

Spirorbinae (Annelida: Polychaeta) from Eniwetok, Marshall Islands¹

Dale STRAUGHAN

Allan Hancock Foundation, University of Southern California

Synopsis

The distribution of *Spirorbis bellulus* Bush 1904 is extended, and a new species *Spirorbis polyoperculatus* is described.

Introduction and Methods

Hartman (1954) and Reish (1968) recorded Spirorbinae from Eniwetok but no attempt was made to identify them. Dr. D. K. Young made the present collection during July, 1968.

The material was preserved in alcohol. Polyvinyl lactophenol was used as a clearing agent and mountant for microscopical examination of setae and uncini. Opercula were studied on unmounted specimens and specimens mounted in glycerine gel. The material is deposited in the Bernice P. Bishop Museum.

Spirorbis (Circeis) bellulus Bush 1904

Underside of small beach rock (limestone) on reef flat, north side of Eniwetok Island (Co-occurring with *S. (P.) polyoperculatus*).

Diagnostic features: Dextral coiling; egg string incubation; 3 thoracic segments; collar setae lacking a separate proximal fin; tube with 3 or 4 longitudinal ridges; top of operculum concave with calcareous plate surrounded by an upright rim.

Distribution: Japan, Eniwetok.

Spirorbis (Pileolaria) polyoperculatus sp. nov.

Underside of small beach rock (limestone) on reef flat, north side of Eniwetok Island (Co-occurring with *S. (C.) sellulus*).

Type: B. P. Bishop Museum Catalogue No. R. 555; Paratype: B. P. Bishop Museum Catalogue No. R. 556.

Polyoperculatus refers to the presence of several opercular plates above the brood chamber.

Diagnostic features: Sinistral coiling; incubation in opercular brood chamber; 3 thoracic segments; fin and blade collar setae; stacked opercular plates above in-

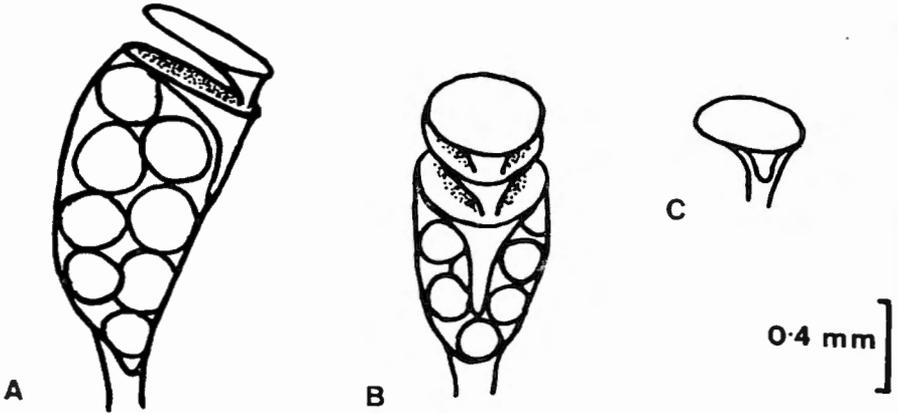


Fig. 1. *Spirorbis (Pileolaria) polyoperculatus* sp. nov.:

- A. Lateral view of operculum with 2 opercular plates;
- B. Dorsal view of operculum with 3 opercular plates;
- C. Developing operculum from young animal with 1 opercular plate.

cubation chamber; tube lacking well developed longitudinal ridges.

Description:

Tube—white, sinistral, 1.2 mm diameter, mouth faces upwards and partly covers preceding whorls, older tubes smooth but may have an indistinct longitudinal ridge in young stage.

Operculum—opercular plate smooth, flat to slightly concave on top. 2 or 3 opercular plates with long interlocking talon, above the brood pouch (Figure 1 a, b). Young specimens may have only 1 opercular plate (Figure 1c).

Thorax—3 segments; setae on both sides of all segments and uncini on both sides of second and third segments. Collar setae with proximal fin of 4 or 5 large teeth, separated from a blade with coarse teeth and cross striations. Setae on second and third segments curved and finely serrated. Uncini with 3 rows of fine teeth with end tooth projecting and slightly enlarged.

Abdomen—setae not observed. Uncini similar to, but about 1/3 size of thoracic uncini.

Incubation in brood chamber under lower opercular plate.

Discussion: *S. polyoperculatus* appears closest to *S. koehleri* Caullery and Mesnil, 1897 and *S. endoumensis* Zibrowius, 1968, both of which have stacked opercular plates. *S. koehleri* and *S. polyoperculatus* have the incubation chamber below the lower opercular plate, while *S. endoumensis* has the incubation chamber below the upper opercular plate. Hence, in the latter species, it appears that a second opercular plate is formed while larvae are developing in the brood chamber below the first opercular plate, while in the other species, the first opercular plate is retained after larvae from its brood chamber have been released and while larvae are developing in the brood chamber below the second opercular plate. The long talon of

the first opercular plate interlocks with the second so that the first opercular plate is not lost when larvae are released from its brood chamber.

The smooth tube and simpler form of opercular plates distinguish *S. polyoperculatus* from *S. koehleri*. The similarity of these two species from different areas, mid-Pacific Ocean and Mediterranean Sea respectively, makes one wonder if they are closely related species, or if this type of operculum has evolved twice within *Pileolaria*. Further collection from the Indo-Pacific region between the areas where these two species occur, will indicate the most likely explanation. However, Pillai in his recent papers on polychaetes from Ceylon (1960, 1961) and the Philippines and Indonesia (1965), does not record any spirorbids with opercula of this type.

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