1990

Binder 068, Eucotylidae A-Z [Trematoda Taxon Notebooks]

Harold W. Manter Laboratory of Parasitology

EUCOTYLIDAE Skrjabin, 1924

Family diagnosis. — Medium-sized monostomes with or without collar-like thickening at neck. Oral sucker subterminal. Pharynx present, esophagus short or practically lacking. Ceca terminating blindly or united together near posterior extremity. Rudimentary acetabulum may be present occasionally. Testes symmetrical, diagonal or tandem, equatorial or pre-equatorial. Cirrus pouch absent. Genital pore median, some distance posterior to intestineal bifurcation. Ovary submedian, pretesticular. Vitellaria follicular, extending in lateral fields. Uterus winding between intestinal bifurcation and posterior extremity; eggs numerous, embryonated, without filaments. Excretory vesicle? Parasitic in urogenital organs, occasionally in intestine, of birds.

Type genus: *Eucotyle* Cohn, 1904.

Key to subfamilies of Eucotylidae

Anterior extremity, marked off from rest of body by annular thickening; ceca not united posteriorly; testes entirely or mostly extracecal; receptaculum seminis absent ..... Eucotylinae

Anterior extremity without annular cervical thickening; ceca united posteriorly; testes intercecal; receptaculum seminis present..Tanaisiinae

Yamaguti, 1958

See: Byrd & Denton, 1950. Amer.Mid.Nat.

deFreitas,J.F.Teixeira 1951 Mem.Inst.Oswal.Cruz 49

Kingston,1965

Eucotyle Cohn, 1904

Generic diagnosis. — Eucotylidae, Eucotylinae: Body elongate, flat, with nearly parallel sides; anterior extremity delimited from rest of body by annular muscular thickening in form of a cone or triangle. Oral sucker well developed, directly followed by globular pharynx; esophagus short, may or may not be dilated. Ceca somewhat undulating or not, terminating near posterior extremity. No acetabulum. Testes symmetrical, pre-equatorial or equatorial, more or less overlapping ceca or entirely extracecal, entire or somewhat indented or lobed. No cirrus pouch. Genital pore median or nearly so, some distance posterior to intestinal bifurcation. Ovary pretesticular, submedian, intercecal, usually irregularly lobed. No receptaculum seminis. Laurer's canal probably absent. Vitellaria extracecal, commencing immediately behind annular cervical thickening and terminating at level of testes or further posteriorly. Uterus very long, entirely or mostly intercecal, may reach intestinal bifurcation and posterior extremity. Excretory vesicle probably tubular. Parasitic in urinary tubules of kidney of aquatic birds.

Genotype: *E. nephritica* (Mehlis in Creplin, 1846) Cohn, 1904 (Pl. 71, Fig. 857), in *Colymbus arcticus;* Prussia.

Other species:

E. cohni Skrjabin, 1924, in *Podiceps nigricollis, P. griseigena;* Russia. Also in *Cavia arctica;* E. Siberia.
E. hassalli Price, 1930, in *Colymbus auritus;* Washington, D. C.
E. popowi Skrjabin et Evranova, 1942, in *Anas boschas;* Zhuganak.
E. wehri Price, 1930, in *Querquedula discors;* Montana.
E. zakharovi Skrj., 1920, in *Fuligula cristata, Anas strepera;* Russia.

Tanaisiinae n. subfam.

Subfamily diagnosis. — Eucotylidae: Body elongate linguiform, without annular cervical thickening. Oral sucker and pharynx moderately developed, esophagus short; ceca simple, united posteriorly. Rudimentary acetabulum may be present occasionally. Testes tandem, diagonal or symmetrical, intercecal, rarely extracecal, in middle third of body. Ovary median or submedian, intercecal, pretesticular. Receptaculum seminis present. Vitellaria extracecal, variable in extent.

Key to Species of *Eucotyle* Cohn, 1904

1. Vitelline follicles extend anterior and posterior to level of testes 2
   Vitelline follicles only anterior to level of testes 3
2. Testes oval 4
   Testes lobed or X-shaped 5
3. Testes broadly oval; ovary oval; parasites of ducks ..... *E. popowi* Skrjabin and Evranova, 1942
   Testes narrowly oval; ovary lobed; parasites of grebes and ducks 6
4. Body 3.5 mm long; testes entirely lateral to intestinal ceca; eggs less than 30 long; parasites of grebes ..... *E. nephritica* (Mehlis, 1846)
   Body 6 mm long; testes between and overlapping intestinal ceca; eggs more than 30 long; parasites of ducks ..... *E. clangulae* Walden, 1960
5. Body 5.6 mm long; testes large, broadly lobed; ovary smaller than testes; eggs 43 long ..... *E. cohni* Skrjabin, 1924
   Body 2.5 mm long; testes small, X-shaped; ovary larger than testes; eggs 22 long ..... *E. hassalli* Price, 1930
6. Testes broadly oval or triangular, occupying most of body width ..... *E. zakharovi* Skrjabin, 1920
   Testes lobed, primarily lateral and ventral to intestinal ceca 7
7. Body 2.4 mm long; testes about as long as wide; body spines blunt-pointed, 7 long; parasites of blue-winged teal ..... *E. wehri* Price, 1930
   Body 4 to 4.8 mm long; testes about twice as long as wide; body spines sharp-pointed, 11 to 14 long; parasites of mallard duck ..... *E. warreni* sp. n.

from SCHELL, 1967

Eucotylinae ~~n. subfam.~~ YAMAGUTI, 1958

Subfamily diagnosis. — Eucotylidae: Body flattened subcylindrical, with annular cervical thickening. Oral sucker well developed. Esophagus short, ceca with somewhat sinuous walls, terminating blindly near posterior extremity. No acetabulum. Testes symmetrical, cecal or extracecal, equatorial or pre-equatorial. Ovary intercecal, pretesticular. Receptaculum seminis absent. Vitellaria extracecal, variable in extent. Uterus entirely or mostly intercecal.

EUCOTYLE Cohn 1904

Elongated, flattened, medium-sized monostomes; anterior end triangular and set off from the remainder of body by a dorsal and ventral transverse muscular ridge, posterior end rounded. Testes opposite each other, entirely extracecal, partly overlying the ceca, or occupying the entire width of body and with their median borders touching. Ovary labate, pretesticular, and to the side of median line. Vitellaria extracecal, commencing immeduately posterior of the transeverse muscular ridge and extending backward as far as the the testes or beyond. Parasites in the kidneys of water birds.

Type species: Eucotyle nephritica (Mehlis 1846)Cohn 1904

Key to species:

1. Vitellaria extending to posterior border of testes.....2
   Vitellaria extending to beyond posterior border of testes.....3
2. Body 5.6mm by 1.1 mm.; testes occupy entire width of body; uterine coils closely packed.....E. zakharowi
   Body 2.4,,; by 387 u ; testes separated by width of intercecal space; uterine coils few.....E. wehri
3. Testes elongated but not lobed, entirely extracecal....E. nephritica
   Testes lobed, partly overlying ceca.....4
4. Testes X-shaped; ovary larger than testes; egg 22 by 11 u.....E. hassalli
   Testes irregular in shape; ovary smaller than testes; eggs 43 by 16 u.....E. cohni

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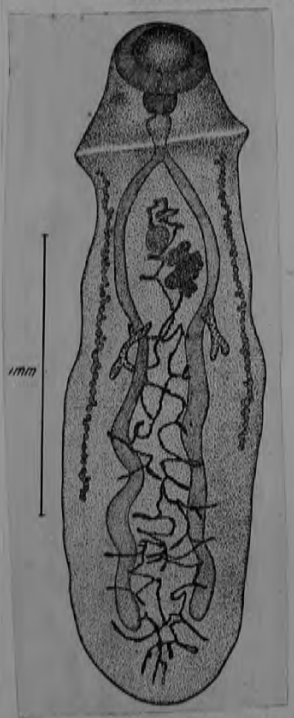
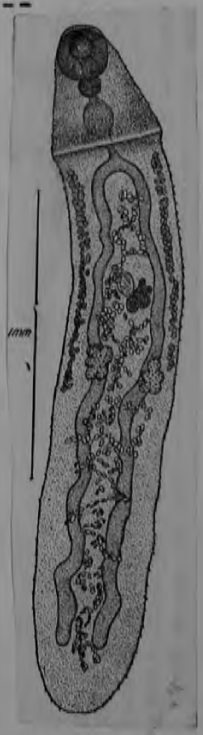
From Price (1930) Proc. U.S.Nat Mus. 77 Art.1



Eucotyle hassalli
from Colymbus auritus



Eucotyle wehri
from Querquedula discors

Eucotylidae

ARKIV FÖR ZOOLOGI Band 12 nr 35

Communicated 13 January 1960 by NILS ODHNER and KARL LANG

Eucotyle clangulae n. sp., a new digenetic trematode, from the kidney of *Clangula hyemalis* (L.)

By HENRIK W. WALDÉN

With 2 figures in the text

During investigations of kidney parasites in anseriform birds, the author found a trematode which seems to represent a new species. The material, however, was not in a good condition. It originated from a long-tailed duck (*Clangula hyemalis*) which had been killed on the Baltic coast of southern Sweden on November 22, 1959, after being severely exposed to oil pollutions from a ship. Not before November 27th was the body available to the author for study.

The trematode was found in rather large numbers in the intrarenal branches of the ureters. The trematodes were, however, badly preserved and only one specimen was in a state that made it suitable for description.

Though a common procedure in parasitology—because of the vagaries of obtaining material—it may seem rash to base a new species on one specimen only. However, as will be showed below, the distinctive characteristics in the present instance are of such a nature that a great taxonomical value can be attached to them.

Observations on the other more or less autolyzed specimens showed that these were uniform with the described specimen in all well discernible characteristics, such as size and shape of the body, the sucker, and the eggs.

Following the first recognition of the new parasite, kidneys from 44[1] specimens of different aquatic birds—among these 5 long-tailed ducks—have been accessible for examination. No other examples of these kidney trematodes have been encountered. Evidently these trematodes are quite rare—no other species of *Eucotyle* have ever been found in Sweden—and there would seem to be little hope of extending the observations on the new species. Under these circumstances, the most desirable course is to publish these observations in their present state.

Description

Eucotyle clangulae n. sp. Walden, 1961

The description is based on the animal in unfixed, extended state, and it was carried out immediately after removing the worm from the kidney.

HOST: Long-tailed duck (*Clangula hyemalis*).

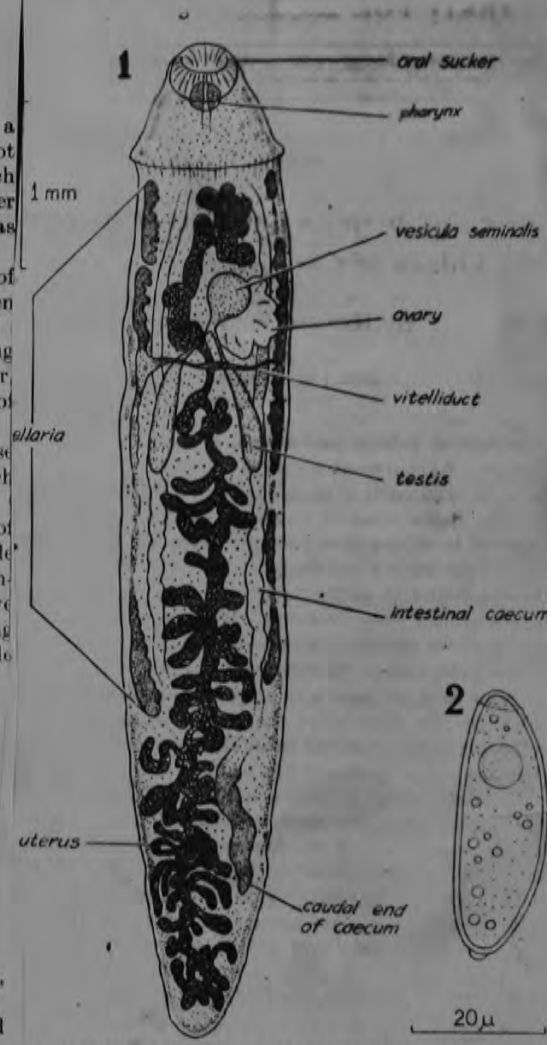
LOCATION: Kidney, mainly in the intrarenal branches of the ureters. No pathological changes in the kidney could be observed macroscopically.

LOCALITY: Sweden, on the Baltic coast, on the island of Vinö in Misterhult parish, Småland, 22.11. 1959.

DIAGNOSIS: An elongated, dorsoventrally flattened trematode, in general shaped as the other species of the genus. *Size:* length 6 mm, width 1 mm. *Oral sucker:* diameter 0.4 mm. *Gut:* could not be observed in all details, but the slightly undulating caeca extend to about 0.9 mm from the caudal end. *Male genital system:* testes elongated, about 0.65 mm long, situated slightly infracaecal, partly covering the caeca. Vesicula seminalis sphaero-pyriform, diameter 0.27 mm. *Female genital system:* Ovary lobulated. Vitellaria extending far backward, to about 2 mm from the caudal end. Uterus well developed. *Eggs:* asymmetrically ovoid (Fig. 2) with a rather strongly brownish shell. Operculum. A small knob at the antiopercular end. The dimensions of 10 eggs from the specimen are:

Length μ	Width μ
41.5	15.5
40.5	14.5
39.0	14.0
36.5	14.0
40.5	15.0
39.0	14.5
41.5	15.0
36.0	15.5
37.5	15.0
38.0	14.0
M = 39.0 × 14.7 μ	

TYPE SPECIMEN: In Department of Invertebrata, State Museum of Natural History (Naturhistoriska Riksmuseum), Stockholm.



e clangulae n. sp. 25 ×. — Fig. 2. Egg of *Eucotyle clangulae*

Discussion

The species of the genus *Eucotyle* have recently been surveyed in two large manuals (Skrjabin, 1947, Teixeira de Freitas, 1951). The later works of Bychowskaya-Pavlovskaya (1953) and Yamaguti (1958) do not add any datas of importance in the present connection.

From these works it is apparent that certain characteristics, such as the size of the adult parasite and of the eggs, the shape of the testes, and the caudal extention of the vitellaria, are of taxonomical significance for distinguishing species. These characteristics seem to be very constant and there are no signs of intergrading between the species.

