

*Trypanosome Diseases of Domestic Animals in Uganda.**IV.—*Trypanosoma uniforme*, sp. nov.

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[PLATE 12.]

INTRODUCTION.

The name *Trypanosoma uniforme* has been given to this species on account of the uniformity in shape and general appearance which characterises it.

Only four oxen were found by the Commission to show this trypanosome in their blood. One was received from Sir Apolo Kagwa, K.C.M.G., the Prime Minister, on August 30, 1909, and its blood at once inoculated into a series of animals. The other three came from the Uganda Company's estate at Namukekera.

The ox, goat, and sheep were found to be susceptible, while the monkey, dog, guinea-pig, rat, and mouse proved refractory. This was the case with *Trypanosoma vivax*, and in truth these two species resemble one another very closely. *Trypanosoma uniforme* differs from *T. vivax* in size, and perhaps to a slight extent in shape ; but, from the small amount of material at the disposal of the Commission, it would be rash to generalise.

The few facts gathered will, therefore, be put on record, in order to draw the attention of future workers on Uganda trypanosomes to its presence.

MORPHOLOGY OF *TRYPANOSOMA UNIFORME*.A. *Living, Unstained.*

This is a small and active trypanosome, which has a marked translatory movement in the field of the microscope. This movement, however, is not to be compared with that of *T. vivax* in point of rapidity or range. The rapid vibratory movement of the body and flagellum sometimes slows down for a perceptible fraction of time ; but this trypanosome does not become completely quiescent as is commonly the case with *T. pecorum*. The cell-contents are clear and homogeneous, without any appearance of a vacuole.

B. *Fixed and Stained.*

Length.—This trypanosome is smaller than *T. vivax*. The average is 16·0 as against 23·7 microns. The following table gives the average length of

* Continued from 'Roy. Soc. Proc.,' 1910, B, vol. 83, p. 27.

this trypanosome in the ox, goat, and sheep. Twenty trypanosomes are drawn and measured from each preparation, the average length reckoned, and the length of the longest and shortest given :—

Table I.—*Trypanosoma uniforme*.

No. of expt.	Animal.	Method of fixing.	Method of staining.	In microns.		
				Average length.	Maximum length.	Minimum length.
1437	Ox	Osmic acid	Giemsa	16·0	17·5	15·0
1442	"	"	"	16·0	18·0	14·0
1442	"	"	"	16·3	19·0	14·0
1581	"	"	"	16·5	19·0	14·0
1732	"	"	"	15·5	17·5	13·5
1734	"	"	"	15·3	17·0	14·0
1689	Goat	"	"	16·4	17·5	15·0
1694	"	"	"	17·7	19·0	16·0
1694	"	"	"	14·7	16·0	13·0
1497	Sheep	"	"	17·8	19·0	16·0
1497	"	"	"	14·7	16·0	12·0
				16·0	19·0	12·0

The following table represents the distribution in respect to length of 200 individuals of this species of trypanosome :—

Table II.—Distribution in respect to Length of 200 individuals of *Trypanosoma uniforme*.

No. of expt.	Microns.								Average, in microns.
	12.	13.	14.	15.	16.	17.	18.	19.	
1437	—	—	—	5	10	5	—	—	16·0
1442	—	—	3	2	9	4	2	—	16·0
1442	—	—	1	6	5	5	1	2	16·3
1581	—	—	1	3	8	2	4	2	16·5
1734	—	—	4	8	6	2	—	—	15·3
1689	—	—	—	3	6	11	—	—	16·4
1694	—	—	—	—	2	5	9	4	17·7
1694	—	1	8	7	4	—	—	—	14·7
1497	—	—	—	—	4	7	8	1	17·8
1497	1	—	7	6	6	—	—	—	14·7
Totals	1	1	24	40	60	41	24	9	
Percentages	0·5	0·5	12·0	20·0	30·0	20·5	12·0	4·5	

Breadth.—Varies from 1·5 to 2·5 microns.

Shape.—This species of trypanosome seems to differ in shape from *T. vivax* in that there is not the marked narrowing or constriction opposite the nucleus. The posterior extremity is rounded or blunt, and in this resembles *T. vivax* (Plate 12).

Contents of Cell.—Resembles *T. vivax* in showing the appearance of clear protoplasm with fine alveolar structure.

Nucleus.—Oval in shape and compact; not, as a rule, situated in a narrowed part of the body or waist, as in *T. vivax*. It also seems to be placed about the centre of the body, and does not take up the whole width of the cell as in the closely allied species.

Micronucleus.—Resembles *T. vivax* in being large, round, and terminal.

Undulating Membrane.—Narrow and little developed, as in *T. vivax*.

Flagellum.—There is a well-marked flagellum, the free part varying from 2 to 5 microns in length.

ANIMALS SUSCEPTIBLE TO *TRYPANOSOMA UNIFORME*.

Date.	No. of expt.	Source of virus.	Period of incubation, in days.	Duration of disease, in days.*	Remarks
Cattle.					
1909.					
Aug. 7	1442	Nat. infec.	?	5	Died of <i>T. uniforme</i> .
" 30	1581	"	?	61	Killed.
" 11	1732	"	?	79	Died of <i>T. uniforme</i> .
" 11	1734	"	?	80	Killed.
Goat.					
Sept. 1	1491	Ox 1581	15	18	No <i>post-mortem</i> .
" 16	1689	"	18	34	" "
" 18	1694	Goat 1491	9	35	" "
" 24	1716	Ox 1581	—	—	Never showed trypanosomes; under observation 40 days.
		Average ...	14	29	
Sheep.					
Sept. 16	1497	Ox 1581	18	46	Killed.
" 1	1601	"	—	—	Never showed trypanosomes; died 10 days after inoculation.
" 24	1717	"	—	—	Never showed trypanosomes; died 13 days after inoculation.
Monkey.					
Sept. 1	1653	Ox 1581	—	—	Experiment stopped after 34 days.

* Duration includes the days of incubation; it dates from the day of infection.



Ham.



Gravel.



Sheep

Date.	No. of expt.	Source of virus.	Period of incubation, in days.	Duration of disease, in days.*	Remarks.
Dog.					
Sept. 1	1600	Ox 1581	—	—	Experiment stopped after 34 days.
Guinea-pig.					
Sept. 1	1599	Ox 1581	—	—	Experiment stopped after 34 days.
Rat.					
Sept. 1	1597	Ox 1581	—	—	Experiment stopped after 34 days.
Mouse.					
Sept. 1	1598	Ox 1581	—	—	Experiment stopped after 34 days.

* Duration includes the days of incubation; it dates from the day of infection.

CULTIVATION OF *T. UNIFORME*.

No attempt was made to cultivate *T. uniforme*.

CARRIER OF *T. UNIFORME*.

No experiments were made in the laboratory with *Glossina palpalis* as a carrier of *T. uniforme*, and no evidence is to hand as to what the carrier is.

CONCLUSIONS.

1. *Trypanosoma uniforme* resembles *T. vivax* in shape and general appearance, but differs markedly in size.
2. It also resembles *T. vivax* in not being pathogenic to the smaller laboratory animals.
3. There is no evidence available, as in the case of *T. vivax*, as to what the carrier of *T. uniforme* is.

DESCRIPTION OF PLATE.

PLATE 12.

Trypanosoma uniforme in the ox, goat, and sheep. Fixed osmic acid, stained Giesma. $\times 2000$. Note the large round terminal micronucleus, the oval compact nucleus, situated about the centre of the body, the narrow undulating membrane, and the free flagellum.



Oxen.



Goats.



Sheep.