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## I. Wissenschaftliche Mitteilungen.

### 1. Trematodes from Canadian Vertebrates.

By J. Stafford, M.A., Ph.D., Montreal.

eingeg. 5. Februar 1905.

In the Zool. Anz. Bd. XXVII. Nr. 16/17. 1904 I published a list of Trematodes from Canadian Fishes. The present paper supplements that list by the addition of a few extra ones from fishes and a number of others from higher Vertebrates, some of which I have already reported. The last three were not obtained from their hosts by myself. The measurements are given in millimetres.

### Fishes.

59) *Tetraonchus unguiculatus* Wag.

Gills, *Ambloplites rupestris* Raf. (Rock Bass). *Eupomotis gibbosus* L. (Common Sun Fish).

1,10 × 0,215.

- 60) *Cryptogonimus chyli* Osborn.  
Caeca and intestine. *Ambloplites rupestris* Raf. (Rock Bass).  
1,45 × 0,27.
- 61) *Dermocystis ctenolabri*.  
Encysted in skin and gills of *Ctenolabrus adspersus* Walb. (Cunner).  
New genus and species: δέγμα, skin; κύστις, bladder. Linton —  
U. S. Fish Com. Bull. 1899. p. 281, 296. Pl. 40. f. 76—81.
- (15) *Derogenes varicus* O. F. Müller.
- (17) *Hemiurus appendiculatus* Rud.  
Nos. 15 and 17 former paper. Young of both species abundant in  
Copepods (*Acartia*), Aug. 1904.

### Amphibians.

- 62) *Sphyranura Osleri* R. R. Wright.  
Gills and skin of *Necturus maculatus* Raf. (Mud Puppy).
- 63) *Monocœcium baryurum*.  
Intes. *Necturus maculatus* Raf. (Mud Puppy).  
Centralbl. f. Bakt. Bd. 34. 1903. p. 822.
- (44) *Crepidostomum laureatum* Zeder.  
Int. *Necturus maculatus* Raf. (Mud Puppy).
- 64) *Brachycœlium hospitale*.  
Int. *Diemyctylus viridescens* Raf. (Spotted Newt). *Plethodon erythro-*  
*notus* Green, (Red-backed Salamander).  
Centralbl. f. Bakt. Bd. 34. 1903. p. 823—830.
- 65) *Manodistomum occultum*.  
From *Diemyctylus viridescens* Raf. (Newt). *Rana virescens* Kalm.  
(Common Frog, Green Frog).  
New genus and species: μαρός, rare; occultus, obscure. Length  
(permanent mount) 1,15, breadth 0,399. Mouth sucker 0,184 × 0,189.  
Ventral sucker small, about 0,107, in centre of body. Pharynx small,  
immediately behind mouth sucker. Oesophagus 0,23 long, narrow.  
Caeca twice as long as oesophagus, falling some distance short of  
posterior end. Excretory bladder broad and long, forking at the  
middle of the length of the coeca not far behind the ventral sucker.  
Immature, but parts of the genital organs represented by rudi-  
ments. Testes small, globular bodies, in a line with but behind the  
ends of the coeca, dividing the space between these and the end of  
the worm. They are lateral and parallel and give off fine ducts an-  
teriorly. Ovary crowded between ventral sucker and the fork of the  
excretory bladder. Genital pore in the short space between the ven-  
tral sucker and the fork of the intestine, with the end organs of the  
genital ducts faintly outlined. No recognizable vitellaria.

The worm thus described I have come upon but once in a newt and I am unable to give its exact habitat. It appears, however, to be the same as one I have already reported (Zool. Anz. Bd. XXV. Nr. 673/674. 1902. p. 482. Nr. 13) although more mature. The description given there (with the decimals corrected) reads: »Encapsuled on muscles in posterior part of body-cavity of *Rana virescens* at Canso N.S. Length (living) 1,3, breadth 0,6, pharynx 0,12, oesophagus 0,15, mouth-sucker 0,21, ventral sucker 0,12 in middle of animal. Coeca to half way between ventral sucker and posterior end. Skin with spines. Immature.« The shape and size of the worm, the relative size and position of the suckers, the intestinal system and the excretory system agree. In the specimens from the frog I was unable to recognize rudiments of the genital system.

