

EMERALD TUNGSTEN MINELOCATION:

Emerald Mine and the surrounding ground held by Canadian Exploration, Ltd., are situated on Iron Mountain between Sheep Creek (on the north) and Lost Creek, some eight miles southward from Salmo in the Nelson Mining Division (see Fig. 1).

EMERALD TUNGSTEN MINE

HISTORY:

- 1908 - John Waldbeser staked the Emerald Pb-Zn mine - produced 426 tons of lead ore.
- 1910 - Iron Mountain, Limited, subsidiary of Pacific Coast Steel, of San Francisco to operate Emerald Mine - Waldbeser as manager.
- by 1915 - 12,000 tons of lead ore had been shipped to Trail.
- 1917 - Emerald Road extended to Jersey claims.
- 1917 -1919 - 3 adits opened - missed mineralization.
- 1919 - (Canadian Exploration, Limited found 60,000 tons of ore here later).
 - 25-ton capacity mill erected, 42-tons milled.
- 1920 - concentrator remodelled , 900 tons milled.
- 1924 - Arthur Lakes retained by Iron Mountain Ltd. to do detailed geological mapping.
 - Harold Lakes joined the Company to study low milling recovery.
- 1926 - all production and development suspended due to low market prices.
- 1934 - mill destroyed in forest fire.
- 1936 - further surface exploration carried out by the Company.
- 1938 - stripping and 35 feet of tunnelling completed.
- 1939 - 1940 - tunnel driven from the Dodger claims southward along the ore zone. Little mineralization intersected and it was assumed that ore was in folded dolomites above the roof.
- 1941 - a map (1" = 50') prepared, showing all outcrops on the property from the Dodger claims on the north to the Jersey claims on the south.
 - trenching and drifting done on Dodger claims and in old Emerald lead-zinc mine.

Skarn beds found to contain molybdenum and tungsten as scheelite.
Exploration for tungsten ensued.

M.S. Hedley, District Mining Engineer for B.C.D.M., was sent in to examine the showings and take samples for assay.

- Aug.17/42 - Wartime Metals Corporation took over and operated it as the Emerald Tungsten Project.
- Sept.27/42 - E.E. Mason put the property into production
 - camp buildings, plant, a new road, 4½ miles of power line, 6,000 feet of tramway, and a 300-ton concentrator over the next 14 months
 - underground development was partially completed.
- Oct. 15/43 - war demand for tungsten ceased - operation closed down. 267 short tons containing 15.07% WO₃ had been produced and reserves were reported as 250,000 tons of 1.25% WO₃ ore
- 1947 - claims purchased from Iron Mountain, Ltd. by Canadian Exploration Ltd.
 - efforts concentrated on exploration for, and development of tungsten ore. The proved 60,000 tons of good grade lead-zinc ore at the same time.
- 1948 - Emerald tungsten mine closed due to declining prices - last ore milled in January 1949.
- 1949 - Tungsten mill converted to lead-zinc mill. Jersey lead-zinc ore was producing 8,000 tons per month.
 - road improved, power line extended compressors moved in.
 - two adit levels driven
 - Exploratory drilling continued proving that the ore zone extended northward from the Jersey mine to the Dodger claims, a distance of 7,000'.
- 1951 - Federal Government purchased two blocks of ground covering the Emerald Tungsten mine.
 - Government erected a 250 tone tungsten mill
 - diamond drilling results encouraging
 - Company purchased the mill and increased capacity to 300 tons per day
- 1952 - Company bought back the two blocks of ground

GEOLOGY & MINERALIZATION

Limestones and argillites of the lower part of the Laib Group have been subjected to varying degrees of metamorphism. Much of the limestones are altered to skarn and some have become silicified. A "gree-ish" dyke and an aplite dyke have been found cutting these rocks in the area of the Emerald lead-zinc mine. (GSC Memoir 172, 1934).

The orebodies lie in a trough that plunges gently southward, flanked on the east by a fine-grained granite stock and on the west by a band of argillite dipping eastward.

Tungsten is found as scheelite in the skarn beds.

Emerald lead-zinc ore occurs on the steeply dipping eastern limb of an anticline which persists for 150 feet, beyond which it flattens. The major part of the ore is of the replacement type and occurs following the bedding of limestone. The amount of mineralization decreases with depth and at the same time the amount of zinc increases with depth. Small rolls occur throughout the working, some with associated mineralization, just east of the contact with the granitic stock.

