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NEW SPECIES OF *FABRICIOLA* AND *FABRICIA* (POLYCHAETA: SABELLIDAE) FROM BELIZE

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Abstract.—Two new species of sabellid polychaetes, *Fabriciola trilobata* and *Fabricia infratorquata*, are described from Belize. Methyl green staining patterns of epithelial mucous gland cells are also described. Setal and collar segment characteristics are discussed.

An analysis of benthic samples from Twin Cays, Belize, revealed the presence of two numerically dominant undescribed species belonging to the genera *Fabriciola* Friedrich, 1939, and *Fabricia* Blainville, 1828. These species are described in the present paper. I also give the first report of methyl green staining and its variability in these genera. Staining in sabellids has been reported by Banse (1970, 1972, 1979) for a few genera, but not in *Fabriciola* or *Fabricia*. In his work on species of *Euchone*, Banse (1970) suggested the importance of this technique in providing additional diagnostic characters.

The present descriptions and references to other species follow the pattern established by Banse (1956), according to whom the development of the collar dorsally and ventrally is the primary character distinguishing the two genera. This pattern was continued by Banse (1957) and Hartmann-Schroeder (1971). In the species key provided by Friedrich (1939), shaft length of abdominal uncini was used as a main diagnostic feature. Diagnoses given by Day (1967) included collar characteristics plus uncini shaft length and condition of palps (filamentous or not); the two latter characters appeared to be given greater weight. Fauchald (1977) restated Day's diagnoses. In Fauchald's key, genera were separated on the basis of possession of long- or short-handled abdominal uncini. The two genera cannot be separated based on shaft length since both long and short forms occur in both genera. Collar development as put forth by Banse (1956) is thus suggested as a more useful and consistent character by which to distinguish the genera *Fabriciola* and *Fabricia*.

Fabriciola trilobata, new species
Figs. 1–2, 3a–c; Table 1

Material examined.—West Bay, Twin Cays, Belize; 30 cm depth; mat of *Caulerpa verticillata* on rootmat of *Rhizophora mangle*, some organic debris and fragments of *Halimeda*; 7 Apr 1982 (Array F202), 9 Apr 1982 (Array F203), 11 Apr 1982 (Array F204); coll. K. Fauchald. Holotype: F204 A-4 (USNM 74679). Paratypes: F204 A-1, 4 specimens (USNM 74680); F204 A-2, 6 specimens (USNM 74681); F204 A-3, 9 specimens (USNM 74682); F204 A-4, 13 specimens (UNSM 74683); F204 A-5, 5 specimens (UNSM 74684); F204 B-1, 11 specimens (USNM 74685); F204 B-2, 16 specimens (USNM 74686); F204 B-3, 7 specimens (USNM 74687); F204 B-4, 8 specimens (USNM 74688); F204 B-5, 6 specimens (USNM 74689); F204 C-1, 1 specimen (USNM 74690); F204 C-2, 11 specimens (USNM

74691); F204 C-3, 6 specimens (USNM 74692); F204 C-4, 2 specimens (USNM 74693); F204 C-5, 7 specimens (USNM 74694); F204 D-1, 2 specimens (USNM 74695); F204 D-2, 1 specimen (USNM 74696); F204 D-3, 9 specimens (USNM 74697); F204 D-4, 10 specimens (USNM 74698); F204 D-5, 8 specimens (USNM 74699). Additional material: F202 A-1, 4 specimens (USNM 74700); F202 A-3, 1 specimen (USNM 74701); F202 A-4, 4 specimens (USNM 74702); F202 A-5, 4 specimens (USNM 74703); F202 B-1, 4 specimens (USNM 74704); F202 B-2, 1 specimen (USNM 74705); F202 B-4, 8 specimens (USNM 74706); F202 C-1, 3 specimens (USNM 74707); F202 C-2, 6 specimens (USNM 74708); F202 C-3, 3 specimens (USNM 74709); F202 C-4, 1 specimen (USNM 74710); F202 C-5, 4 specimens (USNM 74711); F202 D-1, 1 specimen (USNM 74712); F202 D-2, 5 specimens (USNM 74713); F202 D-3, 4 specimens (USNM 74714); F202 D-5, 1 specimen (USNM 74715); F203 A-1, 2 specimens (USNM 74716); F203 A-2, 2 specimens (USNM 74717); F203 A-3, 1 specimen (USNM 74718); F203 A-4, 4 specimens (USNM 74719); F203 A-5, 4 specimens (USNM 74720); F203 B-1, 2 specimens (USNM 74721); F203 B-2, 1 specimen (USNM 74722); F203 B-3, 4 specimens (USNM 74723); F203 B-4, 1 specimen (USNM 74724); F203 B-5, 2 specimens (USNM 74725); F203 C-1, 1 specimen (USNM 74726); F203 C-2, 2 specimens (USNM 74727); F203 C-3, 1 specimen (USNM 74728); F203 C-4, 6 specimens (USNM 74729); F203 C-5, 2 specimens (USNM 74730); F203 D-1, 2 specimens (USNM 74731); F203 D-2, 6 specimens (USNM 74732); F203 D-3, 2 specimens (USNM 74733); F203 D-4, 6 specimens (USNM 74734); F203 D-5, 2 specimens (USNM 74735).

Diagnosis.—Fabriciola with filiform palps of variable length. Peristomium restricted to dorsal half of anterior end; visible ventrally and laterally, fused dorsolaterally to collar segment; anterior ventral margin expanded into shelf-like process. Ventral collar smooth, fused dorsolaterally to collar segment. Dorsal collar higher, divided by middorsal longitudinal groove. Anterior groove margin extended as triangular lobe, overlapped posteriorly by pair of collar lobes. Thoracic uncini with main fang surmounted by large offset tooth and 2 smaller teeth, crested by 4 rows of smaller teeth. Short-handled abdominal uncini with rows of teeth increasing in number with successive setigers: 7, 7–8 and 9 rows of teeth in setigers 9, 10 and 11, respectively. Abdominal neurosetae include 1–2 superior minute limbate setae and 2–3 inferior long, narrow limbate setae.

