

119

REPORT CMS 76/12/10

SAMPLE PA/TAS/MB1 MOUNT BISCHOFF

Thin and polished sections were prepared and examined and two photomicrographs were prepared to illustrate some of the main features.

The rock is of considerable interest and may be of economic significance because of the occurrence of tin minerals. Total Sn content is in the 0.5 - 1% range, though the metallurgy would not be easy.

Essentially the rock is crustiform-banded, with alternating bands of contrasting mineralogy. This geological setting is particularly significant because of the occurrence of cassiterite in this context.

The bands are composed of sellaite ($Mg F_2$), elbaite (alkali tourmaline), sulphides and fluorite, with minor amounts of carbonate and some late-stage iron staining due to oxidation of sulphides. The bands are more or less monomineralic, with limited marginal intergrowths and composite patches. Of the minerals listed, sellaite and elbaite are the major constituents; this in itself is unusual, because of their rarity.

Cassiterite is more abundant than would be suspected at first; because of its fine grain size, and the abundance of sellaite (its low R.I. of 1.38 is responsible for grains with dark borders due to low relief, especially where embedded in tourmaline), it is difficult to detect. Much of the cassiterite occurs as individual crystals and small "stringers" (see photos) parallel to the banding, and is mostly associated with tourmaline and pyrrhotite but not exclusively so. Cassiterite crystals range from 1 - 2 μ to 30 μ ; maximum measured crystal size was 50 μ .

Sulphides are dominantly pyrrhotite, showing all stages of classical, text-book style, alteration to marcasite/pyrite. There are masses of granular pyrite/marcasite intergrowths, all probably derived from pyrrhotite. Traces of sphalerite and stannite occur, commonly associated and intimately intergrown; composite stannite-sphalerite crystals up to 1mm across are occasionally seen. The stannite is believed to be the "isostannite" variety (isotropic) in part; this could explain its close association with sphalerite.

In the photomicrographs (mag. = 125x), S = sellaite, F = fluorite, C = Cassiterite, T = tourmaline.

H.W. Fander, M.Sc.