

spots below the costa before a distinct postmedial spot and a rather conical spot before termen below apex, all defined by darker brown; a terminal series of small dark spots.

Ab. 1, ♀. Fore wing without the white spots below base of cell and apex, a subterminal series of minute dark spots between discal and submedian folds.

Hab. DUTCH NEW GUINEA, Mimika R. (*Wollaston*), 1 ♀; BR. NEW GUINEA, Milne Bay (*Meek*), 1 ♂, 1 ♀ type. *Exp.*, ♂ 22, ♀ 24 mm.

[To be continued.]

XLV.—*Some new Entozoa from Birds in Uganda.*

By H. A. BAYLIS, M.A.

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THROUGH the kindness of Dr. G. A. K. Marshall I have been enabled to examine a collection containing examples of eight species of Nematodes and Cestodes from birds in Uganda. These were collected and forwarded to the Imperial Bureau of Entomology by Mr. C. C. Gowdey in 1917.

The collection includes three species of Nematodes and five of Cestodes, all of which are probably new to science. Two of the Nematodes and one of the Cestodes unfortunately cannot be fully described, owing to paucity of material, but of the remainder Mr. Gowdey has been remarkably successful in obtaining complete and well-preserved specimens.

The types will be deposited in the helminthological collection of the British Museum (Natural History).

NEMATODA.

1. *Ascaris colura* *, sp. n.

Host: *Lophoaëtus occipitalis*.

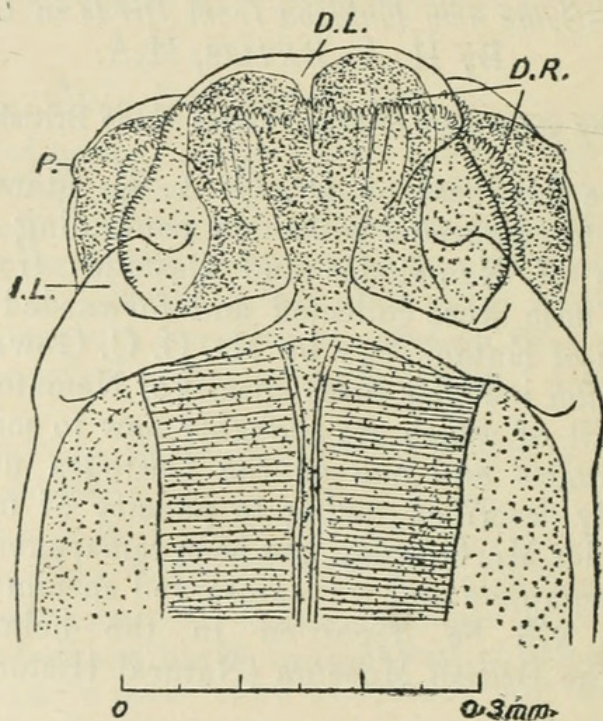
Two female specimens of an Ascarid from this host occur in the collection. Both are of about the same dimensions: length 46 mm., maximum thickness 1 mm. The transverse striations of the cuticle are very fine and not very distinct. The body tapers gradually anteriorly and very suddenly posteriorly. Just behind the lips the thickness of the neck is 0.5 mm. There is practically no tail, the posterior end

* κολουρος, dock-tailed, stump-tailed.

being quite rounded and the anus situated at only 0.23 mm. from the extremity. The thickness at the anus is 0.55 mm.

The lips (fig. 1) are large and roughly hexagonal in outline. There are three small interlabia (fig. 1, *I.L.*). As seen from the front, each lip has two sharp projecting longitudinal ridges internally, with an indentation between them. Dentigerous ridges (fig. 1, *D.R.*) are well developed on the inner surface of the lips. The "pulp" of each lip is produced anteriorly into two large rounded lobes. The ventro-lateral lips have each a pair of very slightly raised papillæ (fig. 1, *P.*); the dorsal lip apparently has none.

Fig. 1.



Ascaris colura; the head, seen from the dorsal side.

D.L., dorsal lip; *D.R.*, dentigerous ridges; *I.L.*, interlabium;
P., papilla of ventro-lateral lip.

The oesophagus is slender and of nearly uniform thickness throughout. Its length is about 7 mm. From the point where it enters the chyle-intestine a long intestinal diverticulum runs forward to about 1.6 mm. from the anterior end. There is apparently no oesophageal appendage.