Description.—The holotype is a complete specimen with 9 thoracic and 3 abdominal setigers. Length 4.04 mm (0.78 mm comprising branchial crown) and width 0.19 mm.

Attached to the peristomium are a pair of semicircular branchial lobes, each with a large branchial heart located dorsally (Fig. 1a). Three radioles are attached to each branchial lobe; they are unbranched and rounded externally. Usually 7 pairs of ciliated pinnules extend from the inner side of each radiole. The proximal pair are longest, with more distal pinnules becoming shorter, such that all extend to about the same height; nearly ¾ the radiole length. Distal ends of the radioles are drawn out as very fine filaments. In the holotype the filamentous end contributes about ¼ of the radiole length, but in paratypes examined the end may be as much as ½ the radiole length. A pair of filiform palps are present, each originating from the inner side of each branchial lobe, adjacent to the middle radiole. Palps are distally blunt, and, in the holotype are about ¾ the radiole

Table 1.—Comparison of selected species of *Fabriciola*.

Species	Peristomium	Collar	Thoracic notosetae
trilobata	Visible laterally and ventrally; limited to dorsal half of anterior end.	Smooth, even ventrally; higher dorsally, middorsal margin trilobate.	Setiger 1–8: 4–5 long limbates. Setiger 3–8: 1–2 spatulates.
capensis	Visible dorsally, ventrally and laterally.	Smooth, even ventrally; dorsally same height as ventrum, middorsal margin trilobate.	Long bilimbate setae.

length. In paratypes, palp length is variable, ranging from ¼ to ¾ the radiole length. Internally, the length of the palps is almost completely occupied by a convoluted vessel, representing an extension of either the circulatory system or coelom.

The peristomium is visible ventrally and laterally (Fig. 1b, c), limited to the dorsal half of the anterior end. The ventral anterior margin is complete and slightly expanded, forming a rounded shelf-like process. Dorsolaterally, the peristomium fuses with the collar segment.

A distinct collar is present. Ventrally it is entire, even, and with rounded edges. Dorsolaterally, it fuses with the collar segment. Dorsally the collar extends slightly further anteriorly than it does ventrally. A middorsal longitudinal groove splits the anterior ⅓ of the collar segment into right and left halves. A small triangular lobe extends from the anterior end of the groove and is partly overlapped posteriorly by a pair of lateral lobes, each of which is slightly larger than the median lobe.

The collar segment is basically cylindrical, becoming only slightly wider posteriorly. The intersegmental groove between the collar segment and setiger 1 is only distinct ventrally. Just anterior to the groove is a partial annulation, complete ventrally and disappearing laterally. It is assumed this does not denote an additional achaetous segment.

Thoracic setigers are cylindrical with distinct segmentation. Setiger 1 is shortest, about ½ the length of the collar segment, and slightly wider than long. Each subsequent thoracic setiger is longer than the previous. Setiger 2 is as long as wide, setiger 5 is about twice as long as wide, and setiger 8 about 2.5 times as long as wide.

The abdominal setigers (9–11) become progressively shorter (Fig. 2a). Setigers 9–10 are cylindrical, 11 is dorsoventrally flattened. Setiger 9 is ⅔ as long as setiger 8 and 1.5 times longer than wide. Setiger 10 is as long as wide and setiger 11 is wider than long. Setigers 9–10 are the same width as thoracic segments, with setiger 11 abruptly narrower. Segmentation is distinct. Swollen, pad-like glandular areas are present just posterior to notopodial tori of setiger 9–10 and at anterior lateral margins of setiger 11.

Thoracic noto- and neuropodial tori are represented only by a slight swelling. Notopodia of setiger 1 are situated dorso-laterally; neuropodia are absent. No-

Table 1.—Continued.

Thoracic neurosetae	Abdominal notosetae	Abdominal neurosetae
5–7 uncini. Main fang + 1 large and 2 smaller teeth + 4 arcs of smaller teeth.	Short-handled uncini. Setiger 9: 25 uncini; 7 rows of teeth. Setiger 10: 28 uncini; 7–8 rows of teeth. Setiger 11: 18 uncini; 9 rows of teeth.	1–2 superior minute, narrow limbates; 2–3 inferior long, narrow limbates.
Uncini with main fang + 1–2 large teeth + 1 arc of 12–14 smaller teeth.	Long-handled uncini with 18 rows of teeth.	Slender capillaries.

topodia of subsequent thoracic setigers are lateral. Neuropodia are ventral to and slightly posterior to notopodia. Notosetae in setiger 1 include 4–5 long superior and 1 shorter inferior limbate setae. Superior notosetae in setigers 2–8 are long limbates similar to those of setiger 1, numbering 4–5 (Fig. 2d). Setigers 3–8 also possess 1–2 inferior short spatulate setae (Fig. 2b). Thoracic neurosetae are gently curved acicular uncini; 5–7 per fascicle, in a single vertical row (Fig. 2g). In lateral view, the distal ends of uncini have a large main fang surmounted obliquely by a large tooth followed by 4 smaller teeth. In frontal view, the large tooth above the main fang is clearly offset and accompanied by 2 smaller teeth (Fig. 2h). Teeth above this first row form a series of concentric arcs. Proximal to the distal end is a slight swelling of the shaft, which tapers proximally to a rounded end.

Abdominal notosetae occur on distinct lateral tori located on the posterior ¼ of the setiger, and are the same length as thoracic neuropodia. The number of uncini varies in that setiger 9 has 25, setiger 10 has 28 and setiger 11 has 18 uncini. Uncini are short-handled with a slight constriction below the proximal-most tooth row, followed by a slight swelling and a truncate base (Fig. 2i). Uncini of setiger 9 have 7 rows of teeth; the number of teeth per row from proximal to distal as follows: 1+2+3+3+4+6+5. Setiger 10 uncini have 7–8 tooth rows, those with 8 rows having the formula: 1+2+3+3+4+4+4+4. Setiger 11 uncini possess 9 tooth rows with the formula: 1+2+4+3+4+3+4+4+4. Abdominal neurosetae originate just ventral to notopodial tori. No neuropodial tori could be discerned. Neurosetae are of 2 types: 1–2 very minute superior limbate setae with a narrow limbation (Fig. 2c) and 2–3 inferior limbate setae with very long, slender shafts and a very narrow limbation extending about ¾ the length of the shaft (Fig. 2e–f). Neurosetae are directed dorsally.

