NOTES ON PARASITES: 33–34.

BY CH. WARDELL STILES.

33: On the Identity of Tænia Brandti *Cholodkowsky, 1894, with* Tænia Giardi *Moniez, 1879, and* Tænia ovilla *Rivolta, 1878.*

(Appears simultaneously in THE VETERINARY MAGAZINE and in the *Centralbl. f. Bakt. u Parasitenkunde*, 1895, Vol. XVII, Erste Abt., No. 7–8, p. 254–256.)

In Vol. XV, p. 552, of the *C. f. B. u. P.*, Cholodkowsky (1894A) described what he supposed was a new species of tapeworm, under the name *T. Brandti.* According to his bibliographical references and the text, he was evidently acquainted with the general literature on *Tænia ovilla* Rivolta, but he considered *T. Brandti* as specifically distinct from that species. A footnote shows that he was also familiar with the fact that L. G. Neumann (1892) had studied the original type specimens of *T. ovilla*, *T. Giardi* and *T. aculeata* Perroncito, 1882, and had asserted that they were identical. Blanchard (1894) immediately followed with a short note, stating that *T. Brandti* was identical with a cestode which I have published (1893) under the name *Thysanosoma Giardi* (Moniez, 1879). Cholodkowsky (1894B) has quite recently again written upon his *T. Brandti*, changing his opinions on this species to a certain degree, but not quite to the extent warranted by the facts at hand. He now admits that his *T. Brandti* is identical in part with *T. ovilla* of Neumann, also that it is identical with my *Thysanosoma Giardi* (Moniez), but he asserts that Neumann and I are in error in uniting *Tænia Giardi* with *T. ovilla*, since Moniez described *T. Giardi* as having double genital pores, while *T. ovilla* has, normally, single genital pores; furthermore, he proposes to retain the name *T. Brandti.*

As Cholodkowsky's quotations from my paper, and the interpretations he draws from them plainly show that he has been misled in his statements either because of lack of familiarity with the English language, or because he only half read my paper, the present note will perhaps be in place, in order to

prevent further confusion regarding the species under consideration. I give here only the briefest possible statements covering the point at issue, the details of the historical review may be found in my paper (1893).

1. Neumann (L. G.) examined the original types of *T. Giardi* Moniez, and found that they agreed with the original types of *T. ovilla* and *T. aculeata*.

2. I also studied Moniez's original specimens, both strobila and sections, and was able to confirm Neumann's observation that the genital pores were irregularly alternate, thus agreeing with *T. ovilla* of which I had abundance of material.

3. I also studied some of Neumann's material, and there can be no question that his specimens agree with the specimens I collected at Paris.

4. Moniez (the author of the species *T. Giardi*) has stated both to Neumann and to me, in personal correspondence, that he accepts our view that double genital pores do not represent the normal condition of *T. Giardi*.

5. Cholodkowsky bases his statement that *T. Giardi* and *T. ovilla* are specifically distinct entirely upon Moniez's articles, but has never personally examined either a segment or a figure of Moniez's original material.

In view of these facts the accuracy of the statements made by Neumann and by me, which Cholodkowsky has recently called into question, but which the author of the species (Moniez) has admitted, will probably be accepted by most zoölogists.

The error into which Moniez was accidentally led was a most natural one and is explained in my paper referred to above; his sections proved to be diagonal, so that they intercepted two pores; taking this in connection with the occasional occurrence of double pores in *T. Giardi*, it is not to be wondered at that he looked upon the double-pored condition as normal.

As for the quotation Cholodkowsky makes from my paper, "If it is not a *T. Giardi*, it must be a new species or *T. Vogti* ???," and upon which he seems to lay considerable stress, he has here either misunderstood or overlooked the context. The sentence immediately preceding, "Thus it is seen that this head and strobila belong to some cestode with alternate genital pores," and the sentence immediately following, "The other head referred to agrees so closely with the head of *M. expansa*,

that it is difficult to believe it can belong to *T. Giardi*," show that in the sentence referred to I was not discussing the identity of *T. ovilla* and *T. Giardi*, or the identity of the bulk of my material with *T. Giardi*, but was speaking of a certain head with 38 mm. strobila attached, then under discussion.

