

**New  $^{40}\text{Ar}/^{39}\text{Ar}$  ages of gneissic, greenschist and contact metamorphisms in the eastern Creignish Hills,  
Cape Breton Island, Nova Scotia**

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The eastern Creignish Hills contain portions of the two types of metamorphic rock that are typical of the Bras d'Or Terrane: low-grade dominantly clastic metawackes and low-pressure gneiss. The low-grade metamorphic rocks are part of the Blues

Brook Formation, and are composed mainly of phyllites and impure metawackes although small amounts of greenstone, quartzite and marble also occur. The majority of the unit is in the chlorite grade of regional metamorphism and detrital textures are preserved.  $^{40}\text{Ar}/^{39}\text{Ar}$  dating of detrital muscovite in two samples from the lowest grade areas has yielded plateau ages of  $625 \pm 5$  Ma, older than all other dated units in the Bras d'Or Terrane. Authigenic muscovite in the Blues Brook Formation has yielded a preliminary age of  $524 \pm 5$  Ma, equivalent to an inferred metamorphic age from the Kathy Road Dioritic Suite in the northern part of the terrane.

Metamorphic grade increases to the southwest, toward the contact with the Creignish Hills Pluton, a compound pluton of

presumed late Hadrynian diorite and Early Ordovician granite. Biotite from near the contact yielded a preliminary age of  $475 \pm 5$  Ma, which may reflect thermal resetting by the granitic phase.

The low-pressure gneiss has been termed the Skye Mountain Gneiss and is similar compositionally and in metamorphic grade to other gneissic components of the Bras d'Or metamorphic suite, with cordierite-andalusite  $\pm$  sillimanite assemblages in pelitic rocks. Two plateau ages were obtained from metamorphic muscovite at 485 and  $461 \pm 5$  Ma. The former is close to ages obtained from the Kellys Mountain Gneiss, and corroborates the widespread effects of Early Ordovician thermal resetting in much of the terrane.