

PARAFILARIA BASSONI SPEC. NOV. FROM THE EYES OF SPRINGBUCK
(ANTIDORCAS MARSUPIALIS)

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Three male and six female filariid worms were recovered from the eyes of springbuck by Dr. P. A. Basson, Senior Veterinary Officer, Mariental, South West Africa, and submitted to the author for identification. On closer examination they were found to belong to the genus *Parafilaria*, Yorke & Maplestone, 1926. Due, however, to certain morphological characteristics and the peculiar habitat they are described as a new species, *Parafilaria bassoni*.

DESCRIPTION

The whitish, slender worms were found in the orbital connective tissue and were killed and preserved in 70 per cent alcohol. The males are 12 to 13 mm long and the females 38 to 40 mm. Their maximum thickness is in the anterior body third which reaches 0.125 mm in the males, and 0.39 mm in the females. Posteriorly the body becomes slightly thinner ending in a rounded extremity which in the males tends to be recurved ventralwards; here the body is about 0.09 mm thick in the males and 0.15 mm in the females. The anterior portion of the worm is cone-shaped, with two small lateral papillae at what might be considered the base of the cone. In all the worms, except one male, these papillae are at the level of or just anterior to the junction of the oesophagus and intestine. In the one exception their position is about 0.08 mm behind the oesophagus. The whole surface of the body, except for the anterior head portion, is ringed with fine, transverse, cuticular striations. Immediately behind the mouth, for a distance of about 0.05 mm, the cuticle carries about ten rows of small tubercles arranged in irregular circles (Fig. 1); behind them for a further distance of about 0.1 mm the tubercles are for the most part replaced by transverse ridges which become more elongate posteriorly. The tubercles and ridges are less well defined along the ventral body surface. The area round the mouth is smooth. What appear to be two lateral and four submedian papillae can vaguely be seen behind the mouth.

The small, inconspicuous mouth leads into a short, thin canal which joins a short oesophagus; no structures which can be interpreted as rudimentary lips are seen. The oesophagus is about 0.2 mm long in both sexes, and has an even diameter of 0.25 to 0.03 mm. The intestine is generally much inflated at its anterior origin, and may fill almost half of the anterior body cavity; then it diminishes in size and at its end it may have a diameter of only about 0.03 mm. In the males a thin rectum connects the intestine with the cloaca and in the females with the external anal aperture; the anus is represented by a minute subterminal pore flanked latero-dorsally on either side by a small papilla.

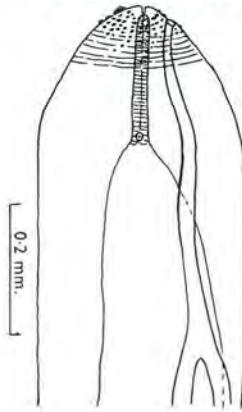


FIG. 1.—*Papillosetaria bassoni* sp. nov., female head, lateral view.

In the male the tail is slightly recurved ventralwards and is only about 0.045 mm long; on either side it carries a narrow ala about 0.01 mm wide, each ala being supported by four short pedunculate papillae (Fig. 2). On the ventral tail surface four pairs of small sessile papillae are present; these extend in two rows from the tip of the tail to the level of the cloaca. Anterior to the cloaca there are three or four unstalked lateral papillae on each side, and three pairs of sessile papillae more ventral in position. The distribution of the papillae is practically identical with that illustrated by Fain & Herin (1950a) for *P. bovicola* Tubangui, recovered from the subcutaneous tissue along the dorsum of a cow in Ruanda-Urundi. The two spicules are markedly dissimilar. The left spicule is relatively long and thin and tapers to a rounded point; its length varies from 0.45 to 0.51 mm with a maximum thickness of 0.012 to 0.015 mm towards its proximal end. The right spicule is only 0.12 to 0.15 mm long; it is flattened dorso-ventrally and has a rounded end; its maximum lateral breadth is from 0.02 to 0.024 mm and its dorso-ventral thickness is 0.009 to 0.012 mm. A gubernaculum is absent.

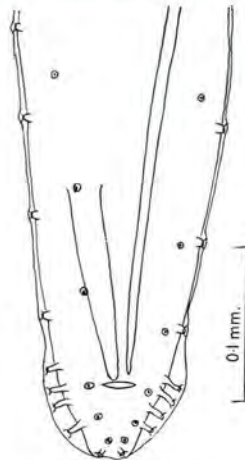


FIG. 2.—*Papillosetaria bassoni* sp. nov., male tail, ventral view.

