82KNW087

003994

PROPERTY FILE

TROUT LAKE (82KNW 004) (037)

The successful exploration at Trout Lake by Newmont Exploration and Esso Minerals, starting in 1977, directed attention to the molybdenum potential of southeastern British Columbia, including regions outside of the Intermontane Belt. Some prospects were mapped and prepared for further exploration in 1980; three deposits, including Trout Lake were extensively drilled in 1979. Western Miner Feb 1980

The Trout Lake deposit occurs in the region of Palaeozoic sedimentary strata and is associated with stock dated at 76 my. At the surface, tungsten mineralization occurs within skarn alteration of a Cambrian limestone bed. Apparently, the underlying stock has a number of finder-like projections, one of which is exposed at the surface over an area 270 metres by 130 metres.

Results of a very encouraging hole drilled in 1979 have been reported. This hole intersected 265 metres averaging 0.409% MoS_2, the intersection being about 550 metres below the surface. Drilling in 1978 encountered similar grades and, in late 1979, an adit designed for exploration and for production was collared.

Several aspects of this deposit are very informative. The discovery prospect consists of a small exposure of unaltered granodiorite which is cut by a quartz vein and which has some biotite-rich inclusion or schlieren containing flakes of molybdenite. This is not the type of prospect that a geologist, handicapped by the biases of the experts, would wish to explore. However, there was apparently abundant float of molybdenite-bearing quartz along an access road. The prospect was acquired by Scurry-Rainbow Oil Ltd, and this company did bulldozer stripping which exposed abundant quartz veins. These are not the veinlets that form typical stockworks. They are thick (in the order of six inches) veins of white bull quartz, which, in places, contain molybdenite. Stripping was followed by some diamond drilling which encountered very interesting grades over considerable lengths. However, because of changes in company policies and personnel, the property was dropped. Subsequently, it was acquired by Newmont and this company was joined by Esso Minerals, influenced by the geologist, who did the original work for Scurry Rainbow.

The phyllitic strata has been changed to biotite hornfels in the vicinity of the intrusion. However, within the mineralized zone, there is an increase in grain size of the biotite adjacent to some of the quartz veins thus indicating an additional hydro-thermal affect.

GCNL #229 18. NEWMONT MINES LIMITED 1 DEC 81 IMPERIAL OIL LIMITED 82K/12E

WORK DEFERRED ON B.C. MOLY PROPERTY PENDING PRICE RISE - Newmont Mines Limited and Imperial Oil Limited's subsidiary, Esso Resources Canada Limited, as joint venture partners, announce that the present underground exploration phase has been completed at their Trout Lake molybdenum project, about 60km south of Revelstoke, B.C. While a significant molybdenum resource is indicated, further property work is being deferred until the molybdenum market improves. 082KNW003, 004, 087

The underground program conducted in 1980 and 1981 was designed to explore the deposit at depth and to permit bulk sampling. Comprehensive metallurgical and environmental studies were also made. Before that work, Newmont and Esso had explored the deposit from surface over several years.

82K/12E
082KNW003, 004, 087
CIM Bull MAR 82

Paper No. 148—9:30

Geology of the Trout Lake Molybdenum Deposit, B.C.

H. BOYLE, Project Geologist, and H.B. LEITCH, Research Geologist, Newmont Exploration of Canada Ltd., Vancouver

The Trout Lake stockwork molybdenum deposit is located in the Selkirk Mountains of British Columbia, 50 km southeast of Revelstoke. The property is being explored by a joint venture between Newmont Exploration of Canada and Esso Minerals Canada.

The deposit is associated with a small granodiorite stock of Upper Cretaceous age (76 Ma) which has variably altered the surrounding schists, argillites and marbles of the Lower Paleozoic Lardeau Group to hornfelsic biotite schists and skarn. The intrusive is composed of a small stock and an intersecting network of northeast- and northwest-trending dykes at surface that coalesce downward into a larger stock. There are two main phases of intrusion, with an earlier quartz porphyritic granodiorite cut by an intra-mineral "quartz diorite" porphyry. A strong sub-vertical north-trending fault controls the distribution of the mineralized stockwork and displays post-mineral movement.

Molybdenite, accompanied by pyrite and pyrrhotite, is mainly present along the margins of veins in a well-developed quartz stockwork, but occasionally is strongly disseminated in microfractured intrusive. The stockwork is strongest in and around the contacts of the intrusive and its apophyses, and occurs over a vertical range of more than 1,000 m. As defined by the 0.10% MoS_2 contour, the main mineralized zone is up to 300 m long by 200 m wide. Preliminary drill-indicated reserves, currently being revised, are approximately 50 million tonnes of 0.23% MoS_2, within which are several zones of higher-grade material. Hydrothermal alteration, as defined by quantitative X-ray diffraction studies on composite core sections, is composed of a central quartz/K-feldspar/albite/minor biotite zone coincident with molybdenum mineralization, which is overlapped by a slightly later, antipathetic quartz/sericite/pyrite zone. Ankeritic carbonate is also a common alteration mineral, but only traces of fluorite have been observed, with no topaz or sulphosalts. Analysis for trace elements such as Sn, W, Bi, Sb, As, Hg, U, Ag, Au, Mn, Cu, Pb, Zn and F has been limited except for Sn and W, which appear to be zoned inside and outside the Mo zone respectively; the other elements do not show detectable patterns thus far.