These worms bear many resemblances to Nr. 86 from the snake of which indeed they may be the young.

66) *Cystagora tetracystis* Gast.

Encysted between muscles of throat of *Rana catesbiana* Shaw (Bull-Frog).

*Rana virescens* Kalm. (Com. Frog).

New genus: *κύστις*, bladder; *ἄγορά*, assembly. The generic names *Agamodistomum* (Stossich) and *Distomulum* (Brandes) for immature, agamic, forms are open to the objection that the worms included do not belong to the same morphological type.

I am not sure that this is the same as *Gastaldi's* species. Until later stages of both and their definitive hosts become known it is impossible to be certain. By analogy, since all the other American forms differ from the earlier known European, one would judge that this also is different (Zool. Jahrb. XIII. 1900. p. 410).

67) *Loxogenes arcanum* Nickerson.

Encysted in liver of *Rana catesbiana* Shaw. (Bull-Frog).

New genus: *λοξός*, bent sideways, oblique; *γενίω*, to produce. This worm was first described by me provisionally under the specific name *Distomum medians* Olsson (Zool. Jahrb. Bd. XIII. Hft. 5. 30. Aug. 1900. p. 412) and almost at the same time by Nickerson as *Distomum arcanum* n. sp. (Amer. Nat. XXXIV. Oct. 1900. p. 811), both comparing it with *D. medians*. Later (Zool. Anz. Bd. XXV. 16. Juni 1902. p. 482) I stated that they are the same but Pratt (Amer. Nat. XXXVI. 1902. p. 959) places them in different genera — *Pleurogenes* and *Brandesia*. A renewed study of the subject convinces me that not only are they identical but that they must be placed in a new genus. To arrive at such a conclusion it will be necessary to take a glance at their nearest relatives.

The genus *Pleurogenes* was founded to receive all worms of the general structure of *Distomum clavigerum* Rud. having marginal genital openings (Looss 1896 p. 97). This is the one feature which separates them from groups that are otherwise very similar in organization (*Lecithodendrium*, *Levinseniella* etc.), and here at the outset *Loxogenes* may be distinguished from *Pleurogenes* on account of its genital opening being situated on the ventral surface, midway between the left coecum and the margin. *Brandesia turgida* Brandes has been already separated by Stossich (Lo Smemb. d. *Brachycoelium* 1899) and *Prosotocus confusus* and tener Looss have been removed by Looss (Weitere Beiträge 1899) who further suggests that the latter species may have to be placed in a genus of its own. *Diphtherostomum brusinae* Stoss. and *Diph. luteum* van Ben. (= *D. betencourti* Mont.) are also eliminated by Stossich (Note distomologische 1904). There remain *Pleurogenes claviger* Rud. (type), *P. medians* Ols. and *P. gastroporus* Lühe. From this it will appear that other characters than the position of the genital opening may suffice to distinguish a new genus even in this small group (subfamily). The long coeca of *P. claviger* and the position of the testes give to that worm a distinctly different type from the other two and perhaps furnish as good reasons for separating it from the others as in the cases of *Prosotocus* and *Brandesia*. I have often thought that the worm Looss figured on p. 100 of the text of »Die Dist. u. Fische u. Frösche 1894« was an individual of a rarer European species (genus?) which perhaps Pagenstecher also saw (Trematodenlarven etc. 1857 Taf. IV. fig. VIII). With these eliminations the figures of *P. claviger* present a pretty uniform picture (Those of Schwarze, von Linstow, and the Leuckart charts have the testes in the extreme end, that of Molin has the vittellaria far back along the sides etc.)

The classification of those members of the group that are parasitic in amphibia will depend upon the rank given to (1) the position of the genital opening, (2) the position of the testes, (3) the position of the ovary, (4) the length of the coeca. Giving primary importance to (1) separates *Loxogenes* from both *Pleurogenes* and *Brandesia*, while giving prominence to (2) will bring it into relation with *Pleurogenes* but leave it separate from *Brandesia* etc. I have classified them in many ways, and I cannot convince myself that there is much to be gained by any one way, so I shall content myself by recounting the main differences from *Pleurogenes* and *Brandesia*.

