

# **SEISMIC DATA INDICATE A MAJOR DECOLLEMENT UNDERLIES THE VALLEY AND RIDGE PROVINCE**

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Widely separated regional seismic lines in the Appalachian Valley and Ridge province illustrate that the region is characterized by thin-skinned tectonics. Where studied, the physiographic boundary between the Valley and Ridge and the Plateau province to the west approximates a zone where a regional décollement cuts up-section from a basal detachment in presumably Cambrian shales, through Cambro-Ordovician carbonates, and into higher detachment utilizing shales in an upper Ordovician-Devonian clastic sequence. At

its eastern boundary with the Blue Ridge province, Precambrian basement is involved in the deformation. North of Roanoke, field relations and seismic data indicate that Precambrian-Cambrian basement is thrust westward a minimum of fifteen miles over younger strata. Whereas dominant sense of yielding in the Valley and Ridge province is to the west, seismic data indicate the presence of numerous minor, east-yielding "back thrusts." These typically flatten up-section and apparently dissipate into bedding planes.