

SMITHSONIAN MISCELLANEOUS COLLECTIONS  
VOLUME 91, NUMBER 7

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## Johnson Fund

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

# NEW DIGENETIC TREMATODES FROM MARINE FISHES

(WITH ONE PLATE)

BY

EMMETT W. PRICE

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



(PUBLICATION 3234)

CITY OF WASHINGTON  
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### NEW DIGENETIC TREMATODES FROM MARINE FISHES

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(WITH ONE PLATE)

This paper contains descriptions of five digenetic trematodes that are regarded as new. These trematodes were collected by the writer from fishes taken during the months of February and March, 1933, in the vicinity of Puerto Rico, by the Johnson-Smithsonian Deep-Sea Expedition. Inasmuch as the descriptions of these flukes are preliminary in nature, no attempt has been made in most instances to differentiate them from all of the species in the genera to which they have been allocated, but only from those to which they are most closely related. A more complete discussion of these forms and their relationships will be given in a later paper.

The writer is indebted to Dr. George S. Myers, assistant curator of fishes, United States National Museum, for the determinations of the fish hosts. The fishes referred to as hosts without a specific name are apparently new and will be described by Dr. Myers in the near future.

#### Family FELLODISTOMIDAE

#### Subfamily FELLODISTOMINAE

#### STERINGOTREMA OVATA, n. sp.

Plate I, fig. 1

*Description.*—Body oval, 500  $\mu$  long by 300  $\mu$  wide, flat and transparent. Cuticula very delicate, without spines. Oral sucker sub-terminal, 140  $\mu$  in diameter; acetabulum weakly muscular, 50  $\mu$  long by 68  $\mu$  wide, slightly preequatorial. Prepharynx absent; pharynx 40  $\mu$  long by 36  $\mu$  wide; esophagus apparently absent; intestinal ceca relatively wide, extending to about 120  $\mu$  from posterior end of body. Excretory aperture terminal; excretory vesicle almost V-shaped, its branches extending to near level of pharynx. Genital aperture at

posterior end of pharynx, slightly to right of median line. Cirrus pouch piriform, 120  $\mu$  long by 52  $\mu$  wide at base, containing a short cirrus, pars prostatica and a large, globular seminal vesicle. Testes globular, about 40  $\mu$  in diameter, with zones coinciding and fields separate, intercecal, postequatorial. Ovary about 40  $\mu$  long by 28  $\mu$  wide, to left of, and partly in zone of, acetabulum. Seminal receptacle and Laurer's canal not observed. Mehlis' gland median, immediately postacetabular. Vitellaria extracecal, consisting of few, relatively large follicles situated largely in same zone as acetabulum and ovary. Uterus largely posttesticular, with two antero-laterally directed loops on each side which extend into extracecal fields. Eggs oval, 24  $\mu$  long by 16  $\mu$  wide.

*Host*.—*Opisthonema oglinum* (Le Seur) (J-S 356).

*Location*.—Pyloric ceca.

*Locality*.—Fajardo Roads, near Fajardo, Puerto Rico.

*Type specimen*.—U.S.N.M. Helm. Coll. no. 8712.

This species belongs in the family Fellodistomidae, subfamily Fello-distominae, and has been placed in the genus *Stringotrema* despite a number of differences that may ultimately necessitate the erection of a new genus for its reception. In view of the fact that only a single specimen was available for study, the writer does not feel justified in proposing a new genus for this form at this time. *Stringotrema ovata* may be distinguished from all other species of the genus in having an oral sucker that is distinctly larger than the acetabulum, the oral sucker being much smaller than the acetabulum in all other species.