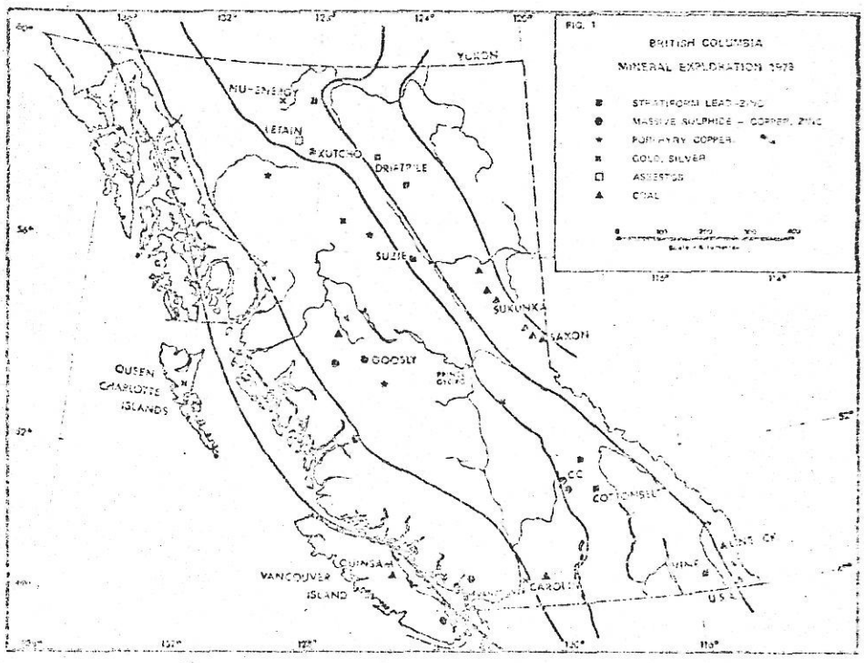
A strong molybdenum soil geochemical anomaly is present immediately over and down-ice from the outcropping mineralization. No streams drain the area over the deposit, so it could not be detected by conventional stream silting. A proton magnetometer survey showed only a few scattered anomalies related to the skarns containing pyrrhotite.

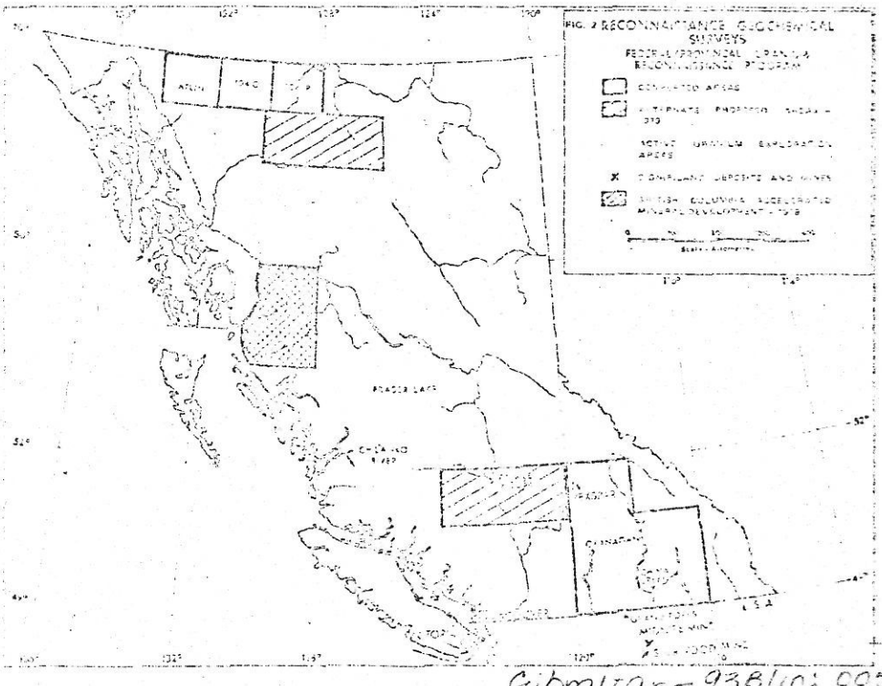
Mineral Resources Branch
BC Ministry of Energy, Mines and Petroleum Resources

Mineral exploration in British Columbia: molybdenum, tungsten, uranium, tin are attractive

Depressed prices for traditional British Columbia mineral commodities, principally copper, resulted in a re-direction of mineral exploration effort throughout the Province in 1978. Attractive mineral commodities included molybdenum, uranium, tungsten and tin, and a review of the geological settings for the occurrence of these elements in British Columbia will be the main theme of this paper.

The emphasis on these four elements does not imply that there was no interest in other minerals in 1978, and a summary of exploration and development follows.





GENERAL REVIEW

Mineral exploration expenditures in British Columbia during 1978 are expected to show an increase over last year due to a greater number of drilling programs. The number of mineral claim units recorded to the end of December were in the order of 33,900 or a little more than 2000 units short of the number recorded by the end of 1977.

