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SECOND REPORT ON THE CESTODA AND ACANTHOCEPHALA COLLECTED IN QUEENSLAND

BY

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PLATE VI

Absence from Australia has prevented an examination of all the material kindly forwarded to me during 1912, by Dr. A. Breinl, the Director of the Australian Institute of Tropical Medicine. Consequently this report is much shorter than it would otherwise have been.

Of the cestodes dealt with, two are regarded as belonging to new species and another to one already known, while four are larval forms. The echinorhynchids have been only cursorily examined as yet.

LIST OF HOSTS AND PARASITES REFERRED TO

HOST	PARASITE
BIRDS:—	
<i>Sphecothebes maxillaris</i>	<i>Davainea sphecotheberidis</i> , n. sp.
<i>Grallina picata</i>	<i>Echinorhynchus</i> , sp.
<i>Notophoxyx novae hollandiae</i>	<i>Bancroftiella glandularis</i> , Fuhm.
<i>Numenius cyanopus</i>	<i>Echinorhynchus</i> , sp.
<i>Lobivanellus lobatus</i>	<i>Gyrocoelia</i> , sp.

REPTILES:—

<i>Chlamydosaurus kingii</i>	<i>Sparganum</i> , sp. (immature).
<i>Lialis burtonii</i>	<i>Acanthotaenia</i> (<i>Ophiotaenia</i>) <i>striata</i> , n. sp.
<i>Varanus varius</i>	<i>Acanthotaenia</i> , sp. (immature).
<i>Python variegatus</i>	<i>Acanthotaenia</i> , sp. indetermin.

FISH:—

<i>Seriola lalandi</i>	<i>Tetrarhynchus</i> , sp. (immature).
<i>Chrysophrys hasta</i>	<i>Tetrarhynchus</i> , sp. (immature).

CESTODA

Davainea sphecotheridis, n. sp.

PLATE VI, FIGS. 5-7

From the fig-bird, *Sphecotheres maxillaris*. In addition to the specimens forwarded by Dr. Breinl, some collected by Dr. T. L. Bancroft at Eidsvold, on the Burnett River, Queensland, were also examined. They all appear to belong to a new species of *Davainea*. The parasite reaches a length of over ten centimetres, its maximum breadth being about 2 mm.

The rounded scolex is sharply marked off from the narrow, unsegmented neck. Its cuticle is ornamented with numerous very delicate spines, which are stronger and more thorn-like around the base of the rostellum. The breadth of the organ is about .36 mm., the diameter of the prominent strongly muscular suckers being .14 mm. The latter are deep cups whose edges are armed with abundant closely-set hooklets, arranged in about a dozen alternating rows, the outermost series containing the smallest, while the largest and longest (.01 mm. in length) occur along the margin of each acetabulum. These hooklets possess the usual form met with in the genus.

The conical retractile rostellum is beset with a very great number of hooks, closely arranged in two series. Those belonging to the anterior circlet are larger (.02 mm. long) and alternate with those of the posterior, which are about .015 mm. in length, measuring from the dorsal root to the ventral root. These hooks are hammer-form, with a long handle or ventral root, and are so closely placed as to form a palisade around the rostellum.

The strobila is narrow (·16 mm. in width), and unsegmented for some little distance behind the scolex. Sexually mature proglottids are relatively short and broad. The genital pores are unilateral, lying in the anterior half of the margin.

Below the thin cuticle is the subcuticula, containing well-defined circular and longitudinal muscle fibres. Calcareous corpuscles are abundant. Lying more deeply there are two well marked series of longitudinal muscles, the outer consisting of numerous smaller bundles forming an almost continuous wide zone, and of an inner group of fewer, but larger, fascicules. Within the latter series lies the well developed transverse musculature.

The main longitudinal nerve is situated some distance dorso-laterally from the wide ventral excretory canal, the latter lying ventrally and laterally from the small dorsal vessel. Between the excretory ducts and above the nerve, there pass outwards the sex canals.

The testes comprise about thirty vesicles (each ·025-·03 mm. by ·015-·02 mm.), arranged in two fields, separated by the female complex, which occupies a central position in the segment. These vesicles are dispersed in the medulla in two or three layers. The vas deferens is recognised as a long convoluted tube lying dorsally, quite close to the anterior border of the segment and extending from the midline, above the ovary, to the cirrus sac. The latter is a small organ, ·10 mm. long by ·04 mm. in width, whose inner extremity does not extend any further than the region of the main nerve. It contains a small vesicula towards its inner end. The sac terminates at the male aperture, situated in front of and slightly ventrally to, the vaginal opening.

As already mentioned, the female complex occupies the middle of the proglottid; the ovary, which lies anteriorly, possesses numerous digitiform lobes directed forwards as well as laterally. Just behind it is the relatively large shell-gland, postero-ventrally to which lies the solid rounded vitellarium. The vagina travels inwards behind the cirrus sac as a wide, more or less straight, tube, which, after passing between the excretory canals, becomes sinuous. Above the ovary it curves backwards to come into relation with the short oviduct and yolk duct, in the vicinity of the shell gland. The uterus, which comes to extend laterally beyond the excretory

vessels and the main nerve on each side, consists of numerous egg-capsules, each containing a single egg measuring about ·027 by ·02 mm. The embryo has a diameter of ·017 mm.

Gyrocoelia, sp.

A single specimen, 20 cm. long and 4 mm. in maximum width, was taken from a spur-wing plover, *Lobivanellus lobatus*. The scolex is typical, bearing the zigzag series of hooks on the rostellum. Consideration of this parasite is reserved till a later date.

