GEOLOGY AND MINERALIZATION 82F/6 822984 Nelson File Geol.

Gold occurs on the CALIFORNIA and adjacent EXCHEQUER Crown Grants within one or more quartz veins striking easterly between 080° and 120° and dipping from -55° to -65° to the south. Host rocks are andesitic volcanics of the Lower Jurassic Rossland Formation which in some instances show faint remnant bedding and/or schistosity sub-conformable in orientation to that of the mineralized quartz veins. These host rocks are part of a roof pendant which contacts granodiorite of the Nelson Batholith less than three-quarters of a mile away.

Detailed large-scale geologic mapping would be required to unravel the complexities of the vein system(s) present, however an examination of the property discloses the following:

- The principal gold carrier is a composite vein with generally separate footwall and hanging wall portions. The two portions are separated by unmineralized wall rock varying from 3 to 6 inches thick. The footwall vein varies in thickness between 2 and 6 inches and is the prime gold gold carrier. The one sample taken assayed over 4 ounces gold per ton (see plan) with significant silver, lead, and zinc values. According to Hardwicke, his sampling has consistently run 2 ounces gold per ton in footwall vein material. The footwall vein consists of quartz and often contains sphalerite, galena and invariably pyrite. Gold content appears to be high whenever sphalerite and galena are present. The hanging wall vein carries low values in gold and silver, consists of quartz with sparse pyrite, and averages approximately 6 inches in width.

- Further parallel veining appears to be present. This can include massive sections up to 7 feet in width as in tunnel #3, as well as zones of thin parallel stringers. Both appear barren or low grade, however further sampling could prove enlightening.

- As is common with deposits of this type, the veins appear to pinch and swell along strike.

- In all probability lateral continuity is interupted by a series of northerly striking slip faults of limited displacement.

- Veins are generally bounded by sheared, graphitic material. Tunnel roofs appear to have stood up reasonably well over the years.

California Deadwood, Hellcide, Cleopatra, Exchequer, Union, Cliff Fraction
crown granted claims (L1677, L2232, L2238, L387, L391, L324, L1502) Nelson District
- owned by Richard Palmer, 605 - 3rd St Nelson

California. Another Toad mountain shipping mine is the *California*, owned by Mackenzie & Mann. In January, under the lease of Marks Brothers, it shipped 36 tons of gold-copper ore to Trail. The option lapsed, and in the latter part of the year J. P. Bell and William Hudson obtained a lease and bond on the group. In December the mine force was increased to thirteen men, and at the close of the year the lessees made shipments to Trail. It is their expectation to ship regularly the ensuing year to the Granby smelter, where the process is said to especially suit the ores of the property.

M.M.A.R 1910 p 104

California. This mine is owned by Wm. Moore, of Nelson, and is composed of a group of five claims, three of which are Crown-granted—viz., *California*, *Union*, and *Deadwood;* the other two—*Gold King* and *Cliff*—have been surveyed. The claims are situated on Toad mountain, three miles south of Nelson, and Mr. Moore has bonded the group to W. H. Turner, of Spokane, who has taken a lease on the *Athabasca* compressor and has a pipe-line to No. 2 and No. 3 tunnels of the *California;* two air-drills are now being worked in No. 2 tunnel, and as soon as there is sufficient water, No. 3 tunnel will be operated with two air-drills.

Forty tons of ore was shipped to Trail smelter on December 14th last, averaging $25 a ton in gold and 3.02 oz. in silver. Six men have been working steadily for the past three months, and as soon as power facilities will permit more men will be employed.

M.M.A.R 1916 p 203

California. This mine, originally owned by W. H. Moore, of Nelson, was acquired in 1916 on a bond by the California Mining Company, with registered office at Nelson. The officers of the company are: J. R. Cassin, of Spokane, president; W. R. [illegible], secretary-treasurer; and W. H. Turner, manager. The property consists of five claims [illegible]*fornia*, *Union*, *Deadwood*, *Cliff*, and *Gold Ring*—situated on Toad mountain at a distance of three miles south of Nelson. During the last four years the development-work has been systematically carried on under the superintendence of W. H. Turner, with the object of blocking out sufficient ore to warrant the operation of a concentrator. In order to facilitate the work the compressor at the *Athabasca* was leased and 4,000 feet of pipe-line laid to the mine.

The vein is a quartz-filled fissure occurring in a band of schists near a granite-contact. It has persistence in strike and dip, and by means of underground and surface work is found to be continuous for some 1,000 feet along the strike. It has a distinct banded structure and has been formed along a line of shearing, as evidenced by the slickensided rock surfaces. The dip of the vein is 52 degrees to the south and the strike S. 80° W. The width varies from 5 to 10 feet. The ore occurs in long narrow shoots. The principal values are in gold, the associated minerals being iron pyrites, zinc-blende, and a little galena. The highest gold values are generally found to be associated with the zinc-blende. The gangue is quartz.

