Annales de Parasitologie (Paris)
1979, t. *54*, n° 3, pp. 297-302.

Cotylophoron macrosphinctris sp. n.

(Trematoda : Paramphistomata)

from the African buffalo,

Bubalus (Syncerus) caffer Sparrman

by **O. SEY** * and **M. GRABER** **

Department of Zoology, College of Education, Pécs, Hungary.
Ecole Nationale Vétérinaire de Lyon, Marcy-l'Etoile, F 69260 Charbonnières-les-Bains

Summary.

Cotylophoron macrosphinctris sp. n. was recorded from the rumen of the African buffalo, *Bubalus* (*Syncerus*) *caffer*, Sparrman in Central African Empire. The most characteristic feature of this species is the presence of a strong genital sphincter by which it is easily distinguished from the hitherto known species of the genus.

Résumé.

***Cotylophoron macrosphinctris* n. sp. (*Trematoda : Paramphistomata*), parasite du Buffle africain, *Bubalus* (*Syncerus*) *caffer* Sparrman.**

Description d'un nouveau Trématode *Paramphistomata, Cotylophoron macrosphinctris,* parasite du rumen du Buffle africain, *Bubalus* (*Syncerus*) *caffer,* Sparrman en Empire Centrafricain.

La présence d'un puissant sphincter génital permet de différencier facilement cette espèce de tous les autres *Cotylophoron* connus.

A collection of Amphistomes made between 1954 and 1976 in some Central African countries contained vials with several specimens of the genus *Cotylophoron*. They represented a new species found in the Central African Empire.

Accepté le 9 janvier 1979.

All worms of the present study were fixed and preserved in 5 per cent formalin.

Description was based on nineteen median sagittal sections and some toto mounts.

Preparations were stained in haematoxylin and eosin as well as in Gower's carmine and mounted in balsam. The collection contained mature and immature specimens alike.

All measurements are given in millimetres (with a mean in paranthesis).

Cotylophoron macrosphinctris

DESCRIPTION.

The body is smooth, conical in appearance (*fig. 1*) slightly bended to ventral surface; length 5,5-7,2 (6,3), greatest breadth at level of acetabulum 1,5-2,5 (1,9), dorso-ventral dimension 2,5-3,0 (2,8). The pharynx is located terminally; length 0,8-1,1 (0,9), breadth 0,5-1,0 (0,8), Calicophoron (Dinnik, 1964) type. Oesophagus oblique "J" shaped, dorso-ventral position ; length 1,2-1,5 (1,3), greatest breadth 0,3-0,5 (0,4); posterior two-thirds of its length usually provided with a gradual process of muscular thickening (*fig. 2*). It consists of two layers an outer longitudinal and an inner circular ones. Caeca lateral, forming ample convolutions and terminate at middle part of acetabulum; end parts of each direct toward dorsal side. The aceta-

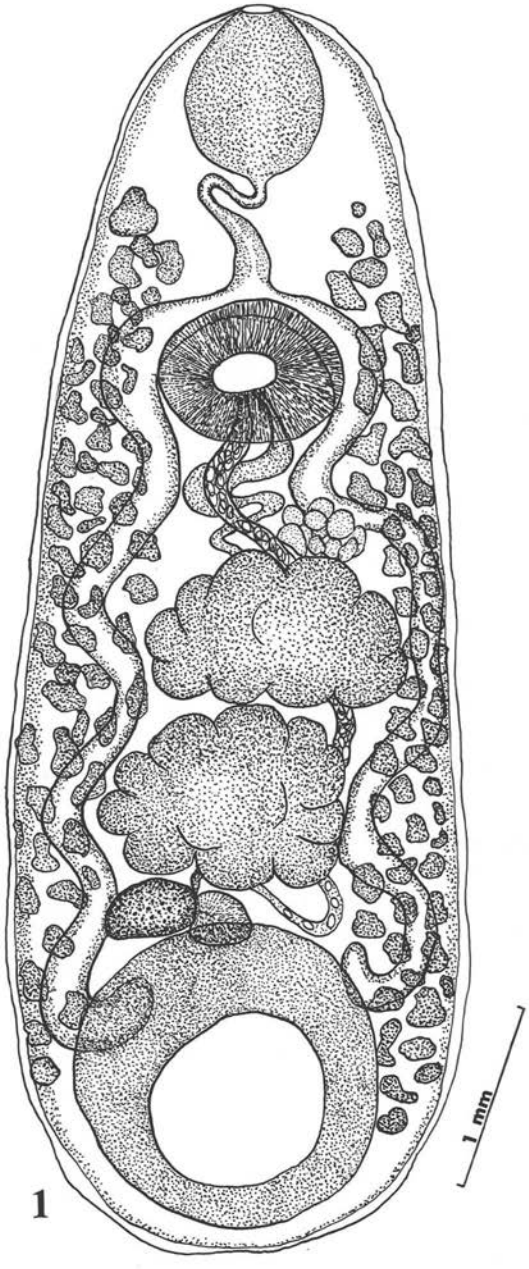

Fig. 1. *Cotylophoron macrosphinctris* sp. n., ventral view.

bulum is subterminal, Cotylophoron type. Its outer diameter 1,2-2,0 (1,7), breadth 0,28-0,72 (0,48).

