

CONTRIBUTIONS TO A KNOWLEDGE OF AUSTRALIAN ENTOZOA.

No. i.— ON A NEW SPECIES OF *Distomum* FROM THE PLATYPUS.

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(Plate xxii.)

The specimens (about fifty in number) forming the material for this paper were collected by Mr. J. P. Hill, B.Sc., F.L.S., Demonstrator of Biology in the University of Sydney, and by Mr. A. M. Lea. Mr. Hill's collection was obtained at the Tumbledown Creek, Williams River, and at the Manning River; Mr. Lea's at Little River, Dalmorton. Both collections were handed over to me by Mr. Hill, whom I have to thank, also, for a number of valuable preparations of the animal. The parasite was found in the stomach, duodenum and the anterior part of the small intestine of the Platypus (*Ornithorhynchus anatinus*, Shaw). After careful comparison with the published descriptions and figures available to me,* I have come to the conclusion that it is a new species.

DISTOMUM ORNITHORHYNCHI, sp.n.

General shape of body elongate, tapering at both ends, the posterior end narrowing more gradually than the anterior; no distinct neck; body somewhat flattened dorsiventrally, the sides

* C. M. Diesing, *Systema Helminthum*; P. J. Van Beneden, *Mémoire sur les Vers Intestinaux*; Bronn's *Klass. u. Ord.*; E. Linton, "Notes on Trematode Parasites of Fishes," *Proc. U.S. National Museum*, Vol. xx.; Cobbold's *Entozoa*; Neumann's *Parasites of Domesticated Animals*; G. S. West, on *D. philodryadum*.

being rounded. The longest specimen measured alive was 9 mm. long, the average length of preserved specimens being about 8 mm., the breadth from 1 to 1.2 mm. In very many the body is flexed ventrally. Colour when alive light salmon-pink. Cuticle produced into a number of small, conical papillæ, slightly recurved; very numerous on the anterior part of the body, where they are sharp-pointed, less numerous towards the middle, becoming very few and blunt on the posterior third; length of papillæ lying about the anterior end about 0.013 mm.; the length of the base 0.015 mm.* Suckers comparatively large and orbicular, the longitudinal diameter slightly exceeding the transverse. Oral sucker subterminal; ventral placed far forward, not much behind the oral, the distance between them being about one-half the longitudinal diameter of the oral sucker. Both suckers sessile, each possessing a fairly deep cavity; devoid of hooks and lobes of any kind. Average diameters of the oral sucker of the specimens measured—longitudinal 0.68 mm., transverse 0.59 mm.; of the ventral, longitudinal 1.02 and transverse 0.85 mm. Common genital aperture situated on ventral surface to the left of the median plane, on a level with the pharynx about its middle. Excretory pore situated at the extreme posterior end.

Cuticle comparatively thick; the integument of the animal has a longitudinally striped appearance owing to the bands of longitudinal muscle underlying it; the stripes run from the ventral sucker to the extreme posterior extremity.

Alimentary canal simple. Mouth situated at the base of the oral sucker, leading into a muscular pharynx. Pharynx protrusible, being found in a number of specimens everted into the cavity of the oral sucker (figs. 3-4). Œsophagus, into which the pharynx leads, so short as to be almost non-existent, immediately dividing into the two branches of the intestine, which are simple, unbranched and fairly straight, running almost to the extreme posterior end of the animal, the blind, sac-like extremity being about 0.2 mm. from the end of the body. Excretory system only

* In the figure (fig. 1) the papillæ are somewhat exaggerated in size.

visible in sections, consisting of a very short main trunk opening at the pore, which divides into several principal branches, the ramifications of which become obscured in preserved specimens.

