

# *Buxtonella sulcata* IN BLACK BUFFALO AND CATTLE IN NORTHERN BRAZIL<sup>1</sup>

M. R. HONER<sup>2</sup> AND W. O. NEITZ<sup>3</sup>

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O achado do ciliato *Buxtonella sulcata* Jameson, 1926, em fezes de bubalinos da Ilha de Marajó e do Estado de Pará, e em bovinos do Território de Amapá, levanta o problema da introdução deste ciliato, e a sua significância na saúde animal, uma vez que *Balantidium coli* e *Buxtonella sulcata*, embora de grupos taxonômicos diferentes, podem ser confundidos morfológicamente.

**TERMOS DE INDEXAÇÃO:** *Buxtonella sulcata*, *Balantidium coli*, bubalinos, bovinos, Brasil.

**ABSTRACT.**- The discovery of the ciliate *Buxtonella sulcata* Jameson, 1926, in the faeces of buffaloes from the island of Marajó and from the State of Pará, as well as in faeces of cattle from the Territory of Amapá, raises the question of its introduction and its significance for animal health, since *Balantidium coli* and *Buxtonella sulcata*, although from different taxonomic groups, can be confused morphologically.

**INDEX TERMS:** *Buxtonella sulcata*, *Balantidium coli*, buffalo, cattle, Brazil.

## INTRODUCTION

The caecal ciliate *Buxtonella sulcata* is a relatively common parasite of buffalo and cattle in Asia, according to Griffiths (1974). Boch and Supperer (1977) stress the probable confusion between *Balantidium coli* and *B. sulcata*, suggesting that many cases of diarrhoea attributed to the former may in fact be caused by *B. sulcata*. Reports of *Balantidium coli* from the camel and dromedary may also be due to some confusion between these two species, or with another ciliate, *Infundibulorium cameli* Bozhensko, 1925, which Levine (1973) regards as a possible prior synonym for *B. sulcata*.

Although belonging to very different taxonomic groups, *Buxtonella sulcata* and *Balantidium coli* may be confused morphologically when the former is in the exconjugate stage, and the otherwise obvious and characteristic groove can be seen only with difficulty, if at all. The possibility that some records of *B. coli* really refer to *Buxtonella sulcata*, raises doubts as to the actual geographical distribution of this species. However, as far as we are aware, there are no recorded instances of *B. sulcata* from the Neotropical region, nor any confirmation of its possible role in animal health.

## MATERIALS AND METHODS

During a survey for intestinal parasites of bovines and buffaloes in the Territory of Amapá, faecal samples were examined from animals slaughtered at the municipal abattoir in Macapá. In samples taken from buffaloes, slaughtered in Macapá but originating from the Island of Marajó, and in similar samples from cattle in the Territory of Amapá, large numbers of trophozoites and cysts were found which could be identified as *Buxtonella sulcata*. In faeces of buffaloes from the State of Pará, examined in connection with another project, large numbers of trophozoites were again found. In this instance, it was possible to measure and photograph *B. sulcata* (Fig. 1).

The faeces were processed for helminth eggs, using the technique of centrifugation-flotation described by Honer (1965), although a saturated salt solution was used in the place of ZnSO<sub>4</sub>. Any study of this parasite should be carried out with a different technique, since the flotation media used for egg counting rapidly destroys the ciliate.

## RESULTS AND DISCUSSION

The ciliate *B. sulcata* is ovoid, completely and uniformly ciliated and bears a characteristic groove bordered by ciliated flanges, leading to the cytostome. The mean dimensions of the Pará material were 93 x 68 micra (40 trophozoites); the elongate macro-nucleus had mean dimensions of 22 x 12 micra. The general appearance of this ciliate is shown in Figure 1.

It is of interest to speculate as to how *Buxtonella sulcata* was introduced into Brazil. It is known, for example, that other protozoan parasites have been introduced into this northern area of the country. *Trypanosoma evansi* is believed to have arrived in the Neotropical region with the horses of the Spanish conquistadores, who obtained their horses in northern Africa, where they had been in contact with camels. It is not likely, however, that this was the route of introduction for *B. sulcata*, even considered as a synonym of *Infundibulorium cameli*, since this group of ciliates does not appear to infect horses. *Trypanosoma vivax* was introduced into Surinam with Zebu cattle from Senegal in 1830, later

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<sup>2</sup> Instituto de Biologia Animal, Universidade Federal Rural do Rio de Janeiro (UFRRJ) Km 47, Seropédica, Rio de Janeiro 23460, Brazil.

