# The Morphology and Taxonomy of Macrostomum phillipsi n. sp.

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(With 4 Figures.)

Eingeg. 28. April 1938.

*Macrostomum phillipsi*[1] is a member of the family Macrostomidae, of the sub-order Opisthandropora, and of the order Rhabdocoelida. This animal was collected in a pasture-swamp near the road between Barboursville and Ruckersville, Greene County, Virginia. In the collections from this station, no other Rhabdocoeles were found.

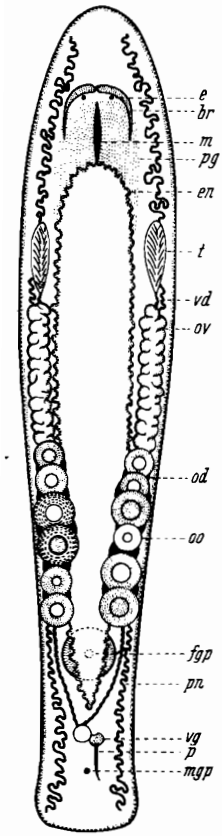
This worm is unusually slender. The anterior end is obtusely rounded while the posterior end lacks a pronounced spatulate tail (Fig. 1). The average length is 2 mm. The body is translucent. The pharyngeal glands around the mouth may contain brownish-red pigment granules.

The epidermal cells are roughly pentagonal in optical section. While rhabdites occur throughout the epidermis, they are more thickly concentrated on the anterior mid-dorsal crest of the body and on the posterior rim of the tail (Fig. 2). They lie in packets of from three to eight and measure about 16 microns by 2 microns. No more than five rhabdites are developed in a single adenal cell. These cells are scattered sub-dermally over the body, measuring 16 microns in diameter. Anterior "Rhabditen-strassen" arise in the region of the "brain" which divides them into dorsal and ventral groups. The "Stäbchen" are well developed around the female genital pore. Epidermal cilia are unsually long, measuring up to 9 microns (Fig. 2). Sensory hairs are thickly dispersed over the body. They are approximately twice the length of the cilia. Spines and "Haftpapillen" are absent.

The eyes (Fig. 1, *e*) are reddish-black in color and are of the usual structure found in *Macrostomum*. They have an average diameter of 12.5 microns while the spherules composing the pigment-cup are about 2 microns in diameter. The eyes are located postero-dorsal to the cerebral-ganglia. The cerebral-ganglia are two in number, united by a very short commissure. A lateral posterior nerve stem is appended to each ganglion.

[1] This new flatworm has been named in honor of Mr. Howard M. Phillips of this laboratory in recognition of his work upon spermatogenesis in *Macrostomum* (Phillips, 1937). — This work has been made possible by a research grant from the Virginia Academy of Science.

The mouth (Fig. 1, *m*) is laterally bounded by mucous glands which pour their product into the pharynx simplex. The flagellated enteron has an unusually long posterior extension which covers the female genital atrium (Fig. 1, *en*).

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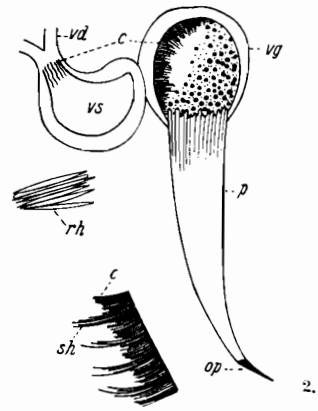


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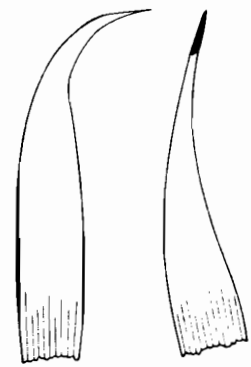

3.

4.

Fig. 1. *M. phillipsi*. Dorsal view of gross anatomy. 58 ×. — Fig. 2. Male sex apparatus. 360 ×. Detail of ciliation. 500 ×. Detail of rhabdites, 250 ×. — Fig. 3. Two views of penis-stilette. 408 ×. — Fig. 4. Mature sperm-cell 800 ×.
*br*, "brain"; *c*, cilia; *e*, eye; *en*, enteron; *fgp*, female gonopore; *m*, mouth; *mgp*, male gonopore; *oo*, oöcytes; *od*, oviduct; *ov*, ovary; *op*, opening; *p*, penis; *pg*, pharyngeal glands; *rh*, rhabdites; *sh*, sensory hairs; *t*, testes; *vd*, vas deferens; *vg*, vesicula granulorum; *vs*, vesicula seminalis.

