

**A synopsis of entozoa and some of their ecto-congeners, observed by the author / by Joseph Leidy.**

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*Prof. Jeffries Wyman  
with the author's respects.*

A

SYNOPSIS OF ENTOZOA,  
AND  
SOME OF THEIR ECTO-CONGENERS,  
OBSERVED BY THE AUTHOR.

BY

JOSEPH LEIDY, M. D.

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*A Synopsis of Entozoa and some of their Ecto-congeners observed by the Author.*

By JOSEPH LEIDY, M.D.

PROTHELMINTHA.

1. BODO RANARUM Ehrenberg.  
Abundant in the intestines of different species of frogs and toads.
2. BODO HELICIS Diesing.  
*Cryptobia helcis* Leidy, Proc. Acad. Nat. Sci., iii, 101.  
*Cryptoicus helcis* Leidy, Journ. Acad. Nat. Sci., 2d ser., i, 67.  
*Bodo helcis* Diesing. Leidy, Pr. A. N. S., v, 284.
3. BODO COLUBRORUM Hammerschmidt.  
In the cloaca of *Tropidonotus sirtalis*.
4. BODO JULIDIS Leidy.  
Pr. A. N. S., v, 100; Trans. Am. Phil. Soc., 2d ser., x, 244.
5. BODO MUSCARUM Leidy.  
Frequent in the intestine of the house fly, *Musca domestica*, in immense quantity.
6. BODO MELOLONTHÆ Leidy. Body spherical; diameter .00449 to .0112 mm.  
Tail simple, about the length of the diameter of the body.  
Found in the intestine of *Melolontha quercina* and *M. brunnea*.
7. BURSARIA INTESTINALIS Ehrenb.  
In the intestine of *Rana pipiens*.
8. LEUCOPHRYS STRYATIS Dujardin.  
*Leucophrys*. Leidy, Journ. A. N. S., 2d ser., ii, 49.  
In the liquids of the body of *Enchytraeus*.



## 9. LEUCOPHRYS CLAVATA Leidy.

Journ. A. N. S., 2d ser., ii, 50; iii, 144.

Found in the *Lumbriculus limosus*, and *L. tenuis*.

## 10. LEUCOPHRYS COCHLEARIFORMIS Leidy.

Journ. A. N. S., 2d ser., iii, 144.

Found in the intestine of *Lumbriculus tenuis*.

11. LEUCOPHRYS SOCIALIS Leidy. Cordate, ovate, oval, pyriform, or globular, contractile, active, with one or many internal vacuolæ; striated, ciliated. Length .036 to .045 mm., breadth .03 mm.

Found very frequently and abundantly within the stomach of the remarkable bryozoon *Urnatella gracilis*. (Pr. A. N. S., vii, 191.)

## 12. NYCTOTHERUS VELOX Leidy.

Pr. A. N. S., v, 233; Trans. Am. Phil. Soc., 2d ser., x, 244.

From the large intestine of *Julus marginatus*.

## 13. NYCTOTHERUS OVALIS Leidy.

Pr. A. N. S., v, 100; Trans. Am. Phil. Soc., 2d ser., x, 244.

From the intestine of the common cockroach, *Blatta orientalis*.

## 14. ALBERTIA? PELLUCIDUS Leidy.

*Anelcodiscus pellucidus* Leidy, Pr. A. N. S., v, 287.

## MYZELMINTHA.

15. ?MONOSTOMUM INCOMMODUM Leidy. Body compressed, above convex, below concave, sides parallel, anteriorly convex, posteriorly angularly convex. Head continuous with the body, obliquely truncated. Mouth round, surrounded with a wide circular lip which is emarginate below. Male generative aperture? communicating with a hemispherical cavity (acetabulum?) one fourth the length of the body from the head. Length 9 lines, breadth  $1\frac{1}{2}$  lines.

Five specimens were obtained from the fauces of the *Alligator mississippiensis*, in Florida, by Prof. J. W. Bailey, of West Point. Is it probably a species of *Distomum*, with the ventral acetabulum emersed within the body?

16. MONOSTOMUM ORNATUM Leidy. Body slightly compressed ovoidal, anteriorly broad; yellow variegated with brownish red. Mouth infero-terminal, acetabuliform, transversely oval. Penis conical, protruding a short distance below the mouth. Female aperture a short distance below the penis. Length 1 to  $1\frac{1}{2}$  lines, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  of a line, thickness  $\frac{1}{4}$  to  $\frac{1}{2}$  a line.

A dozen specimens were obtained from the abdominal cavity of *Rana pipiens*.

17. MONOSTOMUM RENICAPITE Leidy. Body depressed, lateral margins parallel, anteriorly and posteriorly rounded, above convex, below concave. Head formed by a transverse, reniform callosity. Mouth transversely crescentic, surrounded with a double lip. Penis a small conical tubercle. Length from  $\frac{1}{2}$  an inch to 1 inch, breadth  $1\frac{1}{2}$  lines.

Numerous specimens were obtained by Prof. Agassiz from the intestine of *Sphargus coriacea*.

18. ?MONOSTOMUM MOLLE Leidy. Body depressed, elongated elliptical, posteriorly convex. Head? mouth? Length 9 lines, breadth 2 lines.

I have found two specimens, of what I suspect to be a species of *Monostomum* in the lungs of two individuals of *Sternotherus odoratus*. The species is so soft that in the removal of the specimens I mutilated both, and since then I have been unable to find others.

## 19. DISTOMUM LANCEOLATUM Mehlis.

Reported to exist in the sheep, *Capra aries*; the ox, *Bos taurus*; and the hog, *Sus scrofa*. Stated to be frequent in the sheep, in several of the Western States.

## 20. DISTOMUM HEPATICUM.

In the hepatic ducts of the *Cervus virginianus*. Though I have never seen

specimens from the source given, yet I think there is little doubt of its existence, from the circumstance that sportsmen and hunters have frequently informed me, they had seen leeches in the liver of the deer, which they supposed the animal had swallowed in drinking. Also reported to exist in the ox, *Bos taurus*, and in the horse, *Equus caballus*.

21. *DISTOMUM VARIABILE* Leidy. *Var. a.* Body white, variegated with black in the course of the oviduct, clavate, posteriorly obtuse, minutely echinated. Neck long, narrow, cylindrical, echinated. Oral and ventral acetabula nearly equal; the latter one prominent, situated at the base of the neck. Length to 6 lines; breadth of body  $\frac{1}{2}$  a line.

*Var. b.* Body flattened ovate, continuous with the head, anteriorly narrowed, posteriorly obtuse, color and echination as in the preceding variety. Length  $2\frac{1}{2}$  lines, breadth 2 lines.

Variety *a* is found attached to the sides of the cavity of the lungs of *Tropidonotus sipedon*, singly or in groups up to six, with the head and neck buried in tumors, as in the case of the attachment of *Echinorhynchi*. Variety *b* is found detached in the mucus of the lungs and trachea. Common;—obtained in December, when the water snakes were hibernating.

22. *DISTOMUM HORRIDUM* Leidy.

*Distoma horridum* Leidy, Journ. A. N. S., 2d ser., i, 303.

From the excretory duct of the kidneys of the *Boa constrictor*.

23. *DISTOMUM VARIEGATUM* Rud.

Leidy, Pr. A. N. S., v, 207.

From the lungs of *Rana pipiens*.

24. *DISTOMUM RETUSUM* Dug.

Leidy, Pr. A. N. S., v, 207.

From the intestine of *Rana hylecina*.

25. *DISTOMUM CYGNOIDES* Zeder.

Leidy, Pr. A. N. S., v, 207.

