

C. D. MINING COMPANY LIMITED(Lone Star & Adjoining Claims)ZEBALLOS, VANCOUVER ISLAND, B. C.92L/2w
92L-15, 11, 16,
18, 19, 8, 9, 18

The property consists of the "Lone Star" mining claim and three adjoining fractions namely:- the "K", "J and E" and "Axe" fraction, all of which are crown granted and have a total area of 101.02 acres. The main adit workings are on Goldvalley creek at an elevation of approximately 1330 feet above sea level.

HISTORY and PRODUCTION. This property, including the Lone Star claim which was staked by Alex McDonald in 1934, together with the "J and E", "K" and "Axe" fractions were operated for a time by the Rey-Oro Mines Limited, under the management of Edward G. Brown. Approximately \$63,000 in gold was produced from the stopes above the 590-foot adit and from a stope 50 feet below the adit. The ore was either shipped to Tacoma or treated in a 15-ton mill which has since been dismantled. In December 1939 the C. D. Mining Company Limited was formed to take over the property. A tractor trail was built and a new compressor taken in. Shaft sinking commenced in March, 1940 and two new levels were opened up under the management of T. C. Denton. From May 1, 1940 to the end of the year 204.75 tons of hand sorted ore were shipped to the Tacoma smelter and this ore from smelter returns contained 1160.7 ozs gold valued at \$44,500 and making a total production of \$107,500 to January 1st, 1941. Ore shipments are continuing twice a month to Tacoma but no profit is being made.

DEVELOPMENT. A few small trenches or pits have been made on the "J and E" vein, Nos. 6 and 7 veins and "McDonald" vein. An 82-foot adit has been made on No. 6 vein at elevation of 1420 feet.

The main vein has been explored at elevation 1330 feet (referred to as 1200-foot level on mine plans) by an adit 690 feet in length and by two cross cuts 340 and 70 feet long and by 2 raises to the surface. Two hundred feet inside the mouth of the tunnel a two-compartment 80 degree inclined shaft was sunk and three levels developed as follows:-

<u>Depth below main tunnel</u>	<u>Feet of Drifting</u>	<u>Feet of Crosscutting</u>
50 (1250-foot level)	250	
100 (1300-foot level)	367	15
200 (1400-foot level)	285	70

In all 2087 feet of lateral work has been done, all to the northeast side of the Goldvalley creek. No development is being done at present apart from stoping the vein on the 1400-foot level to the northeast of the shaft.

GEOLOGY.

The C. D. Mining Company's property is situated near the centre of this batholith. The property is mostly heavily drift-covered. The rock, where exposed, is a massive, fairly-fresh medium-grained granodiorite or quartz diorite excepting for highly altered zones from one to 30 inches in thickness next the veins.

The granodiorite has been intruded by an occasional basic dike resembling andesite and lamprophyre and a few dikes resembling aplite and quartz porphyry from one to six feet in thickness.

Judging from the few exposures and underground workings the granodiorite is well-fractured and jointed and mineralized. A pyritized vein was observed cutting one of the andesite dikes. The veins are very pronounced, narrow fissures with fairly uniform strikes and dips. They contain quartz, pyrite, arsenopyrite, galena, zincblende, traces of chalcopyrite and very rarely visible gold. The analyses of the ore which was sorted from these 1 to 6 inch quartz sulphide lenses and shipped to the smelter gave as follows:-

Gold 2.07 to 18.56 ozs; silver .67 to 6.83 ozs; Cu .08 to .6%; Pb .3 to 2.2%; Zn .4 to 2.1%; As 1.04 to 3.83%; Fe 3.5 to 10.4%; SiO₂ 42.0 to 57.%; CaO 2.5%; S 3.7 to 9.9%; and Al₂O₃ 12.4 to 16.2%.

ORIGIN. The ore is apparently genetically associated with the granodiorite batholith. The mineral solutions, consisting of sulphides, gold, silver and silica, migrated from depth and deposited in fractures in the adjoining older rocks and along faults in the outer, earlier-cooled portion of the batholith to form the narrow lenses and stringers as they now occur.

SURFACE VEINS

Several veins occur on the property but apart from the main or No. 4 vein which has been developed underground, none of the other veins, where exposed, appear to be important; however, they are briefly described in the following paragraphs. Reference is made to veins 1 and 3 which are not now exposed.

