

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 91, NUMBER 6

## Johnson Fund

REPORTS ON THE COLLECTIONS OBTAINED BY THE FIRST  
JOHNSON-SMITHSONIAN DEEP-SEA EXPEDITION  
TO THE PUERTO RICAN DEEP

# NEW TREMATODE PARASITES OF BIRDS

(WITH ONE PLATE)

BY

EMMETT W. PRICE

Zoological Division, Bureau of Animal Industry,  
U.S. Department of Agriculture



(PUBLICATION 3233)

CITY OF WASHINGTON  
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### NEW TREMATODE PARASITES OF BIRDS

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This is the first of several papers dealing with the parasitic worms collected by the writer during the winter of 1933 while a member of the scientific staff of the Johnson-Smithsonian Deep-Sea Expedition. While on this cruise to Puerto Rico and adjacent areas, a few birds were taken and examined for parasites; these included a pelican (*Pelecanus occidentalis occidentalis*), a booby (*Sula leucogastra*), and a duck (*Nyroca affinis*). From these hosts were collected five species of trematodes that appear to be new, the preliminary descriptions of which are given in this paper. A more extended discussion of these forms will appear in a later paper dealing with all of the parasitic worms collected by the expedition.

#### Family HETEROPHYIDAE

#### Subfamily HETEROPHYINAE

#### **GALACTOSOMUM JOHNSONI,<sup>1</sup> n. sp.**

Plate 1, figs. 1, 2

*Description.*—Body elongate, 0.97 to 1.03 mm long by 280 to 340  $\mu$  wide. Cuticula covered with spines from anterior end of body as far posteriorly as level of right testis. Oral sucker 60 to 90  $\mu$  in diameter, its aperture slightly subterminal; acetabulum absent. Prepharynx slender, 120 to 280  $\mu$  long; pharynx well developed, 60  $\mu$  long by 40 to 50  $\mu$  wide; esophagus 40 to 60  $\mu$  long; intestinal ceca terminating near posterior end of body. Genital aperture median, slightly preequatorial; genital sinus occupied by a piriform gonotyl, the protrusible portion armed with several rows of minute spines.

<sup>1</sup> Named in honor of Mr. Eldridge R. Johnson, sponsor of the expedition.

Seminal vesicle large, not divided by constrictions, its posterior end lying near anterior margin of left testis. Testes globular, or slightly wider than long, with zones and fields partly coinciding, left testis a little in advance of right, situated in anterior part of posterior third of body; right testis 92 to 120  $\mu$  long by 100 to 120  $\mu$  wide; left testis 100 to 120  $\mu$  in diameter. Ovary transversely oval, 40 to 48  $\mu$  long by 60 to 62  $\mu$  wide, situated to right of median line and about midway between right testis and gonotyl. Seminal receptacle oval, immediately anterior to ovary. Vitellaria not abundant, consisting of scattered follicles between level of ovary and posterior end of body. Uterus long, filling postovarial portion of body. Eggs asymmetrical, 34 to 36  $\mu$  long by 20  $\mu$  wide.

*Host*.—*Sula leucogastra*.

*Location*.—Small intestine.

*Type locality*.—Fajardo Roads, between Palominos Island and Fajardo, Puerto Rico.

*Type specimen*.—U.S.N.M. Helm. Coll. no. 8694; paratypes no. 8695.

#### GALACTOSOMUM DARBYI,<sup>2</sup> n. sp.

Plate 1, figs. 3, 4

*Description*.—Body elongate, 800 to 970  $\mu$  long by 140 to 200  $\mu$  wide, usually showing a slight constriction at or near level of ovary. Cuticula covered with spines except at posterior end of body. Oral sucker 56 to 60  $\mu$  in diameter; acetabulum absent. Prepharynx slender, 160 to 180  $\mu$  long; pharynx well developed, 40 to 44  $\mu$  long by 20 to 40  $\mu$  wide; esophagus 24 to 40  $\mu$  long; intestinal ceca extending to near posterior end of body. Genital aperture preequatorial, median in position or nearly so; genital sinus occupied by a piriform gonotyl. the protrusible portion armed with several rows of fine spines. Seminal vesicle elongate, S-shaped, more or less uniform in width, extending from genital aperture to level of posterior margin of ovary. Testes globular, 60 to 100  $\mu$  in diameter, with zones and fields partly coinciding, left testis slightly in advance of right, and situated about midway between genital aperture and posterior end of body. Ovary globular or transversely oval, 20 to 48  $\mu$  long by 40 to 60  $\mu$  wide, situated anterior to, and in same field as, right testis. Seminal receptacle postovarial, about same size as ovary. Vitellaria largely intercecal, extending from level of posterior margin of ovary to near