From the urinary bladder of *Rana pipiens*, *R. palustris*, *R. hylecina*; *Salamandra maculata*, *S. rubra*, *S. salmonea*.

26. *DISTOMUM LONGUM* Leidy.

Pr. A. N. S., v, 206.

From the mouth of *Esox estor*.

27. *DISTOMUM TERRETICOLLE* Rud.

Leidy, Pr. A. N. S., v, 206.

From the stomach of *Esox reticulatus*.

28. *DISTOMUM INCIVILE* Leidy. Body flat, elongated elliptical; echinated between the oral and ventral acetabula, which are equal, and the latter one is hemispherical and sessile. Length  $2\frac{1}{2}$  to 3 lines, breadth 3-5ths to 4-5ths of a line.

Obtained from the intestine of *Leiostomus obliquus*.

29. *DISTOMUM CLAVATUM* ? Rud. Body pyriform, transversely annulated, plicated. Neck curved conical, 3 lines long. Ventral acetabulum oblique, prominent, at the base of the neck, 3 lines in diameter, with a circular aperture much larger than the mouth. Length 1 inch, breadth 4 lines.

One specimen in the collection of the Academy. Locality unknown.

30. *DISTOMUM VAGANS* Leidy.

*Distoma helici* Leidy, Pr. A. N. S., iii, 220.

*Distomum pericardium* Creplin, Arch. f. Naturg. xv, 78.

*Distoma vagans* Leidy, Journ. A. N. S., 2d ser., i, 304.

*Cercariaeum helici alternatae* Diesing, Rev. d. Cerc. 24.

*Cercariaeum vagans* Diesing, Rev. d. Cerc. 24.

Found in *Helix alternata* and in *H. albolabris*.



## CLINOSTOMUM Leidy.

Head shorter than, and separated from the body by a lateral constriction opposite the ventral acetabulum, compressed semi-oval. Body compressed oval. Mouth anterior. Ventral acetabulum, large, hemispherical, immersed within the commencement of the body, and having a truncated conical aperture with the apex posterior. A terminal pore to the body.

31. CLINOSTOMUM GRACILE Leidy. Head semi-ovoid, anteriorly obliquely truncated. Mouth transversely oval, with a prominent margin and a second border, which is slightly emarginate below. Body compressed oblong, oval, convex above, concave below, obtuse posteriorly, acetabulum larger, immersed between the head and body. Length to 3 lines, breadth to 1 line.

Found in the intestine of *Esox*, and within cysts in the gills, fins, and muscles of *Pomotis vulgaris*.

32. CLINOSTOMUM DUBIUM Leidy. Head compressed oval, convex anteriorly; mouth minute, not bordered. Body compressed oblong oval. Ventral acetabulum immersed between the body and head. Length  $2\frac{1}{2}$  lines, breadth  $\frac{2}{3}$  of a line.

From the intestine of *Rusticola minor*.

33. HOLOSTOMUM CORNU Nitzsch.

Found in the small intestine of *Ardea herodias*.

34. HOLOSTOMUM NITIDUM Leidy. Body divided by a constriction at the anterior third, every where echinated. Head ovoidal; mouth terminal, round, opening into a cup-shaped pharynx. Body compressed oblong oval, variegated white with yellow. Length to  $1\frac{1}{2}$  lines, breadth 2-5ths of a line.

Two specimens were obtained from the small intestine of *Rana pipiens*.

35. DIPLODISCUS SUBCLAVATUS Diesing.

Found in the intestine of *Rana pipiens*.

36. DIPLOSTOMUM CUTICOLA Diesing. Head elongated elliptical, excavated inferiorly, obtusely angular, much longer than the body. Mouth small, round, pharynx oval, gizzard oval. Generative apertures hemispherical, situated just posterior to the middle. Body ovoid, with a terminal excretory pore. Length from 1-5th to  $\frac{1}{3}$  of a line. Contained in oval sacs about  $\frac{1}{2}$  a line in length.

Found in great number in the liver of *Pomotis vulgaris*.

37. ASPIDOGASTER CONCHICOLA Baer.

Leidy, Pr. A. N. S., v, 224.

38. MALACOBDELLA GROSSA Blain.

Leidy, Pr. A. N. S., v, 209.

## CEPHALOCOTYLEA.

39. CYSTICERCUS FASCIOLARIS Rud.

Common in the liver of the rat, *Mus decumanus*.

40. CYSTICERCUS CELLULOSÆ Rud.

Occasionally in the muscles of the hog, *Sus scrofa*.

41. CYSTICERCUS TENUICOLLIS Rud.

Occasionally in the liver of the hog, *Sus scrofa*, and in the mesentery of the sheep, *Capra aries*.

42. CYSTICERCUS ELONGATUS Leuck.

In cysts, in the peritoneum of the european domestic rabbit, *Lepus cuniculus*.

43. ECHINOCOCCUS GRANULOSUS Rud.

*Echinococcus polymorphus* Diesing.

From a cyst, of about three inches in diameter, between the muscles on the right side of the abdomen, in an English sailor boy; and also in two large

cysts in the liver of a Frenchman. I have never met with this parasite in the Anglo-American. In three large cysts in the liver of a large species of monkey (species unknown); the specimen being preserved in the collection of the University.

44. COENURUS CEREBRALIS Rud.

In the sheep, *Capra aries*.

45. TÆNIA SOLIUM Lin.

Leidy, Pr. A. N. S., ix, 443.

46. TÆNIA LATICEPHALA Leidy.

Ibidem.

47. TÆNIA SERRATA Goeze.

Ibidem.

48. TÆNIA CUCUMERINA Bloch.

Ibidem.

49. TÆNIA ELLIPTICA Batsch.

Ibidem.

50. TÆNIA CRASSICOLLIS Rud.

Ibidem.

51. TÆNIA PUSILLA Goeze.

Ibidem.

52. TÆNIA PECTINATA Goeze.

Ibidem.

53. TÆNIA BACILLARIS ? Goeze.

Ibidem.

54. TÆNIA PESTIFERA Leidy.

Ibidem.

55. TÆNIA STRIGIS ACADICÆ.

Ibidem, 444.

56. TÆNIA VARIABILIS ? Rud.

Ibidem.

57. TÆNIA DISPAR Goeze.

*Tænia pulchella* Leidy, Pr. A. N. S., v, 241.

*Tænia dispar* Goeze. Leidy, Pr. A. N. S., ix, 444.

58. TÆNIA LACTEA Leidy.

Pr. A. N. S., ix, 444.

59. TÆNIA GIBBOSA Leidy.

Ibidem.

60. DIBOTHRIUM PUNCTATUM Rud.

Leidy. Pr. A. N. S., ix, 444.

61. SPARGANUM REPTANS Diesing.

*Ligula reptans* Diesing, Syst. Helm. i, 581.

*Ligula tritonis* Leidy, Pr. A. N. S., v, 96.

*Sparganum affine* Diesing, Verth. d. Cephalocot. 20.

62. DIBOTHRIORHYNCHUS ABDITUS Leidy. Head continuous with the neck, apex convex and emarginate. Bothria 2, lateral continuous above, oval, with the lateral margins involute. Proboscides filiform, projecting  $1\frac{1}{2}$  lines from the head. Neck tænia-form, widening posteriorly. Body constricted from the neck, narrower and longer, tænia-form, narrowing posteriorly and ending in an obtusely angular extremity. Length of head and neck 6 lines, breadth posteriorly 1 line; length of body 7 lines, breadth 3-5ths of a line.



