

LIVINGSTON GROUP

Wolf Cr. Dist.
Josephine Co. OR

Spotted Fawn vein
Dewey "

Ore probable

Block B

Ore shoot 150 ft north, from surface to present sill level

Possible ore

Blocks C & D.

Extension 100 ft. lower depth, on present ore shoots.

Dimensions	Tons	Gross Value	Net Value
A. 100x10x40	3333 at 17.50	\$58,327 -5 per ton	\$41,662
B. 100x10x80	6666 at 17.50	\$116,654 -5per ton	\$83,324
C. 100x10x100	8333 at 17.50	\$144,227-5per ton	\$102,662
D. 100x10x100	8333 at 17.50	\$144,227-5per ton	\$102,662

Totals

Net Value ore in sight	\$41,662
Net Value ore probable	\$83,324
Net Value possible ore	<u>\$205,334</u>

Total \$330,320

This estimate does not assume a greater depth than 100 ft. more, of possible ore, nor any other than the positively known existing ore shoots, nor any values as existing along the vein itself, between ore shoots, on the Spotted Pawn nor does it include any of the Dewey vein, but does include only that ore, which with a moderately sized crew, can be mined, developed, and milled, contemporaneous with the development of a much extensive territory.

Several more ore shoots, on both veins, are evidenced by present surface prospecting, on both veins, both to the north and south.

Values between shoots, as evident from samples 1 and 18, assaying .55 oz. (\$11.20) and .42 oz. (\$14.70), show that a grade of ore, profitable to mill, should be encountered along the veins, between ore shoots.

Considering depth of ore development in the Greenback mine, 1200 ft. vertical, as well as the entirely igneous character of the formation in which the veins occur, the size and persistence of the veins for so great a distance, I would not restrict the ultimate depth of ore to less than 1000 ft.

Bearing these points in mind, it is only fair to add that when these ore shoots alone, which should show a net profit over cost, are developed, the ultimate development of other ore shoots and greater depths, will have been only fairly started.

the underground works, as well as the surface development, has been entirely neglected,. Following this, I found the surface works badly caved and dangerous, or else the high grade ore had been removed. Samples No. 8 and 16 are examples of my having sampled the ore after some pick and shovel work.

For this reason, my conclusions as to probable value and extent of ore in the ore shoot alone, were derived more from mill returns actually recovered from the ore milled, taking note of the amount of ore milled to produce these results, and the crude, but efficient way of milling the ore, than from assay results.

As an illustration of this point, all the ore milled from the 30 ft. incline drift, on the upper level, has netted him about .8 oz. (\$28) per ton, figuring the values recovered, and the cubic contents of the small 3 ft. X 4 ft. drift, free milling gold only.

Six tons of ore milled off the dump, at the mouth of the tunnel, netted about .3 oz. (\$10.50) per ton, both batches saving about 60% of the total value. This was milled in five days, showing a daily capacity of over one ton per 8 hour day.

Another run, on high grade ore, netted over 10 oz. (350 dollars) in four hours mill run, of free milling values only.

Cost of Mining And Milling

Cost of mining, during development, including drifts, raises and crosscuts, should not exceed \$3.50 per ton.

Cost of stoping, including timbering, should not exceed \$3.50 per ton delivered to the mill.

Milling will average, including amalgamation, and either cyaniding, or close concentration to follow, not over \$1.25 per ton milled.

Ore In Sight, Possible Ore And Probable Ore

With the assays values available, together with past recoveries from ore milled by the owner, I will place the general average of the ore shoots, including the high grade ore, at .5 oz (\$17.50) per ton, leaving \$12.50 per ton net profit.

Assuming an average width of 10 ft. in the vein, a length of 100 ft. for each shoot, and the heights shown by measurement, in my Brunton survey, we have the following blocks of ore for our consideration, figuring 12 cu. ft. per ton, for rock in place.

Ore in sight

Block A

Present ore shoot, from sill to surface, 1/5th mined.

	Amt. Gold oz. per ton	Present value
8. Ore from discovery cut, from floor of drift, represents ore milled from this cut, 12" sample	13.43	471.25
9. Open cut on North ore shoot, chip sample from boulders from footwall of cut, grey porphyry	2.24	78.40
10. Same open cut, 2 ft. cut across ore in bottom floor represents hanging wall of hanging wall vein.	.5	17.50
11. Same open cut, 10 ft. North of sample 10. 12" cut in floor, same part of vein as sample 10.	5.23	183.00
12. Same open cut, 18 or red gouge and quartz in hole in South end, represents ore milled from this cut.	1.10	38.50
13. Lines on top of dump at lower tunnel, represents 12 tons of rejects from ore milled.	.38	13.30
14. Two inch stringer quartz and red gouge, in face of open cut 450 ft. South of main tunnel	.16	5.60
15. 5 ft. vertical cut in face of cut above sample 14. represents footwall of footwall vein, red ore, with no quartz. Leached portion of vein.	.1	3.50
16. Two ft. cut across ore on floor of incline drift, main Livingston workings, 6 ft. South of sta. 14	5.8	203.00
17. Lower level, 6 cut across ore in edge of pothole represents ore not mined.	.63	22.00
18. Quartz off dump of 12 ft. shaft on Spotted Fawn vein near outcrop of North ore shoot.	.42	14.70
19. Sample of concentrate from panning of mill clean-up	4.06	142.15
20. Special sample of high-grade ore, specimen of ore from milling operations.	127.6	4466.00

Summary Remarks

Samples no. 1-2-3-4-5-6 & 13, averaging .546 oz (\$19.10) are indicative of the general run of ore that may reasonably be expected.

Samples 7-10-11-16 & 17, averaging 2.36 oz (\$82.60) represent grade of ore to be expected, from selective mining for high grade ore.

Samples 1-5-6-13 & 18, averaging .33 oz (\$11.55) represent the lowgrade ores of the footwall veins, and the milling grade should be easily kept better than this but should include it in regular milling operation.

The owner of the Livingston mine, has for the past few years, confined his efforts to mining and milling of the high grade ores only, consequently, the actual development and blocking out of the ore in

A vertical depth of 80 feet will be obtained by an extension of the present drift under the old workings on the North shoot above mentioned and as much as 350 feet depth on ore shoots on the vein further North, due to the sharp rise of the contour. The first ore snoot north can be reached by a tunnel extension of the recent drift of not to exceed 150 feet.

Aside from the Spotted Lawn vein, we have another very similar vein paralleling it about 500 feet to the East. This is known as the Dewey vein and is of larger dimensions with strike and dip the same as on the Spotted Lawn, with foot and hanging walls the same. Although the surface development on the Dewey vein is not as extensive as on the Spotted Lawn, sufficient work has been done to demonstrate similar ore shoots, as on the Spotted Lawn. The extension of the present cross-cut, a distance of about 300 feet, would cut the Dewey vein at a depth of 250 feet. Drifts could be run both North and South.

Character and Analysis of Ore

Free gold is visible in the Spotted Lawn ore in several varieties of rock. On the surface it occurs in the white quartz and the limonite stained, quartz porphyry.

In the underground workings it occurs in the quartz and calcite stringers which checker the quartz porphyry. Also in the white quartz of the underlying vein and in the green stained serpentine which imbeds the quartz in the decomposed portions of the vein. In all varieties of ore there also occurs a concentrate of iron pyrite, calco pyrite, arseno pyrite, and iron oxides with occasional evidence of sylvanites or telluride of gold. These concentrates were never recovered in the milling operations, but a sample of ore concentrates was obtained and assayed. This does not, however, represent a true concentrate.

The following are the sample descriptions giving values in gold per ton, the silver being neglected:

	AMT. GOLD	Present Value
1. 8 ft. cut across whole vein at crosscut	.32 oz.	11.20
2. Two 3 ft. cut on hanging wall quartz, station 6	.43	15.00
3. Two 3 ft. cut on hanging wall vein, at 6 ft., and 10 ft. North of station 6	.91	31.80
4. Two 4 ft. cut at face of incline drift, present working face, about 35 ft. vert. above sample 1	.98	34.10
5. 3 ft. cut on hanging wall vein, 6 ft. north of station 13.	.23	8.00
6. 4 ft. cut on footwall portion of footwall vein, at station 6. Not all of vein exposed.	.34	11.90
7. Special, coarse quartz portion of rejects.	.9	31.50

East of the same.

Ore Deposits

The Spotted Fawn and Dewey veins extend the entire length of the Livingston group of claims----3,000 feet.

The Spotted Fawn vein is traceable for a total distance of about ten miles, starting at the Greenback mine, 2 & 1/2 miles south and extending through several smaller developed properties to the North.

The Greenback ore shoot has produced over 1 & 1/2 million dollars in gold bullion according to available mint returns, with values still good at 1200 feet of depth. This property has been reconditioned for further operation.

The Spotted Fawn and Dewey veins are both fissure veins. They occur as quartz porphyry and quartz fillings, along the contact between the serpentine hanging wall and the granodiorite footwall in each case. They both strike north about 30 degrees West and dip about 60 degrees East. The uneven and sloping contour of the surface causes several variations from this course.

The Spotted Fawn is a double vein about 10 feet thick over all. At the intersection with the main crosscut, it is made up of about 4 feet of a rather finegrained quartz porphyry, overlain by about 2 feet of quartz, and this in turn, is overlain by similar layers of quartz porphyry and quartz. The two sections are divided by a layer about six inches thick, of a soft stained green rock, probably some phase of serpentine, laminated in structure parallel to the dip of the vein. There are several variations of these thicknesses in other parts of the vein due to faulting and folding. In one place the vein is shown to be nearly 18 feet thick nearly.

A fault, dipping about 70 degrees East cuts the vein at an angle of about 45 degrees, displacing the vein horizontally about 50 feet to the Northeast. The ore shoot, or high grade portion, is apparent up to the south wall of this fault and continues on to the North, although no mining has been conducted into this wall to demonstrate the fact. I am of the opinion that some work on this portion would disclose an added length, perhaps considerable, to the present 100 foot ore shoot shown.

On the surface along the outcrop at a point beginning 140 feet North of the line of the crosscut tunnel, there is ample evidence of another ore shoot of the same character and assay values, but probably longer than the one shown underground. This was worked several years ago and high grade ore was milled through an Arrastra. Only the oxidized surface ore however was taken.

Surface indications and open cuts also indicate that another ore shoot occurs 450 feet to the South of the main crosscut, also there are signs of ore shoots occurring at intervals going North from the present workings, beyond the North ore shoot mentioned above.

A digest of a report on the Livingston Mining Group located near Wolf Creek, Oregon. The report was made by William H. Gaines, Mining Engineer, of the South Dakota School of Mines. The digest is made by Ed. W. Miller.

General Information

The Livingston mining group, consisting of three claims held by location, are situated in Sec. 22, Twp. 33S., R. 5 W., Wolf Creek mining district, Josephine County, Oregon.

There are no claims in litigation, nor any conflicting claims.

The property is located about seven miles from Wolf Creek by road measurement, which is the nearest shipping point and on the Southern Pacific Railway. It is six miles from Laurel Camp, a stage station on the Pacific Highway.

The road to the property from Laurel Camp is gravel and dirt, suitable for auto and truck travel.

Climatic conditions are ideal for all year mining, there being practically no frosty weather and very rarely snowfall during the year.

Plenty of water and timber is available on the property for both mining and milling.

Electric power is now available in Wolf Creek and also at the terminus of the old power line at the Greenback Mine 2 & 1/2 miles distant. For immediate operation, however, diesel electric generation of power would be more practical.

History

The Livingston mine was discovered in 1901 by H. W. Thompson, father-in-law of the present owner.

