

The Bateman Brook Metamorphic Suite at the Aspy/Bras d'Or terrane boundary in the Cape Breton Highlands: intermixed mylonitized blocks of other units?

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The Bateman Brook Metamorphic Suite is the westernmost unit of the Bras d'Or Terrane in the central Cape Breton Highlands. It outcrops along the Eastern Highlands Shear Zone--the contact between the Bras d'Or Terrane and the Aspy Terrane to the northwest. The Bateman Brook Suite is enigmatic and has been described as mixed quartzofeldspathic and amphibolite gneiss. The nature of its contacts with the adjacent units are not clear but appear to be mainly faulted.

The Bateman Brook Metamorphic Suite includes semipelitic schist, mafic and felsic volcanic rocks, foliated mafic gneiss similar to the adjacent Kath Road Dioritic Suite, and hornblendite. It may be a melange of blocks of other units in the area, though it includes some lithologies (e.g., mafic gneiss) unrecognized in other units. Almost all the lithologies are strongly

foliated. The foliation in many of the samples is interpreted to be mylonitic and is variably annealed. Some samples show classical mylonitic C-S fabrics, porphyroclasts, ribbon grains and polygonized quartz. Completely annealed samples are recognizable as blastomylonites in hand sample only, either as narrow shear zones of finer grained material in the host lithology, or from macroscopic textures not discernable in thin section. These features indicate that mylonitization, possibly due to movement on the Eastern Highlands Shear Zone, continued over a wide range of P-T conditions and/or over a long period of time.

Understanding the origin of the Bateman Brook Metamorphic Suite is critical to the interpretation of the tectonic relationship of the Bras d'Or and Aspy terranes. It is also of economic importance as it is host to a number of important gold showings.