The protonephridia (Fig. 1, *pn*) are fairly small in caliber. The external opening was not observed, even though an exhaustive study was made.

The testes (Fig. 1, *t*) are small and are located in the anterior third of the body. Both mesial and lateral walls are smooth and thick. The testes develop before the penis-stilette in immature

animals. The vesicula seminalis and vesicula granulorum develop early. The seminalis (Fig. 2, *vs*) is roughly retort shaped while the granulorum (*vg*) is spheroidal. Both of these organs have strongly developed muscular walls. The seminalis has a ciliated portal (*c*) receiving a tube-like region which divides immediately into two vasa deferentia (*vd*). The granulorum has a ciliated lining at the ductus ejaculatorius which presumably drives the granular material into the base of the penis-stilette (Fig. 2, *p*). The penis-stilette, of which three views are given (Figs. 2, 3), is a basally widened and deeply crenated funnel which terminates in a gradual curve. The opening is located in the convexity of the curve. The stilette measures 65 microns in length.

The sperm cell (Fig. 4) is composed of feeler, body, and tail. Two lateral setae are present, arising near the chromatic element which is unique in that it appears bluegreen in transmitted light. This cell has highly undulant walls and measures 58 microns in length.

The female sexual apparatus does not possess features which would warrant a specific description.

Taxonomically, *M. phillipsi* does not resemble *M. appendiculatum* O. FABR., *M. gracile* PEREYASL., *M. viride* E. BENED., *M. sensitivum* SILLIM., *M. orthrostylum* M. BRAUN, *M. infundibuliferum* PLOTN., *M. tuba* GRAFF, *M. timavi* GRAFF, *M. lineare* ULJ., *M. obtusum* VEJD., or *M. setosum* SCHMARDA. These are the accepted species listed in GRAFF (1913, p. 49). In like manner, *M. phillipsi* does not resemble any of the *Macrostomum* which have been described since 1913. They are: *M. beaufortensis* FERGUSON, *M. boreale* RIEDEL, *M. intermedium* TU, *M. japonicum* OKUGAWA, *M. obtusum korsakoffi* NASSONOV, *M. rhabdophorum* BEKLEMISCHEFF, *M. saifunicum* NASSONOV, *M. thermale* REISINGER, *M. tuba gigas* OKUGAWA, *M. virginianum* FERGUSON and *M. viride elgonense* BEAUCHAMP. Thus *M. phillipsi* is herein presented as a new species with the following diagnosis.

## Species Diagnosis.

*Macrostomum phillipsi* new species: Body slender lacking pronounced tail spatulation, colorless, epidermal ciliation includes long cilia and numerous sensory hairtufts, pigment-spherules of eye very small, testes small and smooth walled, granulorum lacks distinct ciliated chambers, penis-stilette is slender funnel with crenated base and curved distal end, opening terminal (length 65 microns), body length up to 2 mm.

## Literature.

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# Crustaceen aus unterirdischen Biotopen des Rheintales bei Straßburg.

## III. Mitteilung[1].

Von Ludwig Hertzog, Straßburg (Elsaß).

(Mit 3 Abbildungen.)

Eingeg. 12. März 1938.

Bei weiterem Suchen nach Grundwassertieren in den Nortonröhren des Beobachtungsgebietes des Straßburger Wasserwerkes (1 km vom Rhein entfernt, siehe Zool. Anz. **114**, 272 und 278) sind am 6. 9. 37, in einem Fange, also in ein und derselben Nortonröhre (N. 89) zwei weitere *Parastenocaris*-♂♂, beide wieder unbekannter Art, zutage gefördert worden. In Illkirch-Graffenstaden und in der Robertsau hatte sich immer nur die 1936 (l. c.)

[1] I. Mitteilung 1936, Zool. Anz. **114**, 271; II. Mitteilung (Beschreibung von Bogidiella) 1936, Bull. Soc. zool. France **61**, 356.

Veröffentlichte (bzw. noch ausstehende) monographische Bearbeitungen einzelner Arten, Gattungen oder Gruppen:

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Die vollständige Aufzählung der bei Straßburg gefundenen Troglobionten kommt erst diesen Herbst.