The habitat is different, for *Loxogenes* occurs in thick-walled cysts in the liver or pylorus whereas *Pleurogenes* occurs free in the cavity

of the intestine and *Brandesia* buried in a Lieberkühn's crypt which is of course open to the lumen of the intestine (Mühling, Zool. Anz. Nr. 549. 1898. p. 23).

Disregarding the position of the genital opening *L. arcanum* most closely resembles *P. medians*. In shape it is much shorter in proportion to its breadth, surpassing even *Prosotocus confusus* in that respect, but it is broadest behind instead of in front and emarginate at the posterior end from which the large excretory vessels widely diverge. The oesophagus is very short and the coeca broadly spreading, while in *P. medians* there is a long oesophagus and the coeca are larger and less divergent. The ovary is irregular (lobed) instead of rounded (compact) and is situated just inwards from the right coecum instead of outwards. The uterus folds back and forward in passing across the body behind the coeca instead of folding right and left while forming a long loop back and forwards on each side of the post-acetabular half of the body. The testes are similar, irregular bodies placed obliquely right and left of the acetabulum, at the ends of the coeca, but the penis-apparatus is smaller in *L. arcanum* than in *P. medians* and opens on the surface instead of at the margin. The vittellaria extend from the pharynx to the ends of the coeca all across the body ventral to the intestinal system instead of being on each side of the oesophagus as two dorsally situated distinct groups of follicles. The eggs in preserved specimens of *L. arcanum* vary about  $0,022 \times 0,014$  (Nickerson says about  $23 \times 13 \mu$ ) while in *P. medians* they are  $0,03 \times 0,016$ .

Morphologically there is considerable difference between *Loxogenes arcanum* and *Brandesia turgida*. The only characters in which they particularly approach each other are the size of the worms and the size and position of their suckers. My largest specimen measures  $1,9 \times 1,28$  (not 3 to 4 as given by Pratt, which is the length of the thick cysts), Nickerson's 2,5, which is also the greatest length given for *Brandesia*. The ventral sucker I find by measurement to be rather larger than the oral, although it may look smaller, and is situated a little behind the centre of the animal. In *Brandesia* the oral is the larger and is placed rather farther back. The peculiar form given by Brandes (Arch. f. Naturg. 1888 Taf. 17 fig. 2) was, I fancy, a phase in a single instance; the more normal form is doubtless given by Looss (Zool. Jahrb. XII. 1899. p. 776). Our specimens differ from the European in being broadest behind, indented at the posterior end, and not particularly thick. I take it that the asymmetry of the intestine in Nickerson's drawing is a mistake; the intestine is essentially the same in both. In *L. arcanum* the testes are

lateral from the ventral sucker, immediately behind the ends of the coeca; in *B. turgida* they are lateral from the coeca, the right one being opposite the interval between oral sucker and ovary. The ovary in the former worm is to the right of the median line and in front of the testes, but in the latter it is on the median line and almost behind the testes. The penis-sac in the one lies obliquely across the left coecum, far in front of the acetabulum, in the other it lies transversely from the ventral sucker, some distance behind the end of the left coecum. According to Nickerson the male and female genital ducts open separately on the surface or into a common groove or depression, the female in front of the male, both on the ventral surface, near the left side, and rather nearer the oral than the ventral sucker. I must say that my specimens seem to agree with this but that, on account of the presence of vittelline follicles, I am not yet fully satisfied as to the separate openings. In *Brandesia* the genital pore is marginal. In the American worm the folds of the uterus are, for the most part, behind the ventral sucker, in the European they pass first to the left and then forwards across the region of the coeca and pharynx. In the first the vitellaria extend all the way across the intestinal region, but in the second they are in lateral bunches anterior to the coeca. The egg of *L. arcanum* measures about  $0,022 \times 0,014$ , that of *B. turgida*  $0,038 \times 0,013$ .

68) *Glypthelmins quieta*.

Intes. *Rana catesbiana* Shaw (Bull. Frog). *Rana virescens* Kalm. (Com. Frog). *Hyla pickeringii* Holb. (Tree Frog).