The value of mineral production, excluding petroleum and natural gas, is estimated at $1.39-billion, or a 12 percent increase over the actual 1977 value, due in large part to a positive effect of the current exchange rates whereby British Columbia coal and most base metal producers have contracts based on US dollars. This factor is expected to maintain copper as the leading commodity by value in spite of decreased production caused by an ongoing strike at Gibraltar and the closures of Granduc and Phoenix. The value of coal production will be nearly that of copper, and molybdenum remains a solid third.

In addition to the previously mentioned copper producers which suspended operations, Cominco's H-B lead-zinc mine at Salmo also closed in 1978. Diminishing the effects of mine closures was the first full year of production from the Afton copper mine and smelter at Kamloops, the announcement of Newmont's intentions to mine Similkameen Mining's Copper Mountain orebody adjacent to Ingerbelle, and the production decision by Climax Molybdenum of British Columbia Limited regarding the former British Columbia Molybdenum mine at Alice Arm. Production was started by year-end from Nu-Energy's underground gold property near Cassiar.

Gibraltar – 93B/10; 00541
Granduc 104B/1W; 08408
Phoenix – 82E/2E; 1383
H.B. – 82F/3E; 00981

Afton – 92I/10E; 1850
Copper Mtn – 92H/7E
01268
Alice – 103P/2W; 5101
~~Nu Energy~~/Erickson Cl

EXPLORATION REVIEW

The most active metal exploration areas in the Province included, from north to south: the Atlin-Jennings River area (uranium, tungsten-tin), Kechika-Gataga Rivers (stratiform lead-zinc), Fraser Lake-Vanderhoof and central interior (uranium), and the southeast Okanagan (uranium). A notable feature of the 1978 exploration scene was the relatively low level of porphyry copper exploration, a reflection of depressed world copper prices over the past three years.

In contrast, exploration for massive sulphide deposits containing copper, zinc, and byproduct gold-silver increased over 1977. The Goosly copper-silver deposit south of Smithers (see Fig 1) was optioned from Equity Mining-Kennco by Canex Placer in mid-year. Additional development drilling and metallurgical studies are underway pending a production decision. Esso Minerals continued drilling the significant Kutcho massive sulphide deposit in northwest British Columbia, part of which is held by Sumitomo who have reported at least 10-million tons of good grade copper-zinc mineralization. Nearby is the Letain asbestos deposit (Fig 1), on which Cassiar Asbestos conducted 15,000 feet of diamond drilling.

Other massive sulphide prospects explored in 1978 included two in the Coast Range — the Nifty near Bella Coola, drilled by Pan Ocean, and Maggie Mines property near Howe Sound north of Vancouver, drilled by Canex Placer. Regional exploration was conducted in the Omineca area northwest of Prince George and near Barriere Lakes north of Kamloops, where several prospects in Paleozoic Eagle Bay-Fennel Formation rocks were drilled. One of these programs disclosed interesting copper mineralization in acid volcanic rocks on the CC property, owned by the Vestor group of companies and under option to Craigmont.

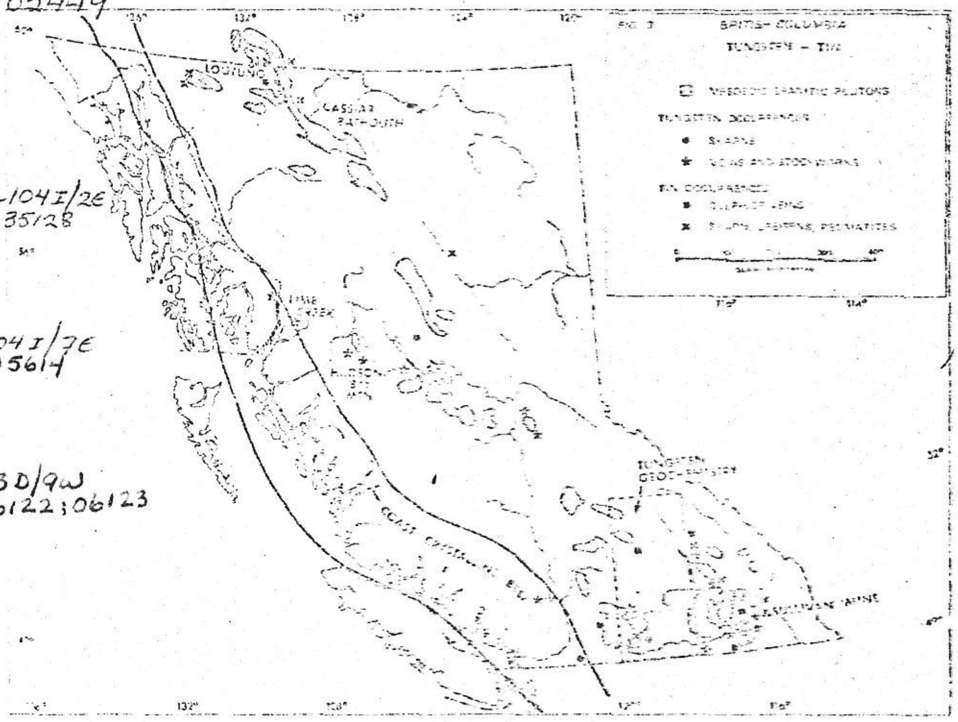
Lead-zinc deposits explored in southeast British Columbia included the Vine deposit at Moyie Lake, drilled by Cominco and the Cottonbelt Shuswap-type deposit drilled by Metallgesellschaft.

