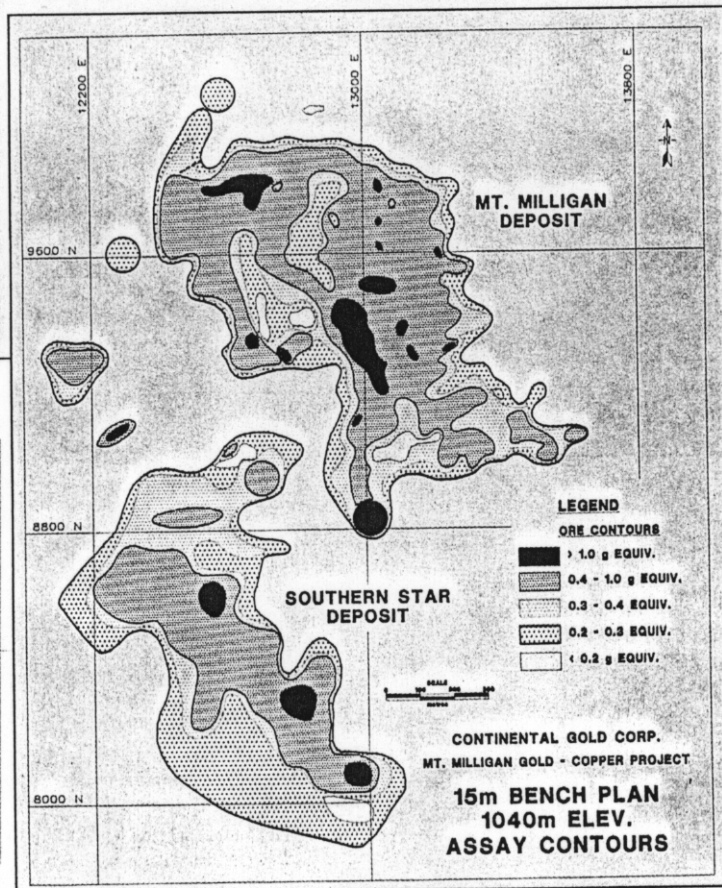
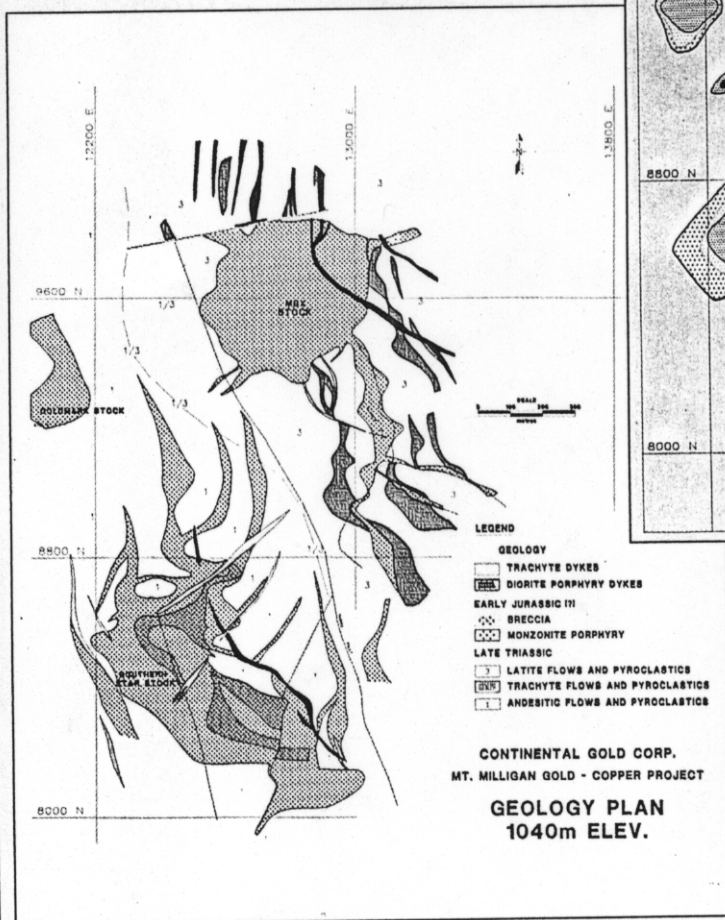


# PORPHYRY POTENTIAL

*Mt. Milligan, in northern B.C., is Canada's biggest potential gold-copper producer.*

*By Olav Sveta*



*The copper-gold mineralization of the Mt. Milligan deposit occurs over a very large sulphide system, 10 sq. km in area, shown at left.*

**I**t's a good bet armchair critics this year will scrutinize Placer Dome's Mt. Milligan project, north of Prince George, B.C. It is the country's biggest potential gold/copper producer, ranking in size with many of the copper porphyry deposits, such as the Brenda mine, that have been exhausted.