To sum up, I still maintain that *T. ovilla* and *T. Giardi* are identical, and I also admit Cholodkowsky's statement that *T. Brandti* is identical with *Th. Giardi*, as Blanchard was the first to state in print. The synonymy to date is as follows:

Thysanosoma Giardi (Moniez, 1879) Stiles, 1893.
1878 *Tænia ovilla* sp. n., Rivolta (nec Gmelin, 1789–90).
1879 *Tænia Giardi* sp. n., Moniez.
1882 *Tænia aculeata* sp. n., Perroncito.
1891 *Moniezia ovilla* (Rivolta, 1878) Moniez.
1891 *Moniezia ovilla* var. *macilenta* Moniez.
1893 *Thysanosoma ovilla* (Rivolta) Railliet.
1894 *Tænia Brandti* sp. n., Cholodkowsky.

Cholodkowsky's statements in regard to the difficulty of obtaining my publication of 1893 on this species leads me to make one remark further. Leaving out of question entirely the fact that my figure of *Th. Giardi* in *C. f. B. u. P.*, 1893, XIII, p. 460, must have been accessible to him, it is very surprising to me that he should have had such difficulty in obtaining an American publication as he states. Considering the fact that the Bureau of Animal Industry distributes its scientific publications gratis to those libraries and specialists who exchange publications with the Bureau, or who apply for our bulletins on given subjects, I fail to comprehend why Cholodkowsky has had such trouble. A postal card request to the Chief of the Bureau, or to me, would have been answered immediately with a copy of my paper. As a matter of fact, our Bureau of Animal Industry records show that two copies of my paper have been sent to Cholodkowsky. I regret exceedingly if, through any mistake in address, or other cause, they have never reached him. As a general principle, however, one would assume that any worker desiring the publications of the Bureau of Animal Industry would take the trouble to apply at headquarters for the particular papers desired.

In conclusion I desire to add a most emphatic qualification to one of Cholodkowsky's statements, *i. e.*, that "bei der Charakteristik einer Species wohl die Beschreibung ihres

Autors massgebend sein dürfte ;" the qualification is that the author's diagnosis, *when detailed and complete*, should take precedence over other diagnoses, *but not over the original material.* It is through ignoring this principle—one admitted by zoölogists in general—that Cholodkowsky has been led into the error of redescribing a known species in face of the statement by Neumann that a study of the original material led to his uniting the three species *T. Giardi*, *T. ovilla* and *T. aculeata.* As long as we have such obliging men as Moniez and Neumann, to deal with in science, it would certainly have been an easy matter for Cholodkowsky to obtain original specimens from them to compare with his supposed new species. That Cholodkowsky did not know of my paper of December, 1893, is not at all surprising, as there was very little time between the appearance of our two articles.

REFERENCES.

BLANCHARD, 1894.—Sur le *Tænia Brandti* Chol.; Compt. rend. d. l. Soc. d. Biol., pp. 418–419.

CHOLODKOWSKY, 1894A.—Ueber eine neue Species von Tænia; C. f. B. u. P., XV, pp. 552–554, Fig. 1–2.

———, 1894B.—Nochmals über *Tænia Brandti;* C. f. B. u. P., XVI, pp. 953–954.

NEUMANN, 1892.—Traité des maladies parasitaires, etc., p. 408.

STILES AND HASSALL, 1893.—A Revision of Adult Cestodes of Cattle, Sheep and Allied Animals. Bull. No. 4, B. A. I., U. S. Dept. Agric., Washington, D. C.

34: On the Presence of Adult Cestodes in Hogs.

(Appears simultaneously in THE VETERINARY MAGAZINE and in the *Centralblatt f. Bakteriologie und Parasitenkunde*, 1895, Bd. XVII, Erste Abt., No. 7–8, pp. 256–257.

It is a remarkable fact that an omnivorous animal like the hog should be so free from adult tapeworms. So far as I have been able to learn Cholodkowsky's statement in his article 1894A that three of his specimens of *T. Brandti* (*Th. Giardi*) came from hogs, is the only observation as to the presence of tapeworms in hogs ever published. In connection with Cholodkowsky's statement the following two cases may be worthy of notice:

I.—I have frequently asked butchers in this country if they have ever found tapeworms in hogs, and with one exception all have replied in the negative. This past summer I asked a butcher in Iowa this question, expecting a negative answer, but received the reply that upon one occasion he had taken a single tapeworm about nine feet long from a hog; he asserted that so far as he could judge, it was identical with the forms found in cattle and sheep.

