

TRIASSIC (?) OLIVINE DIABASE DIKES IN EASTERN NEW ENGLAND AND ATLANTIC CANADA

McHONE, J. Gregory, Department of Geological Sciences,
University of Kentucky, Lexington, KY 40506-0059

Post-metamorphic olivine diabase dikes occur across much of coastal New England (CNE groups) and in portions of Atlantic Canada (AC groups). K-Ar dates and an association with the Agamenticus complex in Maine indicate circa Early to Middle Triassic ages. Subophitic to granular textures show variable alteration effects, commonly with pink augite, serpentinized olivine, and cloudy plagioclase.

Most examples are marginally subalkalic to transitional-alkalic, with high Ti and K, and low Si relative to Early Jurassic quartz tholeiitic dikes in the region. CNE dikes near Seabrook, N.H. are particularly rich in Mg, Cr, and Ni. Dikes in Rhode Island are chemically intermediate between Jurassic tholeiites and CNE dikes to the north. AC basalts at Prince Edward Island and Northumberland Strait form their own compositional groups.

CNE and AC dikes may show where localized continental rifting preceded the widespread North Atlantic opening events. If so, other pre-Jurassic tectonic features may be correlated with the magmatism.