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BULLETIN

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT

HARVARD COLLEGE, IN CAMBRIDGE.

VOL. XXIX.

CAMBRIDGE, MASS., U. S. A.

1896.

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Bulletin of the Museum of Comparative Zoölogy

AT HARVARD COLLEGE.

VOL. XXIX. No. 6.

REPORT ON THE TURBELLARIA COLLECTED BY THE
MICHIGAN STATE FISH COMMISSION DURING THE
SUMMERS OF 1893 AND 1894.

By W. McM. WOODWORTH.

WITH ONE PLATE.

DENDROCELIDÆ.

Planaria simplex Woodw.

Figure 1. — *Planaria simplex* Woodw.

Planaria simplex Woodworth, Bull. Mich. Fish Commission, No. 5, 1896.

This species, Dodge Ave. St., East of N. Y. River, Lake Michigan.
Length 4 mm., greatest diameter 1.5 mm. — Dorsal edge white. — Broadest at

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By W. M. Woodworth

With One Plate

CAMBRIDGE, MASS., U.S.A.:
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JUNE 1899

BULLETIN OF THE MICHIGAN FISH COMMISSION
No. 6. — *Report on the Turbellaria collected by the Michigan State Fish Commission during the Summers of 1893 and 1894.*¹ By W. McM. WOODWORTH.

THROUGH the kindness of Prof. H. B. Ward, the Turbellaria collected by the Michigan State Fish Commission during the summers of 1893 and 1894 were sent to me for study, and the present report embodies a list of the species taken; it contains descriptions of some new forms. The collections, though few in number, contribute to the Turbellarian fauna of the United States four new species, three of which have never before been described.² It is much to be regretted that, in the absence of any data regarding the colors and shapes of the living animals, descriptions of these new species must necessarily be based upon the appearances of alcoholic material. Since the action of killing and preserving reagents tends to destroy or bleach the pigments and alter the shapes of the animals, such descriptions make subsequent identification difficult. The bibliographical citations in the synonymy include the original authority for the species, and all references to the species in the United States, as far as known to me.

DENDROCELIDÆ.

Planaria simplex WDWTH.

Figure 1.

Planaria simplex WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

One specimen, "Dredge Aug. 11, 1894, off N. Y. Point, Lake Michigan." Length 4 mm., greatest diameter 1.8 mm. General shape ovate. Broadest at

¹ Contributions from the Zoölogical Laboratory of the Museum of Comparative Zoölogy at Harvard College, E. L. Mark, Director, No. LXV.

² Recently described without figures in a preliminary abstract of this paper, published in the Bulletin of the Michigan Fish Commission, No. 8, Lansing [Mich.], 1896.

$\frac{1}{5}$ the total length from the anterior end, tapering from here to rounded posterior extremity. Anterior end rounded, set off from the rest of the body by slight lateral indentations at the level of the eyes, i. e. at about $\frac{1}{10}$ total length from the anterior end. No evidence of cephalic appendages. Mouth $\frac{1}{3}$ total length from posterior end. Eye spots elongated, crescentic, facing outward and forward at an angle of 45° to the chief axis of the worm. Intestine of the simple Triclad type; no fusion or anastomoses of the posterior stems. No indications of sexual organs; immature. Pigment located in spots of nearly uniform size, distributed uniformly over all parts of the body; no clear areas surrounding eyes or at sides of head. Color of alcoholic specimen ochre-yellow.

Planaria maculata LEIDY.

Planaria maculata LEIDY, Proc. Acad. Nat. Sci. Philad., Vol. III. p. 251, 1848; Vol. V. pp. 225, 289, 1852; Ann. Mag. Nat. Hist. [2], Vol. I. p. 78, 1848; The Museum, Vol. I. p. 50, 1885. DIESING, Syst. Helminth., Vol. I. p. 205, 1850; Sitzungsber. Akad. Wiss. Wien, Bd. XLIV. Abth. 1, p. 499, 1862. STIMPSON, Proc. Acad. Nat. Sci. Philad., Vol. IX. p. 23, 1857. SILLIMAN, Zeitschr. wiss. Zool., Bd. XLI. p. 70, Taf. IV., Fig. 3, 1885. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

Dugesia maculata GIRARD, Nord Amerik. Monatsbericht f. Naturw. u. Heilk., Philadelphia, Bd. II. p. 3, 1851; Ann. Sci. Nat., Zool., Tom. XV. p. 181, 1893.