The pygidium is roughly triangular and dorsoventrally flattened (Fig. 2a). Anteriorly it is the same width as the adjacent segment, narrowing and becoming rounded posteriorly. A V-shaped glandular zone extends along the outer margin, the arms of the V becoming wider posteriorly. The anus is a depressed, midventral longitudinal slit.

A pair of dark crescentic-shaped eyes (dorsal view) are in the collar segment on either side of the middorsal groove. A pair of smaller, circular eyes are located laterally in the posterior ¼ of the pygidium. No otocysts could be found.

The holotype (in alcohol) is opaque and cream colored. The palps of some

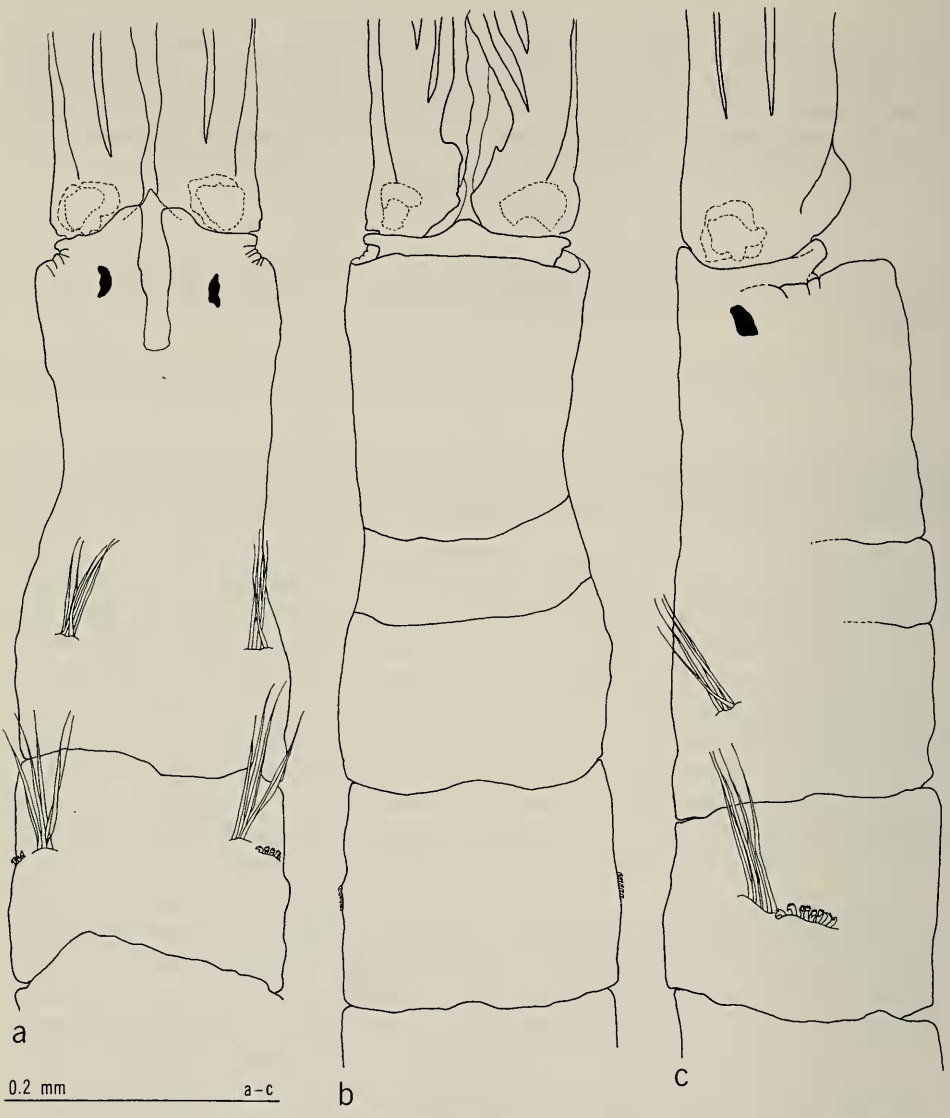

Fig. 1. *Fabriciola trilobata* (holotype, USNM 74679): a–c, Dorsal, ventral and lateral views of anterior end.

individuals examined were dull orange or yellow, sometimes with a corresponding lighter coloration in the radioles. Some individuals contained dark brown pigmentation extending dorsally on the branchial lobes, ventral peristomial margin, and along the anterior margin of the ventral collar. The middorsal groove, adjacent posterior region and lateral lobes showed similar pigmentation.

Tubes are thick, about 2–2.5 times as wide as the individual, constructed with loosely bound plant and detrital material. The central space within the tube is very narrow, such that nearly the entire length of the worm is in contact with the tube wall.

