

## Soft-part preservation in a linguliform brachiopod from the lower Cambrian Wulongqing Formation (Guanshan Fauna) of Yunnan, South China

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Linguliform brachiopods were important components of early Cambrian benthic communities. However, exceptionally preserved soft parts in Cambrian linguliform brachiopods are extremely sparse, and the most important findings are from the early Cambrian Chengjiang Konservat Lagerstätte of Kunming, southern China. Here we describe the first record of preserved soft-part anatomy in a linguliform brachiopod from the early Cambrian Guanshan fauna (Wulongqing Formation, *Palaeolenus* Zone); a unit which is considerably younger than the Chengjiang fauna. The well preserved soft anatomy include linguliform pedicles, marginal setae and, in a few cases, an intact lophophore imprint. The pedicle has pronounced surface annulations, with its proximal-most part enclosing the apex of the ventral pseudointerarea; the pedicle is up to 51 mm long, corresponding to more than 4 times the sagittal length of the shell, and 12% of the maximum valve width. In details of their preservation, these new fossils exhibit striking similarities with the linguliforms from the older Chengjiang fauna, and all specimens are preserved in a compressed state as flattened impressions. The new linguliform has an elongate oval to subtriangular shell and an elongate triangular ventral pseudointerarea; the pedicle emerged from an apical foramen through a poorly preserved internal pedicle tube. The new linguliform is most similar to the mostly organic-shelled siphonotretoid-like brachiopod *Acanthotretella spinosa*, recently described from the classic middle Cambrian Burgess Shale Konservat Lagerstätte, British Columbia, Canada. The new species *Acanthotretella decaius* sp. nov. is described; it differs from *A. spinosa* in having a slightly thicker pedicle, and a larger and more rigid, probably partly mineralised shell, indicating that the mostly organic shell of *A. spinosa* may represent a secondary reduction of shell mineralisation. However, the spine-like setae of the new species are unfortunately poorly preserved only at the margin of the shell, but the new species is referred tentatively to the Superfamily Siphonotretoidea. The occurrence of *A. decaius* in the Guanshan fauna is the first lower Cambrian (Series 2, early Stage 4) record of both *Acanthotretella* and siphonotretoids, and it represents the first description of a lophophore and digestive tract from the siphonotretoid lineage.

**Key words:** Brachiopods, Linguliformea, Konservat Lagerstätte, early Cambrian, China.

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