New genus: *γλωπίος*, carved; *ἐλμινς*, worm. In the Zool. Jahrb. Bd. 13. Hft. 5. 1900. p. 403 I first described this worm and naturally associated it with *Opisthioglyphe endoloba* Duj. as described and illustrated by Loos 1894, von Linstow '88, Schwarze '85, Olsson '76, van Beneden '61. It has the same habitat (excepting that it is in different species of frog); about the same size and shape; a similar position of the suckers; spines; the intestine has the same parts, relative sizes and positions; the vitellaria, ovary, genital pore have approximately the same positions; it has both receptaculum seminis and Laurer's canal. Such small differences as occur in the above mentioned organs might be considered as of specific value. One can not so regard the position of the testes and the length and position of the uterus. These give to the worm a distinctly different type. The testes are small, spherical, placed obliquely or almost parallel, in the middle of the body, close behind the ventral sucker, instead of being large, transversely elongated, in a line one behind

the other, for back from the sucker, in or beyond the middle of the post-acetabular portion of the body. The uterus lies behind the testes instead of in front of them, and is thrown into numerous short, transverse folds between the coeca, extending to the posterior end of the worm, instead of few transverse folds between sucker and testes. Less important differences are the slightly larger size, the narrower body, the small ventral sucker, the genital pore being near the ventral sucker, so that the penis-sac extends over or beyond the latter, small ovary to left of sucker, shorter vitellaria, prominent pharyngeal glands, smaller eggs ( $0,042 \times 0,022$  mm living).

69) *Cephalogonimus americanus*.

Intes. *Rana virescens* Kalm. (Com. Frog). *Rana clamata* Daud. (Spring Frog).

(Centralbl. Bakt. etc. XXXII. Bd. 1902. p. 719—725.)

70) *Pneumonoeces longiPLEXUS*.

71) *Pneumonoeces breviPLEXUS*.

72) *Pneumonoeces variopleXUS*.

73) *Pneumonoeces similiPLEXUS*.

74) *Pneumonoeces mediopleXUS*.

Lungs of american frogs and toads.

In the same issue of the Zool. Jahrb. (Heft 3—6 1902 p. 895—912) in which I described these species Looss (p. 732) substituted the generic name *Pneumonoeces* for *Haematoloechus*. *Ostiolum formosum* Pratt (Mark Anniversary Vol. 1903) is doubtless the same worm as *Pneumonoeces mediopleXUS*.

75) *Gorgoderina amplicava* Looss.

76) *Gorgoderina attenuata*.

77) *Gorgoderina simplex* Looss.

78) *Gorgoderina opaca*.

79) *Gorgoderina translucida*.

Urinary bladder of american frogs and toads.

In the Zool. Jahrb. Heft 3 1902 p. 420 I recommended the separation of the European species *Gorgoderina cygnoides* Zeder and the american species *G. amplicava* Looss from the other four american species, and in the same issue (Heft 3—6 p. 851) Looss proposed the generic name *Gorgoderina* for the american species *G. simplex*.

80) *Halipegus occidualis*.

Mouth, *Rana catesbiana* Shaw (Bull. Frog). *Rana clamata* Daud. (Spring Frog).

New species: *occidualis*, western. This worm was first reported by Nickerson (Zool. Bull. 1898. p. 261—264) and later by myself

(Zool. Jahrb. Bd. 13. 1900. p. 409), both referring it to *D. ovocaudatum* of Europe. I have formerly seen it in abundance. My present specimens, 37 in number, vary in length from 1,61 to 6 and from 0,43 to 1,5 in greatest breadth. A few present pictures approximating to that given by LOOSS (Die Dist. etc. 1894. Taf. III. fig. 49) but they are shorter and more compact in proportion to their breadth, being broad and deep at the centre and gradually narrowing towards the ends which are rounded. Sections are nearly circular.

