

Nova Scotia zeolites: mineral oddity or mineral commodity?

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The Jurassic basalts of the North Mountain, Nova Scotia, are host to unique zeolite deposits. Recent exploration suggests commercial quantities of zeolite are present in a number of locations, giving Nova Scotia an opportunity to become a commercial producer for the large east coast markets of North America. Zeolites were first discovered in the early 1600s during the settlement of Port Royal. F. Alger published the first paper discussing the mineralogy of the North Mountain in 1827. Geological investigations flourished during the 1800s and into the middle of the next century. The village of Morden, located on the northern shore of the North Mountain, is the type location for the zeolite mordenite that was discovered in 1881. In the 1920s, the Deputy Minister of Mines, an avid rock collector in the Bay of Fundy region, decided that the zeolite mineral stilbite should become the provincial mineral for Nova Scotia and has remained to the present day. Research has been sporadic for the last 70 years, with the focus mainly on

the basalts hosting a mineral oddity rather than a commodity. The goal of recent investigations on the North Mountain is to make the leap from mineral oddity to mineral commodity.

The demand for zeolite continues to expand with the increasing need for environmentally friendly materials. Technology has advanced to the point where extraction of zeolite from basalt is not only possible but also highly effective. Zeolites are currently used in a broad base of industries which include; purification of waste water streams for mining and industrial operations, radioactive water containment systems, as a gas absorbent and catalyst, in ion exchange processes as well as in agricultural and animal nutrition products. The most common zeolites found on the North Mountain are stilbite, heulandite and clinoptilolite. Laumontite, chabazite, gmelinite, mordenite, analcite and the natrolite family of zeolites are less common in this region.