I am not inclined to accept this case as a porcine tapeworm. The slaughter-house in which the observation was made was a very small country affair, where only two or three hogs are slaughtered per week; hogs were feeding around the grounds and received all the entrails of cattle and sheep. It seems to me more than probable that in this case, the butcher killed a hog immediately after it had eaten ovine or bovine entrails containing a tapeworm, so that the presence of the tapeworm in this hog was probably purely an accidental occurrence.

The question naturally arises whether Cholodkowsky's case is not to be explained in the same manner. Here we have a cestode found heretofore only in sheep and cattle, and now it is found in a hog in the St. Petersburg abattoir. Knowing nothing of the construction of this abattoir, or whether hogs would have an opportunity to feed on ovine or bovine offal, I refrain from expressing a positive opinion in regard to whether his specimens of *Th. Giardi* were accidentally present in hogs, or whether this cestode will really develop in swine. To explain the find as an accidental occurrence is certainly tempting, to say the least.

II.—The second case is not so easily explained as the first case mentioned above. Meeting one of Iowa's most prominent stockraisers Dr. G. H. Grimmell, of Jefferson, I related to him my conversation with the butcher referred to. Dr. Grimmell then stated that he could add another case. Some years ago one of his hogs was sick; he suspected worms and drenched the animal with *santonine*, 30 grains; *aloes*, 1 drachm; *Epsom salts*, 3 ounces; after a short time the hog passed a tapeworm, which, according to Dr. Grimmell's statement, possessed four suckers on the head and double genital pores in each segment. He states that he personally saw the worm passed; his statements were all confirmed by his daughter who is also a practicing physician.

Dr. Grimmell added that he had several times heard of tapeworms in hogs, but never credited the reports until he saw this one. The hog had been penned and had no opportunity of swallowing ovine or bovine tapeworms.

Grimmell's statements were too exact to be disregarded, at the same time they are too indefinite to allow a decision as to what species or even genus (*Moniezia ?*) was found, or to explain its presence in the hog.

B. A. I., U. S. Dept. of Agriculture, I. 5. 1895.

NOTES ON PARASITES: 36–37.

By Ch. Wardell Stiles.

36: A double-pored Cestode, with occasional single pores.

(Appears simultaneously in The Veterinary Magazine and in the *Centralblatt f. Bakteriologie und Parasitenkunde*, 1895, Vol XVII, Erste Abt., No. 13–14, pp. 457–459. Abstract in Minutes of the Washington Biological Society for March 9; Science (N. Y.) p. 334, 1895.)

Thysanosoma Giardi is a single-pored cestode which is of considerable interest on several accounts, more particularly because, while as a rule it possesses single, irregularly alternate genital pores in its segments, it occasionally exhibits segments with double genital pores. Since finding this peculiar condition of affairs and thus explaining, in part at least, the difference of opinion concerning this species between Moniez and Blanchard on the one hand, and Neumann on the other, I have constantly been looking for some double-pored cestode which exhibited the anomaly of the occasional presence of single genital pores.

Of the thousands of segments of the genus *Moniezia* which I have examined, I have as yet found only one with a single genital pore; the only other anomaly of the pores in this genus worth mentioning which I have seen is the one recently reported (1894, Note 23), in which the right genital pore of one segment (*M. planissima*) opened on the *dorsal surface* of the segment between the two longitudinal canals, while all of the neighboring genital pores (both right and left) were perfectly normal. In *Thysanosoma actinioides* Diesing, 1834, which is

also a double-pored form, I have never found any anomalies of the pores, although in this species one might possibly expect to find some segments with single pores, since the uterus is single. In *Ctenotænia marmotæ* (*Tænia marmotæ* Frölich, 1802, which Railliet [1893] has taken as type-species of his genus *Ctenotænia*) we might also look for some segments with single pores, for here too we find only one uterus present in each segment (Stiles, 1893, p. 71, Pl. VII, 7).