The mine has shipped bullion off and on for the last twenty years from small batches of ore put through an arrastra and later a Chilean mill, of about 1 & 1/4 tons daily capacity. The operations, however, have been periodical and no regular shipments have been made. Whenever the owner has needed some money he has taken out high grade ore, operating alone, while his wife has done the milling. As near as can be learned, the total shipments have amounted to about \$15,000. Perhaps approximately \$1,000 during the past year.

Surface Improvements

There are on the Livingston underground workings are confined principally to one 200 foot crosscut which cuts the Spotted Fawn vein, about 50 feet below the out-crop and 125 feet from the portal. There is a drift of 180 feet on the vein which extends 20 feet South and 160 feet North of the crosscut, besides three short crosscuts of the vein along its course, and several short crosscut tunnels, all caved and open cuts along the outcrop of the Spotted Fawn and Dewey veins. The Dewey vein extends parallel with the Spotted Fawn 400 to 500 feet

References: Department Bulletin 14-C (Josephine), 1942:84; Diller and Kay, 1924.

Lambtongue (Baby) mine

Greenback - Tri-County Area, 28

Location: Josephine County, NE $\frac{1}{4}$ sec. 17, T. 35 S., R. 5 W., elevation 2200 feet.

Development: About 1500 feet in two adits, plus a connecting raise and stopes.

Geology: A narrow fissure vein in metagabbro strikes northwest and dips steeply northeast; contains quartz, pyrite, chalcopyrite, and gold.

Production: Located in 1897, produced \$20,000 prior to 1916; during 1937 and 1938 produced about \$6000.

References: Parks and Swartley, 1916:18; Diller, 1914:34-35; Winchell, 1914:225; Department Bulletin 14-C (Josephine), 1942:84-85.

Little Arctic mine

Greenback - Tri-County Area, 7

Location: Jackson County, SW $\frac{1}{4}$ sec. 8, T. 33 S., R. 4 W., at 4700 feet elevation.

Development: About 500 feet of workings from the main adit plus a 60-foot shaft to surface, a 30-foot shaft below the main adit, and a stoped area.

Geology: The workings lie entirely in serpentine. Streaks and coatings of gold as much as a half inch thick occur in a west-striking zone of dark-green sheared serpentine. Calcite is sometimes present and some auriferous arsenopyrite is found below the zone of oxidation.

Production: Mine was located in 1936. To 1965 estimated production has been about \$10,000 from intermittent periods of operation.

Reference: Department mine file report, 1962.

[REDACTED] Greenback - Tri-County Area, 10

Location: Josephine County, E $\frac{1}{2}$ sec. 22, T. 33 S., R. 5 W., at about 3000 feet elevation.

Development: Four short tunnels in addition to main workings; total not reported.

Geology: Country rocks are greenstone and serpentine. Veins formed in sheared contacts strike N. 10° E. and dip 50° E. Gangue minerals are quartz, calcite, chlorite, and serpentine. Ore minerals are pyrite, arsenopyrite(?), chalcopyrite, and gold.

Production: Discovered in 1901. Total production to 1937 about \$20,000 from ore shoot 100 feet long and 10 feet thick. Mine has been highgraded. Was equipped with five-ton Chilean mill.

Reference: Department Bulletin 14-C (Josephine), 1942:110-111.

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1069 State Office Building
Portland, Oregon 97201

Bulletin 61

GOLD AND SILVER IN OREGON

By

Howard C. Brooks and Len Ramp

1968



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KLUM PLACER MINE (gold)

Greenback area

Owner: J. W. Anderson, 1213 Pine, Grants Pass, Oregon. Leased to Fred Morgan in March, 1938.

Location: 1½ miles northwest of Leland, in sec. 1, T. 34 S., R. 7 W.

Area: 85 acres of patented ground.

History: Said to have been patented in 1890 and worked intermittently. No record of production. 12 acres mined. Present owner has had the property for 30 years.

Water Right: 500 inches out of Tom East Creek (not the same creek as at the Greenback Mine). 2 foot ditch four miles long to deliver water to property with 100 ft. head. No equipment.

Geology: About 25 acres of high-bar. About 35 ft. of gravel showing in pit is said to run 20¢ a yard.

Informant: J. E. Morrison, 38

LAYMEN PLACER

Greenback area

see Egger Placer

LEWIS PLACER

Greenback area

Owner: Lewis Investment Co., Portland, Oregon.

Location: sec. 6, T. 34 S., R. 6 W.

Area: About 80 acres.

Development: Has not been worked to any extent since 1903.

Informant: R. E. Reed, 4/4/40

Report by: Ray C. Treasher

LITTLE DANDY MINE

Greenback area

see Hayden Mine

 also known as Spotted Fawn

Greenback area

Operator: Frank C. Livingstone, P.O. Box 40, Wolf Creek, Oregon.

Location: On Coyote Creek, sec. 22, T. 33 S., R. 5 W., 6 miles east of Laurel Camp, and 7 miles from Wolf Creek, nearest shipping point on the Southern Pacific Railroad.

Area: Three unpatented claims, namely, Spotted Fawn, Orel, and Dewey; 62 acres.

History: Discovered by W. H. Thompson in 1901. His son-in-law, F. C. Livingstone has worked the property regularly in recent years. Production has been about \$20,000.

Development: 4 tunnels besides the main workings, all of which are on the Spotted Fawn Claim. No. 2 crosscut tunnel trends S. 55° E. for 65 feet. No. 3 crosscut tunnel was driven S. 40° E. for 15 feet. Several other old workings are caved.

Equipment: One Dodge No. 3 small crusher, one Chilian mill of 5 ton capacity, one 6 h.p. gas engine.

Geology: As mapped by Diller in the U.S.G.S. Riddle folio, the country rock of the area is greenstone, probably originally an andesite porphyry. This porphyry has been cut by serpentine, and the Spotted Fawn vein on the west and the Dewey vein on the east, (500 feet apart) have been formed on the contacts between the serpentine and porphyry. The Dewey vein has a porphyry hanging and a serpentine footwall. The general strike is northerly. The Spotted Fawn vein has a strike of N. 10° E. and dips about 50° to the east, with a serpentine hanging wall and porphyry foot wall. These contacts are strong and can be traced over long distances. Mineralization has taken place over widths up to ten feet. In some places the values are found along the contact; elsewhere the values are in the porphyry away from the contact. The vein matter is mainly white quartz. Other minerals noted were calcite, pyrite, and chalcopyrite. All the mining has been done on one ore shoot which is about 100 feet long and 10 feet thick. This ore shoot was cut off on the north by a fault which strikes N. 57° E. displacing the vein about 50 feet. The faulted segment was recently picked up. The ore averages at least \$10 a ton (exclusive of the high-grade) as indicated by 127 samples taken by two engineers. This property has produced some ore in excess of \$2,000 per ton.

Metallurgy: Very hard quartz ore, estimated 60% free milling. Concentrates average about \$125 a ton. A cyanide test on this ore showed a recovery of 85% at 40 mesh.

General: Steep mountainous topography; 3000 feet elevation; plenty of timber; not enough water on property for mill, but sufficient water can be developed lower down; no water power. Maximum snowfall is 2 feet. Work can be carried on all year.

Remarks: The owner has confined his efforts to mining and milling of the high-grade ores only. Consequently development of ore in the underground workings, as well as on the surface has been neglected.

Informant: J. E. Morrison, 37

MACABEE MINE (gold)

Greenback area

also known as Kaviju Mine

Owner: Hugh H. Earl, 408 State Office Building, Salem, Oregon, has interest, and A. J. Bennett, Wolf Creek, Oregon, has 1/3 interest.

Location: SE $\frac{1}{4}$ sec. 20, T. 33 S., R. 5 W., on the south slope of ridge between Coyote and Wolf Creeks, elevation 2500 feet aneroid.

Area: 3 unpatented lode claims, one of which is a fraction.

History: This is an old property. The first 100 feet of tunnel was driven prior to the World War. The present locations were made in 1932 by Mr. Bennett and two associates who were later bought out by Mr. Earl. The tunnel has since been extended about 200 feet. A road 3800 feet long was built to connect the property with the Coyote Creek road.

Equipment: Ore car, track, and prospecting equipment.

Development: A crosscut tunnel trends N. 83° E. 100 feet to the vein. Thence the tunnel meanders along the vein for a distance of 283 feet northeasterly. It does not attain any great depth, probably not over 100 feet.

Geology: Country rock is altered, but the vein appears to be near a contact between slate (footwall) and greenstone (locally called porphyry). There is a maximum of 3 feet of gouge along the contact. Strike is about N. 25° E. and dip in places is flat, averaging 15° (as at the face), S.E. In places it is as high as 25°. Ore minerals are gold, pyrite and chalcopyrite. A large part of the values are free milling.

Informant: J. E. Morrison, 1939.

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1069 State Office Building—1400 S. W. 5th Avenue
PORTLAND 1, OREGON

Josephine County
Bulletin No. 14-C, Volume II, Section I
(Second Edition)

Oregon Metal Mines Handbook

By the Staff

- Bulletin 14-A—Northeastern Oregon—East Half
 - 14-B—Northeastern Oregon—West Half
 - 14-C—Southwestern Oregon
 - Vol. I—Coos, Curry, and Douglas Counties
 - Vol. II, Sec. 1,—Josephine County
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1952



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PRICE \$1.25

1. NAME OF PROPERTY LIVINGSTONE GOLD CORPORATION
2. LOCATION Wolf Creek, Josephine County, Oregon. ELEVATION 3,000 feet
3. IN FOREST RESERVE? No.
4. NAME AND DISTANCE OF NEAREST RAILROAD STATION Wolf Creek, 7 miles, S.P.R.R.
5. DISTANCE FROM HIGHWAY 6 miles CHARACTER OF MINE ROAD Gravel, last two miles poor
6. DESCRIPTION OF HOLDINGS Quartz
7. NUMBER OF CLAIMS 3 NUMBER PATENTED None ACREAGE HELD 50-60 acres
8. DESCRIBE WATER SUPPLY: (A) NAME OF STREAM Coyote Creek
 (B) HOW FAR FROM CLAIMS? On claims
 (C) APPROXIMATE AVERAGE FLOW Ample for small operations
 (D) POWER POSSIBILITIES No
 (E) AVERAGE SNOWFALL Light WINTER TEMP. Rarely 32 deg
9. WHAT POWER AVAILABLE? None NEAREST ELECTRIC POWER 5 1/2 miles
10. AMOUNT AND KIND OF TIMBER Abundant.
11. NEAREST SOURCE FOR SUPPLIES Wolf Creek and Grants Pass
12. WHAT IS PREVAILING ROCK FORMATION? Greenstone hanging wall
13. WHAT OTHER ROCKS ARE PRESENT? Granodiorite footwall
14. IS THERE EVIDENCE OF FAULTING? Yes, North end of vein has been displaced, segment not been found.
15. IS THE COUNTRY RUGGED OR FLAT? Rugged
16. TYPE OF DEPOSIT Fissure, quartz filled.
- DESCRIPTION OF DEPOSIT: Mineralized section on footwall, zone of breccia then mineralized section on hanging wall.
- (A) EXPOSURE ON STRIKE Said to be 3,000 feet
 (B) DIRECTION OF STRIKE NE
 (C) DIP, ANGLE AND DIRECTION _____
 (D) AVERAGE WIDTH 10' in two sections
17. WHAT METALS, IN THE ORDER OF THEIR IMPORTANCE? Gold
18. REPRESENTATIVE ASSAYS Three samples taken in winze(see sketch). Statements by promoter about values not borne out by samples or inspection.
19. DEVELOPMENT WORK (NATURE, AMOUNT AND DEPTH) 200 foot cross cut; 130 feet of drifts. 100' of depth
20. ORE RESERVES, IF ANY, ESTIMATE TONNAGE None in sight

