STUDIES ON THE FAUNA OF CURAÇAO AND OTHER CARIBBEAN ISLANDS: No. 102.

A NEW SYNDESMIS FROM SAINT-BARTHÉLEMY, LESSER ANTILLES

(Neorhabdocoela)

by

ERNST MARCUS

(Departamento de Zoologia da Universidade de São Paulo)

Mrs. EVELINE DU BOIS-REYMOND MARCUS found the turbellarian described below, which belongs to the Umagillidae (Neorhabdocoela, Dalyellioida), in a vial of Dr. P. WAGENAAR HUMMELINCK's collection of Caribbean polyclads. The species of *Syndesmis* are known to live in the body cavity and the intestine, especially the rectum, of sea-urchins, so that the present specimens might have been evacuated together with the faeces.

The last revision of the Umagillidae (STUNKARD & CORLISS 1951) was followed by papers of WESTBLAD (1953), HICKMAN (1955, 1956), HICKMAN & OLSEN (1955), and HYMAN (1960). Their results suggest continuing the key of STUNKARD & CORLISS. As the present species has a simple, not H-shaped, intestine, paired testes, and paired ovaries, the supplement to this KEY is restricted to STUNKARD & CORLISS' numbers 1–15 of the subfamily Umagillinae.

1 Testes and vitellaria large and of nearly equal size 2
– Testes much smaller than vitellaria 3

2 Cilia on dorsal and ventral epidermis . . . . . *Anoplodiopsis gracilis* Westblad, 1953
— Ventral epidermis without cilia . . . . . *Notothrix inquilina* Hickman, 1955

3 Sperm ducts unite in front of pharynx . . . . . *Wahlia macrostylifera* Westblad, 1930

— Sperm ducts unite behind the pharynx 4

4 Posterior part of uterus dilated into a sac-shaped secondary uterus or female antrum . . . . . 5 (*Ozametra* Marcus, 1949)
— No special secondary uterus or female antrum 7

5 Pharynx a little in front of the middle of the body. . . . . *O. arbora* (Ozaki, 1932)
— Pharynx near the anterior end of the body 6

6 Sperm ducts arise from the middle of the testes . . . . . *O. elegans* Westblad, 1953
— Sperm ducts arise from the hind end of the testes. . . . . *O. striata* Hickman, 1955

7 Uterus reaches the anterior level of the vitellaria or extends beyond them . . . . . 8 (*Syndesmis* Silliman, 1881)
— Uterus ends behind the anterior level of the vitellaria . . . 12

8 Eiaculatorv duct with several coils . . . . . *S. echinorum* François, 1886
— Ejaculatory duct with one or no coils. 9

9 Uterus reaching the anterior third of the body; seminal bursa and seminal receptacle connected by a duct 10
— Uterus reaching about the middle of the body; seminal bursa confluent with seminal receptacle 11

10 Stylet about 1/3 of the body length . . . . . *S. franciscana* (Lehmann, 1946)

S. antillarum Stunkard & Corliss, 1951, is a synonym (WESTBLAD 1953, p. 270, note; HYMAN 1960, p. 8).

— Stylet about 1/5 of the body length. *S. punicea* Hickman, 1956

11 A row of multicellular glands in the midventral line. . . . . *S. glandulosa* Hyman, 1960
— No row of midventral glands . . . . . *S. evelinae*, sp. n.

12 Dorsal and ventral epidermis ciliated. 13
— Ventral epidermis without cilia . . . . . *Monticellina longituba* Westblad, 1953

13 Pharynx large, near the tip of the body . . . . . *Umagilla forskalensis* Wahl, 1906

— Pharynx small, distant from the tip . . . . . 14 (*Marcusella* Westblad, 1953)

14 Intestine short and broad, with 4 pairs of lateral diverticula; vitellaria reaching the pharyngeal level; genital antrum opens dorsally to the hind end . . . . . *M. pallida* Hickman, 1956

— Intestine saccate with 2 postero-lateral corners or tubular; vitellaria ending far behind the pharyngeal level; genital antrum opens at the hind end 15

15 Testes reaching the pharyngeal level; intestine saccate with 2 postero-lateral corners; ovaries compact, without lobes . . . . *M. atriovillosa* Westblad, 1953

— Testes far behind the pharyngeal level; intestine tubular, narrow, without diverticula; ovaries lobed or branched . . . . *M. dendrastorum* (Stunkard & Corliss, 1951)

The last species has the uterus in the posterior third of the body, extending only to ovarian level, hence it cannot be allotted to *Syndesmis* as its authors did.