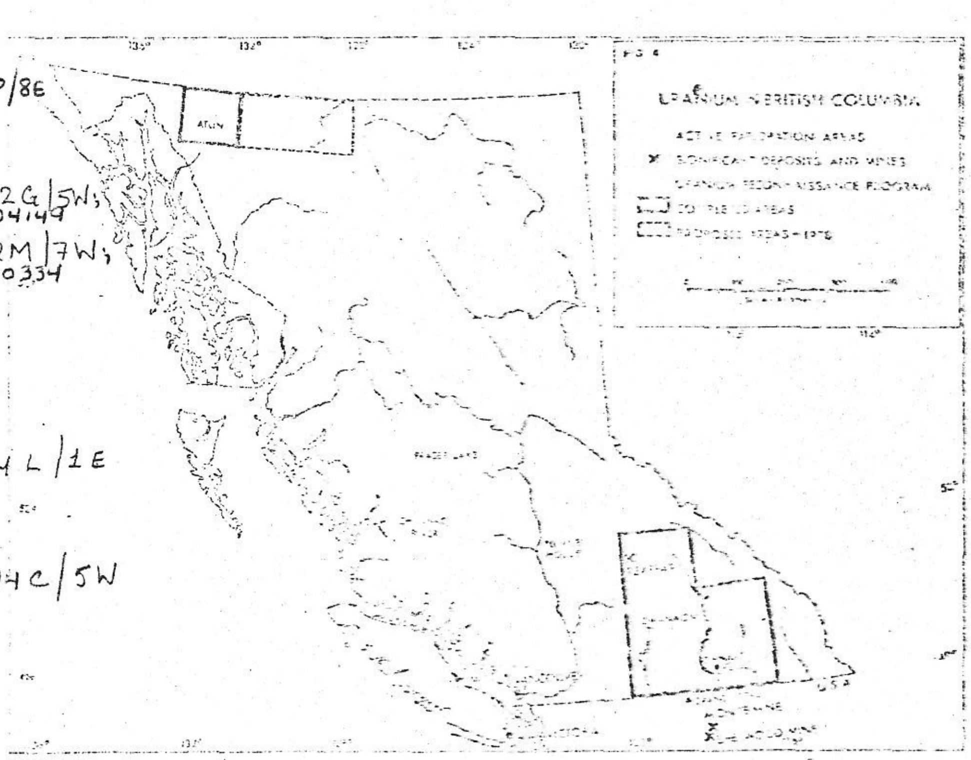
Significant lead-zinc-barite deposits in Upper Devonian-Mississippian black shale sequences in the Kechika River area of northeast British Columbia attracted considerable attention. Gataga Joint Venture conducted a major drilling program at Driftpile Creek and Cyprus Anvil drilled a similar deposit to the southeast. Also in northern British Columbia, exploration drilling continued on the Susie property where galena and sphalerite occur in dolomitized limestone.

Underground development and mill construction went on at the Nu-Energy gold deposit near Cassiar where production and mill tune-up started in December 1978. Feasibility studies continued at the Carolin gold property near Hope. Exploration programs for gold and silver included Tournigan Mining's drilling and underground work at Big Missouri north of Stewart, and projects by several companies on gold mineralization on Porcher and Banks Island south of Prince Rupert and on the Queen Charlotte Islands.

The moratorium on the issuance of new coal licences was lifted in February and this had the effect of doubling the number of valid licences. In the Peace River Coalfield, significant drilling programs were carried out on the Sexton and Belcourt properties of Denison Coal, on the Pacific Petroleum-Canadian Superior-McIntyre Wapiti River property, and on Ranger Oil's Mount Spieker property. Underground development and drilling on the Sukunka property was continued by BP Coal, and Brameda explored the Burnt River thermal coal deposit. Various companies began preliminary exploration of new licence areas.

Crowsnest Resources continued development of the Line Creek thermal coal property in southeast British Columbia and also drilled their Corbin and Sage Creek properties.





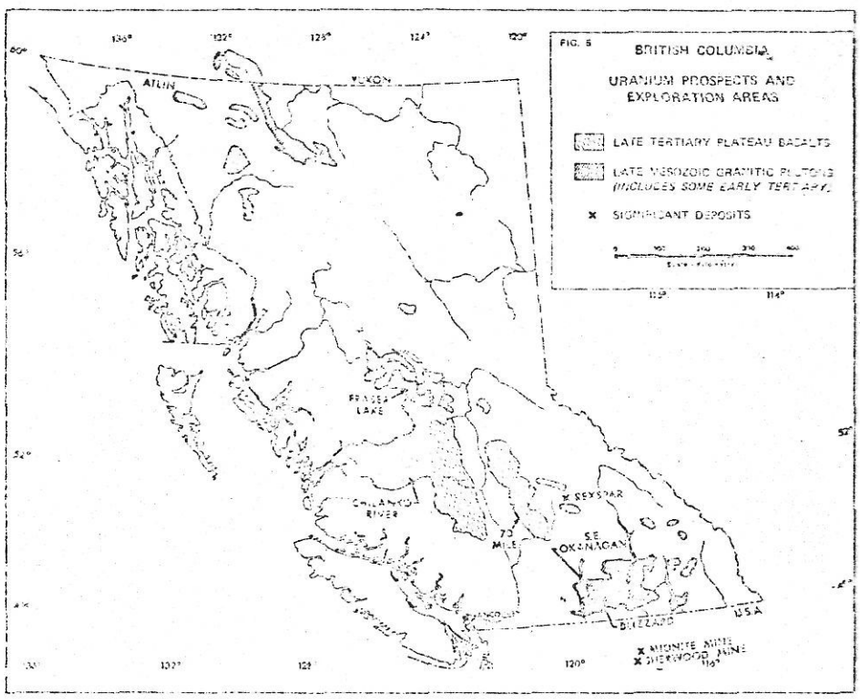
Thermal coal deposits explored elsewhere in the Province included drilling programs by Luscar-Weldwood at Quinsam on Vancouver Island and by Cyprus Anvil at Tulameen and Telkwa.

