

Merguerian, Charles, 1985e, Diachroneity of deep-seated vs. supracrustal deformation in both the Appalachian Taconic and Cordilleran Antler orogenic belts.

The medial Ordovician Taconic and Late Devonian - Early Mississippian Antler orogens were produced by collisions between passive continental margins and fringing oceanic volcanic arcs. Both orogens are characterized by large-scale continental emplacement of dominantly eugeosynclinal sequences known as the Taconic and Roberts Mountains allochthons, respectively. Structurally, they form imbricate thrust sheets of strata whose time-stratigraphic correlatives now occur on their oceanward side in eroded, highly-deformed metamorphic zones.

Field studies of lower Paleozoic metamorphic tectonites in western Connecticut and the foothills metamorphic belt of California have established structural sequences which are reasonably well-bracketed in time by cross-cutting intrusives. Available age data from these widely separated areas indicate that the compressive ductile deformation in the igneous and metamorphic root zones of these orogens leads the supracrustal emplacement of the thrust sheets by a minimum of 20 m.y. The polydeformed internal massifs presumably mark the deep levels of continentward-facing accretionary complexes within which deep subduction and deformation of oceanic deposits preceded collision of their respective volcanic arc terranes. Final docking of the arcs resulted in cratonward thrusting (\pm decollement?) of the shallow levels of their subduction complexes. Such upward-younging migration of the deformational front yields a geometrically predictable vertical pattern of diachroneity within subduction complexes in orogens of similar polarity.

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