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A Description of *Phyllodistomum caudatum* n. sp.*

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Twenty-two specimens of the common bullhead, *Ameiurus melas* (Rafinesque), from Boomer Creek near Stillwater, Oklahoma, were examined for urinary bladder flukes and found to be infected with a new species of the genus *Phyllodistomum* Braun. Approximately one-third of the catfish were infected; the number of flukes in the infected fish ranged from 1 to 7 with 3 being the most common. A total of 23 worms was found. I propose the name *Phyllodistomum caudatum* for this form. The worm was studied in both live and preserved states. The flukes were fixed in hot 70 percent alcohol, stained in borax carmine, and mounted *in toto*. Serial sections were prepared of one specimen.

Phyllodistomum caudatum n. sp.

Description.—Body composed of definitely demarcated anterior subcylindrical *presoma* and posterior flat, circular, discoidal *opisthosoma*. In cross section the former appears ovoidal, the latter quite flattened. *Presoma* widest at juncture with *opisthosoma* which is at level of middle of acetabulum. Extreme posterior portion of body attenuated as a caudal projection. Sensory papillae on suckers, small, numerous. Oral sucker slightly larger than acetabulum; ratio of diameter of oral sucker to that of acetabulum 1:0.93. Oral sucker nearly circular; mouth subterminal. Remains of penetration gland cells small, located at postero-lateral margins of oral sucker. Esophagus somewhat sinuous, varying in form with state of contraction of body. Bifurcation of esophagus anterior to middle of *presoma*; intestinal ramus wide, extending directly posteriad to level of posterior margin of acetabulum, thence postero-laterad to about middle of posterior portion of body, thence postero-mesad, terminating in posterior fourth of body.

Measurements of 5 live specimens in millimeters: length 2.77 (1.97-4.55); *presoma*, length 1.09 (0.91-1.52), width 0.448 (0.30-0.75); *opisthosoma*, length 1.68 (1.06-3.03), width 1.508 (0.75-2.72); oral sucker, diameter 0.29 (0.19-0.42); acetabulum, diameter 0.28 (0.19-0.404). Measurements of 10 preserved specimens in millimeters: length 2.68 (1.77-3.68); *presoma*, length 1.159 (0.86-1.28), width 0.498 (0.34-0.94); *opisthosoma*, length 1.516 (0.91-2.40), width 1.465 (0.80-2.46); length of caudal projection 0.148 (0.07-0.20); oral sucker, diameter 0.308 (0.22-0.41); acetabulum, diameter 0.289 (0.22-0.34); ovary, length 0.207 (0.15-0.27), width 0.208 (0.14-0.30); anterior testis, length 0.233 (0.20-0.32), width 0.219 (0.14-0.27); posterior testis,

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length 0.262 (0.20-0.34), width 0.235 (0.20-0.27); eggs, length 0.0322 (0.03-0.035), width 0.024 (0.021-0.026); distance between margin of oral sucker and bifurcation of esophagus 0.25 (0.14-0.47).

Vitellaria well separated from acetabulum posteriorly, irregular and variable in shape, somewhat lobate in some specimens but not distinctly so in others. Vitelline ducts extend directly mesad to join the median ootype. Ovary deeply staining, very compact, divided into from 3 to 6 lobes by deep indentations; ovary dextral or sinistral with approximately equal frequency. Oviduct arises from dorsal surface of ovary and extends antero-mesad to ootype. Laurer's canal present. Uterus arises on anterior side of ootype, curves immediately dorsad, and extends posteriad tracing a sinuous course throughout the posterior portion of body. Uterus chiefly intracaecal with a few extracaecal loops. Eggs numerous, in single or double file in uterus, fully embryonated in distal portions. Testes less compact than ovary, large, at least twice size of ovary in most specimens, deeply divided into from 3 to 6 irregular lobes. Testis I opposite and slightly posterior to ovary; testis II directly posterior to ovary. Vasa efferentia unite anterior to acetabulum. Seminal vesicle located just posterior to bifurcation of esophagus, opens into common genital atrium which communicates with exterior by genital pore located about midway between origin of intestinal rami and acetabulum. Distal end of uterus enlarged, ventral to seminal vesicle.

Live worms white in reflected light; transparent in transmitted light, with ovary, testes, vitellaria, and remains of penetration glands clearly recognizable. Vitellaria of dark appearance because of highly refractile granular content. Vestiges of penetration glands much more elongate than in preserved material. Margin of opisthosoma finely crenulated—crenulations mostly lost in preservation. Active sperms abundantly visible in seminal vesicle and uterus.

Behavior.—Worms attached by suckers to wall of bladder release themselves when bladder is raised open in water. Presoma very active, may be extended to about twice its normal length. Opisthosoma seldom exhibits motility. Movements effect little if any spatial progression. Oral sucker round when body is relaxed, elongated when extended. Suckers may become attached to surface of container or to worm's own body.

Host.—*Ameiurus melas* (Rafinesque).

Habitat.—Urinary bladder.

Locality.—Boomer Creek near Stillwater, Oklahoma.

Type specimens.—Ten specimens, mounted *in toto* in the United States National Museum.