Four specimens were found in a large cream-colored liver, which had been left upon a stall in our fish market. I could not ascertain the species of fish from which it had been obtained, but I suspect it to be the halibut, *Hippoglossus vulgaris*. Each worm was closely coiled up at the bottom of a long clavate sac, which was composed of three distinct membranes. The first membrane adhered to the structure of the liver in which it was imbedded, beneath the peritoneum. The second membrane was transparent, crisp, and shining. The third one was milk-white, soft, and contractile; and it presented a delicate, tortuous, white opaque line extending the length on each side. After opening the third membrane, beneath water, the worm gradually crept out of its own accord.

63. PENTASTOMUM SUBCYLINDRICUM Diesing.

*Pentastomum Didelphidis virginianæ* Leidy, Pr. A. N. S., v, 96.

In cysts of the liver of the opossum, *Didelphis virginiana*.

64. PENTASTOMUM EURYZONUM Diesing.

In the liver of *Cynocephalus porcarius*.

65. PENTASTOMUM PROBOSCIDEUM Rud.

In the lungs of the *Boa constrictor*.

66. PENTASTOMUM GRACILE Diesing. Body sub-clavate, incurved, most narrowed anteriorly, annular, not plicated, with the margins of the annuli microscopically denticulated. Head obtuse, bothria subterminal, elevated, each with two hooks, of which the upper one is the smaller. Mouth elevated, conical, in the focus of the semicircle formed by the bothria. Length from 3 to 4 lines, breadth  $\frac{1}{2}$  of a line.

Eleven specimens were obtained by Jos. Jones from the stomach of the *Alligator mississippiensis*.

## RHYNGODEA.

67. GREGARINA JULI MARGINATI.

*Gregarina larvata* Leidy, Pr. A. N. S., iv, 232.

*Gregarina Juli marginati*. Leidy, Trans. Am. Phil. Soc., 2d ser., x, 237.

68. GREGARINA JULI PUSILI.

Leidy, Trans. Am. Phil. Soc., 2d ser., x, 238.

69. GREGARINA POLYDESMI VIRGINIENSIS.

Ibidem.

70. GREGARINA PASSALI CORNUTI.

Ibidem.

71. GREGARINA ACHETÆ ABBREVIATÆ.

Ibidem.

72. GREGARINA LOCUSTÆ CAROLINÆ.

Ibidem, 239.

73. GREGARINA BLATTARUM Siebold.

*Gregarina Blattæ orientalis*. Leidy, Trans. Am. Phil. Soc., 2d ser., x, 239.

74. GREGARINA SCARABEI RELICTI.

*Gregarina*. Leidy, Pr. A. N. S., v, 208.

*Gregarina Scarabei relictæ*. Leidy, Pr. A. N. S., v, 287.

75. GREGARINA MELALONTHÆ BRUNNEÆ. Body oblong oval; head oblate spheroidal, slightly elevated at the summit. Single and in pairs. Length of body .405 mm, breadth .252 mm; length of head .108 mm, breadth .144 mm.

Found in the intestine of *Melalontha brunnea*.

76. GREGARINA NEREIDIS DENTICULATÆ.

Leidy, Journ. A. N. S., 2d ser., iii, 144.



## 77. ECHINORHYNCHUS OVATUS Leidy.

Pr. A. N. S., v, 97, (1850.)

*Echinorhynchus campanulatus* Diesing, Syst. Helm. ii, 21, (1851.)From the small intestine of *Felis leopardus*.

## 78. ECHINORHYNCHUS GIGAS Goeze.

Small intestine of the hog, *Sus scrofa*.

## 79. ECHINORHYNCHUS MICROCEPHALUS Rud.

*Echinorhynchus tortuosus* Leidy, Pr. A. N. S., v, 97.Found in the mesentery of *Didelphis virginiana*.

80. ECHINORHYNCHUS STRIATUS Goeze. Body cylindro-clavate, anteriorly minutely echinated. Proboscis obovate, with 12 to 15 circles of hooks. Neck short, conical, unarmed. Length to 10 lines; breadth anteriorly  $1\frac{1}{2}$  lines. Color, orange.

Several specimens were obtained by Jos. Jones from the intestine of *Tantalus loculator*.

## 81. ECHINORHYNCHUS MANIFESTUS Leidy.

*Echinorhynchus Pici collaris*. Leidy, Pr. A. N. S., v, 98. Body slightly compressed cylindroid, most dilated anteriorly, obtuse posteriorly, transversely corrugated. Proboscis subpyriform, with the rounded apex armed with 3 or 4 rows of hooks. Neck a simple linear constriction. Length 8 lines to an inch.

Several specimens were found in the intestine of *Picus collaris*.

## 82. ECHINORHYNCHUS HAMULATUS Leidy.

*Echinorhynchus emydis*. Leidy, Pr. A. N. S., v, 207. Body long, white, sub-clavate, curved. Proboscis sub-globular, with a single row of strong hooks and a few rudimental hooklets. Length 2 to 14 lines, breadth to  $\frac{1}{2}$  of a line.

Frequent in the intestine of *Emys geographica*, *E. insculpta*, *E. guttata*, and *E. serrata*. From several individuals of the latter species, Mr. Joseph Jones obtained more than a hundred specimens.

## 83. ECHINORHYNCHUS ACUS Rud.

Intestine of *Morrhua americana*.

## 84. ECHINORHYNCHUS PROTEUS Westrumb.

Pr. A. N. S., v, 208.

Intestine of *Labrax lineatus*.

## 85. ECHINORHYNCHUS GLOBULOSUS? Rud.

*Echinorhynchus lateralis* Leidy, Pr. A. N. S., v, 207. Body sub-fusiform, most narrowed posteriorly. Proboscis cylindrical, projecting laterally, furnished with 12 to 14 rows of hooks. Neck very short. Length to 1 inch, breadth to two-fifths of a line.

Intestine of *Salmo fontinalis*; obtained by Prof. Baird and Prof. Agassiz.

## 86. ECHINORHYNCHUS ANGUSTATUS? Rud.

*Echinorhynchus socialis* Leidy, Pr. A. N. S., v, 156. Body cylindroid, narrowing posteriorly, frequently dilated anteriorly. Proboscis cylindrical, with 26 rows of hooks. Neck very short, conical, unarmed. Length from 6 lines to  $2\frac{1}{2}$  inches, breadth to  $\frac{2}{3}$  of a line.

Frequent in the intestine of *Platessa plana*.

## NEMATOIDEA.

## 87. TRICHINA SPIRALIS Owen.

Occasional in the Anglo-american.

## 88. TRICHINA AFFINIS Diesing.

*Trichina spiralis* Owen. Leidy, Pr. A. N. S., iii, 108.Observed in the muscles of the hog, *Sus scrofa*.

## 89. ANGUILLULA ACETI Ehrenberg.

Common in ordinary cider vinegar.

90. *ANGUILLULA GLUTINIS* Ehrenberg.

Common in paste of wheat, rye, tragacanth, &c.

91. *ANGUILLULA SOCIALIS* Leidy.

*Oxyuris socialis* Leidy, Pr. A. N. S., v, 102.

Found in the intestine of the black cricket, *Acheta abbreviata*.

92. *ANGUILLULA LONGA* Leidy.

Pr. A. N. S., v, 225.

Found in ditches near Philadelphia.

93. *ANGUILLULA FOSSULARIS* Leidy.

Pr. A. N. S., v, 226.

Found in stagnant ponds near Philadelphia.

94. *AMBLYURA SERPENTULUS*? Hemp. et Ehrenb.