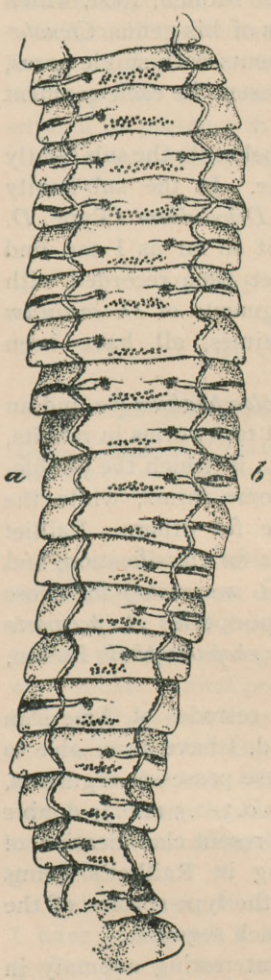
All of the cestodes mentioned thus far belong to the sub-family *Anoplocephalinæ* of the family *Tæniidæ*. In the sub-family *Cystoidotæniinæ* we also find a genus, *Dipylidium* (Type, *D. caninum*) with double genital pores, but so far as I can find no segments of this genus have as yet been recorded with single genital pores. Of the many segments of *D. caninum* that I have examined at different times, all have been normal.

Returning now to the sub-family *Anoplocephalinæ* we find an interesting group of closely allied adult tapeworms in rabbits, pocket-gophers (*Geomys*), *Arctomys*, etc., in which the double-pored condition is characteristic for some forms, while the single-pored condition is characteristic for others. Railliet (1893) has recently taken this as a basis for classification, and has created *Ctenotænia* (type-species *Ct. marmotæ*) for those having double pores, and *Andrya* (type-species *A. pectinata* [Zeder, 1800] Railliet, 1893—syn. *Tænia rhopalocephala* Riehm, 1881) for those with single pores.

In the seventy-five strobilæ of rabbit cestodes of American origin which I have thus far examined, I have been able to recognize but two species. One of these possesses segments, which are broad and short (10 mm. by 0.3–0.5 mm.); double pores are present and according to the present classification of the cestodes this species would belong in Railliet's genus *Ctenotænia*, although it disagrees with the type-species of the genus in possessing a double uterus in each segment.

In this species I found an extremely interesting anomaly in one preparation of twenty segments, which is deserving of special notice at this time, because of the recent discussion concerning the genital pores of *Thysanosoma Giardi*. In the first segment of the preparation (cf. figure), the pores are double, thus presenting the normal condition for this species; then comes a segment with only one pore, which is situated

on side *a*; next follow four normal, double-pored segments; then a single-pored segment, pore on side *a*; a double-pored segment; the next six segments possess single pores, all on side *b*; the fifteenth segment a single pore on side *a*; sixteenth and seventeenth segments single pores on side *b*; eighteenth, single pore on side *a*; nineteenth, single pore on side *b*; in the last segment the pore could not be determined. I have used the designation "side a," and "side b," as I am not yet prepared to state which side is right and which left. The entire remaining portion of the specimen was mounted and examined, but all the segments were found to possess double pores.



Double-pored anoplocephaline cestode, with occasional single pores. From *Lepus sylvaticus*. Maryland, U. S. A. B. A. I., No. 1119.

In the second species of adult cestode which I find in American rabbits, the genital pores are single and irregularly alternate, and the form should, according to the present classification (based upon pores alone) be placed in Railliet's genus *Andrya*. The eggs, however, are arranged in packages, a condition found also in the genus *Davainea* R. Bl. and Railliet, 1891, and in *Dipylidium* R. Lkt., 1863. In connection with this fact I would refer to the presence in the young stage of certain (sp. ?) rabbit tapeworms of numerous hooks on the rostellum and suckers (Stiles, 1894. Notes–31.).

It will be noticed from the above that I have carefully avoided any attempt to determine the American forms specifically, or to make any generalizations upon the classification of this group of tapeworms. The reasons are perfectly apparent: (1) The similarity of the head of the young to the head of certain species of *Davainea*; the

similarity of the uterus of the last mentioned rabbit form to the uterus of *Davainea* and of *Dipylidium*; and the presence of a double uterus in some forms of this group (as the rabbit tapeworm first mentioned above), and of a single uterus in others (as in *Ctenotænia marmotæ*) bring up problems of classification which can be solved only by a thorough study of the topographical anatomy of a large series of forms from different parts of the world. I have at present only about 120 strobilæ from rabbits, and I am not yet willing to base any generalizations upon so small a number of specimens. (2) My second reason for shirking the specific determination is that this note is intended simply to call attention to the curious anomaly of the above double-pored cestode, an anomaly which is especially interesting at this time because of the recent discussion in regard to the anomaly of the genital pores in *Th. Giardi*.

I. 24, 1895.

REFERENCES.

