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PETROLOGY OF THE THANKSGIVING TUNGSTEN DEPOSIT, REVELSTOKE, B.C.
Donnelly, Tim, Department of Geology, University of Alberta, Edmonton, Alberta, T6G 2E3; Paterson, Colin, Department of Geology, South Dakota School of Mines & Technology, Rapid City, South Dakota, 57701, and Nesbitt, Bruce, Department of Geology, University of Alberta, Edmonton, Alberta T6G 2E3.

The scheelite-bearing skarns of the Thanksgiving deposit, located north of Revelstoke, B.C., occur in a meta-sedimentary sequence of intercalated schists and carbonates belonging to the Lower Paleozoic Lardeau Group. The mineralized sequence is contained in a 400 m by 60 m fault block and forms a single, open anticline within that block. The skarns consist predominantly of garnet, idocrase, diopside, and clinozoisite with minor actinolite, quartz, wollastonite, calcite, and pyrrhotite. The skarns are bounded by biotite-muscovite or actinolite-biotite schists with accessory quartz, plagioclase feldspar, sillimanite, K-feldspar, chlorite and apatite. A typical cross-section through a mineralized unit is: actinolite-biotite schist, biotite-muscovite schist, zoisite-diopside skarn, garnet-idocrase-diopside skarn, zoisite-diopside skarn, biotite-muscovite schist, actinolite-biotite schist. The presence of sillimanite, zoisite, diopside, and wollastonite indicate T-P-X H_2O conditions during metamorphism of (1) Temperatures of 550-600°C, (2) pressures of 3-4 kbars, and (3) X H_2O/(X H_2O + X CO_2) of 0.85 and 0.96. The skarns were originally thought to be the product of reactions during regional metamorphism. However, the temperature of metamorphism is anomalously high in comparison to the regional metamorphic grade of upper greenschist facies. In addition, the high mole fraction of water inferred for the metamorphic fluids is unusual in regionally metamorphosed rocks but is typical of skarns associated with igneous intrusions. Consequently, it is believed that the mineralization formed as a product of hydrothermal circulation produced by an, as yet, undetected intrusion.

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Return completed abstract form and 4 copies no later than January 15, 1983
Retournez l'original du résumé (plus 4 copies) avant le 15 janvier 1983

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