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A New Hawaiian Polyclad, Stylochoplana Inquilina, with Commensal Habits

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Three specimens of a pretty and interesting Hawaiian polyclad with commensal habits were sent to me for identification by C. H. Edmondson of Bernice P. Bishop Museum. This polyclad participates in a hermit-crab-anemone complex. The hermit crab inhabits gasteropod shells of the genus *Tonna,* to which is regularly found fastened the anemone *Calliactis armillatas* Verrill. The polyclad uses the umbilicus of the snail shell as a retreat and also may be found crawling about on the anemone. Its color pattern harmonizes with that of both the *Tonna* shell and the anemone. It is to be presumed that the polyclad robs the food of either the crab or the anemone or both. The polyclad is found to belong to a common genus but to constitute a new species. Definitions of the taxonomic categories will be found in my 1940 publication (2)[1].

ORDER POLYCLADIDA

SUBORDER ACOTYLEA

Section CRASPEDOMMATA

Family LEPTOPLANIDAE

Genus STYLOCHOPLANA

Stylochoplana inquilina, new species.

The worm is of considerable size and elongated form, measuring about 25 mm. in length (preserved) and 7 mm. through the widest region. The form in

[1] Numbers in parentheses refer to Literature Cited, page 58.

general is lanceolate, that is, wider through the middle part of the body and tapering somewhat toward the ends; but presumably the worm is more slender and elongated when creeping in life.

The polyclad has a pretty color pattern corresponding to that of the *Tonna* shell in which it finds shelter. On a snowy background, a broad longitudinal band of a tawny-brown color extends the length of the animal on each side and tapers to a point at the two body ends (fig. 1,*a*). The dorsal surface is thus striped into three broad longitudinal bands of about equal width, a median white band and lateral tawny bands with a white margin along the entire periphery. Tentacles are wanting.

The eyes (fig. 1,*b*) occur in the paired tentacular and cerebral clusters usual to the Leptoplanidae. The tentacular clusters consist of about 40 eyes arranged in an elongated oval and the slightly smaller and more deeply located cerebral groups of about 40 to 50 eyes extend along the inner border of the tentacular clusters, from which they are not distinctly separated, for some distance anterior to the latter and a short distance behind them.

The pharynx, of elongated ruffled form, begins some distance behind the eyes and extends posteriorly to a level about one-fifth the body length from the posterior tip (fig. 1,*a*). From its anterior end the main intestinal trunk can be easily followed to the level of the brain. No attention was paid to the remainder of the digestive tract which is of the radiating type characteristic of the Leptoplanidae.

The reproductive system is typical of the genus. The uteri (oviducts) stuffed with eggs are readily seen proceeding along the sides of the pharynx (fig. 1,*a*). They do not appear to be confluent anterior to the pharynx. The copulatory complex, situated immediately behind the posterior end of the pharynx, was studied in sagittal serial sections and is depicted in sagittal view in figure 1,*c*. The sperm ducts enter separately the antero-ventral surface of the seminal vesicle. The latter is the usual oval, highly muscular body; it leads by a sinuous duct to the anterior end of the prostatic vesicle. The latter is also an oval body lined by a tall glandular epithelium and coated with a thick layer of muscle fibers. Its lumen leads by a slender duct through the fair-sized conical penis papilla, lodged in a small male antrum opening ventrally by the male gonopore.

The female gonopore, separate from the male gonopore, lies slightly behind the latter and is surrounded by the usual radiating cement glands, shown in figure 1,*a*. It leads into the vagina that proceeds dorsally with a forward slant, then bends and continues backward and downward nearly parallel to its distal part, finally making a short curve as it receives the oviducts. A Lang's vesicle is wanting. The vagina is lined throughout by an epithelium that has a fimbriated appearance, probably caused by the presence of cilia, and is covered with a relatively thin muscle coat. The distal part of the vagina leading to the gonopore is considerably widened.

Differential diagnosis: *Stylochoplana inquilina* is distinguishable from other members of the genus by the combination of color pattern, commensal habits, and lack of Lang's vesicle.

Locality: found off Oahu, Hawaiian Islands, at 16 fathoms, in association with a hermit-crab-anemone complex.