On general organisation, *E. clangulae* resembles *E. nephritica* (Mehlis *in* Creplin) most closely. This, however, is much smaller and, most important, also its eggs are much smaller, having a volume only 40 % of that of the eggs of *E. clangulae*. This highly significant difference definitely excludes any specific relationship between the two species.

With regard to the size of the eggs, the species of *Eucotyle* can be clearly divided into two groups, *viz.* those with large eggs (33–43 μ in length) and those with small (22–25 μ in length). *E. clangulae* belongs to the former group. As far as the other species in the group, *E. clangulae* can be readily distinguished from *E. wehri*, Price (1931), by its much larger size and the quite different shape of the testes (broad and lobulated in *E. wehri*). *E. zakharowi*, Skrjabin (1924), is also quite unlike *E. clangulae*. The former has very broad testes occupying almost the entire body width, and furthermore, its vitellaria do not extend to behind the testes.

The only species in the group to which *E. clangulae* bears some resemblance is *E. cohni*, Skrjabin (1924). They are of the same order of size and in both, the vitellaria extend rather far backwards. However, they differ in regard to the shape and position of the testes. In *E. cohni* these are broad, irregularly lobulated, and situated extracaecally, quite unlike the slender, elongated testes in *E. clangulae*, which occupy a more infracaecal position.

Furthermore, *E. cohni* has not been reported outside a limited area in southwestern Soviet Asia. Within the large area between this site and the Baltic, where *E. clangulae* has been found, only the specifically well distinguished *E. zakharowi* and *E. nephritica* are known.

The species of *Eucotyle* have been reported from the following hosts (nomenclature according to Witherby *et al.*, 1945):

Table 2.

Parasite	Host	Order of birds
E. nephritica	*Gavia arctica* (L.)	Podicipitiformes and Gaviiformes
E. cohni	*Gavia arctica* (L.)	
	Podiceps nigricollis Brehm and *Podiceps griseigena* (Bodd.)	
E. hassalli	*Podiceps auritus* (L.)	
E. popowi	*Anas platyrhynchos* L.	Anseriformes
E. wehri	*Anas discors* L.	
E. zakharowi	*Aythya fuligula* (L.) and *Anas strepera* L.	
E. clangulae	*Clangula hyemalis* (L.)	

Too little is known about the host specificity of the species of *Eucotyle* to discuss this subject conclusively. However, according to our present knowledge, the species occur either in anseriform or in podicipitiform and gaviiform birds. It may be pointed out that *E. clangulae* is one of those species with anseriform hosts, while the two other species, *E. nephritica* and *E. cohni*, which have been dealt with above, are parasites of the other groups of birds.

According to our present knowledge it seems to be justified to regard *E. clangulae* as a distinct species.

SCHELL, 1967

Eucotyle warreni sp. n.
(Figs. 1, 2)

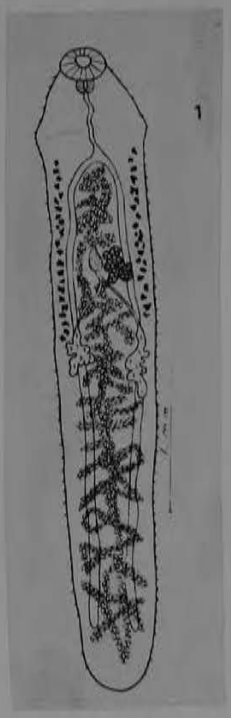
Body flat, elongate, spinous, 4 to 4.8 mm long by 0.5 to 0.7 mm wide, anterior end has triangular collar which is 499 to 530 long; body spines sharp-pointed, 11 to 14 long. Oral sucker terminal, 202 to 234 long by 249 to 265 wide; ventral sucker absent. Pharynx 109 long by 124 to 140 wide, partly dorsal to oral sucker; cluster of unicellular glands at posterior end of pharynx; prepharynx absent; esophagus 343 to 405 long; intestinal ceca extend to within 312 to 390 of posterior end of body. Cirrus and cirrus pouch absent; seminal vesicle thick-walled, 124 to 170 long by 78 to 120 wide, to right of median line; genital pore median, at anterior end of seminal vesicle. Testes lobed, opposite, in midbody region, ventral to ceca, 280 to 436 long by 140 to 171 wide; vasa efferentia passing obliquely forward to join short vas deferens. Ovary lobed, to left of seminal vesicle, 218 to 312 in diameter. Vitelline follicles in narrow rows, lateral to ceca, between testes and collar; transverse vitelline ducts posterior to ovary; vitelline reservoir immediately posterior to ovary. Uterine folds fill intercecal space from level of cecal bifurcation to posterior end of body, overlapping ceca posterior to testes. Eggs operculate, brown, 28 to 35 long by 12 to 14 wide. Excretory vesicle and seminal receptacle not observed.

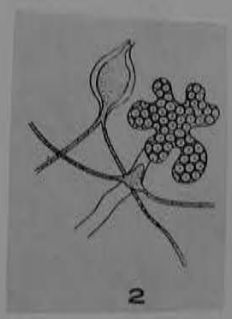
Definitive host: Mallard duck (*Anas platyrhynchos* Linn., 1758).

Habitat: Kidneys and ureters.

Type locality: Latah County, Idaho.

Type specimens: Holotype No. 61786 and three paratypes No. 61787 deposited in the USNM Helm. Coll.



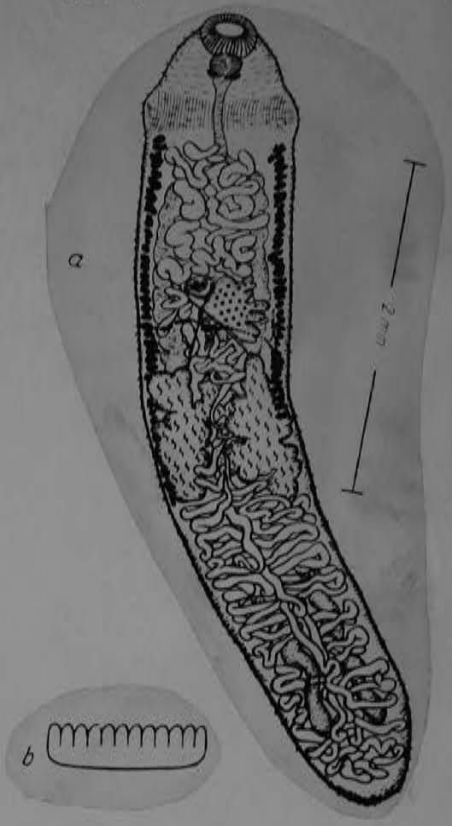


Remarks

The species is described from 15 specime and is named in honor of Mr. Jack Warre who collected the host. *E. warreni* resembl *E. wehri* Price, 1930, more closely than a other species in the genus. Examination holotype No. 29188 of the latter species, b rowed from the U. S. National Museum, r vealed that specimens of *E. warreni* are abo twice as long as those of *E. wehri*. The or sucker and collar are 25 to 30% larger and t ovary and testes are more than twice as lar in *E. warreni*. Both species are spinous bu the spines on *E. warreni* are sharp-pointe and 11 to 14 long while those of *E. wehr* are blunt-pointed and only 7 long. Onl one of 13 specimens of *E. warreni* contains spines, indicating that they are shed readily *E. wehri* was reported as a parasite of the blue winged teal, *Querquedula discors* Linn., 176 in Montana.

Eucotyle zakharowi Skrjabin, 1920

Eucotylidae



From Odening, 1964

EUCOTYLE

Eucotylidae

TAMERLANIA Skrjabin, 1924 see Tanaisia

Diagnosis as emended by Penner (Jour.Parasit., 1939, vol.25, p.422)

Eucotylidae with no anterior prominence separating cephalic region from remainder of body; esophagus short or absent; testes smoothly emarginate, lying at approximately same level just inside intestinal crura at junction of anterior with middle third of body; ovary anterior to testes and has entire margins; vitellaria lie outside of crura and usually in middle third of body; intestinal crura may or may not unite in posterior region of body; kidney parasites of birds.

Differs from Tanaisia in that Tanaisia has an esophageal bulb and in that the testes are lobed and either tandem or oblique.

Differs from Ohridia only in the position of the testes and Penner thinks that perhaps the lone species of Ohridia should be included in Tamerlania.

Type species: T. zarudnyi Skrjabin, 1924

Other species: T. meruli Nezlobinsky, 1926
T. bragai Dos Santos, 1934
T. japonica Yamaguti, 1935
T. melospizae Penner, 1939

KEY to species of TAMERLANIA

(from Penner,1939)

1. Vitellaria in middle third of body;
   oral sucker 0.15 to 0.30 2
   Vitellaria in anterior and middle thirds of body;
   oral sucker 0.40 by 0.50.....T. bragai Dos Santos,1934

2. Esophagus present; testes broader than long.....3
   Esophagus absent; testes spherical.....4

3. Vitellaria of equal length,1.7; ovary slightly oval;
   body length, 3.2 to 5.3 mm.....T. zarudnyi Skrjabin,1924
   Vitellaria of unequal length,left 0.6,right 0.9;
   ovary triangular in shape; body length 2.5...T. meruli
   Nezlobinsky,1926

4. Ovary considerably broader than long; eggs
   30 by 21 µ.....T. melospizae Penner,1939
   Ovary spherical; eggs at least 42 by 24 µ...T. japonica
   Yamaguti,1935

cut H. W Manter

Reprinted from THE JOURNAL OF PARASITOLOGY, October, 1939, Vol. XXV, No. 5, pages 421–424.

TAMERLANIA MELOSPIZAE N. SP. (TREMATODA: EUCOTYLIDAE) WITH NOTES ON THE GENUS[1]

LAWRENCE R. PENNER[2]

A new trematode of the genus *Tamerlania*, family EUCOTYLIDAE, is here described. This is the first member of the genus to be reported from North America and the fifth described species.

Genus *Tamerlania* Skrjabin 1924

Skrjabin established the family EUCOTYLIDAE in 1924 to include *Eucotyle* Cohn (1904), *Tanaisia* Skrjabin (1924), and *Tamerlania* Skrjabin (1924). Nezlobinski (1926) added the genera *Ohridia* and *Lepidopteria*. The genus *Tamerlania* contains four species, *T. zarudnyi* Skrjabin (1924), *T. meruli* Nezlobinski (1926), *T. bragai* Dos Santos (1934), and *T. japonica* Yamaguti (1935). Skrjabin lists *Passer montanus* (Linn.), the European tree sparrow, as host for *T. zarudnyi*. It was collected in 1921 by the Fifth Helminthological Expedition at Taschkent, Turkestan. Kalantarian (1924) and Khitrowo-Kalantarian (1924) list *Fringilla coelebs* L., the chaffinch, and a woodpecker, *Dendrocopus syriacus* Hempr., from Erivan, Armenia. Khitrowo-Kalantarian also reports the finding of this parasite by Issaitschikow in the rook, *Corvus frugilegus* Brehm, from Krim. It is also recorded by Skrjabin and Massino (1925) from *Monedula turrium* Brehm taken near Moscow on May 21, 1921. In this reference these authors refer to the previous host recorded by Skrjabin (1924) as *Passer domesticus* instead of *Passer montanus*. *T. meruli* is from *Turdus merula* taken at Juzna, Serbia, in the Macedonian region. *T. bragai* is described as a parasite of *Columba livia* and *Gallus domesticus* in and near Rio de Janeiro, Brazil. *T. japonica* was taken in the Japanese hawfinch, *Coccothraustes coccothraustes japonicus* Temm. and Schleg. from Mie Prefecture and in a bunting, *Emberiza variabilis* Temm. from Koti Prefecture, Japan.

Skrjabin (1924) indicated the salient features of the genus *Tamerlania* to be EUCOTYLIDAE with no anterior muscular prominence (Muskelwulst) separating the head region from the remainder of the body; esophagus absent; symmetrically situated testes with entire margins, lying just inside the intestinal crura at the junction of the anterior with the middle third of the body; ovary with entire margins; vitellaria in the middle third of the body; kidney parasites of birds. The species herein described falls within the genus as defined by Skrjabin (1924), except for

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[1] Contribution from the Department of Zoology, University of Minnesota.

[2] The writer is greatly indebted to Dr. Wm. A. Riley for his valuable criticism during the course of this investigation.

the presence of a short esophagus. The diagnosis of the genus has since been either emended or amplified by three different authors, Khitrowo-Kalantarian (1924), Dos Santos (1934), and Yamaguti (1935). Khitrowo-Kalantarian noted that the intestinal crura were united in the posterior region of the body and added this character to the generic diagnosis. Dos Santos amplified the genus to include forms with vitellaria in both the anterior and middle regions of the body. Yamaguti, apparently not cognizant of the two previous changes emended the diagnosis to include the posterior cecal connection and the presence of a short esophagus. In the species described in this paper a posterior crural union cannot be seen. A connection could not be determined when the parasite was examined by polarized light. Cheatum (1938) used this method in locating the place of union in the posterior part of the body of *Tanaisia pelidnae* Cheatum. Dos Santos does not discuss a posterior crural connection in describing *T. bragai* and in a figure shows no connection although the crura are seen bending towards each other. It is very probable that they do unite and are obscured by eggs in the convoluted uterus which invades that region. Apparently the genus *Tamerlania* is closely related to *Tanaisia*. The latter genus has an esophageal bulb whereas is *Tamerlania* there is no expansion of the very short esophagus when present. The testes in *Tamerlania* are smoothly emarginate and at about the same horizontal level while in *Tanaisia* they are lobed and either tandem or oblique. The only difference noted between *Tamerlania* and *Ohridia* is in the position of the testes and it is very possible that the lone species, *O. panuri* Nezlobinski (1926), should be included in *Tamerlania*. However, until these relationships can be further studied, *Ohridia* stands as a valid genus.

The following generic diagnosis will suffice for the described species of the genus.

Tamerlania Skrjabin, 1924, emended diagnosis

Eucotylidae with no anterior prominence separating cephalic region from remainder of body; esophagus short or absent; testes smoothly emarginate, lying at approximately same horizontal level just inside intestinal crura at junction of anterior with middle third of body; ovary anterior to testes and has entire margins; vitellaria lie outside of crura and usually in middle third of body; intestinal crura may or may not unite in posterior region of body; kidney parasites of birds.