<sup>2</sup> Named in honor of Dr. George D. B. Darby, collector of the host from which this species was taken.

posterior end of body. Uterus long, extending posteriorly in a series of short transverse loops to near posterior end of body, where it turns and extends anteriorly in a similar manner, passing between testes and between testes and ovary to its termination in the genital sinus. Eggs oval, 22 to 24  $\mu$  long by 12 to 14  $\mu$  wide.

*Host*.—*Pelecanus occidentalis occidentalis*.

*Location*.—Small intestine.

*Type locality*.—Levantade Keys, Samaná Bay, Dominican Republic.

*Type specimen*.—U.S.N.M. Helm. Coll. no. 8699; paratypes no. 8700.

*Galactosomum johnsoni* differs from *G. darbyi* in the position of the seminal receptacle and in the shape and size of the eggs. In the former species the seminal receptacle is preovarial and the eggs are 34 to 36  $\mu$  long and asymmetrical, whereas in the latter species the seminal receptacle is postovarial and the eggs are 22 to 24  $\mu$  long and symmetrical. The shape of the eggs and the position of the seminal receptacle also serve to distinguish *G. johnsoni* from other species of the genus. *G. darbyi* may be distinguished from the other species of *Galactosomum*, viz, *G. lacteum* (Jägerskiöld), *G. erinaceum* (Poirier), *G. cochleariforme* (Rudolphi), *G. cochlear* (Diesing), *G. semifuscum* (Olsson), *G. spinetum* (Braun), *G. aharonii* (Witenberg), and *G. baylisi* (Nazmi), in the position of the genital aperture, which is near the intestinal bifurcation in *G. darbyi* and much farther posterior in the other species. There are also other differences, but these will not be discussed in this paper.

A comparison of the species of *Galactosomum* described in this paper with *Stictodora sawakinensis*, a species described from *Larus* sp. in Egypt by Looss (1899) and reported from dogs and cats in Palestine, also from *Puffinus kühli* from Suez by Witenberg (1929), shows such close relationships that it appears doubtful whether *Stictodora* should be retained as a valid genus.

## Family MICROPHALLIDAE

### LEVINSENIELLA MINUTA, n. sp.

Plate I, fig. 5

*Description*.—Body triangular, 153 to 180  $\mu$  long by 105 to 112  $\mu$  wide, flattened dorso-ventrally. Oral sucker subterminal, 23 to 25  $\mu$  in diameter; acetabulum 22 to 27  $\mu$  in diameter, situated about one third of body length from posterior end. Prepharynx apparently absent; pharynx moderately developed, 10 to 18  $\mu$  in diameter; esophagus 18 to 36  $\mu$  long; intestinal ceca relatively wide, terminating at

level of center of acetabulum. Genital aperture to left of acetabulum; genital sinus relatively large and containing apparently three papilla-like processes. Seminal vesicle large, semilunar in shape, filling greater part of space between acetabulum and intestinal ceca. Testes globular, about  $28 \mu$  in diameter, with zones coinciding and fields widely separated, situated posterior to acetabulum. Ovary transversely oval, about  $18 \mu$  long by  $22 \mu$  wide, pretesticular and to right of acetabulum. Vitellaria posttesticular, situated dorsal to uterine coils and consisting of two groups of five to six follicles each. Uterus postacetabular and largely posttesticular. Eggs oval,  $21.6 \mu$  long by  $12.6 \mu$  wide.

*Host*.—*Nyroca affinis*.

*Location*.—Small intestine.

*Type locality*.—Flamingo Lake, Culebra Island, West Indies.

*Type specimens*.—U.S.N.M. Helm. Coll. no. 8703; paratypes no. 8704.

This is the smallest species of the genus and perhaps the smallest known trematode. It resembles *Levinseniella claviforme* (Brandes) as described by Nicoll (1909) more than any other member of the genus, but may be distinguished from that species by its almost triangular shape, absence of prepharynx, shorter esophagus, longer intestinal ceca, and fewer eggs.