The vulva is situated at about 17 mm. from the anterior end. The two uterine branches run backwards parallel to each other. The coils of the ovaries extend back almost to the posterior end of the body. The eggs are oval and have

a thin, rough shell. They measure $112 \times 70 \mu$ – $125 \times 75 \mu$. They do not contain a formed embryo at the time of laying.

Note.—The presence of an intestinal diverticulum, according to the view of some authors, necessitates the formation of a distinct family, or, at least, subfamily, for the three-lipped nematodes possessing it [see Railliet and Henry, 1912, 1915*]. The genera comprised in this "family," however, do not seem to have been very clearly defined up to the present. The species under discussion is therefore named only provisionally *Ascaris*, sens. lat.

2. *Subulura plotina*, sp. n.

Host: *Plotus rufus*. (Darter.)

The male (of which there is only one example) measures 8.2 mm. in length and 0.34 mm. in maximum thickness. The female (largest of four specimens) is 14.2 mm. long and 0.46 mm. thick. The worms are of slender build, tapering gradually at either end. In both sexes the neck bears a pair of lanceolate cuticular alæ at the sides, extending from the anterior end to about the beginning of the œsophageal bulb. The opening of the mouth is apparently hexagonal in outline. There is a small mouth-capsule with three very small teeth at the entrance to the œsophagus, as is usual in this genus. There are no lips, but the mouth is surrounded by six (?) very small papillæ. The excretory pore is situated at 0.45 mm. from the anterior end in the male and at 0.55 mm. in the female.

The œsophagus has an oval posterior bulb, which is distinctly marked off from the anterior portion, and has its hinder end pushed in, as it were, into the beginning of the intestine. The length of the œsophagus (including the bulb) is 1.25 mm. in the male and 1.5 mm. in the female.

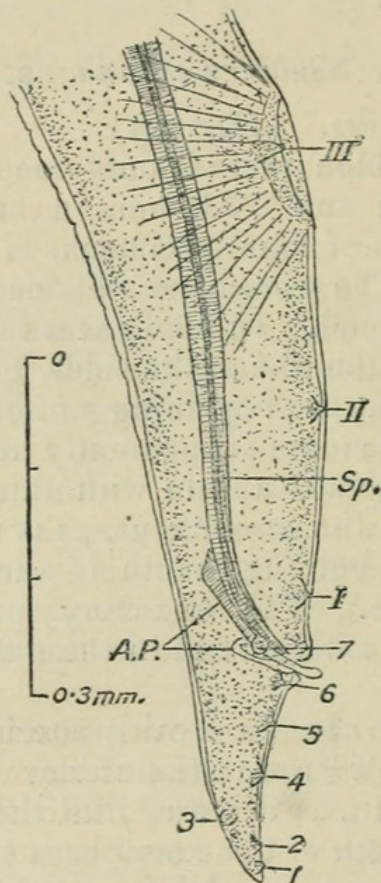
In the male the tail (fig. 2) measures only 0.2 mm. in length, and has no alæ. The preanal sucker, which is elongated in shape and has no chitinous border, is situated at about 0.4 mm. in front of the anus. The spicules (fig. 2, *Sp.*) are equal in length (about 0.9 mm.) and accompanied near the anus by an accessory piece (? two accessory pieces) (fig. 2, *A.P.*), the longest portion of which measures 0.15 mm. There are ten pairs of papillæ—six postanal (fig. 2, 1–6), one paranal (fig. 2, 7), and three preanal (fig. 2, I–III). Of these the third postanal (counted from the tail-tip) and the paranal are more laterally situated than the rest. The most

* Bull. Soc. Path. exot. v. no. 4, 1912, p. 256, and viii. no. 5, 1915, p. 270.

anterior of the preanal papillæ are situated at the sides of the sucker, a little in front of its middle.

In the female the tail is 0.8 mm. in length. The vulva is situated in the middle third of the body, at 5.8 mm. from the anterior end. The ova measure $65 \times 52.5 \mu$ – $75 \times 55 \mu$. The uterus extends back beyond the anus into the cavity of the tail.

Fig. 2.



Subulura plotina; tail of male, lateral view.

A.P., accessory piece; Sp., Spicules; 1–6, postanal papillæ; 7, paranal; I–III, preanal papillæ.

3. *Filaria* sp.

Host: *Merops albicollis*. (Bee-eater.)

