

STUDIES ON HELMINTH PARASITES OF CROWS.—
TWO NEW SPECIES OF THE GENUS *LUTZTREMA*
TRAVASSOS FROM *CORVUS SPLENDENS* (VIEILLOT)
AND A DISCUSSION ON THE GENUS *LUTZTREMA*

By

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(With 2 text-figures)

I—DESCRIPTION

Lutztrema singhi sp. n.

DIAGNOSIS.—*Body* lanceolate, measuring 3.94-5.31 mm. x 0.30-0.52 mm. *Oral sucker* usually sub-terminal measuring 0.10-0.16 x 0.09-0.15 mm. *Ventral sucker* 0.20-0.26 mm. x 0.21-0.29 mm. Ratio between oral and ventral sucker 2:3.

Testes usually larger than ventral sucker but sometimes as large as ventral sucker; anterior measures 0.25-0.4 mm. x 0.19-0.45 mm. and posterior 0.26-0.52 mm. x 0.19-0.4 mm. in size. *Cirrus sac* pre-acetabular 0.17-0.27 mm. x 0.07-0.09 mm. in size. *Ovary* post-testicular measuring 0.16-0.21 mm. x 0.16-0.24 mm. *Eggs* operculate, measure 0.0297-0.0363 mm. x 0.0198-0.0231 mm. *Excretory bladder* tubular with terminal excretory pore.

DESCRIPTION.—The writer collected several specimens of this trematode on four occasions from gall bladder and liver of *Corvus splendens* (Vieillot).

Body elongated, lanceolate, with blunt rounded anterior and a blunt conical posterior end; broadest in region of ventral sucker and tapers gradually from behind ventral sucker towards posterior end; entire body covered with minute spines, and measures 3.94-5.31 mm. x 0.30-0.52 mm. in size.

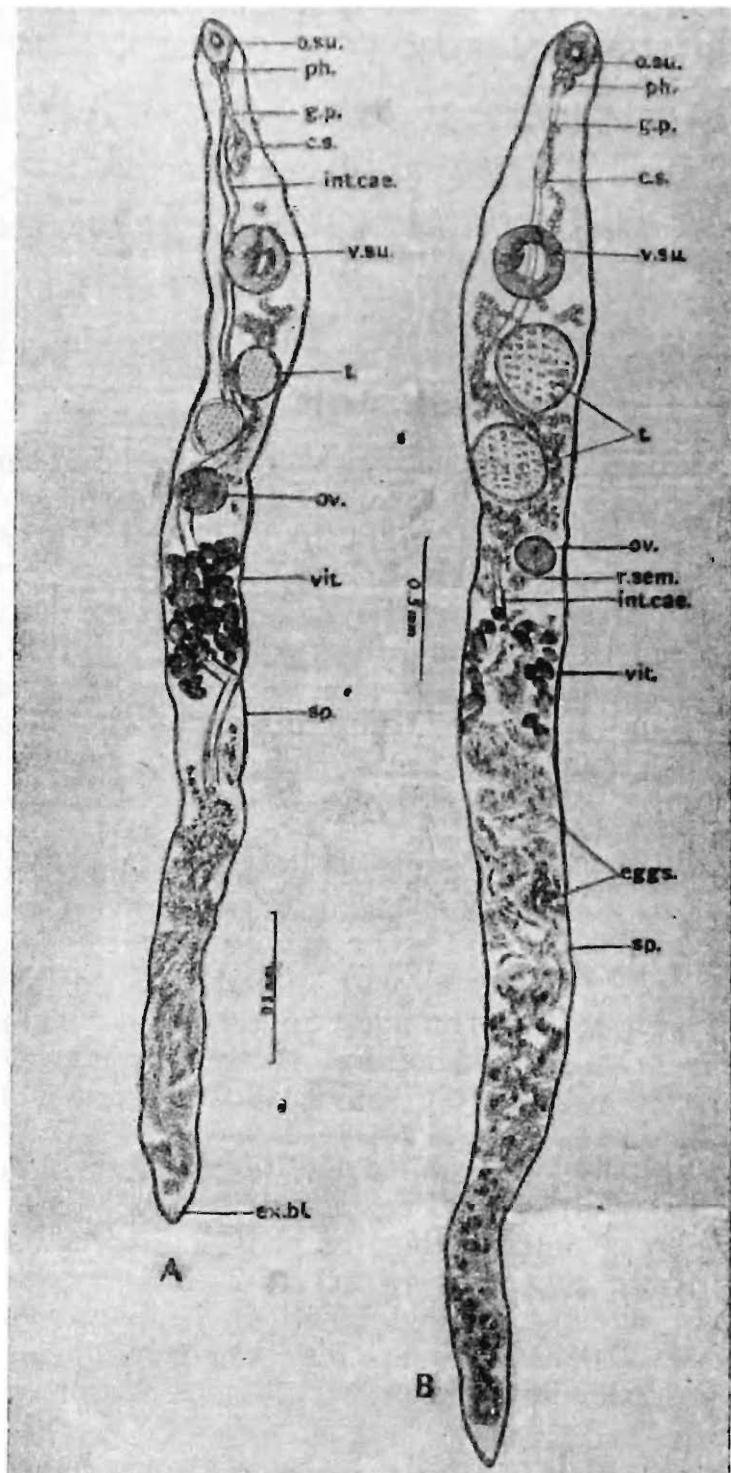
Oral sucker usually sub-terminal but sometimes terminal; measures 0.10-0.16 mm. x 0.09-0.15 mm. *Ventral sucker* larger than oral, situated in posterior region of anterior third of body, measures 0.20-0.26 mm. x 0.21-0.29 mm. Ratio between two suckers 2:3.