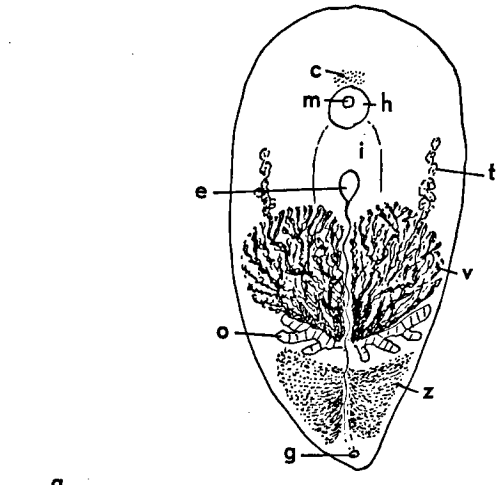
Syndesmis evelinae, spec. nov.

(Figs. 101–103)

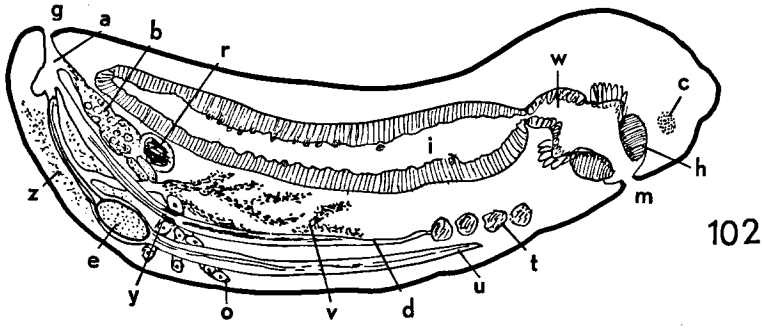
SAINT-BARTHÉLEMY (St. Barts): South of Public, near Gustavia, Sta. *1121*, rocky shore, andesitic rock debris with sand, tidal zone, 4.VI.1949 (3 specimens, P. Wagenaar Hummelinck coll.).

The preserved animals are 2 mm in length, 1 mm in width; the dark yellowish vitellaria (v) shine through the opaque white body. In front the worms are semicircular, behind they are pointed (Fig. 101). The dorsal side is slightly concave, the ventral side convex (Fig. 102). The 3 specimens are mature.

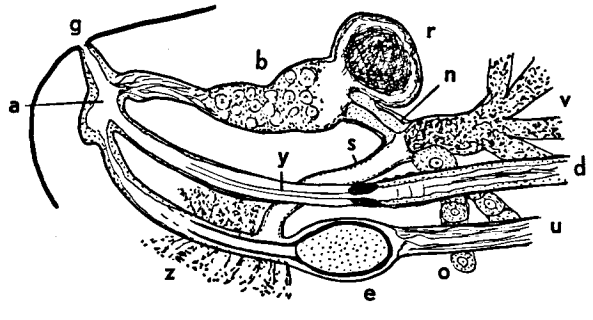
The dorsal epidermis is 28 μ in height, the ventral one 18 μ; both bear 4 μ long cilia. The mouth (m) lies 0.3 mm from the tip on the ventral side. The pharynx (h) is small, 0.17 mm in diameter and 0.11 mm in length. It slants slightly backwards. The cells between the muscular pharynx and the oesophagus (w) belong to the lining of the pharynx, but the present material cannot be used for histo-



101



102



103

Fig. 101–103. *Syndesmis evelinae*, spec. nov., from SAINT-BARTHÉLEMY. – 1. Ventral aspect of total mount. – 2. Combined median section. – 3. Combined section of hind end. – In the figures 102 and 103 the filament of the egg capsule is not drawn to the end. a – common genital antrum; b – seminal bursa; c – brain; d – ejaculatory duct; e – egg capsule; g – genital aperture; h – pharynx; i – intestine; m – mouth; n – bursal valve; o – ovary; r – seminal receptacle; s – ovovitelline duct; t – testis; u – uterus; v – vitellaria; w – oesophagus; y – stylet; z – cement glands.

logical details. The oesophageal epithelium is high. The fore end of the saccate intestine (i) lies dorsally to the posterior border of the pharynx (Fig. 101). The hind end of the intestine reaches the ectal end of the seminal bursa (Fig. 102, b). Whether the numerous globules, which are free in the lumen of the gut and evidently are apical ends shed from intestinal cells, represent a normal eliminatory process, cannot be said without a comparison with animals taken from their host.