Tamerlania melospizae n. sp.

(Fig. 1)

Specific diagnosis: Tamerlania. Body flattened, elliptical, with minute spines or scales; 3.7 mm long × 0.55 mm wide at level of testes; oral sucker sub-terminal, broader than long, 0.23 mm × 0.26 mm; pharynx broader than long, 0.08 mm × 0.09 mm; short esophagus present; intestinal crura approach caudal end of body with union, if any, obscured by eggs in the uterus; testes in middle third of body situated horizontally just inside the crura; right testis larger and slightly anterior to left testis, not lobed; right testis extreme length, 0.14 mm, extreme width, 0.15 mm; left testis, extreme length, 0.11 mm, extreme width, 0.12 mm; ovary with margins entire, anterior to right testis and near right side of body, broader than long, extreme length, 0.14 mm, extreme width, 0.23 mm; vesicula seminalis almost

median and adjacent to anterior border of ovary, oval, broader than long, 0.05 mm by 0.09 mm; receptaculum seminis oval, adjacent to right posterior border of ovary, 0.08 mm long × 0.09 mm, lateral margin partly covers right intestine; vitellaria lateral, extra-cecal, in middle third of body, glands of equal length, 1.3 mm, beginning at a level just anterior to the level of the testes; vitelline reservoir median, obscured by uterus just anterior to right testis; uterus extensively coiled filling body posterior to testes, crossing to left side of body between the testes, continuing to esophageal region in compact coils which fill the body between ovary and bifurcation of intestinal crura; genital pore obscured, apparently just anterior to ovary behind intestinal bifurcation; eggs dark brown, operculate, symmetrically oval, 30 × 21 microns.

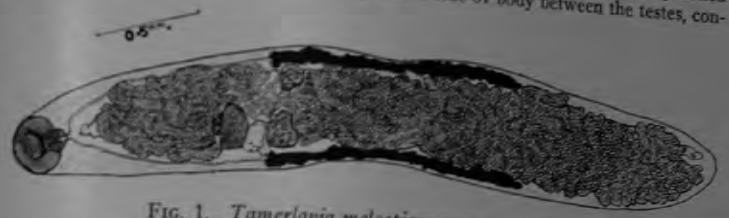

FIG. 1. *Tamerlania melospizae* n. sp., ventral view.

Host: Melospiza lincolni lincolni (Audubon).
Habitat: Urinary tract.
Locality: Minneapolis, Minnesota.
Type Specimen: U. S. Nat. Mus. Helm. Coll. No. 9288.

One specimen was found in the ureter when bits of the urinary duct and kidney of *Melospiza lincolni lincolni* (Audubon) were pressed between two glass slides and examined with a binocular dissecting microscope. The bird host was picked up dead by Max Partch, a student at the University of Minnesota, on May 1, 1938, and brought to W. J. Breckenridge of the Natural History Museum.

As only one specimen was taken no sections were made. The extensive coils of the uterus obscured various structures, particularly the genital pore and the intestinal crura. A place of union in the posterior part of the body could not be discerned with certainty.

KEY TO SPECIES OF *Tamerlania* SKRJABIN, 1924

1. Vitellaria in middle third of body; oral sucker 0.15–0.30 mm 2
   Vitellaria in anterior and middle thirds of body; oral sucker 0.40 × 0.50 mm
   T. bragai Dos Santos (1934)
2. Esophagus present; testes broader than long 3
   Esophagus absent; testes spherical 4
3. Vitellaria of equal length, 1.7 mm; ovary slightly oval; body length, 3.2–5.3 mm
   T. zarudnyi Skrjabin (1924)
   Vitellaria of unequal length, left 0.6 mm. right 0.9 mm; ovary triangular in shape; body length, 2.5 mm ..... *T. meruli* Nezlobinsky (1926)
4. Ovary considerably broader than long; eggs 30 × 21 microns
   T. melospizae n. sp.
   Ovary spherical; eggs at least 42 × 24 microns ... *T. japonica* Yamaguti (1935)

Attention should be called to the fact that the figure of *Tamerlania meruli* Nezlobinsky was interchanged with *Lepidopteria plegadis* Nezlobinsky in the original publication.

DISCUSSION

The host relationships of the members of this genus are interesting. *T. zarudnyi* has been found in the urinary passages of the chaffinch, rook, European tree sparrow, and others. *T. meruli* is from a blackbird of Europe. *T. japonica* utilizes the Japanese hawfinch, a bunting, and probably other birds as its hosts. *T. bragai* occurs in 15.7 per cent of the pigeons of Rio de Janeiro and causes dilation and hyperplasia of the collecting tubules. The ducts become enormously enlarged and filled with amorphous and crystallized detritus. Dos Santos (1934) found that the parasite rarely invaded the cortical substance of the kidney. He also found the kidneys of two hens infected. To date the species herein described has been taken from but one host, the Lincoln sparrow, a migrant through Minnesota. It is interesting to note that one of the hosts of *T. zarudnyi*, the European tree sparrow, was liberated in this country in Missouri where it became acclimatized. Barrows (1889) records twenty specimens from Germany liberated at LaFayette Park, St. Louis, Mo., in 1870. Its very close relative, the English sparrow, also an imported species, had been liberated in St. Louis the year before. In discussing the range of the latter species Hellmayr (1938) records it from Rio de Janeiro, Brazil. It is quite probable that more careful examinations of the urinary passages of English sparrows and domestic fowl in this country will reveal more information on these potentially dangerous fowl parasites.

SUMMARY

A kidney trematode, *Tamerlania melospizae* n. sp., is described from the Lincoln sparrow, *Melospiza lincolni lincolni* (Aud.), with a history of the genus and a discussion of its occurrence. A key to the known species is also appended.

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TAMERLANIA

Tanaisia Skrjabin, 1924

Syn. *Proshystera* Korkhaus, 1930

Generic diagnosis. — Eucotylidae, Tanaisiinae: Body elongate linguiform, anterior extremity without collar-like thickening. Oral sucker and pharynx fairly well developed, esophagus short, ceca simple, united posteriorly some distance short of posterior extremity. A small acetabulum may be present occasionally. Testes lobed or not, juxtaposed, oblique or tandem, intercecal, rarely extracecal, in middle third of body, usually pre-equatorial. No cirrus pouch. Seminal vesicle immediately anterior or anteromedial to ovary. Genital pore median, some distance posterior to intestinal bifurcation. Ovary lobed or not, intercecal, submedian or median, pretesticular. Receptaculum seminis present. Vitellaria extracecal, commencing in front of ovary, or at level of ovary or testes, terminating at varying distances from posterior extremity. Uterus entirely or mostly intercecal, may extend forward and outward beyond ceca, usually reaching to posterior extremity. Parasitic in urinary tract of birds.

Genotype: *Tanaisia fedtschenkoi* Skrjabin, 1924 (Pl. 64, Fig. 774), syn. *T. elliptica* Nezlob, 1925; *T. pelidnae* Cheatum, 1938; *Proshystera rosittensis* Korkhaus, 1930, *Ohridia panuri* Nezlobinski, 1926 — Byrd & Denton, 1950, in kidney of *Totanus glottis, T. ochropus, Himantopus candidus, Chettusia leucura, Tringa minuta, Capella gallinago, C. media, Rallus aquaticus, Larus canus, Chroicocephalus ridibundus, Sterna hirundo, S. anglica, Hydrochelidon nigra, Corvus cornix, Plegadis falcinellus, Panurus barbatus, Phalaropus lobatus;* Russia. Additional hosts from western Siberia — Bychowsk.-Pawlowsk. (1954).

Teixeira de Freitas (1951) synonymized *Tamerlania* Skrjabin, 1924, *Ohridia* Nezlobinski, 1926, and *Lepidopteria* Nezlobinski, 1926, with *Tanaisia*, but I would rather retain the three former genera as subgenera of the latter as indicated in the following key.

Key to subgenera of *Tanaisia*

1. Testes juxtaposed, ovary submedian ..... *Tamerlania*
   Testes diagonal or tandem 2
2. Ovary submedian, irregularly lobed ..... *Tanaisia*
   Ovary median 3
3. Ovary circular, with uneven surface ..... *Ohridia*
   Ovary symmetrically lobed ..... *Lepidopteria*

Other species:

T. (*Tanaisia*) *dubia* Freitas, 1951, in *Tringa melanoleuca;* Brazil.

T. (*Tanaisia*) *elliptica* Nezlobinsky, 1926, in *Hydrochelidon nigra;* Macedonia.

T. (*Tanaisia*) *longivitellata* Shtrom, 1947, in *Porzana bailloni, Fulica atra;* Russia.

T. (*Tanaisia*) *macrorchis* Yamaguti et Asada, 1942, in *Capella gallinago gallinago;* Manchuria.

T. (*Tanaisia*) *pelidnae* Cheatum, 1938, in body cavity of *Pelidna alpina sakhalina;* Michigan.

T. (*Tamerlania*) *bragai* (Santos, 1934) in *Columba livia dom., Gallus gallus dom., Meleagris gallopavo dom.*; S. & C. America. Also in *Quiscalus quiscula aeneus, Limnothlypis swainsoni* and *Seiurus aurocapillus;* U.S.A.

Cercariaeum develops in land snail, *Subulina octona*, and encysts within it — Macdonaldo (1945).

T. (*Tamerlania*) *byrdentoni* Freitas, 1951, for *Tanaisia atra* Nezlobinski, 1926 of Byrd and Denton, 1950, in *Fulica americana americana;* U.S.A.

T. (*Tamerlania*) *confusa* Teixeira de Freitas, 1951, in *Rhamphatos toco;* Brazil.

T. (*Tamerlania*) *corvi* Yamaguti et Asada, 1942, in *Corvus corone interpositas;* Manchuria.

T. (*Tamerlania*) *exigua* Teixeira de Freitas, 1951, in *Troglodytes musculus musculus*; Brazil.

T. (*Tamerlania*) *gallica* Dollfus, 1946, syn. of *T. zarudnyi* Skrj. 1924, — Byrd & Denton (1950), in *Garrulus glandarius; Pica Pica* and *Corvus corone;* France.

T. (*Tamerlania*) *incerta* Freitas, 1951, in *Myospiza humeralis humeralis;* Brazil.

T. (*Tamerlania*) *inopina* Freitas, 1951, syn. *T. zarudnyi* of Almeida, 1936, and of Dollfus, 1946, in *Passer domesticus;* Brazil.

T. (*Tamerlania*) *japonica* Yamaguti, 1935,[1]) in *Coccothraustes coccothraustes japonicus, Emberiza variabilis;* Japan. Also in *Garrulus glandarius;* Russia.

T. (*Tamerlania*) *magnicolica* Freitas, 1951, in *Guira guira* and *Paroaria capitata;* Brazil.

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[1]) I cannot agree with Freitas, Byrd and Denton in synonymizing this species with *T. zarudnyi* on account of the definite difference in the length of the [illegible]

T. (*Tamerlania*) *melospizae* Penner, 1939, in *Melospiza lincolni lincolni;* Minnesota.

T. (*Tamerlania*) *meruli* Nezlobinski, 1926, syn. of *Tanaisia zarudnyi* (Skrj., 1924) — Ejsmont (1931), Dollfus (1946), Byrd and Denton (1950), in *Turdus merula;* Europe.

T. (*Tamerlania*) *minax* Freitas, 1951, in *Cyanocorax cyanomelas, C. chrysops* and *Passer domesticus;* Brazil.

T. (*Tamerlania*) *oviaspera* Freitas, 1951, in *Ramphocelus carbo connectens, R. carbo carbo, Thraupis sayaca sayaca* and *Icterus cayanensis pyrrhopterus;* Brazil.

T. (*Tamerlania*) *parva* Freitas, 1951, in *Uroleuca cristatella;* Brazil.

T. (*Tamerlania*) *precaria* Freitas, 1951, in *Speotyto cunicularia grallaria;* Brazil.

T. (*Tamerlania*) *robusta* Freitas, 1951, in *Crypturellus tataupa;* Brazil.

T. (*Tamerlania*) *similis* Freitas, 1951, in *Cyanocorax chrysops;* Brazil.

T. (*Tamerlania*) *valida* Freitas, 1951, in *Himantopus himantopus melanurus;* Brazil.

T. (*Tamerlania*) *zarudnyi* Skrjabin, 1924, type of subgenus *Tamerlania* (Pl. 76, Fig. 929), syn. *T. meruli* Nezlobinsky, 1926; *T. melospizae* Penner, 1939; *T. gallica* Dollfus, 1946 — Byrd and Denton (1950), in *Passer montana, P. domesticus, Fringilla coelebs, Dendrocopus syriacus, Coloeus monedula, Muscicapa hypoleuca, Miliaria europaea, Iduna* (= *Hypolais*) sp., *Pastor roseus, Phasianus chrysomelas bianchii, Emberiza variabilis, Ammomanes deserti, Montifringilla alpicola prosvirowi, Pyrrhocorax pyrrhocorax brachypus, Oriolus kundoo, Pica pica, P. p. hemileucoptera, Garrulus glandarius, G. g. japonicus, G. brandti, Corvus corone, C. frugilegus, Turdus merula;* Asia, Europe.

T. (*Ohridia*) *panuri* Nezlobinski, 1926 (type of subgenus *Ohridia*), in *Panurus barbatus;* Europe.

T. (*?Ohridia*) *integerriorcha* Saidov, 1954, in *Sterna hirundo, Chelidonias nigra, C. hybrida;* Russia.

T. (*Lepidopteria*) *atra* (Nezlobinski, 1926) (type of subgenus *Lepidopteria*), syn. *Lepidopteria plegadis* Nezlobinsky, 1926; *L. graciosa* Nezlob., 1926, in *Fulica atra, F. americana americana;* Europe, U.S.A.

T. (*Lepidopteria*) *gratiosa* Nezlobinski, 1926, syn. of *atra* (Nezl.) — Byrd & Denton (1950), in *Motacilla flava;* Europe.

T. (*Lepidopteria*) *plegadis* Nezlobinski, 1926, syn. of *atra* (Nezl.) — Byrd & Denton (1950), in *Plegadis falcinellus;* Europe.