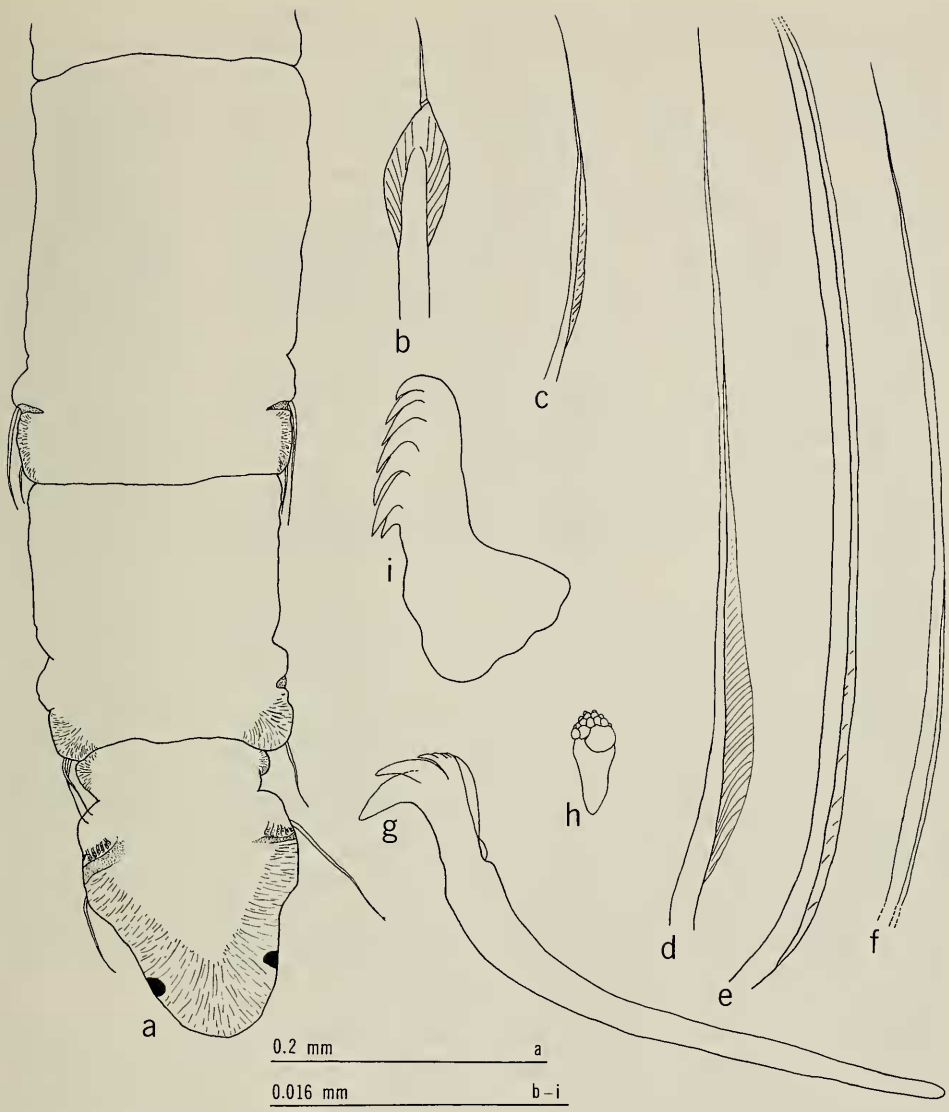

Fig. 2. *Fabriciola trilobata* (a from holotype; b–i from paratype, USNM 74683): a, Posterior end, dorsal view; b, Thoracic spatulate seta from setiger 3; c, Superior abdominal neuroseta from setiger 10; d, Thoracic notoseta from setiger 3; e–f, Proximal and distal portions of inferior abdominal neuroseta from setiger 10; g–h, Lateral view of thoracic neuropodial uncinus and frontal view of tooth arrangement, both from setiger 5; i, Abdominal notopodial uncinus from setiger 9.

The holotype and some paratypes were stained with a dark solution of methyl green in ethanol. Specimens were placed in the solution for 30 minutes, allowed to destain in ethanol for 10 minutes and observed. Uptake of stain differed considerably from holotype and paratypes; thus both patterns will be described.

In the holotype the collar segment only stained ventrally, extending from just posterior to the collar margin to the posterior segment margin, becoming darker

posteriorly (Fig. 3a). Setiger 1 stained darkest ventrally along the anterior margin, extending posteriorly as a triangular pattern to the near the ventral midpoint. Remainder of the ventrum was more lightly stained, fading laterally and dorsally. Notopodial tori did not stain. On setiger 2 a broad midventral strip was darkest, with less staining to either side, fading laterally and dorsally. Noto- and neuropodial tori of this and following thoracic and abdominal setigers did not stain. Setiger 3 stained evenly ventrally, with lateral and dorsal staining as in previous setigers. The ventral anterior half of setiger 4 was well stained, becoming lighter posteriorly, laterally and dorsally. Setigers 5–7 had fewer, but larger, stain-accepting cells ventrally and laterally, thus imparting a light green hue. The anterior margin of setiger 8 was stained as in adjacent setigers, becoming darker posteriorly. Setigers 9–10 were darker and evenly stained on both sides of the segments with large staining cells. Setiger 11 was similar to 9–10 but darker. Glandular areas on abdominal setigers stained darker than the rest of the corresponding segment. The pygidium stained very deeply, especially the glandular area. The fecal groove was non-staining, extending from the anterior margin of the anus along the ventral midline of setigers 11–10. On setiger 9 it extends diagonally to the left to near the dorsal midline of the anterior margin, continuing anteriorly to the collar segment.

In paratypes examined, the anterior portion of the collar segment accepted stain only in a well defined lateral area just posterior to the eyes, extending to near the dorsal midline posteriorly (Fig. 3b–c). Much of this area was characterized by large, dark staining cells. The posterior region of the collar segment was uniformly stained ventrally and ventrolaterally. Setiger 1 showed a dense staining region along the midventral anterior margin, with the remainder of the ventrum lightly stained. Laterally, a green hue was present in addition to some large stain-accepting cells. The anterior and posterior midventral margins of setiger 2 were densely stained, in addition to large staining cells interspersed between the two areas. The remaining ventral and lateral areas were lightly stained. The ventral anterior margin of setiger 3 was darkly stained, becoming lighter posteriorly with some large staining cells. Lateral staining was similar to anterior setigers. The remaining segments and pygidium stained similar to the holotype.

Remarks.—Fabriciola trilobata shows some similarity to *F. capensis* (Monro 1937:366; see also Day 1955:447). Table 1 compares the two species. Both exhibit a trilobate middorsal collar margin formed by the presence of a middorsal groove. The body of both species is elongate, but *F. capensis* possesses much longer segments. The two species differ in that in *F. trilobata* the dorsal side of the collar is higher than the ventral, while in *F. capensis* it is even; also, all thoracic notosetae in the latter species are bilimbate and no spatulate setae have been reported. Abdominal uncini of the two species differ in number of tooth rows (7–9 in *F. trilobata* and 18 in *F. capensis*).

