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RESEARCH NOTE

SOME PROTOZOAN PARASITES OF TRAGELAPHINE ANTELOPES IN SOUTH AFRICA WITH SPECIAL REFERENCE TO A *BABESIA* SP. IN A BUSHBUCK AND A *TRYPANOSOMA THEILERI*-LIKE PARASITE IN A NYALA

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Piroplasms of the Bushbuck (*Tragelaphus scriptus*)

An adult male bushbuck was found dead in the Hluhluwe Game Reserve, Natal, Zululand on 31 July, 1968. It had a loose snare around its neck and was in an emaciated condition. Although the snare had not cut into the skin it was clear that it had been on the animal for some time. It was estimated that the animal had been dead for approximately 3 to 6 hours when it was found.

Examination of a thin blood smear stained with Giemsa revealed a mild infection with two different erythrocytic protozoan parasites.

Five red blood cells, containing parasites identified as fairly large babesias, were found after an exhaustive search. These babesias are illustrated in Fig. 1, together with two considerably smaller piroplasms, and in Fig. 2. The small piroplasms were indistinguishable from those of *Theileria* and *Cytauxzoon* spp.

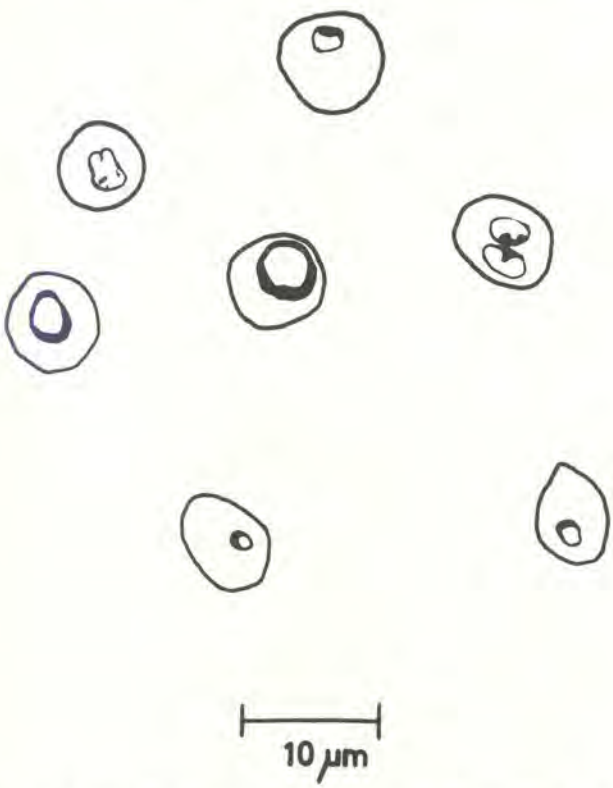

Fig. 1 Erythrocytic parasites of the bushbuck illustrated with the aid of a drawing tube. The small piroplasms are depicted in the bottom row and the *Babesia* sp. in the upper 5 red blood cells.

Babesia sp.

The babesias were rather variable in shape and size (Fig. 1). Single forms were either amoeboid, oval or ring-shaped and ranged from 2,2 to 4,0 µm in length by 1,8 to 3,6 µm in width. A pair of oval (rather than pyriform) organisms was also seen in one erythrocyte (Fig. 1 and 2). Their respective length × width measurements were 2,3 × 1,6 µm and 3,0 × 2,0 µm and they were not attached to each other.

The purple staining nuclear material of this *Babesia* sp. was not always clearly recognizable as a discrete body while the cytoplasm was either pale blue in colour or apparently unstained.

The bushbuck had been dead for a few hours before the smears were made and autolytic changes probably accounted for the rather rounded off appearance of the paired parasites, which were presumably pear-shaped prior to the death of the host. Similar changes must undoubtedly have altered the appearance of the single parasites to some extent as well. It therefore seems unwise to name the parasite specifically at this stage solely on the basis of an unavoidably inadequate morphological description. The susceptibility of domesticated animals such as cattle should also be determined, to rule out the possibility that it is one of the known *Babesia* spp., before it is named.

