

granodiorite, and smaller alkali feldspar granite and syenogranite bodies, collectively named the Eden Lake plutonic suite, and a large body of alkali feldspar granite, syenogranite, and diorite named the Sandy Gunns Lake pluton. Geochemical data show these rocks to be calc-alkaline and formed in a subduction zone setting. An alkali-feldspar granite sample from Sandy Gunns Lake pluton yielded a U-Pb (zircon) upper intercept age of 605 ± 10 Ma, consistent with U-Pb (zircon) ages from some petrologically similar plutons elsewhere in the Antigonish Highlands and in the Cape Porcupine Complex at the Strait of Canso. In contrast, suite B consists of varying proportions of granitic, syenitic, and monzogabbroic rocks, present in separate bodies named in this study the West Barneys River, McGraths Mountain, Leadbetter Road and Brora Lake plutons. An additional pluton (Haggarts Lake), previously mapped as Neoproterozoic diorite, is also of syenitic composition and part of this suite. Also introduced in this study is the hybrid zone, an area of mingling of all of the suite B lithologies. The granitic and syenitic rocks in suite B are hypersolvus and in some cases show interstitial granophyric texture indicative of shallow emplacement. The syenitic rocks in the Brora and Haggarts Lake plutons contain aegirine, riebeckite, and in some samples fayalite, indicative of peralkaline composition. Geochemical data confirm that most of the felsic and intermediate samples are peralkaline and have high concentrations of K, Na, P, Ti and Fe. Discrimination diagrams indicate a within-plate setting for these plutons. A syenitic sample from the Brora Lake pluton yielded a U-Pb (zircon) age of 469.4 ± 0.5 Ma. The recognition of the widespread occurrence of Ordovician peralkaline plutonic rocks is important, as such rocks of that age are not known elsewhere in Avalonia.

Field relationships, petrology, age, and tectonic setting of previously inferred Devonian-Carboniferous granitic plutons in the Antigonish Highlands, Nova Scotia

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Small plutons of previously inferred Devonian-Carboniferous age are scattered through the southern part of the Antigonish Highlands. Based on new field mapping, petrological studies, and U-Pb dating, these plutons have been divided into two unrelated suites, neither of which is Devonian or Carboniferous. Suite A consists of quartz diorite, tonalite-