


## On generation and regeneration of cladia in some Upper Silurian monograptids

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A description is given of the structure and evolution of Upper Silurian Linograptinae on the base of material etched by chemical treatment of core samples from deep-boring at Mielnik on Bug (eastern Poland) and from Baltic erratic boulders. *Neodivers ograptus* n. gen., represented by *N. nilssoni* and *N. beklemishevi* n. sp., belongs to an earlier evolutionary phase of this subfamily. Their rhabdosomes are characterized by bipolar growth of thecae, for a sicular cladium is produced in addition to the primary branch (procladium). *Linograptus posthumus* with multiramous rhabdosomes, comprising several sicular cladia, most probably descends from such forms. The origin and phylogenetic relations within the Linograptinae are discussed. The bipolar rhabdosomes of *Diversograptus* and *Neodiversograptus* n. gen. in which two branches develop from the sicula in result of normal astogeny, are distinguished from bipolar "morphoses" - here described in *Lobograptus scanicus parascanicus* and *Linograptus posthumus* - which are produced in result of regeneration of monograptid colonies that had been broken off. These rhabdosomes are deprived of the sicula at the point of divergence of two thecal series. These generative forms differ fundamentally in their biological significance from bipolar forms, produced through normal astogeny, and obviously they cannot be "taxonomically ranked". An attempt is made to define the morphological laws that govern the processes of normal astogeny, of the regeneration of colonies and of the simultaneous growth of thecae on the various branches of one colony. Using the data now available on the astogeny and evolution of the Monograptidae, a tentative classification is given of the phylogenetic modifications of astogeny by distinguishing their successive stages. Several new terms and definitions are introduced relevant to details of structure and development of multiramous monograptids.

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