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A NEW (?) STRONGYLE CAUSING
PARASITIC GASTRITIS
IN A GOAT

BY

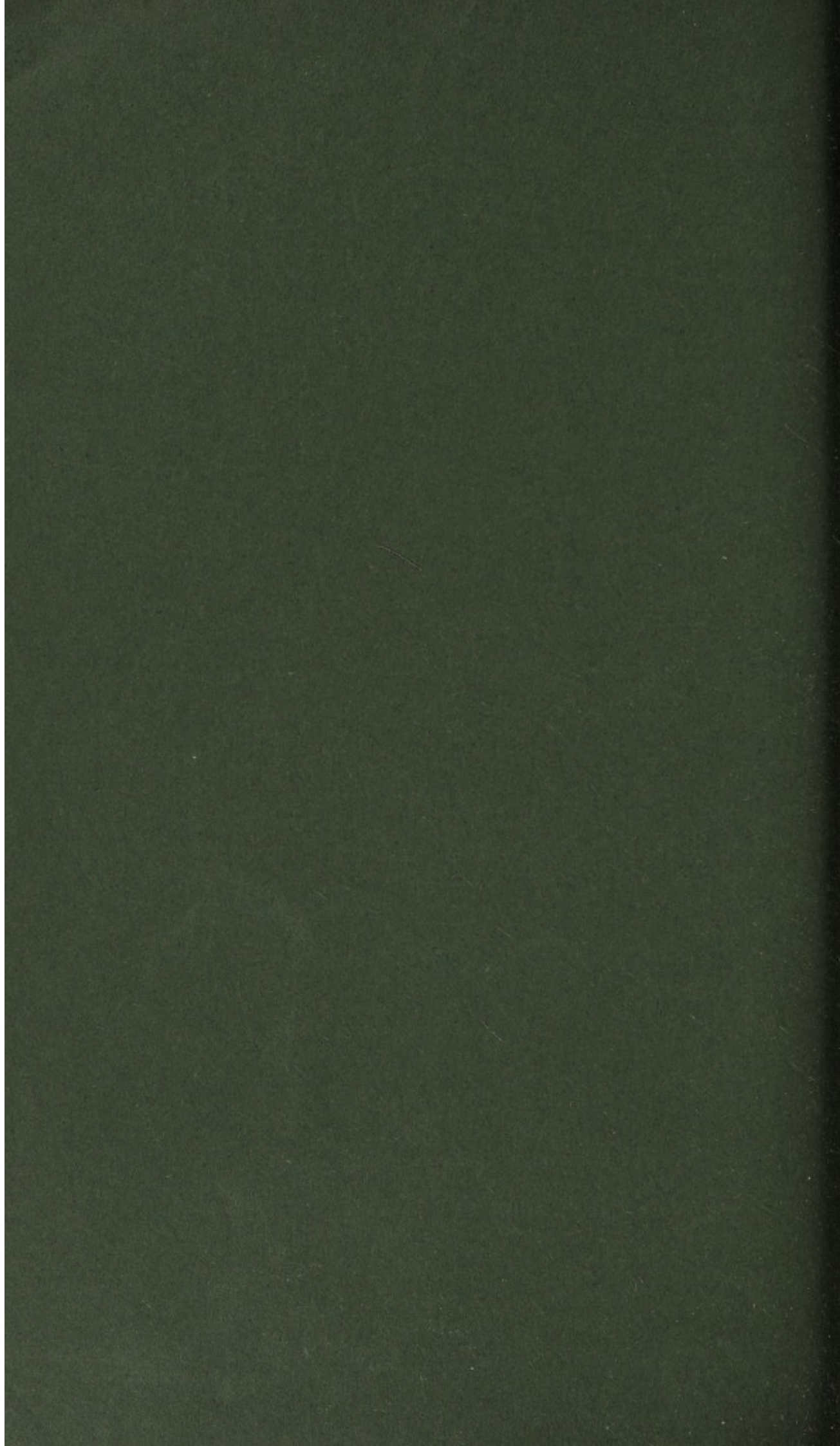
J. B. BUXTON, F.R.C.V.S., D.V.H.

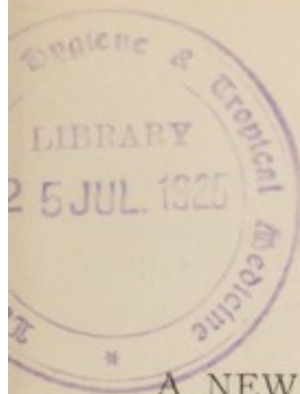
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THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES
BROCKWELL HALL
HERNE HILL
LONDON, S.E.





A NEW (?) STRONGYLE CAUSING PARASITIC GASTRITIS IN A GOAT.