Mouth leads directly into globular or oval pharynx, measuring 0.037-0.087 mm. x 0.05-0.087 mm. *Oesophagus* continued into a single intestinal caecum extending upto a level about one third of body length from hind end.

Testes large, round or oval, margins entire, situated somewhat obliquely one behind other in hind region of anterior third of body; usually larger than ventral sucker but sometimes equal to it. Anterior testis measures 0.25-0.4 mm. x 0.19-0.45 mm.; posterior one 0.26-0.52 mm. x 0.19-0.40 mm.

Cirrus sac an elongated flask-shaped structure, situated a short distance in front of ventral sucker; measures 0.17-0.27 mm. x 0.07-0.09 mm.; encloses a tubular, convoluted vesicula seminalis, an ejaculatory

duct and cirrus. A *pars prostatica* present, not clearly distinguishable in whole mounts but clearly seen in sectioned material.

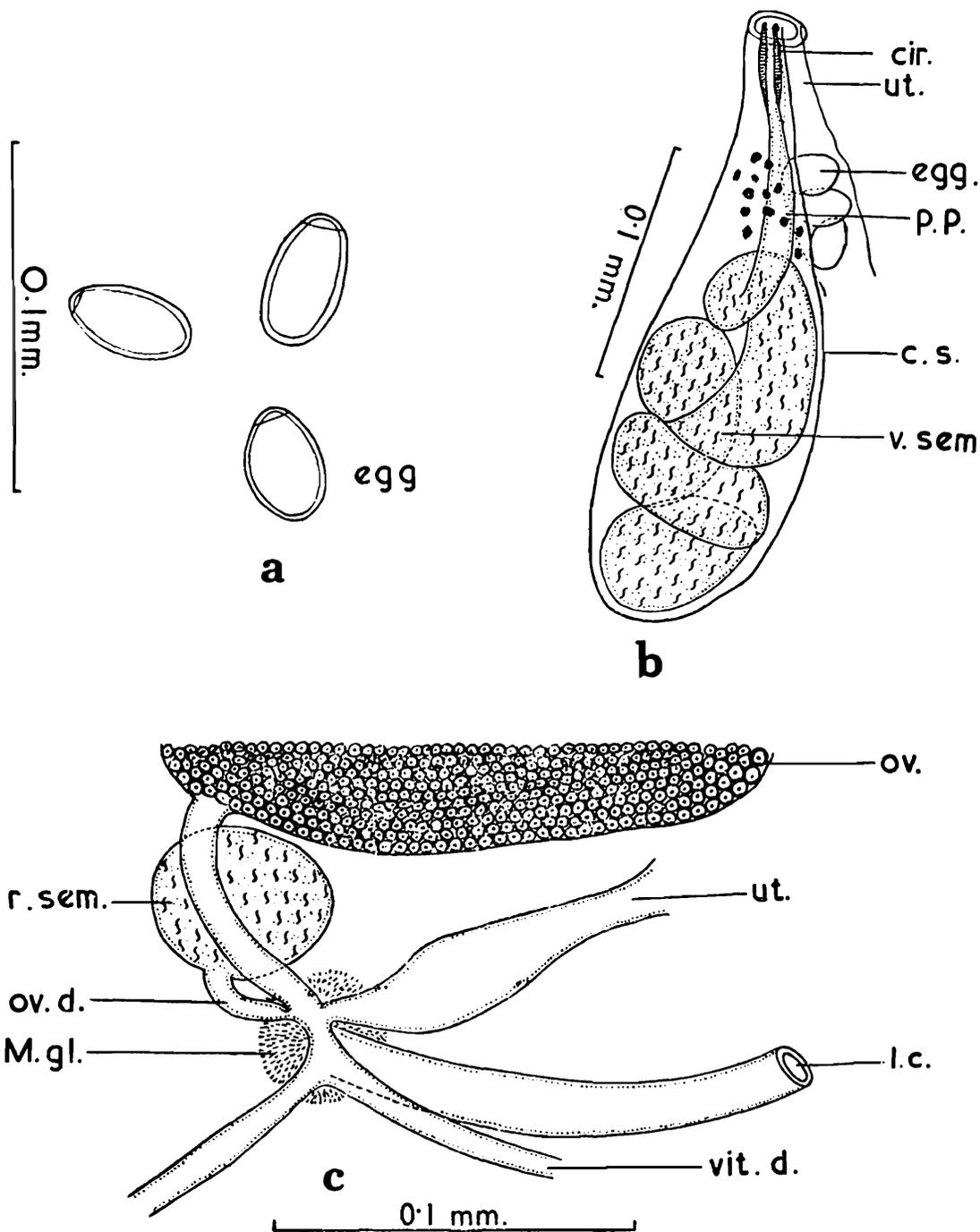


TEXT-FIG. 1. A. *Lutztrema stunkardi* sp. n. Type, ventral view.
B. *Lutztrema singhi* sp. n. Type, ventral view.

Genital pore present midway between oral and ventral sucker.

Ovary globular or sub-globular, smaller than testes, post-testicular, situated near about junction of anterior and middle thirds of body, measures 0.16-0.21 mm. x 0.16-0.24 mm. *Mehlis gland complex* situated behind ovary. Oviduct, duct from receptaculum seminis, common