Sulphides consist of galena, sphalerite, pyrite and pyrrhotite. These are partly oxidized near surface.

Figure 2 shows the location of the five mines and the surface geology (Little, 1953).

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The Lead-Zinc and Tungsten Properties of Canadian Exploration, Limited, Salmo, B.C.

(Annual Meeting, B.C. Division, Vancouver, October, 1952)

(Transactions, Volume LVI, 1953, pp. 238-246)

History of the Properties

By J. D. LITTLE*

THE SALMO PROPERTIES of Canadian Exploration, Limited, comprise forty-one Crown-granted mineral claims situated on Iron mountain between Sheep creek (on the north) and Lost creek, some eight miles southward from Salmo, in the Nelson mining division (see Figure 1). On these claims there are at present four operating mines. These are, from north to south, the Dodger, Feeney, and Emerald, all tungsten mines, and the Jersey, a lead-zinc mine, about 7,000 feet south of the Dodger. About midway between the Dodger and the Jersey is a fifth mine, the Emerald lead-zinc mine, which was the first producer in the area but has been inactive since 1926. The locations of the mines are shown in Figure 2.

Records of prospecting and claim staking on Iron mountain — which owes its name to the presence of large iron-stained outcrops — go back to 1895. The first recorded owner of the claims that form the old Emerald lead-zinc mine was John Waldbeser who, in 1908, did considerable work and produced 426 tons of lead ore valued, at the then price of lead, at \$7,000. This ore was chiefly lead carbonate and was taken from the surface outcrops of two bands of ore that form the Emerald orebodies. In 1909, the Emerald was the largest lead producer in the Nelson mining district.

On June 7th, 1910, Iron Mountain, Limited, subsidiary of Pacific Coast Steel, of San Francisco, was organized to operate the Emerald property, John Waldbeser being retained as Manager. Underground

development was concentrated chiefly on two northeasterly-striking lead-zinc 'veins', forty feet apart. A crew of 5 to 20 men was maintained at the property, and by 1915 a total of 12,000 tons of lead ore had been shipped to the Trail smelter. It is of interest to note that in that year freight charges from the mine to Salmo were \$4 per ton, and freight charges plus treatment charges at the smelter amounted to \$7.50 per ton.

Although lead-zinc mineralization had been reported in the early years on what are now the Dodger and Jersey claims, there is no record of development work having been carried on, outside of that at the Emerald mine, until 1917. In that year, the road at the Emerald mine was extended for a mile and a half southward into Lost Creek valley to gain access to the Jersey claims, on which a promising outcrop of lead-zinc ore had been discovered. Between 1917 and 1919, three short adits were opened on these claims, but they missed by approximately 40 feet the 60,000 tons of ore which later was taken from this property by Canadian Exploration, Limited, the present owners. In 1919, a mill of 25-ton capacity was erected, and production from the Jersey mine in that year amounted to 42 tons. In 1920 the concentrator was re-mod-

elled and production of ore and concentrates in that year totalled 900 tons.

In 1924, the Company retained Arthur Lakes, well-known present-day consulting geologist of Nelson and Spokane, to make a detailed geological survey of the whole property. His mapping showed that the Emerald lead-zinc ore occurs on the steeply dipping eastern limb of an anticline which persists for 150 feet, beyond which it flattens, and that the major part of the ore is of the replacement type. At this time, also, Harold Lakes, the present General Manager of the Salmo properties of Canadian Exploration,

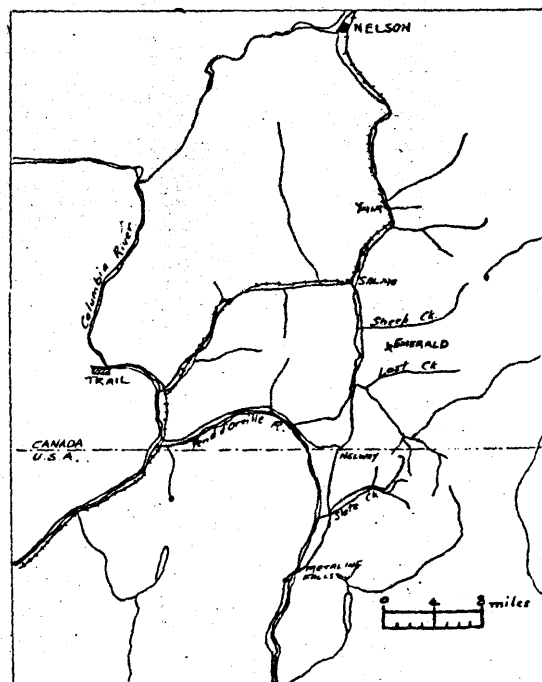


Figure 1.—Sketch-map showing location of property.

