

**Devonian - Carboniferous volcanic and gabbroic rocks
in Guysborough County and Cape Breton Island, Nova Scotia**

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On-going studies of Devonian to Carboniferous volcanic and associated sedimentary and gabbroic rocks in the Guysborough area of northern mainland Nova Scotia and in central and southern Cape Breton Island are leading to better understanding of their distribution and age, and hence (ultimately) their regional significance. In Guysborough County, basalt and minor rhyolite of the Sunnyville Formation are overlain conformably(?) by red conglomerate and sandstone of the Glenkeen Formation, and quartz wacke and siltstone members of the Clam Harbour River Formation. A mid-Devonian age for these units is indicated by a U-Pb (zircon) date of 389 ± 2 Ma from rhyolite in the Sunnyville Formation. In contrast, a rhyolite flow located near the top of the Fisset Brook Formation in the Gillanders Mountain area east of Lake Ainslie in Cape Breton Island has yielded a U-Pb (zircon) age of *ca.* 375 Ma, indicating that the Fisset Brook Formation (at least in that area)

is of mid- to late Devonian age, and hence significantly younger than the Sunnyville Formation. In contrast to these Devonian volcanic rocks, the St. Peters Canal gabbro has yielded an early Carboniferous U-Pb (zircon and baddeleyite) age of 339 ± 2 Ma. This work resolves long-standing uncertainty about the age of the St. Peters gabbros, previous interpretations of which ranged from Precambrian to Mesozoic. Similar gabbros in the Creignish Hills and Guysborough areas may also be of Carboniferous age. All of these igneous units have petrological features consistent with origin in a within-plate continental extensional setting.

Re-mapping of the McAdam Lake Formation in the Boisdale Peninsula shows that, contrary to previous reports, the formation lacks volcanic rocks, but has been intruded by rare fine-grained hornblende-bearing lamproite (spessartite) dykes and sills of uncertain age.