

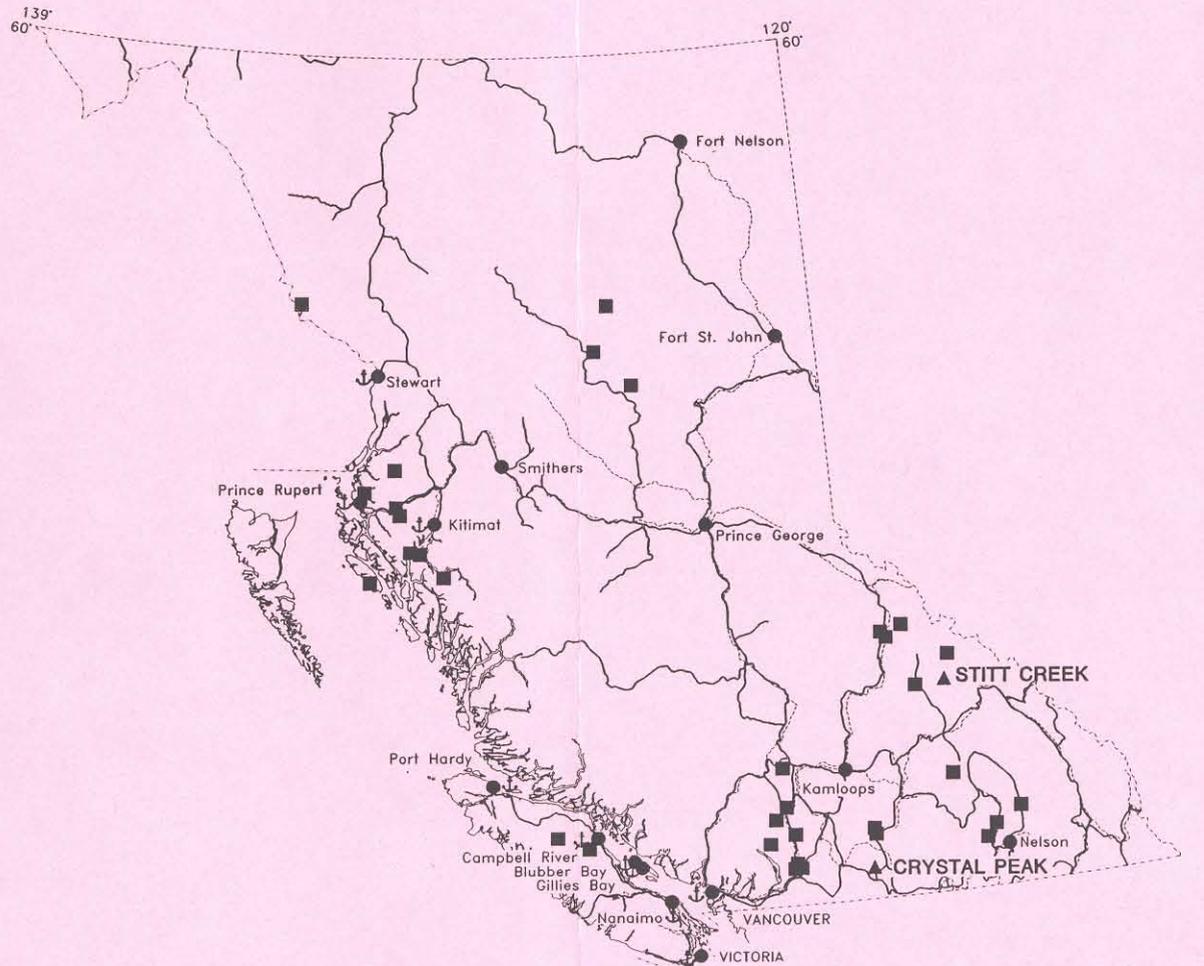
MAJOR OCCURRENCES

(FROM MINFILE, 1992)

- SHOWINGS
- ▲ POTENTIAL PRODUCERS

REFERENCE

- ⊠ MAJOR ROADS
- ⊠ RAILWAYS
- MAJOR CITIES
- ⤵ MAJOR PORTS



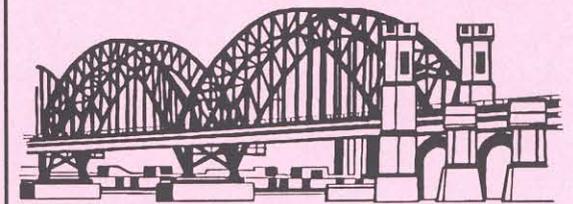
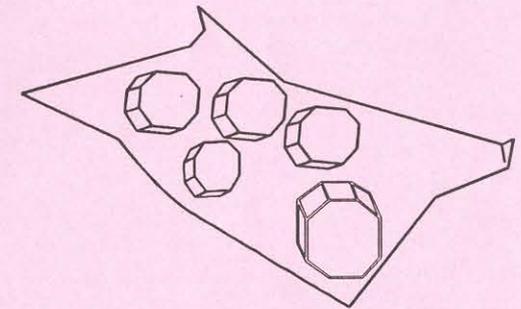
BC

Ministry of Energy, Mines and
Petroleum Resources
Geological Survey Branch



GARNET:

THE BRIDGE TO A SMOOTH FINISH !