21. PRODUCTION, IF ANY. GIVE DETAILS Said to have produced \$15,000 in old operations.
22. OPERATING COSTS _____
23. DESCRIBE BUILDINGS AND CAMP EQUIPMENT Old cabin, poor equipment
24. DESCRIBE MINING EQUIPMENT Hand tools only
25. IF MILL ON PROPERTY GIVE FLOW SHEET Small amalgamation mill, no value
26. NAMES AND BRIEF DESCRIPTION OF NEARBY PROPERTIES Greenback, 2 $\frac{1}{2}$ miles. Good production record
27. NATURE OF ORGANIZATION Corporation
28. TITLE FOR HOLDINGS IN WHOSE NAME? Do
29. ANY MORTGAGES, DEBTS, LIENS OR OTHER ENCUMBRANCES? (GIVE DETAILS) Said to be clear
30. HOW MUCH MONEY SPENT TO DATE? _____
31. IF INCORPORATED: (A) IN WHAT STATE? _____ DATE _____
 (B) CAPITALIZATION (NUMBER OF SHARES) 90,000
 (C) PAR VALUE \$1 SELLING PRICE _____
 (D) ASSESSABLE? _____ IN WHAT MANNER? _____
 (E) AMOUNT OF STOCK IN TREASURY NOW 25,000
 (F) NUMBER OF DIRECTORS _____
 (G) NAMES OF OFFICERS AND DIRECTORS _____
32. IF NOT INCORPORATED GIVE NAMES OF PRINCIPAL PARTIES Buying from Frank C. Livingstone
33. NATURE OF PROPOSED DEAL (GIVE DETAILS) Price from corporation \$150,000. \$5,000 cash payment balance at 10% net returns.
34. NAME AND ADDRESS OF PARTY SUBMITTING ABOVE INFORMATION Ben L. Schultz
 DATE Dec. 1, 1939 310 Oregon Bldg. Portland, Ore.
35. REFERENCES (REPORTS, BULLETINS, ETC.) Reports by W.H. Gaines, E.M. & W.L. Merritt, E.M. both favorable.
36. REMARKS (ATTACH SKETCHES, MAPS, ASSAY CERTIFICATES, ETC.) This property inspected on March 7, 1940. Three samples taken in winze at best place in underground workings, see sketch. Surface cut and older tunnel caved, unable to inspect. One possible short shoot of ore, insufficient work done to be of any present interest.

Submitted to R. E. Apr. 8, 1940

23- Operating costs Estimates \$5⁰⁰ mining + milling.
 24- Describe building & camp equipment Old cabin, poor equipment
 25- Describe mining equipment Hand steel only
 26- If mill on property, give flow-sheet Chilean mill, plates
 27- Names & brief description of nearby properties Greenback 2 1/2 mi. \$1 1/2 million prod.
 28- Nature of organization Corp. Controlled by Ben Schultz
 29- Title for holdings in whose name? Corp.
 30- Any mortgages, debts, liens or other encumbrances? Said to be clear.

31- If incorporated: (a) In what State?
 (b) Capitalization (number of shares) 90,000
 (c) Per value \$1⁰⁰
 (d) Assessable _____ In what manner _____
 (e) Amount of stock in treasury now? 75,000
 (f) Number of directors?
 (g) Names of officers & directors;

32- If not incorporated give names & addresses of principal parties.
Buying from Frank C. Livingston

33- Nature of proposed deal Sale for \$150,000, small down payment easy terms \$5000 down, bal. at 10% of net smelter and mint returns.

34- Name & address of party submitting above information Ben L. Schultz
310 Oregon Bldg.
Portland.

35- Remarks;
 Reports by W.H. Gaines, E.M. } both favorable.
 W.L. Merritt E.M. }
 Tellurides
 65% f^{me}
 Ratio of conc. - 16:1
 Diesel fuel at 5¢ delivered
 kumbe delivered at \$14/M
 Examined underground workings
 Mar. 7th. Saw no surface
 works all said to be banded.
 One shoot of ore exposed.
 Not enough work done
 to be of interest.

REPORT ON THE LIVINGSTON MINING GROUP

A report on the Livingston Mining Group located near Wolf Creek, Oregon. This report was made by William H. Gaines, Mining Engineer, of the South Dakota School of Mines.

GENERAL INFORMATION

The Livingston Mining Group, consisting of three claims held by location, are situated in Sec. 22, Twp. 33 S., R. 5 ". Wolf Creek Mining District, Josephine County, Oregon.

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HISTORY

The Livingston Mine was discovered in 1901 by H. W. Thompson, father-in-law of the present owner.

The mine has shipped bullion off and on for the last twenty years from small batches of ore put through an Arrastra and later a Chilian mill, of about $1\frac{1}{2}$ tons daily capacity. The operations, however, have been periodical and no regular shipments have been made. Whenever the owner has needed some money he has taken out high grade ore, operating alone, while his wife has done the milling. As near as can be learned, the total shipments have amounted to about \$15,000.00. Perhaps, approximately \$1,000.00 during the past year.

SURFACE IMPROVEMENTS

There are on the Livingston underground workings which are confined principally to one 200 foot crosscut which cuts the Spotted Fawn vein, about 50 feet below the out-crop and 125 feet from the portal. There is a drift of 180 feet on the vein which extends 20 feet South and 160 feet North of the crosscut, besides three short crosscuts of the veins along its course, and several short crosscut tunnels, all caved and open cuts along the outcrop of the Spotted Fawn and Dewey veins. The Dewey vein extends parallel with the Spotted Fawn 400 to 500 feet east of the same.

ORE DEPOSITS

The Spotted Fawn and Dewey veins extend the entire length of the Livingston Group of claims -- 3,000 feet.

The Spotted Fawn vein is traceable for a total distance of about ten miles, starting at the Greenback Mine, 2½ miles South and extending through several smaller developed properties to the North.

The Greenback ore shoot has produced over 1½ million dollars in gold bullion according to available mint returns, with values still good at 1200 feet of depth. This property has been reconditioned for further operation.

The Spotted Fawn is a double vein about 10 feet thick over all. At the intersection with the main crosscut, it is made up of about 4 feet of a rather fine grained quartz porphyry, overlain by about 2 feet of quartz, and this in turn, is overlain by similar layers of quartz porphyry and quartz. The two sections are divided by a layer about six inches thick, of a soft green-stained rock, probably some phase of serpentine, laminated in structure parallel to the dip of the vein. There are several variations of these thicknesses in other parts of the vein due to faulting and folding. In one place the vein is shown to be nearly 18 feet thick.

A fault, dipping about 70 degrees East cuts the vein at an angle of about 45 degrees, displacing the vein horizontally about 50 feet to the Northeast. The ore shoot, or high grade portion, is apparent up the South wall of this fault and continues on to the North although no mining has been conducted into this wall to demonstrate the fact. I am of the opinion that some work on this portion would disclose an added length, perhaps considerable, to the present 100 foot ore shoot shown.

On the surface along the outcrop at a point beginning 140 feet North of the line of the crosscut tunnel, there is ample evidence of another ore shoot of the same character and assay value, but probably longer than the one shown underground. This was worked several years ago and high grade ore was milled through an Arrastra. On the oxidized surface ore was taken, however.

Surface indications and open cuts also indicate that another ore shoot occurs 450 feet to the south of the main crosscut, also there are signs of ore shoots occurring at intervals going North from the present workings, beyond the North ore shoot mentioned above.

A vertical depth of 80 feet will be obtained by an extension of the present drift under the old workings on the North ore shoot above mentioned, and as much as 350 depth on the ore shoots on the vein further north, due to the sharp rise of the contour. The first ore shoot North can be reached by a tunnel extension of the present drift of not to exceed 150 feet.

Aside from the Spotted Fawn vein, we have another very similar vein paralleling it about 600 feet to the east. This is known as the Dewey vein and is of larger dimensions with strike and dip the same as the Spotted Fawn, with foot and hanging walls the same. Although the surface development on the Dewey vein is not as extensive as on the Spotted Fawn, sufficient work has been done to demonstrate similar ore shoots, as on the Spotted Fawn. The extension of the present crosscut, a distance of about 300 feet, would cut the Dewey vein at a depth of 250 feet. Drifts could be run both North and South.

CHARACTER AND ANALYSIS OF ORE

Free gold is visible in the Spotted Fawn ore in several varieties of rock, on the surface it occurs in the white quartz and the limonite stained, quartz porphyry.

In the underground working it occurs in the quartz and calcite stringers which checker the quartz porphyry. Also in the white quartz of the underlying vein and in the green stained serpentine which imbeds the quartz in decomposed portions of the vein. In all varieties of ore there are also a concentrate of iron pyrite or telluride of gold. These concentrates were never recovered in the milling operations, but a sample of ore concentrates was obtained and assayed. This does not, however, represent a true concentrate.

The following are the sample descriptions giving values in gold per ton, the silver being neglected: Present 1937

	<u>Amt. Gold</u>	<u>Value</u>
1. 8 ft. cut across whole vein at the crosscut	.32 oz.	11.20
2. Two 3 ft. cuts on hanging wall quartz, at station 6	.43 "	15.00
3. Two 3 ft. cuts on hanging wall vein, at 6 ft., and 10 feet north of station 6.	.91 "	31.80
4. Two 4 ft. cuts at face of incline drift, present working face, about 35 ft. vert. above sample 1	.88 "	34.10
5. 3 ft. cut on hanging wall vein, 6 ft. north of station 13.	.23 "	8.00
6. 4 ft. cut on footwall portion of footwall vein, at station 6. Not all of vein exposed	.34 "	11.90
7. Special, coarse quartz portion of rejects.	.9 "	31.50
8. Ore from discovery cut, from floor of drift, represents ore milled from this cut, 12" sample.	13.43 "	471.25
9. Open cut on North ore shoot, chip sample from boulders from footwall of cut, gray quartz porphyry	2.24 "	78.40
10. Same open cut, 2 ft. out across ore in bottom floor represents hanging wall of hanging wall vein	.5 "	17.50
11. Same open cut, 10 ft. north of sample 10. 12" cut in floor, same part of vein as sample 10.	5.23 "	183.00
12. Same open cut, 18" of red gouge and quartz in hole in south end, represents ore milled from this cut.	1.1 "	38.50
13. Finds at top of dump at lower tunnel, represents 12 tons of rejects from ore milled	.38 "	13.30
14. Two inch stringer quartz and red gouge, in face of open cut 450 ft. south of main tunnel	.16 "	5.60

	<u>Amt. Gold</u>	<u>Present 1937 Value</u>
15. 5 ft. vertical cut in face of cut above sample 14. Represents footwall of footwall vein, red ore, with no quartz. Leached portion of vein.	.1 oz.	3.50
16. Two ft. cut across ore on floor of incline drift, main Livingston workings, 6 ft. south of Sta. 14	5.8 "	203.00
17. Lower level, 6" cut across ore in edge of pothole represents ore not mined.	.63 "	22.00
18. Quartz off dump of 12 ft. shaft on Spotted Fawn vein near outcrop of North ore shoot.	.42 "	14.70
19. Sample of concentrate from former panning of mill clean-up	4.06 "	142.15
20. Special sample of high-grade ore, specimen of ore from milling operations	127.6 "	4466.00

SUMMARY REMARKS

Samples No. 1-2-3-4-5 & 13, averaging .548 oz. (19.10) are indicative of the general run of ore that may reasonably be expected.

Samples 7-10-11-16 & 17, averaging 2.36 oz (\$82.60) represent grade of ore to be expected from selective mining for high grade ore.

Samples 1-5-6-13 & 18, averaging .35 oz. (11.55) represent the lowgrade ores of the footwall veins, and the milling grade should be easily kept better than this, but should include in it regular milling operation.

