

Avalonian volcanic rocks of Nova Scotia

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The nature of Late Precambrian volcanic rocks in the Avalon Composite Terrane in Nova Scotia varies from one terrane to another: (I) In the Cape Breton Terrane, calc-alkaline basalts, andesites, rhyolites and pyroclastics characteristic of a cratonic volcanic arc are prevalent (Fourchu and Keppoch Formations) (II) In the Antigonish Terrane, tholeiitic basalts (Chisholm Brook Formation) and oceanic island alkali basalts (Clydesdale Formation) occur in an interarc basin.

During transpression immediately following the accretion of these terranes into the Avalon Composite Terrane, bimodal alkali and tholeiitic,

within-plate Cambrian volcanism occurred in small pull-apart rifts. Volcanism next occurred at the beginning of the Silurian with the eruption of bimodal, within-plate continental tholeiitic lavas associated with the minor rifting event preceding the Silurian transgression. Mid-late Devonian and earliest Carboniferous volcanism in the Avalon Composite Terrane is typically bimodal, alkali and tholeiitic, within-plate, and continental and formed in response to the rifting associated with the pull-apart Magdalen Basin produced during the Acadian Transpression Stage.