Family Eucotylidae Skrjabin, 1924

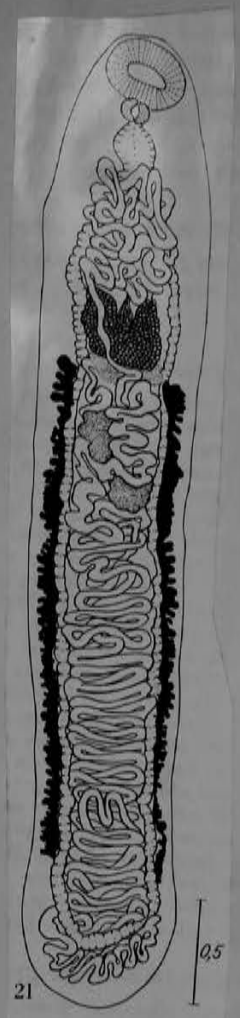
Tanaisia atra (Nezlobinsky, 1926) (Fig. 21)

Hosts: *Rallus elegans* Audubon, king rail (new host record), *Agelaius phoenicus* (Linn.), redwinged blackbird (new host record), *Cassidix mesamexicanus* (Gmelin), boat-tailed grackle (new host record).

Location: kidneys.

Locality: Bonnet Carre Spillway and Norco, Louisiana (new locality record).

From: Lumsden & Zischke, 1963



21

Tanaisia fedtschenkoi SKRJABIN, 1924 (Fig. 22)

Hosts: *Corvus ossifragus* Wilson, fishcrow (new host record), *Cassidix mesamexicanus* (Gmelin), boat-tailed grackle (new host record), *Gallinula chloropus cachinans* Bangs, Florida gallinule (new host record).

Location: kidneys.

Z. Parasitenk. Bd. 22

Locality: Pass Manchac and Bonnet Carre Spillway, Louisiana (new locality record).

Discussion. BYRD and DENTON (1950) reported four species of *Tanaisia* from birds in North America: (1) *T. atra* (NEZLOBINSKY, 1926) from *Fulica americana*; (2) *T. bragai* (SANTOS, 1934) from *Quiscalus quiscula, Limnothlypis swainsoni* and *Seiurus aurocapillus*; (3) *T. fedtschenkoi* Skrjabin,, 1924 from *Oxyechus vociferus, Capella delicata* and *Euphagus carolinus*; and (4) *T. zarudnyi* (Skrjabin, 1924) from *Compsothlypis americana, Pipilo erythropthalmus, Hylocichla guttata, Zonotrichia albicollis* and *Cyanocitta cristata*. These investigators considered *T. pelidnae* Cheatum 1938, from *Pelidna alpina-sakhalina* in Michigan, and *T. melospizae* Penner, 1939, from *Melospize lincolni* in Minnesota, synonyms of *T. fedtschenkoi* and *T. zarudnyi* respectively. Byrd and Denton (1950) further suggested that *Tamerlania* Skrjabin, 1924, *Ohridia* Nezlobinsky, 1926, *Lepidopteria* Nezlobinsky, 1926, and *Tanaisia*, Skrjabin, 1924, were congeneric, and established the priority of the latter genus. BYRD and DENTON (1950) recognized only *T. atra, T. bragai, T. fedtschenkoi* and *T. zarudnyi* as valid species. Yamaguti (1958) retained *Lepidopteria, Ohridia* and *Tamerlania* as subgenera of *Tanaisia*, using the position of the gonads and the nature of the ovarian surface as distinguishing characteristics.

FREITAS (1951) named and described 14 new species of *Tanaisia*. He agreed with BYRD's and DENTON's (1950) revision of the *Tanaisia*-complex, but retained *T. panuri* (Nezlobinsky, 1926), *T. plegadis* (Nezlobinsky, 1926), *T. gratiosa* (Nezlobinsky, 1926), *T. elliptica* (Nezlobinsky, 1926), *T. meruli* (Nezlobinsky, 1926), *T. pelidnae* Cheatum, 1928, and *T. melospizae* (PENNER, 1939) as valid species. FREITAS further believed the specimens identified as *T. atra* by BYRD and DENTON (1950) actually represented a distinct species, which he named *T. byrdentoni*. He contended that the lateral position of the seminal receptacle (median in *T. atra*) and the relationship between the mean of the longitudinal and transverse diameters of the oral sucker and the length of the body (D.O.S./B.L. ratio) (1:10 in *T. byrdentoni* vs. 1:32 in *T. atra*) warranted the taxonomic separation of the two forms. The validity of the latter character is questionable. If the D.O.S./B.L. ratio changes ontogentically, comparisons of specimens of non-equivalent body lengths would not be justified. Mean body length of *T. byrdentoni* is 1.06, of *T. atra*, 3.2. The constancy of the relationship between sucker size and body length has not been demonstrated for any species of *Tanaisia*.

Specimens of *Tanaisia* spp., recovered from *Rallus elegans, Agelaius phoenicus, Gallinula chloropus, Corvus ossifragus* and *Cassidix mesamexicanus* collected at the Bonnet Carre Spillway and Pass Manchac,

Louisiana, were studied with respect to this and other morphological characteristics. Measurements of our material from the king rails, redwinged blackbird and a single specimen from a boat-tailed grackle intergrade with measurements for *T. atra* reported by Nezlobinsky (1926) (as cited in FREITAS, 1951) (Table 2). These trematodes apparently differ from *T. byrdentoni* only in the absolute sizes of certain structures and in the D.O.S./B.L. ratio, agreeing in general morphology with this form and *T. atra*. Six specimens of *Tanaisia* from the ureters of a fish crow, *Corvus ossifragus*, 2 specimens from *Gallinula chloropus* and 22 specimens from the grackle, *Cassidix mesamexicanus*, agreed in most details with *T. fedtschenkoi*.

The D.O.S./B.L. ratio was computed for each specimen and plotted vs. body length (Fig. 23 and 24). Considerable variation with respect to this ratio is apparent within our samples, even between otherwise morphologically identical specimens from the same host. The D.O.S./B.L. ratio tends to increase with greater body length in each of the two represented forms. A fair degree of positive correlation between this ratio and total body length is indicated in our samples of *T. fedtschenkoi*. This trend is not as strongly demonstrated in the samples of *T. atra*, perhaps due to the fewer number of statistics and/or the smaller

Table 2. *Comparative measurements of Tanaisia atra*

Host	*Fulica atra*	*Fulica americana*	*Rallus elegans*	*Cassidix mesamexicanus*	*Agelaius phoeniceus*
Locality	Europe	Georgia	Louisiana	Louisiana	Louisiana
Authority	NEZLOBINSKY (1926)	BYRD & DENTON (1950)	This paper	This paper	This paper
total length	3.20	0.92—1.25	3.33—3.65	2.97	3.19—3.79
width	0.40	0.15—0.27	0.39—0.74	0.43	0.43—0.60
oral sucker	0.10 dia	0.08—0.01 dia.	0.13—0.20 × 0.18×0.26	0.14×0.13	0.15—0.19 × 0.19—0.24
pharynx	0.05 dia.	0.04—0.05 dia.	0.06—0.08 × 0.17—0.18	0.06—0.08	0.06—0.09 × 0.09×0.01
ovary	0.16×0.20	0.08—0.10 × 0.08—0.13	0.20—0.29 × 0.24—0.33	0.23—0.20	0.15—0.32 × 0.19—0.31
testes	0.20×0.30	0.06×0.05 dia.	0.18—0.26 × 0.09—0.19	0.09—0.13 ×0.17	0.19—0.46 × 0.18—0.41
eggs	0.02×0.01	0.02—0.03 × 0.02×0.02	0.03—0.03 × 0.01—0.01	0.03—0.03 × 0.01—0.01	0.03—0.03 × 0.01—0.01

range in body size of these specimens. The D.O.S./B.L. ratio for the total *T. atra* sample varied from 1:14.6 to 1:22.1 (body length 2.974 to 3.788, mean 3.401). For the entire *T. fedtschenkoi* sample, this ratio ranged from 1:9.3 to 29.5 (body length 0.956 to 3.611, mean 2.605). FREITAS (1951) cited the D.O.S./B.L. ratio for *T. fedtschenkoi* as 1:17.5 (mean body length 3.9). The reliability of this character index appears untenable, at least so far as our own material is concerned.

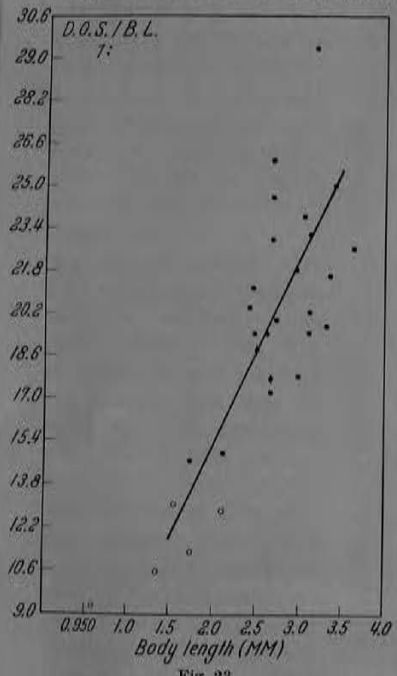


Fig. 23

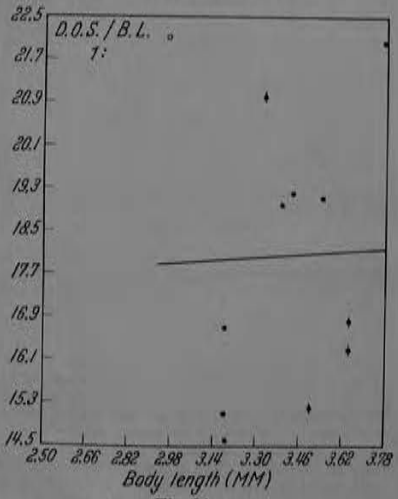


Fig. 24

Fig. 23. D.O.S./B.L. ratio vs. total body length in *Tanaisia fedtschenkoi*. Open circles denote specimens from *Corvus ossifragus*; filled circles, specimens from *Cassidix mesamexicanus*; filled circles with crossbar, specimens from *Gallinula chloropus*. Regression line fitted by method of least squares

Fig. 24. D.O.S./B.L. ratio vs. total body length in *Tanaisia atra*. Open circle denotes specimen from *Cassidix mesamexicanus*; filled circle, specimens from *Agealius phoenicus*; filled circles with crossbar, specimens from *Rallus elegans*. Regression line fitted by method of least squares

Variation in the position of the seminal receptacle was noted among specimens of *Tanaisia* from the king rails and the redwinged blackbird. This structure, usually mesial, was observed to be slightly lateral (either dextral or sinistral) in some specimens from both hosts. Variation in size of the gonads in *T. atra* and *T. fedtschenkoi* was similarly apparent. As noted by other investigators, this measurement is apparently useless in separating species of *Tanaisia*. However, there is a significant difference in egg size between samples identified here as *T. atra* and

Tanaisia fedschenkoi (cont.)

T. fedtschenkoi (Fig. 25). The characteristics utilized by BYRD and DENTON (1950) (position and shape of the ovary, extent of the vitellaria and arrangement of the testes (opposite vs. tandem or diagonal) appear to be the most reliable in distinguishing existing forms of this genus. The position of the seminal receptacle, size of the gonads, and the relationship between oral sucker diameter and body length apparently vary intraspecifically within this group of trematodes. SULGOSTOWSKA (1958) has indicated that increased density of infection tends to reduce the size of structures in *T. fedtschenkoi*. We therefore ascribe our material from *Rallus elegans*, *Agelaius phoenicus* and one specimen from *Cassidix mesamexicanus* to *T. atra* and propose the synonomy of *T. byrdentoni* Freitas, 1951, with *T. atra* (NEZLOBINSKY, 1926). The remaining specimens from the grackle, gallinule and those from *Corvus ossifragus* are identified as *T. fedtschenkoi* and the synonomy of *T. panuri*, (NEZLOBINSKY, 1926), *T. elliptica* NEZLOBINSKY, 1926, and *T. pelidnae* Cheatum, 1938, with this species, as proposed by BYRD and DENTON (1950), is supported at this time.

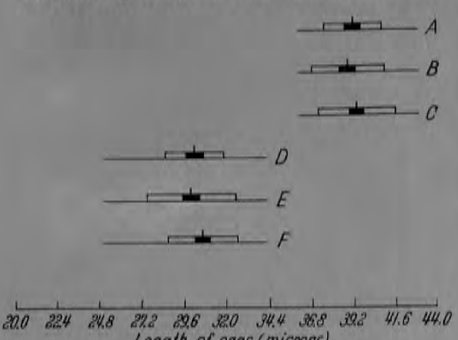


Fig. 25. Ova length frequency distribution of *Tanaisia fedtschenkoi* and *Tanaisia atra* from their respective hosts. A. *T. fedtschenkoi* from *Gallinula chloropus*. B. *T. fedtschenkoi* from *Corvus ossifragus*. C. *T. fedtschenkoi* from *Cassidix mesamexicanus*. D. *T. atra* from *Cassidix mesamexicanus*. E. *T. atra* from *Rallus elegans*. F. *T. atra* from *Agelaius phoenicus*. The number of statistics in each sample is 100. In each sample the horizontal line indicates the range of measurements; the crossbar, the mean; the hollow rectangle, 1 standard deviation on each side of the mean; the solid rectangle, 2 standard errors on each side of the mean. Egg measurements were made to the nearest micron; statistical calculations carried these to the nearest 0.1 micron

There is a dearth of information regarding the life histories, host specificity and morphological variation for several species of *Tanaisia*. A considerable degree of overlap and convergence of many adult characters is indicated. A reappraisal of the specific status of certain forms and definition of the limits of variation for adult structures utilized as taxonomic criteria within this group seem warranted.

