

W.O.'s Note book, 1870.

p. 205.

ENTOZOA in BAT.

15/11/69.

Obtained a curious encysted Nematode from the walls of the stomach of the New-York bat.

There were no other Entozoa, either free in stomach and intestines or encysted in the muscles. There were eight altogether, slides no. , see drawing.

p. 207.

ENTOZOA in CAT-FISH.

12/5/69.

Procured two small Taeniae from intestine, length about half an inch; head devoid of hooklets.

7/5/70.

From a cat-fish caught in the canal 10 Taeniae were obtained. This Cestode is from $\frac{1}{4}$ to $\frac{1}{2}$ an inch in length and very extensible. Suctorial disks prominent, can be seen with the naked eye, they are four in number; no hooklets were seen. The water vascular system is beautifully seen in this species. At the head it may be seen terminating in a plexus (whose branches are as large as the primary trunks) situated between the disks.

Two Distomes were also found in the intestine; encysted Nematodes in the liver. A Cysticercus in the kidney.

29/5/70.

From the intestines of Cat-fish speared at the Island. 3 Taeniae, very small, and 4 Echinorhynchidae (see slide) accessory claspers of the male - well seen in this species.

p. 209.

ENTOZOA in PIG.

5/6/69.

Obtained from Dr. Maddock of Hamilton a small portion of the heart of a measley pig; contained about a dozen of Cysticercus Allulosa. See slides No.

*G. Johnson as sent to me
no VI 69 No 1245-*

ENTOZOA in MAN.

p. 211.

7/2/68.

I.

Trichina spiralis.

Obtained a piece of muscle from a man who died of the disease in Illinois State, very numerous, not encysted. Two families living on different flats of the same house bought a barrel of pork between them. One flat cooked the pork and escaped the disease, the other ate theirs raw and nine were sickened; of these nine, four died

27/2/69.

II.

The family of a Mr. Getz in Hamilton consisting of himself, wife and daughter, partook of an uncooked ham. All three were laid up with the disease. Miss Getz died first, in her the parasites were numerous and unencysted. Mrs. Getz died some two weeks after her daughter; in her they were just beginning to be encysted. The husband was attacked but not so severely and escaped, most probably from being drunk for some days at the commencement of the attack. See slides Nos.

20/12/69.

III.

Obtained a piece of muscle from a woman in New York. In her the disease was not suspected during life, the students on dissecting the body found (as in the original discovery of the parasite) great difficulty in cleaning the muscles, and on examination they were found to be packed with Trichinae, all encysted. See slides Nos.

22/2/70.

IV.

While dissecting the arm of a man, who had died at the Toronto General Hospital, I found numerous Trichinae in the Biceps muscle, and further examination showed them to be scattered pretty freely throughout the muscles. From ~~30~~ of the muscle, from the beginning of the long head of Biceps I obtained 150 cysts, the greater number of them containing healthy-looking Trichinae.

29/3/70.

V.

In the subject following the one above, and also brought from the Toronto General Hospital, numberless cysts were found in all parts of the body. The parasites in this case are not as old,

1870 (continued)

none of them beginning to undergo degeneration.

ENTOZOA in MAN.

p. 214.

15/3/68.

Taenia solium.

Ten feet passed by a bank-clerk, a patient of Dr. Russell's.
See slides Nos.

23/2/71.

Taenia mediocanellata. Obtained three specimens of this cestode from a man (Earle) who died of heart disease in Montreal Gen. Hospital. He stated during life that he had been suffering from Tape worm for 14 years, got it at Malta while station there with his regiment. He stated that he had been under treatment for it innumerable times and had passed many yards of the worm. While in Hospital during the end of last year and the beginning of this, he was treated with the male shield fern, which brought away several long portions. On opening the small intestines the worms were found extending from the lower part of the duodenum through the jejunum and seeming completely to fill the intestine in the empty condition. The heads were all within $1\frac{1}{2}$ inch of each other and deeply imbedded in the mucous membrane, between the valvulae conniventes. The bodies were convoluted and twisted, extending down the intestine for about $3\frac{1}{2}$ feet, and lower down in the bowel several detached portions were found, consisting of from six to eighteen proglottides. The worms still retained some little vitality, but the movements were very feeble. While in the intestine, the water-vascular system in one of them was beautifully seen, extending up each side of the worm. The length was of each respectively 76.50 and 65 inches, and the number of segments amounted in each to between 275 & 350, falling at least 100 short in the longest one of the fully mature sexual segments. This however is not to be wondered at as it is not more than six weeks ago since he passed several yards. The chief differences between this form and *T. solium* appear to be as follows. The head is larger, abruptly terminated, and lacks the rostellum and consequently the hooklets. It is surrounded by a dark zone of calcareous corpuscles which form a striking contrast to the white segments of the neck. The segments are broader, thicker and not as long. The generative orifice is a little below the centre, and the lateral branches of the uterus appear more numerous and closely packed together. There appears also to be a difference in the shape of the ova in the two species, that in *Taenia solium* being round, while in *T. marginata* they are rather oval and somewhat larger.