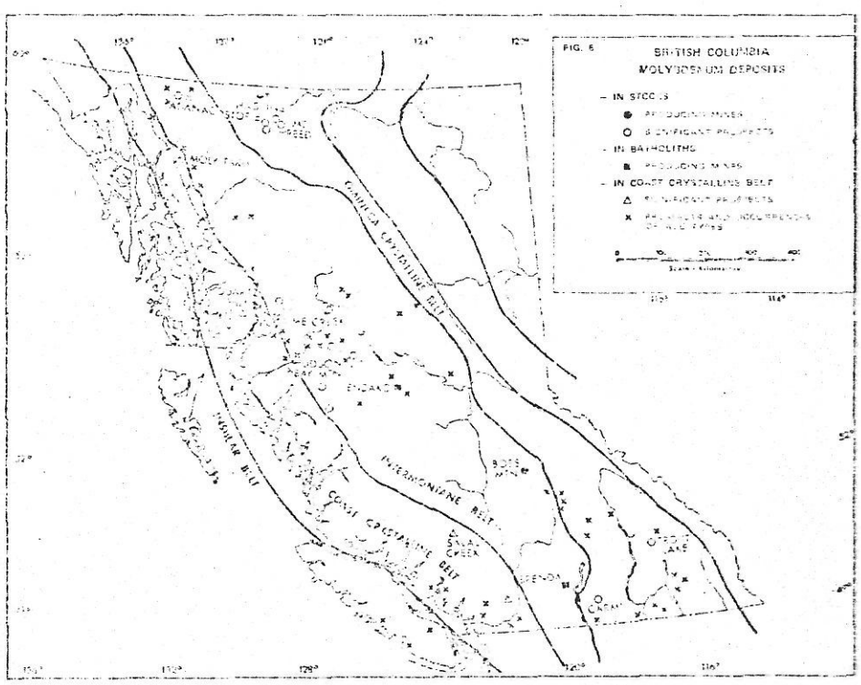
GOVERNMENT PROGRAMS TO ENCOURAGE EXPLORATION

Ongoing geological programs include regional mapping in areas of mineral potential and studies directed to the better understanding of ore deposits. Related programs include reconnaissance geochemical surveys in selected areas (Fig 2), principally through the three-year Federal-Provincial Uranium Reconnaissance Program (URP) which was completed in 1978. This program involved the collection of stream sediments and waters at a sample site density of one per 5 square miles. Waters are analysed for fluorine and uranium and sediments for uranium and up to 11 other elements. To date results for six 1:250 000 map sheets have been published, including five in southeastern British Columbia (Fig 2) and the Atlin sheet in the northwestern part of the Province. The 1978 sampling program included the Jennings River-McDame map-area east of Atlin, and survey results will be made available in the spring of 1979.

The 1978 Accelerated Mineral Development Program, funded by $5-million made available through Bill 5, Revenue Surplus of 1976/77 Appropriation Act, 1978, included an Accelerated Geochemical Survey of two map-areas in west-central British Columbia (Fig 2). This program is modelled after the Uranium Reconnaissance Program except that sample site density was one per three square miles. Data from this program are to be released in April of 1979.

The Accelerated Mineral Development Program also expanded existing Ministry programs including Prospectors' Assistance, funds for mineral roads, and mine site reclamation. In addition, funds were made available to assist with labour costs for underground mine development and property exploration, and for the Mineral Exploration Incentive Program which reimburses junior mining companies and prospectors for one-third of field expenditures up to a maximum of $50,000.





MOLYBDENUM, URANIUM, TUNGSTEN, TIN EXPLORATION

These four elements occur together in a number of areas in British Columbia, particularly in the Omineca Belt, noted for its diversity of elements. A significant correlation between the four has been noted in northwest British Columbia, specifically in the Atlin area where URP geochemistry has shown the Late Cretaceous Surprise Lake batholith to be anomalous not only in these four elements but also in lead and zinc and to a lesser degree copper and nickel.

Tungsten-Tin

Tungsten and tin minerals occur together in the northwest and southeast parts of the Omineca Belt (Fig 3), commonly within Mesozoic and younger granite plutons and adjacent late Precambrian and Early Paleozoic miogeoclinal sedimentary rocks.

At present there is no tungsten production in British Columbia. Tin is produced as a by-product (187 478 kilograms, 1977) from the Sullivan mine where cassiterite occurs throughout the lead-zinc deposit but is mainly concentrated just above the footwall of the orebody and in tourmalinized fractures in the footwall. The origin of this tin mineralization is not clear but it may be related in part to tourmaline-beryl-bearing granitic stocks of Precambrian age which are known south of the mine.