Table 3. *Comparative measurements of Tanaisia fedtschenkoi*

Host	*Totanus glottis*	*Panurus barbatus*	*Pelidna alpina sakhalina*	*Oxyechus vociferus*, *Capella delicata*, *Euphagus carolinus*	*Cassidix mesamexicanus*	*Corvus ossifragus*	*Gallinula chloropus*
Locality	Russia	Europe	Michigan	Texas, Georgia	Louisiana	Louisiana	Louisiana
Authority	SKRJABIN (1924)	NEZLOBINSKY (1926)	CHEATUM (1938)	BYRD & DENTON (1950)	This paper	This paper	This paper
total length	3.90	2.0	3.08	1.62—3.46	1.699—3.611	0.956—2.089	2.549—3.186
width	0.80	0.30	0.440	0.410—0.710	0.248—0.602	0.283—0.531	0.460—0.566
oral sucker	0.19×0.27	0.17 dia.	0.210×0.200	0.130—0.220 × 0.170—0.290	0.089—0.166 × 0.115—0.166	0.102—0.153 × 0.102—0.153	0.128—0.166 × 0.140—0.192
pharynx	0.09×0.11	0.08 dia.	0.075×0.094	0.050—0.090 × 0.080—0.140	0.044—0.067 × 0.056—0.092	0.041—0.059 × 0.031—0.073	0.051—0.070 × 0.076—0.115
ovary	?	0.15 dia.	0.252×0.157	0.150—0.280 × 0.140—0.170	0.179—0.268 × 0.140—0.256	0.076—0.128 × 0.089—0.204	0.256—0.307 × 0.256—0.320
testes	?	0.15 dia.	0.259—0.289 dia	0.130—0.300 × 0.100—0.220	0.153—0.358 × 0.128—0.371	0.084—0.153 × 0.084—0.153	0.230—0.396 × 0.192—0.384
eggs	0.043×0.020	0.023×0.014	0.033—0.034 ×0.020	0.033—0.038 × 0.010—0.019	0.036—0.044 × 0.014—0.020	0.036—0.044 × 0.014—0.020	0.036—0.044 × 0.017—0.020

Eucotylidae

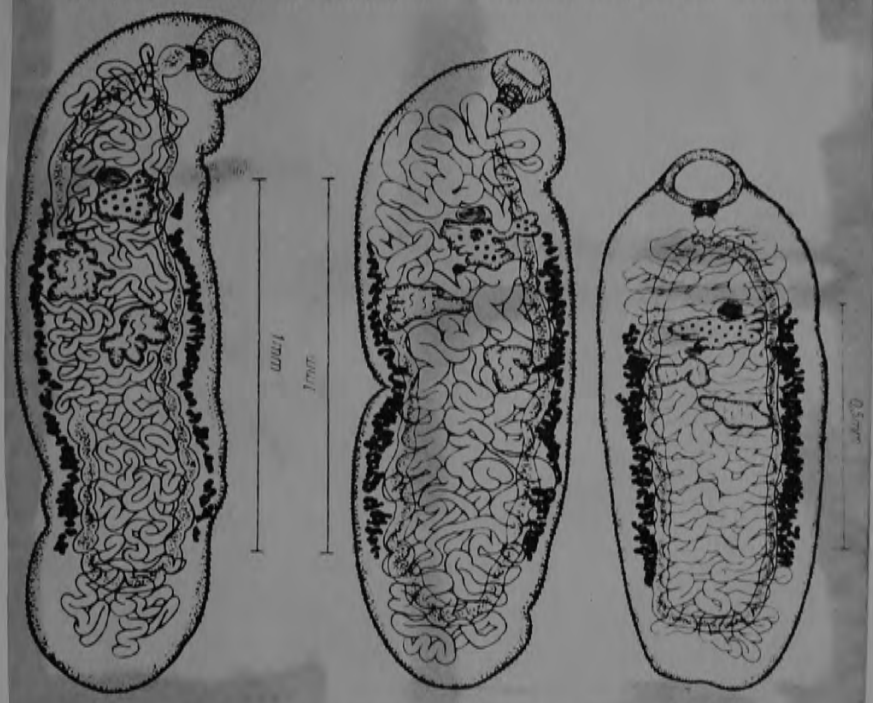
Tanaisia (Tanaisia) fedtschenkoi meridionalis ~~n. subsp.~~ ODENING, 1964

(Sporocystotrei : Eurotylata : Eucotylidae : Tanaisiinae)

Lokalisation: Nierenkanäle.

Präparat-Nr.: kT 29/80—83. FROM *NETTAPUS C. CORMANDELIANUS* (GMELIN) LOC. INDIA

Beschreibung (vgl. Tabelle 4 und Abb. 4—5). Cuticula mit kammartigen Schuppen in Quincunx-Anordnung besetzt. Die Schuppen sind 6,24—10,92 µm breit und 6,24 bis 8,58 µm hoch (= lang). Die Zahl der nach hinten gerichteten Zinken schwankt zwischen 4 und 9 je Schuppe; am häufigsten sind die mittleren Zahlen 5—8. Es liegen keine bemerkenswerten Form- oder Größenunterschiede der Schuppen einzelner Körperregionen vor. Auffällig ist jedoch das überwiegende Vorhandensein von Schuppen mit entweder 5 oder 6 oder 7—8 Zinken bei einzelnen Individuen; andere Individuen zeigen alle Zinkenzahlen ziemlich gleichmäßig verteilt. Die in Abb. 5 dargestellten Helligkeitsunterschiede in der Struktur der Schuppen wie überhaupt die in den Schuppen dargestellten Strukturen geben das bei Phasenkontrastbeobachtung zu sehende Bild wieder. Am Körperrand wird im optischen Schnitt eine Stachelform vorgetäuscht: die „Stacheln" sitzen keines-



a b c

Abb. 4a—c. *Tanaisia fedtschenkoi meridionalis* n. subsp. (a Typus).

Tabelle 4. *Tanaisia fedtschenkoi meridionalis* n. subsp., Maße von 7 Exemplaren (Präparate) in Millimetern

Körperlänge	2,68	2,40	1,98	1,86	2,10	1,70	1,10
Maximale Körperbreite	0,70	0,54	0,58	0,54	0,51	0,63	0,47
Mundsaugnapf							
Länge	0,186	0,183	0,183	0,183	0,186	0,155	0,124
Breite	0,224	0,217	0,197	0,200	0,207	0,190	0,166
Pharynx							
Länge	0,072	0,055	0,062	0,055	0,062	0,052	0,038
Breite	0,072	0,062	0,079	0,072	0,062	0,069	0,055
Ösophaguslänge	0,086		0,097	0,131		0,083	
Vesicula seminalis							
Länge	0,062	0,083	0,076	0,066	0,079	0,072	0,048
Breite	0,090	0,090	0,097	0,090	0,086	0,103	0,066
Ovarium							
Länge	0,206	0,191	0,139	0,161	0,250	0,132	0,103
Breite	0,323	0,338	0,264	0,220	0,286	0,286	0,235
Testes							
Länge	0,206	0,147	0,132	0,154	0,132	0,139	0,073
	0,228		0,191	0,161	0,161	0,161	
Breite	0,206	0,117	0,235	0,206	0,117	0,161	0,125
	0,220	0,154	0,272		0,184	0,250	0,154

-OVER-

[illegible] immer auf warzenförmigen Erhebungen der Cuticula, wie in Abb. 5 dargestellt [illegible] Stelle wurde abgebildet, weil für *Tanaisia serrata* SZIDAT, 1961, ein derartig "gesägter" Körperrand als typisch angegeben wurde). Die vordere Grenze der Dotterstöcke liegt bei 30—38/100, die hintere Grenze bei 72—83/100. Das Ovarium liegt meist submedian, seltener median, es ist mehr oder weniger breitgestreckt rechteckig und vor allem an der distalen Seite tief fingerförmig gelappt; sein Zentrum liegt bei 30—34/100. Die Testes liegen diagonal hintereinander; sie sind unregelmäßig sternförmig gelappt. Der Darm liegt dorsal in bezug auf die Gonaden. Die Eier weisen eine glatte, dunkelbraune Schale auf. Eigröße 0,030—0,033—0,012—0,016 mm.

Typus: Das der Abb. 4a zugrunde liegende Exemplar (Helminthensammlung Zoologische Forschungsstelle im Berliner Tierpark Nr. kT 20/81).

Bemerkungen. *Tanaisia fedtschenkoi* SKRJABIN, 1924, ist in der Palaarktischen Region von Britannien bis Ostasien allgemein verbreitet (hauptsächlich, aber keineswegs ausschließlich bei Laro-Limicolae). Die Schuppenform wurde von ODENING (1963b) dargestellt. Um die Variationsbreite zu kennzeichnen, werden hier nochmals zum Vergleich Schuppen von einem Exemplar aus *Podiceps ruficollis* (PALLAS), Berlin, abgebildet. Die Breite dieser Schuppen schwankt bei diesem Material zwischen 10,4 und 17 µm (meist 14—17 µm), die Länge (Höhe) zwischen 3,5 und 7 µm (meist 4,7—7 µm). Die vorliegenden Funde aus Indien weichen in Form und Größe der Cuticula-Schuppen von dem mir zur Verfügung stehenden palaarktischen Material ab. Andere Unterschiede sind nicht festzustellen. Ich fasse die indischen Formen als eigene Rasse von *T. fedtschenkoi* auf, wobei außer den Schuppen vor allem die geographische Verbreitung gewertet wird. Die nordamerikanische Art *T. pelidna* CHEATUM, 1938, gleicht im Habitus (und in den Hauptsirten Laro-Limicolae) ebenfalls der Art *T. fedtschenkoi*. Die Frage der Cuticula-Bewehrung ist hier jedoch noch nicht geklärt, so daß vorläufig der Status dieser nordamerikanischen Form nicht endgültig festgelegt werden kann. Ich betrachte sie zunächst als eigene Rasse von *T. fedtschenkoi*, *T. valida* FREITAS, 1951[1]), aus Südamerika (Laro-Limicolae) ist der Art *T. fedtschenkoi* ebenfalls im Habitus sehr ähnlich. Die Schuppen dieser Art werden hier zusätzlich mit zum Vergleich abgebildet. Das Subgenus *Tanaisia* kann in die folgenden Habitus-Gruppen gegliedert werden.

Subgenus *Tanaisia* SKRJABIN, 1924

1. *T. fedtschenkoi*-Gruppe (Schwerpunkt: Laro-Limicolae):
   T. f. fedtschenkoi (= *T. elliptika*), Palaearktis;
   T. f. pelidnae subsp. inqu., Nearktis;
   T. f. meridionalis n. subsp., Indien;
   T. valida, Südamerika.

   T. atra-Gruppe (Schwerpunkt: Ralliformes):
   T. atra (= *T. longivitellata*), Palaearktis;
   T. byrdentoni sp. inqu., Nearktis;
   T. serrata sp. inqu., Südamerika.

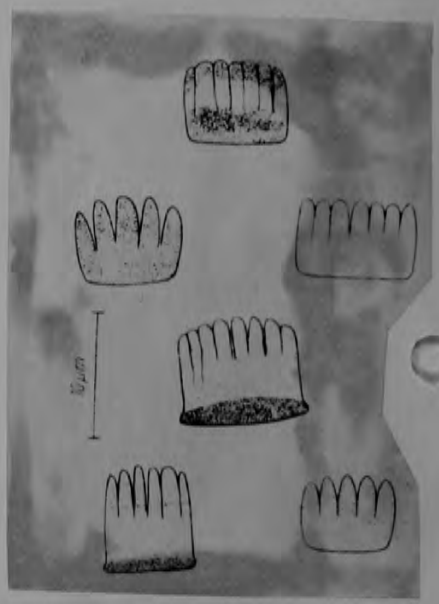
   Diese Gruppe kann vielleicht auch als eine Art mit mehreren geographischen Rassen aufgefaßt werden; die Cuticula-Bewehrung ist jedoch bei keiner der 3 Formen genau bekannt.

   T. panuri sp. inqu., Europa (Passeriformes)

   Gruppe aus Laro-Limicolae, mit überwiegend glattrandigen Testes:
   T. macrorchis sp. inqu., Mandschurei;
   T. integerriorcha sp. inqu., Mittel- und Ostasien (UdSSR);
   T. dubia sp. inqu., Südamerika.

Die von NEZLOBINSKY (1926) beschriebene 6 Arten von Tanaisiinae sind — mit Ausnahme der wiedergefundenen *T. atra* = *longivitellata* — schwer zu beurteilen. Ich neige zu folgender Bewertung: 1. *T. merali* = *T. zarudnyi*; 2. *T. elliptika* = *T. f. fedtschenkoi*; 3. *T. panuri* ist entweder eine selbständige Art, oder synonym zu *T. zarudnyi* (wenn bei *T. zarudnyi* eine diagonale Lage der Testes im Bereich der Variationsbreite liegt[2]), oder synonym zu *T. f. fedtschenkoi* (wenn bei *T. f. fedtschenkoi* glattrandige Gonaden innerhalb der Variationsbreite liegen), oder könnte eine Beziehung zu *T. integerriorcha* bzw. *T. dubia* bestehen (wenn diese beiden Arten außer bei Laro-Limicolae auch bei Passeriformes und außer in Asien bzw. Südamerika auch in Europa vorkommen); 4. *T. plegadis* entweder = *T. atra* oder = *T. f. fedtschenkoi*, sicher nicht selbständig; 5. *T. gracilosa* entweder = *T. f. fedtschenkoi* oder = *T. atra*, vielleicht auch selbständig. Für *T. macrorchis* YAMAGUTI & ASADA, 1942, ist in der Originalbeschreibung angegeben "cuticle thin, covered with minute scale-like spines up to 12 µm long ...". Demzufolge hat diese [illegible] Schuppen.

FROM ODENING, 1964



[illegible] 5. *Tanaisia fedtschenkoi meridionalis* n. subsp., Cuticula-Schuppen.

Tanaisia (Tanaisia) fedtschenkoi meridionalis Odening, 1964

Host : *Turnix susitator fasciata* (Temminck), barred button quail (Gruiformes: Turnicidae).

Location : Kidney.

Locality : Puerto Princesa, Palawan Island, Philippines.

Date : 22 May 1962.

Specimens : No. 72201.

Discussion : Our collection consists of 23 adult worms from one bird which entirely fit Odening's (1964) description and illustration, including the tegumental scales, of this subspecies from an anseriform bird (Anatidae) from India.