The vulva is a rounded opening very close to the mouth aperture; its distance from the mouth varies from 0.06 to 0.075 mm, measured along the edge of the body. It leads into a fairly straight vagina 0.56 to 0.66 mm long and 0.06 mm thick, which in turn joins the two uteri, which pass backwards and are filled with oval eggs containing coiled larvae. The oval eggs are provided with a very thin shell; they vary in size according to the degree of coiling of the contained larvae; their size *in utero* varies from 0.048 to 0.06 mm in length by 0.018 to 0.024 mm in breadth.

DISCUSSION

Three species of *Parafilaria* are known viz. *P. multipapillosa* (Condamine and Drouilly, 1878) from horses, *P. bovicola* Tubangui, 1934 from cattle, and *P. antipini* Rukhaliadev, 1947 from deer (*Cervus elephus*). These three parasites inhabit the subcutaneous connective tissues and the two first named species are responsible for the formation of cutaneous nodules found mainly along the dorsum of the body. An opening to the exterior is formed in the nodules followed by extensive bleeding. In *P. bassoni*, however, no body nodules were observed, and as the parasite was found in the eyes of all of the five springbuck examined the writer assumes that this habitat is not abnormal for it. It must be mentioned, however, that body nodules were not specially looked for, neither were the subcutaneous connective tissues examined for the possible presence of the parasite. The author's species shows a close relationship to *P. bovicola* but differs from it, however, in being much smaller and thinner; the left spicule is considerably longer and a gubernaculum is absent. It is also much smaller than *P. antipini* from which species it also differs by the absence of a band of cuticular plates extending along the body. Special attention was drawn to this latter feature in order to distinguish it from the other two species.

For completeness Table 1 is given wherein the chief characteristics of the four species are tabulated.

TABLE 1.—*Tabulation of chief characteristics of four species of Parafilaria*

	<i>P. multipapillosa</i>	<i>P. bovicola</i>	<i>P. antipini</i>	<i>P. bassoni</i>
Length (male).....	28-30*	20-30	18.6	12-13
Length (female).....	40-60	40-50	?	38-40
Breadth (male).....	0.26-0.28	0.3-0.39	0.3	0.12-0.125
Breadth (female).....	0.42-0.45	0.4-0.5	0.396	0.36-0.39
Length oesophagus (male).....	—	0.135-0.21	0.156	0.2
Length oesophagus (female).....	—	0.23-0.25	?	0.21
Spicules (left).....	0.68-0.75	0.33-0.35	0.492	0.45-0.51
Spicules (right).....	0.13-0.14	0.145-0.158	0.156	0.12-0.15
Gubernaculum.....	Absent	Present	?	Absent
Vulva from mouth.....	0.06-0.098	0.77-0.91	?	0.06-0.075
Vagina length.....	?	0.6-0.07	?	0.56-0.66
Size of eggs.....	0.05-0.055	0.04-0.05	—	0.048-0.06
	0.025-0.03	0.025-0.03	?	0.018-0.024
Hosts.....	Equines	Bovines	Deer	Springbuck

*All measurements in mm

SPECIFIC DIAGNOSIS

Filariinae; slender worms; males up to 13 mm and females up to 40 mm long. Head conical and surface provided with tubercles and transverse ridges in concentric rings. Spicules unequal and dissimilar, left up to 0·51 mm and right up to 0·15 mm long. Gubernaculum absent. Small and narrow caudal alae supported by four pairs of papillae with short peduncles. Four pairs post-cloacal, sessile, ventral papillae present as well as four pairs lateral and three pairs ventral sessile papillae anterior to the cloaca. Vulva very close to mouth. Ovoviviparous; eggs with very thin shells. Parasites of the eyes of antelopes.

Host: Springbuck (*Antidorcas marsupialis*)

Location: Connective tissue of orbit

Locality: Mariental, South West Africa

Types in the Onderstepoort Helminthological collection.

SUMMARY

A new species of *Parafilaria*, *P. bassoni* is described from the eyes of springbuck from South West Africa. Its characteristics, and those of the other three species of this genus, are tabulated.

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