The cuticle is smooth and perforated by numerous skin-glands. The ventral sucker is larger than the mouth-sucker and in the middle of the ventral surface. The mouth passes into a pharynx which is succeeded by a short oesophagus and then the lateral coeca, broad and wavy, extending to the extreme posterior end. The excretory bladder passes from the terminal pore to the ventral side and divides, just behind the ventral sucker, into ventro-lateral vessels which run forwards and unite above the mouth-sucker, just anterior to the transverse band of the nervous system. Most of the posterior half is taken up by the genital glands — the anterior testis being often close behind and to one side of the ventral sucker while the vitellaria are in the extreme posterior end. In all the testes are oblique (not side by side) and in three quarters of them the anterior testis is on the right side, the posterior on the left. In half the ovary is in the median line; when slightly displaced it is on the same side as the posterior (nearest) testis, generally left. The vitellaria have five follicles on the left, four on the right — in only two specimens out of eighteen were the five on the right and then the ovary and posterior testis were also slightly towards the right. When the ovary is in the centre the shell-gland is behind it; when the former is to one side the latter is behind and towards the other side. The Laurer's canal runs upwards and backwards to the surface. A very noticeable difference from the European species is the short space between acetabulum and first testis, limiting the number of transverse folds of the uterus in this region. The genital pore is immediately behind the mouth sucker, underneath the pharynx. There is a short sinus which receives the small vagina and ductus ejaculatorius, the latter succeeded by a vesicula seminalis. The eggs are yellow, have a big rounded end, and then slowly taper towards the little end, which rounds down to the base of the filament. The latter appears shorter than the egg but towards the end it becomes very thin and bent or twisted so that it is hard to get a straight measurement. Eggs generally about  $0,063 \times 0,018$  (sometimes one as large as  $0,071 \times 0,021$ ), filament about 0,056.



81) *Diplodiscus temperatus*.

Rectum, *Rana virescens* Kalm. (Common Frog). *Rana catesbiana* Shaw (Bull. Frog).

New species: *temperatus*, *temperate*. Reported by Leidy as long ago as 1856 (Proc. Acad. Nat. Sc. Philad. 1856. p. 42), by myself in 1900, both referring it to the European *Amphistomum* (= *Diplodiscus*) *subclavatum*. My specimens vary in length from 1,2 to 6. One of medium size measured 3,62 in length, 1,23 greatest breadth of body, and 1,49 breadth of acetabulum. The body narrows from the acetabulum forwards, first slowly but at the anterior third more quickly, to the mouth-sucker. Sections of the anterior end are circular but farther back elliptical. The mouth-sucker opens forwards, the large posterior sucker backwards and downwards. The cuticle is thick and smooth.

The mouth opens back into right and left pharyngeal-pockets, between and below which it also opens into a rather long tube resembling an oesophagus. This bears posteriorly a pharynx-like swelling, beyond which are broad right and left caeca extending almost to the posterior sucker.

There are two testes in the anterior half of the body, situated ventrally, a little distance apart, the anterior slightly to the right, the posterior slightly to the left of the median plane. From each springs a short vas deferens, the two uniting into a vesicula seminalis that anteriorly coils on itself and passes into a short ductus with prostate glands and a structure resembling a thin-walled penis-sac. A short genital-sinus opens ventrally, just under or behind the forking of the intestine. The ovary is smaller than the testes, is dorsally situated, in the median plane, a little way behind the second testis. A Laurer's canal runs upwards and slightly forwards to the surface. A shell-gland lies behind the ovary and the broad uterus passes first back and then forwards, making several transverse folds on its way to the genital pore. The vitellaria extend from the level of the posterior testis to near the ends of the coeca. The anterior follicles are below but the posterior ones are above the coeca. From the centre of each half, where it is passing round the inner side of the coecum, springs the transverse duct.

Between ovary and acetabulum is the bladder of the excretory system, opening upwards in the median dorsal line. From it, below, spring right and left lateral ducts, which pass below the ends of the coeca and fold up and down along the outside of the latter on their way forwards to the region of the pharyngeal-pockets. Two large lymph-vessels lie along the inner, lower sides of the coeca and

posteriorly approach to each side of the bladder but remain distinct from it.

### Reptiles.

82) *Polystomum oblongum* R. R. Wright.

Palate, *Chrysemys picta* Herm. (Painted Turtle).

Bladder, *Chelydra serpentina* L. (Snapping Turtle).

83) *Telorchis augustus*.

Intes. *Chrysemys picta* Herm. (Painted Turtle).