vitelline duct, Laurer's canal open at common point surrounded by glands. *Uterus* arises from this point.



TEXT-FIG. 2. *Lutztrema singhi* sp. n., a. Eggs; b. Structure of cirrus sac drawn from paratype; c. Mehlis' gland complex in live specimen.

Receptaculum seminis present behind ovary; measures 0.05-0.06 mm. \times 0.06 mm. *Vitellaria* pre-equatorial in position. *Vitelline follicles* large, present on both sides of body, tending to merge in median line.

Uterus with both descending and ascending limbs; uterine coils profusely developed, extend posteriorly up to end of body; anteriorly, ascending limb of uterus passes first between ovary and posterior testis and then between the two testes; eventually runs in a sinuous course, by right side of cirrus sac and opens outside by genital pore. *Eggs* oval, *thick-shelled*, dark-brown and operculate; measure 0.0297-0.063 mm. \times 0.0198-0.0231 mm,

Excretory bladder tubular with terminal excretory pore.

RELATIONSHIP.—The present species differs from *L. monenteron* (Price & McIntosh, 1935) Travassos, 1941, in having a comparatively narrower body, covered with spines, in having smaller ventral sucker and in having a larger ovary than that present in *L. monenteron*. Further, the eggs of the present form are also larger than those of *L. monenteron*.

