

From the Mineral Inventory Files

Kells Copper

One of the most prominent features on a geology map of Nova Scotia is a rectangular yellow block that dominates the province's central mainland. This block is the St. Mary's Basin: a fault-bounded graben of Carboniferous Horton Group terrestrial sedimentary rocks. The boundary faults to the graben are splay faults of the east-west Cobequid-Chedabucto Fault Zone. Except for some potential for paleoplacer Au deposits, the St. Mary's Basin is generally considered to be of limited economic interest. Recent geological mapping has shown, however, that the graben is not only bounded by major faults, but several faults also traverse and deform the interior regions and that these appear to have been the loci for some interesting mineral deposits (see *Nova Scotia Minerals Update*, v. 21, no. 4). Perhaps the graben isn't as dull as we may think.

Within the last few years a couple of interesting deposits have surfaced in the graben in western Guysborough County. One, the Kells Cu Prospect, is located near Eight Island Lake and the other, the Cochrane Cu Prospect, is found 3 km to the east (Fig. 1). Prior to recent exploration, other than a couple of one line references to a Cu occurrence near Eight Island Lake in two mid-twentieth century Department of Mines publications, nothing has been recorded of these properties. Some follow-up sleuthing by prospector Henry Schenkels a couple of years ago turned up the 90 year old widow of a past worker at one of the sites, who directed him to a small stream on the east side of Kells Lake. The workings there were easily located, mostly because they are much more substantial than the meager notes in the Department of Mines references suggested (inset on Fig. 1).

A significant amount of exploration effort was once expended on the Kells Lake property, dating most likely to the 1930s. The work consisted of overburden removal, and sinking of a small inclined shaft or adit (now water-filled) and a couple of small test shafts or pits. Mineralized waste material shows that the ex-

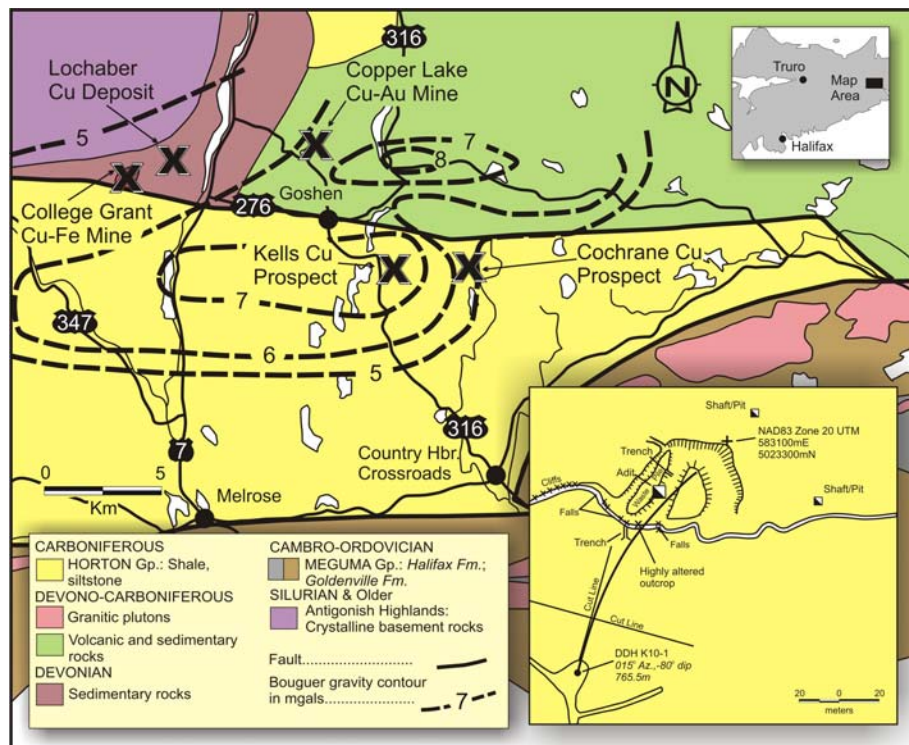


Figure 1. Geology of the eastern end of the St. Mary's Basin (after Keppie, 2000) with mineral deposits and gravity contours in mgal of federal government Bouguer survey data. Inset map is a plan of the Kells Cu prospect.

ploration was targeting chalcopyrite-bearing siderite-quartz veins very similar to those at the Copper Lake Cu-Au deposit found several kilometres to the northwest (see *Nova Scotia Minerals Update*, 1995, v. 5). What's also interesting is that in 2005, just to the east, geologist Bruce Hudgins discovered and explored a boulder field of similarly Cu-mineralized siderite/ankerite boulders north of Cochrane Lake (Cochrane Cu Prospect in Fig. 1).

All of this "smoke" prompted geologist Bob Stewart and Henry Schenkels to drill a 765 m hole deep below the Kells prospect in 2010 (DNR Assessment Report 2010-078). The hole intersected several thrust and transform faults, considerable hematite alteration, but only small amounts of Cu-bearing siderite-quartz veins, most occurring directly under the old workings.

The Fe-rich style of mineralization at both the Kells and Cochrane pros-

pects is essentially identical to that at the Copper Lake deposit, and displays an obvious iron oxide-copper-gold (IOCG) affinity. What is particularly interesting is that the limited, regional scale (5 km spacing) Bouguer gravity data that exist for this area show that the highest magnitude gravity anomaly in the St. Mary's Basin underlies the Kells Lake area (Fig. 1). High gravity, signifying underlying dense rock, correlative with the presence of widespread hematite alteration and IOCG style mineralization is considered one of the most favorable indicators for the presence of an IOCG deposit. This flags the Kells Lake region as a potential IOCG target. Clearly, there is more work to be done on this property, most notably a need for more prospecting and detailed gravity surveys. Hopefully the work will be undertaken and we will hear more of this interesting area in the future.

G. A. O'Reilly