"J and E" Vein. This vein located in the northwest corner of the property has two open cuts some 50 feet apart at altitudes 1600 and 1650 feet. The deposit strikes from N 45° E to N 70° E and dips 85° northwest. The open cuts show 4 or 5 fractures resembling a sheeted zone in coarse quartz diorite. The quartz varies from 1/4 to 1" in width and carries a little pyrite, galena and zincblende. The adjoining diorite for 1/4" to 6" on either side is bleached or altered and pyritized and contains some gouge. Grab samples of the more concentrated sulphides over 1 or 2 inches gave 0.18 ozs gold. Mr. T. C. Denton obtained 0.42 and 0.372 ozs gold from two grabs from this same vein.

No. 1 Vein, now covered, is reported to lie about 250 feet down stream from the main adit. Fair values were reported here.

No. 2 Vein, partially exposed, is located about 230 feet down stream below the main adit. A few fractures cut across the granodiorite and a 3-foot dark andesite dike which strikes northeast-southwest. The quartz veinlets are about 1/4 of an inch in width and carry a little pyrite, mispickel and galena?.

No. 3 Vein, now covered, is described as lying about 30 feet below the main adit. It is reported to have a few fractures carrying pyrite over a width of 18 inches and to strike northeast-southwest and dip vertical.

No. 4 or Main Vein. All the gold produced from this property has come from this vein which outcrops only in one place namely in the bed of Goldvalley creek at low water. Here there are four parallel veins in a width of 18 feet. Two quartz-sulphide veins one inch wide and about 18 inches apart were

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observed on the west side of the creek about 55 feet from the tunnel entrance. A parallel vein traceable for 40 feet lies 8 feet upstream to the southeast. It consists of 1 inch of quartz with mispickel and pyrite and altered diorite walls. Another parallel vein occurs a further 8 feet upstream as shown in the accompanying photograph. The vein varies from 3 to 4 inches in width and comprises a quartz rib from 1/2 to 3/4 inches wide with much pyrite and mispickel and some galena and zinc-blende with 2 to 3 inch walls of crushed bleached diorite carrying one per cent mispickel and pyrite. Samples from here gave 0.24 and 0.76 ozs gold over 3 and 4 inches respectively. This vein does not appear in the first cross-cut 105 feet in from the tunnel portal.

No. 6 and 7 Veins, lie about 260 feet southeasterly from No. 4 adit.. No. 7 vein has been open cut and where it joins No. 6 vein an adit 82 feet has been drifted on No. 6 vein. Visible gold is reported from here but mine samples were reported to be very low.

MacDonald or No. 8 Vein, as shown on Map No. 1, outcrops in a water course for 40 feet; it strikes northeast - southwest and dips 74° northwest. The vein is 6 to 18 inches wide and consists of bleached quartz diorite with some quartz, gouge and considerable mispickel and some pyrite and zincblende. A sample of the best looking part gave .10 ozs. gold.

Veins 3A and 8A. These parallel veins were cut in the long cross-cut in the main adit, 44 feet northwest and 119 feet southeast respectively of the main vein. They are 12 inches to 24 inches in width and carry quartz, pyrite, mispickel, gouge and altered diorite. Grabs of best looking material gave .12 ozs or less in gold. These veins, 3A and 8A, may be the continuation of veins 3 and 8.

MAIN VEIN UNDERGROUND.

The main or No. 4 vein has been drifted on continuously in the tunnel for 690 feet and is entirely in granodiorite. The pronounced fracture with narrow quartz-sulphide lenses strikes northeast-southwest and dips 85° southeast. The ore in the workings has been removed above the 1300-foot level but the vein fracture may be seen in all drifts occurring beyond the stopes; these are shown in detail on the accompanying maps. A 180-foot high grade ore shoot was encountered in the tunnel from footages 75 to 255 and mined out above. Apparently some commercial ore was found for an additional 150 feet further in the tunnel between footages 305 and 455 where some stoping was done. The vein from this stope to the end of the tunnel, a distance of 250 feet, consists of a quartz rib from 1/4 inch to 5 inches in width with pyrite, mispickel, gouge and in places a few inches of highly altered diorite. The gold values are very low.

