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Tubular shell infestations in some Mississippian spirilophous brachiopods

Andrzej Baliński and Sun Yuanlin
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Evidence of brachiopod shell infestation by tube dwelling parasitic–commensal organisms is very rare in the fossil record. The oldest record of this kind of biotic interaction is known as *Eodiorygma acrotretophilia* from the Early Cambrian phosphatic acrotretoid *Linnarsonia*. The youngest evidence of parasitic infestation was documented in the Early Cretceous rhynchonellide *Peregrinella multicarinata*. Two other records of vermiform tubes inside brachiopod shells come from the Devonian. These are *Diorygma atrypophilia*, infesting Givetian atrypide shells, and *Burrinjuckia spiriferidophilia*, found in some Emsian spiriferides. Here we describe the fifth record of this kind of infestation for which a name *Haplorygma dorsalis* ichnogen. et ichnosp. nov. is proposed. The tubular infestation structure was revealed in two silicified dorsal valves of spirolophous brachiopods found in the Mississippian Muhua Formation of the Southern China. The affinity of the tube–dwelling organism is rather enigmatic, but its annelid relationship and kleptoparasitic nature seems highly probable. In addition, the phoronid affinity of *Diorygma* is here questioned.

Key words: Brachiopoda, Spiriferida, Spiriferinida, biotic interaction, endosymbionts, Mississippian, Muhua Formation, Southern China.

Andrzej Baliński [balinski@twarda.pan.pl], Instytut Paleobiologii PAN, ul. Twarda 51/55, PL–00–818 Warszawa, Poland; Yuanlin Sun [ylsun@pku.edu.cn], Department of Geology, Peking University, Beijing 100871, China.

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