

TWO NEW NEMATODES, AND NOTES ON NEW FINDINGS OF NEMATODES PARASITIC IN AMPHIBIA ¹

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Through the courtesy of Dr. M. C. Hall, chief of the zoological division of the United States Bureau of Animal Industry, a number of unnamed nematode parasites of amphibian hosts were recently sent to the writer for examination. Two apparently new species were found, and new host records for several other little-known species were obtained.

The genus *Pharyngodon* is represented up to this time by only one species that has been reported from an amphibian host: *P. batrachiensis* Walton, 1929, from a tadpole of *Rana pipiens*. Female worms taken from adult specimens of *Rana pipiens* and of *R. clamitans* afford the basis for establishing a second species from amphibian hosts.

PHARYNGODON ARMATUS, new species

FIGURE 1, a-c

Specific diagnosis.—*Pharyngodon*: Male, unknown. Female, short (3.5 mm long), of medium width (240 μ), and tapering abruptly at the posterior end to a naked spikelike tail. Anterior end shows distinct annulations, which become indistinct caudad; inconspicuous lateral flanges present. Mouth surrounded by three indistinct lips; no buccal cavity or vestibule present, but the pharynx seems to be protected by chitinous plates for a short distance back from the mouth. Excretory pore, like that of the other species from an amphibian host, is opposite, instead of caudad to, the esophageal bulb. Vulva just in front of midregion of body. Eggs a very slightly flattened ovoid with but one distinct terminal plug; segmented (4- or 8-celled) at time of oviposition.

This form resembles *P. batrachiensis*, but in view of the presence of the armored pharynx, the relatively different measurements of important structures, and the difference in the eggs, the variations seem to be of specific importance.

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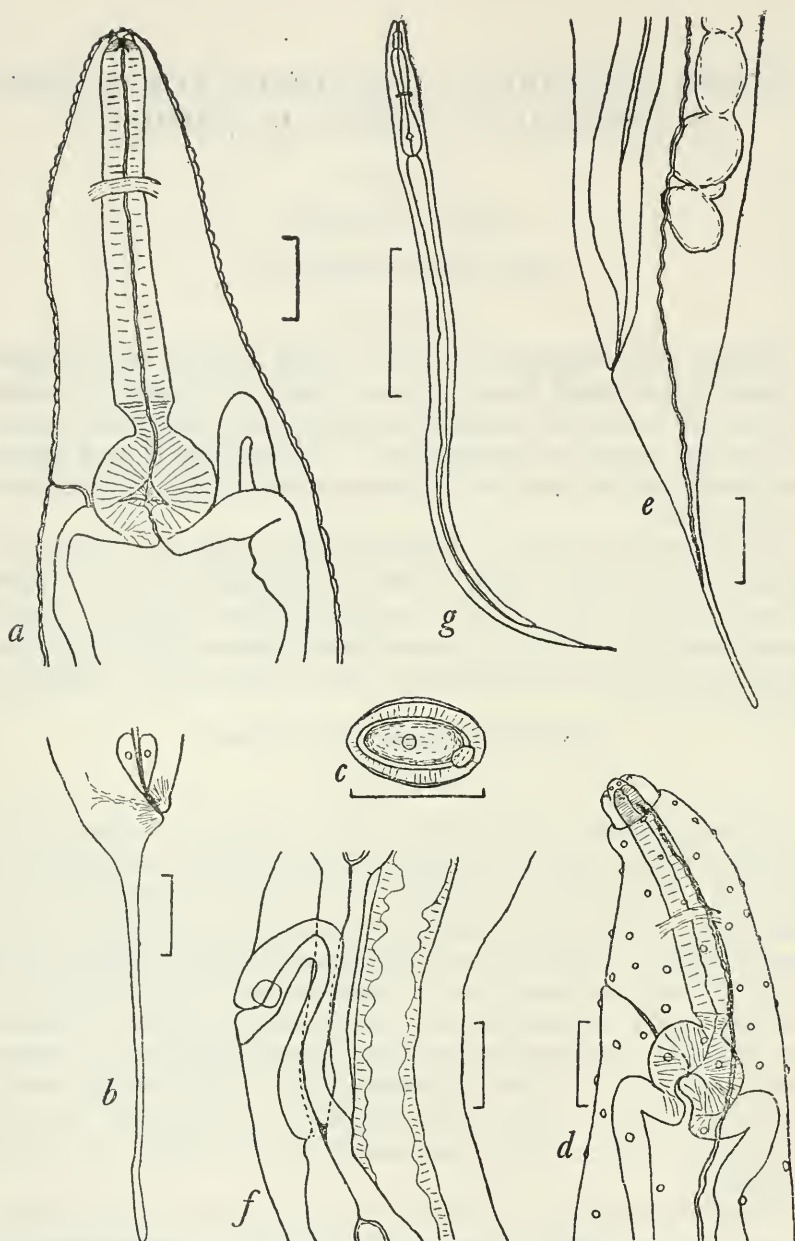


FIGURE 1.—*a*, *Pharyngodon armatus*, lateral view of anterior end of female; *b*, *P. armatus*, lateral view of posterior end of female; *c*, *P. armatus*, egg; *d*, *Orysomatium punctatum*, lateral view of anterior end of female; *e*, *O. punctatum*, lateral view of posterior end of female; *f*, *O. punctatum*, vulvar region; *g*, *O. punctatum*, intra-uterine larva. Scale for all figures equals 0.1 mm

The general measurements of the females of the two species are as follows:

Measurement	<i>P. armatus</i>	<i>P. batrachiensis</i>
Total average length.....	3.5 mm.....	4.2 mm.
Width at vulva.....	0.24 mm.....	0.36 mm.
Length of esophagus.....	0.28 mm.....	0.56 mm.
Esophageal bulb.....	0.15 by 0.15 mm.	0.125 by 0.15 mm.
Distance from nerve ring to lips.....	0.175 mm.....	0.165 mm.
Distance from excretory pore to lips.....	0.36 mm.....	0.61 mm.
Distance from vulva to lips.....	1.5 mm.....	1.8 mm.
Distance from anus to tip of spike.....	0.5 mm.....	0.9 mm.
Length of spike.....	0.5 mm.....	0.75 mm.
Eggs.....	60 μ by 100 μ (4 to 8 celled).	35 μ by 100 μ (1 celled).