#### PYCNADENA PIRIFORME, n. sp.

\* Plate 1, fig. 2

*Description*.—Body piriform, 629  $\mu$  long and 420  $\mu$  wide. Cuticula without spines. Oral sucker 140  $\mu$  long by 120  $\mu$  wide; acetabulum 224  $\mu$  long by 268  $\mu$  wide, aperture 100  $\mu$  long by 160  $\mu$  wide. Prepharynx very short; pharynx 80  $\mu$  long by 64  $\mu$  wide; esophagus very short; intestinal ceca relatively wide, extending to level of posterior margins of testes. Genital aperture near left margin of body, at level of anterior end of pharynx. Cirrus pouch slender, 168  $\mu$  long by 48  $\mu$  wide at base. Testes more or less globular, about 80  $\mu$  in diameter, with zones coinciding and fields partially overlapping, near posterior end of body. Ovary globular, about 70  $\mu$  in diameter, median, in same zone and fields as testes. Seminal receptacle small, piriform, to right of vitelline reservoir. Vitellaria largely extracecal.

extending from anterior margin of acetabulum to near ends of intestinal ceca, the follicles more numerous in acetabular zone; vitelline reservoir large, median, anterior to ovary. Uterus simple; no eggs present in available material.

*Host*.—*Monocanthus hispidus* (Linn.) (J-S 443).

*Location*.—Intestine.

*Locality*.—Station 82 (lat.  $18^{\circ}32'48''$  N., long.  $65^{\circ}23'45''$  W.).

*Type specimen*.—U.S.N.M. Helm. Coll. no. 8713.

*Pycnadena piriforme* differs from *P. lata* (Linton) in having the acetabulum more anterior and the genital aperture more anterior and nearer the body margin; the vitellaria are less well developed than in *P. lata*, but as the specimen upon which *P. piriforme* is based is more immature than Linton's specimens, the lesser development of the vitellaria may be only apparent.

The genus *Pycnadena* Linton (syn., *Didymorchis* Linton) has been included with *Fellodistomum* Stafford, *Steringophorus* Odhner, *Rhodotrema* Odhner, *Steringotrema* Odhner, *Bacciger* Nicoll, and *Lintonium* Stunkard and Nigrelli (= *Gastris* Lühe) in the subfamily Fellodistominae by Stunkard and Nigrelli (1930). The writer doubts whether *Pycnadena* should be included in this subfamily, or even in the family Fellodistomidae, since there are several characters in which it differs from all the other genera, these being the pretesticular uterus, presence of a seminal receptacle and more profuse development of the vitellaria. However, at present it is left in the subfamily as a doubtful member until more material is available for study.

## Family ZOOGONIDAE

### Subfamily LECITHOSTAPHYLINAE

#### LECITHOSTAPHYLUS ATHERINAE, n. sp.

Plate 1, fig. 3

*Description*.—Body spearhead-shaped, 1.22 to 1.36 mm long by 425 to 544  $\mu$  in maximum width near equator. Cuticula armed with fine scalclike spines. Oral sucker subterminal, 152 to 160  $\mu$  long by 100 to 133  $\mu$  wide; acetabulum 80 to 100  $\mu$  long by 108 to 120  $\mu$  wide, 425 to 510  $\mu$  from anterior end of body. Prepharynx 20 to 40  $\mu$  long; pharynx 80 to 88  $\mu$  long by 60  $\mu$  wide; esophagus very short or absent; intestinal ceca relatively wide, extending to, or slightly beyond, level of posterior poles of testes. Genital aperture preacetabular, 320 to 400  $\mu$  from anterior end of body, to left of median



line. Cirrus pouch piriform, 120 to 160  $\mu$  long by 60 to 80  $\mu$  wide, containing a short cirrus, a somewhat twisted seminal vesicle and numerous prostate cells. Testes lobulated, 120 to 160  $\mu$  long by 60 to 80  $\mu$  wide, with zones coinciding and fields separate, situated about one third of body length from posterior end. Ovary median, lobulated, 60 to 120  $\mu$  long by 88 to 120  $\mu$  wide, immediately posterior to acetabulum. Seminal receptacle globular, about 60  $\mu$  in diameter, postero-lateral of ovary. Vitellaria largely extracecal, extending from posterior margin of acetabulum to level of anterior poles of testes. Uterus long and convoluted, filling greater part of posttesticular space and entire intercecal field as far forward as ovary. Eggs 32  $\mu$  long by 18  $\mu$  wide.

*Host.*—*Atherina araca* Jordan and Gilbert (J-S 334).

*Location.*—Intestine.

*Locality.*—Samaná Bay, near Santa Barbara de Samaná, Dominican Republic.

