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Morphological changes in the Jurassic and Cretaceous radiolarians (Nassellaria) at different stratigraphic levels

Valentina Vishnevskaya

Russia, Geological Institute of the Russian Academy of Sciences, Moscow (valentina.vishnaa@mail.ru; valentina@ilran.ru)

Analysis of the geographic and stratigraphic distribution of the genera most famous in the Jurassic - Early Cretaceous family Parvicingulidae Pessagno, 1977 (Rhaetian-Barremian) radiolarians (Nassellaria), which consists of up to 200 species, 17 genera, showed that if high conical its representatives with belt-like cameras and apical horn (Parvicingula, Proparvicingula, Praeparvicingula, Atalantria, Canelonus, Elodium, Darvelus, Nitrader) come from the Pacific paleogeographic province (Vishnevskaya, 2011), and had occupied the Boreal and the Notal (Antarctic-related) regions, the other genera (Mirifusus, Ristola, Tethysetta, Caneta, Svinitzium, Pseudocrolanium, Wrangelium) had a preferential distribution in the Tethyan region and their occurrence associated with temperature optima - beginning of Sinemurian, Aalenian, late Kimmeridgian-Valanginian (Vishnevskaya, 2012), while the extinction coincided with the cooling at the end of the Aptian-Albian.

An archaic cyrtids appeared at the beginning of the Jurassic - family Bagotidae Pessagno et Whalen, 1982 (Hettangian-Tithonian), 9 genera, 6 of whom died in the early Toarcian and family Hsuidae Pessagno et Whalen, 1982 (Hettangian-Albian), 10 genera, 6 of which had arisen in the Pliensbachian and evolved rapidly due to a sharp increase in the number of segments, while the Middle Jurassic subspherical morphotypes extinct in the late Callovian. Family Archaeodictyomitridae Pessagno, 1977, 8 genera, which probably gave rise to the modern cyrtids appeared in Hettangian and died in the early Paleocene. The evolution of Cretaceous morphotypes took place due to increasing of the number of divisions.

Analysis of the stratigraphic distribution of the genera of cosmopolitan family Xitidae Pessagno, 1977 (Bajocian-Eocene) showed that it includes 13 genera, 11 of which appeared in the Cretaceous. The rapid evolution in the Cretaceous due to short-lived genera Foremanina Empson-Morin (Campanian), Novixitus Pessagno and Tuguriella O'Dogherty, De Wever, Gorican (Late Albian-Turonian) Schaafella Vishnevskaya (Albian-Cenomanian), Clavaxitus Dumitrica (Houterivian - Barremian) can be used as markers of various bioevents (anoxic etc.).

Of great interest is the analysis of changes in the morphology of xitoid wall. First xitoid structure appears in the long-lived genera Eoxitus Kozur(Bajocian-Aptian) and Xitus Pessagno (Bathonian-Maastrichtian), which is strictly maintained on all cameras. In the early Cretaceous group of subspherical forms arises: Pseudoxitus Wu et Pessagno (Berriasian-Barremian), Praexitus Dumitrica (Berriasian-Barremian), Neorelumbra Kiessling (Berriasian-Aptian) and Clavaxitus Dumitrica (Hauterivian-Barremian) where xitoid structure varied from coarse to fine that was probably related to adaptation to a dramatic deepening of the oceans at the Jurassic-Cretaceous boundary. The Cretaceous - Paleogene boundary only unxitoid Amphipyndacids survived.

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