The owner of the Livingston mine has, for the past few years, confined his efforts to mining and milling of the high grade ores only, consequently, the actual development has been entirely neglected. Following this, I found the surface works badly waded, and impossible to sample in the time allowed, and the underground either caved and dangerous, or else the high grade ore had been removed. Samples No. 8 and 16 are samples of my having sampled the ore after some pick and shovel work.

For this reason, my conclusions as to probable value and extent of ore in the ore shoot alone, were derived more from mill returns actually recovered from the ore milled, taking note of the amount of ore milled to produce these results, and the crude, but efficient way of milling the ore, than from assay results.

As an illustration of this point, all the ore milled from the 30 ft. incline drift, on the upper level has netted him about .8 oz. (\$28.00) per ton, figuring the values recovered, and the cubic contents of the small 3 ft. x 4 ft. drift, free milling gold only.

Six tons of ore milled off the dump, at the mouth of the tunnel, netted about .3 oz. (\$10.50) per ton, both batches saving about 60% of the total value. This was milled in 5 days, showing a daily capacity of over one ton per 8 hour day.

Another run, on high grade ore, netted over 10 oz. (\$350.) in four hours mill run, of free milling values only.

COST OF MINING AND MILLING

Cost of mining, during development, including drifts, raises and crosscuts, should not exceed \$3.50 per ton.

Cost of stoping including timbering, should not exceed \$3.50 per ton, delivered to the mill.

Milling will average, including amalgamation, and either cyaniding or close concentration to follow, not over \$1.25 per ton milled.

ORE IN SIGHT, POSSIBLE ORE AND PROBABLE ORE

With the assay values available, together with past recoveries from ore milled by the owner, I will place the general average of the ore shoots, including the high grade ore, at .5 oz. (\$17.50) per ton, leaving \$12.50 per ton net profit.

Assuming an average width of 10 ft. in the vein, a length of 100 ft. for each shoot, and the heights shown by measurement, in my Brunton survey, we have the following blocks of ore for our consideration, figuring 12 cu. ft. per ton, for rock in place.

Ore in sight (Block A) Present ore shoot, from sill to surface, 1/5th mined.

Ore probable (Block B) Ore shoot 150 ft. north, from surface to present sill level.

Possible ore (Blocks C & D) Extension 100 ft. lower depth, on present ore shoots.

	Dimensions	Tons		Gross Value	Net Value
A	100 x 10 x 40	3333	at 17.50	\$ 58,327 - 5.00 per ton	\$ 41,662
B	100 x 10 x 80	6666	at 17.50	116,654 - 5.00 per ton	83,324
C	100 x 10 x 100	8333	at 17.50	144,227 - 5.00 per ton	102,662
D	100 x 10 x 100	8333	at 17.50	144,227 - 5.00 per ton	102,662
TOTALS					
			Net value ore in sight	\$41,662	
			" " probable ore	83,324	
			" " possible ore	205,334	
			Total	<u>\$330,320</u>	

This estimate does not assume a greater depth than 100 ft. more, of possible ore, not any other than the two positively known existing ore shoots, nor any values as existing along the vein itself, between ore shoots, on the Spotted Fawn, nor does it include any of the Dewey vein, but does include only that ore, which with a moderately sized crew, can be mined, developed, and milled, contemporaneous with the development of a much more extensive territory.

Several more ore shoots, on both veins, are evidenced by present surface prospecting on both veins, both to the north and south.

Values between shoots, as evident from samples 1 and 18, assaying .33 oz. (11.20)

and .42 oz. (\$14.70), show that a grade of ore, profitable to mill, should be encountered along the veins, between ore shoots.

Considering depth of ore developed in the Greenback mine, 1200 ft. vertical, as well as the entirely igneous character of the formation in which the veins occur, the size and persistence of the veins for so great a distance, I would not restrict the ultimate depth of ore to less than 1000 ft.

Bearing these points in mind, it is only fair to add that when these ore shoots alone, which should show a net profit over costs, are developed, the ultimate development of other ore shoots and greater depths will have been only fairly started.

The present ore shoot, appears to have been enriched, from ascending solutions close to the main fault which cuts it, the same being apparently true on the north ore shoot, along a similar, parallel fault. These faults also cut the Dewey vein, and I would expect similar ore shoots at these points of intersection.

TYPE AND SIZE OF MILL

Due to coarseness of the free gold content of the ore, it is absolutely necessary that amalgamation be installed to treat this ore, for recovery of the coarser portion, followed by whatever subsequent treatment is found best.

In connection with this, I have at hand, some tests, which show the probable behavior of this ore in practice.

1. Test by Garvin Cyanide Extraction Co., of Portland in 1906
2000 lbs. of ore, treated by amalgamation, at 40 mesh
Tailings treated, one batch at 80 mesh, another at 40 mesh
Amalgamation, heads \$29.71, Tails 15.21 Extraction 48%
Cyanidation, heads, 80 mesh, \$15.21 Tails .01 cents Extraction 97%
" , 40 mesh heads. \$15.41 Tails \$3.50 Extraction 78%
2. Test by Smith, Emery Company, Los Angeles, 1922
Amalgamation at 40 mesh, 39.5% extractions
3. Test by John Harman, Los Angeles, 1922
Amalgamation and contraction combined:
At 40 mesh, 88.2% Extractions
At 80 mesh, 92.3% "

From the foregoing tests, it seems advisable to grind to 80 mesh for final treatment at least.

I would suggest that a 10 stamp mill of about 25 tons daily capacity, be erected soon after the second ore shoot is reached, and the dumping ore in the dump, with subsequent loss, and expense of extra handling, to get to the mill, be eliminated.

CONCLUSION

With the facts as stated above, all of which are reasonably conservative, and realizing that the property, if properly developed and managed, will materialize into one of the steady dividend payers of Oregon, I do not hesitate to recommend its purchase and operation, and I believe that the expenditures necessary to do this, are fully justified.

Respectfully submitted,
(Signed) Wm. H. Gaines.

August 20, 1931.

Made by Original owner

FAWN GROUP

The "Spotted Fawn" group of claims - a gold quartz lode, which ore is recorded with the U. S. Dept. of Interior, Division of Mines, laying on the west slope of Little Baldy Mt. of the north fork of Coyote Creek, located 25 miles from Grants Pass, Josephine County, Oregon, on U. S. 99, then 7 miles northeast of Laurel Camp on a good country road; Wolf Creek Station, 8 miles from property is nearest railroad point.

The group consists of 3 full lode quartz mining claims, and the development that is open for sampling consists of:

- (1) 130 ft. cross cut tunnel
- (2) 200 ft. drift on foot wall of vein, which is striking north and south and is traceable thru the country about 10 miles
- (3) 30 ft. raise on foot wall.
- (4) 75 ft. drift from station of raise
- (5) Numerous other cross cuts and drifts I did not estimate
- (6) Number of winzes averaging 8 ft. 10 inches depth sunk in floor of 200 ft. drift.

The vein shows an average of 12 ft. in width where it has been cross cut, at this depth (approx.) 150 feet from surface. The formation occurring here is a subject of discussion among mining people, the vein is of a greyish quartz lying, in my opinion between a greenstone foot wall and a serpentine hanging wall. Lying parallel with this main ledge and east about 200 ft. is another large vein which has not been developed, which crops sufficiently on the surface to be sampled. Other tunnels and test holes are on the property, but inaccessible due to cave-ins.

The main ledge which has been sampled, shows an average of \$10.00 per ton in face gold (old price gold), by my estimation taken from panning.

I am attaching a copy of an assay report, original belongs to owner sampling was done by a disinterested person. Owner has numerous other assay reports on a block of 20,000 tons of ore showing an average of \$10.00 per ton (old price gold), which is available to be mined.

Buildings and equipment on property consists of 1 cook house, 12' by 16', one bunk house 12' x 16', a mill shed housing a 5 ton Lane Mill of the Galloway type.

The owner has operated, on a small scale for a number of years with this equipment, developing as he could afford and is still operating and will do so until the property is sold.

The property has plenty of good fir and cedar for mining timbers and the owner has water rights on 2 branches of Coyote Creek, which will furnish plenty of water the year around for a 50 ton plant.

After going over the property, sampling and panning both on the surface and underground, my conclusions are that 65% of gold values can be saved by amalgamation and would recommend a 25 ton or more plant with amalgamation, concentration and a cyanide unit that (approx.) 97% of the gold values could then be recovered.

The owner does not see any metallurgical difficulties in extracting the value from this ore and further this mine can be successfully worked by gravity for many years as the elevation will be sufficient by cross-cutting to obtain backs. The extreme elevations on backs thru gravity working at further development would be

1000 ft. (approx.)

The owner, having had a number of years experience, and having sampled many properties in Southern Oregon and elsewhere, can truly say that this property has a very favorable outlook, if properly developed, one of the real mines of Southern Oregon.

ASSAYS TAKEN AS PER THE FOLLOWING CUTS.

These samples were assayed by Walter Techow of Sacramento, Calif., and were cut as follows:

#1 - 3' N. end of west vein on main level	\$1.75	per Ton
#2 - 6' E. half of vein at new windze on main level	4.50	" "
#3 - 7½' N. half of vein at new windze on main level.	9.80	" "
#4 - 8' Bottom of new windze below main level	8.05	" "
#5 - 15' Across vein at intersection on drift with vein on west side.	2.80	" "
#6 - Dump ore small pile north main tunnel.	4.30	" "
#7 - West half of vein 250' No. of tunnel & extension from 10 above.	51.10	" "
Special samples of high grade ore specimens (free milling value only.	2,552.00	" "
Concentrates	61.40	" "
(1) 8 ft. cut at portal of main drift off cross cut.	\$	6.70
(2) Three cuts on 3' of quartz on hanging wall of #2 vein 4' and 10' north of station.		8.60
(3) Two cuts on 3' ore on hanging wall of #2 vein 4' and 10' N. of Station 6		18.20
(4) Two horizontal cuts at face of incline drift (flue) in upper level		17.60
(5) Three ft. cut of foot wall portion of hanging wall vein 8' N.E. of Station #3 (on pillar at foot of incline drift in upper level.		4.60
(6) 6' cut on foot wall vein at Station #6		6.80
(7) Special, sorted from sample #4		18.00
(8) Special ore from discovery cut, in floor, about 1' wide.		268.60
(9) Open cut on N. ore chute on Spotted Fawn long cut in gulch, 3' of gray ore on foot wall side of cut represents part of hanging wall of footwall vein		44.80
(10) Same open cut as #9 - 2' across floor of cut, 2' from #9 sample.		10.00
(11) Same open cut, 12' from #9 sample about 12" cut.		104.60
(12) Same open cut, 12" from red gauge and quartz in dog hole at S. end of cut.		22.00
(13) Lower tunnel dumps, piles of fines on top of dumps represent neglect in milling about 12 tons.		7.60
(14) 2" stringer in face of open cut along trail below "Spotted Fawn" vein, red gauge		3.20
(15) Five feet, vertical cut on face of open cut on Spotted Fawn vein, represents probably footwall side of footwall vein. Soft red limonite and porphyry		2.00
(16) Two feet cut on ore in floor of upper drift (flue) 6' E. of Station #14 at foot on incline.		118.00
(17) Lower level at edge of pot hole, 10 N. of station #6 - about 6" cut		12.60
(18) Twelve foot shaft on N. ore chute white quartz off dump.		8.40

Sample taken from tunnels, drifts and other open cuts which were well mixed with and quartered showed averages of \$8, \$10, and \$12 per ton in gold at \$35 per oz. These sample cuts would represent the average mill run throughout the ore body.

These sample cuts were taken by independent parties voluntarily, and such assay certificates can be furnished. The owner has many more assays that will be furnished upon request.