Numerous tin occurrences are known throughout the Kootenays where many lead-zinc veins contain stannite and some tungsten. At the former Emerald tungsten mine near Salmo, scheelite occurs in skarns developed in Cambrian

Emerald - 82F/3E; -01195

limestones adjacent to Cretaceous intrusions.

As shown on Figure 3, tungsten analyses of 700 stream sediment samples from the 1976 Uranium Reconnaissance Program survey area were released in August 1978. Anomalous values were obtained from several areas, principally in the southwest corner of the area adjacent to the US border.

One of the most active exploration areas in the Province was in the Atlin-Jennings River-Cassiar area where considerable effort was directed to the search for tungsten and tin. Three types of tin occurrences are known in this part of northwest British Columbia and adjacent Yukon. Cassiterite occurs in the gold placer creeks east of Atlin which drain the Surprise Lake batholith which hosts quartz-wolframite veins with tin as a minor constituent. Minor tin is associated with scheelite at the Adanac molybdenum property, and in skarns in the general area.

Geochemistry indicates higher than average trace amounts of tin in the polymetallic multiphase Surprise Lake batholite. Further east, the Seagull, Klinkut, and Glundebery batholiths underwent considerable exploration for tungsten and tin. Principal rock types are miarolytic biotite quartz monzonites with muscovite granite and aplite phases. Tin-tungsten mineralization with beryllium and molybdenum is associated with fluorite and boron minerals (tourmaline, axinite) in skarns developed marginal to these plutons. At Ash Mountain, tin occurs in an andradite garnet skarn while at the Blue Lite property cassiterite and scheelite are contained in magnetite-pyrite veins. In the Cassiar area tin is a minor constituent of lead-zinc sulphide veins marginal to the Cassiar batholith.

Logtung, on the British Columbia-Yukon border (Fig 3), is a significant stockwork tungsten-molybdenum property on which a major drilling program was continued by Amax. Scheelite and molybdenite occur in a quartz veinlet stockwork in porphyritic alaskites, quartz monzonites, and contact hornfels and skarn. The skarns also contain beryl, minor wolframite, and tin, fluorite, and tourmaline. Published drill-indicated reserves are 200-million tons of 0.12% WO_3 and 0.06% MoS_2.

Tungsten analyses of stream sediments collected in the Atlin area by the URP survey were released earlier in 1978 and tungsten will be analysed along with 11 other elements in samples collected from the Jennings River-McDame map-area in 1978.

Uranium

1978 was the third year in which intense exploration activity took place for uranium. It is probable that 60 per cent of the mineral claim units recorded to date were located principally for uranium. Areas of significant claim staking activity were the Okanagan, the south-central interior, south of Fraser Lake, and Atlin (Fig 4).

Two potentially economic types of uranium deposit have been identified in British Columbia. Rexspar is a volcanogenic deposit in which uranium minerals and fluorite occur in trachytic volcanic rocks which are part of Paleozoic pile of schistose acid fragmental volcanic rocks. The Blizzard, southeast of Kelowna, is a basal or paleo-stream channel deposit in which secondary uranium minerals are contained in poorly consolidated Tertiary sediments preserved beneath a Pliocene basalt cap. Continued drilling of this deposit, owned by Lacana and under option to Norcen, has indicated the presence of 2.1-million tons averaging 5 pounds per ton U_3O_8.

Primary and secondary uranium minerals are also known to occur in pegmatite swarms in Monashee gneisses at China Creek near Castlegar and north of Grand Forks (Fig 4). Drilling programs on both of these properties were carried out during the year.

Exploration drilling for basal Tertiary-type deposits continued in the southeast Okanagan, at Chilanko River and 70 Mile House in the south-central

interior and south of Fraser Lake-Vanderhoof.

Results from the URP geochemical program have indicated a number of Late Mesozoic granitic plutons with anomalous uranium values in southeastern and northwestern British Columbia. These may represent potential source rocks for basal-type deposits or may contain primary deposits within or adjacent to them. The distribution of some of these relative to Late Tertiary volcanic rocks is shown on Figure 5 and these include the Surprise Lake batholith near Atlin, and the Fry Creek, Baldy, and Nakusp batholiths and Bugaboo and Horsethief Creek stocks in southeast British Columbia. URP data have shown anomalous uranium values in stream sediments and waters from drainages underlain by Eocene volcanic sequences along the west side of Okanagan Lake.

Molybdenum

Molybdenum production in British Columbia in 1977 was 34-million pounds, or about 20% of free world production, second only to the United States. The Province's prominent position in molybdenum production was attained in 1965 with the start-up of the Endako and Boss Mountain mines. Molybdenite is the principal commodity at present price levels at Brenda, and byproduct molybdenite is recovered at four porphyry copper mines — Bethlehem, Lornex, Gibraltar, and Island Copper. Climax Molybdenum of British Columbia Limited have announced a 1982 production date for the former British Columbia Molybdenum mine on Lime Creek, near Alice Arm. The deposit will produce 10 million pounds of molybdenum per year over a 25-year life.

At the end of 1974, molybdenum reserves of producing mines and significant undeveloped molybdenum-bearing deposits was estimated to be 1340-million tonnes of contained Mo, making British Columbia one of the world's truly great molybdenum metallogenic provinces.