## Family STRIGEIDAE

### Subfamily CYATHOCOTYLINAE

#### **PROHEMISTOMUM FAJARDENSIS, n. sp.**

Plate 1, fig 6

*Description*.—Body scoop-shaped, 1.105 to 1.360 mm long, divided into a widened anterior part 1.071 mm long by 0.51 to 0.795 mm wide and a short, dorsally directed, appendixlike posterior part 85 to 175  $\mu$  long by 160 to 204  $\mu$  wide. Oral sucker subterminal 52 to 60  $\mu$  in diameter; acetabulum 64 to 80  $\mu$  in diameter; adhesive organ slightly oval in outline, 320 to 400  $\mu$  long by 300 to 320  $\mu$  wide, with deep central depression. Pharynx 32 to 40  $\mu$  long by 24 to 35  $\mu$  wide; esophagus short; intestinal ceca slender, extending to junction of anterior and posterior parts of body. Genital aperture at posterior end of body, subterminal, directed dorsally; genital sinus spacious. Cirrus pouch slender, about 380  $\mu$  long by 80  $\mu$  wide at base, extending either to right or left around testes and ovary, its base lying in zone of anterior testis, and containing a seminal vesicle, prostate and cirrus. Testes globular or slightly oval, with zones separated and fields partly coinciding; anterior testis 120 to 140  $\mu$  long by 112 to



120  $\mu$  wide; posterior testis about 160  $\mu$  in diameter. Ovary sub-globular, 100 to 140  $\mu$  long by 100 to 120  $\mu$  wide, situated between testes, either to right or left depending largely upon position of cirrus pouch. Vitellaria consisting of large follicles forming an almost complete circle around adhesive organ. Uterus completely covered by adhesive organ and containing 16 to 60 eggs; vaginal sphincter well developed, 80 to 120  $\mu$  in diameter. Eggs oval, 44 to 48  $\mu$  long by 32 to 36  $\mu$  wide.

*Host.*—*Sula leucogastra*.

*Location.*—Small and large intestine.

*Type locality.*—Fajardo Roads, between Palominos Island and Fajardo, Puerto Rico.

*Type specimen.*—U.S.N.M. Helm. Coll. no. 8696; paratypes no. 8697.

#### PROHEMISTOMUM APPENDICULATOIDES, n. sp.

Plate I, fig. 7

*Description.*—Body scoop-shaped, 680 to 970  $\mu$  long, divided into a widened anterior part 510 to 850  $\mu$  long by 240 to 369  $\mu$  wide, and a conical posterior part. Oral sucker subterminal, 40 to 48  $\mu$  in diameter; acetabulum 20 to 28  $\mu$  in diameter; adhesive organ prominent, 160 to 200  $\mu$  long by 100 to 180  $\mu$  wide, with a deep central depression. Pharynx 28 to 32  $\mu$  long by 20 to 32  $\mu$  wide; esophagus 42 to 120  $\mu$  long; intestinal caeca slender, terminating at or near junction of anterior and posterior parts of body. Genital aperture at posterior end of body, subterminal and directed dorsally; genital sinus spacious. Cirrus pouch 280 to 360  $\mu$  long by 50 to 85  $\mu$  wide, extending to right or left around testes and ovary, its base reaching level of anterior margin of anterior testis; it contains a small seminal vesicle, long pars prostatica and cirrus. Testes globular to oval, with zones separated and fields partly coinciding; anterior testis 80 to 100  $\mu$  long by 60 to 80  $\mu$  wide; posterior testis 100 to 120  $\mu$  long by 70 to 80  $\mu$  wide. Ovary globular, about 40  $\mu$  in diameter, situated between testes. Vitellaria well developed, forming an almost complete circle around base of adhesive organ. Uterus short and containing from two to four eggs; vaginal sphincter moderately developed. Eggs oval, 80 to 112  $\mu$  long by 60 to 80  $\mu$  wide.

*Host.*—*Pelecanus occidentalis occidentalis*.

*Location.*—Small intestine.

*Type locality.*—Levante Keys, Samaná Bay, Dominican Republic.

*Type specimen.*—U.S.N.M. Helm. Coll. no. 8701; paratypes no. 8702.