One specimen from New Baltimore, Lake St. Clair, Aug. 20, 1893. Seven specimens "on leaves of Nymphaea, Twin Lakes, Charlevoix, Aug. 8, 1894." Four specimens from "Utricularia washings, West Twin Lakes, Charlevoix, Aug. 13, 1894." The specimens from the West Twin Lakes are much smaller than those from other stations, and three of these are mutilated at the anterior end. I have found mutilations to be very common in *Pl. maculata* from many different localities; they occur chiefly at the anterior end. It is possible that this species reproduces by transverse division, like *Pl. subtentaculata*¹ and *Pl. fissipara*.²

It is not unlikely that the form described by Girard as *Pl. tigrina* belongs to this species. Girard based his description on a single specimen, the anterior end of which was lacking; his description, as far as it goes, agrees with the common varieties of *Pl. maculata*, a species which is the commonest of our fresh water Planarians.

¹ Zacharias, O., Zeitschr. f. wiss. Zool., Bd. LXIII. p. 271, Taf. IX. Figs. 8-11. 1886.

² Kennel, J. v., Zool. Jahrbücher, Abth. f. Anat. u. Ontog., Bd. III. p. 468, Taf. XVIII. Figs. 4, 5, 19, 20. 1888.

**Procotyla fluviatilis* LEIDY.¹

Procotyla fluviatilis LEIDY, The Museum, Vol. I. p. 50, Philad., 1885. STIMPSON, Proc. Acad. Nat. Sci. Philad., Vol. IX. p. 23, 1857. DIESING, Sitzungsber. Akad. Wiss. Wien, Bd. XLIV. Abth. 1, p. 517, 1862. GIRARD, Ann. Sci. Nat., Zool., Tom. XV. p. 164, 1893; Nord Amerik. Monatsbericht f. Naturw. u. Heilk., Philadelphia, Bd. II. p. 2, 1851. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

Dendrocœlum superbum GIRARD, Proc. Bost. Soc. Nat. Hist., Vol. III. p. 265, 1851. LEIDY, Proc. Acad. Nat. Sci. Philad., Vol. V. p. 288, 1852.

"Round Lake, July 9, 1894." Catalogued as "white planarian." Without doubt this is the *Pl. fluviatilis* of Leidy.

RHABDOCÆLIDÆ.

Mesostoma Wardii WDWTH.

Figure 2.

Mesostoma Wardii WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

Nine specimens from "algæ Aug. 20, 1893, New Baltimore," Lake St. Clair. Length 2-3 mm., greatest breadth 1-1.4 mm. Very thin and flat. Anterior end tapering, conical, rounded, marked off from the body by a slight constriction. Posterior end tapering sharply, and terminating in an acute caudal process. Pharynx large, prominent, in front part of middle third of the body. No distinct tracts of rhabditi ("Stäbchenstrassen") at anterior end. Nothing definite could be determined in regard to the sexual organs. Most of the specimens immature; the one figured, more nearly mature than the others, contains nine ova in each side of the uterus. Color of alcoholic specimens yellowish, very translucent.

Mesostoma viridatum M. SCH.

Mesostoma viridatum MAX SCHULTZE, Beiträge zur Naturg. d. Turbell., pp. 16-19, 1851. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

Seven specimens from "Utricularia washings, West Twin Lakes, Charlevoix, Aug. 13, 1894." A note on the label reads, "Small forms green." *M. viridatum* is a cosmopolitan species, occurring in all continental countries of Europe, and in Scotland, Greenland, and New Zealand. This is the first record of its capture in the United States.

¹ The species marked with an asterisk were not sent to me. The accounts here given are from notes and drawings by Prof. H. B. Ward. The quotation marks refer to the labels or Prof. Ward's notes.

**Mesostoma viviparum* SILLIMAN.

Mesostoma viviparum SILLIMAN, Zeitschr. f. wiss. Zool., Bd. XLI. p. 59, Taf. III. Figs. 1-5, 1885. GIRARD, Ann. Sci. Nat., Zool., Tom. XV. p. 213, 1893. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

"Old Channel, Round Lake, Charlevoix, on algæ, July 13, 1894. Length, when swimming, 0.75-0.80 mm., breadth 0.10-0.15 mm. Rounded anteriorly, pointed at posterior end. Pharynx just anterior to centre. Each individual contained 5-7 living embryos $320 \times 128 \mu$, which were easily set free when the parent was crushed by pressure of cover glass. Each [embryo] has at centre a prominent circular pharynx 90μ in diameter. Color of adult deep grass-green, with lighter areas of globular shape. Zoöchlorellæ (5μ in diameter) most abundant in front of the pharynx. Lighter areas are the embryos, in which the zoöchlorellæ are not so numerous. Color and shape of the embryos the same as the parent."