Described in Zool. Jahrb. Bd. 13. 1900. p. 407. The position of the testes, ovary, uterus and vitellaria certainly entitle it to be considered with the *Telorchis* group. The long distance between ventral sucker and genital pore, but especially the position of the latter, are important differences. Upon renewed examination I am convinced that the penis-sac and vagina cross under the left coecum and open on the dorsal surface, and that the exerted penis lies above the body. There is a prepharynx. The vitellaria do not extend so far in front as I indicated in the drawing. The largest eggs measure  $0,042 \times 0,021$  mm.

84) *Auridistomum chelydrae*.

Intes. *Chelydra serpentina* L. (Snapping Turtle).

New genus: *auris*, ear. Described in Zool. Jahrb. 13. Bd. 1900 p. 406. The ear-like, lateral projections of the mouth-sucker suggest *Rhytidodes* and *Calycodes* of Looss and *Cotylotretus* of Odhner, which the animal also resembles in its lengthened form, the testes being near the middle of the body, the long coeca, the uterus confined to a short region behind the sucker. Sections of the worm that was figured in my earlier paper show that the vitelline glands are not confined outside the coeca but continue from one side to the other, both above and below the coeca and excretory duct, and that they extend as far forward as to the posterior edge of the ventral sucker. The anterior follicles are not so numerous and are more difficult to distinguish from groups of sub-cuticular and gland cells. The position of the ovary, close behind and to the right from the ventral sucker, is an important distinction. Another is in the large median trunk of the excretory system, lying above the testes and dividing at the posterior boundary of the ovary, its lateral divisions rapidly narrowing. The Laurer's canal extends up in the crotch of the excretory duct and opens in the mid-dorsal line by a conspicuous thick-walled opening. There is a large penis-sac. The egg is elliptical and measures  $0,031 \times 0,017$  mm. There is no apparent pre-pharynx or oesophagus. The oral and ventral suckers measure  $0,307 \times 0,276$  and  $0,230 \times 0,199$  in breadth and depth. The cuticle contains numerous fine scales.

Each of the two ear-like projections of the wall of the mouth-sucker has a lateral pit above it.

85) *Lechriorchis primus*.

Lung, *Eutenia sirtalis* L. (Common Garter Snake).

New genus and species: λέχριος, oblique; ὄρχις, testicle; primus, first. Briefly described in Zool. Anz. XXV, 673/674, 1902 p. 282 No. 14. Broadest at first third, tapering before and behind. A selected specimen measured  $4,92 \times 1,19$ . Oral sucker 0,399, ventral 0,630, one third back. Skin spines. Pharynx half as long as oral sucker. Oesophagus same length as pharynx. Pharyngeal glands. Ends of coeca clasped between testes, two thirds back. Testes large  $0,72 \times 0,35$ , almost parallel (left in advance) and almost touching. Large penis-sac, generally above right side of acetabulum and extending from posterior margin of latter to genital pore close up in fork of intestine, enclosing vesicula seminalis, ductus ejaculatorius, and protrusible penis. Small ovary, 0,2, spherical or oval, at end of penis-sac, generally right, at posterior margin of ventral sucker. Uterus extending almost straight back to posterior end and then forwards again, broad, filled with dark-brown eggs measuring  $0,053 \times 0,024$ . Vitellaria nearly full length of coeca. One specimen was cercaria-shaped, constricted between ventral sucker and testes, but contained a few eggs.

*Renifer elongatus* Pratt, I think, should come into this genus, leaving *R. ellipticus* the type of that genus, while *R. variabilis* should be separated from both of them.

*Lechriorchis* resembles *Saphedera*, *Plagiorchis*, and *Haplometra*.

86) *Zeugorchis aequatus*.

Oes., stom., *Eutenia sirtalis* L. (Common Garter Snake).

New genus and species: ζεύγος, pair; ὄρχις, testicle; *aequatus*, balanced. Briefly described in Zool. Anz. Bd. XXV Nr. 673/674 1902 p. 482 No. 15. Long-elliptical, broadest through ventral sucker, rather narrower behind than in front. Length of a specimen 2,29. Breadth 0,61 (a living worm measured  $3 \times 0,75$ ). Oral sucker 0,24 on under side of anterior end which projects above it. Ventral sucker 0,22, its centre 0,92 from anterior end. Spines all over surface.