*Anguillula longicauda* Leidy, Pr. A. N. S., v, 225. Mouth with cirri (*error in the previous observation and description*). Tail long, subulate; suctorial disk exceedingly minute, clavate. Length to one-fortieth of an inch.

Common about gutters and water spouts in Philadelphia.

95. *HYSTRIGNATHUS RIGIDUS* Leidy.

Pr. A. N. S., v, 102; Flora and Fauna within Liv. An. 44.

#### PONTONEMA Leidy.

Body capillary, narrowing towards the extremities. Head continuous with the body, truncated, or obtuse and surmounted with angular papillæ, ciliated. Eyes none. Tail obtuse. Generative aperture ventral, near the middle of the body. Œsophagus long, cylindro-clavate; gizzard none, intestine straight, capacious; anus ventral and posterior.

96. *PONTONEMA VACILLATUM* Leidy.

Jour. A. N. S., 2d ser. iii, 144. Body cylindroid, anteriorly with longitudinal rows of short cirri in addition to those of the head; posteriorly incurved; tail short, thick, conical, obtuse. Length to 9 lines, breadth to one-fifth of a line.

Found on the sea shore of Rhode Island, beneath stones, between tides.

97. *PONTONEMA MARINUM* Leidy.

Jour. A. N. S., 2d ser., iii, 144. Body cylindroid; head convex; mouth surrounded with angular papillæ. Cirri 4, at the side of the head. Tail long, narrow, conical, obtuse. Length to 3 lines.

Found at the bottom of a sound on the coast of New Jersey.

#### POTAMONEMA Leidy.

Body filiform, narrowing towards the extremities. Head continuous with the body, slightly dilated, obtuse. Mouth large, infundibuliform, unarmed; Œsophagus narrow, flexuous, membranous, gradually expanding into a capacious, straight, cylindrical intestine; anus none? or exceedingly indistinct. Caudal extremity obtuse. Generative aperture of the female near the middle of the body.

98. *POTAMONEMA NITIDUM* Leidy. Body cylindroid, most narrowed anteriorly. Head without appendages. Caudal extremity broad, obtusely conical. Length 5 lines, breadth one-fifth of a line.

An active, wriggling, glistening white worm, found among beds of *Valisneria americana*, growing in the river Schuylkill, near Philadelphia.

#### NEMA Leidy.

Body ascaridiform. Head without appendages. Mouth unarmed, large, infundibuliform, Œsophagus tubular, membranous, expanding into a simple straight intestine; anus ventral. Tail conical, acute, recurved. Generative aperture near the middle of the body.



99. NEMA VACILANS Leidy. Body white, glistening. Length  $1\frac{1}{2}$  millemetres, breadth .050 mm. Tail .115 mm. long.

An active wriggling worm, found about some dead specimens of a black *Phryganea*, which was infested with a fungus parasite, and attached to stones at the water's edge of a small brook near Philadelphia.

100. STREPTOSTOMUM AGILE Leidy.

Pr. A. N. S., iv, 230 ; v, 285 ; Flora and Fauna within Liv. An. 45.

*Aorurus* Leidy, Pr. A. N. S., iv, 230 ; v, 284.

101. STREPTOSTOMUM GRACILE Leidy.

Pr. A. N. S., iv, 100 ; v, 285 ; Flora and Fauna, 46.

In parte *Oxyuris Diesingii* Hammerschmidt, Isis, 354, (1848).

In parte *Oxyuris Blattæ orientalis* Hammerschmidt, Naturw. Ab. v. Haid., i., 284.

In parte *Anguillula macrura* Diesing, Syst. Helm. ii, 134.

102. THELASTOMUM ATTENUATUM Leidy.

Pr. A. N. S., iv., 231 ; v, 285 ; Flora and Fauna, within Liv. An. 46.

*Aorurus* Leidy, Pr. A. N. S., iv, 230 ; v, 284.

103. THELASTOMUM APPENDICULATUM Leidy.

Pr. A. N. S., v, 101 ; ib. 285 ; Flora and Fauna, 47.

In parte *Oxyuris Blattæ orientalis* Hammerschmidt, Naturw. Ab. v. Haid., i., 284.

In parte *Anguillula macrura* Diesing, Syst. Helm. ii, 134.

104. THELASTOMUM LABIATUM Leidy.

Pr. A. N. S., v, 101 ; ib. 285 ; Flora and Fauna, 47.

105. THELASTOMUM ROBUSTUM Leidy.

Pr. A. N. S., v, 101 ; ib. 285 ; Flora and Fauna, 48.

*Thelastomum brevicaudatum*? Leidy, Pr. A. N. S., v, 208 ; ibidem.

106. THELASTOMUM VENUSTUM Leidy. Body of female fusiform, straight, with the tail long, narrow, conical, straight, acute. Body of male incurved, with the tail short, depressed, ending in a recurved subulate point, and having a pair of oblong lobes or alæ, extending the length ventrally. Generative and anal apertures terminating together abruptly. Penis a curved, conical, acute spiculum. Length of female to  $2\frac{1}{2}$  lines, breadth to one-fifth of a line ; length of male to 1 line, breadth  $\frac{1}{4}$  of a line.

Found in great number within the large intestine of *Testudo polyphemus*. Obtained by Mr. Joseph Jones in Georgia. It is a singular fact, that this species is infested with vegetable parasites, as in the case of those found in myriapods and insects.

107. ASCARIS VERMICULARIS Lin.

This species is the most common of all the parasitic worms, in the anglo-american.

108. ASCARIS LUMBRICOIDES Lin.

This species is the second of the most common of parasitic worms in the anglo-american.

In the University museum, there is a preparation of the liver of a boy, in which a number of individuals of this worm have forced themselves into the divisions of the hepatic duct.

Frequent also in the small intestines of the hog, *Sus scrofa*.

109. ASCARIS LEPTOPTERA Rud.

*Ascaris Felis discoloris* Leidy, Pr. A. N. S., v, 155.

Found in the small intestine of the panther, *Felis concolor*.

110. ASCARIS MYSTAX Rud.

Common in the domestic cat, *Felis catus*.

111. ASCARIS MARGINATA Rud.

Frequent in the dog, *Canis familiaris*.

## 112. ASCARIS COLUMNARIS Leidy.

*Ascaris alienata* Rud. Leidy, Pr. A. N. S., v, 205. Body very uniformly cylindrical until within a short distance of the extremities. Head naked; lips prominent. Tail short, conical, obtuse, in the male incurved. Length of female 4 inches, breadth  $1\frac{1}{4}$  lines; length of male 2 inches, breadth  $\frac{1}{2}$  a line.

Two specimens, male and female, were found in the intestine of *Mephitis chinga*.

113. ASCARIS LÆVIS Leidy. Body cylindrical, narrowing at the extremities. Head naked; lips prominent. Tail conical, mucronate. Length of female  $3\frac{1}{2}$  inches, breadth  $1\frac{1}{2}$  lines. Male not seen.

A single specimen was obtained by Mr. Packard, from the intestine of *Arctomys monax*.

## 114. ASCARIS TENTACULATA Rud.

Found in the intestine of *Didelphis virginiana*.

## 115. ASCARIS VESICULARIS Frölich.

Common in the cæcum of the turkey *Meleagris gallopavo*, and of the fowl, *Phasianus gallus*.

## 116. ASCARIS INFLEXA Rud.

Common in the small intestine of the fowl, *Phasianus gallus*.

## 117. ASCARIS SERPENTULUS Rud.

One female,  $1\frac{1}{2}$  inches long, was obtained by Mr. Schafhirt from the intestine of *Ardea violacea*.

