

Ancylostoma hescheleri n. sp.
from the Antbear, *Orycteropus afer*,
with a note on a new variety of *A. Caninum*.

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(With 3 figures in text.)

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The hookworms of *Orycteropus* were collected in the Pretoria Zoological Gardens in October, 1936, the host having been received at the Zoo on the previous day.

The specimens comprise 15 males and 9 females. They are typical hookworms in size and shape, the anterior end being curved dorsad and the oral opening being directed antero-dorsally.

The oral margin is surrounded by a slightly thickened rim and just posterior to this rim are situated two lateral and four submedian papillae. The laterals are more posterior in position than the others. The buccal capsule is well chitinised except for a narrow strip dorso-laterally on either side, which gives the impression of a joint. The ventral margin of the capsule bears a single pair of large teeth, which project slightly forwards, so that they protrude a little beyond the oral margin in a lateral view of the parasite. Dorsally the margin of the buccal capsule is deeply notched where the dorsal oesophageal gland opens. The dorsal gutter is heavily chitinised and bulges inwards into the cavity of the buccal capsule. There are further two subventral lancets near the base of the capsule. The oesophagus is club-shaped and is surrounded by the nerve ring anterior to its middle. The excretory pore is rather inconspicuous and opens ventrally a short distance behind the level of the nerve ring.

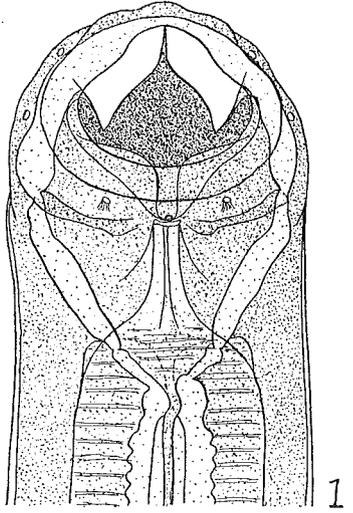


Fig. 1.

Ancylostoma hescheleri, anterior end, dorsal view.

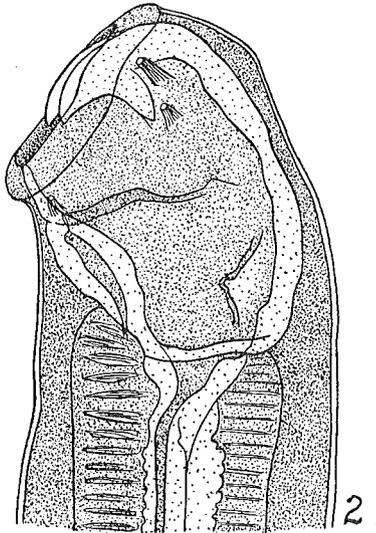


Fig. 2.

Ancylostoma hescheleri, anterior end, lateral view.

The males are 11.5—13.5 mm long. The bursa is well developed and has some characteristic features. The ventral rays are separate from their common base and run parallel, but the antero-ventral is slightly longer than the latero-ventral and its tip curves back to the tip of the latter. The common stem of the lateral rays

is wide and relatively long; the antero-ventral is directed straight towards the bursal margin, while the medio- and postero-laterals run close together and diverge towards the dorsal aspect. The ex-terno-dorsals arise near the base of the dorsal stem; the dorsal ray is cleft at about its middle and each branch bears two terminal digits, of which the medial one on either side bears two terminal papillae. A pair of small prebursal papillae is present. The spicules are slender and somewhat wavy and there is a small gubernaculum.

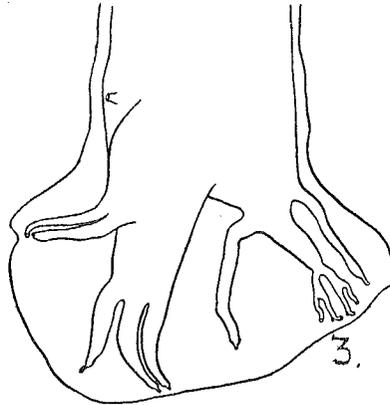


Fig. 3.
Ancylostoma heschelerei, bursa of male.

The females are 13.5—17 mm long. The tail of the female is short and conical and, as is the case in many ancylostomes, bears a slender terminal spike. The vulva is situated at about the end of the second third of the body; it is not prominent and the genital organs are of the usual ancylostome type, with numerous transverse coils of the ovaries filling a large part of the body.