RAILLIET, 1893.—Traité de Zoologie médicale et agricole, Paris.

STILES, 1892.—Notes sur les Parasites—13: Sur le *Tænia Giardi* (Riv.) Mon.; Compt. Rend. d. l. Soc. d. Biol., pp. 664–665.

1893.—A Revision of the Adult Cestodes of Cattle, Sheep and Allied Animals; Bul. No. 4, B. A. I., U. S. Dept. Agric. (Stiles and Hassall.)

1894.—Notes on Parasites—23: An interesting anomaly in *Moniezia planissima*; The Veterinary Journal, I, p. 433. (Stiles and Hassall.)

1894.—Notes sur les Parasites—31: Une phase précoce des Ténias du Lapin (Notice préliminaire); Bul. Soc. Zool. d. France, XIX, pp. 163–165.—id. Transl. An early Stage of Rabbit Cestode; THE VETERINARY MAGAZINE, 1895, Vol. II, No. 1, Jan., pp. 32–33.

37: A Bibliography of "Notes on Parasites" (Notes sur les Parasites, Bemerkungen über Parasiten) Nos. 1–31 incl., published 1891–1894, incl.

The following bibliography of "Notes on Parasites: 1–31," includes all the "Notes" which have appeared in any journal dated June, 1891, (Note 1) to December, 1894, incl. (Note 31). Two of the Notes (12 and 16) appeared in press under the subtitle only, but were presented before scientific societies prior to publication as "Notes on Parasites," on which account they are included in this series.

The series will be continued, the separate numbers appearing in English, French or German, as occasion may require; but in order to make the series complete in one journal, a full set will appear in THE VETERINARY MAGAZINE in English.

Notes 1–20, 24–28, and 31, were published by Stiles.

Notes 21–23, and 29–30, were published by Stiles and Hassall.

Notes sur les Parasites—I. Sur la dent des Embryons d'Ascaris; Compt. rend. d. l. Soc. d. Biol. (séance 6 juin, pub. 11 juin) 1891, pp. 465–466. —— id.; Bull. d. l. Soc. Zool. d. France, XVI, (séance du 9 juin), 1891, pp. 162–163.

Notes on Parasites—No. II. (a) *Coccidium bigeminum*, (b) *Dispharagus gasterostei*, (c) *Mermis crassa;* The Journ. of Comp. Med. and Vet. Arch., 1892, XIII, No. 9, Sept., pp. 517–526, figs. 1–12.

Notes sur les Parasites—III. Sur l'hôte intermédiaire de *l'Echinorhynchus gigas* en Amérique; Compt. rend. Soc. Biol., 1891, pp. 764–766, ——id.; Bull. Soc. Zool. France, XVI, 1891, pp. 240–242. Translated as: Notes on Parasites—III. On the American Intermediate Host of *Echinorhynchus gigas;* Zool. Anzeiger, XV. Jhg., 1. Feb., 1892, pp. 52–54.——Copied as last half (pp. 659–661) of "*Echinorhynchus gigas* and its Intermediate Host;" Journ. Comp. Med. and Vet. Arch., XII, No. 12, Dec., 1891, pp. 657–661, 2 figs.

Notes on Parasites—4. Preliminary Note on *Myzomimus* gen. nov., type species *M. scutatus* (Mueller, '69) a parasite in cattle; Journ. Comp. Med. and Vet. Arch., XIII, No. 2, Feb., 1892, pp. 65–67. 1 fig.

Notes on Parasites—5. A word in regard to the Filariidæ found in the body cavity of horses and cattle; Journ. Comp. Med. and Vet. Arch., XIII, No. 3, March, 1892, pp. 143–147. Figs. a–b.

Notes on Parasites—6. On the presence of *Strongylus Ostertagi* (Ostertag, 1890), Stiles, 1892, in America; Journ. Comp. Med. and Vet. Arch., 1892, XIII, No. 3, March, pp. 147–148.

Notes on Parasites—7. A word in regard to Dr. Francis' *Distomum texanicum;* The American Veterinary Review, Vol. XV, March, 1892, pp. 732–733. —— abstr. in; Journ. Comp. Med. and Vet. Arch., XIII, No. 3, March, 1892, p. 148.

Notes on Parasites—8. A check list of animal parasites of cattle, with a request to Veterinarians and Zoölogists; Journ. Comp. Med. and Vet. Arch., XIII, No. 6, June, 1892, pp. 346–350.

