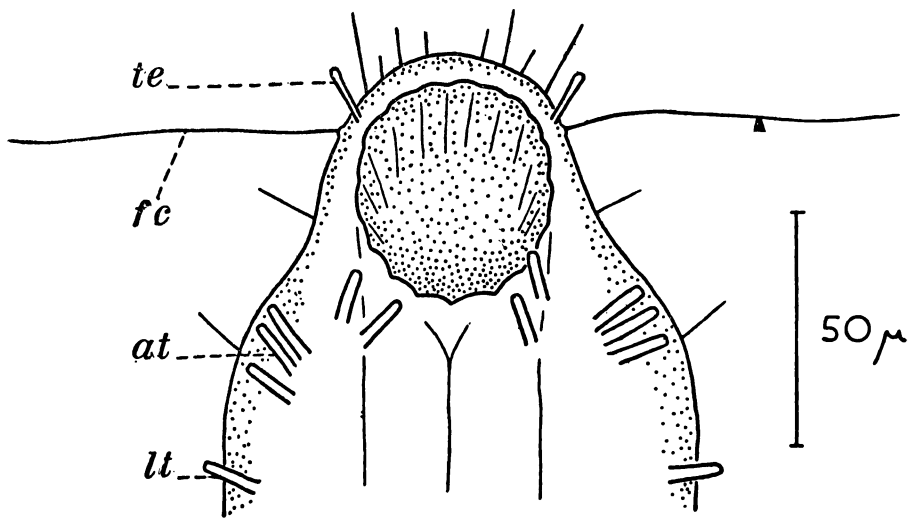

FIG. 6
Tetranchyroderma suecica n. sp. Head region, ventral view.
a.t: anterior adhesory tubules; *f.c:* flagelliform cirrus; *l.t:* lateral adhesory tubules; *te:* head tentacle.

is gapes to the same width (100 μ) as the body, the lateral edges of which then become parallel. The head of *Tetranchyroderma suecica* resembles that of *T. apus* Remane in that it bears a pair of short tentacles and a pair of flagelliform cirri (Fig. 6). The cirri are between 60 and 70 μ long, the tentacles attain 12 μ and are slenderly club-shaped.

As in most other Gastrotricha Macrodasyoidea, the adhesory tubules are arranged in three main fields or groups, the anterior, lateral and posterior. The anterior group of adhesory tubules are approximately the same length as the tentacles and usually number 10, five on each side of the body. They are arranged in a ventro-lateral row of 3 and a more ventro-medial group of 2 (Fig. 6); one pair of the latter is sometimes absent however.

They are 20 to 30 lateral tubules, scarce in the pharyngeal region, more numerous toward the posterior. Most do not exceed 20 μ in length but a pair 30 μ long lying about two thirds down the length of the body from the anterior end can sometimes be distinguished. The disparity between this pair and the rest is more obvious in younger specimens.

The posterior tubules of *T. suecisa* are delimited by an obvious pair of feet usually bifid, occasionnally with a small third tubule. Between these feet there are 4 to 8 single tubules (Fig. 5).

The ratio of the pharynx to the total length of the digestive tract is approximately three eighths.

There are numerous latero-dorsal epidermal glands of homogenous content. They form two paired rows (Fig. 5). The glands of the more dorsal row, which extends forward into the pharyngeal region, reach 10 μ diameter. The more lateral rows, consisting of glands about half the size, begin half way down the body length and are continuous around the posterior border of the animal.

The pentancres have equal sized prongs not exceeding 6 μ in length. There are 55 to 70 transverse rows of hooks, which in the widest region of the body contain up to 20 pentancres each.

The ventral ciliation is entire.

Little of the reproductive system is known. There is a single testis which is situated on the right side. Specimens were not found