The vein is developed by three adit levels. The No. 1 level is a drift along the vein, from which ore has been stoped to the surface. This level is now caved. The No. 2 level has been driven 106 feet vertically below No. 1. The length of the level is approximately 627 feet. Here the vein has been drifted on for 206 feet; five car-loads of ore shipped from this level are said to have carried values of from $17 to $26 in gold, about 30 per cent. of which was in the free state. There is a considerable quantity of ore available for milling in this level. The No. 3 level gains a vertical depth of 170 feet on the No. 2. This level has been driven by the company, and followed a barren vein for 1,200 feet, when it intersected the *California* vein. This latter was drifted on for about 300 feet, showing a width of from 3 to 5 feet. Across this width the average of numerous samples taken by the manager indicate favourable possibilities of winning a considerable tonnage of $17 ore from between this level and the No. 2.

During the year arrangements were completed for the leasing of the *Athabasca* mill, and one mile of road was built connecting the two properties. The mill is being remodelled, and it is anticipated that the mine will enter the list of producers in the near future. The systematic and conservative manner in which the development of the mine has been carried out reflects credit on the management.

M.M.A.R 1919 p 133

California. This group, comprising the *Union*, *Deadwood*, *California*, *Hillside*, and *Exchequer* Crown-granted claims, and the adjoining locations, *Waverley*, *Star Fraction*, *Cliff*, and *Gold King*, has been acquired by the recently incorporated Hillside Mining Company, Limited (N.P.L.), under lease and bond from the owner, William Moore, of Nelson. The property is situated on the north-eastern slope of Toad mountain, about 3 miles by road from Nelson. Approximate elevations, from aneroid readings, the workings on the claims range from 2,900 to 3,650 feet. The total past production is not exactly known at the time of writing. Smelter returns, shown the writer, for twelve carlots of sorted ore from the *California* vein workings, shipped at intervals between 1908 and 1922, show an average gross value of about $34 to the ton, practically all the values being in gold. Several small shipments from the *Union* vein assayed $33 a ton, and a few tons from the *Deadwood* tunnel, shipped to the Hall Mining and Smelting Company in 1900, assayed $13 in gold to the ton. Most of the development-work has been done on the *California* claim and consists of three tunnels, driven mostly as drifts, which develop the vein through a vertical range of about 270 feet. No. 1 tunnel, from which ore was stoped to the surface, is comparatively short; No. 2 tunnel is over 700 feet long; and No. 3 over 1,200 feet in length. There are several short tunnels driven on the *Union* vein and on a parallel vein to the *California*. On the *Deadwood* claim there is a drift-tunnel about 100 feet long and on the *Hillside* and *Cliff* claims there are superficial workings include numerous open-cuts and trenches. The formation of the area consists of schists of the Rossland volcanic series, intruded by granitic rocks of the Nelson batholith. The *California* vein, from 2 to 10 feet wide, has been formed along a line of shearing in the schists near a granite-contact. It shows persistence in strike and dip and by means of underground and surface work has been found to be continuous for a long distance along the strike, which is westerly, the dip being about 50° to the south. The principal values are in gold, the associated minerals being iron pyrites, zinc-blende, and occasionally a little galena. The vein-filling is schist, containing long attenuated parallel lenses of quartz with which the mineralization is associated. Adjoining the *California* lead a parallel vein has been opened at two points and is said to show fair values. The *Deadwood* "vein" is being investigated as to its possibilities for large tonnage of low-grade gold ore. This deposit, explored by an old 100-foot drift-tunnel, consists of a shear-zone about 300 feet wide. Within these limits the rock, a calcareous member of the Rossland volcanic group, is highly impregnated with iron pyrites and contains numerous little veins and stringers of quartz. Several engineers have sampled accessible areas of the zone, with interesting results. The assay value of the material appears to vary considerably and information is not yet available as to what might be considered a fair average. The few samples taken by the writer averaged $3.00 in gold, but, as the showings sampled are in some cases widely separated, this figure cannot be taken to represent any definite block of ground. The results of this sampling and that done by other engineers would seem to justify careful investigation to determine if the values are confined to streaks in the zone or if there are sufficient values over large widths. Some more definite information could be obtained by crosscutting the full width of the deposit from the inner end of the old tunnel and trenching on the steep side-hill above the tunnel, followed by systematic sampling. As the deposit could be very cheaply worked, a comparatively small average yield in gold would be sufficient to justify work on a large scale. Work was started in August under the direction of F. T. Harbour, of Nelson, who sponsored the new company. Camp buildings were erected and the No. 2 tunnel has been advanced by hand to develop the westerly extension of the *California* vein below good showings of ore reported in superficial workings on the *Exchequer*. The bulk of the small shipment made in 1930 came from ore developed in driving this tunnel.

← Deadwood

N.B.

MMAR 1930 p 267

California. This property, being developed with a small crew by the Hillside Mining Company (F. T. Harbour, of Nelson, president), is situated westerly from the *Athabasca*. The veins have chiefly been explored in the schists near the granite-contact. The property is described in the Annual Report for 1930. In view of the experience gained at the *Athabasca*, veins which extend from the schist into the granite should be prospected in the untested formation, and particularly at the contact where important concentrations of values are likely to occur. In the schists the fissure-vein ore has been found to be lensy.

B.C. Dept. Mines Bull #1 Lode Gold Deposits of B.C. 1932 p 96