

# **No Cambrian ‘explosion’ and no Great Ordovician Biodiversification ‘event’ : evidence for a single long-term radiation in the early Palaeozoic**

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The Cambrian ‘Explosion,’ placed by many authors between -540 and 520 million years ago (Ma), is considered to be an abrupt appearance in the fossil record of most animal phyla, with an almost sudden increase of complexity of morphologies of diverse metazoan groups. In a few recent papers, the Great Ordovician Biodiversification ‘Event’ (GOBE) has similarly been restricted to a single dramatic biodiversification ‘event’ in the Darriwilian Stage of the Middle Ordovician Series, between -470 and 455 Ma, although historically it is considered as a sum of radiation ‘events’ constituting all together a large and complex increase of taxonomic diversity of marine invertebrates covering the entire Ordovician. A review of biodiversity curves of marine organisms during the early Palaeozoic Era, including some based on the Paleobiology Database (PBDB) and the Geobiodiversity Database (GBDB), point toward a single, large-scale, long-term early Palaeozoic radiation of life that started already in the late Precambrian. An abrupt ‘explosion’ of diversity in the Cambrian or a significant ‘event’ in the Ordovician are not visible in the biodiversity studies. It becomes evident that the datasets remain incomplete, in particular for many geographical areas and for several fossil groups, that are not covered by the PBDB and GBDB, also because such areas remain so far poorly or entirely unstudied. It can be concluded that some recently published biodiversity curves have to be considered with care, as the truly global diversity estimates of marine organisms during the early Palaeozoic remain inaccessible.

**Key-words** : Cambrian ‘explosion’, Great Ordovician Biodiversification ‘Event’, radiation, biodiversity, Paleobiology Database, Geobiodiversity Database

**Votre résumé doit tenir sur une page.**