

## **A Test of a Tectonic Reconstruction of Southern Nevada using Pb Isotopes**

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The central Basin and Range Province of southern Nevada and adjacent California has been influential in the development of ideas about crustal extension, and particularly how extreme extension may be accommodated by faulting, magmatism and lower crustal flow. Key piercing points (formerly contiguous features) used in the estimation of extension in the eastern part of this region are middle Miocene (16 Ma) avalanche breccias containing outsize blocks of 1.4 Ga Rapakivi granite (Frenchman Mountain) and intact outcrop of very similar granite at Gold Butte 65 km to the east-northeast. The character of the breccias has been used to infer an original location close to Gold Butte, with tectonic transport of  $65 \pm 15$  km since 16 Ma accounting for the present location of the deposits (McQuarrie and Wernicke, 2005). We examined the lead isotope geochemistry of feldspar crystals obtained from samples from both locations as a test of the hypothesis. The data are remarkably consistent, particularly compared with the scatter of published data within the region. The result is surprising because independent structural and geochronological data cast doubt on the viability of the Rapakivi granite match. More work will be required to obtain a final answer.

McQuarrie, N., and Wernicke, B.P., 2005, An animated tectonic reconstruction of southwestern North America since 36 Ma: *Geosphere*, v. 1, p. 147-172.