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The Cause of Nodular Enteritis in Cattle.

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In 1930 Bontz and Krause examined the worm larvae found in nodules occurring in bovine intestines imported into Germany from North-, Central- and South America, Holland, Australia and Denmark, as well as from cattle in Germany. They discuss the literature on the structure and pathogenic effects of these nodules, mentioning intussusception as one of the results. It is now generally agreed that these nodules are not the cause of the latter condition, which occurs without any nodules being present and is probably due to a change of diet co-operating with an abnormality of the bowel.

These authors give a fairly good description of the larvae, but misinterpret the nature of certain structures and artefacts. They conclude, that the larvae are not those of *Oesophagostomum radiatum* but belong to the genus *Bunostomum*, especially on account of the fact, that there is a large buccal capsule with teeth at its base and that the vulva is situated anteriorly.

In order to settle this question, the writer obtained bovine intestines with nodules from the Pretoria abattoir and intestines of sheep which had suffered heavily from *Oesophagostomum columbianum* and had never been in an area where *Bunostomum* occurs. The larvae obtained alive from these nodules were washed in physiological saline, fixed in 70 per cent. alcohol and examined in a mixture of equal parts of 70 per cent. alcohol and lactophenol.

That the larvae from the sheep intestines are those of *O. columbianum* cannot be doubted. Veglia (1923) also describes the larvae from lambs which had been infected experimentally with this species and had been raised free of all other worms and the material from sheep studied in the present case agrees fully with Veglia's description. From the figures it will be quite obvious that the larvae from the bovine nodules are also *Oesophagostomum* larvae, probably *O. radiatum*.

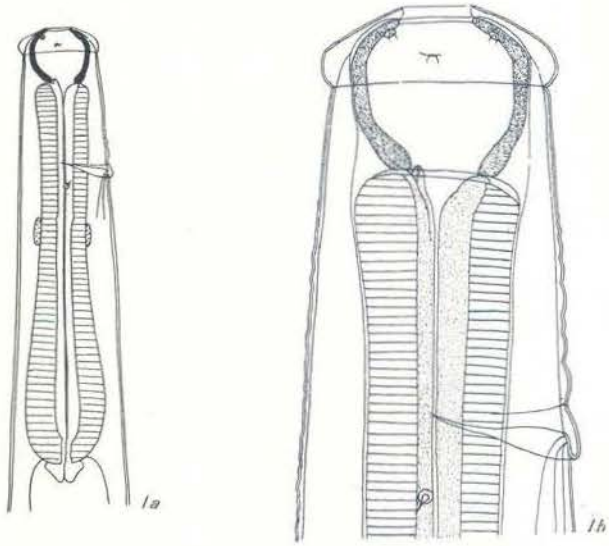

FIG. 1 (*a*) and (*b*).—*Oesophagostomum* larva from intestinal nodule of sheep.

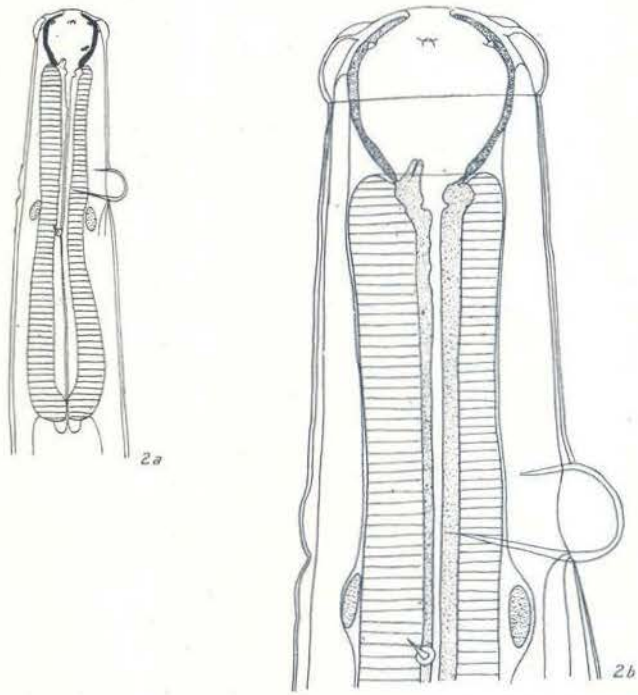

FIG. 2 (*a*) and (*b*).—*Oesophagostomum* larva from intestinal nodule of cattle.

A table of measurements is given below and only a few further remarks are necessary.

The mouth opening is surrounded by two lateral and four sub-median papillae. At the base of the buccal capsule there is a dorsal tooth, larger in the larvae from cattle than in those from sheep. The ventral cervical groove is prominent and characteristic of worms of this genus. Bontz and Krause describe and figure this groove with its cuticular swelling, but state that it is partly due to the prominence of the excretory pore, which opens at this level, and partly an artefact produced in handling the worms.

The female larvae have narrow tails, while the cloacal region of the male larvae is thicker and the tail shorter. The rudiments of the genital organs in both sexes are quite small at this stage and very indistinct. Veglia states, in connection with *O. columbianum*, that the larvae are 1,600–1,700 μ (or 1·6—1·7 mm.) long eight days after infection and the "genital primordium in the female now consisted of eight cells." Bontz and Krause were apparently misled by an artefact in one specimen, which appeared to have a vulvar opening a short distance behind the oesophagus and coiled uterine tubes running forward. Larvae at this stage could in any case not have a vulva and the presence of distinct uterine tubes is not discerned before the development has progressed much further. The "coiled uterine tubes" were possibly the necks of the cervical glands which are very large in these larvae. In the larvae from sheep the glands extend backwards to the end of the second third of the body, while in those from cattle the glands lie diagonally and the posterior one ends usually about one-eighth of the body-length from the posterior extremity.

	Larvae from Sheep.		Larvae from Cattle.		Larvae from Cattle.
	Male.	Female.	Male.	Female.	Bontz and Krause.
Length.....	1·89—2·33	2·29—2·49	2·52—2·71	2·74—3	1·5
Breadth.....	0·1	0·1	0·1	0·097—0·1	—
Oesophagus, length..	0·3—0·38	0·35—0·37	0·345	0·345—0·37	0·2592
Nerve ring from ant. extremity.....	0·2	0·2	0·19—0·2	0·2	—
Cervical papillae fr. ant. extremity....	0·17	0·17	0·18—0·2	0·2—0·22	—
Excretory pore from anterior extremity	0·15	0·15	0·14—0·18	0·17—0·19	—
Tail length.....	0·06—0·1	0·11—0·14	0·09—0·1	0·12—0·14	0·1134
Buccal capsule, depth	0·056	0·056—0·06	0·06	0·056—0·06	0·0486

(All measurements in millimetres.)

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