The name *armatus* is given because of the armored condition of the anterior end of the esophagus.

Type specimens.—U.S.N.M. Helm. Coll. (Bureau of Animal Industry) No. 27061. From *Rana pipiens* and *R. clamitans*, intestine. Collected by Bruce Reynolds, August, 1927, at University, Va.

OXYSSOMATIUM PUNCTATUM, new species

FIGURE 1, d-g

Material collected from *Rana vittigera* (Los Baños, Philippine Islands) includes female specimens of a species of *Oxysomatium*, which differs from the other previously described species from the same area in several important features.

Specific diagnosis.—*Oxysomatium*: Lips distinct and each provided with two papillae. Head definitely separated by a constriction from the rest of the body, a characteristic not found in other species of this genus.

Male, unknown. *Female*, 3.6 mm long. Anterior end of worm characterized by the presence of small cuticular bosses, again a specific character for this species only. A very short pharynx precedes the short esophagus, which is followed by a distinct flasklike bulb opening into a greatly dilated intestine. Lateral alae extend from lip region to base of tail spike. Vulva in anterior half of body. Uteri opposed; ovaries amphidelphous. Eggs contained well-defined larvae, some of which are apparently hatched *in utero*.

The average measurements as compared with those of the females of the other species recently reported from Philippine amphibian hosts are as follows:

Measurement	<i>O. punctatum</i>	<i>O. ranæ</i>
Total average length.....	3.6 mm.....	3.8 mm.
Width at vulva.....	0.24 mm.....	0.23 mm.
Length of pharynx.....	0.045 mm.....	0.03 mm.
Length of esophagus.....	0.3 mm.....	0.265 mm.
Esophageal bulb.....	105 μ by 115 μ	65 μ by 85 μ .
Distance from nerve ring to lips.....	0.175 mm.....	0.15 mm.
Distance from excretory pore to lips.....	0.28 mm.....	0.28 mm.
Distance from vulva to lips.....	1.6 mm.....	1.8 mm.
Distance from anus to tip of tail.....	0.45 mm.....	0.23 mm.
Eggs.....	62 μ by 105 μ	56 μ by 76 μ .
Larvae <i>in utero</i>	17 μ by 420 μ	Present.

The name *punctatum* is given because of the characteristic cuticular bosses of the anterior end of the worm.

Type specimens.—U.S.N.M. Helm. Coll. (Bureau of Animal Industry) No. 25874. From *Rana vittigera*, intestine. Collected by B. Schwartz, 1921–22, Los Baños, Philippine Islands.

RECORDS OF NEMATODES PARASITIC IN AMPHIBIA

The following list gives the already known species in the collection and indicates their host distribution, many of which are new records:

1. *Agamascaris odontocephala* Steiner, 1924. From *Rana catesbeiana*, Virginia, U.S.N.M. Helm. Coll. No. 1569; *Rana catesbeiana*, Washington, D. C., U.S.N.M. Helm. Coll. No. 7864; *Rana clamitans*, Washington, D. C., U.S.N.M. Helm. Coll. No. 2298; *Rana clamitans* and *R. sylvatica*, Baltimore, Md., U.S.N.M. Helm. Coll. No. 2864; "frogs," Washington, D. C., U.S.N.M. Helm. Coll. No. 2865. The other reported host is *Hyla cinerea*, United States.

2. *Zanclophorus cryptobranchi* Walton, 1930. From "*Cryptobranchus*," Philadelphia, Pa., U.S.N.M. Helm. Coll. No. 15700. The only known host is *Cryptobranchus alleganiensis*, United States.

3. *Aplectana americana* Walton, 1929. From *Scaphiopus couchii*, Texas, U.S.N.M. Helm. Coll. No. 27895. The other reported hosts are *Rana catesbeiana*, *R. palustris*, and *R. pipiens*, all from the United States.

4. *Oxysomatium ranæ* Walton, 1931. From "frogs," Los Baños, Philippine Islands. The only identified host is *Rana magna* (?), Luzon, Philippine Islands.

5. *Rhabdias ranæ* Walton, 1929. From "frogs," Washington, D. C., U.S.N.M. Helm. Coll. No. 26828. Other known hosts are *Acris gryllus*, *Rana halecina*, *R. palustris*, *R. pipiens*, and *R. sphenoccephala*, all from the United States.

Travassos (1930) argues that *Rhabdias ranae* Walton, 1929, is in reality *Rhabdias entomelas* (Leidy, 1851) Travassos, 1930. The original description by Leidy might refer to any species of the genus *Rhabdias*, and since there are several species reported from the United States it seems impossible to determine which one of these Leidy might have had at hand. It is evident that Leidy recognized that his form was not *Rhabdias bufonis*, but until better proof is offered, it can not be stated *a priori* that the first modern description of a species of *Rhabdias* other than *R. bufonis* from North American frogs must necessarily be a redescription of the *Ascaris entomelas* of Leidy, 1851.

6. *Oswaldocruzia leidy* Travassos, 1917. From *Pseudacris feriarum*, Virginia, U.S.N.M. Helm. Coll. No. 19414. The other reported hosts are *Bufo americanus* and *Hyla cinerea*, both from the United States.

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