p. 223

ENTOZOA in PERCH.

23/4/70. In the liver of a perch taken from the stomach of a pike (see p. 219) were numerous encysted Nematodes (see slide no.).

13/5/70. From four Perch caught in the canal I obtained the following:-

A Cysticercus from the liver, the head of which bears a remarkable resemblance to the head of the Taenia of the pike and most probably is its scolex. Encysted Nematodes from the liver.

Four species of Echinorhynchus from the rectum.

In the intestine there was a curious entozoön with a bell-shaped retractile head furnished with small finger like processes (see sketch and slide).

Coiled around the base of the aorta was a large distoma. The upper thrid is outlined in this sketch.

p. 227.

ENTOZOA in EEL.

9/5/70. One solitary tape-worm in the duodenum about four inches long. No generative organs seen, no ova, water-vascular system distinct, no head discovered.

Two species of Echinorhynchus both female, length $\frac{3}{4}$ to 1 inch, moved freely, retracting and pushing out the hooked proboscis. Eleven rows of hooklets, recurved like the barb of a harpoon. The two Lemnisci were distinct as also the 3 or 4 muscular retractors of the proboscis. Cysts containing ova occupied the rest of the body. Two or three slight constrictions existed.

12/7/70. From a large silver eel caught at Burlington canal obtained one large Distome from stomach.

W.O.'s note book, 1870.

p. 229.ENTOZOA in SQUIRREL.

12/5/70.

Eight small Ascaridae from the duodenum of the redsquirrel.

p. 230.EXPERIMENTS WITH ENTOZOA.

23/1/70.

I.

Fed two rabbits with mature Proglottides of *Taenia elliptica*, from dog no. 2, six segments to each rabbit. These will in all probability give negative results as the scolices of *Taenia elliptica* are not produced in the rabbits.

THESE FAILED.

23/2/70.

II.

Fed a rabbit with about $\frac{3}{4}$ of Trichinous flesh from man in whom I found them while dissecting.

1/3/70.

III.

Fed a cat and dog with Trichinous flesh. 3/3/70. Repeated the dose to dog.

In these cases the juices of the stomach were in all probability not strong enough to dissolve the cyst and free the parasite.

30/3/70.

IV.

Fed a rabbit and a young pup with muscle from Case V. 31st repeated the dose to pup. 1st again.

14/4/70.

Killed the pup. No traces of Trichinae; the cysts were probably too dense for the juices of the stomach to dissolve.

21/4/70. Killed the rabbit fed with the Trichinous flesh on 30th Mar. Numerous Trichinae in a young immature condition were observed in the muscles. Many of them exhibited sluggish movements. They were more numerous in the abdominal and thigh muscles than in any other.

p. 250.ENTOZOA in PICKEREL.

3/6/70. From the intestine of a Pickerel in the Fish-market I obtained 8 Taenia. This is a comparatively stout Cestode, length from 10-12 inches breadth of posterior segments about $\frac{1}{4}$ of an inch. Head square, no neck, but a gradual tapering to the head. Disks four, large, no hooklets observed.

23/6/70. From Pickerel (one foot and one half long) in Fish-market Toronto. 18 large Taenia were obtained.

p. 276.

