

## Distribution of latest Givetian-Frasnian Atrypida (Brachiopoda) in central and western North America

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*Acta Palaeontologica Polonica* 43 (2), 1998: 205-240

Diverse atrypid brachiopod faunas characterize very late Givetian-early Frasnian deposits of Devonian Transgressive-Regressive (T-R) cycle IIb in North America which feature species of *Desquamatia* (*Seratrypa*), *Desquamatia* (*Independatrypa*), *Pseudoatrypa*, *Radiatrypa*, *Spinatrypina* (*S.*), *S.* (*Exatrypa*), *Spinatrypa* (*S.*), *Davidsonia*, and possibly *Iowatrypa*. Middle Frasnian faunas are not well documented in much of North America. Middle Frasnian deposits of T-R cycle IIc in the Great Basin, Iowa, and the southern Northwest Territories and Mackenzie shelf feature species of *Neatrypa*, *Pseudoatrypa*, *Radiatrypa*, *D.* (*Seratrypa*), *Spinatrypa*, and possibly *Costatrypa*. *Radiatrypa* does not carry over into late Frasnian rocks of T-R cycle IId in North America. Genera common to late Frasnian deposits of T-R cycle IId-1 in central and western North America include widespread species of *Pseudoatrypa*, *Spinatrypa*, *Costatrypa*, *Iowatrypa*. *D.* (*Seratrypa*) and *Neatrypa* were restricted to the tropical platforms of western Canada at that time. Very late Frasnian brachiopod faunas of T-R cycle IId-2 yield species of *Pseudoatrypa*, *Spinatrypa*, *Iowatrypa*, and *Pseudoatrypa*? (southwest US only). Available data on Late Frasnian brachiopod records in North American subtropical platforms (New Mexico and Iowa) indicate that two successive stepped late Frasnian extinction events affected those faunas, coinciding with the Lower Kellwasser Event and the Frasnian-Famennian (F-F) Event. Over half of the atrypid genera represented in late Frasnian North American faunas survived the first wave of extinctions (Lower Kellwasser Event). The surviving species, recorded in very late Frasnian deposits of Devonian T-R cycle IId-2, became extinct during the final crisis associated with the F-F Event.

**Key words:** Brachiopoda, Atrypida, biostratigraphy, biogeography, mass-extinction, Kellwasser Crisis, Transgressive-Regressive cycles, Givetian, Frasnian, Devonian, North America.

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