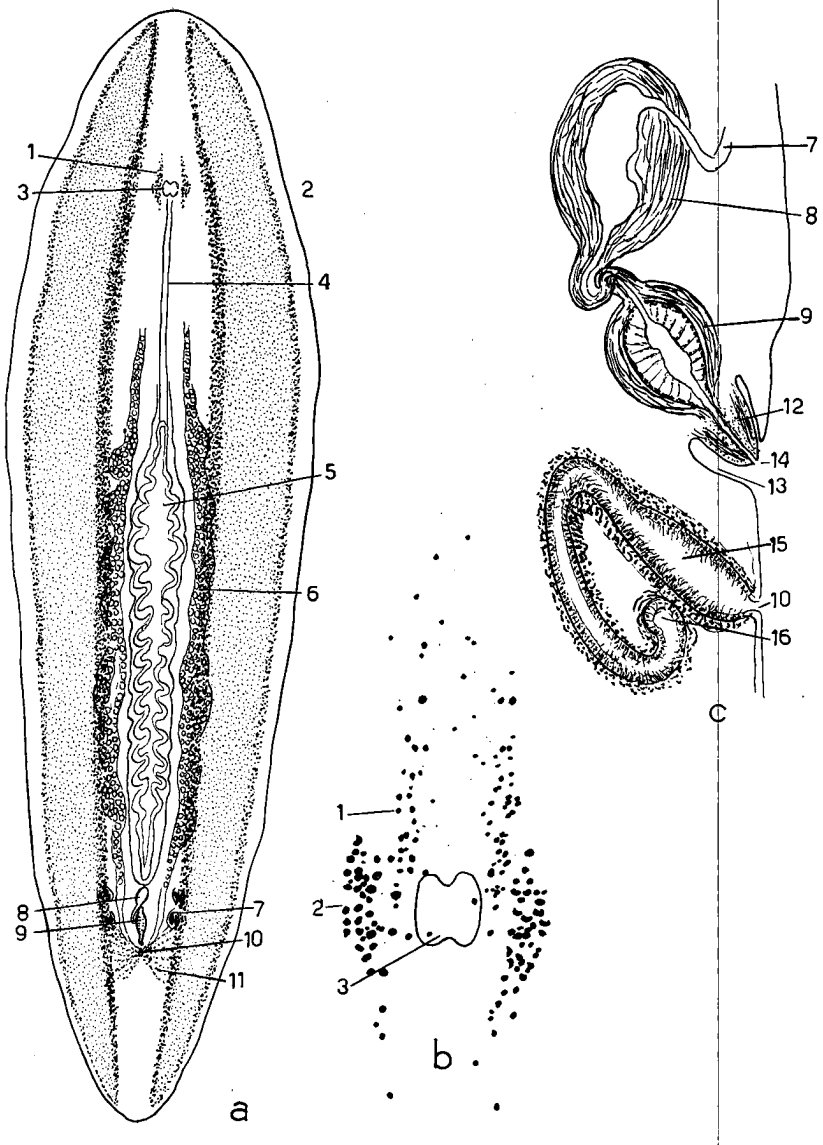

FIGURE 1.—**a**, general view of *Stylochoplana inquilina* preserved; **b**, eye pattern; **c**, sagittal view of copulatory complex: (1) cerebral eyes, (2) tentacular eyes, (3) brain, (4) main intestine, (5) pharynx, (6) uteri, (7) sperm ducts, (8) seminal vesicle, (9) prostatic vesicle, (10) female gonopore, (11) cement glands, (12) penis papilla, (13) male antrum, (14) male gonopore, (15) vagina, (16) entrance of oviducts.

Holotype: one specimen preserved in alcohol, deposited in Bishop Museum, cat. no. 268.

Stylochoplana inquilina obviously falls into Bock's (1) group B of the genus, characterized by a long slender form not broadened anteriorly, a lack of tentacles, and an absence of penis armature and penis sheath.

Commensal habits are known for other species of *Stylochoplana.* Thus Kato (3) records that *S. pusilla* Bock, 1924, regularly inhabits the mantle cavity of the sea snail *Monodonta labis,* although it apparently breeds elsewhere, and later, in 1935 (4), describes *S. parasitica,* found in the pallial groove of the chiton *Liolophura japonica tessellata.* Both of these species are stated by Kato to belong to Bock's group A, hence they differ somewhat in general appearance and sexual anatomy from the present species.

LITERATURE CITED

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