Notes on Parasites—9. Two cases of *Echinococcus multilocularis* in cattle; Journ. Comp. Med. and Vet. Arch., XIII, No. 6, June, 1892, p. 350.

Notes on Parasites—10. A case of Intestinal Coccidiosis in sheep; Journ. Comp. Med. and Vet. Arch., XIII, No. 5, May, 1892, pp. 319–325, figs. 1–14.

Notes on Parasites—11. *Distomum magnum* Bassi, 1875; Journ. Comp. Med. and Vet. Arch., XIII, No. 8, August, 1892, pp. 464–466.

Notes on Parasites—12. On the anatomy of *Myzomimus scutatus* (Müller, 1869), Stiles, 1892; Festschrift zum siebenzigsten Geburtstage Rudolf Leuckarts, Leipzig, 1892, pp. 126–133, Taf. XVII, figs. 1–29.

Notes sur les Parasites—13. Sur le *Tænia Giardi* (Riv.) Mon.; Compt. rend. Soc. Biol., No. 27, (séance du 16 juillet, pub. 22 juillet) 1892, pp. 664–665.—— id.; Bul. Soc. Zool. France, XVII, No. 6, (séance 12 juillet) 1892, pp. 157–158.

Notes sur les Parasites—14. Sur le *Tænia expansa* Rud.; Compt. rend. Soc. Biol., No. 27, (séance 16 juillet, pub. 22 juillet) 1892, pp. 665–666.——id.; Bul. Soc. Zool. France, XVII, No. 6, (séance 12 juillet) 1892, pp. 158–159.

Notes on Parasites—15. On the presence of *Spiroptera reticulata* in cattle, with 3 plates.

The manuscript of this note was lost in the mails and the article was never rewritten. In the article it was stated that the worm which had been mentioned under the manuscript name of *Filaria lienalis* (nomen nudum) from the connective tissue of the spleen of the steer—see Note 5—is probably identical with *Sp. reticulata* of the horse.

Notes on Parasites—16. On *Demodex folliculorum* var. *bovis* in American cattle; The Canadian Entomologist, Vol. XXIV, No. 11, Nov., 1892, London, Ontario, pp. 286–290.—Presented before the Entomological Club of the A. A. A. S., as "A Cutaneous Disease of Cattle caused by an Arachnoid," see Secretary's Minutes for Aug. 18, Canadian Entomologist, XXIV, No. 10, p. 245.

Bemerkungen über Parasiten—17. Ueber die topographische Anatomie des Gefässsystems in der Familie Tæniadæ; Centralbl. f. Bakt. und Par., XIII, Nos. 14–15, 10. April, 1893, pp. 457–465, figs. 1–12.

Notes on Parasites—18. On the Presence of Sarcosporidia in Birds. (Miscellaneous Investigations concerning Infectious and Parasitic Diseases of Domesticated Animals); Bul. No. 3, B. A. I., U. S. Dept. of Agric., 1893, pp. 79–88, pl. II–III (Actual date of publication, Nov. 8, 1893).

Bemerkungen über Parasiten—19. Ein Wort zu Dr. Stadelmann's "Zur Frage des *Strongylus convolutus*;" Zeitschr. f. Milch- u. Fleischhygiene, IV. Jhg., Heft 8, Mai, 1894, pp. 151–153.

Bemerkungen über Parasiten—20. Ueber die Erhaltung von Typen; Centralbl. f. Bakt. u. Par., XV, Nos. 13-14, 7. April, 1894, pp. 477–480.

Notes on Parasites—21. A new species of Fluke (*Distoma* [*Dicrocœlium*] *complexum*) found in cats in the United States, with bibliographies and diagnoses of allied forms; The Veterinary Magazine, I, No. 6, June, 1894, pp. 413–432, plates I–IV, (19 figs.). (With Albert Hassall.)——The "Summary" (pp. 430–432) of this paper was printed as: Notes sur les Parasites—21. Une nouvelle espèce de Douve, *Distomum* (*Dicrocœlium*) *complexum*, trouvée chez les Chats des Etats-Unis; Bul. Soc. Zool., XIX, Nos. 5–6, (séance du 22 Mai) 1894, pp. 89–91.

Notes on Parasites—22. A case of *Echinococcus* in a camel; The Veterinary Magazine, I, No. 6, June, 1894, pp. 432–433. (With Albert Hassall.)