Testes strongly lobed, near to each other, at midline of body, diagonal in position; the anterior testis slightly to the left, the posterior one to the right side. Length of anterior testis 0,4-1,8 (1,0), width 0,8-1,9 (1,3), dorso-ventral dimension 1,2-1,6 (1,3); length of posterior testis 0,5-1,8 (1,1), width 0,7-2,1 (1,6), dorso ventral dimension 1,1-1,8 (1,4). After joining of vasa efferentia form vas deferens composing several convolutions and inflates into pars musculosa and continues in pars prostatica and ductus ejaculatorius. Pars prostatica poorly developed about 0,12-0,23 (0,17) in length with a few prostatic cells. Development of pars musculosa may vary in length and breadth of its musculature. Mostly developed pars musculosa consists of four-five loops being about 0,04 in breadth.

Ovary oval 0,28-0,84 (0,44) × 0,20-0,48 (0,30), situated on the right side between acetabulum and posterior testis. Ootype complex contains Mehlis' gland, common vitelline duct and Laurer's canal. The latter as a wingled tube reaches dorsal surface behind the opening of the excretory pore. Uterine coils dorsal, terminating in a thin-walled metraterm.

Genital end-part mid-ventral, near to oesophageal bifurcation. Length 0,84-1,0 (0,92), width 0,8-1,3 (1,1). Ductus ejaculatorius and metraterm open separately at the tip of genital papilla without forming a hermaphrodite canal. Genital papilla, from the bottom of the genital atrium tends to ventral surface and in general it stretches out two-thirds of dorso-ventral length of genital end-part (*fig.* 5). The genital opening is provided with a strongly developed sphincter (*fig. 4-7*), 0,12-0,24 (0,21) in length and 0,14-0,16 (0,15) in width. On the basis of its histo-morphological structure it represents a new type, called Schistocotyle. In two specimens, along the inner edges of genital atrium a moderately developed circular muscle layer is also observable (*fig. 4*). Eggs thin-walled, operculated 0,10-0,15 (0,13) × 0,06-0,07 (0,06). Vitellaria lateral, beginning at the level of oesophagus and terminates at the middle part of acetabulum. In some specimens vitelline follicules penetrate into the middle region of ventral surface before and behind of the genital end-part.

Excretory bladder postero-dorsal, pyriform, situated between the posterior testis and the acetabulum near to body surface. Excretory duct and Laurer's canal cross each other e.g. in case of a given specimens these ducts open 3,1 (excretory) and 2,3 (Laurer's) respectively from the posterior body end. Laurer's canal on the left from excretory pore and relatively far from each other (about 0,3).

Type host: *Bubalus* (*Syncerus*) *caffer*. Sparrman.

Habitat: rumen

Type locality: Central African Empire.

Type specimens: Department of Zoology, College of Education, Pécs, Hungary, No. 459 (1-20).