Very short pre-pharynx, pharynx 0,13, Oesophagus 0,20, coeca extending to testes which separate them from posterior end, pharyngeal glands. Testes rather longer than broad and little broader than ends of coeca against which they fit, left and right, parallel, and separated from each other. Penis-sac large, generally right, above ventral sucker, beyond the posterior margin of which it may extend, enclosing vesicula seminalis, ductus, prostate glands and a penis which is

frequently found exerted. Genital pore a little way in front of ventral sucker, close in the fork of the intestine. Ovary small, spherical at end of penis-sac, above, generally close behind and to right of ventral sucker. Uterus extends back to posterior end and then forwards again between testes and coeca, broad and containing many layers of eggs. Vagina enlarged, with glands. Vitellaria nearly whole length of coeca, between latter and body-wall but also partly underlying and extending across the body above. Posterior, median excretory-duct large, secondary, lateral branches often very evident. Eggs  $0,048 \times 0,024$ .

To this genus belongs, I have no doubt, *Distomum boscii* Cobbold (Trans. Lin. Soc. 1859. Pl. 63. fig. 6).

### Mammals.

#### 87) *Lecithodendrium posticum*.

Intes. *Vespertilio subtilis* Say (Little Brown Bat).

New species: *posticus*, hinder. Elliptical, oval, spindle-shaped etc. One regularly elliptical measured  $0,89 \times 0,53$ , oral sucker  $0,117$ , ventral sucker  $0,103$ , in the middle of the body. The oral sucker is generally the larger although the reverse is occasionally true. Pharynx, oesophagus, two diverging club-shaped coeca directed towards the testes. Testes globular, wide apart, each side of ventral sucker. Ovary smaller, in angle between ventral sucker and right testis. A vesicula seminalis of about same size as sucker occupies space between ventral sucker and intestinal coeca. Vitellaria right and left from oesophagus and caeca, sometimes reaching pharynx, sometimes restricted to coeca. Uterus behind level of testes. Egg  $0,028 \times 0,017$ , variable. Excretory duct divides immediately behind acetabulum.

In Centralbl. f. Bakt. Bd. 34. 1903. p. 827 I referred this worm to *L. chilostomum* Mehl. (= *D. ascidioides* van Ben.) but it differs in having a small mouth-sucker instead of a very large one. *L. ascidia* van Ben. has small, nearly equal suckers but the vitellaria are lateral, behind the acetabulum, as also in *L. hirsutum* Looss. In all of these (including the worm here described) and in *L. oviforme* Poirier the ovary is compact, at the side of or behind the ventral sucker; while in *L. glandulosum* (= *L. chefrenianum*) Looss, *L. sphaerula* Looss, *L. obtusum* Looss, and in No. 88 (next to be described) it is lobed and anterior to the sucker. *D. somateriae* Levinsen, with its acetabulum and genital glands placed far back, and also from the position of its genital opening, vitellaria and uterus, belongs to a different type, as do perhaps also *D. claviforme* Brandes and *D. rubellum* Olsson, both of which are imperfectly known. *Pycnopus* he-

*teroporus* Duj., *Brachycoelium crassicolle* Rud., and *Phaneropsolus sigmoideus* Looss are properly separated.

88) *Lecithodendrium anticum*.

Intes. *Vespertilio subtilis* Say (Little Brown Bat).

New species: *anticum*, foremost, in reference to the ovary being in front of the ventral sucker and testes. This species differs from the preceding chiefly in its larger size ( $1,27 \times 0,69$ ) the longer anterior end being conical, the pharynx being more prominent, the coeca longer with irregular walls, the ventral sucker (0,103) being slightly larger than the oral and situated a little farther back so that the testes are almost in front of it, and especially in the ovary being situated to the right and well in front of the ventral sucker. The ovary is as large or nearly as large as a testis and is pear-shaped, with the big end turned forwards. The vesicula seminalis is large, filling the fork of the intestine. The uterus is much longer, completely distending the heavy, rounded, posterior end, and pressing forwards between testes and ventral sucker. The eggs are deeper in color and are smaller ( $0,021 \times 0,012$ ). When it occurs with the former species they can be easily distinguished.

89) *Plagiorechis vespertilionis* O. F. Müller (= *Distomum lima* Rud.).

Intes. *Vespertilio subtilis* Say (Little Brown Bat).