E. P. W. Harding
Analytical and Consulting Chemist
305 McKay Building
Portland, Oregon

8/22/1919

Mr. William Van Cleve,
Wheeler,
Oregon.

Dear Sir:

Following is the result of assay of samples brought
me the 21st inst..

#1.	Gold,	1.68	ozs. per ton.	Value,	\$58.80 per ton.
#2.	Gold,	0.88	" " "	"	23.80 " "

Respectfully submitted,

(Signed)

E. P. W. Harding

Charges, \$2.00 PAID.

LAUCKS LABORATORIES, INC.
 Analytical and Consulting
 Chemists - Assayers
 Metallurgists
 Engineers
 Samplers - Inspectors

314 Maritime Building
 Seattle

Certificate No. 68941

July 3, 1939

We hereby certify that we have assayed the samples submitted to us by:

Mr. H. J. Armstrong
 2244 1st Ave. So.
 Seattle, Washington

and that they contained the following per ton of 2,000 pounds:

ORE	Gold Oz. Troy Per ton	Gold Value Per ton	Total Value Per ton
<u>ALL YELLOW TACS</u>			
A- #148	.01	\$0.35	\$0.35
B- #149	.07	2.45	2.45
C- #150 main level 80 ft. north xcut west face 72 in. wide chip sample taken from hanging down 6/29/39 Spotted			
Fawn mine	.66	23.10	23.10
D- #195	.47	16.45	16.45

Respectfully submitted,

LAUCKS LABORATORIES, Inc.

Gold Valuation
 \$35 per oz.

E. P. W. HARDING
Analytical and Consulting Chemist
305 McKay Building
Portland, Oregon

9/19/39

Mr. Wm. Van Cleve,
Portland,
Oregon.

Dear Sir:

Following is the result of assay of samples brought
me this day.

#1.	Gold,	1.80	oz.	per ton.	Value,	\$63.00	per ton.
2.	Gold,	0.52	"	" "	"	18.20	" "
3.	Gold,	0.60	"	" "	"	21.00	" "
4.	Gold,	0.32	"	" "	"	11.20	" "
5.	Gold,	0.18	"	" "	"	8.30	" "

Respectfully submitted,

(Signed)

E. P. W. Harding

Charges, \$5.00 PAID.

GREENBACK GOLD MINING & MILLING CO.

Address E. E. Klum pp, pres-mgr. Grants Pass, Oregon

Mine Address Placer, Oregon

History During late 1927, property reported acquired by the GOLD MOUNTAIN MINES, Inc. (C.V.) but in 1929, was still operating as Greenback Gold M & M Co. The Greenback mine was discovered in 1897, owned until 1902, by the Victor Junior Gold Mng. Co., when it passed to the present company, which was controlled by R. C. Robinson, of Parish, N. Y. before passing to Mr. Klumpp.

Property in Greenback district, Josephine county 1½ miles N. of Placer which is 3 miles from Leland (nearest rail point) said to show a vein of quartz, calcite, and pyrite in greenstone, cut off by serpentine to the east. Ore averages 20" in width and assays \$8.00 per ton in upper levels.

Development by 12 levels to 500' vertical depth; above No. 9 most of the ore has been stoped. In all, 7 veins are being developed. In the main, Greenback vein, 1927 operations developed ore running \$18.00 per ton, while the adjoining Martha vein is said to run \$32.00. The Martha is opened by 4 levels, with total workings of about 3000'.

Production record is said to be in excess of \$1,000,000.00. Property was idle from 1915 to 1924. Development work 1925, production commenced in 1927, 50 ton car to Thompson Smelter at Gabbs, Nevada. Produced over \$2,500,000.00 during entire time of operation. Property was idle 1928, and resumed operations in mid-1929.

References:

The Mines Handbook
Vol. XVIII Part I
Page 1725

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Property in Greenback district, Josephine county $1\frac{1}{2}$ miles N. of Placer which is 8 miles from Leland (nearest rail point) said to show a vein of quartz, calcite, and pyrite in greenstone, cut off by serpentine to the east. Ore averages 20" in width and assays \$8.00 per ton in upper levels.

Development by 12 levels to 500' vertical depth; above No. 9 most of the ore has been stoped. In all, 7 veins are being developed. In the main, Greenback vein, 1927 operations developed ore running \$18.00 per ton, while the adjoining Martha vein is said to run \$32.00. The Martha is opened by 4 levels, with total workings of about 3000'.

Production record is said to be in excess of \$1,000,000.00. Property was idle from 1915 to 1924. Development work 1925, production commenced in 1927, 50 ton car to Thompson Smelter at Washoe, Nevada. Produced over \$2,500,000.00 during entire time of operation. Property was idle 1928, and resumed operations in mid-1929.

References:

The Mines Handbook
Vol. XVIII Part I
Page 1725

GREENBACK CONSOLIDATED MINING CO.

Address 1215 Selling Bldg., Portland, Oregon.

Mine Address Placer Ore, W. R. Thomas, Mill Supt.

Officers J. A. Strowbridge, Pres, A. C. Arthur, Sec., R. B. Brandon,
Treas., -Gen. Mgr. with John I. McGregor and E. DeWitt directors.

History In Nov. 7, 1930 in Oregon as Silent Friend

Mng. Co. Title changed Feb. 17, 1931 to Green Back Extn Mng. Co. and on
Jan. 24, 1934 to present title. Co. issued 176070 shs in ex-
change for like number of Bullion Mountain Inc. shs and 123,930
shs in liquidating obligations of Bullion Mountain.

Capitalization \$3,000,000, \$1.00 per, 418,633 shares outstanding.

Property The Greenback mine included the Tough Nut, Red Boy, Whisky
Bottle and Lookout claims at Placer, Josephine County, Oregon.

Development by shaft and edit.

Equipment included Diesel power, compressor, 50 ton mill using crusher,
bell mill, 5 plates and 3 tables.

Employs, 25 men.

Reference:
Mines Register, 1937

*Taken from Public
Library
Portland, Oregon*

ESTIMATE FOR OPERATING COSTS & MINIMUMS
 On Various Size Motors for General Use Operating for
 10 Hour Period, 30 Days Per Month, Assuming 800 Watts
 Per Horsepower

50 HP = 40 KW - Minimum \$53.00 per month
 40 x 10 = 400 KW Hours per day
 400 x 30 = 12000 KW Hours per month
 50 x 50 = 2400 KW hours on primary rate
 600 KW Hours @ .06 - \$36.00
 1400" " @ .03 - 42.00
 500 " " @ .02 - 10.00
 3000" " @ .015 - 45.00
 6500" " @ .11 - 71.50
 Total 12000 KW hrs. \$204.50 or \$.017 per KW Hr.

75 HP = 60 KW - MINIMUM \$78.00 per month
 60 x 10 = 600 KW Hours per day
 600 x 30 = 18000 KW Hours per month
 75 x 50 = 3750 KW Hours on primary rate
 600 KW Hours @ .06 - \$36.00
 1400" " @ .03 - 42.00
 1750" " @ .02 - 35.00
 3000" " @ .015 - 45.00
 7000" " @ .11 - 77.00
 4250" " @ .009 - 38.25
 Total 18000 KW Hrs. \$273.25 or \$.015 - per KW Hr.

100 HP = 80 KW - Minimum \$103.00 per month
 80 x 10 = 800 KW Hours per day
 800 x 30 = 24000 KW Hours per month
 100 x 50 = 5000 KW Hours on primary rate
 600 KW Hours @ .06 - \$36.00
 1400" # @ .03 - 42.00
 3000" " @ .02 - 60.00
 3000" " @ .015 - 45.00
 7000" " @ .011 - 77.00
 9000" " @ .009 - 81.00
 Total 24000 KW Hrs. \$341.00 or \$.014 - per KW Hr.

Voltage would be delivered to the mine at 440 volts and by furnishing your own small lighting transformer the lighting for the mine can be taken through the same meter.

We would be very glad to go into this proposition further and if there is any other detail you do not understand, please write us. I believe in your last letter you stated this mine is on Wolf Creek, but the section mentioned shows the mining property on Coyote Creek and the line to the mine would run from Laurel Camp up the creek.

Mery truly yours,

DISTRICT MANAGER

RECORD IDENTIFICATION
 RECORD NO..... M061634
 RECORD TYPE..... XIM
 COUNTRY/ORGANIZATION. USGS

NAME AND LOCATION

DEPOSIT NAME..... LIVINGSTON GROUP
 SYNONYM NAME..... SAME CLAIMS AS COUGAR & SPOTTED FAWN

COUNTRY CODE..... US
 COUNTRY NAME: UNITED STATES

STATE CODE..... OR
 STATE NAME: OREGON

COUNTY..... JOSEPHINE

QUAD SCALE QUAD NO OR NAME
 1: 62500 GLENDALE

LATITUDE LONGITUDE
 42-41-32N 123-16-21W

UTM NORTHING UTM EASTING UTM ZONE NO
 4726450. 477675. +10

TWP..... 33S
 RANGE..... 05W
 SECTION.. 22
 MERIDIAN. W.M.

ALTITUDE.. 3320

COMMODITY INFORMATION

COMMODITIES PRESENT..... CR

PRODUCER(PAST OR PRESENT):
 MAJOR PRODUCTS.. CR

ORE MATERIALS (MINERALS,ROCKS,ETC.):
 MASSIVE, LDM GRADE

ANALYTICAL DATA(GENERAL)
 2 ASSAYS -30.0 & 34.7% CR203

DESCRIPTION OF DEPOSIT
FORM/SHAPE OF DEPOSIT:

SIZE/DIRECTIONAL DATA
COMMENTS(DESCRIPTION OF DEPOSIT):
NOT VISITED; ON GOLD CLAIMS

PRODUCTION
YES
SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

GEOLOGY AND MINERALOGY
HOST ROCK TYPES..... SERPENTINE

GENERAL REFERENCES

1) RAMP, LEN, 1961, CHROMITE IN SOUTHWESTERN OREGON: OREGON DEPT. GEOLOGY AND MINERAL IND. BULL. 52, 169 P.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION

RECORD NO..... M061233
 RECORD TYPE..... XIM
 COUNTRY/ORGANIZATION. USGS
 DEPOSIT NO..... DDGMI 100-50
 MAP CODE NO. OF REC..

REPORTER

NAME..... JOHNSON, MAUREEN G.
 UPDATED..... 81 04
 BY..... FERNS, MARK L. (BROOKS, HOWARD C.)

NAME AND LOCATION

DEPOSIT NAME..... SPOTTED FAWN
 SYNONYM NAME..... LIVINGSTONE , COUGAR

MINING DISTRICT/AREA/SUBDIST. GREENBACK

COUNTRY CODE..... US
 COUNTRY NAME: UNITED STATES

STATE CODE..... OR
 STATE NAME: OREGON

COUNTY..... JOSEPHINE
 DRAINAGE AREA..... 17100310 PACIFIC NORTHWEST
 PHYSIOGRAPHIC PROV..... 13 KLAMATH MOUNTAINS
 LAND CLASSIFICATION..... 41

QUAD SCALE QUAD NO OR NAME
 1: 62500 GLENDALE

LATITUDE LONGITUDE
 42-41-25N 123-16-20W

UTM NORTHING UTM EASTING UTM ZONE NO
 4726231.0 477690.5 +10

TWP..... 33S
 RANGE..... 05W
 SECTION.. 22
 MERIDIAN. W.M.

LOCATION COMMENTS: E 1/2

COMMODITY INFORMATION

MINOR PRODUCTS.. AG

OCCURRENCE(S) OR POTENTIAL PRODUCT(S):

POTENTIAL.....

OCCURRENCE..... CU

ORE MATERIALS (MINERALS, ROCKS, ETC.):

PYRITE, CHALCOPYRITE, GOLD, ARSENOPYRITE (?)

