Cleveland

The Cleveland tin deposit was initially a series of small prospects however, the B.M.R. (Keunecke and Tate 1954) showed there to be a coincident magnetic and self potential anomaly over the ore body and that the lode could be extended. The deposit is located in near-vertical sequence of sedimentary and mafic volcanic rocks correlating with the Crimson Creek Formation and has been intruded by dolerite-gabbro of early Cambrian age. The mineralisation is in the Halls Formation, a sub group of the Crimson Creek Formation, and includes cassiterite, stannite, chalcopyrite and pyrrhotite. The source of the magnetic anomaly detected by Keunecke and Tate was probably pyrrhotite. The coincident magnetic and self potential anomalies indicated outcropping or shallow sulphides and from this it can be concluded that other electrical or potential field methods should also give a response over the mineralisation.

At Cleveland no porphyry dykes or granitic sources have been identified. The majority of the literature indicates the assumed source to be associated with the Meredith Granite. The regional magnetic data at Cleveland (Figure 14) locates the ore body on a north-easterly trending magnetic feature with a large amplitude magnetic anomaly to the south associated with the Cambrian basic volcanics. This has the effect of masking any magnetic link which could be traced between the Meredith Granite and the ore body.

The area to the north of Cleveland is a zone of non-magnetic rocks similar to the zone identified at Mt. Bischoff. This zone has been mapped as undifferentiated sediments in the Dundas Trough. Magnetically it is similar to the area surrounding Mt. Bischoff. Any exploration over the non-magnetic region north of Cleveland should concentrate near the margins of the zone and initial targets would include the small but intense magnetic anomalies. If geochemical and geological mapping indicate possible mineralisation, electrical methods should be used to define drilling targets.

Renison Bell

The geology of the Renison Bell mineralisation has been reviewed by Patterson et al (1981). The ore body is associated with a porphyry dyke originating from the Pine Hill Porphyry, 2 kilometres south east of the mine. Recent drilling has intersected similar fresh and altered granites between Pine Hill and Renison Bell. The tin ore bodies occur in the transitional zone between the Success Creek and Crimson Creek Formations and have been divided into two classifications: stratabound deposits of massive pyrrhotite with minor amounts of cassiterite; and fault-controlled replacement deposits of massive pyrrhotite with minor cassiterite veins.

As noted in the section describing the regional magnetic results, the Success Creek Group is non-magnetic, whereas the Crimson