In addition to the above characters, the tooth arrangement above the main fang of thoracic uncini, increasing number of tooth rows in uncini of successive abdominal setigers, and the presence of minute superior limbate setae in abdominal neuropodia have not been described in any other *Fabriciola* species. Banse (1957) reported the presence of minute "needle-like" setae in thoracic notopodia of *Oriopsis rivularis* (Annenkova 1929), and Banse (1959) noted a similar setal type

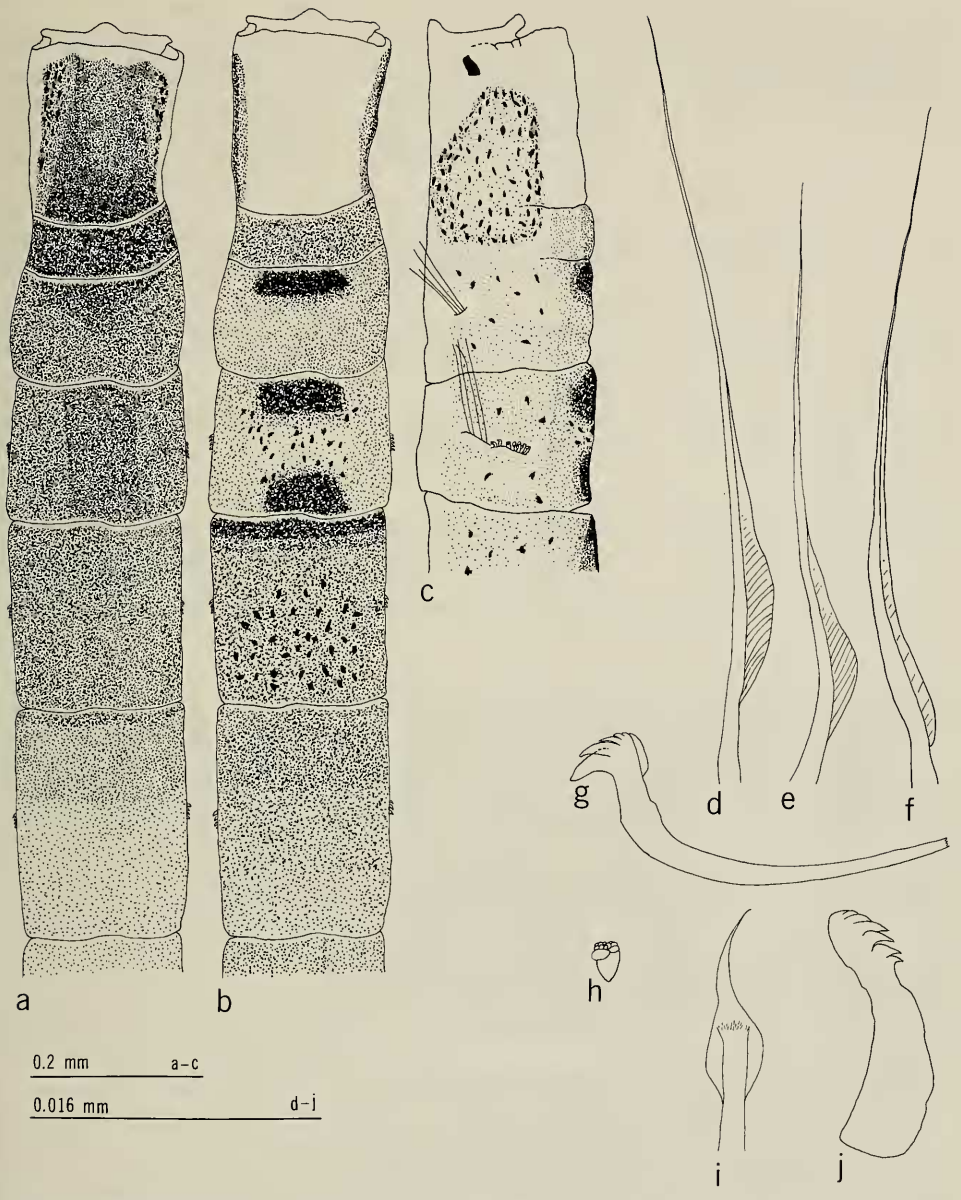

Fig. 3. *Fabriciola trilobata:* a, Staining pattern of anterior end of holotype, ventral view; b–c, Staining pattern of anterior end of paratype (USNM 74685), ventral and lateral views. *Fabricia infratorquata* (all from paratypes, USNM 74658): d–e, Superior and inferior thoracic notosetae from setiger 6; f, Abdominal neuroseta from setiger 9; g–h, Lateral view of thoracic neuropodial uncinus and frontal view of tooth arrangement, both from setiger 6; i, Thoracic spatulate seta from setiger 3; j, Abdominal notopodial uncinus from setiger 9.

Table 2.—Comparison of selected species of *Fabricia*.

Species	Palps	Collar	Thoracic notosetae
infratorquata	Absent	Indistinct dorsally, split by middorsal groove; large triangular lobe ventrally.	Setiger 1–8: 3–4 long limbates. Setiger 2,6–8: 1 short limbate. Setiger 3–5: 1–2 spatulates.
bansei	Absent	Indistinct dorsally, large triangular lobe ventrally.	Setiger 1–8: 4–5 limbates. Setiger 2–8: 2–3 spatulates.
brunnea	Absent	Pair semicircular lobes dorsally; elongate lobe ventrally.	Setiger 1: pointed setae. Setiger 2–8: 3 limbates, 1 spatulate.
gerdi	Absent	Indistinct dorsally, large rounded lobe ventrally.	4–6 long limbates, 1–2 short limbates.
sabella	Present	Indistinct dorsally, triangular lobe ventrally.	Setiger 1: 3–6 long, 2–3 short limbates. Setiger 2–8: 5–6 long limbates. Setiger 3–7: 2 spatulates.

in thoracic notopodia of *Fabriciola acuseta*. It is likely that small setal forms have been overlooked in thoracic and abdominal setigers of *Fabriciola*.