The above description differs from that of Silliman, who states that at the anterior end the animal is "etwas verschmälert und hinten abgerundet." It is difficult to account for such a discrepancy.

**Vortex armiger* O. SCHM.

Vortex armiger O. SCHMIDT, Zeitschr. f. wiss. Zool., Bd. XI. p. 25, Taf. IV. Figs. 8, 9, 1862. SILLIMAN, Zeitschr. f. wiss. Zool., Bd. XLI. p. 67, 1885. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

Vortex similis GIRARD, Ann. Sci. Nat., Zool., Tom. XV. p. 209, 1893.

One specimen, "New Baltimore, Lake St. Clair, Aug. 8, 1893. Transparent, very pale, brownish gray; intestine green. Anterior end truncated, slightly narrower than middle. Body converging toward posterior end, not [terminating] with a point but [with] an indefinite irregular bunch of digitate processes. Pharynx large, cask-shaped. Two reniform black eyes. Egg chestnut-brown. Very active."

**Vortex bilineata*, sp. nov.

Vortex sp.? WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.

"Round Lake, Charlevoix, dredgings from old channel, July 20, 1894. Length 0.96 mm., breadth 0.24-0.32 mm. Anterior end truncated, posterior end pointed. Pharynx dolioliform, in anterior third of body, traversed by two prominent, lateral, nearly longitudinal bands of light chocolate brown, and numerous other pale, indistinct longitudinal lines. Zoöchlorellæ in central part of the body, posterior fifth free from them, transparent brown. Egg, dark chocolate, $120 \mu \times 80 \mu$."

Microstoma lineare OERSTED.

- Microstoma lineare* OERSTED, Forsag til en ny Class. af Planariæ, etc., p. 566, Kopenhagen, 1848. SILLIMAN, Zeitschr. f. wiss. Zool., Bd. XLI. p. 51, 1885.
WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.
Microstoma commune GIRARD, Ann. Sci. Nat., Zool., Tom. XV. p. 218, 1893.

"Old Channel, Round Lake, Charlevoix, July 13, 1894. Numerous. In chains of 2-4, solitary individuals rarer."

One broken stock of four individuals from "Utricularia washings, West Twin Lakes, Charlevoix, Aug. 13, 1894."

***Microstoma variabile LEIDY.**

- Microstomum (Eustomum) variabile* LEIDY, Proc. Acad. Nat. Sci. Philad., Vol. V., p. 350, 1852. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.
Microstoma philadelphicum GRAFF, Monographie d. Turbell., p. 252, 1882.
Anatocelis variabilis DIESING, Sitzungsab. Akad. Wiss. Wien, Bd. XLV. Abth. 1, p. 236, 1862.

"Algæ-culture from shore, Charlevoix, July 24, 1894. One specimen, chain of four individuals."

Microstoma caudatum LEIDY.

- Microstomum (Eustomum) caudatum* LEIDY, Proc. Acad. Nat. Sci. Philad., Vol. V. p. 350, 1852. SILLIMAN, Zeitschr. f. wiss. Zool., Bd. XLI. p. 51, Taf. IV. Figs. 4-6, 1885. WOODWORTH, Bull. Mich. Fish Commission, No. 8. 1896.
Anatocelis caudata DIESING, Sitzungsab. Akad. Wiss. Wien, Bd. XLV. Abth. 1, p. 236, 1862.
Eustoma caudatum GIRARD, Ann. Sci. Nat., Zool., Tom. XV. p. 219, 1893.

Two specimens from "Utricularia washings, West Twin Lakes, Charlevoix, Aug. 13, 1894." Anterior end not obtusely rounded, but terminating in a small, abrupt, rounded conical projection. Tail prominent, narrow, beginning abruptly distinctly elevated. No eyes. Each specimen is a stock consisting of two distinct individuals. The larger specimen showed slight additional constrictions, indicative of a third generation.

CAMBRIDGE, Mass., February, 1896.

EXPLANATION OF FIGURES.

Figure 1. *Planaria simplex* WDWTH. $\times 15$.

Figure 2. *Mesostoma Wardii* WDWTH. $\times 30$.

