

© Biodiversity Heritage Library, http://www.biodiversitylibrary.org/download/wwz-zobodat.at

Zoologischer Anzeiger

herausgegeben

von Prof. Eugen Korschelt in Marburg.

Zugleich

Organ der Deutschen Zoologischen Gesellschaft.

Bibliographia zoologica

bearbeitet von Dr. H. H. Field (Concilium bibliographicum) in Zürich.

Verlag von Wilhelm Engelmann in Leipzig.

XXXIV. Band.

4. Mai 1909.

Nr. 9.

Inhalt:

I. Wissenschaftliche Mitteilungen.

1. **Stringer**, Notes on Nebraska Turbellaria with Descriptions of two new Species. (With 4 figures.) S. 257.
2. **Runnström**, Beiträge zur Kenntnis der Rotatorienfauna Schwedens. (Mit 2 Figuren.) S. 263.
3. **Leiber**, Über einen Fall spontaner Längsteilung bei *Hydra viridis* L. (Mit 5 Figuren.) S. 279.
4. **Korschelt**, Zur Längsteilung bei *Hydra*. S. 284.

5. **Ulmer**, Eine neue deutsche Trichopterenart, *Heliconis thuringica*. (Mit 2 Figuren.) S. 286.
- ### II. Mitteilungen aus Museen, Instituten usw.
1. **Andrews**, Embryology of *Salpa*. S. 288.
 2. 19. Jahresversammlung der Deutschen Zoologischen Gesellschaft. S. 288.
 3. Deutsche Zoologische Gesellschaft. S. 288.
 4. Ergänzungen und Nachträge zu dem Personalverzeichnis zoologischer Anstalten. S. 288.
- Literatur S. 257—272.

I. Wissenschaftliche Mitteilungen.

1. Notes on Nebraska Turbellaria with Descriptions of two new Species.

By Caroline E. Stringer.

(Studies from the Zoological Laboratory, The University of Nebraska, under the Direction of Henry B. Ward. No. 93.)

(With 4 figures.)

eingeg. 13. Januar 1909.

In connection with studies on the biological activities of Turbellaria which occur in Nebraska, I have identified the following species: *Planaria maculata* Leidy, *Stenostoma leucops* O. Schmidt, *Mesostoma ehrenbergii* O. Schmidt, *Macrostoma hystrix* Oersted and *Prorhynchus applanatus* Kennel.

Planaria maculata is found frequently in the large ponds cut off from the Missouri River near Omaha and has been collected at various places along the Platte and Elkhorn Rivers, also from the Dismal River in the new Forest Reserve, Thomas County.

Stenostoma leucops occurs abundantly in ponds near Lincoln and Omaha, and has been collected at many places along the Elkhorn River and in the northeastern counties of the state.

Mesostoma ehrenbergii was collected in large numbers from the Elkhorn River in Stanton County, in May, 1903. This material agreed closely with the description of this species given by Woodworth (1897).

A Rhabdocoel, which is probably a variety of *Macrostoma hystrix*, has been collected near Lincoln in small numbers on several occasions. The posterior end of this form is much less conspicuously broadened than in *M. hystrix* as figured by v. Graff (1882).

One specimen of *Prorhynchus applanatus* was obtained from the aquarium of the University greenhouse November 1, 1901. Although but a single specimen was found it agreed so closely with the description of this species given by Kennel (1888) that there could be no question as to its identity.

Among the unidentified Turbellaria collected in the state, there are two planarians which can not be assigned to any species so far described. The following is a preliminary report upon these two forms:

Planaria velata n. sp. Fig. 1.

This species has been collected only near Crete, by Dr. J. H. Powers. The material was obtained from small springs and ponds containing algae in which the planaria were hidden.

Length of largest specimens collected in November, 15 mm. In May they average 5 or 6 mm long. Anterior end blunt with small rounded median projection. Two rounded cephalic appendages. Slightly narrower just back of cephalic appendages than through pharyngeal region. Posterior end bluntly pointed. In preserved material, cephalic appendages disappear and anterior and posterior ends assume much the same shape.

Color of dorsal side, to unaided eye, varies from very light gray to almost black. Under lens, a colorless groundwork with black pigment spots. Much lighter in front of eyes and on cephalic appendages. Usually a lighter median dorsal area over pharynx. Somewhat lighter near lateral margins.

Ventral side somewhat lighter gray than dorsal and with nerve tracts usually showing as two light lines. Regularly two eyes, often with from one to six accessory eyes which are usually imperfect in shape and irregularly placed, though more often just back of the normal eyes than in any other position.

Digestive tract of usual triclad type. Anastomosis of side branches either in anterior or posterior regions very rare. No cross-anastomosis of main posterior trunks.

At present it is impossible to say anything concerning the sexual

organs; this necessarily leaves the exact relationship of this species somewhat doubtful.

