discussed, including the ongoing exploration for disseminated gold mineralization of the Touquoy type at Moose River, where a current resource of ca. 571,000 oz (843 Mt @ 2.1 g/t) has been delineated, and the potential for intrusion-related gold mineralization associated with the voluminous 380 Ma intrusions such as the SMB.

Meguma gold deposits of Nova Scotia: complexities of mesothermal, sediment-hosted gold mineralization revealed

Daniel J. Kontak, Richard J. Horne, and Paul K. Smith
Nova Scotia Department of Natural Resources, P.O. Box 698, Halifax, Nova Scotia, Canada B3J 2T9.

Meguma gold deposits (MGD) have long been considered classic examples of lode-gold mineralization hosted by slate-rich sedimentary successions. The MGD occur in the Meguma Terrane (MT) of southern Nova Scotia, an area dominated by two lithotectonic units, the Cambro-Ordovician Meguma Group metasedimentary rocks and 380 Ma peraluminous South Mountain Batholith (SMB). The area was subjected to a protracted deformational history, commencing with the Acadian Orogeny at ca. 410 Ma, but continuing intermittently through the Carboniferous. Gold mineralization is dominantly of quartz (±carbonate±sulphide) - vein type with emplacement of veins controlled by strain associated with deformation of the Meguma Group. The development of chevron- and box-folds during deformation promoted flexural shear in the inter-bedded sandstone-siltstone sequence, thus vein types are dominated by bedding-concordant veins arrays (including massive and laminated bedding parallel, saddle-reef, and en echelon) and discordant types. Extensive studies of MGD over the years have documented the structural controls on vein emplacement, both relative and absolute (Re-Os, Rb-Sr, $^{40}Ar/^{39}Ar$) age(s) of vein formation, and the nature of vein-forming fluids (isotopes, fluid inclusions). Importantly, these data indicate that: (1) the vein-forming fluids are exotic to the Meguma Group, (2) multiple periods of vein emplacement occurred, (3) the fluid corresponds to the global aqueous-carbonic gold fluid, and (4) variable interaction with the host rocks occurred. A model for MGD formation, involving vein-fluid generation and vein emplacement, involves metamorphic devolitization of basement rocks and ascent of this fluid into the overlying Meguma Group with subsequent focussing of fluids into structurally favourable sites during periods of fold reactivation. Importantly, a flexural-fold mechanism of vein formation, as demonstrated here, provides a predictable framework for exploration and development of MGD. Robust age constraints indicate at least two periods of vein formation, one at ca. 408 Ma and the other at 380 Ma, but additional periods are possible (e.g., Alleghanian reactivation). More recent developments of MGD will also be

Copyright © 2015 Atlantic Geology