*Type specimen.*—U.S.N.M. Helm. Coll. no. 8714; paratypes no. 8715.

*Lecithostaphylus atherinae* differs from *L. retroflexus* (Molin) as described by Odhner (1911) in body shape, position of genital aperture, and the size of the eggs. *L. retroflexa* is elongate oval, the genital aperture is at the level of the pharynx, and the eggs are 41  $\mu$  long by 20  $\mu$  wide, whereas in *L. atherinae* the body possesses shoulderlike projections at the level of the ovary, which gives to it somewhat the shape of a spearhead, the genital aperture is about midway between the acetabulum and pharynx, and the eggs are 32  $\mu$  long by 18  $\mu$  wide. The subfamily Lecithostaphylinae contains, according to Fuhrmann (1928), the genera *Lecithostaphylus* Odhner, *Proctophantastes* Odhner, and *Lepidophyllum* Odhner. Manter (1926) has included in this subfamily the genus *Steganoderma* Stafford. Fuhrmann (1928) included *Steganoderma* in the subfamily Zoogoninae, but his action in this case probably was unintentional, since *Steganoderma* is obviously more closely related to the genera included in the Lecithostaphylinae than to those of the Zoogoninae.

In reviewing the family Zoogonidae, which action was necessary in connection with the identification of *L. atherinae*, the writer has examined the types of the genera proposed by Linton (1910) and finds that *Deretrema fusillus* Linton is congeneric with *Proctophantastes abyssorum* Odhner and, according to priority, the genus *Proctophantastes* must fall as a synonym of *Deretrema*, *P. abyssorum* Odhner becoming *D. abyssorum* (Odhner). Furthermore, this review has shown that the genus *Diplangus* Linton (1910), also belongs



in the subfamily Lecithostaphylinae. It is possible that *Mesolecitha* Linton (syn., *Mesorchis* Linton) may belong to this subfamily, but more study is necessary before this can be determined with certainty.

Family ALLOCREADIIDAE

Subfamily ALLOCREADIINAE

**PLAGIOPORUS FUSIFORMIS**, n. sp.

Plate 1, fig. 4

*Description*.—Body fusiform, 1.27 to 1.7 mm long by 475 to 680  $\mu$  wide at level of acetabulum, slightly flattened dorso-ventrally. Cuticula delicate, unarmed. Oral sucker 120 to 152  $\mu$  in diameter; acetabulum 220 to 340  $\mu$  long by 280 to 576  $\mu$  wide, in equatorial zone. Prepharynx 20 to 40  $\mu$  long; pharynx 40 to 60  $\mu$  long by 40 to 80  $\mu$  wide; esophagus 200 to 240  $\mu$  long; intestinal ceca simple, extending to level of posterior testis. Excretory aperture terminal; excretory vesicle tubular, extending anteriorly as far as level of anterior testis. Genital aperture near left margin of body and about midway between pharynx and intestinal bifurcation. Cirrus pouch slender, about 300  $\mu$  long, its base lying in median line dorsal to acetabulum, and containing a slender unarmed cirrus, prostate cells, and a slender, somewhat convoluted seminal vesicle; a distinct pars prostatica apparently absent. Testes elongated transversely, tandem and in contact, in anterior part of posterior third of body; anterior testis about 80  $\mu$  long by 240  $\mu$  wide; posterior testis 120  $\mu$  long by 240  $\mu$  wide. Ovary trilobed, about 60  $\mu$  long by 180  $\mu$  wide, pretesticular, mostly to right of median line. Seminal receptacle and Laurer's canal present, the latter opening in the mid-dorsal line at level of ovary. Vitellaria extending from level of genital aperture to about half way between posterior testis and posterior end of body. Uterus with relatively few coils, preovarial; metraterm extending from near center of acetabulum to genital aperture. Eggs oval, 70 to 72  $\mu$  long by 36  $\mu$  wide, with thin, yellowish shells.

*Host*.—Eel (*Xenomyx* sp.) (J-S 447 and 448).

*Location*.—Intestine.

*Locality*.—Station 84 (lat. 18° 39' N., long. 65° 17' W.).

*Type specimen*.—U.S.N.M. Helm. Coll. no. 8716; paratypes no. 8717.

