PERTEMUAN PERSATUAN
Meetings of the Society

Ceramah Teknik (Technical Talk)

Title 1: Tectonic: Some metallogenic aspects of mineral deposits
Title 2: Some geochemical petrological aspects of mineral deposits

D.F. STRONG

Laporan (Report)

Prof. D.F. Strong, President and Vice-Chancellor, University of Victoria, Victoria B.C., Canada, gave the above talks on the 13th and 15th March 1995 respectively, at the Geology Department, University of Malaya.

Prof. Strong was in the country as External Examiner, Applied Geology, University of Malaya.

Abstrak (Abstract)

Granite-related mineral deposits in the Appalachian orogen range from skarns and porphyry-type copper deposits of Gaspe through metal-deficient fluorite veins at St. Lawrence, complex subvolcanic tungsten-molybdenum polymetallic deposits at Mount Pleasant, tin (-copper) at East Kemptville, hydrothermal uranium at Millet Brook, tungsten-bearing quartz veins at Grey River and Burnt Hill, antimony-bearing quartz veins at Lake George, pyrophyllite deposits at Foxtrap, and numerous other deposits with other characteristics. This range in deposit types is also characterized by variations in the host granitoid rocks which are illustrated by rare earth element geochemistry of the bulk rocks (altered, unaltered and mineralized) and by chemistry of the phyllosilicates. The REE geochemistry is dominantly affected by the hydrothermal processes, but the phyllosilicate compositions appear to also exhibit characteristics which relate to the magma types and possibly source rock characteristics.

The aim of this talk is to compare and contrast a range of mineral deposit types associated with granitoid rocks in the Canadian Appalachians and put them into an overall geological context, and provide an indication of some of the geochemical and mineralogical data which are helpful in understanding the processes which control their formation and provide some guides to exploration. Studies of these deposits have ranged through a variety of techniques from isotopic to fluid inclusion studies to whole rock and mineral chemistry. This talk will focus on the available rare earth and phyllosilicate data, as the former provide some indication of the hydrothermal processes involved during deposition, and the latter give an indication of the different source materials from which the granitoid rocks and by implication their mineral deposits were derived.

Granitoid plutons show systematic groupings and patterns of variation across mountain belts, and these have been related to the same plate tectonic processes which explain most large-scale geological phenomena. The apparent success of these interpretations also led

early workers to draw similar conclusions relating Appalachian granites to subduction processes, and this has been done more recently for Caledonian granites of Britain. However recent studies of circum-Pacific granitoid rocks have shown that there is an even more important common thread to their origins, namely that they ultimately reflect compositions of the source rocks from which they were derived.

G.H. Teh

TECHNICAL TALK — D.F. STRONG