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A hitherto unrecorded Filaria, *Suifilaria suis*, N.G., N.Sp., from the Domestic Pig in South Africa.

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About a year ago portions of preserved pig muscle were submitted by the Port Elizabeth abattoir authorities to this Institute in order to determine whether some whitish oval cysts attached to the fasciae of the muscles had any relation to cysticercosis. On dissection it proved that these cysts enclosed a delicate coiled worm, and the writer was fortunate in obtaining one complete female together with about 6 anterior and posterior ends of other female worms; no males were recovered. Examination of this material clearly showed the filariid nature of this parasite, and in addition characteristics were noted which did not agree with the description of any filariid known to the writer. The services of the Government Veterinarian at Port Elizabeth were now solicited and Mr. Clemow, B.V.Sc., kindly undertook to obtain further material; in consequence some entire males and females were obtained and sent to this Institute together with a portion of unpreserved pig flank and a portion of flank was sent in glycerine; these showed several cysts under the body cavity lining. From these cysts the writer was able to dissect out several entire males and females. The writer wishes to express his sincere gratitude to Mr. Clemow for his kindly services.

When transmitting the above material Mr. Clemow wrote as follows:—" . . . I saw the usual filaria under the fasciae of the muscles of the fore-quarters, and a number of cysts in the fat under the flank muscles. . . . According to the Meat Inspector the worms are found under the fasciae of any of the muscles in severe cases, but particularly those of the fore-quarters. I find, . . . that they can be detected by skinning the forearm and examining the fasciae ". From Mr. Clemow's communication it appears that these parasites may be either free or encysted; the free parasites sent were mature males and females and those dissected out by the writer from the cysts, were also mature. Whether encystment is normal to the parasite remains undetermined.

The material available for study consisted of about 15 entire males and females, together with several anterior and posterior ends of both sexes. They are thin white worms, the females being about

half as long again as the males and slightly thicker; the males are from 17 to 25 mm. long with a maximum thickness of 0·1 to 0·13 mm. and the females are from 32 to 40 mm. long by 0·15 to 0·17 mm. thick in the middle. The cuticle shows no signs of annulations in both sexes, and lips are also absent. The head is ornamented by two lateral cuticular auricular-like structures, which probably represent the modified lateral papillae of the head (Fig. 1): from each a

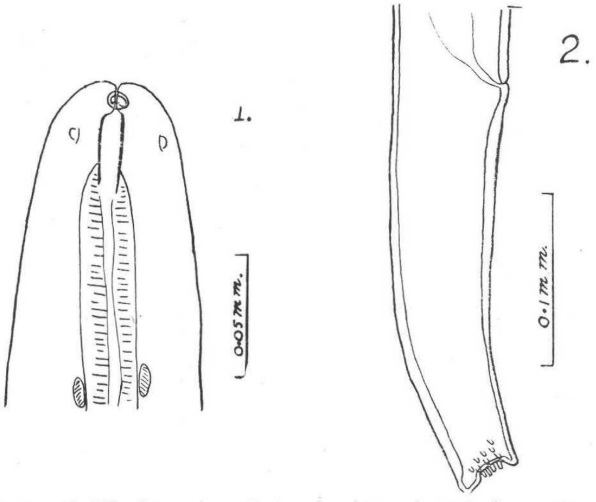

Fig. 1. *Suifilaria suis.* Lateral view of anterior extremity.
Fig. 2. *Suifilaria suis.* Tail of female.

duct passes backwards and joins a pear-shaped gland lying on the side of the oesophagus and anterior to the nerve ring. In addition, just posterior to the level of the auricular-like structures there are 4 very indistinct submedian head papillae which cause only a very slight bulging of the cuticle. The mouth is a small round aperture which leads through a short narrow canal to the small and cylindrical buccal capsule, about 0·025 mm. long and 0·009 mm. broad, and having a cuticular wall about 0·001 mm. thick. The oesophagus is extremely long, and its junction with the intestine was in most cases not determined; it would appear as if it insensibly passed over into the intestine: In those specimens where some indication of its posterior limit was seen, it reached almost to the middle of the body, its ratio to the total length being as 5:6. It consists of a short anterior muscular and a long and thicker posterior glandular portion; the anterior portion was found to be from 0·2 to 0·25 mm. long by 0·02 to 0·026 mm. thick, and it was encircled by the nerve ring at about the junction of its first and second thirds. The excretory pore was not seen.

In the female the tail (Fig. 2) is straight and is from 0·186 to 0·226 mm. long; it has the appearance of a truncated cone, the blunt end of which is provided with a number of knobs or tubercles. These are of two kinds, large and small; of the former there are usually three, one dorsal and two ventro-lateral, but this arrangement is liable to vary and one may be ventral and two dorso-lateral. Between these larger tubercles fifteen to twenty smaller tubercles are irregularly scattered about.

The vulva is situated just posterior of the level of the auricular-like head structures and about 0·015 mm. from the anterior end; it leads into a long and straight muscular vagina, 3·4 to 4·3 mm. long by 0·03 mm. wide and having a cuticular lining. Two uteri take their origin from its posterior end, and these pass straight down the length of the body and then bend and pass forwards. Each contains numerous oval, smooth and thin-shelled eggs, and those near the beginning of the vagina are embryonated: These eggs are 0·051 to 0·061 mm. long, 0·028 to 0·032 mm. broad. No free embryos were noted in the vagina, neither were any found in blood smears taken from an infected pig.