118. ASCARIS LONGA Leidy. Body most narrowed anteriorly, and only slightly so at the posterior fourth. Head naked, subacute; lips slightly prominent. Tail obtusely rounded, with the anus forming a transverse, subcrescentic fissure nearly at its extremity. Length of the female 9 inches, breadth  $1\frac{1}{2}$  lines. Male not seen.

A single specimen was obtained by Mr. Joseph Jones, from the intestine of *Tantalus loculator*, in Georgia.

## 119. ASCARIS TENUICOLLIS Rud.

Frequent in the stomach and intestine of the *Alligator mississippiensis*.

## 120. ASCARIS ANOURA Dujardin.

Eight specimens were obtained from the intestine of *Coluber constrictor*. The females measure up to 6 inches in length by 1 line in breadth; the males  $3\frac{1}{2}$  inches in length by  $\frac{3}{4}$  of a line in breadth. Six specimens, apparently of this species were sent to me by Prof. Agassiz. They were obtained with nearly a pint of others, from the intestine of the *Boa constrictor*. I do not feel positive that they are really of the same species, as the specimens are too badly preserved to ascertain the fact correctly; but the size and details of form agree pretty closely.

121. ASCARIS NUDA Leidy. Body most narrowed anteriorly. Head naked, with the epidermis closely adherent; lips large, oblong. Tail short, incurved, conical, minutely mucronate. Length of female 2 to  $2\frac{1}{2}$  inches, breadth  $\frac{1}{3}$  to  $\frac{1}{2}$  a line. Male not seen.

Two females were obtained from the intestine of *Crotalus adamanteus*, by Mr. Schafhirt. Is this probably the same as the last species?

122. ASCARIS HUMILIS Leidy. Body cylindroid, recurved, white. Head obtuse, naked; mouth trilobed? pharyngeal apparatus none; œsophagus pestle-form. Tail substraight, conical, acute. Length 2 lines, breadth one-tenth of a line.

Eight specimens were obtained from the lungs of *Tropidonotus sirtalis*, in December.

## 123. ASCARIS ENTOMELAS Leidy.

Proc. A. N. S., v, 206.

From the lungs of *Rana hatecina*.



124. *ASCARIS ACUTA* Müller.

A single male, 14 lines long and  $\frac{1}{3}$  of a line broad, was obtained from the intestine of *Platessa plana*.

125. *ASCARIS NEGLECTA* Leidy. Body cylindro-fusiform, most narrowed anteriorly. Head naked; lips large, obtuse. Tail short, conical, acute. Length of female 2 inches, breadth three-fifths of a line; male about half the size.

Twelve specimens were obtained by Prof. Baird, from the intestine of *Diodon maculo-striatus*.

126. *ASCARIS CLAVATA* Rud. Head with a linear ridge on each side. Tail short, conical, incurved, mucronate; in the female with a linear ridge extending forward on each side. Length of female to  $3\frac{1}{4}$  inches, breadth  $\frac{3}{4}$  of a line; length of male to 2 inches, breadth to  $\frac{1}{2}$  a line.

Numerous specimens were obtained by Prof. Agassiz from the intestine of *Morrhua pruinosa*, and I have obtained others from the intestine of *Morrhua americana*.

127. *ASCARIS CYLINDRICA* Leidy.

*Angiostomum? cylindricum* Diesing, Syst. Helm. ii, 559.

*Ascaris cylindrica* Leidy, Pr. A. N. S., iv, 229. Body cylindroid, equally attenuated towards the extremities, curved. Mouth distinctly trilabiate. Tail narrow, conical, curved, acute. Female generative aperture just posterior to the middle. Length four-fifths of a line, breadth one-twelfth of a line.

Found in the intestine of *Helix alternata*. No cartilaginous pharynx as in *Angiostomum*!

128. *ASCARIS INFECTA* Leidy.

Pr. A. N. S., iv, 229; Faun. and Flora within Liv. An. 42.

Found in the ventriculus of *Julus marginatus*.

129. *SYNPLECTA PENDULA* Leidy.

Pr. A. N. S., v, 240.

From the stomach of *Emys guttata*.

130. *OXYURIS COMPAR* Leidy. Body fusiform; head continuous with the body, subacute, with a dilatation of the epidermis; mouth small. Tail of female long, subulate, spirally contorted; the generative aperture one-fifth the length of the body from the head. Length of female 4 to 7 lines, breadth  $\frac{1}{3}$  of a line; length of tail from the anus  $1\frac{1}{2}$  lines.

Seventeen specimens were found in company with others of *Tænia crassicollis* in the small intestine of the cat, *Felis catus*. Œsophagus long, pestle-form; gizzard globulo-pyriform; intestine dilated at the commencement, afterwards cylindrical. Males were not seen.

131. *OXYURIS CURVULA* Rud.

Intestine of the horse, *Equus caballus*.

132. ? *OXYURIS DUBIA* Leidy. Body fusiform, curved. Head continuous with the body, naked. Mouth unarmed. Female generative aperture about the middle of the body. Tail abruptly narrowed, acutely conical. Length of female  $1\frac{1}{2}$  lines, breadth  $\frac{1}{4}$  of a line. Male not seen.

Found in the cæcum of *Bufo americanus*, and of *Salamandra rubra*.

## SPIRONOURA Leidy.

Body cylindroid, attenuated at the extremities. Head continuous with the body. Mouth round, surrounded by a circular papillated lip. Caudal extremity of male spiral, acute, tuberculate, with the two spicula of the penis curved, ensiform, costate; of the female conical, acute, with the generative aperture at the posterior third of the body.

133. *SPIRONOURA GRACILE* Leidy. Body of female incurved; that of male spiral posteriorly. Head naked; mouth with a circular lip of 6 papillæ. Tail of female long, calcarate, acute; of male, with two rows each of three tubercles. Spicula



of penis curved ensiform, costate, emarginate at the extremity. Length of female 8 lines, breadth  $\frac{1}{3}$  of a line; length of male to 4 lines, breadth to  $\frac{1}{3}$  of a line.

Found in the stomach of *Emys serrata*. Œsophagus long, pestle-form, gizzard globular, commencement of the intestine cordiform, rectum short, wide, pyriform. Ovaries double.

134. SPIRONOURA AFFINE Leidy. Body of female curved; that of male posteriorly spiral. Head naked; mouth with a circular lip of 6? papillæ. Tail of female nearly straight, moderately long, conical, acute; of the male, conical, incurved, with a pair of tubercles on each side near the end. Spicula of penis curved, ensiform, costate, acute. Length of female  $4\frac{1}{2}$  lines, breadth one-fifth of a line; length of male 3 lines, breadth  $\frac{1}{6}$  of a line.

Found in the cæcum of *Cistudo carolina*.

135. PHYSALOPTERA TURGIDA Rud.

*Spiroptera Didelphidis virginiana*. Leidy, Pr. A. N. S., v, 155.

Common in the stomach of *Didelphis virginiana*. Found by Dr. Goddard, Mr. Schafhirt, and myself; and also by Mr. Jos. Jones, in Georgia.

136. PHYSALOPTERA LIMBATA Leidy.

*Spiroptera Scalopis canadensis*. Leidy, Pr. A. N. S., v, 156. The mouth bilabiate and surrounded by an elevated linear margin. Alæ of male, each with 4 diverging costæ. The length 6 lines, breadth  $\frac{1}{4}$  of a line.

137. PHYSALOPTERA MUCRONATA Diesing.

Numerous specimens were obtained by Mr. Joseph Jones, from the stomach of the *Alligator mississippiensis*, in Georgia.