Information Circular 1992-14

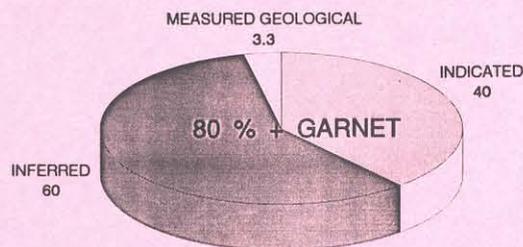
INVENTORY/RESOURCES

- Garnet is found mainly in amphibolite facies regional-metamorphic rocks and as a placer component of alluvial deposits.
- Potential garnet resources in British Columbia lie within two belts of metamorphic rock containing abundant garnets. One of the belts extends some 500 kilometres along the British Columbia coastline. The second belt is in the interior of B.C., north and south of Revelstoke.
- Geological reports indicate local abundances of up to 50% almandine garnet.
- Systematic prospecting for alluvial accumulations has not been undertaken. Three streams in the Revelstoke area are known to contain garnet concentrations.
- The Crystal Peak deposit, a large andradite garnet skarn near Penticton in southern B.C., has been explored since 1988. It has passed the Mine Development Approval Process and is awaiting final development decision by the B.C. government.
- There are 35 significant garnet occurrences in British Columbia.

RESERVES

- Almandine garnet reserves in British Columbia have not been assessed. Excellent potential exists for the discovery of alluvial deposits within garnet-rich belts of metamorphic rocks.
- The Crystal Peak deposit is reported by Polestar Exploration Inc. to have 3.35 million tonnes grading 81.3% garnet in the proposed pit area. Drilling in 1989-1990, indicated 40 million tonnes of about 80% garnet in three zones with additional inferred reserves of 60 million tonnes.
- Stitt Creek, north of Revelstoke, is reported to contain fairly high grade alluvial garnet and is presently being assessed for development.

CRYSTAL PEAK GARNET RESERVES (IN MILLION TONNES)



WORLD PRODUCTION/CONSUMPTION

- The current world production of garnet is estimated at 100 000 tonnes annually. North America produces about 50 000 tonnes from two mines, one in New York and one in Idaho.
- North American consumption is estimated at 46 000 tonnes annually.
- The United States is the leading world producer (~75%) and consumer (~70%) of garnet. The remainder of world production is from Australia, India and the former U.S.S.R.
- There is currently no production of garnet in British Columbia or Western Canada.
- The Crystal Peak deposit is reported to be larger, and of higher grade, than any garnet deposit mined anywhere in the world (Grond). If developed it could be one of the world's largest producers.

INFORMATION SOURCES

- Pell, J. (1988): The Industrial Mineral Potential of Kyanite and Garnet in British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Survey Branch, Open File 1988-26.
- Grond, H.C. *et al.* (1991): A Massive Skarn-Hosted Andradite deposit near Penticton, British Columbia; in Proceedings 27th Forum on the Geology of Industrial Minerals; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Survey Branch, Open File 1991-23.
- Mathieu, G.I. *et al.* (1991): Geology, Mineralogy and Processing of Mount Riordan Garnet Ores; in Proceedings 27th Forum on the Geology of Industrial Minerals; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geological Survey Branch, Open File 1991-23.

MARKET AND OPPORTUNITIES

- The high density, angularity, hardness and non-toxicity of garnet make it an excellent product for many abrasive applications.
- The best abrasive garnets are almandines (hardness 7.5) but the softer pyrope, andradite and grossular varieties of garnet are also used.
- High-quality garnet is used in the form of powders and loose grains for grinding and lapping glass, ce-

ramics and other materials. It is also used in coated and bonded abrasives such as sandpaper, and wheels for grinding and finishing wood, metal, rubber and plastic.

- Lower-quality garnet is used for sandblasting steel (e.g. bridges and shipyards), aluminum and other soft metals.
- There is good potential for increasing the market share of garnet at the expense of silica and slag because of health and environmental considerations. Use of silica sand has been linked to cancer and silicosis and slags commonly contain toxic heavy metals.
- Currently available garnet products are relatively expensive, Idaho garnet sells for about US \$160-260 per ton FOB minesite.
- Large high-grade deposits may be able to capture a significant share of existing markets and allow development of markets previously inaccessible due to the high cost of garnet.
- A ready market is estimated at 50 000 tonnes per year.
- A competitively priced product can reach more distant markets, such as the numerous shipyards along the west coast.

CONTACTS

Crystal Peak Garnet
R. Wolfe, President
701-675 W. Hastings Street
Vancouver, B.C. V6B 1N2
Tel: (604) 684-6287

**Ministry of Energy, Mines
and Petroleum Resources**
Geological Survey Branch
Industrial Minerals Unit
553 Superior St, Victoria, B.C. V8V 1X4
Tel: (604) 356-2846