

**Petrology and geochemistry of the Indian Brook and Birch Plain plutons  
in the southeastern Cape Breton Highlands, Nova Scotia**

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The southeastern Cape Breton Highlands are dominated by Late Precambrian plutonic rocks ranging from dioritic to granitic in composition. Previously, the petrology of the more mafic plutons had been studied in detail, but the more felsic plutons had received only reconnaissance petrological study. Hence this research was undertaken in order to provide detailed information about the two largest such plutons, the Indian Brook Granodiorite and Birch Plain Granite, based on a collection of about 200 samples from the plutons.

The plutons have similarities in grain size and texture but the Indian Brook Granodiorite contains both hornblende and biotite, in contrast to the Birch Plain Granite which contains only biotite. Other minerals are plagioclase, perthitic

microcline, quartz, and abundant accessory phases including magnetite, titanite, allanite, zircon, and apatite. The contact relationships between these two elongate plutons are not clear, but the presence of xenoliths of the Birch Plain Granite within the Indian Brook Granodiorite indicates that the Birch Plain Granite is older. Based on texture, both plutons were intruded at relatively shallow crustal levels, and likely during the same general episode of igneous activity related to a continental margin subduction zone. More detailed interpretations of depth of emplacement and petrogenesis will be based on studies of mineral compositions and whole-rock geochemical data now in progress.