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Soft tissue preservation in the Lower Cambrian linguloid brachiopod from South China

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The organization of the lophophore and the digestive system are recognized as two of the diagnostic characters in the definition of higher brachiopod taxa, and hence play a major role in their phylogenetic analysis, their structure, however, is very rarely fossilized. Here we describe and interpret specimens of the brachiopod *Lingulellotreta malongensis*, from the Lower Cambrian Chengjiang Lagerstätte (South China), one of the earliest known taxa of the Lingulellotretidae, in which lophophores and intact, U-shaped digestive tracts are extraordinarily well-preserved. The lophophore, with clearly preserved tentacles, corresponds to an early spirolophe developmental stage. The digestive tract consists of a mouth, esophagus, distended stomach, intestine and an anterior anus, and differs from that of the Chengjiang obolid *Lingulella chengjiangensis* by the presence of the dilated stomach and by the absence of a looped intestine as in *Lingula*. In addition, the relative sizes of the mantle and visceral cavities of *Lingulellotreta malongensis* also are described. These fossils demonstrate that by the Atdabanian brachiopods had already possessed advanced features, and suggest that a lophophore and a U-shaped intestine with an anterior anus are brachiopod plesiomorphies.

Key words: Linguloidea, lophophore, digestive tract, Lower Cambrian, Chengjiang Lagerstätte, China.

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