



**Estonian Journal of
Earth Sciences**
2023, **72**, 1, 132

<https://doi.org/10.3176/earth.2023.02>

www.eap.ee/earthsciences
Estonian Academy Publishers

ABSTRACT

Received 21 March 2023
Accepted 30 March 2023
Available online 8 June 2023

Keywords:

Lower Palaeozoic, brachiopods, lingulates,
siphonotretides

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Citation:

Holmer, L. E., Popov, L. E., Pour, M. G., Yue, L.
and Zhang, Z. 2023. Siphonotretoid
brachiopods – a thorny problem. *Estonian
Journal of Earth Sciences*, **72**(1), 132.
<https://doi.org/10.3176/earth.2023.02>

Siphonotretoid brachiopods – a thorny problem

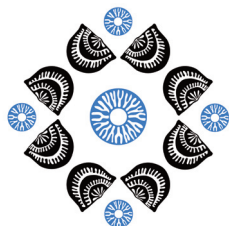
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Siphonotretoids are presently placed within the subphylum Linguliformea and the class Lingulata, where they constitute a small, relatively short-lived superfamily and order, appearing near the end of the mid-Cambrian, with most forms becoming extinct near the end of the Late Ordovician, but with some rare forms ranging through the Silurian and even into the early Devonian. It has been noted previously that siphonotretides are very different from all other lingulates in shell structure, ontogeny and ornamentation, and may have diverged from other lingulates already during the early Cambrian. Findings of exceptionally preserved 'soft-shelled' possible early stem-group setigerous representatives such as *Acanthotretella* in the Burgess Shale and the Chengjiang fauna have strengthened this view. Exceptionally preserved siphonotretides from Iran clearly show that they are provided with organic setal structures associated with spines, and similar setal structures are known from stem brachiopods, such as *Micrina* and *Mickwitzia*, as well as from some later true rhynchonelliforms. Evidence for preserved setal structures is now also recorded from the Cambrian–Ordovician boundary beds in Wyoming. In the Ordovician, the spinous structures include complex branching forms, such as the widely distributed *Alichovia*, and *Siphonotreta* itself has clear evidence of branching spines. The branching spines probably also contained setal structures, and similar forked setae are known from living annelids.



**14TH ISOS
ESTONIA 2023**