

Evolution of the Goniatitaceae and Viséan. Namurian biogeography

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Evolutionary lineages within the Carboniferous ammonoid superfamily Goniatitaceae can be recognized using cladistic and stratophenetic analyses, showing that both approaches lead to coinciding results. In the late Viséan and Namurian A, ammonoid provinces can be defined by the distribution of lineages within the goniatite superfamily Goniatitaceae. The first province corresponds to the Subvariscan Realm (where the superfamily became extinct near the Viséan-Namurian boundary), and the second embraces the majority of the occurrences, e.g. the South Urals, Central Asia, and North America (where the superfamily with different independent lineages continued up into the late Namurian A). In the Viséan, the superfamily was, in two short epochs, globally distributed with major transgressions, which probably led to migration events. The first is at the end of the late Viséan-Namurian boundary), and *G. fimbriatus* and *G. spirifer* Zones, when the genus *Goniatites* had a world wide distribution with various species), and the second at the beginning of the late Viséan C (*L. poststriatum* Zone, when *Lusitanoceras* is globally distributed).

Key words: Ammonoidea, Goniatitaceae, Early Carboniferous, phylogeny, palaeobiogeography.

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