Of this form there is only one specimen, a female. The total length is 31 mm., the maximum thickness about 0.5 mm. The mouth is apparently without lips or papillæ. A pair of 3-lobed glands open into the cavity of the mouth laterally. The vulva is situated at 0.4 mm. from the anterior end. The position of the anus has not been made out.

The tail is bluntly rounded at the tip. Almost the whole of the body-cavity is filled by the uterus, which contains enormous numbers of eggs. The latter measure $57 \times 37 \mu$ – $62 \times 40 \mu$. They have a rather thick shell and contain a coiled embryo.

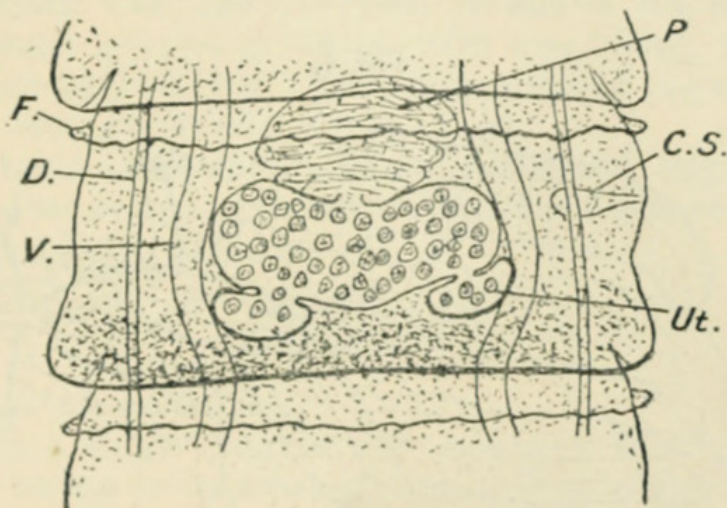
CESTODA.

4. *Biuterina ugandæ*, sp. n.

Host: *Cinnyris gutturalis*. (Sunbird.)

This is a small species, attaining a length of about 2 cm. upwards. The maximum width of the strobila is about 0.7 mm. The scolex measures 0.4 mm. across, and the suckers have a diameter of 0.2 mm., with a large forwardly-directed aperture. The rostellum has a muscular cushion at its apex,

Fig. 3.



Biuterina ugandæ; a gravid segment (from a whole preparation).

C.S., cirrus-sac; D., dorsal excretory vessel; F., cuticular frill; P., paruterine organ; Ut., uterus; V., ventral excretory vessel.

looking almost like a fifth sucker. This measures 0.12 mm. in diameter and bears two rows of about twenty-two hooks each. The hooks of the anterior row are about 20μ in length, those of the posterior row a little shorter. All the hooks are of the triangular shape characteristic of the genus.

Segmentation begins almost immediately behind the scolex. Each segment has a slightly raised fold or frill of cuticle running round it transversely near its anterior end (see fig. 3, F.).

The genital pores are irregularly alternating. The cirrus-sac is pear-shaped and measures 0.125 mm. long and 0.04 mm. in thickness at its widest part, which is near the inner end.

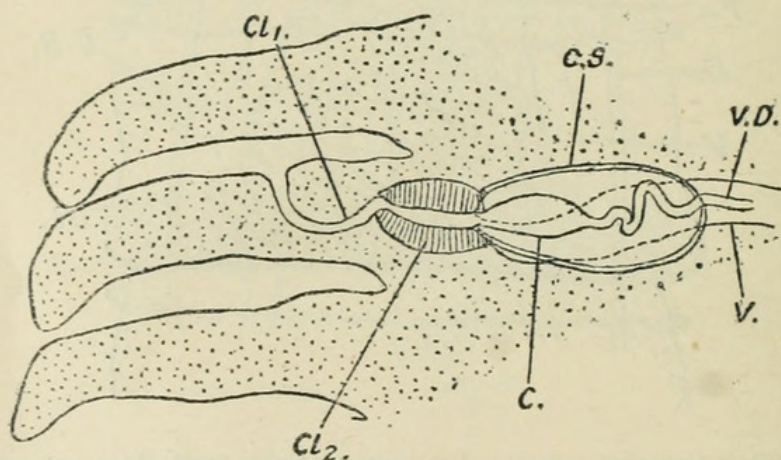
There are twelve or more testes in a compact group in the middle of the segment. The female genital apparatus calls for no special comment: the uterus (fig. 3, *U.*) shows the usual more or less complete division into two lateral portions, and a well-developed paruterine organ (fig. 3, *P.*) is present in front of it in the posterior segments. The ova do not appear to pass into the paruterine organ until after the separation of the segments from the strobila. The onchospheres measure $28\ \mu$ in diameter.