COMMODITY SUBTYPES OR USE CATEGORIES:

B.450 AU:AG

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 4

DESCRIPTION OF DEPOSIT

DEPOSIT TYPES:

SHEAR ZONE

FORM/SHAPE OF DEPOSIT: LENS

SIZE/DIRECTIONAL DATA

SIZE OF DEPOSIT..... SMALL

MAX LENGTH..... 100 FT

MAX THICKNESS..... 10 FT

STRIKE OF OREBODY.... N10E

DIP OF OREBODY..... 50E

DESCRIPTION OF WORKINGS

UNDERGROUND

COMMENTS(DESCRIP. OF WORKINGS):

FOUR ADITS

PRODUCTION

YES

SMALL PRODUCTION

ANNUAL PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

ITEM	ACC	AMOUNT	THOUS. UNITS	YEAR	GRADE, REMARKS
1 ORE SML		.355	TONS		
2 AU SML		.107	OZ	.301	OZ/T
3 AG SML		.031	OZ	.087	OZ/T

CUMULATIVE PRODUCTION (ORE, COMMOD., CONC., OVERBURD.)

PRODUCTION YEARS..... 1925-1942 (INTERMITTENT)

SOURCE OF INFORMATION (PRODUCTION).. USBM

PRODUCTION COMMENTS.... EFFORTS CONFINED TO HIGH GRADE DRE

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... PERM-TRI
HOST ROCK TYPES..... GREENSTONE
IGNEOUS ROCK TYPES..... SERPENTINE

PERTINENT MINERALOGY..... GANGUE; QUARTZ CALCITE, CHLORITE & SERPENTINE

IMPORTANT DRE CONTROL/LOCUS.. SHEARED CONTACTS

GEOLOGY (SUPPLEMENTARY INFORMATION)

REGIONAL GEOLOGY

MAJOR REGIONAL STRUCTURES.. THRUST FAULT

LOCAL GEOLOGY

NAMES/AGE OF FORMATIONS, UNITS, OR ROCK TYPES

- 1) NAME: APPLGATE GROUP
AGE: PERM-TRI

SIGNIFICANT LOCAL STRUCTURES:

DRE SHOOT CUT OFF ON NORTH BY N57E FAULT

GENERAL COMMENTS

RECORD NUMBERS (M013445) AND (M015220) HAVE BEEN MERGED WITH THIS RECORD AND DELETED FROM THE OREGON FILE.

GENERAL REFERENCES

- 1) RAMP, L. AND PETERSON, N.V., 1979, GEOLOGY AND MINERAL RESOURCES OF JOSEPHINE COUNTY, OREGON; ODGMI BULL. 100, 45P
- 2) BROOKS, H.C. AND RAMP, L., 1968, GOLD AND SILVER IN OREGON; ODGMI BULL. 61, P. 229
- 3) OREGON METAL MINES HANDBOOK, 1942, ODGMI BULL. 14-C, VOL. 2, SEC. 1, P. 110

width sample Av oz/T ?

S.F. 1 - 5.0 - Tr
 S.F. 2 - 5.0 - Nil
 3 - 5.0 - Nil
 4 - 5.0 - Nil
 5 - 3.0 - Tr

6 1.6 Tr
 7 2.1 .08
 8 3.0 Tr
 9 3.3 Tr
 10 4.0 .06
 11 1.6 .18
 12 1.6 .Tr
 13 2.4 1.72
 14 3.0 Tr +
 15 2.1 .16 +
 16 2.3 .Tr +
 17 1.0 .54 +
 18 2.0 .02 +
 19 3.5 Nil +
 20 .5 Nil
 21 .8 Tr
 22 6.8 Tr
 23 Grab. .2

44.20
 10.00
 104.60
 38.50

Above samples North of Main workings.

24 4.0 .22
 25 3.6 .02
 26 4.7 .06
 27 3.4 Tr
 28 4.5 .16
 29 4.9 Tr
 30 3.6 Tr
 31 3.9 Tr

S.F. 32 - 3.2 .26
 33. 3.5 1.29 - 268.60
 34 2.4 .20

Above samples from Discovery cut.

35 - 2.4 .14 - 17.60
 36 - 2.8 Tr
 37 - 2.6 .08
 38 - 1.9 .Tr
 39 - 3.4 .Tr
 40 - 1.9 Nil
 41 - 2.4 .12
 42 - 2.2 .01
 43 - 3.0 Tr
 44 - 3.0 Tr
 45 - 3.0 .04 } \$116.00
 46 - 2.4 .02
 47 - 1.9 .40
 48 - 2.0 .02 } \$46.00
 49 - 2.0 .06
 50 - 2.0 Tr
 51 - 3.0 .12
 52 - 2.8 Tr
 53 - 1.2 Nil
 54 - 1.5 Nil
 55 - 4.5 Nil
 56 - 1.5 Tr
 57 - 1.5 Tr
 58 - 3.6 .14
 59 - 3.3 .16
 60 - 3.5 .22 - \$8.60

Stope.

61 - 4.0 - Nil
 62 - 4.5 Tr
 63 - 4.7 - Tr
 64 - 5.0 - .02
 65 - 5.0 - .08
 66 - 5.0 - Tr
 67 - 5.0 - .02
 68 - 5.0 Tr
 69 - 3.5 Tr
 70 - 5.0 Tr

71	5.0	Tr
72	5.0	Tr
North of fault Main tunnel		
73	3.0	Tr
74	3.8	Tr
75	4.9	Tr
76	4.1	Tr
77	4.5	Tr
78	3.0	Tr
79	2.5	.10
80	3.8	Tr
81	4.0	.12
82	2.5	.06
83	3.0	Tr
84	3.8	.02
85	2.0	.02
86	4.5	.24
87	5.0	.02
88	4.0	.16
89	4.8	.08
90	4.2	.24
91	4.0	.02
92	4.0	.22
93	3.3	.16
94	3.5	.02
95	5.5	.06
96	2.0	.02
97	4.0	.06
98	6.5	.16
99	2.8	.04
100	4.0	Tr
101	5.5	.04
102	5.6	.08
103	Dump	.16
104	"	.08
105	"	.14

106 - Dump .12
 107 " Tr

No 12 ft shaft for sample
 #18 - Grab SF 23 grab: 20
 nearest to it
 No corresponding sample
 for 14

\$12.60
 #18 60 nearly same location

\$6.40

\$6.80
 \$18.60

\$13.30

Local Geology

Field reconnaissance of 3-28-90 indicates structurally interleaved serpentine and metadiabase. Pods (few cu. ft) of metadiabase are found within the serpentine near ~~of~~ high-angle shear zones between the serpentine and metadiabase.

The main vein has been worked in the stream bed at the surface and separates metadiabase to the north from serpentine to the south. It is about 6 feet wide. The main vein in the stream is oriented 75-80 78S. Near horizontal slickensides on the exposed surface of the main vein plunge 15-20W. Tension gashes on the main vein trend 350 70S (linears) and are poorly expressed as planar features oriented 350 75E. A set of synthetic shears is developed within the main vein, oriented 50 90S.

Underground, the main vein swings southward and is expressed predominantly within serpentine. Several strands of anastomosing shears are evident, dominant attitudes are 10 55E and 25 80-90E. The width of the zone appears to vary between 6 and 10 feet in width.

Field exposures at the surface indicate that south of the Spotted Fawn, the main vein trends south-southwestward for more than 100 yards.

Ore Bodies

Gold ore is hosted within the main vein. Mineralization includes gold (not seen), pyrite, chalcopyrite (very minor), and calcite and quartz gangue. Sulfides are dispersed as discrete crystals <0.5mm in size but locally abundant along shear surfaces. Gangue minerals exist as a pervasive and nearly penetrative vein filling (gouge).

Reserves

Jim Butterfield indicated there is enough tonnage and grade to yield 600 oz. gold (known reserves). Grade ranges from tenth ounce to several ounces per ton.

Equipment

None on mine site.

Plan

Secure financing.

References

Jim Butterfield, 1990, personal communication.
DOGAMI Mine Files, Grants Pass Field Office

A Digest of a Report on the Livingston Mining Group located near Wolf Creek, Oregon. The report was made by William H. Gaines, Mining Engineer, of the South Dakota School of Mines. The digest is made by Ed. W. Miller.

GENERAL INFORMATION

The Livingston mining group, consisting of three claims held by location, are situated in Sec. 22, Twp. 33 S., R. 5 W. Wolf Creek mining district, Josephine County, Oregon.

There are no claims in litigation, nor any conflicting claims.

The property is located about seven miles from Wolf Creek by road measurement, which is the nearest shipping point and on the Southern Pacific Railway. It is six miles from Laurel Camp, a stage station on the Pacific Highway.

The road to the property from Laurel Camp is gravel and dirt, suitable for auto and truck travel.

Climatic conditions are ideal for all year mining, there being practically *no frosty* weather and very rarely snowfall during the year.

Plenty of water and timber is available on the property for both mining and milling.

Electric power is now available in Wolf Creek and also at the terminus of the old power line at the Greenback Mine $2\frac{1}{2}$ miles distant. For immediate operation, however, diesel electric generation of power would be more practical.

HISTORY

The Livingston mine was discovered in 1901 by H. W. Thompson, father-in-law of the present owner.

The mine has shipped bullion off and on for the last twenty years from small batches of ore put through an Arrastra and later a Chilian mill, of about $1\frac{1}{4}$ tons daily capacity. The operations, however, have been periodical and no regular shipments have been made. Whenever the owner has needed some money he has taken out high grade ore, operating alone, while his wife has done the milling. As near as can be learned, the total shipments have amounted to about \$15,000.00. Perhaps approximately \$1,000.00 during the past year.

SURFACE IMPROVEMENTS

There are on the Livingston underground workings are confined principally to one 200 foot crosscut which cuts the Spotted Fawn vein, about 50 feet below the outcrop and 125 feet from the portal. There is a drift of 180 feet on the vein which extends 20 feet South and 160 feet North of the crosscut, besides three short crosscuts of the vein along its course, and several short crosscut tunnels, all caved and open cuts along the outcrop of the Spotted Fawn and Dewey veins. The Dewey vein extends parallel with the Spotted Fawn 400 to 500 feet East of the same.

ORE DEPOSITS

The Spotted Fawn and Dewey veins extend the entire length of the Livingston group of claims -- 3,000 feet.

The Spotted Fawn vein is traceable for a total distance of about ten miles, starting at the Greenback mine, $2\frac{1}{2}$ miles South and extending through several smaller developed properties to the North. BS

The Greenback ore shoot has produced over $1\frac{1}{2}$ million dollars in gold bullion according to available mint returns, with values still good at 1200 feet of depth. This property has been reconditioned for further operation.

The Spotted Fawn and Dewey veins are both fissure veins. They occur as quartz porphyry and quartz fillings, along the contact between the serpentine hanging wall and the granodiorite footwall in each case. They both strike North about 30 degrees West and dip about 60 degrees East. The uneven and sloping contour of the surface causes several variations from this course.

The Spotted Fawn is a double vein about 10 feet thick over all. At the intersection with the main crosscut, it is made up of about 4 feet of a rather fine-grained quartz porphyry, overlain by about 2 feet of quartz, and this in turn, is overlain by similar layers of quartz porphyry and quartz. The two sections are divided by a layer about six inches thick, of a soft green-stained rock, probably some phase of serpentine, laminated in structure parallel to the dip of the vein. There are several variations of these thicknesses in other parts of the vein due to faulting and folding. In one place the vein is shown to be nearly 18 feet thick.