From Fischthal, 1972

Tanaisia freitasi n. sp. Brenes & Arroyo, 1962

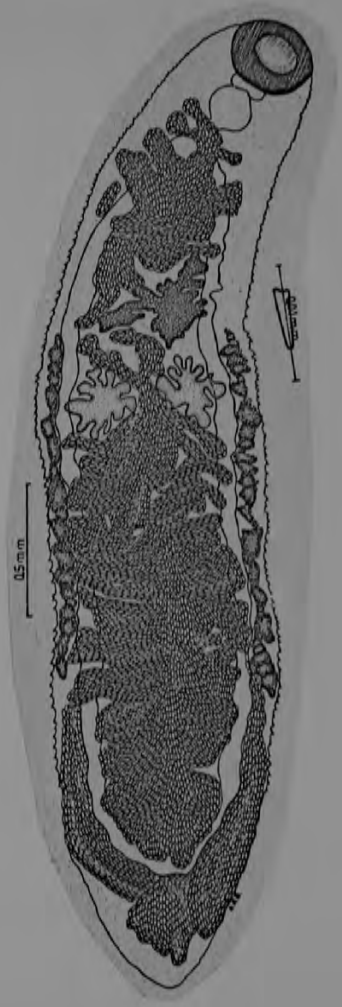
Para la presente descripción se contó con cinco ejemplares *in toto* fijados en Bouin y teñidos con carmín de Grenacher.

Tremátodos alargados con extremos redondeados, miden 2,912 a 3,224 mm de largo por 0,502 a 0,650 mm de ancho.

Cutícula espinosa. La ventosa oral es terminal, subesférica y musculosa mide 0,203 a 0,251 mm de largo por 0,226 a 0,270 mm de ancho. No se observa ventosa ventral. La faringe es ovoide, pequeña, mide 0,059 a 0,085 mm de largo por 0,074 a 0,093 mm de ancho. El esófago es largo, con dilataciones, y mide 0,136 a 0,195 mm de largo por 0,136 a 0,178 mm de ancho. Ciegos sinuosos, se extienden desde la bifurcación esofágica hasta el tercio posterior del parásito, en donde se fusionan a una distancia de 0,231 a 0,409 mm de la extremidad posterior.

Los testículos están situados en la misma zona, preovarianos, con bordes sinuosos, parcialmente cecales con campos separados. El derecho mide 0,222 a 0,240 mm de largo por 0,178 a 0,267 mm de ancho y el izquierdo 0,204 a 0,267 mm de largo por 0,178 a 0,400 mm de ancho. La bolsa del cirro está constituida por una vesícula seminal que mide 0,052 a 0,136 mm de largo por 0,063 a 0,136 mm de ancho.

El ovario es lateral, sinuoso, pretesticular y mide 0,214 a 0,284 mm de largo por 0,267 a 0,356 mm de ancho. Las vitelinas se extienden hacia atrás desde una altura a nivel de la porción posterior del ovario, y miden la derecha 1,090 a 1,458 mm de largo y la izquierda de 1,040 a 1,352 mm de largo. El útero con numerosas asas uterinas, se extiende intracecal, cecal y extracecalmente en la región anterior y la posterior del cuerpo. Los huevecillos son operculados, de cáscara lisa y miden 0,031 a 0,035 mm de largo por 0,013 a 0,014 mm de ancho.



HUÉSPED: *Gymnostinops montezuma* (Lesson).

LOCALIZACIÓN: Riñón.

DISTRIBUCIÓN GEOGRÁFICA: Orosi, Provincia de Cartago.

EJEMPLARES: Holotipo y paratipos en la colección de helmintología del Departamento de Parasitología, Facultad de Microbiología, Universidad de Costa Rica con el número 200-37.

DISCUSIÓN: Basados en el mismo trabajo de FREITAS (2) hemos concluído que nuestros ejemplares deben ser considerados una nueva especie, *Tanaisia freitasi*, que dedicamos al distinguido investigador Dr. J. F. Teixeira de Freitas. Se diferencia de *T. precaria* y *T. confusa*, especies más próximas, principalmente por el tamaño de los huevecillos, extensión de las glándulas vitelinas y por otros caracteres que aparecen en el cuadro 4.

—over—

Diferencias entre Tanaisia freitasi *n. sp.* T. precaria, *Freitas, 1951 y* T. confusa *Freitas, 1951*

	Tanaisia precaria	*Tanaisia freitasi* n. sp.	*Tanaisia confusa*
Forma del cuerpo	Alargado	Alargado (Extremos redondeados).	Alargado
Espinas	Sí hay	Sí hay	Sí hay
Escamas	No hay	Sí hay	No hay
Esófago	Largo, con dilatación y sin dilatación.	Largo, con dilataciones	Corto
Ciegos	Dorsales y ventrales a las gónadas, gran sinuosidad en la zona testicular.	Sinuosos. Ventrales a las gónadas.	Dorsales, no tienen sinuosidad en la zona testicular.
Testículos	Intracecales, en la misma zona, laterales, bordes sinuosos, apartados, con campos separados.	Parcialmente cecales. Postovarianos en la misma zona.	Intracecales, misma zona, laterales, bordes lobados, campos en contacto y separados.
Ovario	Lateral, bordes lobados.	Lateral, sinuoso, pretesticular.	Lateral, bordes lobulados.
Espermateca	Lateral	Lateral	Lateral
Vitelinos	De la zona ovariana hacia atrás.	De porción posterior ovario hacia atrás.	De la zona pre-ovariana hacia atrás.
Utero	Insinuado entre los testículos y no insinuado entre el testículo y el ovario.	Intracecal, cecal y extracecalmente insinuado entre testículos.	Entre los testículos y entre los testículos y ovario.
Huevecillos	Cáscara lisa	Cáscara lisa	Cáscara lisa
D.v.o./C.c.	1:13,3	1:13,8	1:11,9
Lo/Co.	1:2,61	1:2,34	1:2,13
Distribución geográfica	Brasil	Costa Rica	Brasil

Tanaisia indica ~~n.sp.~~ K. S. SINGH, 1962

The body is elongated and thin, measuring 3.756 mm. in length and 0.641 mm. in maximum breadth which is almost in the midregion. The anterior end is slightly tapering but both the ends are rounded. The whole body is beset with small spines.

The oral sucker is terminal and muscular measuring 0.303 mm. in diameter. The mouth opening is directed subventrally. The pharynx is muscular and well developed, measuring 0.139 mm. in diameter. The oesophagus appears to be absent as the two intestinal caeca start immediately from the pharynx. The intestinal caeca are fairly wide and run along the lateral sides as simple tubes and are joined to each other in the posterior end of the body. The ventral sucker is absent.

The two testes are present on level in the anterior half of the body and are intercaecal in position. The testes are somewhat oval in shape and almost of equal size, the left one measuring 0.22 × 0.165 mm. and the right one 0.238 × 0.154 mm. The vas deferens runs in the median plane to open at the genital pore, the cirrus pouch being absent.

The ovary is rounded and present a little anterior to the right testis. It is 0.21 mm. diameter. A large receptaculum seminis is present a little posterior and lateral to the ovary. The vitellaria consist of numerous follicles present laterally and extracaecally extending from the testicular region upto about ¼ of body length from the posterior end. The egss are small, brown and numerous, measuring 0.0286-0.033 × 0.041-0.046 (av. 0.032 × 0.045) mm. The genital pore is median and present much behind the intestinal bifurcation, being 0.872 mm. from the anterior end i. e., approximately ¼ of body length.

Discussion : The family Eucotylidae Skrjabin, 1924 contains two subfamilies, Eucotylinae and Tanaisiinae each with a single genus, *Eucotyle* Cohn, 1904 and *Tanaisia* Skrjabin, 1924. Yamaguti (1958) mentioned these two subfamilies as new but de Freitas (1951) already had created these two subfamilies. The latter genus has four subgenera : *Tanaisia* Skrjabin, 1924, *Ohridia* Nezlobinski, 1926, *Lepidopteria* Nezlobinski, 1924 and *Tamerlania* Skrjabin, 1924. de Freitas (1951) in his revision of the family Eucotylidae did not recognise these subgenera but Yamaguti (1958) retained them and separated them according to the position and shape of the gonads.

The subgenus *Tamerlania* contains 19 species (Yamaguti, 1958) described from birds from various parts of the world but no representative of *Tanaisia* has been reported from India so far. The present form differs from the closely related forms thus : from *T. byrdentoni* de Freitas, 1951 in the size of body, oral sucker, absence of oesophagus, position and shape of testes, size of ovary, position of receptaculum seminis, extension of vitelline follicles and size of eggs; from *T. confusa* de Freitas, 1951 in the size of body and oral sucker, absence of ventral sucker, shape of testes, relative size of testes and ovary and extension of vitelline follicles; from *T. exigua* de Freitas, 1951 in the size of oral sucker, absence of oesophagus, position and shape of testes, shape of ovary, extension of vitelline follicles and size of eggs; from *T. incerta* de Freitas, 1951 in the absence of scales, size of oral sucker, absence of oesophagus, shape of testes and ovary and extension of vitelline follicles;

Tanaisia (Tamerlania) indica n. sp. Ventral view.

— OVER —

from *T. japonica* Yamaguti, 1935 in the size of oral sucker, extension of the intestinal caeca, position of genital pore, extension of vitelline follicles and size of eggs; from *T. magnicolica* de Freitas, 1951 in the absence of scales, absence of ventral sucker and oesophagus, position and shape of gonads and extension of vitelline follicles; from *T. melospizae* Penner, 1939 in the size of the pharynx, absence of oesophagus, shape of gonads and extension of vitelline follicles; from *T. meruli* Nezlobinski, 1926 in the size of the body and pharynx, position of testes and vitelline follicles and size of eggs; from *T. minax* de Freitas, 1951 in the absence of scales, size of oral sucker, absence of ventral sucker, position and shape of gonads and size of eggs; from *T. oviaspera* de Freitas, 1951 in the absence of scales, size of oral sucker, absence of oesophagus, shape of gonads and extension of vitelline follicles; from *T. parva* de Freitas, 1951 in the absence of scales, size of oral sucker and pharynx, shape and position of gonads and extension of vitelline follicles; from *T. procaria* de Freitas, 1951 in the size of pharynx, absence of oesophagus, shape of gonads, extension of vitelline follicles and size of eggs; from *T. robusta* de Freitas, 1951 in the absence of scales, ventral sucker and oesophagus, shape of gonads, in having ovary almost equal to testes, extension of uterus and vitelline follicles; from *T. similis* de Freitas, 1951 in the size of the body, absence of scales and oesophagus, shape of ovary, extension of uterus and vitelline follicles; from *T. valida* de Freitas, 1951 in the absence of scales, size of pharynx, absence of oesophagus, shape and position of gonads; and from *T. zarudnyi* Skrjabin, 1924 in the size and shape of the body, position of receptaculum seminis, shape and position of testes.

Host : Blackthroated Jay, *Garrulus lanceolatus* Vigors, 1831 (Corvidae).
Location : Kidney.
Locality : Mukteswar-Kumaun (Ht. 7,500 ft.).

Only one specimen of a trematode was obtained from the kidney of one Blackthroated jay, *Garrulus lanceolatus* Vigors, 1831 (Corvidae), out of 12 birds examined in February, 1960 at Mukteswar-Kumaun. The parasite, on study, was found to be a new species of the genus *Tanaisia* Skrjabin, 1924.

The trematode was fixed under slight pressure and stained with Semichon's aceto-carmine.

INDIAN J. HELMINTHOL. 14 (2): 112-115

Eucotylidae

Tanasia integerriorcha Saidov, 1954

host: Sterna hyrundo, Chlidonias niger, C. hybrida

Рис. 1. *Tanaizia integerriorcha* n.sp.

see reprint

Eucotylidae

1 *Tanaisia* (*Tamerlania*) *magnicolica* Teixeira de Freitas 1951

(*Eucotylidae Tanaisiinae*)

Lokalisation: Nierenkanäle.

Intensität: etwa 30 Exemplare (*Psophia* 1).

Präparat Nr.: kT 9/51 95

Beschreibung (vgl. Abb. 1 und Tabelle 1): Körper langlich-oval, mit etwas verschmälertem Vorderende und abgerundetem Hinterende, 2,92–3,82 mm lang bei einer maximalen Breite von 0,29–1 mm. Cuticula mit vier- bis fünffach gezinkten kammartigen Schuppen versehen, die eine Breite von 0,013–0,016 mm und eine Höhe von 0,008 mm aufweisen. Die Schuppen erscheinen bei der Betrachtung der ventralen oder dorsalen Körperoberfläche als Querstriche, die punktiert oder gestrichelt sind; bei Betrachtung des seitlichen Körperrandes erscheinen die Schuppen als Stacheln. Mundsaugnapf subterminal. Oesophagus ebenso lang wie Pharynx oder länger, bis etwa dreimal so lang, mit oder ohne Erweiterung unmittelbar nach dem Pharynx. Darm bei der meisten Exemplaren dicker als in Abb. 1a dargestellt. Dotterstöcke extracaecal, von der Höhe des Ovariums bis etwa zur Mitte zwischen Testes und Körperhinterende, oder noch weiter nach hinten, oder nur etwa bis zur Mitte der Entfernung zwischen Testes und der hinteren Darmverbindung reichend. Ovarium intercaecal, teilweise dorsal von dem einen Darmschenkel, submedian bzw. seitlich verschoben, meist quergestreckt, oft mehrfach gelappt. Testes intercaecal, teilweise dorsal von den Darmschenkeln, meist parallel nebeneinander, selten mehr diagonal gelegen, langgestreckt, an den Außenseiten und hinten oft unregelmäßig gelappt oder gekerbt. Bisweilen berühren sich die Testes im Bereich des Hinterendes bzw. überlappen. Uterus manchmal vor der Darmgabelung in den extracaecalen Bereich eindringend. Receptaculum seminis lateral hinter dem Ovarium, ziemlich groß, ohne eigentlichen Cirrus mit Vesicula seminalis und Genitalporus medial oder leicht submedian vor dem Ovarium. Eier mit glatter Schale, 0,027–0,036–0,011–0,016 mm groß. Exkretionssystem: Exkretionsblase T-förmig, sehr schmal, bis zur Höhe des Hinterendes der Testes reichend, wo wahrscheinlich 2 Ansatzstücke abzweigen, die jeweils im Bereich des Darmes vorwärts ziehen. Jedes Ansatzstück biegt kurz hinter der Darmgabelung wieder nach hinten um, wodurch eine charakteristische Schleife gebildet wird. Der absteigende Teil der Ansatzstücke konnte mit Sicherheit bis zur Höhe des Ovariums verfolgt werden. Wahrscheinlich verläuft dieser Teil noch weiter bis zur Höhe der Testes, wo vermutlich je ein vorderes und ein hinteres Hauptgefäß abgegeben wird. Im Vorderkörper konnte ein Teil der Flimmertrichter ermittelt werden. Exkretionsporus terminal (vgl. Abb. 1b).