The present species differs from *L. stunkardi* n. sp., another species described by the author in having a larger body, larger testes and larger eggs but a comparatively smaller cirrus sac and smaller ovary. The testes are larger than the ventral sucker in the present species but they are smaller than the ventral sucker in *L. stunkardi*. Further, the ovary is smaller than testes in the present species but the ovary is as large as or even larger than testes in *L. stunkardi*. The vitelline follicles are present separately on both the sides of the body in *L. singhi* but the follicles form a separate mass in *L. stunkardi*.

The ratio between oral and ventral sucker is 2:3 in *L. singhi*, but it is 1:2 in *L. stunkardi*.

Lutztrema stunkardi sp. n.

DIAGNOSIS.—*Body* slender and elongate, measuring 2.32-4.06 mm. × 0.30-0.36 mm. in maximum width. *Oral sucker* usually sub-terminal, rarely terminal, 0.112-0.15 × 0.087-0.112 mm.; *ventral sucker* measures 0.20-0.24 mm. × 0.19-0.22 mm. Ratio between oral and ventral sucker approximately 1:2. *Pharynx* measuring 0.05-0.06 mm. × 0.05-0.06 mm. *Testes* tandem, anterior one measuring 0.11-0.187 mm × 0.125-0.162 mm. and posterior 0.125-0.187 mm × 0.125-0.15 mm. *Cirrus sac* pre-acetabular, measuring 0.112-0.187 mm. × 0.05-0.06 mm. *Ovary* post-testicular, measures 0.125-0.162 mm. × 0.15-0.2 mm. *Genital pore* 0.275-0.55 mm., behind anterior end of body. *Eggs* operculate, measure 0.026-0.033 mm. × 0.016-0.020 mm.

DESCRIPTION.—In all twenty specimens of this tremotade were collected on two occasions (Eight on 2.5.64 and twelve on 11.8.64).

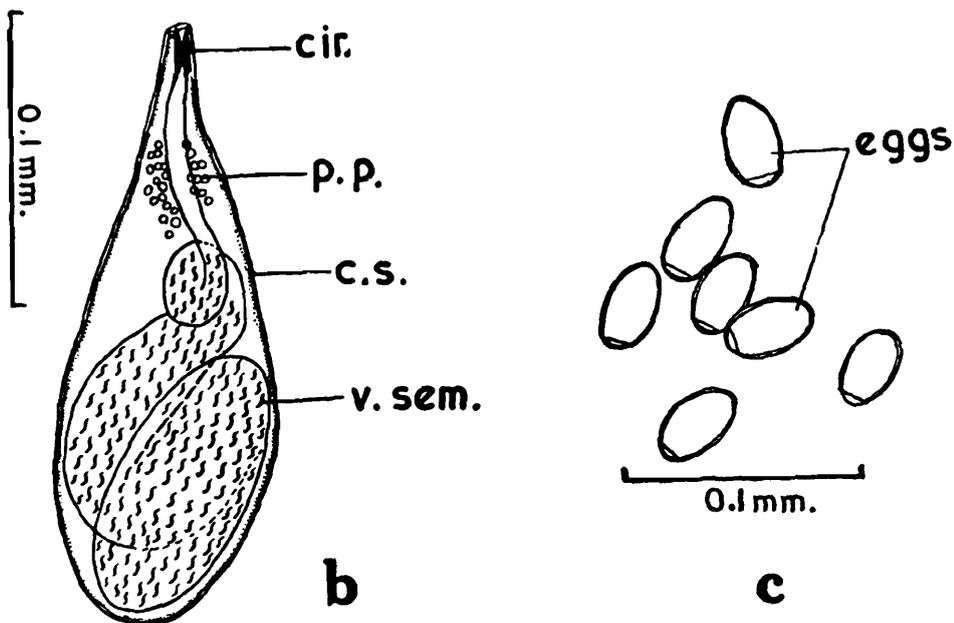
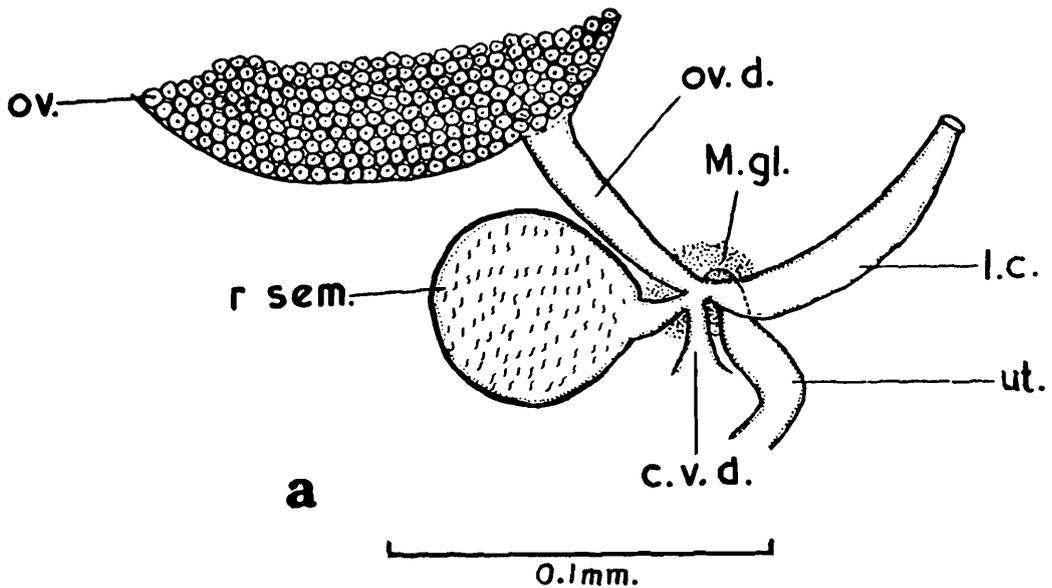
Body spinose, slender and elongated with a blunt anterior and pointed posterior end; broadest in acetabular region, from behind this region, gradually tapering towards posterior end, measures 2.32-4.06 mm. in length and 0.30-0.36 mm. in width, in region of ventral sucker.