*Plagioporus fusiformis* appears to be more closely related to *P. serotinus* Stafford than to any of the other species so far placed in the genus, but differs from that species in the length of the ceca which

in *P. fusiformis* extend only to the level of the posterior testis, whereas in *P. serotinus* they extend to the posterior end of the body.

In comparing the species of the genus *Plagioporus* Stafford with those included in the genus *Lebouria* Nicoll the writer is convinced that the latter are congeneric with *P. serotinus*, type of *Plagioporus*. Stafford's (1904) description of *P. serotinus* is rather meager, but all of the generic characters are clearly indicated; therefore, the writer transfers the species *Lebouria aducta* Nicoll, *L. acrinae* Pigulevsky, *L. alacris* (Looss), *L. cooperi* Hunter and Bangham, *L. crassigula* Linton, *L. elongata* Goto and Ozaki, *L. idonea* Nicoll, *L. isaitschikowi* Layman, *L. nicolli* Isaitschikov, *L. obducta* Nicoll, *L. tumidulum* (Rudolphi), and *L. varia* Nicoll to the genus *Plagioporus*, the new combinations being, respectively, *P. aducta* (Nicoll), *P. acrinae* (Pigulevsky), *P. alacris* (Looss), *P. cooperi* (Hunter and Bangham), *P. crassigula* (Linton), *P. elongata* (Goto and Ozaki), *P. idonea* (Nicoll), *P. isaitschikowi* (Layman), *P. nicolli* (Isaitschikov), *P. obducta* (Nicoll), *P. tumidulum* (Rudolphi), and *P. varia* (Nicoll).

From the above species, which up to the present time have been included in the genus *Lebouria*, *Plagioporus fusiformis* may be distinguished by the distinctly fusiform shape of the body and by the very large, equatorially placed acetabulum. In the extent of the intestinal ceca posteriorly, this form resembles *P. nicolli* and *P. cooperi* more than the others; *P. fusiformis* may be differentiated from *P. nicolli* in that loops of the uterus pass between the ovary and testes in the latter species, a condition not occurring in *P. fusiformis* or in any of the other species of the genus. *P. fusiformis* differs from *P. cooperi* in having a larger and more equatorially placed acetabulum, in having the genital aperture situated more anteriorly and nearer the body margin, and in having the testes tandem in position instead of being placed diagonally as in *P. cooperi*.

#### PODOCOTYLE LANCEOLATA, n. sp.

Plate 1, fig. 5

*Description*.—Body lanceolate, 1.95 to 2 mm long by 0.45 to 850  $\mu$  wide, strongly flattened dorso-ventrally and more attenuated anteriorly than posteriorly. Cuticula without spines or ridges. Oral sucker subterminal, 100 to 189  $\mu$  in diameter; acetabulum 220 to 240  $\mu$  long by 240 to 280  $\mu$  wide, about one third body length from anterior end. Prepharynx short; pharynx somewhat globular, 88 to 100  $\mu$  long by 88  $\mu$  wide; esophagus 160 to 200  $\mu$  long; intestinal ceca

simple, extending to near posterior end of body. Genital aperture sinistral, cephalad of intestinal bifurcation, and about midway between margin of body and esophagus. Cirrus pouch about  $400\ \mu$  long by  $100$  to  $120\ \mu$  wide, extending to, or only slightly beyond, posterior margin of acetabulum. Testes lobed, tandem, sometimes touching, postequatorial; anterior testis  $160\ \mu$  long by  $260$  to  $280\ \mu$  wide; posterior testis  $160$  to  $180\ \mu$  long by  $260$  to  $320\ \mu$  wide. Ovary trilobed,  $140\ \mu$  long by  $240$  to  $320\ \mu$  wide, pretesticular, and mostly to right of median line. Vitellaria well developed, extending from slightly in front of anterior margin of acetabulum to near posterior end of body. Uterus in intercecal field between ovary and acetabulum, relatively long and with several loops containing numerous eggs. Eggs oval,  $56\ \mu$  long by  $30\ \mu$  wide.

*Host.*—*Polymyria* sp. (J-S 595).

*Location.*—Intestine.

