

Metallogeneses of antimony-gold in Canadian Appalachian orogen compared with Hercynian-Mauritanide orogenic belt of western Europe and Morocco

D.J. Mossman

Department of Geology, Mount Allison University, Sackville, New Brunswick E0A 3C0

M. Leblanc

Centre Geologique et Geophysique (CNRS), Université des Science et Techniques du Languedoc, Montpellier, France

and

J.F. Burzynski

Robert E. Schaaf and Associates, Geological Consultants, Fredericton, New Brunswick

Forty-three Sb ± Au occurrences are documented in the Canadian Appalachian orogen (CAO). Most occur in the Central Mobile Belt and are linked to late Acadian felsic intrusions. Deposits include stratabound, vein type, and those in felsic volcanic rocks related to post-Acadian volcanism. The deposits are related to their tectonic setting during and immediately prior to mineralization, hence no pre-existing geochemical province in the crust or upper mantle is required.

In France the spatial framework for over 250 Sb ± Au deposits was strongly controlled by structures, especially faulting. A distinct separation of Sb ± Au ± As deposits from Sb ± Au deposits exists in terms of discrete fault systems and metallogenic episodes during the Hercynian orogeny.

In western Europe intersecting late Hercynian faults exer-

cised an important control over the emplacement of igneous rocks and related Sb ± Au (± As) mineralization. The same is true of Morocco except that gold is sparse. In western Europe a mineral zoning exists outwards with respect to granites, of Sn, Sn-W, Sb-W, Sb-Au, and Sb-Pb-Zn. Comparable zoning is not so clearly evident in the CAO.

Significant Sb ± Au mineralization occurred in western Europe throughout geologic time, culminating in the Carboniferous. A comparable age range of deposits in the CAO is biased by numerous cases of post-Acadian remobilization of Sb and Au. This latter aspect, together with the difference in age between the Acadian and Hercynian-Mauritanide orogenies, complicates the case for establishing a Pan-Atlantic continuity in Sb ± Au metallogeny.