

Outline of the Grenville Province in Labrador

Toby Rivers

Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland, A1B 3X5

The Grenville Province is composed of a large number of lithotectonic terranes that behave as coherent units during the Grenvillian Orogeny. These terranes can be grouped into longitudinal belts on the basis of their tectonic position in the Grenville orogen. Both terranes and belts are typically bounded by faults, most of which are gently-dipping ductile mylonite zones that can be inferred to have had a northwest-directed contractional sense of movement.

In Labrador and adjacent eastern Quebec, the tectonic foreland to the Grenville orogen is composed of units that vary in age from Archean to Middle Proterozoic. South of the Grenville Front, reworked extensions of these units comprise the Parautochthonous Belt of the Grenville orogen, which is also characterized by relatively HP-LT Grenvillian metamorphism and the absence of significant Grenvillian magmatism.

Tectonically overlying the Parautochthonous Belt along the Allochthon Boundary Thrust are terranes of the Allochthonous

Polycyclic and Monocyclic belts. In Labrador the former is principally composed of high grade migmatitic gneiss terranes and plutonic complexes, including anorthosite-mangerite suites, all of which were variably affected by the Grenvillian Orogeny. In eastern Quebec, the Allochthonous Monocyclic Belt consists of the continentally-derived Wakeham Supergroup that was metamorphosed to greenschist facies during the Grenvillian Orogeny and achieved its present location as a result of southeast-directed extensional faulting. Both the Allochthonous Polycyclic and Monocyclic belts were cut by high-level Grenvillian granitoid plutons, that were emplaced through the assembled thrust stack.

The timing of Grenvillian metamorphism is not yet well known throughout the region, but may have spanned a period of more than 200 m.y. as terrane assembly took place across the orogen.