138. PHYSALOPTERA CONSTRICTA Leidy. Body white, with the brown intestine shining through, cylindrical to within a short distance of the extremities, incurved; anterior extremity with one or two constrictions, and abruptly inflexed. Lips large, lateral, constricted from the body, each trilobate. Tail of female incurved, abruptly conical and acute; of the male alated, with the alæ narrow, long, and turgid. Length of female  $1\frac{3}{4}$  inches, breadth two-fifths of a line; male half the size.

Found frequently in the stomach of *Tropidonotus sipedon*, with the anterior extremity of the body hooked through the mucous membrane, and very tightly adhering by means of the one or two constrictions.

139. PHYSALOPTERA CONTORTA Leidy. Body capillary, most narrowed anteriorly, with the posterior four-fifths spirally contorted; white, with the intestine brown. Lips prominent, constricted from the body, trilobate. Tail short, conical, acute; in the male with narrow alæ, each furnished with five funnel-shaped pores. Length of female from 6 lines to an inch; breadth to  $\frac{1}{4}$  of a line; male from one half to three-fourths the size.

Frequent in the stomach of *Emys serrata*, *Emys reticulata*, *Cistudo carolina*, and *Kinosternum pennsylvanicum*, adhering to the mucous membrane in the same manner as *Physaloptera constricta*.

140. PHYSALOPTERA ABJECTA Leidy. Body most narrowed anteriorly, incurved. Mouth distinctly bilabiate; lips lateral, prominent. Caudal extremity incurved, obtusely conical. Length 10 lines, breadth  $\frac{1}{2}$  a line.

One specimen was obtained by Mr. Jos. Jones, from the stomach of *Psammophis flagelliformis*.

141. CHEIRACANTHUS HORRIDUS Leidy. Body subcylindrical, incurved, posteriorly sub-clavate, obtuse; anteriorly covered with palmate plates, furnished with as many as eight spines, and degenerating posteriorly to single spines. Head oblate-spheroidal, spirally echinate. Mouth bilabiate, with the lips lateral and papillated. Length of female  $2\frac{3}{4}$  inches, breadth  $1\frac{1}{2}$  lines. Male not seen.

Four specimens were obtained by Mr. Joseph Jones, in the stomach of the *Alligator mississippiensis* in Georgia.

142. TRICOCEPHALUS DISPAR Rud.

Not unfrequent in the children of the Anglo-american, and also in the negro.



## 143. TRICOCEPHALUS MINUTUS Rud.

Numerous specimens were obtained by Joseph Jones from the cœcum of *Delphis virginiana* in Georgia.

## 144. CUCULLANUS MICROCEPHALUS Dujardin.

*Cucullanus trispinosus* Leidy, Pr. A. N. S., v, 240.

Frequent in the stomach and intestine of *Emys guttata*, *Emys reticulata*, *Emys serrata*, and *Chelonura serpentina*.

145. CUCULLANUS ROSEUS Leidy, Pr. A. N. S., v, 155. Body fusiform, sub-straight, red, anteriorly obtuse. Tail straight, short, conical, acute. Mouth with a complex corneous apparatus. Upper lip of anus turgid. Penis consisting of two calcarate spiculæ. Generative aperture of the female two-fifths the length of the body from the tail. Length of female to  $1\frac{1}{2}$  inches, breadth to three-fifths a line; length of male to 10 lines, breadth  $\frac{1}{2}$  a line.

From the intestine of *Testudo* ———? from Java.

## 146. SCLEROSTOMUM DENTATUM Rud.

Several specimens, male and female, were obtained from the liver of the hog, *Sus scrofa*.

## 147. SCLEROSTOMUM SYNGAMUS Diesing.

Common in the trachea of the common fowl, *Phasianus gallus*.

## 148. SCLEROSTOMUM ARMATUM Rud.

Specimens preserved in the collection of the Academy, and presented by Dr. Harlan, who obtained them from an aneurism of the aorta of the horse, *Equus caballus*. *Strongylus armatus* Rud., Harlan Med. and Phys. Res. 553.

149. STRONGYLUS ATTENUATUS Leidy. Body cylindroid, narrowing towards the extremities; female nearly straight, male curved. Head obtuse, bialated; alæ long and moderately broad. Mouth, with minute angular papillæ. Tail of female straight, conical, acute. Bursa of the male bilobed, multiradiate. Length of female 6 lines, breadth one-fifth of a line; length of male  $4\frac{1}{2}$  lines, breadth one-fifth of a line.

Sixteen specimens were obtained by Mr. Schafhirt from the intestine of *Cynocephalus porcarius*.

150. STRONGYLUS SIMPLEX Leidy. Body cylindroid, anteriorly rather abruptly narrowed; female straight; male curved, with the caudal extremity incurved. Head obtusely conical, not alated nor papillated. Tail of female compressed conical, acute; generative aperture one-third the length of the body from its extremity. Bursa of male trilobed? one lobe posterior and two lateral, multiradiate. Length of female 4 to 5 lines, breadth  $\frac{1}{4}$  of a line; length of male  $2\frac{1}{2}$  to  $3\frac{1}{2}$  lines, breadth  $\frac{1}{4}$  of a line.

Numerous specimens were obtained from the small intestine of *Hystrix dorsata*.

## 151. STRONGYLUS AURICULARIS Zeder.

Intestine of *Bufo americanus* and of *Cistudo carolina*.

## 152. EUSTRONGYLUS GIGAS Diesing.

Frequent in the kidneys of the mink, *Putorius vison*, and occasionally occurring in the dog, *Canis familiaris*. One specimen, eight inches long, was obtained by Mr. Joseph Jones from the heart of the latter animal, in association with *Filaria*, mentioned in another part of this paper.

153. TRICHOSOMUM LINEARE Leidy. Body filiform, nearly equally narrowed towards the extremities. Caudal extremity of the female spirally involute. Tail incurved, obtuse, with two conical points on the ventral aspect of the extremity. Caudal extremity of the male spiral; tail long, conical, acute; generative aperture a considerable distance from the end of the tail. Length of female 3 inches, breadth  $\frac{1}{6}$  of a line; length of male  $1\frac{1}{2}$  inches, breadth one-tenth of a line.

Seven specimens were obtained from the small intestine of the cat, *Felis catus*.



154. ? *TRICHOSOMUM PICORUM*. Body cylindroid, equally narrowed and acute at the two extremities. Mouth and anus terminal. Length of female 7 lines, breadth one-fifth of a line.

A single specimen was obtained by Mr. Schafhirt from the intestine of *Picus colaris*.

155. *AGAMONEMA CAPSULARIA*? Diesing. Body slender, most narrowed anteriorly. Mouth small, circular, surrounded by an undivided lip. Tail short, obtusely conical, minutely mucronate. Length 5 to 10 lines, breadth from  $\frac{1}{8}$  to  $\frac{1}{4}$  of a line.

Found free in the intestine of *Centropristes nigricans*, *Clupea elongata*, and *Alosa sapidissima*. Also free in the intestine and pancreatic cæca of *Morrhua americana*; and larger specimens: 1 inch in length and  $\frac{1}{3}$  of a line in breadth, coiled up within sacs of the peritoneum in the same fish.

156. *AGAMONEMA PAPILLIGERUM*? Diesing. Body cylindrical, most narrowed anteriorly, posteriorly obtusely conical. Mouth surrounded by four papillæ; anus terminal. Length to  $4\frac{1}{2}$  inches, breadth two-fifths of a line.

One specimen was obtained from the abdominal cavity of *Esox*.

157. *FILARIA MEDINENSIS* Gmelin.

*Filaria hominis oris*? Leidy, Pr. A. N. S., v, 117.

