

# From the Mineral Inventory Files

## Specular Iron Mines

Many people think that the oldest known iron mines in the province date from around 1825 in Nictaux Falls, Annapolis County. Actually, that distinction belongs to the little known Specular Iron Mines located near Sunnybrae in southern Pictou County (Fig. 1). Very little is known of these deposits other than a few sentences in geological reports, such as H. Fletcher's 1893 Geological Survey of Canada Annual Report and a location provided on his 1902 geology map of the region. It is not known exactly when the deposits were worked, but it is likely to have occurred before the 1800s.

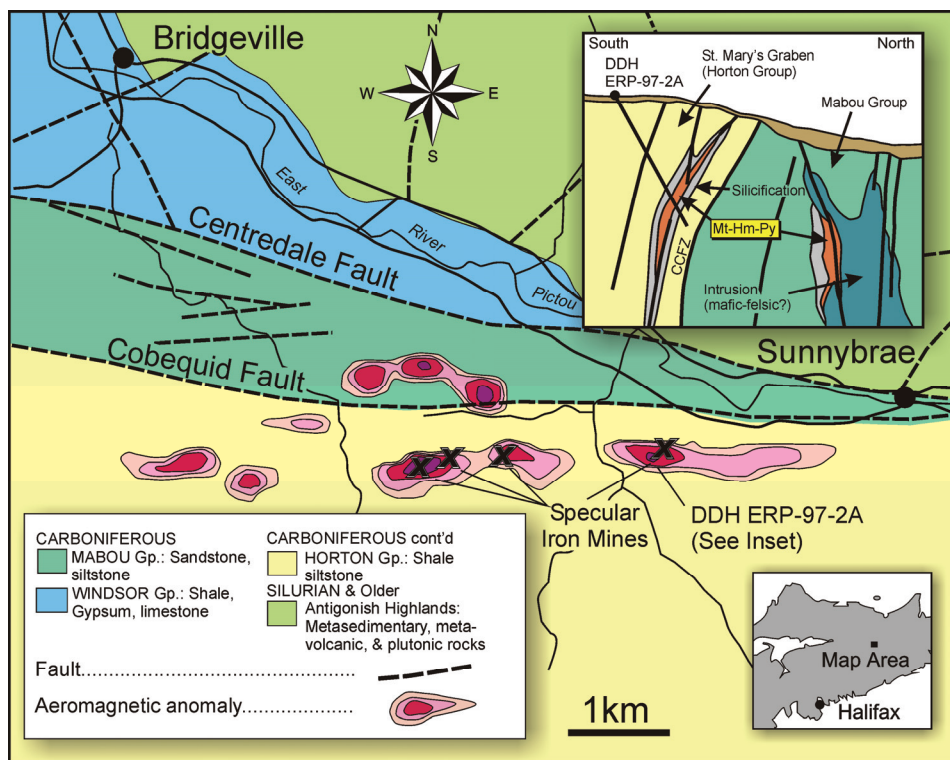
Today the deposits are marked by little more than a cluster of small open cuts, trenches, prospect pits, and one shaft located along a linear trend of 4-5 km along the northern edge of the St. Marys Graben. The graben is underlain almost entirely by sandstone and siltstone belonging to the Carboniferous Horton Group, and is bound on the north by the Chedabucto Fault and on the south by the St. Marys River Fault. Both these faults are major splays of the system of east-west transform faults known collectively as the Cobequid-Chedabucto Fault Zone (CCFZ). The CCFZ is perhaps the most prominent geological feature in the province and serves as a the terrane boundary between the Avalon Terrane to the north and Meguma Terrane to the south.

An examination of the iron deposits quickly reveals that they have a strong structural control and are related to movements along the CCFZ (Fig. 1). The iron deposits were ignored from an exploration standpoint for more than a century, until Mispac Resources Inc. included the deposits in a gold exploration play along the northern margin of the St. Marys Graben in the mid-1990s. Their exploration recognized two interesting features along the strike length of the deposits: (1) elevated Cu-Co-Ag concentrations in highly altered meta-sediments and felsic intrusive rocks;

and (2) anomalous Au-Cu-Co in soil samples over the iron-mineralized zone. Four follow-up diamond-drill holes (total of 767 m) were put down in 1997 and two intersected veins and lenses of massive magnetite-specularite up to 12 m thick, enveloped within many metres of replacement silica alteration and iron-carbonate veins (see inset on Fig. 1). The mineralized rocks are localized within zones of faulting, mylonite and intense brecciation. Magnetite is believed to be the source of the pronounced aeromagnetic high that delineates these deposits (see magnetic contours on Fig. 1). The country rocks in this area of the graben are grey to black slate and siltstone but, where silicified adjacent to the iron-oxide zones, these rocks are altered to a tawny brown and are very siliceous.

Pyrite disseminations are ubiquitous within the iron oxides and reach concentrations up to 20 volume per cent in some zones. Unfortunately, assaying of the core returned only weakly elevated gold levels but highly anomalous levels of Zn (to 2290 ppm), Co (to 2240 ppm), Ni (to 268 ppm), Cu (to 770 ppm), Sb (to 34 ppm) and Hg (to 5 ppm) were found. The presence of massive iron oxides in the ores, their strong structural control, and the Co-Zn-Cu-Ni elemental assemblage are strongly suggestive that these deposits have affinity to the iron oxide-copper-gold (IOCG) class of mineral deposits currently being sought along the CCFZ. The fact that soil geochemistry indicates the presence of gold in the system suggests that these deposits may warrant another look.

George O'Reilly



**Figure 1.** Geology of the northern margin of the St. Marys Graben in the area of Sunnybrae, Pictou County, showing the location of the Specular Iron Mines. Inset shows a section through diamond-drill hole ERP-97-2A of Mispac Resources Inc. Mt = magnetite, Hm = hematite, Py = pyrite.