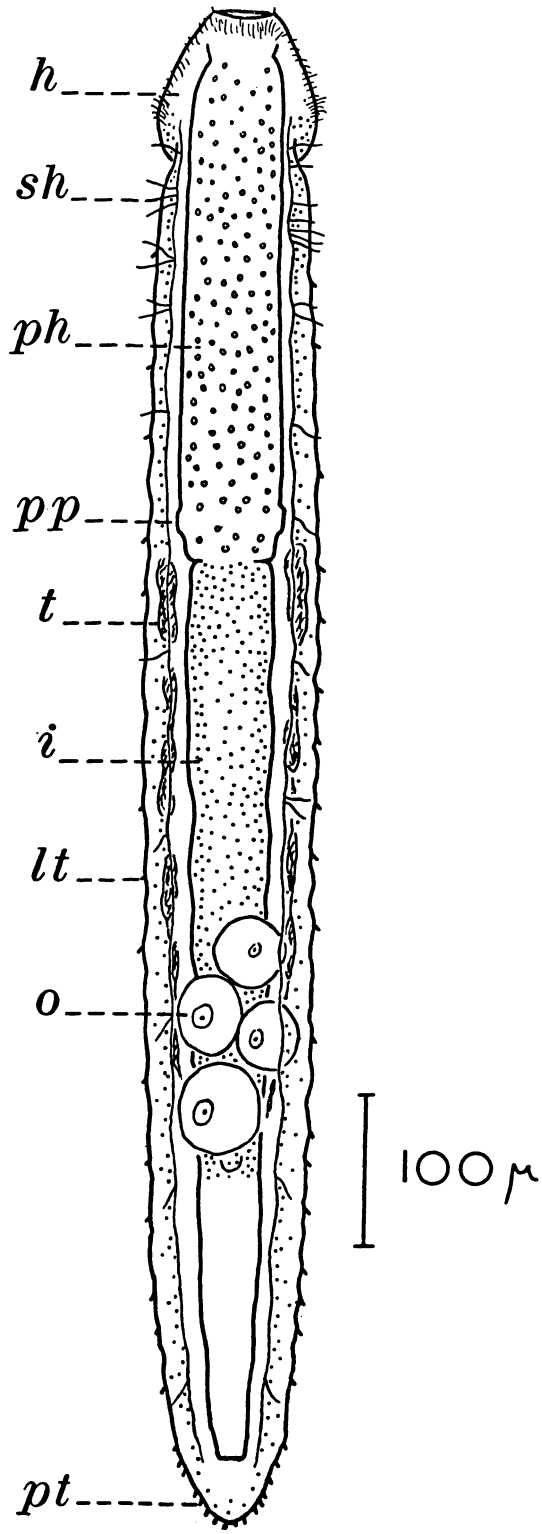

FIG. 7
Paradasys turbanelloides n. sp. Adult animal, dorsal view.

h: head; *i:* intestine; *l.t:* lateral adhesory tubules; *o:* oocytes; *ph; pharynx; p.p:* pharyngeol pore; *p.t:* posterior adhesory tubules; *s.h:* sensory hairs.

with more than one oocyte visible. The egg is situated near the posterior end and attains a maximum diameter of 50 μ.

Of the other *Tetranchyroderma* species so far described *T. suecica* appears related most nearly to *T. apus* but differs from this species most markedly by the possession of well developed posterior feet.

PARADASYS TURBANELLOIDES n. sp.

Swedmark (1956) has described from the south coast of France a young gastrotrich which combined characters of the genera *Paradasys* and *Turbanella*. The species here described is an obviously similar form.

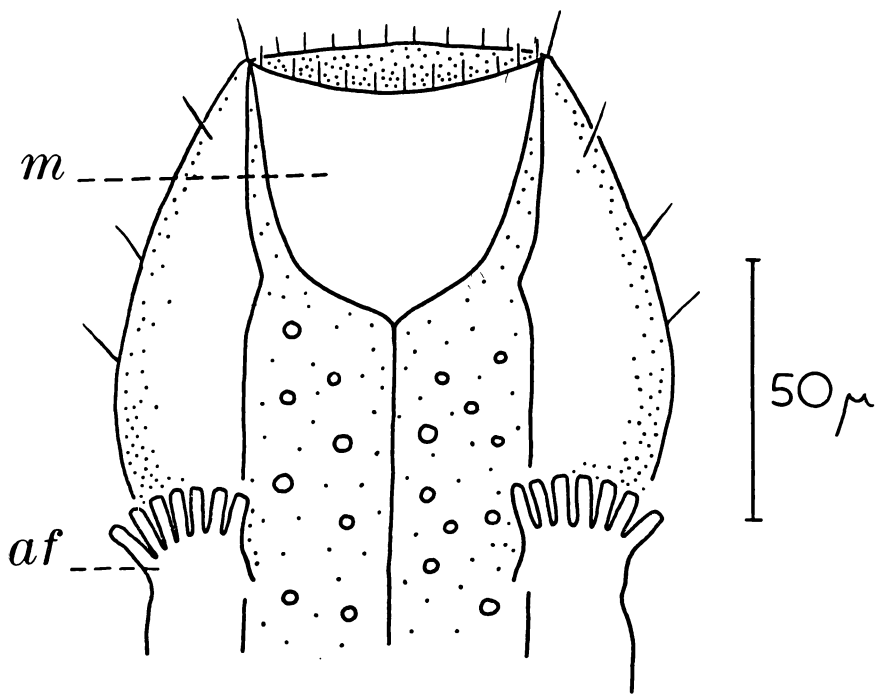

FIG. 8
Paradasys turbanelloides n. sp. Anterior region, ventral view.
a.f: anterior foot; *m:* mouth cavity.