The distinct difference between the staining pattern of the holotype in comparison to paratypes might suggest sexual dimorphism. An alternative explanation might be changes in gland cell distribution in relation to size or age of individuals. The latter suggestion is unlikely since both large and small individuals stained similarly. Only Banse (1970) has examined staining variability using *Euchone incolor* Hartman, 1965, from different localities. He only noted staining differences which were probably attributable to geographic variation, making no mention of noticeable differences within a single locality.

Etymology.—The specific epithet refers to the three lobes at the anterior middorsal collar margin.

Distribution.—*Fabriciola trilobata* is known only from the type-locality.

Fabricia infratorquata, new species
Figs. 3d–j, 4; Table 2

Material examined.—West Bay, Twin Cays, Belize; 30 cm depth; mat of *Caulerpa verticillata* on rootmat of *Rhizophora mangle*, some organic debris and fragments of *Halimeda*; 7 Apr 1982 (Array F202), 9 Apr 1982 (Array F203), 11 Apr 1982 (Array F204); coll. K. Fauchald. Holotype: F204 D-4 (USNM 74644). Paratypes: F204 A-1, 1 specimen (USNM 74645); F204 A-2, 7 specimens (USNM 74646); F204 A-3, 3 specimens (USNM 74647); F204 A-4, 2 specimens (USNM 74648); F204 A-5, 1 specimen (USNM 74649); F204 B-1, 4 specimens (USNM 74650); F204 B-2, 4 specimens (USNM 74651); F204 B-3, 2 specimens (USNM 74652); F204 B-4, 1 specimen (USNM 74653); F204 B-5, 1 specimen (USNM 74654); F204 C-2, 3 specimens (USNM 74655); F204 C-4, 1 specimen (USNM

Table 2—(Continued).

Thoracic neurosetae	Abdominal notosetae	Abdominal neurosetae
Setiger 2–5: 6–8 uncini in double rows. Setiger 6–8: 5–6 uncini in single rows. Main fang + 1 large and 1 small tooth + 3 rows of smaller teeth.	11–14 long-handled uncini; 7 rows of teeth; 1–5 teeth per row.	1–2 long, narrow limbates.
6–12 uncini. Main fang + 1 large tooth + arc of smaller teeth.	14 long-handled uncini; 5–6 rows of teeth; 1–2 teeth per row.	2–4 narrow limbates.
8–9 uncini in partial double rows. Main fang + 3 rows of smaller teeth.	Long-handled uncini; 6–7 rows of teeth; 2–3 teeth per row.	?
12–14 uncini in double rows. Main fang + 1 large tooth + 1 small tooth + arc of 9 smaller teeth.	16–21 short-handled uncini; 9 rows of teeth; 1–3 teeth per row.	3–4 narrow limbates.
9–12 uncini. Main fang + 4 rows of smaller teeth.	30 long-handled uncini; 9 rows of teeth.	2–3 long and 1–2 short narrow limbates.

74656); F204 D-3, 4 specimens (USNM 74657); F204 D-4, 9 specimens (USNM 74658); F204 D-5, 1 specimen (USNM 74659). Additional material: F202 A-1, 2 specimens (USNM 74660); F202 B-1, 2 specimens (USNM 74661); F202 B-4, 1 specimen (USNM 74662); F202 C-2, 3 specimens (USNM 74663); F202 C-4, 1 specimen (USNM 74664); F202 D-2, 1 specimen (USNM 74665); F202 D-3, 5 specimens (USNM 74666); F203 A-1, 1 specimen (USNM 74667); F203 A-5, 3 specimens (USNM 74668); F203 B-3, 1 specimen (USNM 74669); F203 B-5, 1 specimen (USNM 74670); F203 C-1, 1 specimen (USNM 74671); F203 C-2, 2 specimens (USNM 74672); F203 C-4, 2 specimens (USNM 74673); F203 C-5, 1 specimen (USNM 74674); F203 D-1, 1 specimen (USNM 74675); F203 D-2, 1 specimen (USNM 74676); F203 D-4, 2 specimens (USNM 74677); F203 D-5, 1 specimen (USNM 74678).

Diagnosis.—Small species of *Fabricia* without palps. Peristomium concealed by collar segment. Ventral collar a distinct, anteriorly rounded triangular lobe. Dorsal and lateral parts of collar low, indistinct. Dorsal, longitudinal midline of collar segment occupied by broad groove. Collar segment divided into anterior and posterior parts by distinct annulation. Thoracic neuropodial uncini of setigers 2–5 in irregular double rows, continuing as single rows in setigers 6–8; with 2 unequal teeth above main fang, followed by series of smaller teeth. Abdominal uncini long-handled, with 7 rows of teeth.

Description.—The holotype is a complete specimen with 8 thoracic and 3 abdominal setigers. Length 1.60 mm (0.56 mm comprising the branchial crown) and width 0.21 mm.

A pair of semicircular branchial lobes are attached anteriorly, each with a large branchial heart situated dorsally (Fig. 4a). Three radioles are attached to each branchial lobe; they are unbranched and rounded externally. Four to 5 pairs of