Oral sucker subterminal, rarely terminal, measures 0.112-0.15 mm. × 0.087-0.112 mm. in size. *Ventral sucker* larger than oral and located at about a quarter of body length from anterior end; measures 0.20-0.24 mm. × 0.19-0.22 mm. Ratio between oral and ventral sucker approximately 1:2.

Mouth leads directly into muscular pharynx, measuring 0.05-0.06 mm. × 0.05-0.06 mm. *Oesophagus* not sharply set off from intestinal caecum, measures approximately 0.086-0.137 mm. in length, oesophagus followed by a single intestinal caecum, extending posteriorly beyond region of vitellaria and terminating near end of middle-third of body.

Testes usually round with entire margins but sometimes longitudinally oval, obliquely tandem, and located posteriorly in anterior half

of body ; in most specimens more or less equal in size but in some, posterior testis slightly larger than anterior ; anterior testis measures 0.11-0.187 mm. x 0.125-0.162 mm., posterior 0.125-0.187 mm. x 0.125-0.15 mm.



TEXT-FIG. 3. *Lutztrema stunkardi* sp. n., a. Mehlis' gland complex studied in live specimens ; b. Cirrus sac, drawn from paratype ; c. Eggs.

Cirrus pouch situated midway between oral and ventral suckers, measures 0.112-0.187 mm. x 0.05-0.06 mm., encloses a convoluted vesicula-seminalis, a narrow, coiled ejaculatory duct terminating into a cirrus. A *pars prostatica* present.

Genital pore located midway between anterior border of ventral sucker and anterior end of body.

Ovary round or oval, post-testicular in position, measures 0.125-0.162 mm. x 0.15-0.2 mm. in size. *Mehlis gland complex* situated

behind ovary. The two ducts from vitellaria of either side meet forming a common vitelline duct. The common vitelline duct, oviduct, the duct from receptaculum seminis, meet at a point surrounded by Mehlis' glands. Uterus arises from this point. *Receptaculum seminis* present but often not visible in fixed specimens. *Vitellaria* comprise large follicles, arranged not in distinct groups at sides of body but discretely in a mass behind ovary.