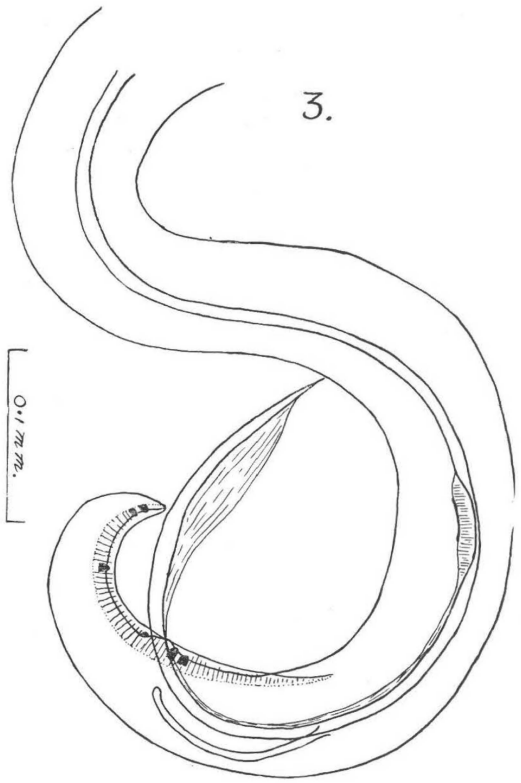

Fig. 3. *Suifilaria suis.* Posterior extremity of male.

In the male the posterior end of the body (Fig. 3) forms two to four loose spirals and is terminated by a conical tail 0·145 to 0·157 mm. long. A narrow caudal ala, about 0·015 mm. wide is present on the left side and extends from about 0·2 mm. anterior of the cloaca to the tip of the tail: It is continued round the tail tip on to the right side where it extends forwards for about 0·05 mm.; except for this small ala at the tip of the tail, the right side is entirely non-alate. The ala shows coarse transverse markings extending from the body through about two-thirds of its width. The caudal papillae are not very distinct, but the writer was able to make out the following

which appear to be typical. There are two pairs of sessile papillae on either side just anterior to and a smaller more ventral pair just posterior of the cloaca. Just posterior of the middle of the tail, there is a further small lateral pair, and at the beginning of the last tail quarter two additional pairs of small papillae are present. On the right side the small alae may terminate either anterior or posterior of these last papillae. The spicules are well cuticularized, dissimilar and unequal; the right, 0·105 to 0·115 mm. long by about 0·005 mm. thick at its base, is curved and terminates in a slightly bulbous tip: The left spicule is stouter, about 0·01 mm. thick at its base and from 0·655 to 0·87 mm. long and terminates in a point. It consists of two more or less equal parts, an anterior non-alate portion and a posterior-alate, the two halves being joined to one another by a thicker and somewhat membranous portion.

This parasite, which is the first record, as far as the writer is aware, of a filaria from the domestic pig in South Africa appears to be not only a new species, but also the representative of a new genus of the Filarinae and the following genus and species is created for its reception:

Suifilaria suis N.G., N. Sp.

Generic and Specific Diagnosis.—Filariinae; mouth simple, without lips; lateral papillae modified to form cuticular auricular-like structures; small buccal capsule; oesophagus very long, consisting of a short anterior muscular portion and long posterior glandular portion. Vulva near mouth; long vagina and two uteri; female tail with a number of tubercles at its end. Caudal end of male coiled: Complete ala on left side only; spicules very unequal and dissimilar.

Type species. *S. suis* N. Sp. from *Sus scrofa domestica*, free in fasciae of muscles or encysted.

Affinities.—The simple nature of the mouth, the absence of a peribucca ring, the anterior position of the vulva and the unequal and dissimilar spicules places this parasite in the sub-family Filariinae Stiles, 1907. It differs, however, from all the known genera of this sub-family in the combined presence of a buccal capsule, the modified lateral head papillae to form cuticular auricular-like structures, the reduced right caudal ala in the male and the tuberculate ornamentation on the end of the female tail.

From the available literature the writer knows of five species of filaria (S.L.) which have been recorded from Suidae: *Filaria acutiuscula* Molin, 1858, from the abdominal cavity and subcutaneous tissue of the Pecarry; *Filaria bauchei* Raill. and Henry, 1911, from the lungs of a domestic pig, Annam; *Setaria bernardi* Raill. and Henry, 1911, from the peritoneal cavity of the domestic pig, Annam; *Setaria congolensis* Raill. and Henry, 1911, from the peritoneal cavity of wild pigs (probably *Phacochoerus porcus* L.) Congo, and *Setaria Rodhaini* v. d. Berghe and Vuylsteke, 1936, from *P. porcus*, Belgian Congo. *F. acutiuscula*, according to van Thiel (1926), has a tubular and chitinised buccal capsule, but the female

tail is not ornamented and the vulva is 1·5 mm. from the anterior extremity. *F. bauchei* attains a length of 22 cms. in the female, has no lips or buccal capsule, the vulva is situated about 1 mm. from the anterior extremity, and the tail appears to be devoid of ornamentations. The three species of Setaria are provided with typical peribuccal cuticular rings, and consequently cannot be confused with the species described above.*

From the information available, it would appear that the parsite described above does not affect the health of the host, and, except for the unsightly nature of the cysts, the writer does not think that humans would be exposing themselves to any danger should such infected meat be eaten by them.

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* According to Sandground (1933) *Setaria congolensis* and *S. bernardi* are cospecific, the former name having priority.