The first of the species of *Prohemistomum*, *P. fajardensis*, described here may be distinguished from all other species of the genus by the size of the eggs, which are only about half as large as those of the other species. The second species, *P. appendiculatoides*, appears to be closely related to *P. appendiculata*, which was described by Ciurea (1916) from dogs and cats in Rumania; it differs, however, from that species in having a distinct esophagus (almost absent in *P. appendiculata*) and in having an acetabulum only about one half the size of the oral sucker (suckers about equal in size in *P. appendiculata*). *P. fajardensis* also resembles in some respects a species, *P. serpentum*, described from a snake, *Natrix piscator*, by Gogate (1932) at Rangoon, India. Aside from the difference in host relationship, the two species may be distinguished by the fact that *P. fajardensis* is much smaller than *P. serpentum*, and that in the former the adhesive organ does not cover the vitellaria as it does in the latter species.

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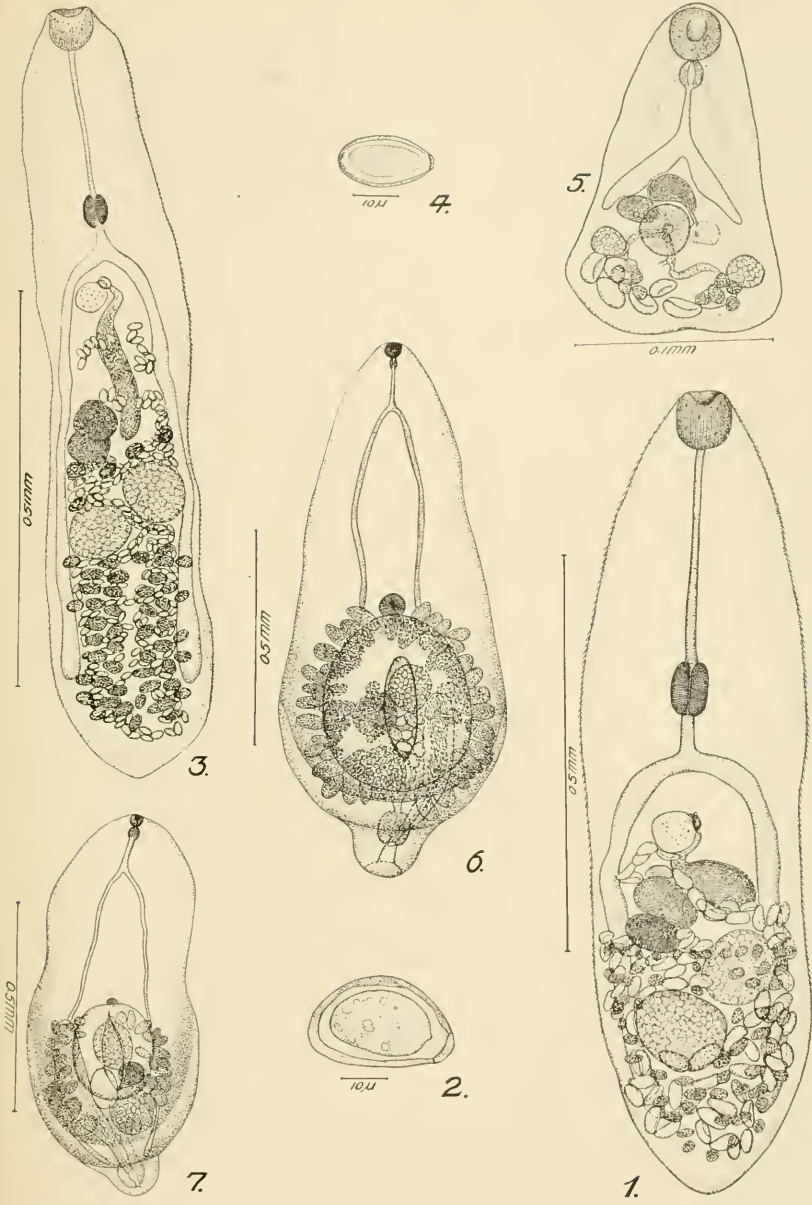
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TREMATODE PARASITES OF BIRDS

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| 1. <i>Galactosomum johnsoni</i> . Complete worm; ventral view. | 5. <i>Levinseniella minuta</i> . Complete worm; ventral view.            |
| 2. <i>Galactosomum johnsoni</i> . Egg.                         | 6. <i>Prohemistomum fajardensis</i> . Complete worm; ventral view.       |
| 3. <i>Galactosomum darbyi</i> . Complete worm; ventral view.   | 7. <i>Prohemistomum appendiculatoides</i> . Complete worm; ventral view. |
| 4. <i>Galactosomum darbyi</i> . Egg.                           |  |