

From the Mineral Inventory Files

Are the Bridgeville Iron Mines and New Lairg Copper Mine Siblings?

Siblings are two or more offspring sharing one or both parents. As anyone with brothers or sisters can attest, siblings often have entirely different personalities. This may also be the case with mineral deposits, where what seem to be entirely different deposits actually share a common progenitor. A good case in point is found in southern Pictou County where the past-producing Bridgeville Iron Mines and the smaller, but still significant, New Lairg copper deposit (Fig. 1) may actually be related.

As far as Nova Scotia's iron mining history is concerned, the Bridgeville Fe Mining District is second only to Londonderry in size. The deposits were discovered in 1828, but not mined until Sir William Dawson developed them in 1872. Production continued intermittently from several sites until 1903, by which time some 188,000 tons of iron were smelted. The style of mineralization of the Bridgeville deposits differs from the purely structurally controlled hematite-ankerite veins that were mined at Londonderry. At Bridgeville, most of the Fe was won from tabular bodies of limonite-goethite (minor specularite) formed within the basal limestone unit of the Carboniferous Windsor Group at its unconformable contact with underlying Ordovician-Silurian basement metasedimentary rocks of the Antigonish Highlands. At first glance the orebodies appear to be simply stratabound, replacement deposits and matrix infilling of sedimentary breccias. However, at many sites these Fe-oxide bodies occur at the intersection of the limestone with northeast-trending faults believed related to the east-west Cobequid-Chedabucto Fault Zone (CCFZ in Fig. 1). Another difference of note is the widespread presence of barite and Mn-oxides in the Bridgeville ores. Barite in the ore commonly averaged 4-10% and often reached 25%, and Mn-oxides (pyrolusite-psilomelane) were usually present in minor amounts.

Chalcopyrite and pyrite were discovered in a fault-controlled, quartz-

ankerite (minor siderite and specularite) vein stockwork system at New Lairg in the late 1800s (Fig. 1). Development soon after consisted of three adits of 18, 24 and 42 m length driven to access the mineralized zones. On top of the hill, high above the adits, an inclined shaft was sunk 35 m with the intention of reaching one of the adits, but there is no record that this was ever successful. In total, the property produced 730 tons of hand-cobbed ore grading between 4 and 15% Cu. The property lay abandoned until the 1950s and 1960s when several exploration efforts were carried out. These programs re-affirmed the presence of Cu-mineralized zones but they were deemed to be too low grade to be of economic interest. The exploration also resulted in discovery of several other Cu occurrences in the New Lairg-Lansdowne area (Fig. 1). A review of the old exploration results with modern thinking quickly makes it clear that the New Lairg deposit is an example of the iron oxide-copper-gold (IOCG) mineral

deposit family (see article, next page).

The Bridgeville and New Lairg deposits appear to be entirely different; however, if you step back and look at the setting in which they occur you may start to feel otherwise. Both occur in highly faulted terrains within the regional scale Cobequid-Chedabucto Fault Zone, and faults have played a key role in the location of mineralized zones. Furthermore, specularite-ankerite-siderite vein occurrences abound throughout this entire region, as do large numbers of dykes and small plugs of mafic and felsic composition (Fig. 1). In many instances, these intrusions are hydrothermally altered and directly host, or are close to, occurrences of specularite, pyrite, chalcopyrite and Fe-carbonate. These occurrences usually exhibit features, and contain levels of Au, Co and Ni, typical of IOCG deposits. Collectively, this information indicates that the entire Bridgeville to New Lairg area is prime terrain to look for these economically significant mineral deposits.

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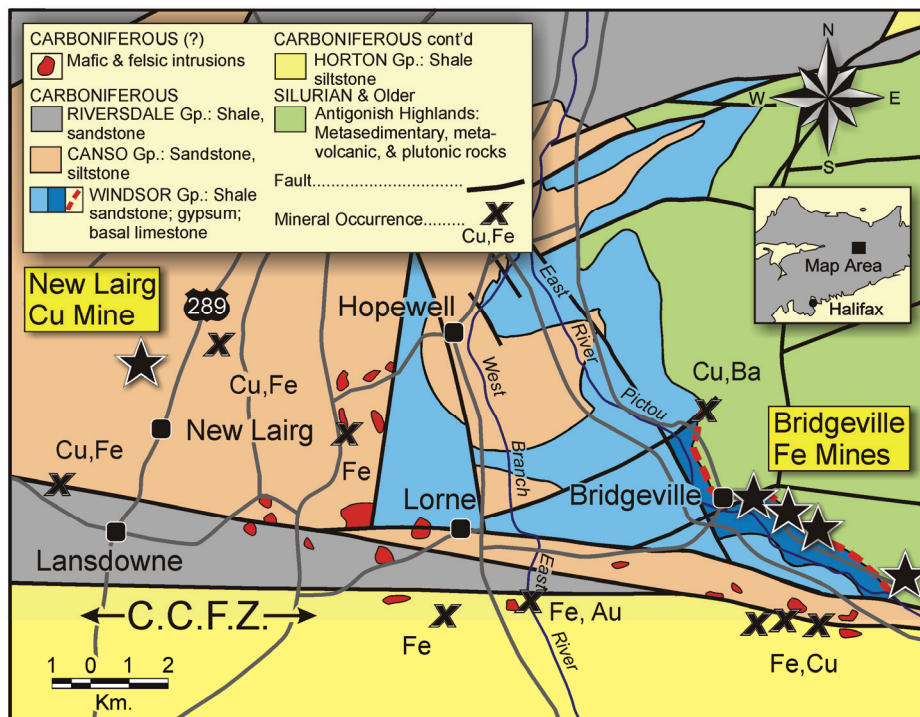


Figure 1. Geological map of the New Lairg - Bridgeville area, Pictou County.