THE CONODONT-GRAPTOLITE RADIATION IN THE MIDDLE ORDOVICIAN OF THE ARGENTINE PRECORDILLERA

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Newly documented conodont-graptolite faunas from Middle Ordovician strata of the Argentine Precordillera define the major peak of the Great Ordovician Radiation.

Late Ibexian conodont demise is well documented from Laurentian Midcontinent as well as Precordilleran environments. This event is followed by a radiation in the conodont faunas that inaugurates a new cycle in conodont evolution, with the appearance of complex apparatus structures and the diversification of lineages from the Balognathidae, Chirognathidae, Distacodontidae, Oistodontidae, Paracordylod-ontidae and Periodontidae. A similar pattern for the Phragmodontidae, Plectodinidae, Pygodontidae, and Strachanoganatidae follows the previous one in the late Middle Ordovician.

First registered graptolite radiation occurs at the beginning of the Middle Ordovician with the entrance and flourishing of the glossograptids and arienigraptids. The appearance of the first biserial graptolites (Undulograptus) near the base of the Darriwilian stage is followed by a remarkable abundance of dichograptids and sinograptids, which rapidly became extinguished. Above this level a great diversification of biserial graptolites, mainly diplograptids, dominates the faunas. Earliest dicranograptids slightly precede the entrance of the Caradoc fauna.

These significant evolutionary patterns are recorded throughout diachronous distal ramp facies to restricted deep water environments. The nature of these facies, controlled by regional tectonics and enhanced by intense influxes of volcanic ashes and by sea level fluctuations, were important external factors supporting the highest Ordovician radiation preserved in exceptional detail in the Precordillera.