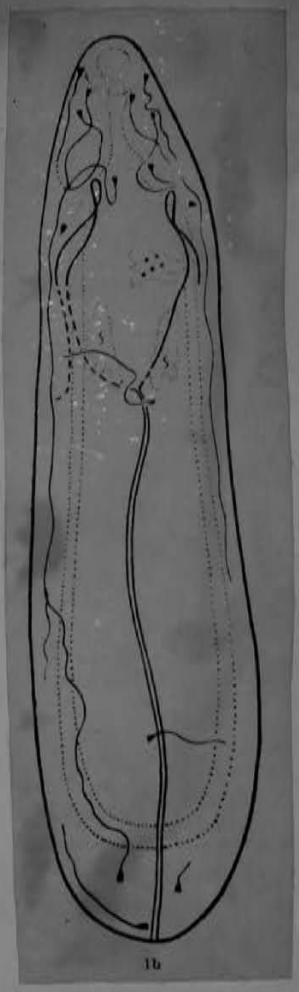
Bemerkungen: *Psophia viridis* ist ein neuer Wirt für *Tanaisia* (*Tamerlania*) *magnicolica*. Diese Art wurde aus *Guira guira* (Gm.) (*Cuculiformes: Cuculidae*) [typischer Wirt] und *Paroaria capitata* (Lafr. & d'Orb.) (*Passeriformes: Fringillidae*), Brasilien, beschrieben.

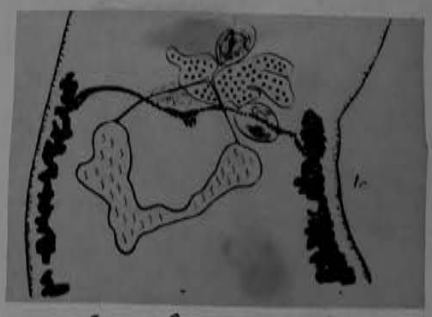
Tabelle 1 *Tanaisia* (*Tamerlania*) *magnicolica* Freitas. Maße der Präparate von 5 Exemplaren in mm

Körperlänge	3,8	3,2	3,1	3,1	3,2
Max. Körperbreite	1,0	0,9	1,0	0,8	0,8
Mundsaugnapf					
Länge	0,213	0,220	0,240	0,220	0,205
Breite	0,293	0,242	0,279	0,264	0,213
Pharynx					
Länge	0,073	0,073	0,073	0,066	0,055
Breite	0,095	0,081	0,088	0,095	0,080
Oesophagus					
Länge	0,161	0,073	?	0,110	0,095
max. Breite	0,037	0,081	?	0,059	0,044
Ei					
Länge	0,029	0,030	0,029	0,029	0,027
	0,036	0,036	0,036	0,036	0,036
Breite	0,013	0,013	0,011	0,013	0,011
	0,016	0,016	0,016	0,016	0,016

FROM ODENING, 1964

-OVER-





FROM OOSNING 1964

Tanaisia winteri n. sp. Brenes & Arroyo, 1962

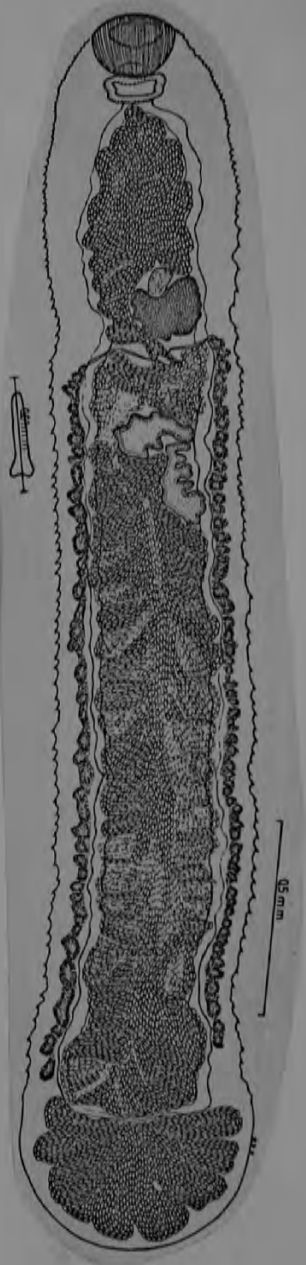
Para esta descripción contamos con un ejemplar, fijado en Schaudinn, teñido con carmín clorhídrico y montado en preparación total.

Tremátodo con cuerpo alargado, de bordes paralelos, con la extremidad anterior roma y la posterior presentando una expansión globosa. Mide 2,743 mm de largo por 0,482 mm de ancho. La cutícula está cubierta por espinas que se extienden desde la ventosa oral, hasta la fusión de los ciegos cerca de la extremidad posterior.

La ventosa oral es terminal, musculosa, subesférica, mide 0,175 mm de largo por 0,202 mm de ancho. No se observó ventosa ventral. La faringe es globosa, pequeña, mide 0,032 mm de largo por 0,069 mm de ancho. Esófago corto, con expansiones laterales, mide de 0,055 mm de largo por 0,138 mm de ancho. Los ciegos son sinuosos, se extienden lateral y simétricamente a lo largo del cuerpo, fusionándose a 0,329 mm de la extremidad posterior.

Los testículos son preecuatoriales y postovarianos, el anterior alargado en sentido transversal y el posterior en sentido longitudinal; parcialmente cecales y superpuestos en una ligera área del borde inferior, del testículo anterior y el borde superior del testículo posterior. El anterior mide 0,111 mm de diámetro longitudinal por 0,203 mm de diámetro transversal. No se observa poro genital y la bolsa del cirro está reducida a una vesícula seminal piriforme, preovariana, y situada entre los lóbulos del ovario.

El ovario, lobulado, está situado en el tercio anterior, intracecal, ligeramente cecal, pretesticular y un poco antes del inicio de las glándulas vitelinas. Mide 0,148 mm de diámetro longitudinal por 0,222 mm de diámetro transversal. Espermateca anterior al ovario. Las vitelinas se extienden extracecal y lateralmente, iniciándose a un nivel ligeramente posterior del borde inferior del ovario y finalizan un poco antes de la fusión de los ciegos. Miden, la derecha 1,602 mm de largo y la izquierda 1,664 mm. El útero está constituido por numerosas asas que se extienden hasta más allá de la fusión de los ciegos; generalmente intracecal, cecal y únicamente extracecal en la parte posterior del parásito. Los huevecillos son operculados de cáscara lisa y miden 0,031 mm de largo por 0,016 mm de ancho.



HUÉSPED: *Jacana spinosa spinosa* (L.) ("cirujano").

LOCALIZACIÓN: Riñón.

DISTRIBUCIÓN GEOGRÁFICA: Aranjuez, Provincia de Puntarenas.

EJEMPLAR: Holotipo en la colección de Helmintología del Departamento de Parasitología, Facultad de Microbiología, Universidad de Costa Rica con el número 200-36.

DISCUSIÓN: Con base en la revisión de la familia *Eucotylidae* Skrjabin, 1924, por FREITAS (2), hemos considerado este ejemplar como una nueva especie que, con el nombre de *Tanaisia winteri*, dedicamos a la memoria del insigne helmintólogo y recordado amigo, Dr. Howard A. Winter.

Se diferencia de *T. bragai* y *T. pelidnae*, especies más afines por las características que se consignan en el cuadro 3.

—over—

Diferencias entre Tanaisia winteri n. sp.
T. bragai *Santos, 1934* y T. pelidnae *Cheatum, 1938.*

	Tanaisia bragai	*Tanaisia winteri n. sp.*	*Tanaisia pelidnae.*
Forma del cuerpo	Alargado, achatado	Alargado, elíptico, extremidad posterior globosa	Alargado
Espinas	No hay	Sí hay	?
Escamas	Sí hay	Sí hay	?
Esófago	Variable	Con dilataciones	Corto, con dilataciones
Ciegos	Dorsales a las gónadas, sinuosos en la zona testicular	Dorsales a las gónadas, pero sinuosos en toda su extensión	Dorsales a las gónadas, sinuosos en zona testicular
Testículos	Intracecales en la misma zona, oblícuos laterales, lobulados, bordes sinuosos, campos en contacto y separados; parcialmente superpuestos	Intracecales, cecales, parcialmente en el mismo campo, con bordes sinuosos.	Intracecales, en el mismo campo, laterales, bordes lobulados, campos en contacto, con zonas en contacto.
Ovario y espermateca	Lateral, bordes lobulados, y bordes sinuosos, espermateca lateral.	Bordes sinuosos, espermateca en parte anterior del ovario.	Lateral, bordes lobulados. Espermateca lateral
Vitelinas	Zona preovariana, hacia atrás.	Postovarianas	Zona ovariana hacia atrás.
Utero	Insinuado entre los testículos y entre testículo y ovario.	Entre testículo y ovario.	Insinuado entre los testículos y entre el testículo anterior y el ovario.
Huevecillos	Cáscara lisa	Cáscara lisa	Cáscara lisa y gruesa.
D.v.o./Cc*	1:11,3	1:14	1:15
Lo/Co**	1:2,28	1:1,9	1:1,67
Distribución geográfica	Brasil, Puerto Rico, Oceanía.	Costa Rica	Estados Unidos

* diámetro ventosa oral/longitud del cuerpo
** ancho del huevecillo/largo del huevecillo.

Eucotylidae

Tanaisia zarudnyi (Skrjabin,1924) Byrd & Denton,1950

From: Kingston,1965

Taxonomy of *Tanaisia zarudnyi*

The worms found in the kidneys of ruffed grouse in Algonquin Park and elsewhere belong to the family Eucotylidae Skrjabin, 1924. In this family, Skrjabin (23) included three apparently monostomate genera: *Eucotyle* Cohn, 1904; *Tanaisia* Skrjabin, 1924; and *Tamerlania* Skrjabin, 1924. *Eucotyle* was distinguished from the other genera by the presence of an anterior muscular collar. *Tanaisia* possessed strongly lobed and tandem testes as opposed to round, smooth, and opposite testes in *Tamerlania*. *Tanaisia* also possessed an oesophagus, which *Tamerlania* lacked.

Subsequently, *Tanaisia* and *Tamerlania* were shown to have the caeca fused posteriorly (4, 10, 11, 16, 19) and to possess an acetabulum (22), thus placing them amongst distomate genera. The presence of an acetabulum was subsequently verified and the cuticular scales of *Tamerlania zarudnyi* were described; also an oesophagus was found to be present in this genus (5).

Byrd and Denton (3), in North America, reviewed the species of *Tanaisia* and *Tamerlania* and found the differential characters of the two genera to be common to both; they considered the genera to be congeneric and defined *Tanaisia* as the type of the genus by page priority. These authors further reduced the 14 described species to 4, each apparently cosmopolitan in distribution.

Teixeira de Freitas (6), in Brazil, reviewed the family Eucotylidae and independently reached the same conclusion as Byrd and Denton (3) regarding the synonymy of the genera *Tanaisia* and *Tamerlania*; he also placed all species in the single genus *Tanaisia*. This author did not, however, synonymize most of these species of *Tanaisia*, as did Byrd and Denton (3), but recognized 11 earlier described species as valid and described 13 additional new species; for the most part he separated one from the other on the morphology of the cuticular spines, oral sucker to body length ratios, and egg width to length ratios. Yamaguti (27) followed Byrd and Denton (3) and Teixeira de Freitas (6) in synonymizing the genera of Tanaisiinae, though for convenience he retained many of the formerly described genera (10, 11, 16) as subgenera of *Tanaisia*. He accepted the new species described by Teixeira de Freitas (6), in addition to others, thus rejecting the contention of Byrd and Denton (3) that there are only a few species with worldwide distribution.

In a review of the Eucotylata and a description of a new species of *Tanaisia*, Odening (17) supported the views of Byrd and Denton (3), Teixeira de Freitas (6), and Yamaguti (27) concerning the homogeneity of the genus *Tanaisia*. He separated the genus into three closely allied subgenera, namely *Tanaisia*, *Tamerlania*, and *Paratanaisia*, and accepted 18 species as valid, based on the descriptions of the cuticular scales, while listing 14 additional species as *species inquirendae*, since the cuticular scales for these are not described.

The specimens which have been examined from ruffed grouse agree in most respects with the description of *Tanaisia zarudnyi* (Skrjabin, 1924) Byrd and Denton, 1950. The possibility that more than one species is included under the name *zarudnyi* cannot be dismissed without careful study. It seems desirable, therefore, to describe the specimens from the ruffed grouse.

