TECTONIC HISTORY OF THE ROWLAND QUADRANGLE, NORTHERN ELKO COUNTY, NEVADA

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The major rock units exposed in the Rowland quadrangle are lower Cambrian (?) quartzites, probable mid-Paleozoic argillaceous and calcareous formations grouped into an eastern and a western facies, an upper Pennsylvanian limestone with a thick basal conglomerate member, two granitoid stocks tentatively dated as upper Cretaceous, and andesitic and rhyolitic tuffs and flows extruded during the mid-Tertiary.

Three periods of orogeny are recognized. The first is dated as late Mississippian to early Pennsylvanian. The Pennsylvanian conglomerate and limestone lay unconformably on units of the eastern and western facies. The available evidence is not conclusive, but it does suggest that thrusting, correlated with that in central Nevada, brought the two facies into juxtaposition.

A second orogenic period is dated as late Mesozoic to early Cenozoic. Deformation included thrusting of the Pennsylvanian limestone, large-scale folding and faulting, emplacement of the stocks mainly by the forcible intrusion of fluid magma, and continued faulting with the development of a tear fault which separates the quadrangle into two structural blocks. Also associated with this period is the development of a major east-west structural trend along the Nevada-Idaho border.

A third orogenic period during the mid-Tertiary consisted of two types of deformation, Basin and Range block faulting and Snake River Plain downwarping. The southern limit of the Snake River downwarp coincides with the east-west trend developed in the preceding orogenic period.