

→ Mt. Milligan

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Mt. Milligan success highlights alkaline suite porphyry deposits as British Columbia's new gold-copper giants

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Alkaline suite porphyry systems are important copper-gold-silver targets in British Columbia. These deposits, out of vogue in the 1980's due to low copper prices, have recently re-emerged as important economic targets. Most significant is the discovery of the giant Mt. Milligan deposit.

Alkaline suite porphyry deposits are associated with an Upper Triassic to Lower Jurassic island arc or arcs. The volcanic assemblages have different names - Nicola-Takla and Stuhini, but together form an apparently coherent belt that stretches for more than 1600 km from the international boundary to the Stikine region. Much of this highly prospective terrain is drift covered and underexplored.

High energy volcanic facies and comagmatic sub-volcanic plutons form the characteristic setting of the porphyry systems and indicate that mineralization occurred within the roots of volcanic centres along these extensive Mesozoic island arcs. In addition to volcanic stratigraphy, other important guides in the search for these deposits are: the characteristic shoshonitic composition of the host rocks, a distinctive high potassium but low silica alteration suite, the strong magnetic signature of the related less altered plutons and a generally close relationship to regional structures.

The recently discovered 400 million tonne Mt. Milligan deposit is one of British Columbia's most important reserves of gold and copper. Located in the poorly exposed northern Quesnel Trough, the deposit was first found by conventional prospecting, and later outlined by a combination of geological, geochemical and geophysical surveys and extensive drilling.

The British Columbia Geological Survey has developed a model for alkaline suite porphyry deposits, and provided 1:50000 scale or more detailed geological maps for some of the most actively explored areas. In 1990 surficial geology studies were initiated to help understand the distribution character and depth of overburden over the drift covered parts of the favorable terrain.