Eucotylidae

from:

Kingston, 1965

Tanaisia zarudnyi (Skrjabin, 1924) Byrd and Denton, 1950, from Ruffed Grouse

(Figs. 12–16)

Genus: Tanaisia Skrjabin, 1924 emended by Byrd and Denton, 1950. Elongate, flattened trematodes, weakly muscular; mature specimens 1.75 to 3.94* by 0.275 to 0.783. Cuticle with flattened scales measuring 0.015 to 0.027 by 0.005 to 0.008 with smooth free margin, disposed in oblique files on ventral and lateral surfaces. Oral sucker anterior, subterminal, frequently wider than long, 0.162 to 0.297 by 0.155 to 0.297, surrounding the mouth, which opens ventrally, sometimes anteriorly in fixed material. Ratio of oral sucker to body length 1:9.3 to 1:17.3. Posteriorly the mouth leads directly into the pyriform muscular pharynx, frequently wider than long, 0.067 to 0.106 by 0.080 to 0.105; the pharynx opens directly into the intestine or into a short (0.025) to moderately long (0.079) oesophagus, which is dilated (infrequently) or not. The intestine bifurcates into paired caeca (0.27 to 0.32 from the anterior end), which extend down the lateral margins of the fluke for a distance of 1.43 to 2.89 from the anterior end, where they turn inward and fuse. Ventral sucker obscure, best seen in small living specimens up to 2.0 in length, measures 0.038 to 0.080 by 0.035 to 0.102 and is located in the shortest specimen 0.239 from the anterior end. Testes paired, longer than wide, 0.107 to 0.346 by 0.053 to 0.189, borders smooth to lobed, opposite and in the same zone, generally with anterior margins beginning at the same level, anterior margin 0.702 to 1.29 distant from the anterior extremity, wholly preequatorial. Ovary round to oval, with smooth to deeply indented margins, 0.053 to 0.346 by 0.093 to 0.216, anterior to testes, anterior margin 0.586 to 0.946 from anterior extremity, generally displaced to right of midline, sometimes on midline. Cirrus pouch transversely elongate, 0.051 to 0.112 by 0.051 to 0.134, located at the anterior margin of ovary, 0.45 to 0.84 from the anterior extremity, containing a seminal vesicle and protrusible, unarmed cirrus; prostatic glands not seen. Seminal receptacle immediately posterior to ovary; ootype opposite seminal receptacle surrounded by Mehlis' gland. Laurer's canal not seen. Descending ramus of uterus, bearing formed eggs with clear, yellowish shells and containing an undeveloped embryo, emerges from ootype and passes posteriorly between testes. Descending uterus continues posteriorly and dorsally in lateral oblique folds to the posterior region of the worm, extending beyond the region of the caecal juncture, which it often obscures. Uterus turns and ascends in lateral oblique folds to the zone of the testes and passes between the testes ventrally; it expands its course in lateral oblique folds anterior to the testes and ovary up to the region of the intestinal bifurcation, often overlapping the anterior intestinal caeca. From here it turns again posteriorly to end just above the level of the ovary, where it empties through the non-muscular, female genital pore, situated next to the cirrus pouch. Vitellaria paired, follicular, extracaecal, elongate, arising at the level of the anterior margin of the testicular zone, 0.693 to 1.17 from the anterior end of the worm and extending 0.65 to 1.69; vitelline fields not always of equal length and not always arising at the same level. The vitelline ducts arise from the anterior ends of the vitellaria and join at the midline in a common vitelline reservoir situated at the anterior inner margin of, and between, the testes. Fully mature eggs dark brown, operculate, measure 0.038 to 0.047 by 0.020 to 0.028. Egg width to length ratio less than 1:2.

Host: Ruffed grouse, *Bonasa umbellus* L.

Habitat: Ureters and renal calyces.

Location: Ontario and Michigan.

*Measurements (more than 20) in millimeters; first dimension = length; second dimension = width.

Living and fixed specimens of kidney flukes from ruffed grouse and several other species of birds (personal data) were examined and compared by means of the criteria of Byrd and Denton (3). Most of these specimens could be included in *Tanaisia zarudnyi* (3, 23) except some from the ovenbird, *Seiurus aurocappillus*, which were assigned to *T. bragai* (Santos, 1934) Byrd and Denton, 1950. However, when these same specimens are considered by host distribution, and the cuticular spines are compared by means of the criteria of Teixeira de Freitas (6), they readily separate into a number of groups. Two criteria (6), namely oral sucker to body length ratio and egg width to length ratio, have not proved especially useful in analysis of the present material. The average oral sucker to body length ratio of all specimens from all ruffed grouse is about 1:13.75. While this figure is under the figure of 1:14.6, previously determined (6) for the material described by Skrjabin (23), there are many specimens of the present material (range = 1:9.1 to 1:17.3) which agree

with the figure for Skrjabin's specimen; also Skrjabin's material does not represent a series of forms, but apparently is described from a single specimen. The material described by Byrd and Denton (3) as *Tanaisia zarudnyi*, from a variety of birds, has an oral sucker length to body length ratio of 1:10. The range of ratios in the present material is too broad to permit use of this character to separate or define the species. Similarly the ratios of width to length of the fluke eggs from the ruffed grouse and from other birds are less than 1:2, which does not allow separation of species by means of this character. However, the cuticular scales (Fig. 15) of flukes from ruffed grouse are consistently distinct from those of flukes from other birds. The scales in the material from the ruffed grouse are flat, transversely elongate, and 15 to 27 μ by 5 to 8 μ. They are attached by a thickened base; the free edge directed posteriorly is smooth and not extended into rounded projections as in worms from several other hosts. There are a variable number of ribs across the width of the scales and the free edge bears markings which give it a serrate appearance. The scales most closely resemble those of *T. gallica* (= *zarudnyi*) Dollfus, 1946 (5).

The egg sizes of the material from the ruffed grouse agree closely with those of the original description (23), though the range is somewhat greater. Skrjabin (34) redescribed *Tamerlania* (= *Tanaisia*) *zarudnyi*, apparently basing this new description on other authors' descriptions of the species (10, 11, 22), and accepted a wider range of egg sizes for the species. Byrd and Denton (3) also widened the range of egg sizes in their conception of the species. None of these authors has considered the value of the spines and scales in defining species and it seems apparent that Skrjabin, in his later description (24), and Byrd and Denton (3) are treating more than one species under the name *T. zarudnyi*, especially if the variety of host birds infected with this species is considered. Odening (17) utilized the cuticular scales or spines as a primary criterion for species separation of adult flukes of the genus *Tanaisia* and has insisted that the "occurrence of morphological practically identic (sic) adults in different zoogeographical regions is not regarded as convincing for the presence of a sole more or less cosmopolitan species, because in this case changes of specificity for the molluscs serving as first intermediate host (sic) are not taken into consideration." It would seem preferable to retain the description of *T. zarudnyi sensu strictus* as given by Skrjabin, 1924, for material from certain sparrows, and to include only the emendations of Kalentarian (11), Issaitschikov (10), Shtrom (22), and Dollfus (5). A review of the genus *Tanaisia* is desirable, but this cannot be based on descriptions in the literature unless host distribution only is considered. However, since the worms from ruffed grouse are not clearly distinct from *Tanaisia zarudnyi* Skrjabin (23), they are provisionally assigned to this species.

Eucotylidae

Tanasia zarudnyi (Skrjabin, 1924) Byrd & Denton, 1950

syn. Tamerlania zarudnyi Skrjabin, 1924

Matériel étudié :

35 Trématodes identiques trouvés à Périnet (Madagascar) chez différents Passériformes :

— 1 dans la région rénale de *Leptopterus viridis* (P. L. S. Müller, 1776) et 11 dans les canaux biliaires de *L. madagascarinus* (L.) (*Vangidae*) ;
— 6 dans les reins de *Motacilla flaviventris* Hartlaub (*Motacillidae*) ;
— 17 dans les uretères de *Coracina cinerea cinerea* (P. L. S. Müller) (*Campephagidae*).

Description (voir figures 1-2) :

Corps allongé, plat, à bords latéraux parallèles, environ cinq fois plus long que large. (Longueur 3 000 à 4 200 μ ; largeur 480 à 880 μ).

Cuticule couverte d'écailles plus larges que longues (voir fig. 2), régulièrement disposées en quinconce ; leur base d'insertion rectiligne est transversale, leur bord libre présente des indentations et est dirigé vers l'arrière.

Ventouse orale, terminale, mesurant 200 à 280 μ de diamètre — Acetabulum non observé sur les préparations.

Appareil digestif : pharynx d'environ 90 μ de diamètre ; œsophage court ; cœca s'unissant l'un à l'autre à une distance d'environ 400 μ de l'extrémité postérieure.

Appareil génital femelle : ovaire à peu près sphérique, peu ou pas lobé, situé à droite au début du second quart antérieur de la longueur du corps. Il mesure 190 à 250 μ de diamètre.

Dans les préparations étudiées, l'oviducte ne se distingue pas de l'utérus. Le réceptacle séminal est situé à droite en arrière de l'ovaire : il est petit (70 à 110 μ) et de forme ovale.

Les vitellogènes s'étendent marginalement depuis l'extrémité postérieure du réceptacle séminal en avant, jusqu'à la zone de raccordement des deux cœca intestinaux en arrière, dans la région comprise entre la paroi du corps et les cœca.

Les vitelloductes transverses partent de la région antérieure des follicules vitellins. Leur trajet n'a pu être suivi jusqu'à l'oviducte.

L'utérus accomplit deux trajets, l'un descendant, l'autre ascendant, et occupe presque toute la largeur du corps, sauf au niveau des glandes génitales, depuis l'extrémité postérieure jusqu'à la base du pharynx à l'avant.

Les œufs très nombreux sont de petite taille, environ 20 × 34 μ (soit $L/l = 1{,}7$).

Appareil génital mâle : testicules situés en arrière de l'ovaire, dans le tiers antérieur de la longueur du corps. Tantôt au même niveau, tantôt légèrement décalés l'un par rapport à l'autre, ils sont séparés l'un de l'autre par l'utérus ; leur contour est régulier, légèrement lobé chez certains spécimens. Leur diamètre varie de 180 à 250 μ.

De chaque testicule part un spermiducte qui atteint la vésicule séminale située en avant et à gauche de l'ovaire. La vésicule séminale est petite ; elle est en partie cachée par les sinuosités de l'utérus.

Il n'a pas été possible de situer exactement l'emplacement de l'orifice génital, l'utérus étant très développé chez les spécimens examinés, et masquant la région antérieure de la vésicule séminale.

Discussion :

Les caractères précédents nous permettent de rattacher les spécimens examinés à la famille *Eucotylidae* et au genre *Tamerlania* Skrjabin, 1924,

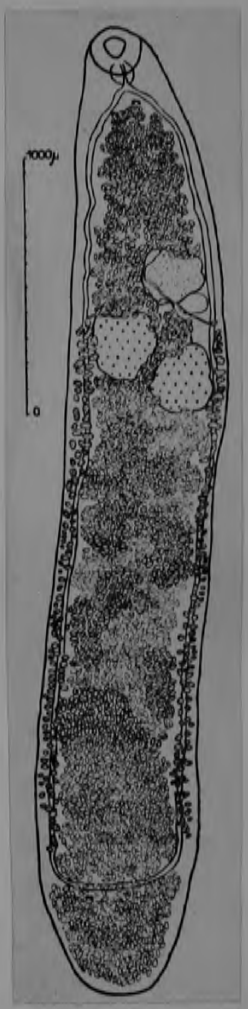


Fig. 1. — *Tamerlania zarudnyi* Skrjabin, 1924, chez *Coracina cinerea cinerea* (P. L. S. Müller), (n° 681 E). Périnet le 27 mars 1961. Corps entier vue dorsale.

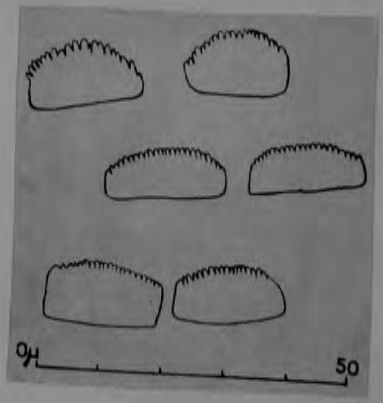


Fig. 2. — *Tamerlania zarudnyi* Skrjabin, 1924, même spécimen que fig. 1. Écailles cuticulaires.

sensu stricto = sous genre *Tamerlania* de *Tanaisia* Skrjabin, 1924 selon YAMAGUTI (1958, p. 788). De très nombreuses espèces ont été décrites dans ce genre, sous son nom ou sous celui de *Tanaisia* (cf. BYRD & DENTON, 1950, pp. 32-52 ; FREITAS, 1951, pp. 51-118).

En éliminant les *Tanaisia s. str.*, une espèce dont les vitellogènes sont plus étendus vers l'avant que dans les échantillons examinés [*T. bragai* (Santos, 1934)] et celles dont les œufs sont nettement plus allongés (rapport longueur/largeur constamment supérieur à 2 ; cf. tableau de FREITAS, nº 2, p. 65) — il reste un groupe d'espèces parmi lesquelles se trouve nécessairement celle examinée.

5 espèces présentent des caractères de toute évidence très différents :

— *T. incerta* Freitas, 1951, dont la ventouse orale est plus petite et dans le rapport 1 à 11,7 avec la longueur du corps.

— *T. similis* Freitas, 1951, espèce très petite à œufs relativement allongés ;

— *T. parva* Freitas, 1951, espèce à écailles plus longues et moins larges, et œufs à la fois plus petits et proportionnellement plus longs ;

— *T. aciaspera* Freitas, 1951, dont les œufs ont un chorion rugueux, et dont les écailles tégumentaires sont très arrondies ;

— *T. minax* Freitas, 1951, dont les testicules sont en position extra-cœcale.

Deux espèces qui ne peuvent être distinguées, *T. zarudnyi* Skrjabin, 1924, et *T. melospizae* (Penner, 1939), d'ailleurs synonymes selon BYRD & DENTON (1950, p. 50), correspondent à nos échantillons, que nous proposons donc de déterminer comme *T. zarudnyi* Skrjabin, 1924. Du reste, nous possédons des spécimens français provenant de *Colœus monedula* (L.) (*Corvidae*), qui correspondent par leur morphologie à *T. zarudnyi* Skrjabin, 1924, espèce subcosmopolite, et qui ne diffèrent pas de ceux précédemment décrits.

FROM RICHARD (1962)

Tanaisia (Tamerlania) zarudnyi Skrjabin, 1924

Host : *Pitta sordida sordida* (P. L. S. Müller), black-headed pitta (Passeriformes : Pittidae).

Location : Body cavity.

Locality : Tarabanan Concepción.

Date : 14 May 1962.

Specimens : No. 72202.

Discussion : Our collection contains nine adult worms from one bird. While the habitat within the host is listed as "body cavity", the specimens probably were within the kidney or urinary ducts and were released into the body cavity during dissection of the host. Our form very closely resembles *T.* (*T.*) ***zarudnyi vietnamensis*** Odening, 1963, from a passeriform bird (Timaliidae) from North Vietnam, differing only in two characteristics: 1) tegumental scales of the same size and shape in the preovarian, ovarian and post-testicular regions rather than increasing in width as they progress posteriorly; in our form they are as illustrated by Odening (1963) for the preovarian region; (2) egg shell smooth rather than finely wrinkled. Some of our worms had the testes somewhat diagonally placed as described by Richard (1962) for some specimens of this species from passeriform birds (Vangidae, Motacillidae, Campephagidae) from Madagascar.

From Fischthal, 1972

TANAISIA