Phyletic evolution of the latest Ludlow spinose monograptids

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The spinose latest Ludlow (Ludfordian) graptolite Monograptus (Uncinatograptus) spineus is not related to the lobate-spinose monograptids of the late Wenlock. It developed independently as a result of phyletic evolution from hooded M. (U.) acer, M. (U.) protospineus sp. n. being a transient link. Cumulative effects of gradual and directional changes within this lineage resulted probably in feeding specializations that enabled separation of niches. Previously described M. (U.) acer and M. (U.) aculeatus are defined as chronosubspecies, the latter representing a more advanced stage of evolution. A biostratigraphic subdivision of late Ludfordian in graptolite facies is suggested.

Key words: graptolites, monograptids, phyletic evolution, hypermorphosis, Ludlow, Late Silurian.