A great number of significant molybdenite deposits and prospects are known throughout the Province (Fig 6) and, while the greatest known concentration is in the Intermontane Belt, they are distributed throughout all tectonic belts with the exception of the Eastern Marginal Belt. The majority of deposits are stockworks and are associated with composite quartz monzonite stocks of Late Cretaceous-Early Tertiary age which intrude older layered rocks or granitic batholiths, as at Adanac and Boss Mountain.

Molybdenite mineralization at Endako and Brenda is related to late stage intrusive phases of the Francois Lake and Pennask batholiths, both of Late Jurassic age.

Significant molybdenum deposits have been identified in the Omineca Belt and, like the majority of those in the Intermontane Belt, are related to small stocks of Late Cretaceous and Early Tertiary age. These include the clustering of deposits near Cassiar where the Mount Hasking and Mount Reed deposits are associated with small Eocene quartz monzonite stocks, while the Storie and Cassiar Moly deposits are hosted by acidic intrusive phases of a Late Cretaceous stock on the eastern margin of the older Cassiar batholith.

At Trout Lake in southeast British Columbia (Fig 6), molybdenum mineralization is related to a buried Late Cretaceous quartz monzonite stock which intrudes a highly deformed Lower Paleozoic sedimentary sequence. Drilling of this significant discovery by Newmont and Esso Minreals is continuing to further define a reported 900-foot intersection of 0.40% MoS_2. An underground exploration program is under consideration for 1979.

The significance of molybdenite mineralization in the Coast Crystalline Belt was recognized by the discovery of the US Borax Quartz Hill deposit east of Ketchikan in southeast Alaska. Molybdenite mineralization in quartz vein stockworks is associated with a multiple phase Oligocene intrusion which cuts older plutonic and metamorphic rocks. Similar young intrusions host molybdenite mineralization at the Salal and Gem properties in southwest British Columbia. The Moly Taku prospect, east of the International Boundary in northwest British Columbia (Fig 6) and being explored by Omni Resources, may be of a similar type.

The great clustering of molybdenum deposits in the Alice Arm-Terrace area (Fig 6) includes the Lime Creek and other stockwork deposits marginal to the Coast Plutonic Complex as well as a number of occurrences within Coast granitic rocks. A significant feature of these deposits is their coincidence with the distribution of Quaternary basalt flows.

The discovery of significant molybdenite deposits in the Coast and Omineca Belts effectively renders two-thirds of British Columbia attractive for molybdenum exploration, particularly in areas that have heretofore received only limited attention.

SYNTHESIS

Exploration for a variety of mineral commodities increased throughout the Province in 1978. 'Glamour' commodities were molybdenum, uranium, tungsten, and tin, and molybdenum exploration is expected to continue at a good pace while the levels of activity for uranium, tungsten, and tin will depend on the success of exploration ventures currently underway. Lead-zinc exploration is expected to increase, particularly in northeast British Columbia, and at present price levels increased effort will be directed to the search for gold and silver. Coal exploration should show a noticeable increase in response to work requirements on new licence areas. Finally, strengthening world copper markets will further encourage exploration for massive sulphide deposits and may in turn predicate a return to significant porphyry exploration.

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B.C. moly group encourages N Miner Feb 22/79

Imperial plans active year following 1978 profit boost

Several promising new projects in the oil-gas and minerals sectors are emphasized in its 1978 interim report by Imperial Oil.

While attention on Imperial's participation in the minerals sector has focused largely on the rich Midwest Lake, Sask., uranium discovery (Imperial's wholly-owned **Esso Minerals Canada** is the project's manager-operator and holder of a 50% interest), the company is a joint partner with **Newmont Exploration of Canada** in the promising Trout Lake molybdenum property in British Columbia. 82K/12E 8897

Commenting on the Trout Lake molybdenum property, the interim report continues: "Diamond drilling . . . has confirmed the grades and core width of the molybdenum mineralization encountered by one hole drilled in 1977. Depths ran from 300 metres to 670 metres at grades of 0.2% to 0.4% molybdenite (per ton). Grades of molybdenite currently being mined underground in other places in North America are in this range."

Newmont Exploration, the project operator, will carry out further exploration on the Trout Lake property in 1979.

Imperial's unaudited financial and operating report for '78 shows earnings ahead to $416 million or $2.41 a share from $299 million or $2.25 a share in 1977. Fourth quarter 1978 profit of $90 million or 69¢ a share was up from $84 million or 65¢ a share in the like period of 1977.

The company's gross output of crude oil and natural gas liquids averaged 231,000 barrels a day in 1978, compared to 230,000 barrels daily in 1977. Sales of natural gas averaged 346 million cu. ft. a day last year, down from 363 million cu. ft. a day in 1977.

Imperial's sales of petroleum products rose to 449,000 barrels a day last year, an increase from 443,000 barrels a day in 1977.

There was a sharp increase in the company's capital and exploration spending during 1978 to $535 million from $412 million a year earlier.

This year, Imperial will drill 2 deep offshore wells in Atlantic waters. The first will be off the east coast of Newfoundland and the other will be drilled off the south coast of Baffin Island (N.M., Nov. 30, 1978).

"The drilling program is designed to accomplish as much exploration drilling as possible with one (drilling) vessel in the time available in these waters," says the report.