*Mine Superintendent, Jersey Mine, Canadian Exploration, Limited, Salmo, B.C.

Figure 2.

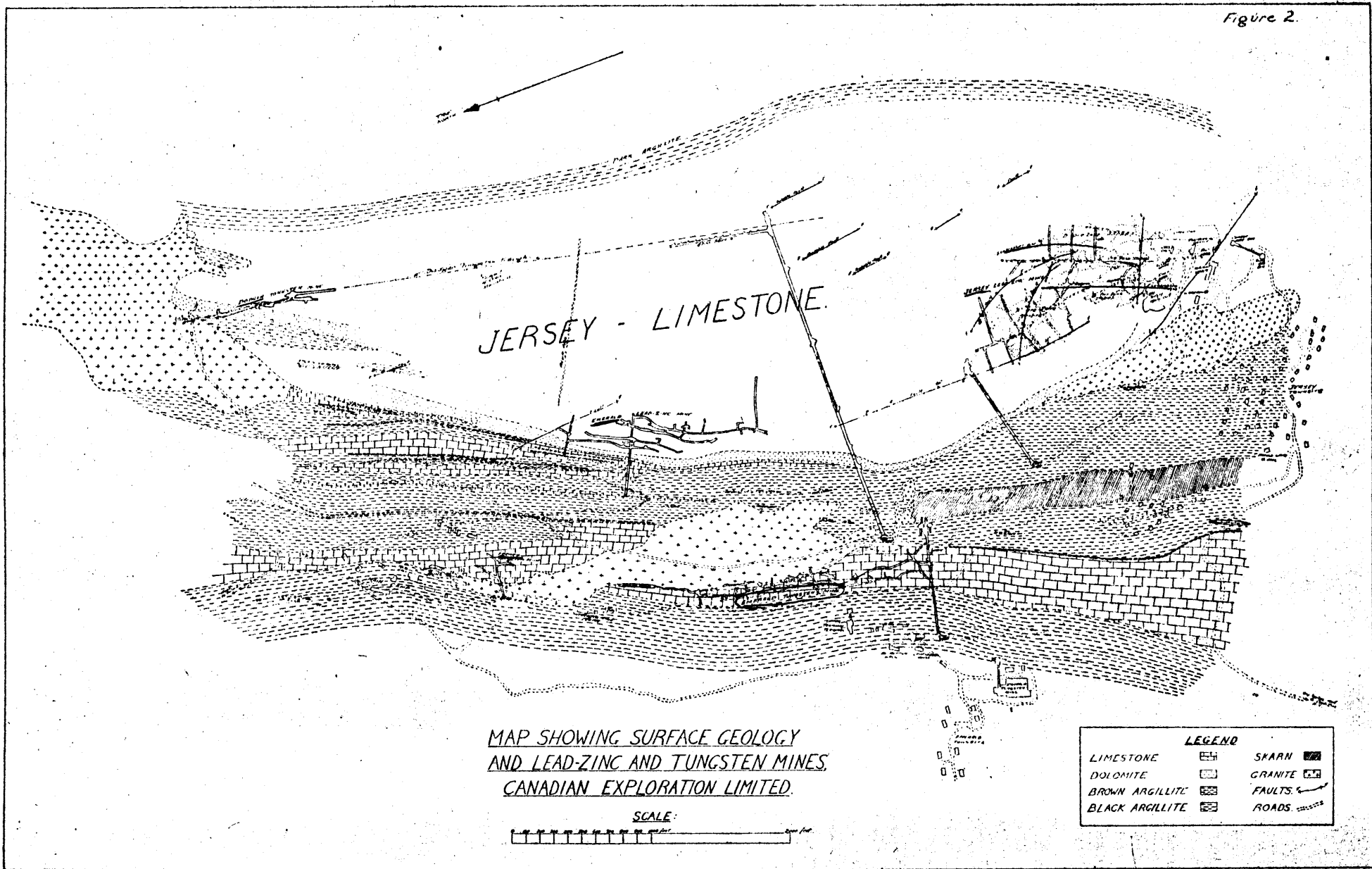


Figure 2.