By J. B. BUXTON, F.R.C.V.S., D.V.H.

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Subject.—An aged female goat which had been acquired for experimental purposes but had not been used.

History.—The animal was gradually becoming more emaciated, although the appetite remained good. Temperature, respirations and pulse were normal, the conjunctival mucous membrane was pale, and the eyes appeared sunken. There was no diarrhoea, but constant grinding of the teeth, with a "staring" coat, and a general "tucked-up" appearance.

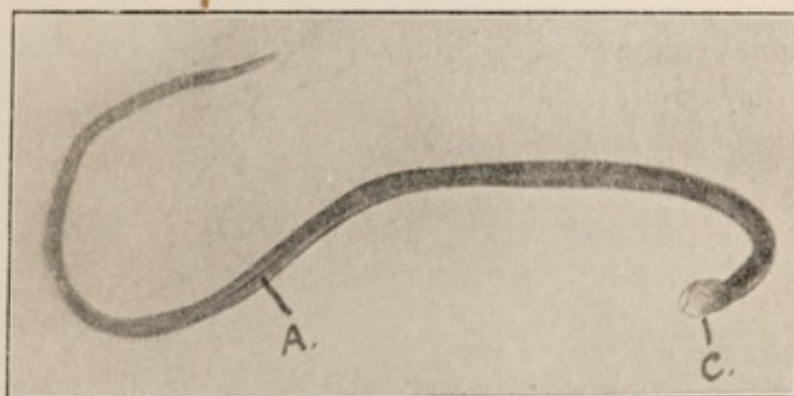


FIG. 1.—Male, showing straight alimentary canal (A) and lateral view of bursa (C). Magnified 45 diameters.

Diagnosis.—The fæces were collected, mixed with distilled water, and carefully examined for traces of parasites. Numerous ovoid nematode ova were found, varying in size from 70 microns to 80 microns by 30 to 40 microns, and a few embryos varying in length from 300 to 400 microns, and resembling the embryos of *Strongylus rufescens*. No adult worms were present, however. Examination of the blood showed a fall in the number of red cells to about 5,000,000 per c.mm., and there was evidence of anisocytosis and poikilocytosis.

Treatment.—The animal was isolated and received daily 15 gr. of picrate of potash in meal. This treatment was continued for

a week, but as there was no obvious improvement and the eggs and embryos continued to be passed out in as large numbers as before, it was replaced by daily drenches of lysol $\text{m} \times$ in z viii of water. Concurrently with this, powders were mixed with the



FIG. 2.—Female, showing (O), ova, (V) vulva; (T) twist of uterus. Magnified 45 diameters.

food containing pulv. ferri sulph., cinchona, nucis vom., and anisi.

There was, however, no improvement, and the animal died fourteen days after treatment was commenced.

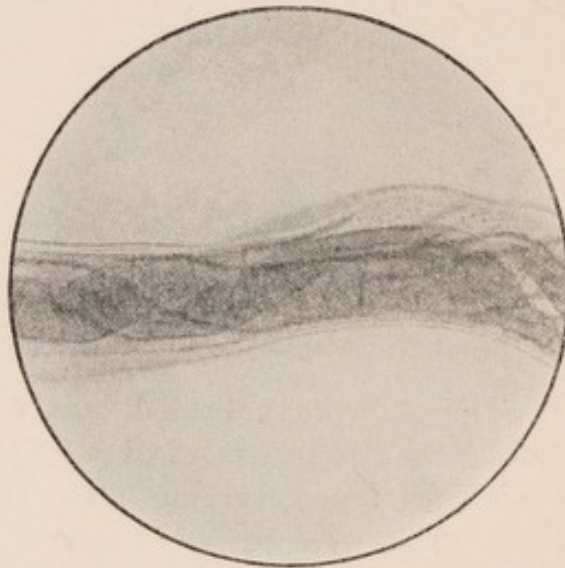


FIG. 3.—Twist of the uterus in female. Magnified 100 diameters.

Post-mortem examination showed marked emaciation, and almost entire absence of fat. The thoracic organs appeared normal. The intestines showed no pathological alterations, and the contents were of the usual consistence, and contained only a few ova and embryos, no adult parasites. The first three

stomachs appeared normal, and showed no traces of parasites. The abomasum, however, contained a quantity of fluid material with an offensive odour, and the mucous membrane was of a dark purple colour, very much thickened and covered by a thick layer of mucus. The fluid contents contained only a few eggs and no adult worms. The surface of the mucous membrane was scraped, the scrapings, mixed with distilled water, placed in a glass dish over a black surface, and search made for the usual goat nematode worms (*Strongylus flicollis*, *Æsophagostomum venulosum*, *Sclerostomum hypostomum*, *Uncinaria cernua*, and *Trichocephalus affinis* (Neumann)). None were, however, visible.



