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## Some helminths from Malayan wild birds with descriptions of two new species

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### INTRODUCTION

Hitherto, little is known of helminths of Malayan wild birds although intestinal infestation is believed to be of common occurrence. In this preliminary study of helminths of wild birds in Malaya and Singapore the author came across only three published records:— *Raillietina insignis* (Steudener), *Hajelia inermis* (Gædelest) and *Raillietina paucitesticulata* (Fuhrmann). On the other hand, helminths of domesticated birds have been studied more intensively and Lancaster (1957) has compiled a comprehensive checklist.

### MATERIALS AND METHODS

During the present study the following birds were examined:— 6 *Aplonis panayensis strigatus* (Horsf.), 2 *Oriolus chinensis maculatus* Vieill., 2 *Pycnonotus goiaver personatus* (Hume), 2 *Passer montanus malaccensis* Dubois, 1 *Rallus striatus gularis* Horsf. and 1 *Caprimulgus macrourus bimaculatus* Peale. In these hosts only one filarid, one spirurid nematode and one cestode were recovered. The last turned out to be a new species. In addition, there were three species in the Zoology Department helminthological collection which were collected from Batu Berendam, Malacca, from *Pandion h. halietus* (Linn) and *Dendrocygna j. javanica* (Horsf.). The nematodes were killed in 70 per cent alcohol at 60°C and studied in lactophenol. Trematodes and cestodes were fixed in alcoholic Bouin and stained in a weak solution of Ehrlich or Delafields' Hæmatoxilin, and permanent mounts were prepared with Canada Balsam. All measurements quoted in this paper are in millimetres.

### TREMATODA

#### *Scaphanocephalus expansus* (Crepl.)

A large number of specimens was collected from the intestine of *Pandion h. halietus* (Linn.) taken at Batu Berendam, Malacca. Members of this genus have characteristic wing-like expansions in the anterior portion of the body.

### CESTODA

#### *Hymenolepis malaccensis* sp. nov.

Figure 1a & 1b

A large number of these worms were obtained from the small intestine of *Dendrocygna j. javanica* (Horsf.), at Batu Berendam, Malacca.

The type is 1.36–1.60 long. The immature segments containing only the testes are 0.494–0.507 x 0.130–0.169, the mature segments containing both testes and ovaries measure 0.52–0.767 x 0.156–0.234. The segments containing well developed ovaries measure 0.793–0.806 x 0.169–0.260. The ripe segments with uteri packed with eggs are smaller than the mature segments and measure 0.403–0.728 x 0.299–0.338. The scolex sharply marked off from the strobila, has a maximum width of 0.148–0.217 and a length of 0.269–0.357 from the posterior edge of the suckers. The rostellum is retractile measuring 0.096–0.126 in length and bears a single row of ten sickle-shaped rostellar hooks. The hooks are 0.050–0.053 long with a distal curved narrow blade measuring 0.018–0.022 long in a straight axis. The rostellar sac extends beyond the anterior borders of the suckers and is about 0.085 when the rostellum is fully extended. The suckers measure 0.083–0.096 in width and 0.112–0.124 in length. The proglottides are broader than long with the posterior lateral margin projecting prominently (craspedote). The neck is 0.062–0.093 long and has a minimum width of 0.084–0.140.

The testes vary from round to slightly oval, three in number, all arranged in a transverse row. The longer axis measures 0.118–0.143 and the shorter being 0.078–0.093. They lie behind the ovary. The voluminous subspherical seminal vesicle lies about mid-way along the width of the proglottid just anterior to the ovary and measures 0.0713–0.1395 x 0.0465–0.062 in length and breadth respectively. The genital pore is unilaterally situated immediately behind the projecting posterior edge of the preceding segment. The elongate spindle-shaped cirrus pouch 0.22–0.27 x 0.086–0.089 lies obliquely to the longitudinal axis of the strobila with its inner end near the anterior end of the proglottid. The indented ovary measures 0.48–0.51 x 0.09–0.12. The compact vitelline gland is small, 0.085–0.099 x 0.055–0.062, and is found posterior to the ovary. The ovoid seminal receptacle is exceedingly long measuring 0.263–0.426 x 0.0217–0.0806. It lies on the pore side of the median line. It becomes elongated in the last few gravid segments. In the mature segments the uteri are narrow and transversely elongated. The gravid uterus occupies almost the entire proglottid. The eggs are oval and measure 0.030–0.036 x 0.020–0.024.