The testes are two densely staining, elongated bodies, with a bulbous, lobed, almost moniliform outline, situated just posterior to the ovary and shell-gland, and lying one behind the other, stretching obliquely across the median line. In a body length divided into fourths they occupy the third quarter. The vasa deferentia unite before reaching the ventral sucker, and the common duct, running behind and slightly to the left of that sucker, on a level with its anterior part, expands to form a conspicuous vesicula seminalis, which, in its anterior part, twisting on itself, leads into an ejaculatory duct, and through the cirrus to the genital opening. The ovary is a conspicuous, subglobular, fairly solid body, situated about the middle of the animal. From it the oviduct runs back for a short distance; then, bending through 180° it runs forwards almost parallel to its former course, and on a level with the anterior edge of the ovary it expands into the uterus. At the bend it receives the united duct of the yolk-glands, and a little further forward the duct of the shell-gland opens into it. The uterus extends to the posterior aspect of the ventral sucker in about eight turns or coils, and there ends in the vagina, which, skirting the left side of the ventral sucker and vesicula seminalis, opens into the common genital chamber, opposite the male aperture. The common genital chamber is very small. The uterus of each of the specimens examined was distended with eggs, which are elliptical in shape, the chitinous egg-shells of the preserved specimens being straw-coloured. The eggs of a specimen which was mounted, when fresh, in glycerine measured 0.13×0.069 mm. There is little or no appreciable variation in size. The shell-gland is large, and situated behind and to the left of the ovary.

The yolk or vitelline glands consist of a large number of rounded follicles extending from the ventral sucker to the posterior end of the body. From their anterior boundary, as far back as the first testis, they are confined to the lateral aspects of

the animal, but from this point to the end of the tail they spread superficially over the dorsal and ventral walls, leaving only a small central space free from their encroachments and occupied by parenchyma alone.

Briefly the characteristic features of the animal by which it may be readily distinguished from other species of the same genus are the globose, solid ovary situated in front of the elongated, somewhat cylindrical, lobulated testes, whose shape might not inaptly be compared to long, knobby potatoes; the very numerous, rounded, follicular vitelline glands extending over a large part of the body-surface; the simple, orbicular character of the suckers, and the markedly anterior position of the ventral sucker; the distribution of the spinous papillæ, and the longitudinally striped appearance of the integument when the surface of the animal is in the optical plane.

As regards its relations to other members of the genus, the simple nature of the intestine, the absence of hooks or lobes from the oral sucker, the almost total obliteration of the œsophagus and the absence of a retractile telescopic tail part, place the species in Dujardin's subgenus *Brachylaimus* (Bronn's Klassen u. Ordnungen, Bd. iv., p. 909).

But it does not show a striking likeness to any particular species, though it resembles some in its external characters, others in respect of the alimentary canal, others again in the form or disposition of the reproductive organs. As regards the character and situation of the suckers, it shows a close resemblance to *D. tornatum*, Rudolphi. The globose, solid ovary resembles that organ in *D. ocreatum*, Molin,* *D. monticellii*, Linton, and *D. grandiporum*, Rudolphi. The character of the suckers, the alimentary canal, and the distribution of the spines over the body are very similar to those of *D. philodryadum*, G. S. West.

The figures for the plate were drawn by my wife.

* Linton, Notes on Trematodes, Proceedings U.S. Nat. Mus.. Vol. xx., p. 515, etc., etc.

EXPLANATION OF PLATE.

- Fig. 1.—View of the whole animal, stained with borax carmine and slightly squeezed out under the cover-glass ($\times 18$).
- Fig. 2.—Longitudinal section through the anterior end, showing the common genital chamber, vagina and cirrus. The section is cut somewhat obliquely owing to a bend in the animal ($\times 18$).
- Fig. 3.—Transverse section through the middle of the oral sucker, showing the everted pharynx ($\times 70$).
- Fig. 4.—Longitudinal section through the anterior end of the animal, showing the everted pharynx ($\times 18$).

All the figures, except the hooks in fig. 1, were outlined under a camera lucida.

Reference letters.

c.g.c., common genital chamber.—*cir.*, cirrus.—*ej.d.*, ejaculatory duct.—*g.p.*, genital aperture.—*int.*, intestine.—*o.s.*, oral sucker.—*ov.*, ovary.—*ovid.*, oviduct.—*ph.*, pharynx.—*s.g.*, shell gland.—*t₁ & t₂*, testes.—*ut.*, uterus.—*vag.*, vagina.—*v.d.*, vas deferens.—*vit.*, vitelline glands.—*vit.d.*, vitelline duct.—*v.s.*, ventral sucker.—*ves.sem.*, vesicula seminalis.



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