The Lopingian Series: an international standard for the Upper Permian

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The upper Permian used to be referred to the Tatarian in the traditional standard succession. Its type section is terrestrial and thus, is not suitable for defining the boundary stratotype for the series and its component stages. As a substitute, the Lopingian Series was officially approved as the standard for the upper series of Permian chronostratigraphic subdivisions because complete fossiferous marine sequences have been established in South China.

The bases of the *Clarkina postbitteri* and *C. dukouensis* zones were proposed as potential levels for the Guadalupian-Lopingian boundary. The first appearance of *C. postbitteri* marks the turning-point of conodont development from *Jinogondolella* of the Guadalupian to *Clarkina* of the Lopingian, and the end-Guadalupian benthic extinction level. It closes to the boundary surface between the Middle and the Upper Absaroka Megasequences. This boundary can be precisely delineated in a conformable sequence and also, can be traced in different lithofacies by recognition of either the major sequence boundary or a remarkable faunal changeover. *C. dukouensis* is a transitional form between *C. postbitteri* and more advanced Wuchiapingian conodonts. The development of *C. dukouensis* can be enrolled as a datum within an evolutionary cline of *Clarkina*. It is more widespread than *C. postbitteri*. Nevertheless, the base of the *C. dukouensis* zone does not correspond to any major event in global biological or environmental change, and thus, it alone is not sufficient for the inter-regional correlation of the Guadalupian-Lopingian boundary sequences.

This series is subdivided into the Wuchiapingian and Changhsingian Stage, each of which contains two substages. With assistance from an integrated sequence of magnetic polarity zones, isotopic age data and sequence stratigraphy, a tentative correlation of Lopingian deposits in major basins of the world is presented.