A specimen is preserved in the collection of the Academy, and was recently brought from Western Africa, by Dr. J. L. Burt, U. S. N., who obtained it from the leg of a white soldier.

158. *FILARIA PAPILLOSA* Rud.

Intestine of the ox, *Bos taurus*.

159. *FILARIA IMMITIS* Leidy.

*Filaria Canis cordis* Leidy, Pr. A. N. S., v, 118. Body cylindrical, obtusely rounded at the extremities. Mouth small, round, unarmed. Caudal extremity of male spiral, with a row of five tubercles and a narrow ala upon each side. Penis protruding a short distance above the anus. Length of female to 10 inches, breadth to  $\frac{1}{2}$  a line; length of male to 5 inches, breadth  $\frac{1}{4}$  of a line.

Mr. Joseph Jones recently presented to me two specimens of the heart of the dog, in the right ventricle of one of which there were five of the *Filaria* just described. In the other specimen, the right auricle and ventricle, and the pulmonary artery in its ramifications through the lungs are literally stuffed with *Filaria*. A portion of the blood of this dog, given to me by Mr. Jones, contains a great number of the young of the *Filaria*.

In relation to the symptoms which accompanied the presence of these worms in the heart while the dogs were living, Mr. Jones has furnished the following notes: The heart containing the five worms, was taken from a male pointer dog, whose appetite was voracious and insatiable, and notwithstanding he was abundantly supplied with food, he remained in a very lean condition. The heart and lungs containing great numbers of worms was from a cur dog, who was always so thin as to resemble a skeleton; and it was impossible to benefit his condition with the most liberal supply of food. Both dogs were of an exceedingly restless disposition. They did not die in consequence of the presence of the *Filaria*, but were killed in the course of some physiological experiments.

160. ? *FILARIA DUBIA* Leidy. Body cylindroid, narrowed towards the extremities, rolled in a transverse spiral. Head continuous with the body, naked. Mouth minutely papillated. Tail acute. Length 9 lines, breadth  $\frac{1}{3}$  of a line.

Nine specimens were contained within two globular sacs of the gastric mucous membrane of the Albatross, *Diomedea exulans*, the preparation having been obtained in the South Atlantic, by Dr. W. S. W. Ruschenberger, U. S. N. The sacs also contained each a brown globular body about  $3\frac{1}{2}$  lines in diameter, divided by lines into quarters, intersected by transverse corrugations. At one pole of these enigmatic bodies was an elliptical aperture, and at the opposite pole a small conical tail-like appendage. One of the bodies being cut open, ex-



hibited no regularity of structure. The *Filariae* were situated between the globular bodies and the walls of the sacs containing them.

161. *FILARIA ATTENUATA*? Rud. Body cylindrical, conical at the extremities. Head convex; mouth round, unarmed. Caudal extremity of male incurved. Tail short, obtusely conical. Length of female 4 inches, breadth  $\frac{1}{3}$  of a line; length of male 2 inches, breadth one-fifth of a line.

Five specimens were obtained by Prof. Baird from the abdominal cavity of *Sturnella ludoviciana*.

Two female *Filariae* having the same form as the above, 5 inches in length and  $\frac{1}{4}$  a line in breadth, were obtained by Prof. Baird from the adominal cavity of *Colaptes auratus*.

162. *FILARIA BISPINOSA* Diesing.

*Filariae Boæ constrictoris* Leidy, Pr. A. N. S., v, 118.

Found beneath the skin of the *Boa constrictor*.

163. *FILARIA CISTUDINIS*. Body capillary, spirally involute, attenuated at the extremities. Head and tail obtusely rounded. Mouth unarmed. Anus terminal. Length  $1\frac{1}{2}$  inches, breadth  $\frac{1}{4}$  of a line.

One specimen was obtained by Mr. Schafhirt from the heart of *Cistudo carolina*.

164. *FILARIA AMPHIUMÆ*. Body cylindroid, attenuated towards the extremities, spirally coiled, anteriorly truncate, posteriorly acute. Length 6 lines, breadth one-fifth of a line.

Numerous specimens were found coiled up in the parietes of the stomach of *Amphiuma means*, the individual of which had been so long preserved in alcohol, that the characters of the worms could be partially determined only.

165. *FILARIA NITIDA* Leidy. Body filiform. Mouth large, round, unarmed; œsophagus one-fourth the length of the body; intestine straight, capacious, with a short narrow rectum; anus terminal with a short tubular prolongation. Tail sub-distinct, conical. Color red. Length to 5 lines, breadth one-twelfth of a line.

Found coiled up in oval cysts in the peritoneum and abdominal muscles of the *Rana pipiens*.

166. *FILARIA SOLITARIA* Leidy. Mouth transverse, sub-elliptical, papillated. Caudal extremity obtusely rounded. Anus terminal. Length to 2 inches, breadth  $\frac{1}{3}$  of a line.

Coiled up in cysts between the tunics of the stomach and intestines of *Emys serrata* and *Chelonura serpentina*. Obtained by Mr. Joseph Jones, in Georgia.

167. *FILARIA RUBRA* Leidy. Capillary, anteriorly truncated, posteriorly obtusely conical, dark brownish red in color. Mouth transverse, slightly bilabiate; lips papillated. Anus terminal, transverse, crescentic. Length to  $4\frac{1}{2}$  inches, breadth  $\frac{1}{4}$  of a line.

Frequently found in considerable number in the peritoneal cavity of *Labrax lineatus*, during the winter.

168. *FILARIA QUADRITUBERCULATA* Leidy. Body capillary, red in color, anteriorly conical, unarmed; mouth circular, with an elevated, non-papillated, circular lip. Caudal extremity incurved, conical, ending in a minute conical papilla, and having on each side a pair of minute tubercles. Length 4 inches, breadth  $\frac{1}{3}$  of a line.

A single specimen was found by Mr. Schafhirt in the muscles of the back of *Anguilla vulgaris*.

169. *GORDIUS VARIUS* Leidy.

Pr. A. N. S., v, 262, (1851).

*Gordius aquaticus* of American authors.

*Gordius tricuspidatus*? Siebold, Zeits. f. Wiss. Zool. vii, 143 (1855). Body long, linear, cylindrical, attenuated towards the extremities; narrowest anteriorly; passing through a variety of shades from a dusky yellowish white or



cream color, to a dusky ochreous yellow, yellowish brown, reddish brown, light chocolate to dark chocolate brown, or to ebony black; lustrous, often iridescent in sunlight. Head surrounded by a dark brown or black ring, obliquely truncated and terminated by a convex, translucent, whitish vesicular membrane, at the lower part of which is a minute round mouth. Integument areolated; areolæ irregularly pentahedral.

*Female*.—Lighter in color than the male, and usually much longer and thicker. Caudal extremity trifurcate; caudal lobes elongated, elliptical; one narrower than the other two. Generative aperture round, enclosed by the caudal lobes.

*Male*.—Usually dark-brown, often inclining to black. Caudal extremity curved. Tail bifurcate; caudal lobes curved conoidal, obtuse, divergent. Generative aperture ventral, just above the caudal lobes.