These planaria are extremely delicate and more difficult to keep in aquaria than any other species with which I am familiar. They secrete an exceptionally large amount of slime which causes the water to become impure quickly. Exposure to the air for a short time causes the formation of a heavy slime cyst similar to that described by Child (1901) for the nemertean *Stichostemma*. Irritation often causes a similar result. When disturbed these planaria continue in motion about as long as *P. agilis* but make much less use of "testing" reactions, and change their course much less frequently.

A remarkable characteristic of *P. velata* is what I shall call fragmentation. It appears to be the normal method of reproducing asexually. Worms kept in aquaria were found to have divided transversely into a number of small pieces. Isolated specimens divided into a variable number of pieces depending somewhat on the length of the specimen. The largest number of pieces obtained from one planarian was thirteen. The average number was from five to seven. In all cases observed, fission began at the posterior end and proceeded towards the anterior. Single pieces were pinched off quickly and in a way similar to that in which fission among planaria ordinarily occurs. The time for the entire fragmentation of one individual varied from less than an hour to four days. When the process was prolonged the pieces usually lacked vitality and soon died. Fragmentation usually took place at night and involved the entire worm, though in some cases from

one to three pieces only separated from the posterior region, leaving the larger part of the worm undivided. The pieces, with the exception of those from the ends were very uniform in appearance. Immediately after pinching off they became quite rounded and showed peculiar rhythmical contractions which continued until regeneration was well started. It was very difficult to keep the pieces alive because of the extreme delicacy of the species. Slime cysts were often secreted by the pieces when disturbed. Many pieces from the aquaria showed various stages in regeneration, but of those obtained from isolated specimens, only one remained alive until fully regenerated.

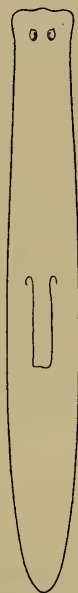


Fig. 1. *Planaria velata* n. sp. From life.

Planaria agilis n. sp. Fig. 2, 3, 4.

This planarian occurs frequently in small ponds near Lincoln. It is also found at Omaha in large numbers in the many springs and small spring-fed pools at the base of the bluffs along the Missouri River. A few specimens were collected by Dr. R. H. Wolcott from a spring-fed brook in Monroe Canyon, Sioux County. It is found among algae, on the under surface of sticks, dead leaves and stones, and glides about on the sandy bottom of springs and pools, often where the water flows with

Fig. 2.

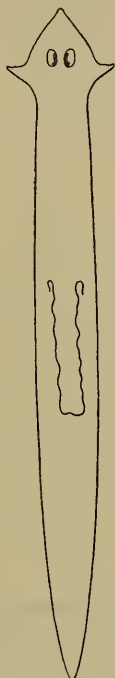


Fig. 3.

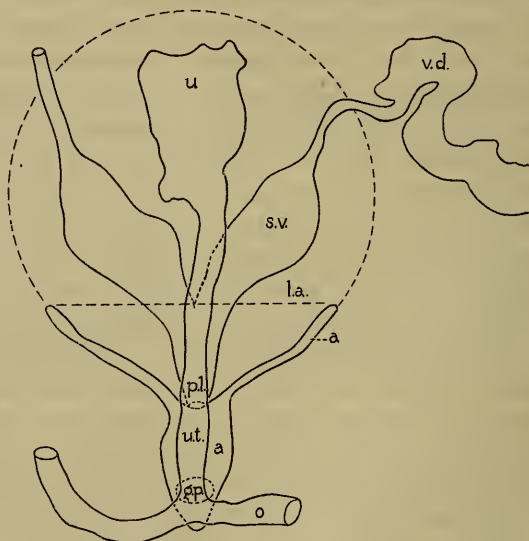


Fig. 2. *Planaria agilis* n. sp. From life.

Fig. 3. *Planaria agilis*. Dorsal view of atrial organs.

u, Uterus; *v.d.*, Vas deferens; *s.v.*, Seminal vesicle; *l.a.*, Limit of atrium; *a*, Atrium; *pl.*, Penis lumen; *ut.*, Uterus tube; *o*, Oviduct; *g.p.*, Genital pore.

extreme swiftness. I have never found it in the larger lakes or the rivers of the state from which *P. maculata* has been obtained.

Size of mature specimens collected at Omaha in November, 22 to 23 mm long, nearly 3 mm broad. Mature specimens collected May 29 in Sioux County must have measured 30 mm when alive. Well fed specimens from aquaria of the University of Nebraska have measured 35 mm. Average length of immature planaria 8 to 15 mm.

Anterior end pointed. Two slender sharply pointed cephalic appendages. Wider just in front of appendages than at any point posterior to them except in large specimens which are of about same width through pharyngeal region. Slightly constricted just back of cephalic appendages. Sides nearly parallel. Posterior end pointed.