A fault, dipping about 70 degrees East cuts the vein at an angle of about 45 degrees, displacing the vein horizontally about 50 feet to the Northeast. The ore shoot, or high grade portion, is apparent up to the South wall of this fault and continues on to the North, although no mining has been conducted into this wall to demonstrate the fact. I am of the opinion that some work on this portion would disclose an added length, perhaps considerable, to the present 100 foot ore shoot shown.

On the surface along the outcrop at a point beginning 140 feet North of the line of the crosscut tunnel, there is ample evidence of another ore shoot of the same character and assay values, but probably longer than the one shown underground. This was worked several years ago and high grade ore was milled through an Arrastra. On the oxidized surface ore however was taken.

Surface indications and open cuts also indicate that another ore shoot occurs 450 feet to the South of the main crosscut, also there are signs of ore shoots occurring at intervals going North from the present workings, beyond the North ore shoot mentioned above.

A vertical depth of 80 feet will be obtained by an extension of the present drift under the old workings on the North ore shoot above mentioned, and as much as 350 feet depth on ore shoots on the vein further North, due to the sharp rise of the contour. The first ore shoot North can be reached by a tunnel extension of the present drift of not to exceed 150 feet.

Aside from the Spotted Fawn vein, we have another very similar vein paralleling it about 500 feet to the East. This is known as the Dewey vein and is of larger dimensions with strike and dip the same as the Spotted Fawn, with foot and

hanging walls the same. Although the surface development on the Dewey vein is not as extensive as on the Spotted Fawn, sufficient work has been done to demonstrate similar ore shoots, as on the Spotted Fawn. The extension of the present crosscut, a distance of about 300 feet, would cut the Dewey vein at a depth of 250 feet. Drifts could be run both North and South.

CHARACTER AND ANALYSIS OF ORE

Free gold is visible in the Spotted Fawn ore in several varieties of rock. On the surface it occurs in the white quartz and the limonite stained, quartz porphyry.

In the underground working it occurs in the quartz and calcite stringers which checker the quartz porphyry. Also in the white quartz of the underlying vein and in the green stained serpentine which imbeds the quartz in the decomposed portions of the vein. In all varieties of ore there also occurs a concentrate of iron pyrite, calco pyrite, arseno pyrite, and iron oxides with occasional evidence of sylvanites or telluride of gold. These concentrates were never recovered in the milling operations, but a sample of ore concentrates was obtained and assayed. This does not, however, represent a true concentrate.

The following are the sample descriptions giving values in gold per ton, the silver being neglected:

	Amt. Gold	Present 1937 value
1. 8 ft. cut across whole vein at the crosscut	.32 oz.	2.56 11.20
2. Two 3 ft. cut on hanging wall quartz, at station 6	.43 oz.	1.29 15.00
3. Two 3 ft. cuts on hanging wall vein, at 6 ft. and 10 feet North of station 6.	.91 oz.	5.46 31.80
4. Two 4 ft. cuts at face of incline drift, present working face, about 35 ft. vert. above sample 1	.88 oz.	7.04 34.10
5. 3 ft. cut on hanging wall vein, 6 ft. north of station 13.	.23 oz.	.69 8.00
6. 4 ft. cut on footwall portion of footwall vein, at station 6. not all of vein exposed.	.34 oz.	1.36 11.90
7. Special, coarse quartz portion of rejects.	.9 oz.	31.50
8. Ore from discovery cut, from floor of drift, represents ore milled from this cut, 12" sample	13.43 oz.	13.43 471.25
9. Open cut on North ore shoot, chip sample from boulders from footwall of cut, grey quartz. porphyry	2.24 oz.	78.40
10. Same open cut, 2 ft. cut across ore in bottom floor represents hangingwall of hanging wall vein.	.5 oz.	1.00 17.50
11. Same open cut, 10 ft. North of sample 10. 12" cut in floor, same part of vein as sample 10.	5.23 oz.	5.23 183.00
12. Same open cut, 18" of red gouge and quartz in hole in South end, represents ore milled from this cut.	1.1 oz.	1.98 38.50
13. Fines on top of dump at lower tunnel, represents 12 tons of rejects from ore milled.	.38 oz.	13.30

	AMT. GOLD	PRESENT VALUE
14. Two inch stringer quartz and red gouge, in face of open cut 450 ft. South of main tunnel	.16 oz.	5.60
15. 5 ft. vertical cut in face of cut above sample 14. Represents footwall of footwall vein, red ore, with no quartz. Leached portion of vein.	<i>oz./ton</i> .1 oz.	<i>.5</i> 3.50
16. Two ft. cut across ore on floor of incline drift, main Livingston workings, 6 ft. South of Sta. 14.	5.8 oz.	<i>11.60</i> 203.00
17. Lower level, 6" cut across ore in edge of pothole represents ore not mined.	.63 oz.	<i>.32</i> 22.00
18. Quartz off dump of 12 ft. shaft on Spotted Fawn vein near outcrop of North ore shoot.	.42 oz.	14.70
19. Sample of concentrate from former panning of mill clean-up.	4.06 oz.	142.15
20. Special sample of high-grade ore, specimen of ore from milling operations.	127.6 oz.	4466.00

SUMMARY REMARKS

Samples No 1-2-3-4-5-6 & 13, averaging .546 oz (\$19.10) are indicative of the general run of ore that may reasonably be expected.

Samples 7-10-11-16 & 17, averaging 2.36 oz. (\$82.60) represent grade of ore to be expected, from selective mining for high grade ore.

Samples 1-5-6-13 & 18, averaging .33oz. (\$11.55) represent the low grade ores of the footwall veins, and the milling grade should be easily kept better than this, but should include it in regular milling operations.

The owner of the Livingston mine, has, for the past few years, confined his efforts to mining and milling of the high grade ores only, consequently, the actual development and blocking out of the ore in the underground works, as well as all surface development, has been entirely neglected. Following this, I found the surface works badly caved, and impossible to sample in the time allowed, and the underground either caved and dangerous, or else the high grade ore had been removed. Samples No. 8 and 16 are examples of my having sampled the ore after some pick and shovel work.

For this reason, my conclusions as to probable value and extent of ore in the ore shoot alone, were derived more from mill returns actually recovered from the ore milled, taking note of the amount of ore milled to produce these results, and the crude, but efficient way of milling the ore, than from assay results.

As an illustration of this point, all the ore milled from the 30 ft. incline drift, on the upper level, has netted him about .8 oz. (\$28.00) per ton, figuring the values recovered, and the cubic contents of the small 3 ft. x 4 ft. drift, free milling gold only.

Six tons of ore milled off the dump, at the mouth of the tunnel, netted about .3 oz. (\$10.50) per ton, both batches saving about 60% of the total value. This was milled in five days, showing a daily capacity of over one ton per 8 hour day.

*AV 45# - 1.17g
02 \$40.95*

Another run, on high grade ore, netted over 10. oz (\$350.00) in four hours mill run, of free milling values only.

COST OF MINING AND MILLING

Cost of mining, during development, including drifts, raises and crosscuts, should not exceed \$3.50 per ton.

Cost of stoping, including timbering, should not exceed \$3.50 per ton, delivered to the mill.

Milling will average, including amalgamation, and either cyaniding, or close concentration to follow, not over \$1.25 per ton milled.

ORE IN SIGHT, POSSIBLE ORE AND PROBABLE ORE

With the assay values available, together with past recoveries from ore milled by the owner, I will place the general average of the ore shoots, including the high grade ore, at .5 oz. (\$17.50) per ton, leaving \$12.50 per ton net profit.

Assuming an average width of 10 ft. in the vein, a length of 100 ft. for each shoot, and the heights shown by measurement, in my Brunton survey, we have the following blocks of ore for our consideration, figuring 12 cu. ft. per ton, for rock in place.

Ore in sight.

Block A

Present ore shoot, from sill to surface, 1/5th mined.

Ore probable.

Block B

Ore shoot 150 ft. north, from surface to present sill level

Possible ore.

Blocks C & D.

Extension 100 feet lower depth, on present ore shoots.

	Dimensions	Tons		Gross Value	Net Value
A	100 x 10 x 40	3333	at 17.50	\$58,327 - 5.00 per ton	\$41,662
B	100 x 10 x 80	6666	at 17.50	116,654 - 5.00 per ton	83,324
C	100 x 10 x 100	8333	at 17.50	144,227 - 5.00 per ton	102,662
D	100 x 10 x 100	8333	at 17.50	144,227 - 5.00 per ton	102,662

TOTALS

Net value ore in sight	\$ 41,662
" " probable ore	83,324
" " possible ore	205,334
Total	\$330,320

This estimate does not assume a greater depth than 100 ft. more, if possible ore, nor any other than the two positively known existing ore shoots, nor any values as existing along the vein itself, between ore shoots, on the Spotted Fawn nor does it include any of the Dewey vein, but does include only that ore, which with a moderately sized crew, can be mined, developed, and milled, contemporaneous with the development of a much more extensive territory.

Several more ore shoots, on both veins, are evidenced by present surface prospecting, on both veins, both to the north and south.

Values between shoots, as evident from samples 1 and 18, assaying .33 oz. (\$11.20) and .42 oz. (\$14.70), show that a grade of ore, profitable to mill, should be encountered along the veins, between ore shoots.

Considering depth of ore developed in the Greenback mine, 1200 ft. vertical, as well as the entirely igneous character of the formation in which the veins occur, the size and persistence of the veins for so great a distance, I would not restrict the ultimate depth of ore to less than 1000 ft.

Bearing these points in mind, it is only fair to add that when these ore shoots alone, which should show a net profit over costs, are developed, the ultimate development of other ore shoots and greater depths, will have been only fairly started.

The present ore shoot, appears to have been enriched, from ascending solutions close to the main fault which cuts it, the same being apparently true on the North ore shoot, along a similar, parallel fault. These faults also cut the Dewey vein, and I would expect similar ore shoots at these points of intersection.

TYPE AND SIZE OF MILL

Due to coarseness of the free gold content of the ore, it is absolutely necessary that amalgamation be installed to treat this ore, for recovery of the coarser portion, followed by whatever subsequent treatment is found best.

In connection with this, I have at hand, some tests, which show the probably behavior of this ore in practice.

1. Test by Garvin Cyanide Extraction Co., of Portland in 1906.
2000 lbs of ore, treated by amalgamation, at 40 mesh
Tailings treated, one batch at 80 mesh, another at 40 mesh.
Amalgamation, heads \$29.71, Tails 15.21 Extraction 48%.
Cyanidation, heads, 80 mesh, \$15.21 Tails .31 cents Extraction 97%.
" 40 mesh hds \$15.41 Tails \$3.50 Extraction 76%.
2. Test by Smith Emery Co., Los Angeles 1922.
Amalgamation at 40 mesh, 39.5% extraction.
3. Test by John Herman, Los Angeles 1922.
Amalgamation and concentration combined:
At 40 mesh, 88.2% Extraction.
At 80 mesh, 92.8% Extraction.

From the foregoing tests, it seems advisable to grind to 80 mesh, for final treatment, at least.

I would suggest that a 10 stamp mill, of about 25 tons daily capacity, be erected soon after the second ore shoot is reached, and the dumping of ore in the dump, with subsequent loss, and expense of extra handling, to get to the mill, be eliminated.

MAPS

Accompanying this report, are maps as follows.

- No. 1 Showing the claims included in this report.
- No. 2 Showing the general plan of the Livingston workings.
- No. 3 Showing some detail of the Livingston underground workings.

Nos. 2 & 3 also show the samples, as taken during the examination.

CONCLUSION.

With the facts, as stated above, all of which are reasonably conservative, and realizing that the property, if properly developed and managed, will materialize into one of the steady dividend payers of Oregon, I do not hesitate to recommend its purchase and operation, and I believe that the expenditures necessary to do this, are fully justified.