The body of *Paradasys turbanelloides* is dorso-ventrally flattened, the nearly parallel sides tapering slightly towards the finely rounded posterior end. The adult (Fig. 7) when not contracted attains a length of 1 mm. and 115 μ breadth. There is a fairly distinct head

marked off by ventro-lateral grooves. The whole body is transparent.

The anterior tubules are aggregated into a pair of feet very like those of *Turbanella* species. Each foot consists of seven or occasionally six tubules 10 μ long situated ventro-laterally just behind the head (Fig. 8).

Fifteen to twenty lateral tubules 9 to 12 μ long are borne on each side of the body. The posterior tubules are arranged singly around the posterior border, 10 to 15 in number and slightly shorter than the lateral ones.

The mouth (Fig. 8) is terminal though slightly inclined to the ventral surface. Its anterior border bears 15 to 20 short bristles 5 to 6 μ long. The pharynx has numerous round refringent granules. The pharyngeal pores are well developed and situated close to the posterior end of the pharynx. The anterior two thirds of the intestine is granular ; the posterior non-granular region leads

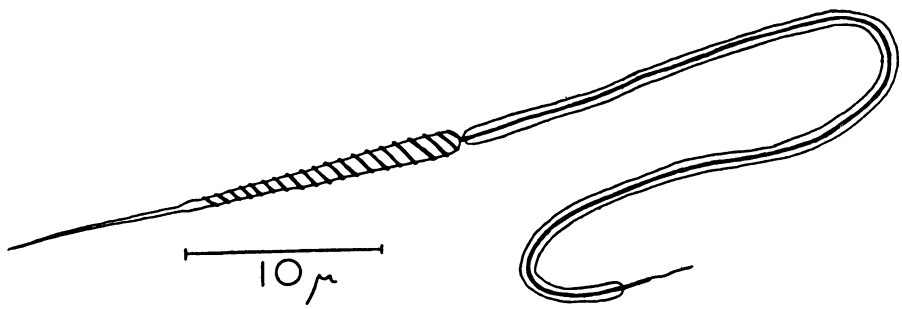

FIG. 9
Late spermatid of *Paradasys turbanelloides* n. sp.

to the anus, which opens about 30 μ from the hind margin of the body. In the adult the ratio of pharynx length to that of the total digestive tract is slightly less than one third.

No dorsal glands are apparent but the epidermis is finely granular.

The ventral ciliation is entire but more dense in the ventro-lateral region especially near the posterior where cilia are sparse toward the mid-line. The head bears also a pair of lateral tufts of cilia and a dorsal transverse band near the anterior border (Fig. 7). There is a dorso-lateral row of stout sensory hairs 15 to 20 μ long. These are commonest in the anterior region just behind the head.

The testes are paired and extend alongside the granular region of the intestine. The genital openings could not be distinguished. The eggs are very transparent and thus difficult to see. Up to four eggs of maximum diameter 60 μ may be carried by one adult. The structure of the nearly mature spermatid is shown in figure 9.

ASSOCIATED FAUNA

Among the animals occuring in the same habitat as the three described gastrotrichs were found the following:— the interesting Hydrozoan coelenterate *Halammohydra schulzei* Remane ; the turbellarian *Utelga heinckei* (Attems); Gastrotricha: *Aspidiophorus marinus* Remane, *Chaetonotus atrox* Wilke, *Macrodasys caudatus* Remane, *Turbanella cornuta* Remane; Archiannelida: young *Polygordius appendiculatus* Fraipont, *Protodrilus adhaerens* Jägersten, *Trilobodrilus heideri* Remane; Holothuria: *Leptosynapta decaria* Östergen, *Leptosynapta minuta* Becher. The polychaete *Praegeria remota* Southern was particularly common, as was *Staurocephalus* sp.

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