FIG. 4.—Caudal bursa of male. Magnified 100 diameters.

The liquid was then poured off and carefully examined with a $2/3$ objective, and was found to contain two adult female nematode worms of a very small size, and numerous ova. It was obvious now that the parasites were either buried in the masses of mucus, or in the membrane itself. The surface of the latter was carefully examined, but no trace of any nodules could be found. The mucus was, however, mixed with a few cubic centimetres of water and violently shaken in order to break up the masses, and 2 per cent. formaldehyde added to render the worms sufficiently opaque to be visible to the naked eye. The material was again poured into a glass dish, placed over a black cloth and examined. The fluid was now seen to contain a huge number of extremely small round worms, varying in length from 3 mm. to 5 mm., and still scarcely visible to the naked eye. Under the microscope they

were found to be too opaque, as a result of the formalin, to ascertain their anatomy properly, and were therefore treated as follows:—

Several of the worms were placed for five minutes in boiling 80 per cent. alcohol, transferred to a solution of one part of glycerine in 90 parts of absolute alcohol in a watch-glass, and placed in the incubator until all the alcohol had evaporated. They were now almost transparent, and scarcely visible with the naked eye. The parasites were now placed in a solution of glycerine and fuchsin, in which they were allowed to remain for one minute, were washed in glycerine, and mounted in glycerine

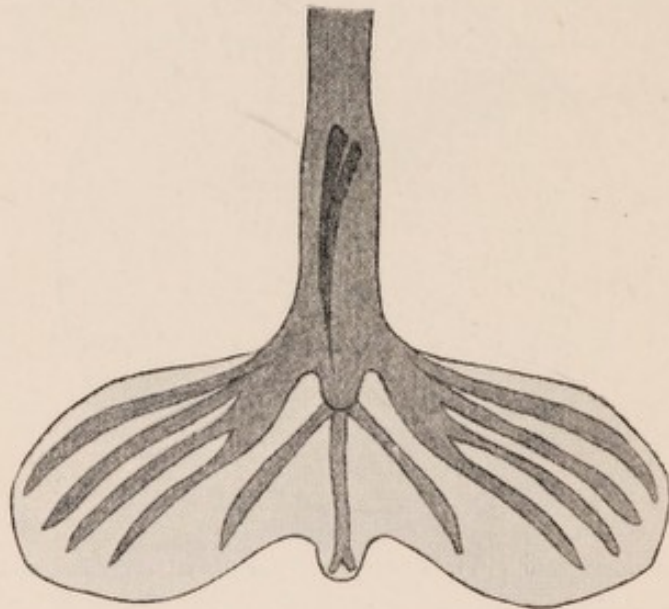


FIG. 5.—Diagrammatic representation of caudal bursa of male. Magnified about 150 diameters.

jelly. On examination with a $\frac{2}{3}$ objective they were found to be stained a bright pink colour, and the structure could be made out quite easily.

Anatomy.—A small filiform worm gradually enlarging in a posterior direction. The mouth is nude and represented by a slight depression from the base of which the alimentary canal begins. There is no differentiation into œsophagus and intestine, the whole being in the form of a narrow straight tube which widens out at the junction of the anterior and second fourths of the worm.


The male is from 3 mm. to 4 mm. in length, and possesses

a trilobate caudal bursa, the central lobe being ill defined; each lateral lobe is supported by five rays, of which the middle three arise from a common stalk, but are separate for almost their entire length. The spicules are two in number and of equal length.

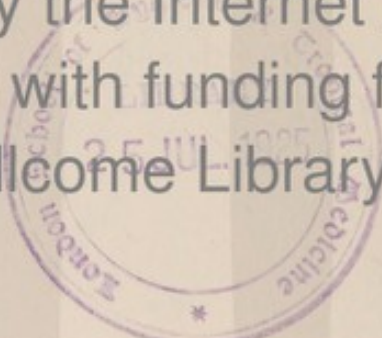
The female is from 4 mm. to 5 mm. in length. The tail is abruptly contracted to a narrow point, is conical, and has no well marked constrictions.

The uterus is a long straight tube which occupies the posterior three-fourths of the worm, and is doubled on itself at its anterior extremity, and shows well marked transverse ridges. The vulva is situated in the posterior fourth, towards the extremity. Many of these worms show a double twist at about their centre, but whether it is uterus twisted on itself, or intestine round uterus, it is difficult to ascertain; probably it is simply a double twist of the uterus.

The ova are not hatched in the body of the female. The worms closely resemble the strongyle of Axe, which is found in the stomach of the horse but apparently causes no ill effects, and the *Strongylus gracilis* of cattle and sheep, from which, however, they differ in several respects.



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