

## Evolution of retiolitid graptolites--a synopsis

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Twenty million years of retiolitid evolution reflect environmental changes, the most severe being the Silurian *Cyrtograptus lundgreni* Event. Five biostratigraphically and morphologically constrained retiolitid faunas are distinguished and characterized according to their rhabdosomal modifications: (1) the oldest and long-ranging Llandovery group of mostly large and morphologically complex rhabdosomes, (2) the less diverse Telychian-Sheinwoodian group, (3) the *Cyrtograptus lundgreni* Biozone varied group of intermediate size, and two short-ranged (4) late Homeric, and (5) early Ludlow groups with small rhabdosomes. Although the evolutionary history of retiolitids was complex and not linear, a common tendency toward reduction of rhabdosome size in most lineages is observed. The greatest reduction in both number and volume of thecae, and in skeletal elements is demonstrated in the *Gothograptus* and *Plectograptus* faunas. Contrary to the thecal decrease, a distinctive increase of sicula size is observed in retiolitids.

Two types of colonies are distinguished: L-colonies with a small sicula and numerous large thecae of similar size, and S-colonies with a long sicula and a few, small thecae. These changes imply modification of the soft body: an increase in siculozoid length and a decrease in the size of the zooids. Thus, the siculozoid probably produced great amounts of morphogen inhibiting zooid growth. In consequence the phenomenon of colony reduction occurred. The most extreme stages of rhabdosome reduction in Ludlow retiolitids can be seen in *Plectodinemagraptus gracilis* of the *Plectograptus* lineage and in the new species *Holoretiolites helenaeuitoldi*, possibly representing the last stage of skeletal reduction in the *Gothograptus* lineage; the next hypothetical stage would be its total loss. The sicula length of *Holoretiolites*, about 2 mm, is reported herein for the first time.

**Key words:** Graptoloidea, Retiolitidae, Silurian, Ludlow, rhabdosome reduction, Holoretiolites.

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