

Merguerian, Charles; and Sanders, J. E., 1991a, Variations in style of Paleozoic fold-fault deformation in the southern New England Appalachian foreland of New York and New Jersey - a case for basement control of structures.

Studies of stratigraphy and structure in the Appalachian foreland fold-thrust belt and internal massifs of southern New England indicate contrasting styles of Paleozoic deformation. The oldest of these, the Taconic orogeny of Medial Ordovician age, produced continent-vergent recumbent folding, dominantly low-angle ductile thrust faulting, with significant basement involvement along shallow east-dipping surfaces as shown in the Taconic range and within the Proterozoic basement massifs to the east. The Middle Devonian Acadian orogeny produced layer-parallel, low-angle thrusts, upright to overturned folds as well as high-angle reverse faults as shown at Becraft Mountain and in the Rosendale-Tillson area, N.Y. Younger, high-angle reverse faulting, continentward overturned folds with fault-truncated limbs, and local SE-vergent overthrusts and folds are evidently the result of the Late Paleozoic terminal phase of the Appalachian orogeny as indicated by post-"old Red" molasse facies layer-parallel faults, folds, and high-angle reverse faults in the Catskills, Bellvale Mountain, and High Falls, N.Y. and possibly in Newfoundland, N.J. We propose that contrasting styles in Paleozoic cover rocks may have been produced during reactivation of Proterozoic basement along low-angle faults or high-angle ramps during protracted Paleozoic orogeny. We suggest that significant continentward overthrusting of Proterozoic basement has occurred throughout the Paleozoic and has resulted in the contrast between Proterozoic X sequences found in the external Franklin-Sparta carbonate belt versus the internal Pochuck-Hudson-Fordham-Berkshire volcano-plutonic belt.

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