The testes (t) lie in front of the vitellaria (v) on either side of the second fourth of the body (Fig. 101). They are coiled. In the midline the sperm ducts unite into a straight ejaculatory duct (d) without forming any dilatation (seminal vesicle). At the level where the ovaries (o) and the vitellaria (v) join, the ejaculatory duct bears a cuticular ring, 16 μ in diameter and 20 μ in length, the base of a long stylet (y). This is a very fine cuticular tube.

The vitellaria (v) are located in the posterior half of the body. They have thin dichotomous ramifications with about 32 peripheral terminations which arise from 4 main stems on either side.

The ovaries (o), each consisting of 3–4 branches, lie behind the vitellaria. From the median root of the right and left vitellaria and ovaries the ovovitelline duct (s) or ductus communis runs to the ventro-median tubular uterus (u). The uterus contains a single egg capsule (e) in each of the present worms. In 2 of them the capsule is situated far ectally (Fig. 102, 103), near the entrance of the ovovitelline duct (s), in the third worm (Fig. 101) the egg (e) lies at the ental end of the uterus, in front of the vitellaria (v). The capsule is 0.13 mm long, the filament 1 mm. The latter extends straight along the uterus when the capsule lies at its ental end, and is coiled in the 2 other specimens. The secretion of the cement glands (z) evidently thickens the filament, as HICKMAN (1956, p. 175) described. Outwards from the entrance of the ovovitelline duct the female efferent way must be called a female antrum.

The antrum is tubular and thus differs, though possibly only by degree, from the sac-shaped female antrum (secondary uterus) in *Ozametra*, as drawn by HICKMAN (1955, fig. 7, a. f.). If this distinction is considered insufficient, *Ozametra* is clearly separated from *Syndesmis* by its vitellaria in front of the testes. Without the charac-

ter of the saccate female antrum the separation of *Ozametra* and *Marcusella* can be based only upon the short uterus in *Marcusella*, not on the position of the vitellaria and the testes which lie nearly at the same level in *Marcusella pallida*. As the ciliation of the body is not known for the type-species of *Ozametra*, this feature cannot be used as distinguishing character for the genera in question.

The common genital antrum (a) bears a compact bursa seminalis (b) the hollow globular blind end of which is the seminal receptacle (r), separated from the bursa by a constriction. At the limit of the bursa and the receptacle the thick bursal valve (n) leads the sperms to the beginning of the ovovitelloduct (s). The genital aperture (g) is dorsal to the hind end.

REFERENCES

The papers cited by STUNKARD & CORLISS (1951) are not repeated here.

HYMAN, LIBBIE H., 1960. New and known umagillid rhabdocoels from echinoderms. *Am. Mus. Nov. 1984*, p. 1–14.

HICKMAN, V. V., 1955. Two new rhabdocoel turbellarians parasitic in Tasmanian holothurians. *Pap. Proc. R. Soc. Tasmania 89*, p. 81–97.

HICKMAN, V. V., 1956. Parasitic Turbellaria from Tasmanian Echinoidea. *Pap. Proc. R. Soc. Tasmania 90*, p. 169–181.

HICKMAN, V. V. & OLSEN, A. M., 1955. A new turbellarian parasite in the sea star Coscinasterias calamaria (Gray). *Pap. Proc. R. Soc. Tasmania 89*, p. 55–63.

HUMMELINCK, P. WAGENAAR, 1953. Descriptions of new localities. *Studies Fauna Curaçao 4*, p. 1–108, pl. 1–8. [Sta. *1121*: p. 67, 108].

STUNKARD, HORACE W. & CORLISS, JOHN O., 1951. New species of Syndesmis and a revision of the family Umagillidae. *Biol. Bull. 101*, 3, p. 319–334.

WESTBLAD, EINAR, 1953. New Turbellaria parasites of echinoderms. *Ark. Zool. (2) 5*, 2, p. 269–288, pl. 1–3.