5. *Davainea debilis*, sp. n.

Host: *Anastomus lamelligerus*. (Open-bill Stork.)

Of this species the collection contains only one specimen, which measures about 45 mm. in length. The posterior segments are much contracted, and the length actually

Fig. 4.



Davainea debilis; diagram of the genital cloaca and terminal portions of the genital ducts. (Reconstructed from horizontal sections.) The overlapping lateral borders of three consecutive segments are seen.

C., cirrus; *Cl.*₁, distal non-muscular portion of genital cloaca; *Cl.*₂, proximal muscular portion of same; *C.S.*, cirrus-sac; *V.*, vagina; *V.D.*, vas deferens.

attained would probably be much greater. Anteriorly the worm is extremely slender, but it increases rapidly in width until the posterior segments measure about 3 mm. across.

The scolex measures only 0.2 mm. across and is very feebly developed. The suckers appear as mere cushion-like thickenings. They were apparently armed with hooks about

12 μ long, nearly all of which, however, have been lost. The rostellum measures 0.08 mm. in diameter and bears an enormous number of extremely minute hooks, the length of which is about 8 μ .

The neck, which is well extended, is unsegmented for a distance of about 1.2 mm. behind the scolex. The mature segments (much contracted) are extremely short and broad, and have greatly overlapping margins posteriorly and laterally. The longitudinal musculature is very powerfully developed dorsally and ventrally, consisting of a thick layer of irregularly anastomosing fibres.

The ventral excretory vessels are connected at every segment by a transverse vessel, which is about half as wide as the medullary portion of the segment itself.

There are twenty or more testes in each mature segment, extending in a series right across the medullary parenchyme. The cirrus-sac and vagina open into a common genital cloaca (fig. 4, *Cl.*), the proximal portion of which has a very thick muscular wall, and the distal portion is non-muscular. The muscular portion is about 0.06 mm. long, the non-muscular about 0.05 mm. The dimensions of the cirrus-sac are 0.125 mm. \times 0.06 mm.

The gravid segments contain numerous egg-capsules enclosing four or five eggs each. The onchospheres measure only about 15 μ in diameter.

6. *Davainea* sp.

Host: *Bleda pallidigula*.

There is a single fragmentary specimen from this bird, to which, owing to its incompleteness, it is not proposed to attach a specific name.

The length of the fragment is about 15 mm. and its greatest width 0.9 mm. The scolex (contracted, and with retracted rostellum) measures 0.25 mm. across. The diameter of the suckers is 0.075 mm. and that of the rostellum about 0.1 mm. The size of the hooks on the rostellum has not been made out; those on the suckers are about 13 μ long.

The neck (rather contracted) is unsegmented for about 0.4 mm. behind the scolex. The segments are broader than long throughout the fragment, which, however, lacks gravid segments.

The earliest rudiments of genital organs appear at about the ninetieth segment. The genital pores are strictly unilateral. The testes number twenty to twenty-five, and are arranged mainly in two lateral groups, with a single row

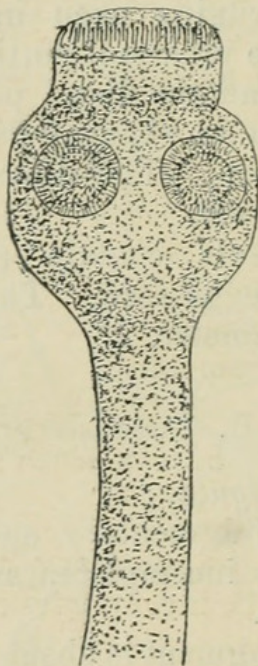
behind the female glands. The cirrus-sac measures about 0.1 mm. \times 0.038 mm., and curves from the genital pore towards the front of the segment. The ovary is divided into two more or less distinct portions, the vagina passing between them. The yolk-gland is posterior in position and is rather deeply lobate.

7. *Davainea vaganda*, sp. n.

Host: *Haliaeetus vocifer*. (Sea-Eagle.)

This is a very slender little form, with a comparatively large scolex. In general it approaches closely to *D. sphaeroides*, Clerc, 1903*, which is also parasitic in birds of prey, but it does not appear to be identical with that species.

