

Middle Ludfordian Event in Brachiopod Evolution in the European Province

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Ludfordian shallow water carbonates exposed at the north-eastern part of the European platform, Urals and Arctic islands contain rich brachiopod communities (BA-2) dominated by athyrids and atrypids. Comparatively monotonous lithology in the sections studied (the Gerdju regional stage) allow to recognize complete stratigraphical ranges of genera that makes possible a reconstruction of their phylogeny. The *Greenfieldia-Didymothyris* lineage members associate with other athyrid genera such as *Squamathyris* and *Homeathyris*, possessing by the complicate internal structure similar to *Didymothyris*. All above genera undergo a step-wise extinction at mid-Ludfordian time and they give rise to completely new brachiopod fauna, which includes rhynchospirinids, spiriferids and rhynchonellids alongside with a few advanced athyrids. The distinct diversification event at species level takes place among Ludfordian atrypids at the same time. These profound changes in taxonomic composition were used for drawing a boundary between the Gerdju and Greben regional stages.

Along the western and south-western margins of the European platform (Baltic and Podolia) the middle Ludfordian extinction event followed by radiation may be partly recognized within the shallow - water deposits because of uncomplete stratigraphical ranges of diagnostic brachiopod genera due to frequent facial changes. It seems that the diversity changes observed in brachiopod evolution have good potential for correlation of late Ludlow shelf deposits within the whole European province.

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