Spindle-shaped, 3,30 long by 1,15 greatest breadth. Cuticle thickly set with spines. Oral sucker 0,25 long and slightly narrower, with longitudinal opening. Ventral sucker 0,19, its centre 0,92 from anterior end. Large pharynx, oesophagus nearly equal to it in length, coeca to near posterior end. Ovary globular or elliptical, to the right, a little way behind ventral sucker. Testes larger, left and right, the first at an equal distance from ovary and second testis. Penis-sac, containing vesicula seminalis, left from ovary, extending above right side of ventral sucker and bending to left in front, with penis protruded to left. Uterus runs back to posterior end and then forwards to genital opening, both parts being broad and bending between ovary and first testis and first and second testes. Eggs brown-shelled,  $0,04 \times 0,02$  and a little under in size. Vitellaria occupying both sides of the body for the full length of the coeca, and overlapping to the centre.

Resembles *Plagiorechis cirratus* Rud. (Mühling 1896 f. 5), *Lepoderma ramliannum* Looss (1896 f. 17), *Astiotrema renifera* Looss (1896. Pl. III. fig. 20), *Haplometra cylindracea* Zeder (Looss 1894. Taf. II. fig. 39).

90) *Paramphistoma cervi* Zeder (= *Amphistomum conicum* Rud.).

Stomach of cattle.

Fine specimens preserved in the museum of the Biological Department, Toronto, and in the Pathological Museum of McGill University.

91) *Opisthorchis sinensis* Cobbold.

Liver of a Chinaman, who died in the Montreal General Hospital, 1896. Abundant,  $18 \times 3$ .

92) *Fasciolo hepatica* L.

Liver of an Italian workman, aged 18, who died of cerebro-spinal meningitis, July 12, 1904. In dilated portion of bile-duct of right central lobe, a single fine specimen, preserved in the Pathological Museum of McGill University. Length 30, breadth 14, anterior cone 4.

## 2. Zur Verschleppung bzw. Einbürgerung von Lacerten.

Von Prof. Dr. C. B. Klunzinger in Stuttgart.

eingeg. 17. Februar 1905.

Im Zool. Anz. vom 31. Jan. 1905 macht Herr L. Müller München-Mainz in einem Aufsatz über einen neuen Fundort der *Lacerta serpa* die Bemerkung, es sei ihm kein einziger Fall von Verschleppung einer *Lacerta*-Art bekannt. Demgegenüber möchte ich den Verfasser aufmerksam machen auf Beobachtungen von mir, Nördlinger, Schweizerbarth und Vosseler, wonach sich *Lacerta muralis* in Stuttgart und Tübingen nach geschehener Aussetzung völlig eingebürgert hat. Näheres hierüber in den Jahreshften des Vereins für vaterländische Naturkunde in Württemberg, 1902. S. LXXXV, Sitzungbericht und S. 307 Text, nebst zugehörigen Anmerkungen und Hinweisungen.

## 3. Zwei neue Wassermilben aus den Gattungen Megapus und Diplodontus.

Von F. Koenike, Bremen.

(Mit 4 Figuren.)

eingeg. 17. Februar 1905.

### *Megapus vaginalis* n. sp.

♀. Nahe verwandt mit *M. tener* Sig Thor ♀<sup>1</sup>. Körperlänge 0,560 mm. Körperrumriß bei Rückenansicht anscheinend kurz oval.

Körper weichhäutig. Epidermis ohne jedwede Linienverzierung. Drüsenhöfe klein und unscheinbar.

Maxillartaster schlank, doch im ganzen kräftiger als bei *M. tener*. Länge der Glieder vom ersten bis zum fünften an der Streckseite: 0,032,

<sup>1</sup> In der kurzen Kennzeichnung der Art bezieht sich Dr. Sig Thor nur auf das Männchen (Norske hydrachnider III. Arch. for Math. og Naturvidensk. Christiania, 1899. Bd. 21, Nr. 5, S. 39, Taf. XVII Fig. 119 a—c). Dieser Forscher übersandte mir auf meine Bitte leihweise nebst dem ♂ auch 1 ♀, über dessen Zugehörigkeit zu genannter Art er im Zweifel geblieben ist.

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