

Late Frasnian Atrypida (Brachiopoda) from Poland and the Frasnian-Famennian biotic crisis

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Late Frasnian Atrypida (Brachiopoda) from the Holy Cross Mountains, Poland, include 15 taxa and were widely distributed in foreslope habitats of the declining Dyminy Reef complex. The *Palmatolepis semichatovae* transgression, followed by the transgressive/hypoxic Lower Kellwasser (KW) Event during the *Palmatolepis rhenana* Zone did not have catastrophic effects for atrypid faunas, but were rather associated with the appearance of a new species group comprising *Iowatrypa*, *Waiotrypa*, *Costatrypa*, *Spinatrypina*, *Desquamatia* and *Radiatrypa*. Stepdown demise of the biota started during the inter-KW regression, and culminated as a result of increasing stress during the Upper Kellwasser Event in the late *Palmatolepis linguiformis* Zone, mainly due to catastrophic sea level changes and anoxia, possibly linked to oceanic thermal changes (cooling) and nutrification pulses. The extinction pattern was diachronous and facies-controlled in this area, and the last atrypid survivors reached the Frasnian-Famennian (F-F) boundary. Increasing expansion from the adjacent deeper-water environment of the more resistant assemblages, with productids, cyrtospiriferids, athyridids and schizophoriids, occurred in the final crisis interval. This brachiopod fauna profusion characterized the earliest Famennian survival and early recovery phases of the mass extinction in this part of the Laurussian shelf, as well as the continuity of the deeper-water rhynchonellid-inarticulate biofacies across the F-F boundary. *Spinatrypina* (*Exatrypa*) *relicta* sp. n. is proposed as new.

Key words: Brachiopoda, Atrypida, taxonomy, biostratigraphy, palaeoecology, mass extinction, Kellwasser Crisis, Frasnian, Famennian, Devonian, Poland.

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