Uterus, with descending and ascending limbs, extensively developed, its coils filling up almost entire post-ovarian region of body; ascending limb of uterus passes between the two testes in its final course making several coils in front of anterior testis, runs forward subsequently dorsal to ventral sucker and opening to exterior behind the anterior end of body by means of a genital pore, measuring 0.275-0.55 mm.

Eggs oval, light-brown, operculate; measure 0.026-0.033 mm. x 0.016-0.02 mm.

Excretory bladder tubular with terminal excretory pore.

II—DISCUSSION

Travassos (1941) instituted the genus *Lutztrema* with *Lyperosomum obliquum* Travassos, 1917, as type-species. He included *Lyperosomum monenteron* Price et McIntosh, 1935, and *L. transversum* Travassos, 1917 under his newly erected genus. Besides, he described three new species *Lutztrema marinholutzi*, *L. verrucosum* and *L. insigne*. He characterised the genus *Lutztrema* by the presence either of a single intestinal caecum or double, but rudimentary intestinal caeca.

Again, Travassos (1944) in his monograph on *Dicrocoeliidae* Odhner, 1910, further placed *Lutztrema attenuatum* Dujardin, 1845, *L. donicum* (Isaitschikoff, 1919), *L. transversogenitalis* (Layman, 1922), *L. kakea* (Bhalerao, 1926), and *L. colorosum* (Patwardhan, 1935) which have two rudimentary caeca.

Yamaguti, 1958 in his monograph "Systema Helminthum" followed Travassos (1941) and (1944) in retaining species with two rudimentary intestinal caeca under *Lutztrema*.

The writer begs to differ from Travassos (1944) and Yamaguti (1958) in including species of *Lyperosomum* Looss, 1889 with two intestinal caeca under the genus *Lutztrema*. The genus *Lutztrema*, in author's opinion, should be restricted to include species with only one intestinal caecum. Hence, the writer is of the opinion that the species with rudimentary double caeca namely, *Lutztrema attenuatum*, *L. alaudae* Layman, 1926, *L. kakea* and *L. colorosum* should be removed from the genus *Lutztrema* and reinstated to their original generic position under *Lyperosomum*. In the author's opinion only the following species, *Lutztrema obliquum*, *L. transversum*, *L. monenteron*, *L. marinholutzi*, *L. verrucosum* and *L. insigne* having only one intestinal caecum should be retained under *Lutztrema*.

Of the known species of this genus, the present form closely resembles *L. monenteron* (Price and McIntosh, 1935), from which it can be distinguished by smaller size of body, relative size of the gonads and ventral sucker. The testes are smaller than ventral sucker. Further, the ovary in the present form is as large as or larger than testes, whereas in *L. monenteron*, the testes are larger than the ventral sucker and the ovary is smaller than testes. The size of eggs is also

almost same as the eggs of *L. monenteron* when the size of the body is decidedly smaller. The present form differs from *L. singhi* n. sp. in having smaller body, testes and in having comparatively larger ovary. The ratio between oral and ventral sucker in present form is 1:2, while in *L. singhi* it is 2:3. The testes are larger than ventral sucker in *L. singhi*, but they are as large as or smaller than ventral sucker in present form.

III—SUMMARY

Two new species of the genus *Lutztrema* Travassos, helminth parasites of *Corvus*, are described in this paper. It is proposed to include in the genus *Lutztrema* only species with one intestinal caecum. Accordingly only six species are considered under the genus.

IV—ACKNOWLEDGEMENTS

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ABBREVIATIONS USED IN TEXT-FIGURES

Cir	...	Cirrus
C.S.	...	Cirrus sac
Ex.bl.	...	Excretory bladder
g.p.	...	genital pore
int. cae	...	intestinal caecum
L.C.	...	Laurer's Canal
M.Gl.	...	Mehlis' gland
Ov.	...	Ovary
O. Su.	...	Oral Sucker
P.P.	...	Pars-prostatica
Ph.	...	Pharynx
r. sem.	...	receptaculum seminis
Sp.	...	Spine
t.	...	testis
ut.	...	uterus
v. sem.	...	vesicula seminalis
vit.	...	vitellaria
vit. d.	...	vitelline duct.
v. su.	...	ventral ucker