Beverly-Burton (1959) maintained that species of the genus *Hymenolepis* Weinland, from the Anseriformes have been proposed on variable characters, e.g., the size of the cirrus and cirrus sac, and size and arrangement of the testes. They considered that the shape, size and number of rostellar hooks are most dependable diagnostic characters of the genus. Hitherto little variability of the hooks of hymenolepids has been found.

Of the species recorded from Anseriformes only two have been known with ten rostellar hooks, *Hymenolepis tenerrima* (von Listow) and *Hymenolepis mandabbi* Beverly-Burton. In the former the hooks measure 0.110 and in the latter they measure 0.095 in length. In the present species the hooks measure 0.050–0.053 and the shape also differs from those mentioned above. The blades of the hooks are curved to almost sickle-shaped and the distal end of the blades are very sharply pointed.

Holotype:—Deposited in the British Museum (Natural History), London.

Paratypes:—Deposited in the Zoology Department, University of Singapore.

Host:—*Dendrocygna j. javanica* (Horsf.)

Location:—Intestine.

Locality:—Batu Berendam, Malacca, Malaya.

Date collected:—28-12-1960.

**Railletina (Paroneilla) singaporensis** sp. nov.

Figure 1c-1e

Upon dissection of an *Oriolus chinensis maculatus* Vieill caught in Singapore, the duodenal region showed symptoms of an ulcer externally. When the affected part was opened, two cestodes were found with their scoleces deeply embedded in the mucosa. One worm was measured.

Length 24.0. Maximum width 2.0, measured at the gravid segment. Scolex cone-shaped, 0.44 long by 0.49. Rostellum present as a hump measuring 0.082 at the highest point and 0.26 across the base. The rostellum bears two circles of hooks arranged in an alternating fashion with the upper slightly smaller than the lower row. The blade and the handle are formed in a triradiate manner in the shape of the letter T. The distal part of the blade is acutely bent towards the vertical axis. The maximum length of the blade measures 0.015 and 0.019, upper and lower respectively. The handle measures 0.012 and 0.014 for the same. A total of 88 hooks were counted. The circular suckers with a diameter of 0.0978–0.1304 have a belt of peripheral tiny spines 0.008 wide. The neck is 1.353 long by 0.163 wide. Genital pores are unilateral, dextral, located 0.0255–0.0510 from the posterior edge of the preceding segment.

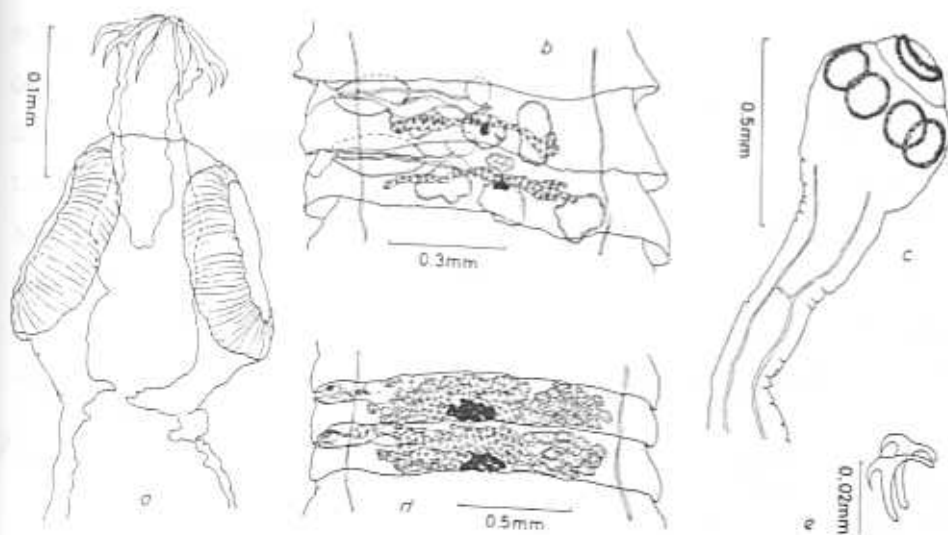


Figure 1. a & b *Hymenolepis malaccensis* sp. nov.; a scolex, b mature segment. c-e *Railletina (Paroneilla) singaporensis* sp. nov.; c scolex, d mature segment, e rostellar hooks.