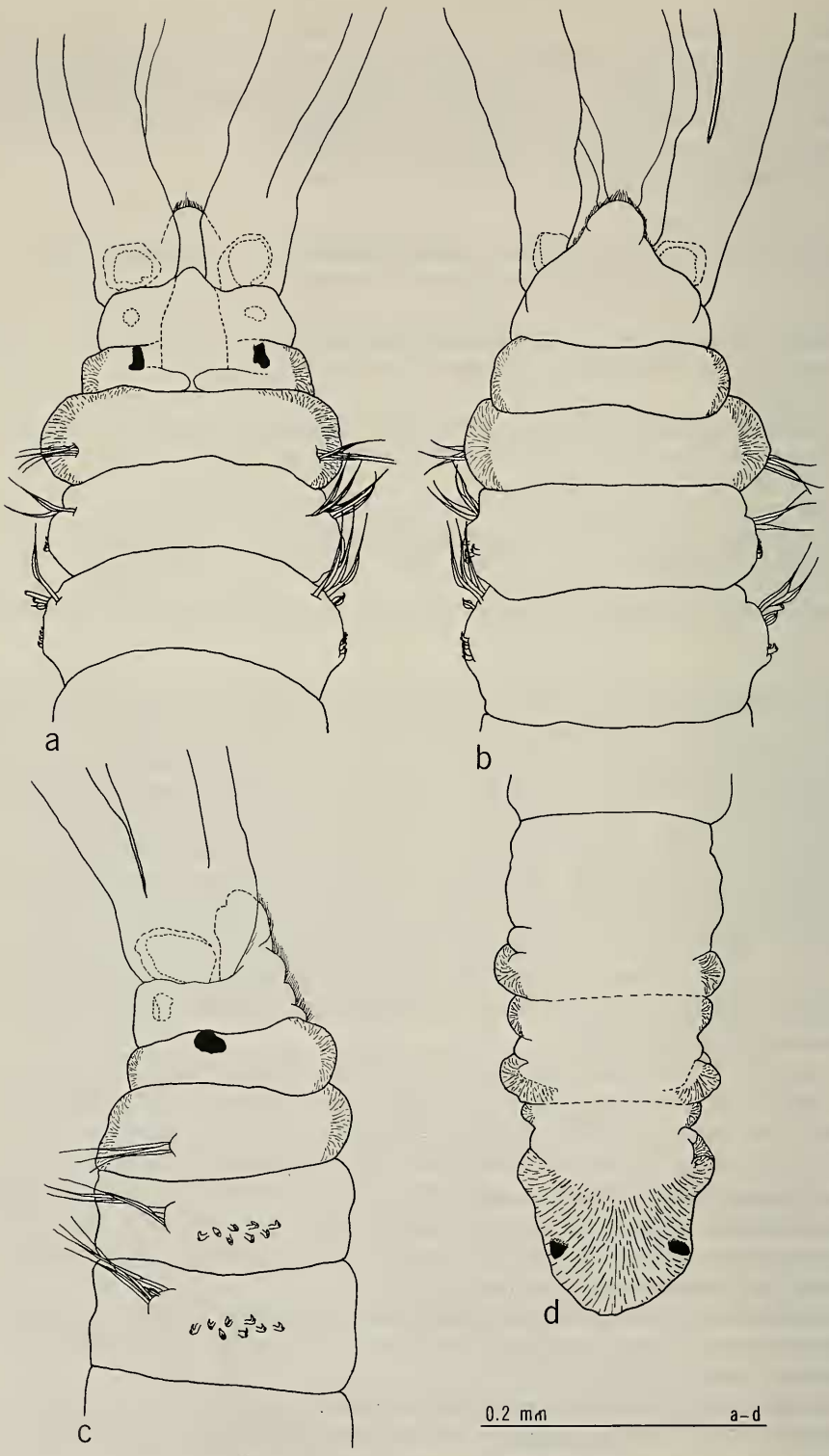

Fig. 4. *Fabricia infratorquata* (paratype, USNM 74658): a–c, Dorsal ventral and lateral views of anterior end; d, Posterior end, dorsal view.

ciliated pinnules extend from the inner side of each radiole. The proximal pair are longest, with successive pairs becoming shorter so that all terminate near the distal end of the radiole. Distal ends of the radioles are blunt. Palps are absent.

The collar segment completely conceals the peristomium. Ventrally, the collar is distinct, forming a thick, large triangular lobe which is rounded anteriorly (Fig. 4b–c). The ventral surface of the ventral collar is heavily ciliated. Laterally and dorsally the collar is low and indistinct. The dorsal collar is divided by a longitudinal middorsal groove which extends from the anterior margin of the collar segment as a slight protrusion to near the segment's posterior margin, and occupies the middorsal ⅓ of the collar segment width. Adjacent to the posterior margin of the groove are a pair of indistinct narrow ridges, situated perpendicular to the groove and directed middorsally, with a narrow gap between the 2 ridges. The collar segment is separated into anterior and posterior halves by an annulation which is distinct ventrally and laterally, disappearing dorsally as it nears the middorsal groove. The anterior part of the collar segment is slightly longer than the posterior part, but the latter is wider. Ventrally, the posterior part is slightly inflated, overlapping the anterior portion of setiger 1. The ventral half of the ventral collar and the epidermis of the posterior part of the collar segment contain a large number of glandular cells.

All thoracic setigers are cylindrical, constricted at intersegmental grooves. Transition from the collar segment to setiger 1 is denoted by an abrupt increase in segment width. Setiger 1 is the shortest thoracic segment, about ⅔ the length of the collar segment. All subsequent thoracic setigers become longer. Setigers 1–4 are widest, about ¼ wider than the collar segment, and are wider than long. Setigers 5–8 only decrease slightly in width, but are longer than wide. The epidermis of setiger 1 is composed of glandular cells of about the same thickness as in the posterior portion of the collar segment.

Abdominal setigers become successively shorter, with setiger 9 about ½ the length of setiger 8 (Fig. 4d). All are wider than long, becoming slightly narrower posteriorly. Setigers 9–10 are cylindrical and setiger 11 is slightly dorsoventrally flattened. Separation between thorax and abdomen is distinct. Intersegmental grooves are indistinct on abdomen. Pad-like, swollen glandular areas occur laterally behind notopodial tori of setigers 9–10, and at the anterior lateral margins of setigers 10–11.

Noto- and neuropodial thoracic tori are only slight swellings. Notopodia are located dorsolaterally in all segments. Neuropodia, absent from setiger 1, are situated ventral to and slightly posterior to notopodia of remaining setigers. Notosetae in setigers 1–8 include 3–4 superior long, nearly straight, limbate setae (Fig. 3d). Setigers 2 and 6–8 also have 1 inferior shorter limbate seta with a curved shaft (Fig. 3e). Setigers 3–5 also possess 1–2 inferior short spatulate setae (Fig. 3i). Notosetal fascicles are inserted obliquely. Thoracic neurosetae are gently curved acicular uncini (Fig. 3g). Uncini of setigers 2–5 occur in vertical, irregular double rows; the anterior row being slightly dorsal to the posterior row. Each row within a torus contains 3–4 uncini. Neurosetae in setigers 6–8 are in a single row of 5–6 uncini in each setiger. In lateral view, the distal end appears to have a main fang surmounted obliquely by a large tooth, followed by 3 smaller teeth. In frontal view, the main fang is surmounted by 2 pair of unequal teeth (Fig. 3h). Above the large tooth are 3 smaller teeth; proximal to this are two concentric arcs of

teeth. Proximal to the distal end the shaft is slightly swollen, then tapers to a rounded end.