On the 1250-foot level the vein has been mostly stoped out on the southwest side of the shaft both above and below the level. In the stope on the northeast side of the shaft a high grade sulphide vein from 1 to 2 inches wide with gouge walls (and carrying around 7 to 10 or more ozs in gold) and 25 feet long could be seen in the top of the stope on the footwall side. A tiny quartz-sulphide stringer branches off into the hanging wall and runs parallel for a short distance before joining the main vein again. Some of the intervening quartz diorite is highly altered and crushed with quartz-sulphide fractures angling across.

On the 1300-foot level the vein extends for 367 feet - the entire length of the drift. One hundred and ninety feet of stoping has been done on several narrow high grade quartz-sulphide lenses from 1 to 5 inches in width and 5 to 30 or more feet in length along the footwall. Some of the lenses are highly massive sulphides while others are largely quartz. The vein in the remaining 177 feet of the drift is narrow and carries practically no gold values.

On the 1400-foot level. The vein extends for 280 feet - the total length of the drift. On the northeast of the shaft a stope 140 feet long has been commenced. For details see maps Nos. 6 and 7.

The main fracture extends for 133 feet to the west of the shaft and contains 4 or 5 short high grade lenses of massive sulphides 1 to 3 inches wide and up to 10 feet in length. Other high grade lenses will probably be encountered when this section is stoped. Four pronounced parallel and branching fractures carrying some gold values occur in a width of 20 feet.

SAMPLING

Surface. The surface veins were not sufficiently exposed to warrant sampling excepting for a few pilot samples which gave no values of importance. Nine samples taken by T. C. Denton from the only "Main Vein" outcrop at the adit entrance around the creek when the water was low gave an average content per ton of \$42.58 in gold over an average width of 5.2 inches.

Underground. The known ore has been mostly removed on and above the 1300-foot level. On the bottom or 1400-foot level the roof west of the shaft was partially timbered or quite loose and unsafe for sampling. To the east of the shaft a 140-foot stope was advanced to a height of 22 feet. Thirty-three samples were taken from the top of this stope. The samples were assayed by the Zeballos River Assay Office at the Pioneer Mine.

SUMMARY OF MINE ASSAYS

No. 1 Ore Shoot (northeast of shaft)

Location	Length Feet	Average Width Inches	Gold \$ \$35.00	Grade estimated over 36"	Remarks
1250-ft level	50?	?	?	?	Vein stoped out; ore was very rich
1300-ft level	60	3.8	524.	55.00	Ten mine samples
1400-ft level	140	1.7	200.00	9.45	Insufficient samples for proper average.
(1400-ft level) (westerly 60 feet) (of the above) (140-foot shoot))60	2.8	128.21	9.98	Fifteen samples.
22' above 1400' level (shoot samples)	73 *	5.56	91.95	16.75	Ten Samples from east part of shoot by P.E. Hopkins

* The adjoining 27 feet to the southwest should be about same grade making the shoot 100 feet long.

No. 2 Ore Shoot (southwest of shaft)

Location	Length	Width Inches	Gold @ \$35.00	Grade estimated over 36"	Remarks
1250'	134	4"	145.60	16.17	Denton's floor samples about 5' intervals
1300'	130	2.4"	187.77	12.52	Back samples 5' intervals by Denton
1400'	130	1-3"	?	?	Only partially exposed and sampled

ORE DEVELOPED. There is no ore definitely blocked out on the property as no raises are put through; however, there are two blocks between the 1300 and 1400-foot levels developed on two sides as follows:

No. 1 shoot 78 feet high X 80 feet long and 3 feet wide = 1560 tons of an approximate grade of \$30.00.

No. 2 shoot 100 feet high X 130 feet long X 3 feet wide = 3250 tons in which grade cannot be estimated accurately but it is probably a milling grade of around \$10.00 or more.

The total tonnage indicated is 4810.

The ore removed from known areas in other parts of shoots 1 and 2, as shown on map No. 3, and shipped as lots 2 to 25 inclusive to the smelter contained 1293 ozs gold. This calculated over a 36 inch width gives a grade of \$17.45 per ton with gold at \$35.00 per oz.