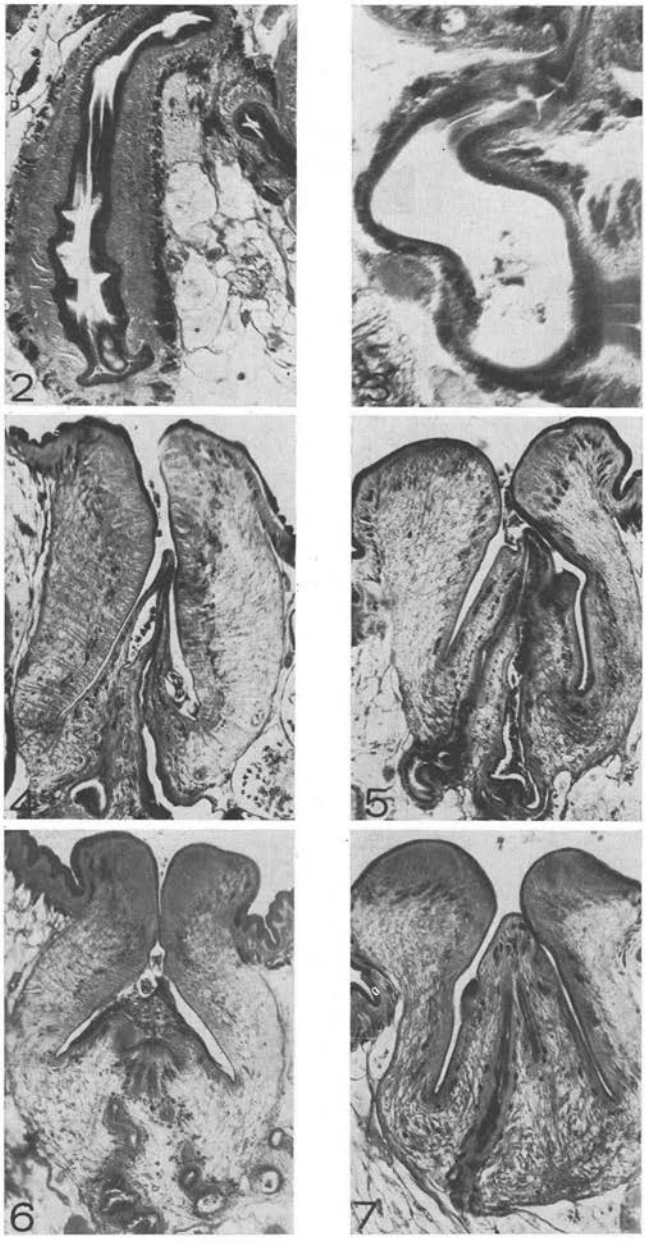

Fig. 2-7. Median sagittal sections of *C. macrosphinctris* ; 2 = oesophagus with muscular thickening (67 ×) ; 3 = oesophagus without muscular thickening (128 ×) ; 4-7 = genital end-part in different appearance ; magnification : fig. 4 (68 ×) ; fig. 5 (41 ×) ; fig. 6 (57 ×) ; fig. 7 (58 ×).

Discussion

The first species of this genus was described by Fischoeder (1901) under the name *Paramphistomum cotylophorum*. Later Stiles and Goldberger (1910) established a new genus *Cotylophoron* for this and *C. indicum*. Without a critical elucidation this genus has nowdays embraced species *C. skrjabini* Gorbunow 1931 (Nom. nud.); *C. elongatum, C. orientalis, C. ovatum* by Harsey (1934); *C. okapi* Leiper (1935); *C. jacksoni, C. fülleborni* by Näsmark (1937); *C. noveboracensis, C. panamensis* by Price et McIntosh (1953); *C. madrasensis* Gupta, 1958; *C. skrjabini* Mitskevich, 1959; *C. bareilliensis* Mukherjee, 1963; *C. vigisi* Davydova, 1963; and *C. chauhani* Gupta et Gupta, 1972. Opinions vary both on validity of species in question and constancy of specific features attribued to them. Due to the controversy expressed by some authors, it seems necessary to carry out a revision of species of the genus *Cotylophoron* based on a comprehensive examination of species including type-specimens as well.

Taking gross-morphology, anatomical and histo-morphological pecularities of *C. macrosphinctris* into account, it should be placed among the genus *Cotylophoron*. It resembles *C. cotylophorum* in its having oesophageal thickening and in the position of excretory and Laurer's canals but differs from this and the other members of this genus in having also a strong genital sphincter which seems to be a unique feature among species, presently known of the genus *Cotylophoron*.

As the presence of genital sphincter proved to be constant (it was found in every examined specimens) and as it is easy to recognize it seems to be an appropriate standpoint to study of correlation between specific feature of *C. macrosphinctris* and the estimate of their constancy.

It seems to be generally accepted that the most important specific features of species *Cotylophoron* are the structure of genital end-part, the presence or absence of oesophageal thickening and the position of excretory and Laurer's canals. Accordingly, 10,5 per cent of the examiner specimens had no oesophageal thickening (*fig.* 3); by 31,5 per cent of specimens the genital papilla did not reach (*fig. 4, 6*), 15,7 per cent of specimens it went beyond the length of two-thirds of dorso-ventral dimension of genital end-part (*fig.* 7). None of the examined specimens had hermaphrodite canal (*fig.* 5). Excretory and Laurer's canals cross each other, at least in those seven specimens in which position of these two openings might be detected undoubtedly. Establishment and analysis of the degree of correlation of specific features might be a usuful tool in clarification of validity of doubtfull species of the genus *Cotylophoron*.

References

Dinnik J. A. (1964): *Paramphistomum sukumum* sp. nov. and other stomach-flukes from cattle in the Sukumaland area of the Lake Region, Tanganyika. *Parasitology, 54,* 201-209.

Fischoeder F. (1903): Die Paramphistomiden der Säugethiere. *Zoologische Jahrbücher Syst., 17.* 485-660.

Näsmak K. E. (1937) : A revision of the trematode family Paramphistomidae. *Zoologiska bidrag, 16,* 301-562.

Price E. W., McIntosh A. (1953) : Two new trematodes of the genus *Cotylophoron* Stiles et Goldberger from American sheep. *Thapar Commemoration Volume,* 227-232.

Stiles C. W., Goldberger J. (1910) : A study of the anatomy of *Watsonius* (n. g.) *watsoni* of man and of nineteen allied species of the superfamily Paramphistomoidea. *Hygenic Lab. Bull.*, No. 60, 1-259.