Fig. 5.



Davainea vaganda; the scolex, highly magnified.

The present examples measure 2-3 cm. in length and have a maximum width (near the posterior end) of 0.55 mm. The scolex (fig. 5) measures 0.3-0.35 mm. across, and the diameter of the suckers varies from 0.11-0.15 mm. The latter are sometimes elongated in a transverse direction. The rostellum measures 0.22 mm. in diameter and is armed with numerous hooks 25 μ in length, arranged in two rows. The hooks on the suckers, which are also very numerous, measure 15 μ in length.

* Rev. Suisse Zool. xi. p. 359.

The neck is very slender and is unsegmented for from 0.4–1.0 mm., according to the state of contraction. The segments are broader than long throughout the strobila, except in some cases the last three or four gravid segments.

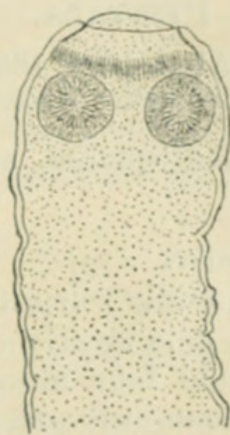
Rudiments of genital organs begin to appear at about the hundredth segment. The genital pores are strictly unilateral. The cirrus-sac measures 0.1 mm. \times 0.05 mm. The testes are very large and six to eight in number.

8. *Davainea bycanistis*, sp. n.

Host: *Bycanistes subquadratus*. (Hornbill.)

This species reaches a length of about 14 cm. and has a maximum width of 2 mm. The scolex (fig. 6) measures 0.27 mm. across, and the diameter of the suckers is 0.088 mm. The latter are armed with several rows of hooks, 13 μ in

Fig. 6.



Davainea bycanistis; the scolex, highly magnified.

length. The rostellum is 0.15 mm. in diameter and bears a double crown of hooks 15 μ long.

Segmentation begins at about 1 mm. behind the scolex. The segments are broader than long throughout the strobila, except the last few gravid segments. The genital pores are strictly unilateral. There are twelve to fourteen large testes in each mature segment, their diameter being about 0.075 mm. The cirrus-sac is rather elongate, has a muscular wall, and contains a very muscular cirrus. The dimensions of the sac are about 0.2 mm. \times 0.062 mm. The female glands form a small compact mass in the middle of the segment. Each gravid segment contains some thirty egg-capsules, which measure about 0.1 mm. in diameter, and contain each four to

five onchospheres. The latter (without their envelopes) measure $15\ \mu$ in diameter.

This appears to be only the second species of *Davainea* met with in this family of birds (Bucerotidæ); the one hitherto described is *D. emperus*, Skrjabin, 1914*, from *Buceros seratogynina*. The present species differs from *D. emperus* in the number of its testes, the absence of the well-developed sphincter-muscle of the genital cloaca, and other details. The scolex unfortunately cannot be compared in the two species, as that of *D. emperus* is unknown.

XLVI.—*Ethiopian Heteroptera: some new Species of Reduviidæ belonging to the Genera Pysttala and Platymeris.*
By W. L. DISTANT.

PYSTTALA.

Pysttala, Stål, Öfv. Vet.-Akad. Förh. 1859, p. 187.

Platymeris, Lap. (part.), Stål, *ibid.*; Hem. Afr. iii. p. 123 (1865).

"Thoracis lobo postico quadrispinoso, antico multispinoso, hemelytris spinulis armatis."

Type, *P. ducalis*, Westw.

Although Stål subsequently relegated *Pysttala* to a section of the genus *Platymeris*, it is clearly entitled to generic rank, and I am now able to add four more species to it. Of the type, *ducalis*, Westw., I can only refer to Westwood's figure and description, for the type cannot be traced by Prof. Poulton at Oxford; and although Westwood stated that another specimen was contained in the British Museum from Sierra Leone, no such example is now to be found in the National Collection.

Pysttala samwelli, sp. n.

Head, pronotum, corium, body beneath, and legs black; membrane dark ferruginous brown, especially on its apical area; a subquadrate spot near middle of corium, a broad subapical fascia to the femora, and somewhat large marginal spots to the abdomen sanguineous; antennæ with the first joint black, moderately stout, not quite reaching base of head, second joint ferruginous, about three times as long as first, third more ochraceous in hue, both second and third

* C.B. Bakt., Jena (orig.), lxxv. p. 69.



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