

COMPARISON OF RED SANDSTONE CLASTS IN THE BALD EAGLE
FORMATION TO THE OVERLYING RED JUNIATA SANDSTONE
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Field stratigraphy points out a paradox in two Upper Ordovician formations of the Taconic clastic wedge, the Bald Eagle Formation and the overlying red Juniata Sandstone: red sandstone clasts in the older Bald Eagle conglomerate appear superficially similar to the sandstone of the younger Juniata Sandstone. However, since there is no red sandstone stratigraphically below the Bald Eagle, the source of the Bald Eagle red sandstone clasts (BERCs) is enigmatic. We compared the petrography of BERCs with Juniata sandstones in order to gain insight into the genesis and provenance of each. The BERCs contain more undulatory- than nonundulatory quartz, a relatively large proportion (>12%) of polycrystalline quartz with >3 crystals, a small percentage of slate and chert lithics, as well as a high percentage of mudstone lithics. The Juniata Sandstone has a nonundulatory to undulatory quartz ratio of 2:1, a relatively small proportion (<6%) of polycrystalline quartz with >3 crystals, a relatively high percentage of slate and chert lithics, as well as a lower proportion of mudstone lithics. Texturally, the Juniata Sandstone typically contains more rounded sand grains than do the BERCs. Although both the BERCs and Juniata sandstone plot as recycled orogen provenance, the Juniata clearly is "more recycled." Additionally, the relatively high percentage of nonundulatory quartz may suggest a more distal source. Alternately, the BERCs record deposition in a more eastern (proximal?) sedimentary basin that was uplifted and completely eroded during the Late Ordovician. However, recycling alone does not account for the increase in slate and chert lithics in the Juniata Sandstone. By the time of Juniata deposition, the Taconic allocthon (Hamburg Klippe, the primary source of slate and chert) had become a sedimentary source for the Pennsylvania portion of the Appalachian basin.

GSA Northeastern Section - 36th Annual Meeting (March 12-14, 2001)
Session No. 39
Structural Geology and Tectonics
Sheraton Burlington: Emerald Salon I
8:30 AM-12:15 PM, Wednesday, March 14, 2001