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# *Paramonostomum signiensis* n.sp. (Trematoda: Notocotylidae) from the Sheathbill, *Chionis alba* (Gtnelin), at Signy Island, South Orkney Islands

**By N. V. JONES and I. C. WILLIAMS *Department of Zoology, The University, Hull***

Through the generous co-operation of the British Antarctic Survey twelve Sheathbills were collected in April, 1967 at Signy Island, preserved in deep freeze, and made available to us for para-sitological examination. Five of the Sheathbills were found to be infected with a new species of notocotylid trematode, namely *Paramonostomum signiensis* n.sp., which is described below and considered in relation to other species of *Paramonostomum* Liihe, 1909

## *PARAMONOSTOMUM SIGNIENSIS* n.sp.

Family Notocotylidae Liihe, 1909 : subfamily Notocotylinae Kossack, 1911

*Host* : Sheathbill, *Chionis alba* (Gmelin) (Aves : Charadriiformes)

*Locality* : Signy Island (lat. 60° 43' S., long. 45° 36' W.)

*Incidence* : 4 of 9 juvenile and 1 of 3 adult Sheathbills

*Intensity* : range, 1-8 ; mean 3-6

*Habitat* : rectum, 15 specimens ; bursa Fabricii, 3 specimens

A specimen is to be deposited in the British Museum (Natural History).

*Paramonostomum signiensis* n.sp. measures 1-8-3-2 mm. in length and attains a maximum breadth of 0-8-1-4 mm. in the posterior half oi the body ; the length/breadth ratio is thus 2-1/1 to 2-5/1. The shape oi the body is roughly oval in outline and the surface is covered with conical spines measuring 0-003-0-005 mm, in length (Fig, 1). A ventral sucker is absent and no ventral glands were seen.

The terminal oral sucker measures 0-166-0-23 mm. in transverse diameter, the mouth being directed ventrally ; the ratio of the diameter of the sucker to the body length varies from 1/8-3 to 1/11.

*A* nharvnx is absent and the mouth leads directly into an oesophagus measuring 0-08-0-1 mm. in length which bifurcates posteriorly to form the intestinal caeca (Fig. 1). The latter extend posteriorly one on either side of the body passing laterally to the cirrus sac, uterus and ovarian complex, and medianly to the vitellaria and testes. Posteriorly the intestinal caeca diverge laterally on either side of the excretory bladder which opens to the exterior subterminally on the dorsal surface. The lateral margins of the intestinal caeca are conspicuously diverticulated and some small diverticula occur also on the medial side of the caeca.

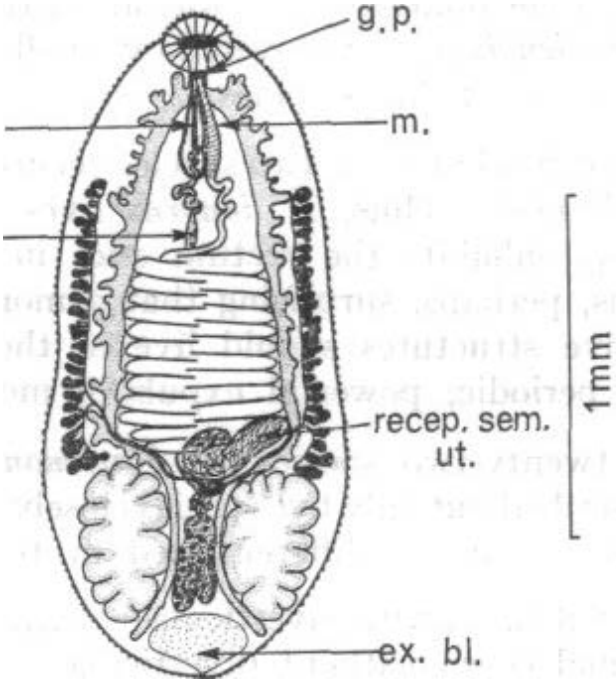
The two testes are situated at the same level in the posterior third of the body and they are separated by the

intestinal caeca and the ovarian complex (Fig. 1). The testes measure 0-33-0-43 mm. in length by 0-27-0-30 mm. in breadth and are markedly lobed, the degree of which appears to be fairly constant in the specimens examined being 6-7 lobes on the lateral and 3-5 lobes on the medial margins. From each testis arises a vas efferens which unites with its fellow at the level of the receptaculum seminis uterinum to form the vas deferens. Pursuing a slightly sinuous course the latter passes forward and attains a diameter of 0-026-0-032 mm. Some distance before entering the cirrus sac the course of the vas deferens becomes increasingly convoluted although the diameter of the duct does not increase. In this region the vas deferens functions as a vesicula seminalis externa ; eventually this enters the hind end of the cirrus sac to become the vesicula seminalis interna. The latter is much coiled and is continuous through the pars prostatica with the ductus ejaculatorius of the unarmed cirrus.

The club shaped cirrus sac is 0-32-0-48 mm. long with a maximum diameter of 0-08-0-13 mm., its hinder end lying about one quarter oi the way along the body (Fig. 1 ). The ratio of the length of the cirrus sac to the body length varies from 1/5-3 to 1/6-5 and although it is fairly small it has muscular walls measuring 0-01-0-02 mm. in thickness. Anteriorly the cirrus sac opens into a shallow genital atrium which in turn opens to the exterior through the genital pore lying immediately posterior to the oral sucker.