Color of dorsal side, to unaided eye, a uniform very dark sepia brown, which gives a "velvety" effect. Ventral side slightly lighter, chiefly due to thick slime layer. Under lens, a clear light brown ground with fine dark brown, almost black pigment spots, either quite uniformly distributed or arranged so as to give appearance of a very close net work. Non-pigmented circum-ocular spaces usually elongated in antero-posterior direction and placed either just in front of or in line with anterior margins of auricles. Some with little or no pigment on posterior margins of auricles, others with auricles pigmented like rest of body. Small or poorly fed specimens kept in aquaria sometimes with pigment more or less collected in spots and lighter in color. A light median streak frequently present.

A study of the digestive tract in living material is extremely difficult owing to the dense pigment. The side branches from the main trunks anastomose freely both in the anterior and the posterior regions. From 10 to 40 % of sectioned specimens show one cross-connection between the two main posterior trunks a short distance from the end. The percentage of cross-connections varies considerably in collections from different localities. In a majority of sectioned specimens and of living specimens in which it can be distinguished, the pharynx is somewhat longer than the cavity within which it lies and is thus thrown into irregular transverse folds. The pharynx is also rather longer in proportion to the length of the entire worm than in other species with which I am familiar.

Reproduction ordinarily seems to be by the asexual method. Although frequent collections have been made for several years at Omaha where this species is especially abundant, but three sexually mature specimens have been found. These with a few specimens from the Sioux County collection and from the University aquaria, are all the mature material I have been able to obtain. The structure of the sexual organs indicates a close relationship to *P. maculata* Leidy and to the South

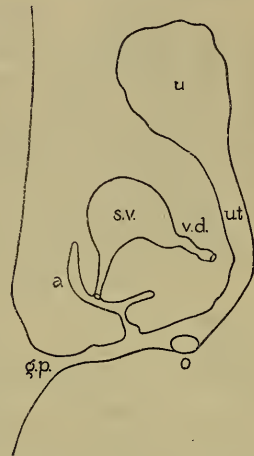


Fig. 4. *Planaria agilis*.
Lateral view of atrial
organs.

American form, *P. festae* Borelli. *P. agilis* differs from *P. maculata* as described by Curtis (1902) chiefly in the shape of the penis lumen. The opening is not directed as far downward as in *P. maculata* and the vase-shaped lumen divides anteriorly to form the two seminal vesicles. Two figures are given to show the atrial organs. The dorsal view (Fig. 3) is from a specimen collected in November. The lateral view (Fig. 4) is a reconstruction from a specimen obtained in April. In two other specimens collected at the latter time, the seminal vesicles and the penis lumen are so swollen and distorted by the spermatozoa present as to measure nearly twice the diameter of the one shown. In all specimens collected in the latter part of May they are empty and reduced to slender tubes.

P. agilis is very restless and active, in this particular resembling *P. dorotocephala* Woodworth. I have had but a few specimens of living *P. dorotocephala* for comparison, but found that they ordinarily came to rest before *P. agilis* when placed together and subjected to the same kind of stimulus. When in motion the cephalic appendages of *P. agilis* are usually elevated and active; the head is frequently turned from side to side or extended upwards in testing reactions, and many changes are made in the direction in which the animal is moving.

In a recent paper Child speaks of an unnamed Californian planarian which "differs from *P. maculata* in color, length of 'auricles' and length of pharynx". The figure given resembles *P. agilis* except in shape at the tip of the anterior end and in the shape of the circum-ocular areas, the latter a somewhat variable characteristic. It is quite possible that the planarian which Child had before him is the one to which I have given the name *P. agilis*. I have found no further description of this species.

Works cited.

- Borelli, A. 1898. Viaggio del Dr. Enrico Festa nell' Ecuador e regioni vicine. IX. Planarie d'acqua dolce. Boll. Mus. Zool. Anat. Comp. Torino. Vol. 13. No. 322.
- Child, C. M. 1901. The Habits and Natural History of *Stichostemma*. Amer. Nat. 35. p. 975—1006.
- 1906. The Relation between Regulation and Fission in *Planaria*. Biol. Bull. 11. p. 113—123.
- Curtis, W. C. 1902. The Life History, the Normal Fission and the Reproductive Organs of *Planaria maculata*. Proc. Boston Soc. Nat. Hist. 30. p. 515—559. Pl. 11.
- Graff, L. von. 1882. Monographie der Turbellarien. 1. Rhabdocoelida. Leipzig. 1882.
- Kennel, J. 1888. Untersuchungen an neuen Turbellarien. Zool. Jahrb. Anat. 3. p. 447—486. Pl. 2.
- Ott, H. N. 1892. A Study of *Stenostoma leucops* O. Schm. Journ. Morph. 7. p. 263—304.
- Woodworth, W. McM. 1897. Contributions to the Morphology of the Turbellaria. II. On some Turbellaria from Illinois. Bull. Mus. Comp. Zool. 31. p. 1—16. Pl. 1.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Zoologischer Anzeiger](#)

Jahr/Year: 1909

Band/Volume: [34](#)

Autor(en)/Author(s): Stringer Caroline E.

Artikel/Article: [Notes on Nebraska Turbellaria with Descriptions of two new Species. 257-262](#)