Respectfully submitted,

(Signed) Wm. H. Gaines

August 20, 1931

1. Name of property Livingstone Mine
 Operating company (or individual) Frank C. Livingstone
 Address Box 40, Wolf Creek, Oregon.
 Location of property Coyote Creek, Sec. 22, T. 33 S., R. 5 W. See other side.
 Acreage of holdings 3 claims unpatented, 62 acres. Spotted Fawn, Orel & Dewey.
2. History of property, past and recent: Discovered by M. H. Thompson in 1901. Upon death of Mr. Thompson he gave the property to his daughter, Mrs. Livingstone. Her husband has worked it ever since.

3. History of production: Regular producer in a small way. Total production
4. \$20,000 Development: Number of levels, lengths of drifts and cross-cuts, raises, etc.:

For main tunnel and tunnel No. 1 see attached sketch. There are 4 tunnels besides the main workings all of which are on the (see other side)

5. General description and equipment on hand, topography, country rocks, elevation, timber, water, snow fall, climate, power, etc.

1 Dodge #3 small crusher, 1 Chili Mill - 5 tons, 1 Gas Engine - 6 H.P. Steep mountainous topography. 3000 ft elevation. Plenty timber. Not enough water on property for mill. Water can be developed lower down for a mill. No water power. The last mile of road to property very steep and rough. Country rock serpentine on the east and green stone, probably andesite porphyry on west. Maximum about 2 ft. of snowfall. Can work all year.

6. Geology - General and local. Ore geology - type of deposit, i.e., vein, mineralized zone, bed; contact relations, attitude and orientation, vein minerals, gangue, type of mineralization, alteration, enrichment, etc.

As shown by the Riddle Folio the country rock is greenstone, probably andesite porphyry. This porphyry has been cut by the serpentine and the contacts between this serpentine and the porphyry has formed the Spotted Fawn vein on the west and the Dewey vein on the east, 500 feet apart. There is little known of the Dewey vein except that it has a porphyry hanging and a serpentine footwall. The general strike is northerly. The Spotted Fawn vein has a strike of N. 10° E. and dips about 50° to the east. Serpentine hanging and porphyry footwall. These contacts are strong and are highlighted over

7. Metallurgy - nature of ore, hard or soft, free milling, ease, direct shipping, etc. Kind of mill and equipment in use or planned, current daily tonnage of ore or concentrates, approximate value, freight rates to smelter, etc.

Very hard quartz ore estimated 60% free milling. Sulphides will concentrate forming \$125 concentrates. Ratio unknown. A cyanide test run on this ore shows an 85% recovery at 40 mesh. At the present time he is using amalgamation plates only and getting about a 50% recovery. Mr. Livingstone states that there is as much gold gone down Graves Creek as he has worked from the property. Tailings have not been stored. He does not desire to make any changes in the milling as he prefers to sell the property.

8. Remarks - High or low cost, principal drawbacks, reasons for success or failure, apparent life of operation based on apparent quantity of ore available.

The owner has confined his efforts to mining and milling of the high grade ores only. Consequently the actual development and blocking out of the ore in the underground workings as well as the surface development has been entirely neglected. It has paid its owner a living from this high grade ore. The mining and milling costs are normal and there are no drawbacks. Under careful management this mine should be a steady producer as a small high grade property not to exceed 10 or 15 tons per day. I believe that they can maintain an average of \$10 per ton exclusive of the high grade which will naturally raise the average.

Livingstone Mine (Continued)

Location of property: 6 miles east of Laurel Camp, 7 miles from Wolf Creek, being nearest shipping point on the Southern Pacific Railroad.

Development: Spotted Fawn claim. No. 2 Crosscut Tunnel running S. 55° E. 65 ft. No. 3 Crosscut Tunnel running S. 40° E. 20 ft. with a 10 foot drift. No. 4 Crosscut Tunnel running S. 40° E. 15 ft. Several other old workings caved.

Geology: long distances indicating a fissure vein. Mineralization has taken place over widths up to ten feet. In some places the values are found along the contact. In other places the values are separated from the contact and are in the porphyry. For the main part, the vein matter is white quartz but some values are in the porphyry. Minerals noted are calcite, pyrite and chalcopyrite. No alteration or enrichment were noted. All the mining has been done from one ore shoot which is about 100 feet long and 40 feet wide. This ore shoot was thought to be cut off on the north by a fault which runs N. 57° E. and has displaced the vein approximately 50 ft. Only recently has the ore shoot been packed up beyond the fault and have not had sufficient time to determine if the rich values continued across the fault.

On the above mentioned ore shoot the maximum dimensions are 100 x 40 x 10 ft.

Based on the results of 127 assays taken on this property by two engineers shows the ore to be very spotted and indicates an average of at least \$10 exclusive of the high grade. This property has produced some ore in excess of \$2,000 per ton.

The owner has outlined his efforts to mine and mill the high grade ore only. Consequently the normal development and blocking out of the ore in the underground workings as well as the surface development has been entirely neglected. It has paid the owner a living from this high grade ore. The strike and dipping veins are normal and there are no drawbacks. Under careful management this mine should be a steady producer as a small high grade property not to exceed 10 or 15 tons per day. I believe that she can maintain an average of \$10 per ton exclusive of the high grade which will naturally raise the average.

Grants Pass

Josephine Co

Livingstone Mine quartz

Operator: Frank C. Livingstone, P.O. Box 40, Wolf Creek, Oregon.

Location: Coyote Creek, Sec. 22, T. 33 S., R. 5 W. 6 miles east of Laurel Camp. 7 miles from Wolf Creek, being nearest shipping point on the Southern Pacific Railroad.

Area: 3 claims unpatented, 62 acres: Spotted Fawn, Orel and Dewey.

History: Upon death of Mr. Thompson he gave the property to his daughter, Mrs. Livingstone. M. H. Thompson discovered it in 1901. Mrs. Livingstone's husband has worked it ever since.

Production: \$20,000. *Regular producer in small way.*

Development: 4 tunnels beside the main workings all of which are on the Spotted Fawn claim. No. 2 Crosscut Tunnel running S. 55° E. 65 ft. No. 3 Corsscut Tunnel running S. 40° E. 20 ft., with a 10 ft. drift. No. 4 Corsscut Tunnel running S. 40° E. 15 ft. Several other old workings caved.

Equipment: 1 Dodge #3 small crusher, 1 Chili Mill - 5 tons, 1 Gas Engine - 6 H.P.

Description: Steep mountainous topography. 3000 ft. elevation. Plenty timber. Not enough water on property for mill. Water can be developed lower down for a mill. No water power. Country rock serpentine on the east and greenstone, probably andesite porphyry on west. Maximum snowfall 2 ft. Can work all year.

Geology: As shown by the Riddle Folio the country rock is greenstone, probably andesite porphyry. This porphyry has been cut by the serpentine and the contacts between this serpentine and the porphyry has formed the Spotted Fawn vein on the west and the Dewey vein on the east, 500 feet apart. Dewey vein has a porphyry hanging and a serpentine footwall. The general strike is northerly. The Spotted Fawn vein has a strike of N. 10° E. and dips about 50° to the east. Serpentine hanging and porphyry footwall. These contacts are strong and can be traced over long distances indicating a fissure vein. Mineralization has taken place over widths up to ten feet. In some places the values are found along the contact. In some places the values are separated from the contact and are in the porphyry. Mainly, the vein matter is white quartz but some values are in the porphyry. Minerals noted are calcite, pyrite, and chalcopryite. No alteration or enrichment were noted. All the mining has been done from one ore shoot which is about 100 feet long and 40 feet wide. Maximum dimensions of ore shoot are 100 x 40 x 10 ft. The ore assays average at least \$10 exclusive of the high grades. This property has produced some ore in excess of \$2,000 per ton. *as indicated by 127 samples by two engineers,*

Metallurgy: Very hard quartz ore estimated 60% free milling. Sulphides will

This ore shoot was thought to be cut off on the north by a fault which strikes N57° E displacing vein 50 ft. Only recently picked up beyond fault values not yet determined here.

concentrate forming \$125 concentrates. Ratio unknown. A cyanide test run on this ore shows an 85% recovery at 40 mesh.

Remarks: The owner has confined his efforts to mining and milling of the high grade ores only. Consequently the actual development and blocking out of the ore in the underground workings as well as the surface development has been entirely neglected. It has paid the owner a living. Under careful management this mine should be a steady producer as a small high-grade property not to exceed 10 or 15 tons per day., averaging \$10 per ton.

Informant: J. E. Morrison
10/21/37

1. Name of property Livingstone Mine
 Operating company (or individual) Frank C. Livingstone
 Address P. O. Box 40, Wolf Creek, Oregon.
 Location of property Coyote Creek, Sec. 22, T. 33 S., R. 5 W. See other side.
 Acreage of holdings 3 claims unpatented, 62 acres: Spotted Fawn, Orel & Dewey.
2. History of property, past and recent: Discovered by M. H. Thompson in 1901. Upon death of Mr. Thompson he gave the property to his daughter, Mrs. Livingstone. Her husband has worked it ever since.
3. History of production: Regular producer in a small way. Total production \$20,000.
4. Development: Number of levels, lengths of drifts and cross-cuts, raises, etc.: For main tunnel and tunnel No. 1 see attached sketch. There are 4 tunnels besides the main workings all of which are on the (see other side)
5. General description and equipment on hand, topography, country rocks, elevation, timber, water, snow fall, climate, power, etc. 1 Dodge #3 small crusher, 1 Chili Mill - 5 tons, 1 Gas Engine - 6 H.P. Steep mountainous topography. 3000 ft. elevation. Plenty timber. Not enough water on property for mill. Water can be developed lower down for a mill. No water power. The last mile of road to property very steep and rough. Country rock serpentine on the east and green stone, probably andesite porphyry on west. Maximum about 2 ft. of snowfall. Can work all year.
6. Geology - General and local. Ore geology - type of deposit, i.e., vein, mineralized zone, bed; contact relations, attitude and orientation, vein minerals, gangue, type of mineralization, alteration, enrichment, etc. As shown by the Riddle Folio the country rock is greenstone, probably andesite porphyry. This porphyry has been cut by the serpentine and the contacts between this serpentine and the porphyry has formed the Spotted Fawn vein on the west and the Dewey vein on the east, 500 feet apart. There is little known of the Dewey vein except that it has a porphyry hanging and a serpentine footwall. The general strike is northerly. The Spotted Fawn vein has a strike of N. 10° E. and dips about 50° to the east. Serpentine hanging and porphyry footwall. These contacts are strong and can be traced over
7. Metallurgy - nature of ore, hard or soft, free-milling, base, direct shipping, etc. Kind of mill and equipment in use or planned, current daily tonnage of ore or concentrates, approximate value, freight rates to smelter, etc. Very hard quartz ore estimated 60% free milling. Sulphides will concentrate forming \$125 concentrates. Ratio unknown. A cyanide test run on this ore shows an 85% recovery at 40 mesh. At the present time he is using amalgamation plates only and getting about a 50% recovery. Mr. Livingstone states that there is as much gold gone down Graves Creek as he has worked from the property. Tailings have not been stored. He does not desire to make any changes in the milling as he prefers to sell the property.
8. Remarks - economics: High or low cost, principal drawbacks, reasons for success or failure, apparent life of operation based on apparent quantity of ore available. The owner has confined his efforts to mining and milling of the high grade ores only. Consequently the actual development and blocking out of the ore in the underground workings as well as the surface development has been entirely neglected. It has paid its owner a living from this high grade ore. The mining and milling costs are normal and there are no drawbacks. Under careful management this mine should be a steady producer as a small high grade property not to exceed 10 or 15 tons per day. I believe that they can maintain an average of \$10 per ton exclusive of the high grade which will naturally raise the average.

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