

## New and unusual upper Llandovery graptolites from Arctic Canada

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Three isolated and well-preserved retiolitid taxa, two of them new, and one taxon of unknown affinity, are described from the upper Llandovery of Arctic Canada. All taxa display unusual characteristics. The three retiolitids display extraordinary morphological features: *Pseudoplegmagraptus* cf. *obesus* preserves very delicate and lacey or cobweb-like list structures external to the main skeletal lists, structures previously seen only rarely on flattened material; *Pileograptus pileatus* gen. et sp. nov. possesses a thecal framework typical of retiolitines, particularly *Stomatograptus*, but its thecal orifices possess broad, meshwork genicular hoods similar to those in the plectograptines; and *Giganteograptus giganteus*, formerly attributed to *Pseudoplegmagraptus*, with its very coarse and relatively simple skeletal framework, well-developed paired thecal apertural spines, and a pustulose micro-ornamentation on the lists. The latter feature suggests an assignment to the subfamily Plectograptinae, rather than to the Retiolitinae as has been previously presumed. The presence of pustulose lists in *Giganteograptus* adds a further complication to understanding of retiolitid evolution. *Mirrorgraptus arcticus* gen. et sp. nov., the fourth taxon and of unknown systematic affinity, lacks the proximal end, but preserves lists with seams and some fusellar material suggestive of some type of new retiolitid. Unlike known retiolitids or other graptolites, however, the skeletal list development is apparently confined to a narrow region along one side of the nema.

**Key words:** Graptoloidea, Retiolitidae, pustulose micro-ornamentation, Llandovery, Silurian, Arctic.

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