From the Mineral Inventory Files

Fault-controlled Zinc Mineralization at Kirkmount and Georgeville

There are several zinc prospects in the Antigonish Highlands which quite possibly owe their genesis to movements on the regional Hollow Fault. Among these are the Kirkmount Zn-Ag prospect, located a few kilometres southeast of Stellarton, and several sites in the Georgeville area near Cape George (see map). These prospects share some important similarities in host rock and mineralization style.

Veins and veinlets of the Zn-silicate willemite (Zn_2SiO_4) were discovered in the Kirkmount area by St. Joseph Explorations Ltd. in 1980. This exploration was a follow up to stream sediment Zn anomalies reported in that area during a 1977 Department of Mines regional survey. A follow-up soil sediment survey by St. Joseph indicated a large Zn anomaly and one of its two diamond-drill holes intersected calcite and calcite-willemite stringer zones in a sheared and faulted sequence of late Precambrian metawacke and argillite. St. Joseph also recognized the local presence of native Ag in outcrops and boulders containing calcite veins.

Willemite is a relatively rare mineral and only a few places in the world host bodies of mineable size. Most notable are the Sterling Hill and Franklin deposits of New Jersey. Mining ceased there in the mid-1980s, but they remain world-class mineral collecting sites for willemite, which is noted for its characteristic brilliant green fluorescence in ultraviolet light.

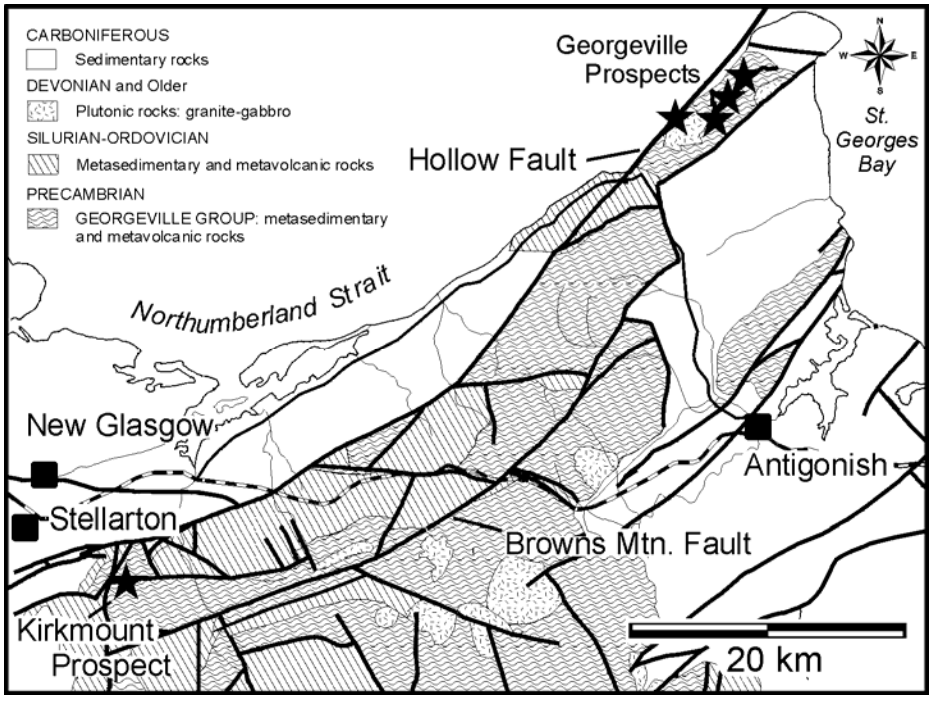
Falconbridge Ltd. explored Kirkmount from 1985-1987 and its seven diamond-drill holes re-affirmed the St. Joseph findings and defined a fault-controlled, vertically dipping, mineralized zone 32 m wide and at least 151 m deep. Falconbridge also made a firm connection between the Zn and Ag and recognized fine-grained sphalerite and minor barite. With the data presently available, the Kirkmount mineral occurrence would be summarized as low grade but extensive. Grades are commonly 1-2% Zn over many tens of feet (e.g. 1.66% Zn over 68 ft.).

Several occurrences of Zn, Pb and Cu in the Georgeville area have been known since the early 1950s when they were first recognized along the seashore. New Jersey Zinc Exploration Co. Ltd. explored the area from 1967-1970, and its soil geochemical surveys and nine diamond-drill holes revealed zones of low grade, but extensive, fault-controlled sphalerite {(Zn, Fe) S}. Intersections were commonly in the order of 0.5 to 1% Zn over significant intervals (e.g. 0.69% Zn over an impressive 170 ft.). The sphalerite occurs predominantly in late Precambrian argillite and calcareous metasiltstone, but occurrences were also noted in metavolcanic rocks of the same age and in small diorite, gabbro and syenitic plugs that intrude these rocks.

Both the Kirkmount and Georgeville areas are underlain by the same sequence of metasedimentary and metavolcanic rocks belonging to the late Precambrian Georgeville Group. Mineral occurrences in both areas are fault-controlled and associated with development of carbonate veins. Given the similar appearance of willemite and calcite in normal light, one has to wonder if the common calcite veins at Georgeville actually contain willemite. The structural control on mineralization is further exemplified by the position of both areas adjacent to the Hollow Fault and other northeast-trending faults that traverse the Antigonish Highlands. These faults are splays related to the Cobequid-Chedabucto Fault System and its vast spectrum of fault-controlled and Fe-carbonate dominated vein deposits.

The most notable difference between these deposits is the main Zn-bearing mineral phase: willemite at Kirkmount and sphalerite at Georgeville. Willemite is generally considered a supergene mineral (i.e. the result of secondary alteration of an existing Zn body). Regardless of whether or not the willemite is primary or supergene, its presence at Kirkmount indicates that a significant source of Zn resides in the immediate area.

George O'Reilly



Map of the Antigonish Highlands showing faults and selected mineral occurrences.