GEOGRAPHICAL CLINE OF CONODONTS FROM THE CISURALIAN-GUADALUPIAN BOUNDARY INTERVAL

HENDERSON, CHARLES, M.1 and MEI, SHILONG1,2 1University of Calgary, Calgary, Alberta, Canada T2N 1N4, 2China University of Geosciences, Beijing 100083, China

Geographic clines are described for the Cisuralian/Guadalupian boundary interval which is marked by the first appearance of serration in Permian neogondolellids. During Kungurian and Guadalupian, neogondolellids from higher latitudes such as the Sverdrup Basin are represented by a large cusp, a low, narrow and frequently discrete posterior carina, a low and discrete anterior blade, and usually an elongate platform. In contrast, neogondolellids from equatorial areas such as South China and West Texas are characterized by a relatively small cusp, tightly spaced and relatively large posterior denticles, a high and strongly fused anterior blade, and a relatively short platform. Neogondolellids from mid-latitudes such as the Phosphoria Basin are intermediate in morphology, but closer to those from the Sverdrup Basin. Previously, Kungurian populations have been identified as Mesogondolella idahoensis and those of the Roadian as Jinogondolella nankingensis on the basis of platform outline. Differences in the cusp, carina, and blade should be recognized at the subspecies level since gradational morphotypes suggest gene flow across the entire region. However, with continued climatic change and corresponding development of conodont provincialism this gene flow was cut off and evolution of these subpopulations proceeded along very different paths. The Kungurian/Roadian boundary is marked by a chronomorphocline from Mesogondolella idahoensis lamberti subsp. nov. to Jinogondolella nankingensis nankingensis (Ching) in equatorial areas. Mid to high latitudes is represented by a lineage from Mesogondolella idahoensis idahoensis (Youngquist, Hawley and Miller) to Jinogondolella nankingensis gracilis (Clark and Ethington), but in the Sverdrup Basin this lineage terminates quickly and only Mesogondolella is characteristic of younger Permian.