Early number-crunching before Placer's entry suggested a Mt. Milligan open pit could annually yield up to 400,000 oz. (11,340 kg) of gold and

another 83 million pounds (37-million kg) of copper. Before Continental Gold Corp., the discovery company, had been swallowed by Placer Dome (a C\$176-million snack for the major), reserves had been estimated at 330 million tons grading 0.015 oz. gold per ton and 0.22% copper (300 million tonnes at 0.5 grams gold and 0.22% copper per tonne). The stripping ratio was set at 1.6 to 1 (waste to ore). Continental has put a \$325-million sticker price on development. Placer had ear-

lier bought out minority Mt. Milligan player, BP Resources Canada, for \$78.8 million to obtain sole possession. Not so well known is that Noranda Minerals had earlier bid for Continental Gold, but that offer was turned down by the Continental board.

At presstime, Placer was in the middle of compiling drill data of its own from an approximately \$3.5-million definition drilling program on the Southern Star deposit. This orebody sits under five to 15 metres of overbur-

C.E.C. Engineering

per prices, alkalic copper-gold porphyry systems hosted by Upper Triassic to Lower Jurassic volcanic sequences of the Intermontane Belt are popular exploration targets in the province. According to Vittorio Preto of the province's Energy, Mines and Petroleum Resources ministry, the search for this target caused increased activity and claim-staking in the Quesnel Trough, particularly north of Fort St. James and in the Stikine region near the Galore Creek deposit. "Gold-rich porphyry systems of the calcalkalic suite were the target of the largest

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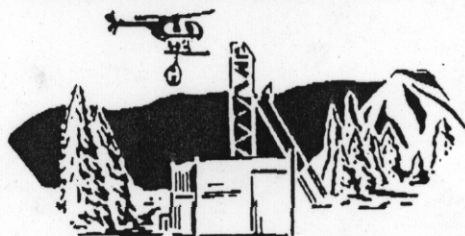
exploration play on Vancouver Island along what is known as the North Island Copper Belt, west of the Island Copper mine," he added. Of the Mt. Milligan deposit, he said copper-gold mineralization occurs over a very large sulphide system, approximately 10 square km in area.

Drilling and regional mapping by Joanne Nelson and Kim Bellefontaine of B.C.'s Geological Survey Branch have shown that Mt. Milligan occurs in a subvolcanic setting similar to that of other deposits of this type in southern and northern B.C.

According to Preto, at least a dozen previously unrecognized small intrusions similar to those that created the Mt. Milligan deposit were identified in the two 1:50,000 sheets that were mapped. Preto and co-author J.L. Nelson will present a paper at the annual convention of the Prospectors and Developers Association of Canada, to be held in March in Toronto. □

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## ATTENTION READERS

*EMR's Annual Mineral Review & Forecast will appear in the March issue of The Northern Miner Magazine*



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## IN THE NEXT ISSUE

### 1991 Mineral Review & Forecast

The next 10 years pose immense challenges to the Canadian mining industry. Among these will be the necessity to commit ourselves fully to addressing environmental issues and new global trade opportunities.

In co-operation with Energy, Mines & Resources Canada, *The Northern Miner Magazine's* March issue speculates as to what these challenges mean for all levels of our minerals industry.



According to Jim Cooney, Mt. Milligan tops Placer's list of development projects. "We're trying to push the project forward as fast as we can." The company is seeking government approval in principle by mid-summer this year, with a feasibility study in hand at about the same time.

### Exploration History

In 1982, Mark Rebagliati presented a basic geological concept to Selco (this was before BP Canada acquired Selco). He was sold on the idea of finding auriferous porphyry copper deposits in the Quesnel Trough. Alkaline intrusions in the Trough were the prime targets. Earlier, Rebagliati had assisted Dr. Peter Fox, the discoverer of the Q.R. deposit in the Quesnel Trough.