Notes on Parasites—23. An interesting anomaly in *Moniezia planissima*; The Veterinary Magazine, I, No. 6, June, 1894, p. 433. (With Dr. Hassall.)

Notes sur les Parasites—24. Note préliminaire sur une espèce d'Infusoires (*Ichthyophthirius*) parasites chez des Poissons d'eau douce à l'Exposition nationale de Chicago; Comp. r. d. l. Soc. d. Biol., (séance du 26 Mai, pub. 1 juin) 1894, pp. 434–436.——This is a French translation of the "Summary" (p. 190) of "Report on a parasitic Protozoan observed on Fish in the Aquarium; Bul. U. S. Fish Com. for 1893, (1894), pp. 174–190, plates 11 and 12.——This summary (p. 190, Note 24) was also translated independently by René Paratre in Bul. Soc. Cent. d'Aquiculture de France, VI, 2. sér., Nos. 7–9, juillet-sept., 1894, pp. 165–167, pl. I.

Notes sur les Parasites—25. La grande Douve Américaine (*Fasciola magna*); Bul. Soc. Zool. d. France, XIX, No. 6, (séance du 22 Mai, pub. Juin), 1894, pp. 91–94. ——This is the "Summary" (pp. 277–279) of "On the Anatomy of the Large American Fluke," etc., now appearing in The Journ. Comp. Med. and Vet. Arch., 1894–1895.

Notes on Parasites—26. *Distoma* (*Mesogonimus*) *Westermanni*. Discovery of a parasite of man, new to the United States, (read before the Johns Hopkins Hospital Medical Society, April 16, 1894); Johns Hopkins Hospital Bulletin, 1894, No. 40, May, pp. 57–58, 4 figs.——Reprinted as "Notes on Parasites" by The Veterinary Journal (London), Aug., 1894, Vol. 39, No. 230, pp. 107–110, figs. 1–4.

Notes on Parasites—27. Experimental Trichinosis in *Spermophilus 13-lineatus*; C. f. B. u. P., XVI, No. 19, 3. Nov., 1894, pp. 777–778.——id. The Veterinary Magazine, I, No. 11, November, 1894, pp. 727–728.

Notes on Parasites—28. New American Finds of Sarcosporidia; The Veterinary Magazine, I, No. 11, November, 1894, pp. 728–729.——Abstr. as: Nouvelles espèces américaines de Sarcosporidies (Résumé); Bul. Soc. Zool. de France; XIX, (séance du 11 Décembre) 1894, p. 160.

Notes on Parasites—29. A new species of intestinal fluke (*Distoma tricolor*) in the Cotton-tail Rabbit (*Lepus sylvaticus* Bachman) and in the Northern Hare (*L. americanus* Erxleben); The Veterinary Magazine, I, No. 11, November, 1894, (actual date of publication, January 17, 1895), pp. 729–737, 8 figs. on two plates.——The "Summary" (pp. 736–737) appeared as: Notes sur les Parasites —29. Nouvelle espèce de Douve intestinale (*Distomum tricolor*) chez le Lapin à queue cotonneuse (*Lepus sylvaticus* Bachman) et chez le Lièvre du Nord (*Lepus americanus* Erxleben) (Résumé); Bul. Soc. Zool. d. France, XIX, (séance du 11 Dec.) 1894, pp. 160–162, fig. 1.

Notes on Parasites—30. *Distoma* (*Polyorchis*) *molle* (Leidy, 1856) S. and H., 1894; The Veterinary Magazine, I, No. 11, Nov., 1894 (appeared Jan. 17, 1895), pp. 737–742, 3 figs.——The "Summary" (pp. 740–741) appeared as: Notes sur les Parasites—30. *Distomum* (*Polyorchis*) *molle* (Leidy, 1858 [read 1856]), (Wardell Stiles et Hassall, 1894), (Résumé); Bul. Soc. Zool. de France, XIX, (séance du 11 Déc.) 1894, pp. 162–163, fig. 2.

Notes sur les Parasites—31. Une phase précoce des Ténias du Lapin (Notice préliminaire); Bul. Soc. Zool. de France, XIX, (séance du 11 Déc.) 1894, pp. 163–165. Translated as: Notes on Parasites—31. An early stage of Rabbit Tapeworm; The Veterinary Magazine, II, No. 1, Jan., 1895, pp. 32–33.