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## Joint 70th Rocky Mountain Annual Section / 114th Cordilleran Annual Section Meeting - 2018

Paper No. 52-3

Presentation Time: 4:15 PM

### MID-MISSISSIPPIAN CONODONT FAUNAS DOCUMENT DEPOSITIONALLY UNBROKEN CONNECTION BETWEEN NORTHWEST SONORA AND THE U.S. MIDCONTINENT

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During Osagean to early Meramecian time, carbonate-platform sediments were deposited in an epicontinental sea bordering the east side of the Transcontinental Arch. This highland, forming an archipelago from Wisconsin to the northwest corner of Sonora, permitted some conodont taxa to migrate through straits to the western U.S. Initially, we were impressed by sparse occurrences in three localities east of the arch and two localities on its west side of a new species of **Bispathodus**, common in Sonoran conodont faunas. Subsequently, we recognized that most Sonoran localities yielded faunas that not only were near identical to those of the Midcontinent, but also were represented by the same morphotypes of taxa. Prime examples of this resemblance are shallow-water taxa such as **Taphrognathus varians** and **Polygnathus purus**, its descendant **Polygnathus carina**, and its ancestor **Polygnathus communis**. Other important faunal constituents are **Doliognathus latus**, **Dolymae hassi**, **Eotaphrus burlingtonensis**, and **Gnathodus cuneiformis**. The greatest faunal similarity is between the Cerro Tasajo Limestone at Mavíro Canyon in the Sonoran allochthon and downslope deposits around Waulsortian mudmounds in the Sacramento Mountains, New Mexico. Based on Sonoran occurrences we have constructed a new mid-Mississippian conodont biofacies model, which updates the 1984 Sandberg and Gutschick model and is applicable to both Sonora and the U.S.

The continuity of mid-Mississippian rocks and conodont faunas between Sonora and the U.S. Midcontinent provides additional compelling evidence against the existence of a post-Precambrian left-lateral megashear supposedly transporting rocks from southern California to northern Sonora.

Session No. 52

[T20. Biostratigraphy and Paleoenvironments of Western North America: Correlations across the International Border](#)

Wednesday, 16 May 2018: 3:30 PM-5:15 PM

Canyon Room (DoubleTree by Hilton)

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