Measurements in millimetres:

	Male	Female
Body length	11.5 — 13.5	13.5 — 17
Greatest width	0.35 — 0.42	0.47 — 0.52
Excretory pore	0.74 — 0.83	0.79 — 0.91
Nerve ring	0.58 — 0.65	0.66 — 0.78
Oesophagus	1.16 — 1.25	1.27 — 1.34
		(1.64 one female)
Depth buccal capsule	0.17 — 0.18	0.19 — 0.22
Vulva from post. end	—	4.74 — 5.33
		(6.04 one female)
Tail not incl. spike	—	0.195 — 0.22
Spicules	1.3 — 1.5	—
Gubernaculum	0.09	—

This species differs from all other species of *Ancylostoma* in that it has a single pair of ventral teeth at the oral margin. Twelve other species of *Ancylostoma* are known:

1. *A. braziliense* de Faria, 1910 (= *A. ceylanicum* Looss, 1911; = *A. gilsoni* Gedoelst, 1917) from dog, cat, man, tiger, lion, leopard, wolf, sloth-bear, etc. Two pairs of ventral teeth.
2. *A. caninum* (Ercolani, 1859) from dog, cat, other carnivora, man and *Dasy-
pus villosus*. Three pairs of ventral teeth.
3. *A. conepati* (Solanel, 1911) from *Conepatus suffocans*. Three pairs of ventral teeth.
4. *A. duodenale* (Dubini, 1843) from man, *Felis*, spp. and the pig. Three pairs of ventral teeth.
5. *A. japonica* Fukada and Katsurada, 1925 (Trans. Jap. Path. Soc., 15 : 252 to 253) from man. A description of this species was not available to the writer.
6. *A. malayanum* (Alessandrini, 1905) from man and bear. Two pairs of ventral teeth.
7. *A. martinagliai* Mönnig, 1931, from *Thos mesomelas*. Three pairs of ventral teeth.
8. *A. Mephitis*. Micheletti, 1929, from *Mephitis zorilla*. Two pairs of ventral-teeth.
9. *A. minimum* (v. Linstow, 1906) from *Felis rubiginosa*. Inadequately described, no mention of teeth.
10. *A. mucronatum* (Molin, 1861) from *Dasyppus gilvipes*. Three pairs of ventral teeth.
11. *A. mycetis* Yorke and Maplestone, 1926 (= *Diploodon quadridentatum* Molin, 1861) from *Mycetis corya*. Two distinct pairs of ventral teeth.
12. *A. pluridentatum* (Alessandrini, 1905) from *Felis mitis* and other species of *Felis*. Two pairs of ventral teeth.

It will be seen that the species of this genus are not very specific in regard to their range of hosts. Two species, *A. caninum* and *A. mucronatum* have been found in the edentates *Dasyppus villosus* and *D. gilvipes* respectively. The description of *A. mucronatum* is inadequate and, as SCHWARTZ (1927) has noted, it can be clearly separated from *A. caninum* only by the much greater length of the spicules as shown in MOLIN's drawing.

The species from *Orycteropus afer* here described presents interesting morphological features, in which it appears to link up the *Ancylostominae* with the *Necatorinae*. It is notable that those species of *Ancylostoma* which have two pairs of ventral teeth also have an arrangement of the bursal rays which approaches that found in the *Necatorinae*, especially the length of the common lateral stem and the parallel course of the medio- and postero-laterals. The bursal rays of the species here described are more similar to

those of *Necator* and *Uncinaria* than to those of *Ancylostoma duodenale*. It has a single, large pair of ventral teeth which could be compared with the ventral cutting plates of the *Necatorinae*. Its buccal capsule shows evidence of a fissure or a joint, a state of affairs seen in several of the *Necatorinae*. Its dorsal gutter bulges into the buccal cavity as if it could be an initial stage in the development or a remnant of the dorsal tooth of the *Necatorinae*.

I have much pleasure in dedicating this interesting hookworm to Prof. Dr. K. HESCHELER, in naming it *Ancylostoma hescheleri*.

Host: *Orycteropus afer*.

Location: Small intestine.

Locality: PRETORIA.

Types in Onderstepoort Helminthological Collection, No. 2630.

Ancylostoma caninum var. *longespiculata*, n. var.

At Dealesville, Orange Free State, were collected five males and ten females of a hookworm from the small intestine of *Felis ochreata caffra*. These worms upon examination appeared to be specimens of *A. caninum*, but it was immediately noticed that the three pairs of ventral teeth appeared to be more strongly developed than in the usual specimens from dogs. Measurements were taken of various parts of the bodies of males and females and compared to similar measurements taken of specimens from dogs. On the whole there are no very striking differences, except that the male spicules of the material from Dealesville were decidedly longer in all the specimens. The spicules are slender and twisted and their tips in most cases protrude some distance through the cloacal aperture. The measurements are given in the following table and it may be noted that BAYLIS (1929) and LANE give the length of the spicules of *A. caninum* as approximately 0.9 mm.

	<i>A. caninum</i>		<i>A. caninum longespiculata</i>	
	Male	Female	Male	Female
Body length	8.8-10	9.8-14	10-10.2	10.2-11.5
Breadth	0.35-0.36	0.45-0.56	0.29-0.34	0.39-0.45
Oesophagus	0.86-0.87	1.05-1.2	0.72-0.78	0.78
Nerve ring	0.55	0.63-0.66	0.48-0.56	0.55-0.57
Excretory pore	0.63-0.65	0.67-0.71	0.54-0.62	0.62-0.67
Cervical papillae	0.66	0.71-0.75	0.59-0.65	0.65-0.67
Vulva from post. end	—	3.38-3.86	—	3.54-3.87
Tail	—	0.182	—	0.13-0.16
Spicules	0.85-0.89	—	1.43-1.62	—