As far as we could determine this is the first record of a *Babesia* sp. occurring in tragelaphine antelopes.

Theileridae

The small piroplasms were also very rare (<1/1 000 erythrocytes) and were round, oval or rod-shaped in appearance (Fig. 1). They were either the erythrocytic stage of a *Cytauxzoon* sp. or of *Theileria tragelaphi* described by Neitz (1931).

A Trypanosome of the Nyala (*Tragelaphus angasi*)

The spleen smear in which three large, broad trypanosomes were found was taken from a healthy immature nyala ram shot during a game control operation at Ndumu Game Reserve, Zululand on 26 January, 1968. It was stained with Giemsa.

The organisms ranged from 51,8 to 65,1 µm in length and 7,4 to 8,9 µm in width and were attenuated slightly more anteriorly than posteriorly (Fig. 3 and 4). In all three trypanosomes the waves of an undulating membrane originating near the nucleus were recognizable though somewhat indistinct. The flagellum was also rather difficult to see. The kinetoplast could not be identified with certainty. Hence the possibility exists that the parasites were epimastigote rather than trypomastigote forms.

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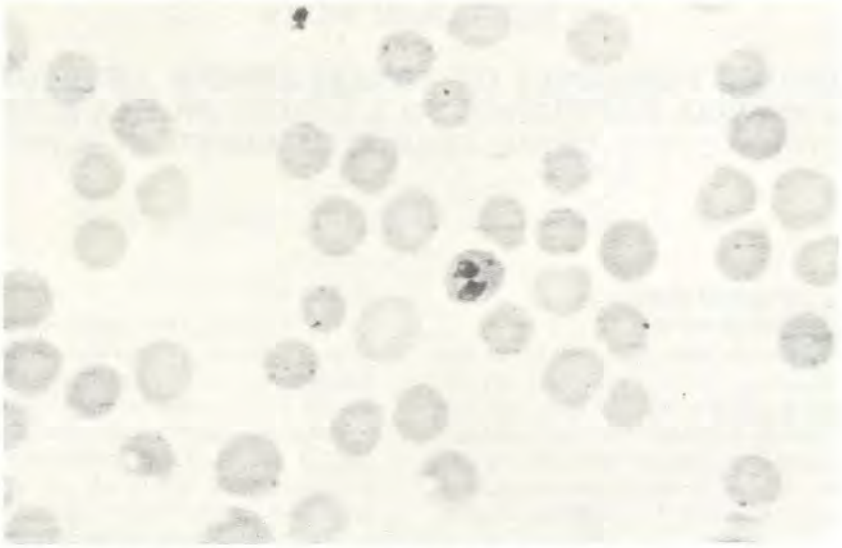

FIG. 2 Photomicrograph of a pair of babesias in an erythrocyte of the bushbuck. × 1200.

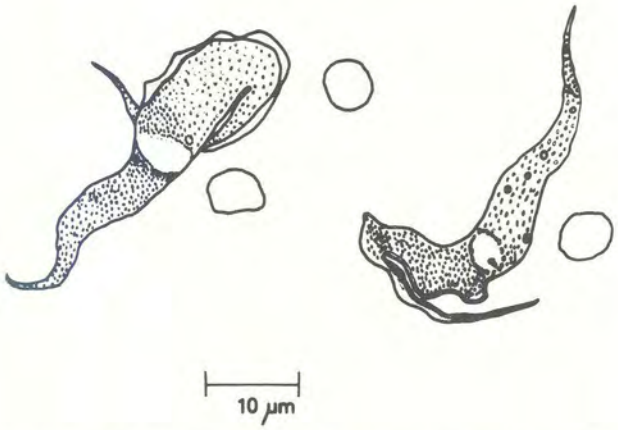

FIG. 3 *T. theileri*-like trypomastigote (?) forms in a spleen smear of nyala, illustrated with the aid of a drawing tube.