**MT. MILLIGAN  
IS ENVIRONMENTALLY  
BENIGN — THERE  
WILL BE NO ACID  
DRAINAGE PROBLEMS  
AND SALMON  
FISHERIES WILL  
REMAIN UNAFFECTED  
BY MINING.**

In the mid-1980s, porphyry exploration was not popular. Base metals prices were low, for one thing. And most other geologists were seeking vein- or shear-hosted gold deposits. "This was good from the exploration point-of-view," said Rebagliati. "We had no competition. But it made it challenging to raise funding."

In the meantime, Richard Haslinger, a prospector, staked claims on a copper showing in the same general area that had excited Rebagliati. A big-game guide, Haslinger had a base camp on Philips Lake. When he wasn't leading great white hunters around the bush, he would stake mineral showings. "When I look for good moose country, I also am in good rock country." However, in this particular area of British Columbia, outcrops, the prospector's bread-and-butter, are rare.

"As a prospector, I can't sell anything a mining company can't see," he notes sagely. "Only a geologist can sell an idea." He and his daughter tramped up a valley for three days before lighting upon the copper showing. This was in August, 1983. He had a few nervous moments that fall and winter,

because a big company (BP Resources Canada) had moved in to stake ground in the area. In total, it had staked something like 518,000 square kilometres. Fortunately, it missed Haslinger's showing. That following spring and summer, Haslinger tied up his claims. Haslinger credits Rebagliati with keeping interest in the project alive through the mid-1980s — a time when BP blew hot and cold on the property.

Hole 87-12, drilled in September, 1987, confirmed the presence of what is now known as the MBX zone. This hole intersected the porphyritic mon-

zonite stock, as well as a magnetite-rich breccia zone and augite porphyry flows, all mineralized with copper and gold. The hole demonstrated that the geological concepts were correct. In April, 1988, Hole 88-29 was drilled. It averaged 0.069 oz. gold per ton over 268 ft. (2.4 grams per tonne over 80 metres), beginning at surface.

### Popular Targets

Because of the success of the Mt. Milligan project and the Mt. Polley discovery to the south near Williams Lake, B.C., and reasonably strong cop-

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**David Copeland (left) and Mark Rebagliati (right) of C.E.C. Engineering at the Mt. Milligan deposit, north of Prince George, B.C. (view to the northeast)**

C.E.C. Engineering

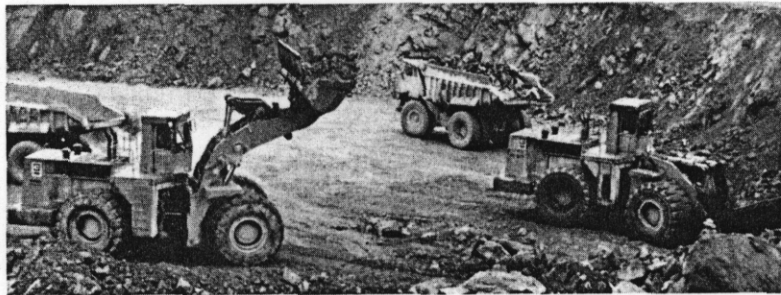
den, making it the likeliest candidate for initial production, according to Ed Kumura, Placer Dome's exploration manager for western Canada. At one point, Placer had deployed up to six drills on the property. The drill program also included in-fill drilling on the MBX and 66 zones, two other

deposits that comprise the total Mt. Milligan project. (There is also a West Breccia zone.) Metallurgical tests and preliminary production calculations were being done in late January.

It is said that Mt. Milligan is environmentally benign, meaning, among other things, there will be no acid

drainage problems. A natural buffering of alkaline minerals should see to that. Nor are there malignant minerals (arsenic, for example) to alarm the "greenies" that the west claims in such clamorous profusion. As well, the project is in a northern watershed, not a Pacific one, leaving the prized salmon fisheries of the west coast unaffected by Mt. Milligan mining.

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GOVERNMENT  
APPROVAL  
BY MID-SUMMER,  
WITH A FEASIBILITY  
STUDY IN HAND AT  
THE SAME TIME.  
THIS IS A  
FAST-TRACK PROJECT.

The government approval process began back in February, 1990, when Continental Gold submitted a project prospectus. From that, the government set out the terms of reference for a Stage I submission, which Placer expects to file in April.

The Stage I paper explains to the government how the project will address environmental and social impacts; as well, it will set out the financial implications of the project. The government then studies Stage I and if it is dissatisfied with anything in the document, it asks the company for clarification or remedial alternatives.