Twenty females and twelve males were found in Rancocas creek, a branch of the Delaware, New Jersey, in the month of August. Length of the former 5 to 12 inches; breadth  $\frac{1}{4}$  to 2-5ths of a line. Length of the latter from 4 to 6 $\frac{1}{2}$  inches; breadth 1-5th to  $\frac{1}{4}$  of a line. Three females from 7 to 12 inches in length, and from  $\frac{1}{4}$  to 2-5ths of a line in breadth; and one male 6 $\frac{1}{2}$  inches in length and  $\frac{1}{4}$  of a line in breadth, were obtained from the Delaware river. Six females and two males were obtained from the Schuylkill river. Mr. Pearsall has given me eight specimens from Philadelphia Co. Prof. Agassiz has given me a female 12 inches in length, from Niagara; a male 6 inches in length and a female 8 inches in length from the vicinity of Cambridge; two females 6 inches in length from Edgartown; and a male 3 inches in length, and 2 females 4 inches and 9 inches in length from Trenton. Dr. King, of Greensburg, Penn., has given me a male 5 inches in length, from his vicinity. Mr. Hazzard, of Point Judith, R. I., has given me a female 10 inches in length by 2-5ths of a line in breadth, from his vicinity. Prof. Kirtland has given me a male 5 inches in length, said to have been passed per annum by a girl, near Cleveland, Ohio. Prof. Baird has given me three males from the Susquehanna river, near Carlisle, Pa., and a male and female from Lake Champlain, N. Y.

The *Gordius varius* is the most common species of the genus in the United States; and it is familiar to most persons under the name of hair-worm, and is erroneously supposed to originate from the maceration of horse hairs in water. The species is remarkably prolific. A single female, 9 inches in length, by 2-5ths of a line in breadth, which I had preserved in a large vessel of water, extruded from between its caudal lobes, a cord of ova, broken into segments, the aggregate length of which was 91 inches, and breadth 1-20th of a line. I counted in each transverse disk of the cord, about 70 eggs, and in the length of 1-40th of an inch, 26 eggs, so that by simple calculation:  $70 \times 26 \times 40 \times 91 =$  the whole number of eggs deposited is 6,624,800.

170. *GORDIUS AQUATICUS*? Gmelin.

*Gordius seta* Müller, Diesing, Syst. Helm. ii, 83.

*Gordius lineatus* Leidy, Pr. A. N. S., v, 263, (1851).

*Gordius robustus*? Leidy, Ibidem, 275. Body long, filiform, not narrowed anteriorly, dusky yellowish white, cream colored, white, light brown, or dark brown in color, sometimes darker at the extremities, lustrous. Areolæ of the integument hexagonal.

*Female*.—More robust than the male, opaque, and lighter colored. Head obtusely rounded. Caudal extremity truncated, rounded.

*Male*.—Narrower than the female. Head obtusely rounded. Caudal extremity incurved, bifurcated; caudal lobes curved conoidal, obtuse, fimbriated upon the ventral border with simple branching dermal appendages.

Six males from 5 to 7 $\frac{1}{2}$  inches in length, and  $\frac{1}{4}$  of a line in breadth; and one female 5 inches in length, by  $\frac{1}{6}$  of a line in breadth; of a dusky yellowish white color, were obtained by Prof. Baird from a spring in Essex Co., New York, (*Gordius lineatus*, Pr. A. N. S., v, 263). One female, of a light brown color, with the head ringed with black, 3 $\frac{1}{2}$  inches long by 1-5th of a line broad, procured by Dr. W. S. Gibson, from a spring in Philadelphia county. A female of a cream-color, with the head ringed with dark brown, 4 $\frac{1}{2}$  inches long by 1-5th of



a line broad, I found in Frederick Brook, at the head of the Bay of Fundy, New Brunswick. A female (*G. robustus*, Pr. A. N. S., v, 275), hardly narrowed at the extremities, brown, rigid, with the head edged with dark brown, and the tail slightly expanded, conical and obtuse,  $6\frac{1}{2}$  inches long, and  $\frac{1}{2}$  a line wide, was obtained by Dr. Chas. H. Budd, from a boy, who informed him it had crept out of the abdomen of the specimen of grasshopper which accompanied the worm. A male and female were obtained by Mr. Schafhirt, from a single specimen of *Pterostichus fastidites* Dejean. The length of each is about 3 inches; the breadth of the male  $\frac{1}{3}$  of a line, of the female  $\frac{1}{2}$  of a line.

171. *MERMIS ALBICANS* Siebold.

*Mermis elongata* Leidy, Pr. A. N. S., v, 263.

*Mermis crassicaudata* Leidy, Ibidem.

*Mermis ferruginea* Leidy, Ib. Body long, capillary, narrowed towards the extremities, most narrowed anteriorly. Head slightly dilated or not at all, truncated, convex. Caudal extremity slightly curved, conoidal, obtuse. Color milk white when the worm is parasitic, or is buried in the earth; cream or yellowish white, or light ochreous yellow, or light reddish brown when it lives in water. In alcohol becomes translucent yellow, bright yellow, approaching to orange, or brown.

Eleven individuals (*Mermis elongata* Pr. A. N. S., v, 263,) of a dusky yellowish white, and from 6 to 18 inches long, by  $\frac{1}{4}$  to  $\frac{1}{2}$  of a line broad, were obtained by Dr. Chas. H. Budd, in the early spring season, in a ditch emptying into the Rancocas creek, New Jersey. Six specimens, opaque white in color, from 8 to 15 inches in length, were obtained by Samuel Powell, Esq., in digging in the earth mould of his garden at Newport, R. I. One specimen, of a cream color, 22 inches long and  $\frac{1}{2}$  of a line broad, was obtained by Dr. William Gibson, from a rivulet in Philadelphia county. I found four specimens of a brownish white, from 9 to 16 inches long and from  $\frac{1}{4}$  to  $\frac{1}{2}$  of a line broad, in pools of fresh water, among the rocks of the sea shore of Point Judith, R. I. One specimen (*Mermis crassicaudata* Pr. A. N. S., v, 263,) opaque white, and 8 inches long, I found in a ditch below Philadelphia. A specimen (*Mermis ferruginea* Pr. A. N. S., v, 275,) from Brazil, contained in the collection of the Academy, is brown in color, and measures  $14\frac{1}{2}$  inches long. A cream colored individual, 4 inches long and 1-5th of a line broad, was obtained from an apple by Major Le Conte, who, with great probability, supposed it had issued from the larva of a lepidopterous insect, in the core of the fruit. Professor Agassiz sent me a specimen translucent yellowish white in color, and  $9\frac{1}{2}$  inches long, and 1-5th of a line wide, obtained from the abdomen of *Orchelimum gracile* Harris. Lastly, I have obtained specimens very frequently from *Locusta carolina*, of the meadows below Philadelphia, and occasionally from the earth and ditches in the same locality. From one to six of the worms occupy the body of a single insect, closely coiled among the viscera, from the head to the end of the abdomen. The worms are opaque white, and measure from 3 to 15 inches in length, and from  $\frac{1}{4}$  to  $\frac{1}{2}$  of a line in breadth. When the grasshoppers infested with these parasites are bruised, the worms creep out and penetrate into the earth, as I have satisfied myself by careful observation. In alcohol the *Mermis* of the grasshopper assumes in time a bright yellow hue.

172. *MERMIS ROBUSTA* Leidy.

*Filaria Lycosæ* Haldeman, Icong. Encyc. ii, Zool. 48. Body cylindrical, robust, rigid, smooth and shining, attenuated towards the extremities; most narrowed anteriorly. Head conical. Caudal extremity obtuse, imperforate.

I found one specimen, of a pale pinkish white, 3 inches in length, and  $\frac{1}{4}$  of a line in breadth, which crept from the abdomen of a species of *Lycosa* with four stripes on the cephalothorax and three on the abdomen, from New Jersey. The specimen described by Mr. Haldeman, was pale reddish, and over five inches in length, by 2-5ths of a line in breadth, and was obtained from *Lycosa scutulata*? Hentz, in Pennsylvania.