*Locality.*—Station 100 (lat.  $18^{\circ}40'15''$  N., long.  $64^{\circ}50'15''$  W.).

*Type specimen.*—U.S.N.M. Helm. Coll. no. 8719; paratypes no. 8720.

*Podocotyle lanceolata* differs from all species of the genus except *P. levinseni* Isaitschikov, *P. odhneri* Isaitschikov, *P. sygnathi* Nicoll, and *P. pennelli* Leiper and Atkinson in that the cirrus pouch does not extend posterior to the acetabulum. Of the species mentioned above, *P. lanceolata* resembles *P. odhneri* perhaps more closely than it does any of the other species, but it may be distinguished from that form in having distinctly lobed testes, a relatively larger ovary, and more profusely developed vitellaria. *P. lanceolata* has a smaller ovary and a more laterally placed genital aperture, which serve to distinguish it from *P. levinseni*. It may be differentiated from *P. sygnathi* by the position and character of the testes and the extent of the vitellaria anteriorly, the testes being smooth and well separated, and the vitellaria not extending to the acetabulum in *P. sygnathi*, while the testes are lobed and close together, and the vitellaria extend anterior to the acetabulum in *P. lanceolata*. This species may be distinguished from *P. pennelli* in the position of the genital aperture and in the length of the intestinal ceca, the genital aperture being situated at the level of the pharynx and the intestinal ceca extending only as far as the level of the posterior margin of the posterior testis, while the genital aperture is situated some distance posterior to the pharynx and the intestinal ceca extend to near the posterior end of the body in *P. lanceolata*.

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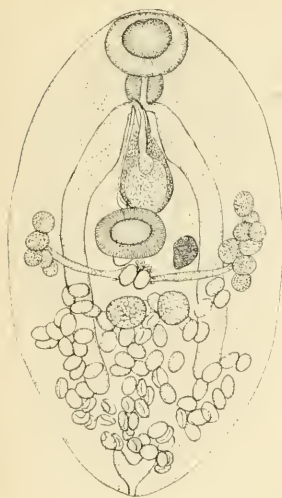
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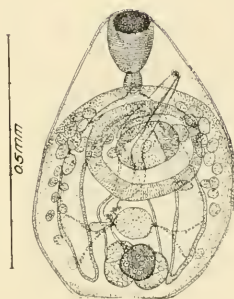
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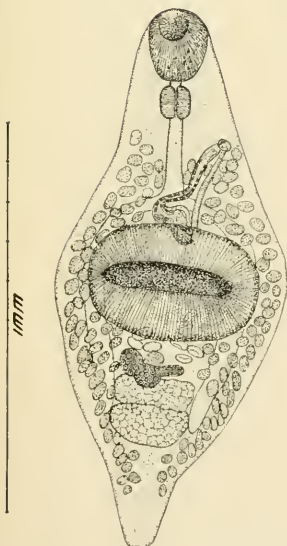
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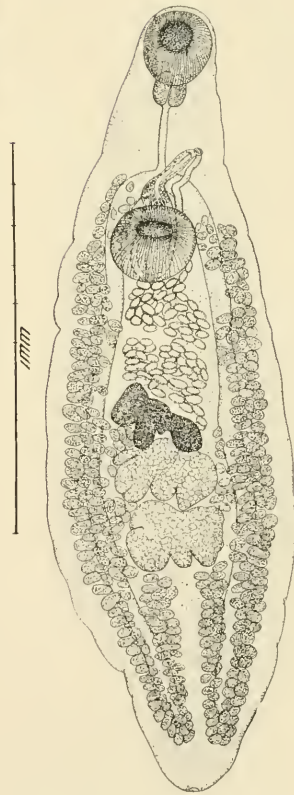
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DIGENETIC TREMATODES FROM MARINE FISHES

FIG. 1. *Stringotrema ovata*. Ventral view.  
 FIG. 2. *Pycnadena piriforme*. Ventral view.  
 FIG. 3. *Lecithostaphylus atherinae*. Ventral view.

FIG. 4. *Plagioporus fusiformis*. Ventral view.  
 FIG. 5. *Podocotyle lanceolata*. Ventral view.