The ovary is 0-22-0-27 mm. long by 0-11-0-15 mm. in breadth and is slightly lobed in shape although in some specimens there is a pro¬nounced notch in the posterior margin (Fig. 1.) In front of the ovary lies the complex of the ootype, Mehlis' gland and, ventrally, the vitell-ine reservoir. The vitellaria extend forward in the two lateral fields from the level of the testes to the hinder end of the cirrus sac, that is to the anterior quarter of the body. From each lateral field oi vitelline follicles a transverse duct emerges running ventrally to the intestinal caeca, eventually opening into the mid ventral vitelline reservoir.

A prominent receptaculum seminis uterinum is present and there ire from 12 to 15 conspicuous transverse loops in the forward course oi the uterus (Fig. 1 ). The uterus then takes a more direct, though still sinuous, course forward until it reaches the hinder end of the cirrus sac. At this point the uterus is seen to have a strong muscular wall and may be regarded as the metraterm. This runs forward in a straight line ventral to the cirrus sac to open into the genital atrium.




*Paramonostomum signiensis* n.sp.
Fig. 1.—Entire specimen : c.s., cirrus sac; ex.bl., excretory bladder; **g.p**. genital pore ; m., metraterm ; **recep**. sem. **ut**., receptaculum seminis uterinum; **vas def**., vas deferens.

The level of the most anterior of the transverse loops of the uterus varies from one third to one half of the way along the body, but in contracted and distorted specimens the transverse loops of the uterus were seen to lie much further forwards up to and around the cirrus sac as, also, did the vitellaria. In these specimens the metraterm has a sinuous course and we conclude that these are the effects of contraction and do not represent the usual condition. The eggs, exclusive of their long polar filaments, measure 0-017-0-019 mm. by 0-010-0-012 mm.

Two species of notocotylid trematodes have previously been recorded from the Sheathbill, namely *Notocotylus chionis* Baylis, 1928 (Baylis (1928), Jones & Williams (1968)) and *Paramonostomum ionorne* Travassos, 1921 (Baylis (1928)). *Paramonostomum signiensis* n.sn. is distinguished from soecies of *Notocotvlus* bv the complete absence of ventral glands and from *P. ionorne* by the possession oi intestinal diverticula and body spines. Also the cirrus of *P. signiensis* n.sp. is unarmed whereas that of *P. ionorne* is spinose, and the genital pore of the latter opens ventral to the intestinal bifurcation while in *P. signiensis* n.sp. the opening lies immediately posterior to the oral sucker. Furthermore, the transverse loops of the uterus in *P. signiensis* n.sp. do not reach the cirrus sac, except in greatly contracted specimens, and the most anterior loop lies at the level of the first third of the body, whereas in *P. ionorne* the transverse loops extend forward as far as the hind end of the cirrus sac which, in this species, is about one quarter of the way along the body. Finally, the body of *P. signiensis* n.sp. is covered by small cuticular spines while the body of *P. ionorne* lacks spines.

It is interesting that these two species occupy different habitats in the Sheathbill host. Thus, *P. ionorne* lives in the caeca and *P. signiensis* n.sp. inhabits the rectum and, in juveniles, the bursa Fabricii. It is, perhaps, surprising that a monostome fluke lacking strong adhesive structures should live in the rectum where it is subjected to periodic, powerful expulsive movements of the gut.

Hitherto twenty-two species of *Paramonostomum* Luhe, 1909 have been described but only five species closely resemble *P. signiensis* n.sp. and these may be differentiated in the following manner :

1 Intestinal caeca with diverticula..... 2
Intestinal ceaca without diverticula .....5

2 Genital pore situated immediately posterior to the oral sucker .....3
Genital pore not situated immediately posterior to the oral sucker .....4

3 With 18-20 transverse loops in the uterus ; vitellaria not extending anterior to the transverse loops of the uterus and not reaching the hind end of the cirrus sac *P. harwoodi* Nath & Pande, 1962.

With 12-15 transverse loops in the uterus ; vitellaria extending well in front of the transverse loops of the uterus and reaching the level of the hind end of the cirrus sac *P. signiensis* n.sp.

4 Genital pore situated mid-way between the oral sucker and the intestinal bifurcation ; body lacking cuticular spines;posterior end of the cirrus sac lying one third of the way along the body ; vitellaria extending just into the anterior half of the bodv... ..*P. querauedulum* Lai. 1936.

Genital pore situated posterior to the intestinal bifurcation :body with cuticular spines ; posterior end of the cirrus sac reaching the middle of the body ; vitellaria confined to theposterior half of the body and mostly in the posterior third *P. histrionici* Ching, 1961

5 Genital pore situated immediately posterior to the oral sucker ; body with cuticular spines ; testes slightly lobed ; with 12-14 transverse loops in the uterus ; vitellaria confined to the posterior half of the body *P. nettioni* Baugh, 1958

Genital pore situated immediately posterior to the oral sucker ; body lacking cuticular spines ; testes greatly lobed ;with 17 transverse loops in theuterus; vitellaria extending into the anterior half of the body *P. casarcum* Lai, 1936

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