<sup>3</sup> Late Professor of Protozoology, Postgraduate Course in Veterinary Parasitology, Inst. Biol. Animal, UFRRJ, Rio de Janeiro, Brazil.

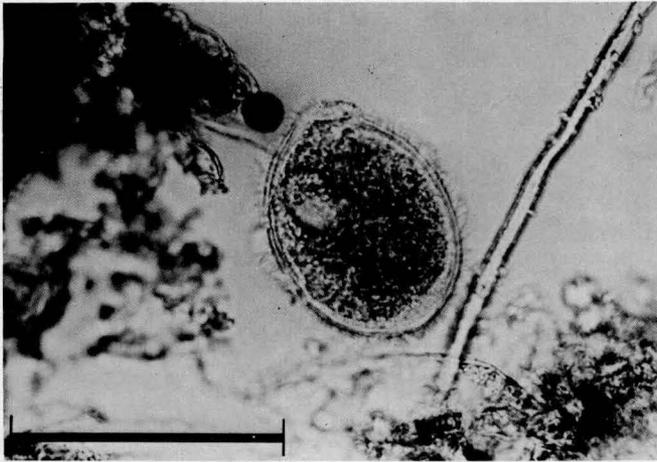


Fig. 1. *Buxtonella sulcata* in buffalo faeces (Material from Pará). The cytostome is anterior, the flanged groove can be seen to the left of the specimen. The macronucleus is visible as a lighter area close to the groove. The scale line represents 100 micra.

spreading to the south and east, and now occurring in the Territory of Amapá, especially in cattle. Indochinese carabao were also introduced into Surinam during the last century and they have spread in the same period as far as the Island of Marajó. Both introductions offer possible routes for the appearance of *Buxtonella sulcata* in the Neotropical region. Finally, the Black ("Preto", Shorthorn or Mediterranean) buffalo was introduced into Brazil from Italy, sometime before 1900, and was certainly reimported into the State of Pará in the 1920s. The latter route would appear to be the most feasible for the introduction of *B. sulcata*, especially in the light of the observations of Boch and Supperer (1977), that cases of "*B. coli*" observed in recent years in the Medi-

terranean area, particularly in Italy and Greece, may well be due to *B. sulcata*.

The cases of "*B. coli*" recorded in the Mediterranean area were observed in several species of domestic animals, including buffalo and cattle, the principal symptoms being diarrhoea and poor condition. In another case, bovine broncho-pneumonia was attributed to *B. sulcata* (Hatzios 1973). The cattle we found positive for this ciliate in the Territory of Amapá had a history of "non-specific" diarrhoea, apparently quite common in the area.

It would be of importance to know whether *B. sulcata* has been introduced into other areas with exotic breeds of cattle, and whether it may be the true cause of production losses and disease normally attributed to *Balantidium coli*. It is hoped that this paper may serve to stimulate further observations and experimental studies with *B. sulcata*.

*Acknowledgements.*- This paper is dedicated to the memory of Dr. W. O. Neitz, friend and colleague, who passed on before it was possible to complete any further joint studies.

## REFERENCES

- Boch J. & Supperer R. 1977. Veterinärmedizinische Parasitologie. 2. Auflage. Paul Parey, Berlin.
- Griffiths R.B. 1974. Parasites and parasitic disease, p. 236-275. In: Cockrill W.R. (ed.) The husbandry and health of the domestic buffalo. Chapt. 10. FAO, Rome.
- Hatzios B.C. 1973. Balantidium in bovine respiratory tract. Deltion Hellenikes Kteniatrikes Hetaireais 24:8-18. (Vet. Bull. 43(12), Abstr. 5594)
- Honer M.R. 1965. The interpretation of faecal egg-counts, I. Daily variations in *Fasciola hepatica* egg-counts in cattle. Z. Parasitenkd. 26: 143-155.
- Levine N.D. 1973. Protozoan parasites of domestic animals and man. 2nd ed. Burgess Publishing Co., Minneapolis.