At the end of 1978, Imperial had completed about one-half of an artificial island that was started in the Beaufort Sea last summer. Located in 18 metres of water, the island will be completed during the summer of 1979 and drilling there will be started late this year.

"The island is nine kilometres north of the company's Isserk well, in which a show of gas was discovered in 1978."

During the last quarter of 1978, Imperial acquired 67,370 gross acres of oil-gas lands in Western Canada. Significant acreage additions were made in the Elmworth area of Alberta and British Columbia and in Northeastern British Columbia.

Successful wells

Working alone, or with others during 1978, Imperial drilled 107 exploration wells in Saskatchewan, Alberta and British Columbia. This was an increase of 61 in the number of wells drilled in the same regions during 1977. Of the 103 wells drilled, 73 discovered oil and gas in commercial quantities.

Syncrude Canada, in which Imperial holds a 31.25% interest, is expected to make an increasingly significant contribution to Imperial's earnings as the new operation increases its production towards its permit capacity of 125,000 barrels a day in the early 1980s.

In other developments, Imperial notes that public hearings into the $4.7 billion Cold Lake, Alta., oil-sands project are expected to be concluded early this year.

The report continues: "If approval is received from the Alberta government to proceed with the project and if the necessary royalty arrangements are established by mid-1979, the proposed plant could be on stream by late 1985, adding about 140,000 barrels per day to Canada's production of conventional oil, which will be declining at that time."

(3)

B.C. 'moly' bet ✓

N. Miner Feb 22/79.

Newmont-Imperial Trout Lake group a potential mine

A decision to embark on an extensive underground development program, including the driving of a long adit, is expected to be made this year at the promising Trout Lake, B.C., molybdenum joint venture of **Newmont Exploration of Canada** and **Imperial Oil Ltd.**

The program could involve expenditures of "several millions of dollars," T. N. Macauley, Newmont's Western Canadian exploration manager, tells The Northern Miner.

Mr. Macauley describes the Trout Lake project as "a very open-ended

See Page 2

Trout Lake 82K/12E
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8897

Trout Lake project

Continued from Page 1

situation" that requires further deep drilling this year.

"Yes, we're quite encouraged by the work to date," he says of the project. The significance of the Trout Lake find is stressed in Imperial Oil's interim report for 1978 (see separate Imperial Oil story).

Ongoing deep drilling in 1978 at the property, which is located some 35 miles southeast of Revelstoke, confirmed grades and core width of molybdenum encountered by one hole drilled in 1977.

The grades and sections are impressive: Depths ran from 300 metres to 670 metres averaging 0.2% to 0.4% molybdenite per ton.

In one deep hole in previous drilling, there was one intersection of 890 ft. averaging 0.40% molybdenite per ton. Within this intersection were even higher grades (up to 0.915% molybdenite per ton) over widths of 170 ft. and 220 ft.

Comments Imperial Oil: "Grades of molybdenite currently being mined underground in other places in North America are in this range (0.2% to 0.4% molybdenite per ton)."

Mr. Macauley confirms that Newmont, which is the project's manager-operator, will be conducting additional deep drilling on the property this year, although he declines to disclose the extent of planned drilling.

"The drill program will be similar to that undertaken last year," he says, adding that before the partners proceed to a feasibility study it will be necessary to carry out extensive underground development. A decision on such a program is likely to follow this year's deep drilling.

The Trout Lake property is at an elevation of 5,000 ft. Driving of an adit will be a requirement in any underground development program.

Big moly find in deep drilling on B.C. group

N. MINER 4-MAY-78

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Newmont Exploration of Canada (55%) and **Esso Minerals Canada** (45%) in a joint program of deep diamond drilling appear to have their teeth into what could be a major molybdenum deposit in British Columbia. Known as the Trout Lake prospect, the property is located some 35 miles southeast of Revelstoke and has been under investigation by these companies since 1976.

Significantly, the deepest hole yet drilled has also turned out to be the best. It has returned a remarkable intersection of 890 ft. averaging 0.409% molybdenite (MoS_2). Included in this intersection are such intercepts as 170 ft. averaging 0.549% MoS_2, and a core length of 220 ft. carrying an exceptional average of 0.915% MoS_2.

The hole is described as intersecting the mineralized zone at an inclination of about 40 degrees, thus suggesting a true width of 600 ft. or more, it is gathered. The intersection was also at about 1,800 ft. below surface.

The hole is the latest of a series of 10 deeper holes that the partners have put down and which have yielded a number of good grade intersections indicating the potential for a commercial deposit. First of these holes were drilled in 1976 and were to about the 1,000-ft. horizon.

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B.C. moly

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while those completed in 1977 were to depth of about 1,200 ft. below surface.

A notable feature of the structure is that rock alteration and mineralization are more intense and more extensive with depth. This is in line with the fact that early diamond drilling by others, a number of years ago, was to shallow depth only of about 300 ft. or so and gave only indifferent results.

The Northern Miner gathers that the structure has now been drilled by the partners along a length of about 1,500 ft., so tonnage could build fast with further work. In this respect it is gathered that the program of deep drilling will be resumed within the next couple of weeks or so. The property, it is pointed out, is quite accessible; being at an elevation of about 5,000 ft. and reachable by a jeep road from the main highway.