Abdominal notopodia are distinct lateral tori on the posterior ¼ of the segments, and of the same length as thoracic neuropodia. Notosetae are long-handled uncini, numbering 14 in setigers 9–10 and 11 uncini in setiger 11 (Fig. 3j). All uncini have 7 rows of teeth; the number of teeth per row as follows (proximal to distal): 1+2+3+4+5+4+3. Proximal to the teeth the shaft is slightly constricted, then inflated proximally and terminated in a truncate base. Neurosetae originate just ventral to notopodia. No neuropodial tori are visible. All neurosetae are of one type: 1–2 subequal, long-shafted limbate setae with a narrow limbation, and are directed dorsally (Fig. 3f).

The pygidium is not clearly delimited from setiger 11, thus is assumed to begin just posterior to the notopodial tori. Anteriorly, the pygidium is of the same width as the adjacent segment, narrowing slightly posteriorly to a rounded end. It is dorsoventrally flattened. Except for the anterior margin, the entire pygidium surface is glandular. The anus is a slightly depressed, longitudinal, midventral slit.

A pair of large roughly crescentic eyes (dorsal view) are visible just posterior to the intrasegmental annulation of the collar segment, on either side of the middorsal groove. A pair of smaller, circular eyes are located laterally in the pygidium. A pair of translucent otocysts, slightly smaller than the anterior pair of eyes, are located dorsally in the anterior part of the collar segment on either side of the middorsal groove.

The holotype and other large individuals are opaque and cream colored in alcohol. Small individuals tend to be more translucent.

Individuals occupy soft, thick tubes (about 2–2.5 times as thick as the worm), constructed with plant and detrital material. The inner tube diameter is only slightly greater than the width of the worm, such that nearly the entire length of the individual is in contact with the tube.

The holotype and some paratypes were stained with methyl green by the method described above. In the holotype, the posterior portion of the collar segment and setiger 1 were uniformly stained dark green except for the fecal groove and tori, neither staining in any segment. Setigers 2–8 were uniformly stained lightly, giving a green hue. Setigers 9–11 stained much darker than adjacent setigers due to large stain-accepting cells and glandular areas. The pygidium was darkly stained as in other glandular areas. Paratypes stained similar to the holotype. Some specimens did show a greater degree of staining in setigers 5–8, resembling that of abdominal setigers. The ventral collar of one specimen did stain lightly, but otherwise it was similar to other individuals.

Remarks.—*Fabricia infratorquata* is one of a group of *Fabricia* which possess a distinct, triangular ventral collar. Table 2 compares these species. *Fabricia infratorquata* is readily distinguished from *F. sabella* (Ehrenberg, 1836; see Hartmann-Schroeder 1971:513) in that the latter possesses palps and all thoracic uncini occur in single rows. *Fabricia bansei* Day (1961:543) differs from *F. infratorquata* in the arrangement and number of teeth on thoracic and abdominal uncini. *Fabricia infratorquata* closely resembles *F. brunnea* Hartman (1969:693) in that both have at least some thoracic uncini in double rows; the species differ in that the dorsal collar of the latter has a pair of small semicircular lobes and abdominal uncini have 2–3 teeth per row (1–5 teeth per row in *F. infratorquata*). *Fabricia*

gerdi Hartmann-Schroeder (1974:199) is also very similar to the new species in relation to the collar and occurrence of thoracic uncini in double rows; they differ in the arrangement of teeth on the thoracic and abdominal uncini.

Etymology.—The specific epithet refers to the large, triangular ventral collar.

Distribution.—*Fabricia infratorquata* is known only from the type locality.

Discussion

Fabriciola trilobata and *Fabricia infratorquata* both possess a character which has not been described in these genera: the asymmetrical arrangement of teeth above the main fang of thoracic uncini. Examination of uncini in a frontal view has not been common, probably due to difficulty in manipulating setae for observation at such an angle. As a result a possible diagnostic character has been overlooked.

Another setal characteristic of both species not commonly described is the number of teeth per row in abdominal uncini. Most species in which this has been described display a rather uniform number of teeth in each row, except in some cases of variation at extreme proximal and distal tooth rows. In the species described herein this pattern did not occur. In *F. trilobata* the number of teeth per row gradually increased in a proximal-distal direction, except for uncini from setiger 11, in which median tooth rows alternated with 3 and 4 per row. *Fabricia infratorquata* displayed an increasing number of teeth from proximal to distal, with a slight decrease in the 2 distal-most rows. A similar pattern was noted by Friedrich (1939) for *Fabriciola baltica*, with the arrangement: 3+4+5+6+6+6+6+4+4. This pattern of variation is probably common in other species of both genera, but has yet to be examined.

The majority of *Fabriciola* and *Fabricia* descriptions pay little attention to abdominal neurosetae; most reports refer to them as fine capillaries or ignore their presence. Closer attention should be given to these setae since size and structural differences, as seen in *F. trilobata*, could be of taxonomic use.

The presence of an annulation on the collar segment of *F. trilobata* and *F. infratorquata* suggests the presence of an additional achaetous segment. Figures of *Fabriciola limnicola* given by Hartman (1951) depict an annulation very similar to that on *F. trilobata*. Annulations have also been illustrated by Day (1955) for *F. capensis*, by Day (1957) for *F. mossambica*, and by Friedrich (1939) for *F. baltica*. Figures of *Fabricia* show a similar annulation but it is situated further anteriorly, suggesting that it is simply a demarcation of the collar from the collar segment. In *F. infratorquata* this does not occur; the annulation is distinctly posterior to the collar, suggesting that the collar "segment" is composed of two segments. At this time it can only be suggested that this feature be noted in future descriptions until such time as sectioning determines if it is an actual segment boundary.

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