
**Petrology and tectonic setting of the Wedgeport Pluton,
southwestern Nova Scotia**

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The Wedgeport Pluton outcrops approximately 10 km southeast of Yarmouth in southwestern Nova Scotia. Recent 1:10 000 scale bedrock mapping related to the Southwest Nova Mapping Project has better defined the contact relations and extent of this intrusion. Previous work had focused on the economic potential of the granite, and no systematic study had been completed on the

petrography and tectonic setting of the pluton. This work is being undertaken as a B.Sc. Honours Project at Acadia University.

The Wedgeport Pluton is mainly medium- to coarse-grained, grey, equigranular biotite monzogranite. Locally the pluton contains biotite-rich granodioritic enclaves, and pink coarse-grained granitic porphyry. The pluton commonly displays convolute compositional banding, possibly related to magmatic flow contacts with the country rock. In the biotite monzogranite, subhedral plagioclase is typically slightly- to heavily altered to sericite, and biotite is partially altered to chlorite. Microcline has characteristic cross-hatched twinning and shows perthitic texture. Quartz displays varying degrees of undulatory extinction. Based on petrographic characteristics the pluton can be divided into two units; a garnet-rich monzogranite in the northwestern portion of the intrusion, and a garnet-poor unit that comprises the remainder of the pluton. All units in the Wedgeport Pluton contain abundant accessory minerals, including titanite and zircon. Epidote is also abundant, but of uncertain origin.

The Wedgeport Pluton is poorly exposed inland due to thick glacial till deposits and large salt marshes, although some outcrops occur in the bottom of gravel pits. Most of the outcrop is exposed on the coast or in drill core extracted by Shell in the 1970s. The Wedgeport Pluton intruded the Cambrian to Lower Ordovician metasedimentary rocks of the Goldenville Formation of the Meguma Group. Along the west side of Pinkneys Point, an intrusive contact is exposed and is typically parallel to bedding in metasandstone of the Goldenville Formation. The intrusion formed a narrow contact metamorphic aureole consisting of garnet-bearing hornfels. Other contacts are not exposed, although the location of the eastern margin of the pluton is inferred by the presence of small granitic dykes, presumably related to the pluton, in the Goldenville Formation.

East-west trending fractures and shear zones in the Wedgeport Pluton typically contain tin mineralization and in the past have been explored for their economic potential. Aplitic and pegmatitic dykes are visible in outcrop, and mafic dykes can be seen in drill core.

Mineral analyses by electron microprobe and whole-rock geochemistry (major, trace and rare earth elements) are in progress and should help to determine the tectonic setting and origin of the Wedgeport Pluton.