# From the Mineral Inventory Files

## Nova Scotia's 1540 Year Old Mine

I recently visited the fascinating Davidson Cove chert-chalcedony occurrence at Scots Bay, Kings County (Fig. 1). The Davidson Cove site has a storied past. It has been known for decades as a prime location for collecting chert, chalcedony, agate and jasper, but its pre-European history is what is most fascinating. Davidson Cove is a registered archeological site and an important location to Nova Scotia's native Mi'kmaw people.

During the late Triassic, some 200 million years ago, Nova Scotia experienced a period of tremendous volcanism along regional rift zones of the Cobequid-Chedabucto Fault Zone. This resulted in extrusion of a voluminous flood of basaltic lava, the remnants of which form the North Mountain (Fig. 1). In the area of Scots Bay, immediately following the volcanism a warm, shallow lake formed on the basalt where lacustrine limestone and sediments were deposited, which ultimately became the Scots Bay Formation. This formation is rare in outcrop but, where exposed, beds and cigar-shaped nodules of chert, chalcedony, agate and jasper lie within 2-3 m of its basal contact. These silicious zones were formed by diagenetic replacement of the limestone, but they also occur as discrete veins and pods both within the sediments and in the underlying basalt (Fig. 2). The most likely driving forces for the formation of the deposits were the tremendous amounts of heat and silicious fluids escaping from the underlying, cooling mass of lava.

The Davidson Cove beds were a major source of materials that were fashioned into tools and weapons for centuries before the arrival of Europeans. Many of the 4,600 lithic artifacts from the Mi'kmawey Debert archeology collection, which will be displayed at the Confederacy of Mainland Mi'kmaq's Mi'kmawey Debert Cultural Centre, scheduled to be built in 2012, were quarried at Davidson Cove. Artifacts from Davidson Cove have also been found in many other sites along routes typically

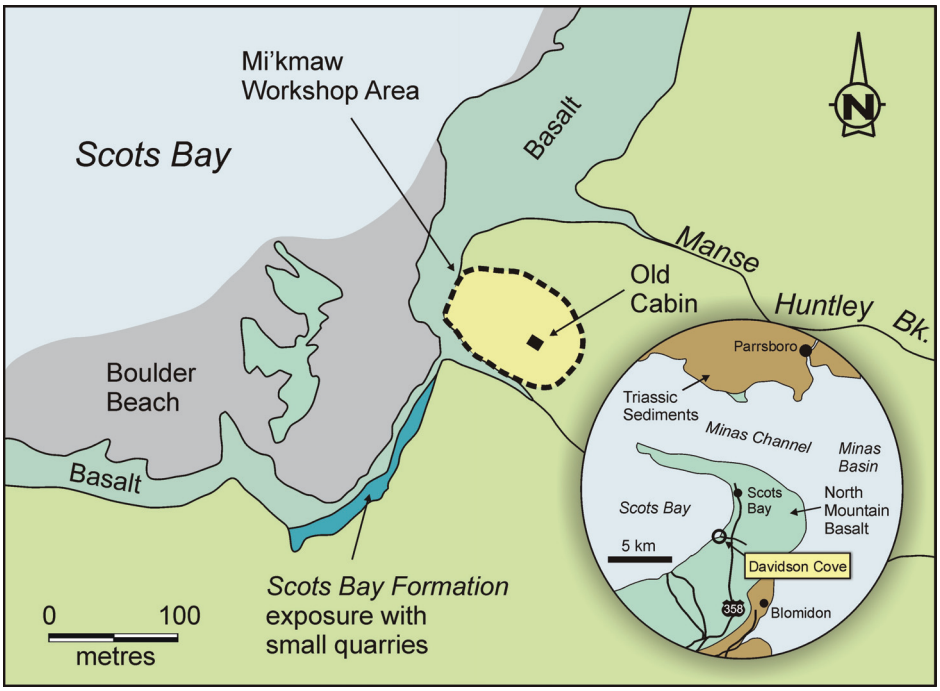


***Figure 1**. Map of Davidson Cove, Kings County, showing the location of components of the registered archeological site.*

travelled by the Mi'kmaq: Bear River, Mersey River, Lake Rossignol, Weymouth and Shubenacadie. The historical significance of the site was not formalized until 1988, following a study by Dr. M. Deal (http://www.ucs.mun.ca/~mdeal/Anth3291/DavidsonCove.htm) who, as part of this study, dated charcoal from the workings at 1540±110 years B.P.

When I stepped back to view the site I realized that even though the workings predate by over a thousand years any mine constructed by Europeans, what was before me had all the components of a mining operation. To the right were the beds of chert, chalcedony and agate (the ore deposit). A few tens of metres to the left was the main workshop area where the materials quarried from the cliffs were cobbed and worked into tools (the mine's mill). The workshop area, above tide and beside a freshwater stream, likely served as the living area for the workers (the bunkhouse). Strewn about below and beside the workshop is a rather substantial layer of flakes and chips of material that were either sub-quality or were fragments hacked from larger pieces (waste rock piles and tailings). The site is clearly a former mining operation, with the distinction that this one is over 1500 years old!

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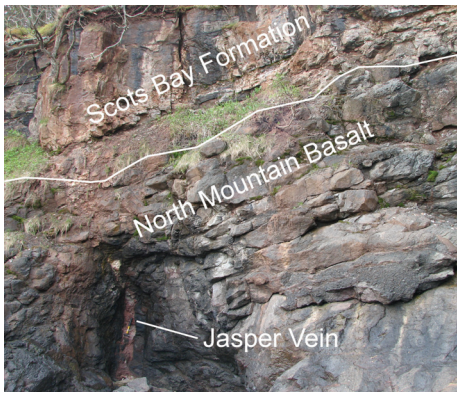


***Figure 2**. Part of the Davidson Cove section showing a small quarry on a jasper vein.*