There are 117 segments in all. The immature segments containing only the testes measure 0.554–1.043 x 0.114–0.815. Segments containing both testes and ovary measure 1.076–1.630 x 0.114–0.130. Segments containing uteri measure 1.875–1.666 x 0.305–0.207. Like most cestodes the proglottides are broader than long. Testes 5–7 poral and 18–20 aporal, measuring 0.017–0.026 x 0.017–0.017. Cirrus sac pear-shaped, measuring 0.043–0.051 x 0.017–0.026. The cirrus is coiled and unarmed. The vas deferens with numerous coils runs in a transverse manner almost reaching the median line of the segment. The seminal vesicle measures 0.0020–0.026 x 0.017–0.017. The ovary is fan-shaped and deeply lobed extending

0.042–0.051 transversely and 0.017–0.019 longitudinally. The vagina lies immediately posterior to the cirrus sac, both opening into a common genital pore. The distal part of the vagina dilates to form the seminal receptacle 0.038–0.051 x 0.017–0.022. The ovoid vitellarium is slightly lobed and is located posterior to the ovary. It measures 0.011–0.026 x 0.008–0.012. Egg capsules measure 0.0187–0.0289 x 0.0112–0.0204, and contain a single egg measuring 0.0102–0.0119 x 0.0068–0.0085.

Yamaguti (1958) had listed thirty-nine species of the subgenus *Paroniella* Fuhrmann. Of these, two species have been recorded from the orioles: — *Raillietina compacta* (Cler.) and *Raillietina (Paroniella) culiauana* Tubangui and Masilungan. The present species differs from the related species described in the number of hooks and fewer number of testes.

Holotype:—British Museum (Natural History), London.

Host:—*Oriolus chinensis maculatus* Vieill.

Location:—Duodenum.

Locality:—Singapore.

Date collected:—4.10.1961.

#### *Fimbriaria fasciolaris* (Pallas)

A very large number of these worms was found together with *Hymenolepis malaccensis* sp. nov. in the intestine of *Dendrocygna j. javanica* (Horsf.) collected at Batu Berendam, Malacca.

The stocking-shaped false scolex is very characteristic of the species. Wolffhugel (1936) has given a detailed description and has synonymised a large number of species, leaving only *Fimbriaria fasciolaris* (Pallas) in the genus. *Fimbriaria* is cosmopolitan. However, this is the first record from the whistling teal, *Dendrocygna j. javanica*.

#### NEMATODA

#### *Diplotriana corrugata* Wehr.

Sixteen worms were found packed within the pleural cavity of *Pycnonotus goiaver*. Three were mature males and the remainder were gravid females. The greater part of the right lung from where most of the parasites were recovered showed extensive necrosis of the lung tissues.

Material studied fitted the descriptions of two species of *Diplotriana* Railliet and Henry, recovered from the Philippines: — *Diplotriana corrugata* Wehr and *D. pycnonoti* Tubangui. Measurements of the material agree more closely with the latter and differ from the former in the length of the male and egg size. The length of the male of *D. corrugata* is shorter, being 10–15 long. However, the size of eggs is slightly larger, being 0.054–0.050. It is notable that *D. corrugata* was found in the body cavity of *Ptilocichla basilonica* and *D. pycnonoti* from the same host as the present material.

Tubangui (1934) stated that morphologically his specimens fitted Wehr's (1930) description of *D. corrugata* except in the number of caudal papillae. *D. pycnonoti* possesses six papillae and *D. corrugata* has seven to eight. The author feels that too much emphasis was attached to small papillae at the tip of the tail and the concept of the species ought to be broadened in this connection. Over clearing can totally eliminate the small papillae from view. *D. pycnonoti* is most probably *D. corrugata*.

**Acuaria (Dispharynx) emberizæ** (Yamaguti); Railliet, Henry & Sisoff

Two mature males and four gravid females were recovered from the duodenum of *Pycnonotus goiaver personatus* (Hume). The heads of the worms were deeply buried in the mucosa. Both males and two females were studied and measured.

Five species of the subgenus *Dispharynx* Railliet, Henry and Sisoff have already been synonymised. *Dispharynx nasuta* (*D. spiralis*) Baylis, *D. stonæ* Harwood, *D. emberizæ* Yamaguti and *D. nasuta* Baylis were synonymised by Medsen (1952) without offering any reason. Gupta (1960) agreed that these forms are conspecific. He also considered that *D. stonæ* Sanwal and *D. nasuta* were the same species.

The present specimen agrees very closely with *D. emberizæ*, especially in the sizes of the eggs. However, it should be pointed out that the present specimen has nine pairs of pedunculate caudal papillæ whereas *D. emberizæ* possesses ten pairs of which two pairs are small and sessile and are located at the tip of the tail.

Gupta (1960) stressed that recent specialists of this group considered that the small sessile caudal papillæ at the tip of the tail are of little diagnostic importance. In addition, the concept of the species has to be broadened as regards the extents of the cordons and the position of the vulva. These characters are considered variations within the species. *Dispharynx* has a wide host range and a wide geographic distribution.

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