Bancroftiella glandularis, Fuhrmann

A few cestodes belonging to this species were taken from a blue crane, *Notophox novaehollandiae*.

Acanthotaenia (*Ophiotaenia*) *striata*, n. sp.

PLATE VI, FIGS. 2-4

From one of the legless lizards, the Australian slowworm, *Lialis burtonii*. The parasites had been allowed to become more or less dry, and are therefore of little value. The specimens reached a length of 33 mm. or even longer, the breadth being about 1 mm.

The single poorly-preserved scolex examined has a width of 3 mm., the diameter of each of the prominent suckers being ·12 mm. Cuticular ornamentation, such as the presence of spinules, is not recognisable. Segmentation, which succeeds a neck-like constriction, is of the usual Proteocephalid type. Longitudinal striations are present, but these are probably a result of drying. Sexually mature proglottids vary in size and shape, but average about 1·5 mm. in length by 1 mm. in breadth. The genital pores are single and alternate irregularly. They open near the middle of the margin of the segment.

The testes, which occupy two rather narrow lateral fields widely separated along the midline, consist of numerous vesicles, whose average diameter is about ·03 mm. In segments which have reached male maturity the vesicula seminalis seen near the middle of the proglottid, and, overlying the uterus, becomes thrown into a few loose swollen coils, some of which are also present within the cirrus sac. The latter is a pyriform organ ·18 mm. long and

09 mm. in maximum width, terminating at the male pore postero-dorsally to the female aperture.

The ovary is a transversely-placed bilobed organ, situated close to the posterior end of the segment, and extending across it for a distance of about '6 mm. Its central portion is very narrow. The vagina travels inwards from the female pore, antero-ventrally to the cirrus sac, then below the vas deferens, curving backwardly to lie above the uterus. It becomes coiled in front of, above, and behind the ovarian bridge. Below the latter the uterus passes forwards, at first as a narrow tube with a sinuous course, but widening suddenly, this broader portion extending as an irregularly pouched median sac almost throughout the length of the segment. The vitellaria occupy a narrow zone on the outer side of each testicular field, the small follicles ('02 mm. diameter) being arranged more or less in a single row dorsally above the nerve. Eggs measure '03 by '023 mm., the oncospheres possessing a diameter of about '013 mm.

Acanthotaenia, sp.

PLATE VI, FIG. 1

A few immature specimens of a Proteocephalid, measuring from 4 mm. long by '4 mm. wide to 11 mm. by 1 mm., were taken from the intestine of a monitor lizard, *Varanus varius*, Shaw. They are all in the plerocercoid stage, the scolex being distinctly marked off from the remaining unsegmented portion. The posterior end is rounded. The general shape of the scolex is indicated by fig. 1. There is a large apical muscle plug representing a rudimentary sucker.

As the cuticle is practically smooth, it is uncertain whether the parasite should be listed as an *Acanthotaenia* or an *Ophiotaenia*, though the latter is perhaps merely a subgenus of the former.

Acanthotaenia, sp.

From the intestine of a Carpet Snake, *Python variegatus*. This cestode resembles *A. tidswelli* from *Varanus* spp. in its general anatomy and size. As there are several specimens, all of them unaffected by digestive agencies, it is possible that they belong to

a species infesting pythons, but I am not aware of any proteocephalids having been described as parasitising this family of snakes. It is therefore possible that these tape-worms may have belonged to a *Varanus* which had formed part of a snake's prey.

Sparganum, sp.

From a frilled lizard, *Chlamydosarus kingii*.

The specimens are fragmentary and twisted after the manner of a corkscrew. The longest piece is about 22 mm. in length and 2 mm. in width. One fragment has a breadth of 3·5 mm.

Tetrarhynchus, sp.

Encysted larval tetrarhynchs were collected from the peritoneal tissues of two fish—a king fish, *Seriola lalandi*, and a bream, *Chrysophrys hasta*. Each larva is enclosed in a thick brownish-yellow elongate bladder or cyst wall. Owing to the scolex being introverted, neither its characters nor those of the long rostellum are recognisable, though the whole organ belongs to the *Anthocephalus* type.

ACANTHOCEPHALA

Echinorhynchus, spp.

Hook-headed worms were taken from two birds, the peewhit, *Grallina picata*, and the curlew, *Numenius cyanopus*, but their examination has not been completed.

EXPLANATION OF PLATE VI

REFERENCE TO LETTERING

a.m., apical muscle (rudimentary sucker); c.s., cirrus sac; d.v., dorsal vessel; g.p., genital pore; l.m. 1, l.m. 2, longitudinal muscles; n., nerve; ov., ovary; r., rostellum; r.h., rostellar hooks; s.g., shell gland; t., testis; tr. m., transverse muscle; u., uterus; v., vagina; v.d., vas deferens; vit., vitellarium; v.v., ventral vessel.

- Fig. 1. Scolex of immature proteocephalid from *Varanus varius*.
- Fig. 2. Segment of *Acanthotaenia* (*Ophiotaenia*) *striata* from *Lialis burtonii*.
- Fig. 3. Scolex of *A. striata*—distorted view, showing three of the suckers.
- Fig. 4. Part of segment of *A. striata*.
- Fig. 5. Scolex of *Davainea sphecotheridis*.
- Fig. 6. Segment of *D. sphecotheridis*.
- Fig. 7. Transverse section of portion of segment of *D. sphecotheridis*.