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Mass extinctions, recovery and resilience

Cambrian extinctions

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The first Phanerozoic mass extinction happened soon after the beginning of the Cambrian Explosion. This extinction being coined the Sinsk Event occurred about 513 million years ago (Ma) and was ascribed to a global anoxia judging by facies analysis (Zhuravlev and Wood, 1996). By the gross, about a half of standing generic and species diversity was cut out. Despite a smaller scale by comparison with the infamous Big Five mass extinctions due to much less taxa existed then, its influence on the evolution of the biota was as severe as that of the Permian-Triassic catastrophe. The Sinsk Event reduced drastically a number of basal metazoan groups giving a pass to the radiation of more advanced taxa proliferated during the later Palaeozoic. These newly diversified groups were much less devastated by the extinction. A quantitative comparison of] ‘underdogs’ and ‘lucky beggars’ revealed that the latter were relatively widespread geographically and adopted to a larger spectrum of conditions.
Recent elemental and isotope data confirm a connection of the Sinsk Event with a global anoxia but, in addition, indicate general low oxic conditions in principal Cambrian marine basins accounted for a number of less pronounced extinctions triggered by frequent oxycline fluctuations. The effect of the Sinsk extinction could be amplificated by the eruption of the Kalkarindji continental flood basalts (512–498 Ma) and contemporary global warming due to a release of a significant carbon dioxide volume.