The nucleus extended from side to side and stained a pale blue rather than the customary purple. Its more or less central position was in fact indicated by a pale blue interruption of the mass of basophilic granules interspersed with minute vacuoles which seemed to constitute most of the cytoplasm. No "myonemes" were detectable.

The trypanosomes are clearly of the *Trypanosoma* (*Megatrypanum*) *theileri* type (Hoare, 1966). Morphologically they are indistinguishable from *T.* (*M.*) *tragelaphi* Kinghorn & York, 1913 first described in the sitatunga (*Tragelaphus spekei*); *T.* (*M.*) *ingens* Bruce, Hamerton, Bateman & Mackie, 1909, originally observed in a reedbuck (*Redunca arundinum*), bushbuck and an ox (Bruce, Hamerton, Bateman & Mackie, 1909), and *T.* (*M.*) *cephalophi* Bruce, Harvey, Hamerton, Davey & Lady Bruce, 1915, recorded from the duiker (*Sylvicapra grimmia*) (cited by Keymer, 1969).

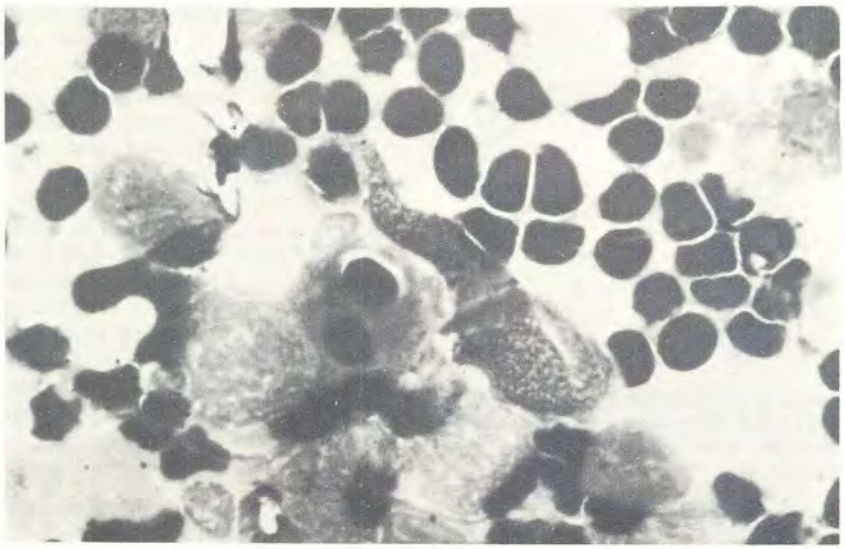

FIG. 4 Photomicrograph of a trypomastigote (?) form of a *T. theileri*-like trypanosome of the nyala. × 1200.

Subsequent to their discovery in these species, *T.* (*M.*) *ingens* and *T.* (*M.*) *tragelaphi* have been recorded in several other African antelopes and *T.* (*M.*) *tragelaphi* has also been observed in Zebu cattle. On the other hand, *T.* (*M.*) *theileri* Laveran, 1902, originally described in cattle, has since been found in a variety of antelopes (reviewed by Keymer, 1969).

These records, which are based on morphological studies, are rather confusing and all seem to indicate lack of host specificity of these trypanosomes. Moreover, Keymer (1969) was unable to separate the *Megatrypanum* trypanosomes of African antelopes and cattle into different species on the basis of a biometrical analysis of his own and published mensural data. However, he regards the available evidence on their host range and methods of transmission as insufficient to sink *T.* (*M.*) *tragelaphi, T.* (*M.*) *ingens* and *T.* (*M.*) *cephalophi* as synonyms of the older species *T.* (*M.*) *theileri*. For convenience therefore he refers to these *Megatrypanum* trypanosomes from antelopes as *T. theileri*-like parasites.

The same attitude has been adopted in this investigation. This is apparently the first record of a *T. theileri*-like trypanosome in the nyala.

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