MINING. At present no exploration is being carried on excepting the mining out of the No. 1 ore shoot between the 1400 and 1300-foot levels. The ore after being broken onto planks and canvas is sorted out from the waste and bagged; this is followed by a further re-sorting on the surface. Shipments of ore are made in sacks twice a month to the smelter.

When carrying on mining operations much barren rock must be broken since about 95% of the gold in the ore is in a sulphide-quartz vein from 1 to 6 inches in width with gouge walls. Fifty per cent or more of the barren rock could be removed by washing and hand-sorting on belts.

ADJOINING PROPERTIES. Apparently no economic ore shoot has yet been found on the adjoining Zeballos Gold Peak claims to the west where two tunnels now 400 and 725 feet long are being extended to the northeast towards the C. D. Mining Company's property.

On the adjoining Riny property to the east a tunnel has been driven for 200 feet at altitude 2650 on an east-west vein which dips 85°S in granodiorite. This vein was sampled by engineers of the Reno and Privateer Mines; the average for a length of 175 feet is 2.34 ozs gold over 0.44 feet or 0.34 ozs over 3 feet.

Another 40-foot tunnel, at altitude 2500 on this same vein gave 2.45 over 0.46 feet or 0.38 ozs over 3 feet for a length of 30 feet. If this vein continues west it would cross the C. D. Mining Company's claims in drift-covered areas and strike towards the Prident and Privateer main vein. On the Prident, ore occurs in both the east-west and the northeast-southwest trending veins, and near the junction of these veins.

SUMMARY AND CONCLUSIONS

The vein is a narrow, nearly vertical, quartz-sulphide fracture in a granodiorite batholith. In the 750 foot length exposed two ore shoots totalling about 230 feet drift length extend from the surface to the bottom level, a vertical distance of 250 to 300 feet. The shoots on the lowest level are still persistent but lower in grade than in the upper levels. The parts mined averaged \$17.45 gold per ton over 3 feet as calculated from smelter returns. The total gold production to January 1st, 1941 amounts to \$107,500.00. About 5000 tons of milling ore of about \$16.00 grade remain between the 1300 and 1400-foot levels and these shoots will probably extend considerably deeper... The vein should have long extensions both horizontally and vertically and there are possibilities of other shoots being found, particularly near the northeast part of the property where certain veins might come in the neighborhood of the Rimy vein extension. One quarter of a mile of the main vein remains yet unprospected. Owing to heavy overburden much of the surface is not yet prospected.

Regarding ore possibilities at depth, the Privateer and Mt. Zeballos lower levels have less ore than the upper levels but these ores are in rocks older than the batholith. The ore on the Spud Valley which is well out in the batholith has a vertical depth of 1,000 feet from the surface but the two lower levels apparently have not as much ore as the upper levels. The Central Zeballos lowest developed level (altitude 1050 feet) has about as good a grade of ore as any level in the mine but the ore is on the outer edge of the batholith. The C. D. Mining Company's ore is near the centre of the batholith and occurs 100 feet lower than the Spud Valley's lowest ore and 100 feet above the Central Zeballos lowest ore. Sampling shows that the values on the lower levels of this property are a little lower than on the upper levels. Apparently little has been eroded from the batholith so ore should extend to much deeper horizons.

The average values in the four levels and the amount of gold recovered to date warrant a further program of development.

RECOMMENDATIONS.

2. That the winze be deepened another 100 feet and the main vein drifted on for at least another 350 feet.

3. That a short cross-cut be made to the northwest some 20 feet from the northeast end of the 1300-foot drift to search for a branch vein and the downward extension of the shoot indicated above on the adit level. If ore is not found the present 1300-foot northeast face be drifted on another 30 feet.

4. That the 1300-foot level southwest be extended 150 feet.

5. That the main adit be drifted 200 feet to the northeast to look for other shoots.

This work consisting of 100 feet of sinking and 750 feet of drifting and crosscutting should be done by contract and would cost in the neighborhood of \$20,000. In these workings all veins should be carefully sampled. The further development of the property will depend on the results obtained from the work outlined above. If the two known ore shoots extend an additional 100 feet in depth with about the same grade then a 25-ton concentrating mill would be advisable.

Respectfully submitted.

"P. E. Hopkins"

P. E. Hopkins

Toronto, Ontario.
February 26th, 1941.