COMPARISONS WITH OTHER SPECIES

With the present form the genus *Phyllodistomum* Braun (including the repeatedly suppressed *Catoproides* Odhner) contains 24 species, 10 of which are North American; five of the latter (*P. carolini*, *P. lacustri*, *P. staffordi*, *P. hunteri*, and *P. caudatum*) are parasites of ameiriurids. *Phyllodistomum angulatum* von Linstow 1907, *P. folium* (Olfers 1816), *P. megalorchis* Nybelin 1926, *P. simile* Nybelin 1926, *P. spatula* (Odhner 1902), *P. spatulaeforme*

(Odhner 1902), and *P. superbom* Stafford 1904 differ from *P. caudatum* in being emarginate posteriorly. In this group *P. spatula* and *P. spatulaeforme* have the ovary at the level of the vitellaria and spheroidal eggs of smaller size while the others have eggs larger than those of *P. caudatum*. *P. conostomum* (Olsson 1876), *P. americanum* Osborn 1903, *P. elongatum* Nybelin 1926, *P. acceptum* Looss 1901, *P. linguale* Odhner 1902, and *P. marinum* Layman 1930 differ in that the posterior portion of the body is not distinctly set off from the anterior region and the ratio of the diameter of the oral sucker to that of the acetabulum is smaller. *P. pearsei* Holl 1929 and *P. unicum* Odhner 1902 differ in that the testes are not distinctly larger than the ovary and the body is more slender and elongate. The ratio of the diameter of the oral sucker to that of the acetabulum is much smaller than that of *P. caudatum* in *P. lucustri* (Loewen 1929) and *P. staffordi* Pearse 1924. The above comparisons are based largely upon data tabulated by Lewis (1935); the following comparisons are based on information from the original descriptions. *Phyllodistomum fausti* Pearse 1924, *P. hunteri* (Arnold 1934), *P. lohrenzi* (Loewen 1935), *P. patellare* (Sturges 1897), and *P. singulare* Lynch 1936 differ in that relatively more of the uterus is extracaecal.

Phyllodistomum caudatum is most like *P. carolini* Holl 1929 from *Ameiurus natalis* (Le Sueur) in which (1) the size is smaller, (2) the uterus is much more profusely coiled and extends closer to the margins of the posterior portion of the body, (3) the eggs are smaller and more broadly oval, (4) the ratio of the diameter of the oral sucker to that of the acetabulum is much smaller, and (5) vestiges of penetration gland cells are not mentioned in the description. The most distinctive characteristic of *P. caudatum* is the presence of a tail-like projection at the posterior end of the body; I have found no mention of such an appendage in the descriptions of other species. *P. singulare* is apparently the only species previously described as having remains of penetration gland cells.

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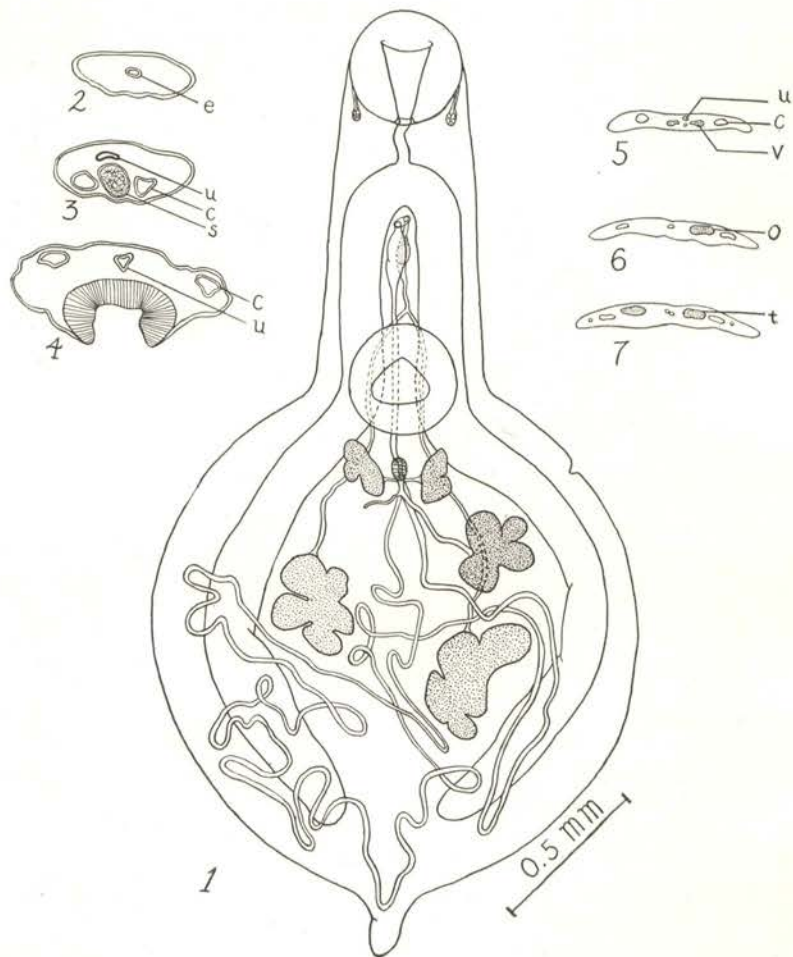


PLATE 1

All figures concern *Phyllodistomum caudatum* n.sp. and were made from preserved material with the aid of a camera lucida. Figures 2, 3, and 4 are drawn to the same scale, and figures 5, 6, and 7 to the same but smaller scale. Abbreviations: c—caecum, e—esophagus, o—ovary, s—seminal vesicle, t—testis, u—uterus, v—vitellaria.

FIGURES

1. Ventral view.
2. Cross section at level of esophagus.
3. Cross section at level of seminal vesicle.
4. Cross section at level of acetabulum.
5. Cross section at level of vitellaria.
6. Cross section at level of ovary.
7. Cross section at level of testes.