ENTOZOA in DOREY

22/10/70. Examined a dorey in Montreal fish market. One small tape-worm, one Borthriocephalus and about two dozen small Echinorhynchidae were found. The Borthriocephalus occupied the entire cavity of one of the numerous caeca given off at the pylorus. The Taenia was in the duodenum and the Echinorhynchidae move towards the rectum. This fish I find is the Pickerel. see. p. 250.

W.O.'s note bk, 1870.

p. 278.ENTOZOA in BAR -FISH.

1/11/70.

Examined one of the above-named fish, and found in the peritoneal cavity some half dozen Nematode worms. Each worm is about half a line in thickness and from three to four inches in length, dark in colour, annulated towards the anterior extremity, which is blunted and thick. The posterior extremity is pointed and presents the vaginal and rectal orifices. The ovaries extend the whole length of the body.

10/11/70.

Found more of the same kind in the peritoneal cavity packed about the rectum, nothing in the intestines.

ENTOZOA in CAT. ^{to}p. 280.

3/1/71.

Examined intestines of cat, found one *Ascaris mystax*(?) and one *Taenia*.

*Probably *Ascaris* to *Ascaris**

p. 282.

ENTOZOA in LYNX.

5/3/71.

Examined the intestine of an animal obtained by the Nat. History Society of Montreal. In the duodenum were Ascaridae and lower down in the bowel 25 Taeniae. The animal had been dead a long time and the intestines had been thrown out and exposed to the cold for two nights. The greater part of a racoon was found in a semi-digested state in the stomach. The other organs were not examined.

W.O.'s Note book, 1870.p. 284.ENTOZOA in RAT.

8/3/71.

From a rat obtained at Montreal General Hospital I obtained 5 Taeniae. They were situated low down in the intestines, approaching the faeculent matter. This is a small, fine species $2\frac{1}{2}$ to 3 inches in length. Head very small, no hooklets seen. The water vascular system is very distinct.

p. 217.

21/4/70.

Made
ON THE FINNS OF CHUB.

On the finns of chub in the Rev. W. A. Johnson's aquarium were noticed several round white spots. These on examination proved to be some sort of Entozoa. In addition to these, some yellow spots were seen which seem to be a more advanced condition of the parasite. (see slide *** .)

2/5/70. Numerous Flukes attached to the intestine of a small chub. (see slide no. ***)

12/6/70. Examined three chub: from the intestine of one two Echinorhynchus were obtained, a male and female.

p. 219.

ENTOZOA in PIKE.

23/4/70. *Mad*

In a pike 2 ft. 7 in. long caught at the Island, I obtained 68 specimens of Taenia and two or three small Ascaridae.

This tape-worm is about a foot long, and exhibited curious undulatory movements which continued for more than twenty-four hours after removal from the intestines. It is very extensible, and may be stretched to almost double its ordinary length. The head is flattened, club-shaped when the worm is dead, but during life is generally extended, giving to it the shape of a flint arrow-head. Five suckorial disks are plainly seen but no hooklets. The segments taper very gradually, being exceedingly small at the neck, larger towards the end of the body, they are about twice as broad as they are long. The Water vascular system is most distinctly seen in this worm, consisting of four channels, two on each side. At the head and for a considerable distance down the neck, these tubes connect by means of inosculating branches, these about the head form a dense net-work. (see sketch).

30/4/70. From a pike caught in the canal basin at Dundas I obtained 28 Taenia and numerous small Ascaridae. In the stomach of this fish were 52 smaller ones, principally little bass and perch.

30/6/70. From the intestines of two pike obtained at the Fish-market, Toronto. In one 84 Taenia were found and in the other 53 not counting numerous small undeveloped ones, - looked like freshly eaten scolices. A few Ascaridae were found in the stomach of one.

23/6/70. From intestine of a pike obtained in Fish-market, Toronto. 56 Taenia; most of these were of a large size and longer than the usual ones from this fish.

p. 254.

ENTOZOA in MENOBRANCHUS lateralis.

2 6/6/70. From a specimen of the above, caught at the Island I obtained numerous Polystomes, some of which were attached to the branchiae others to the upper surface of the mouth. This Nematode presents four disks, two at each extremity. Of these the smaller one situated about the middle of the upper fourth of the body, is the mouth, which leads directly into the intestines. These consist of two simple tubes, which unite about the middle of the lower fourth of the body. The water vascular system is well developed. It appears to commence in a ramification of vessels about the anterior disk, these unite to form two vessels, which run the whole length of the body, join below and open somewhere between the posterior disks. Cilia is to be seen distinctly in the water vascular system, especially at the junction of the tubes below. At the upper third of the body on a level with the generative opening, on each side is seen a curious pulsating organ which is undoubtedly connected with the water vascular system. The pulsations occur about every minute and a half. ~~xxx~~ The external generative orifice is seen a little below the oval disk, this leads into a narrow, slightly curved vagina. The ova occupy the general cavity of the body between the digestive tubes. A bundle of specules (Penis?) are to be seen close to the vulva. Close to the caudal disks two large hooks are placed. These hooks are bifurcate and to one extremity a band of fibres is attached. Besides these numerous small hooklets are to be seen scattered about the posterior disks. The attached extremity of these is trifurcate.

p. 258.ENTOZOA in SKUNK.3
15/6/70.

From a large male skunk, about 30 Taeniae and 14 Ascaridae. Numerous small cysts were observed in the liver and spleen but nothing found in them. The Tape worms are small, from $\frac{1}{2}$ an inch to 2 inches in length, broad in proportion, exhibiting very slight movements. A slight enlargement seems to exist about the neck, which disappears when the worm is much elongated. The segments seem but loosely joined together, breaking very easily. Four larger sucking disks exist at the head, no hooklets seen. The calcareous corpuscles are more numerous in this Cestode than in any I have yet examined. The water-vascular system is not easily seen on account of the dense layer of calc. corpuscles.

The Ascaridae are from $\frac{3}{4}$ of an inch to one inch in length. They move freely. Most of them were in the stomach, not in the intestines.

p. 260.

ENTOZOA in SUN-FISH.

4/7/70.

Examined ten Sun-fish caught in the Canal; in all numerous Distomes were found. This fluke is probably in an immature condition, being encysted and not having its internal organs completely developed. The heart, liver and kidneys presented a swollen appearance from the numbers in them. They seemed only to be attached to the heart, while in the liver and kidneys they occupied the substance of those organs.

Encysted Nematodes were found in one liver and what appeared to me the scolex of one of the Echinorhynchidae, in another.

In the rectum of two, a few Echinorhynchidae were found.

W.O.'s note book, 1870.

ENTOZOA in SUN FISH.

p. 260.

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Echinorhynchida in another

copy

p. 264.

ENTOZOA in KING-FISHER.

1/7/70.

(a King Fisher)

4 { Examined one of these birds, and much to my surprise found no Entozoa in it.

13/8/70.)

X 5 { Shot a King-fisher. A few small Distomes were found in the liver. The small fish which constitute the food of this bird seem not to share the common fate of fish, inasmuch as few or immature Entozoons are found in them.

W.O.'s note book, 1870.

P. 266.

ENTOZOA in BLACK SQUIRREL.

1/7/70.

Examined a large male animal. No Entozoa in him.

ENTOZOA IN BASS.

p. 268.

7/7/70.

6

Examined a large black Bass caught in Burlington Bay. A solitary scolex of some tape-worm was found in the peritoneal cavity.

ENTOZOA in HAWK.

p. 270.

13/8/70.

8

Shot a Hawk; a single large Ascaris found in the duodenum.

p. 274.

W.O.'s note book, 1870.

ENTOZOA in FOWL (Gallus).

9/9/70. Examined the intestines of three fowls, one a two-years' old rooster, the others this year's chickens. In the duodenum of the rooster numerous Taenia, from 2-6 inches long, were found; in the younger fowls a few smaller ones of the same kind occurred. The smaller ones were deeply imbedded in the mucous membrane, the larger ones not at all so.

4/1/71. Examined intestines of two fowls. Found in one numerous Taeniae, same kind as above, and one Distome about half an inch long and 2 lines thick, very large posterior sucking disk. The fowl has been frozen so that the worms were dead and had begun to disintegrate. In the other a few small taeniae only were found. The generative organs in this species open by an orifice of considerable size along one margin only of the worm. The opening is more at the junction of the segments than at the centre.

6/11/71. Examined two fowls. One large Ascaris only found. The fowls were grain-fed.