

E. J. Wemlinger

MINING REPORT
on the
SALMON MOUNTAIN MINING SYNDICATE
PROPERTY
Coos County, Oregon
by
W. Bertram Hancock, M.E.
A.R.S.M.

Portland, Oregon,
February 1, 1921

SALMON MOUNTAIN MINING SYNDICATE

I have recently made an examination of this mining property and as a result of such examination, I have prepared and herewith submit the following report, which I have endeavored to make as complete and comprehensive as possible, and which I believe to be correct in all essential particulars.

NAMES OF GROUPS AND CLAIMS THEREON WITH AREA:

SALMON MOUNTAIN GROUP: This group consists of 9 full claims, one fraction and a power site, namely: Hill Top, Mystery, Brown Porphyry, Thelma, Salmon Gulch, Midas, Cold Springs, Eagle, Lonely Mollie, Fraction and Power Site, embracing an area of approximately 187 acres.

BRYANT GROUP: This group consists of 4 full claims, namely: Jumbo, Headquarters, Dude, and Black Cat claims, embracing an area of about 280 acres. The area of the 2 groups thus being about 267 acres. Most of these claims have been laid out with their side lines practically parallel to the strike of the various veins upon which they are situated so as to ensure extra lateral rights upon the downward extension of the said veins.

TITLES: The titles to these claims are held by location, possession and compliance with the laws of the United States and the State of Oregon, and the records of location and annual representation work are on file in the Recorders office at Coquille, the County Seat of Coos County, Oregon.

GEOGRAPHY: The 2 groups adjoin, the Bryant group lying on the north and west boundary of the Salmon Mountain group, and are situated on the north slope of Salmon Mountain which reaches an altitude of 3234 feet above sea level. The claims are in Section 19; Township 32 S. Range 12 W. in the Salmon Mountain Mining District. They are distant in a southerly direction 11 miles from the town of Powers, at this time the nearest Railroad station. Powers is the present terminal of the Coos Bay (Marshfield) branch of the Southern Pacific Railroad, leaving the main line from Portland to San Francisco at the city of Eugene. The distance from Portland to Eugene is 123 miles, and from Eugene to Powers 166 miles. From Powers the railroad is being extended by the Smith-Powers Lumber Co. through the Siskiyou National Forest Reserve to Port Orford on the Pacific Coast. Construction has progressed 6 miles up the Salmon River Canyon, and by May 1st it is expected the rails will be laid to Deer Park which is only 3 miles distant from the mining property. Transportation from Powers to the end of the rails can at the present time be obtained on the work trains, from which point there are 2 miles of trail to Deer Park where the trail joins a good wagon-road, which, by an easy grade, passes direct through the center of the mining claims, a distance of 3 miles from Deer Park.

TOPOGRAPHY: This part of Coos County is decidedly mountainous, and is covered with mountain ridges and peaks, all of irregular contour. These mountains form a portion of the Coast Range. Although the altitude of the higher peaks seldom runs above 4000 feet, the bases of the mountains are often but a few ~~h~~ hundred feet above sea level, and this makes the scenery quite bold and impressive. Flat-top peaks are comparatively rare, and what even-crested ridges are found have altitudes much less than those of the peaks. Erosive agencies have been unusually effective in excavating deep valleys, and in some cases where the rock structures are favorable, the streams flow through picturesque canyons and gorges. Landslides are not uncommon, and have sometimes occurred on a large scale, especially in Serpentine areas.

After leaving the railroad, all travel in this district must be done afoot or on horses over the trails and aforementioned wagon-road. Some of the trails, such as those used by the employees of the U.S. Forest Service, are in excellent condition, but the majority are so little used and overgrown with vegetation, that they are difficult to follow. Within the National Forest, main lines of communication are kept open, but there are, nevertheless, many square miles of virgin, almost jungle-like, territory without trails. This condition has greatly retarded active prospecting, mining and development of the country. In the old days it was customary to start a forest fire whenever it was desired to prospect a certain area or slope, and the country was kept comparatively clear by such means, as evidenced by the large area burnt over in which the 2 groups of claims under review are situated.

Most of the mountain slopes are heavily timbered with various species of conifers, of which the most valuable are the Port Orford cedar and the Douglas Fir, which here grow to very large size.

The best farming land is found in the valley of the Coquille River, consisting of a dark loam that is extremely productive. Good tillable soil is also found bordering some of the large streams.

It is doubtful if there are many other places in the County as well stocked with game as is the southern part of Coos County. There are great numbers of deer, also black and brown bear, some elk, and cougars are plentiful.

GEOLOGY: Rocks of the Lower Cretaceous age, known as the Myrtle Formation, occupy the north and south slopes of Salmon Mountain, but due chiefly to erosion and to the presence of igneous intrusions, they are not continuous over very large areas. The Myrtle Formation, being a sedimentary formation, comprises conglomerate, sandstone, and shale, the conglomerate being much more common at or near the base of the formation than elsewhere. This material is relatively fine-grained, since the component pebbles average less than an inch in diameter. Notable quantities of quartz and chert are present, and the pebbles are very strongly and compactly cemented together in unweathered conglomerate.

The Myrtle sandstone is a hard, massive, grayish rock containing a considerable number of quartz and calcite veinlets.

The Myrtle shale is nearly black in color when fresh, but weathers grayish or yellowish. It is very brittle, and sometimes slaty in structure. Crossing the summit of Salmon Mountain in a south-east north-west direction, is an intrusion of igneous greenstone which extends on the south slope of the mountain through the Mystery and Hill Top claims and over the summit into Curry County. As the term is commonly employed, greenstone refers, as is to be expected, to a rock with a greenish tinge due to the presence of chlorite or other greenish constituents. The age of the greenstone is later than the Lower Cretaceous, for it is found cutting the beds of the Myrtle formation. This mass of greenstone is of especial interest because of the presence of gold-bearing quartz veins in it, and is closely associated on its outer edges with the metamorphic rock Serpentine. This rock is found as a result of alteration of peridotites and pyroxenites, and all gradations are encountered, from unaltered igneous rocks, in which all the ingredients are recognizable, to homogenous serpentine. The weathered slopes of the mountain composed of serpentine have a brick-red color due to oxidation of the iron in the decomposing material.

GOLD RESOURCES, FISSURE VEINS: A vein is a deposit of more or less tabular shape, containing varying proportions of ore, and worthless ~~minerals~~ minerals known as gangue, which have been deposited from solutions in pre-existing cavities or openings produced as a result of earth movements. The mineralization of a single crack or fissure in the earth's crust results in the formation of what is known as a simple fissure vein, and, if movement (faulting) of the rocks on one or both sides of the fissure has occurred parallel to the plane of the fissure and previous to the introduction of the mineral contained therein, the deposit formed is called a fault fissure vein. Either constitute the so-called "true fissure vein" so popular with miners. This popularity is due to the known fact that such deposits are usually fairly extensive, both horizontally and vertically, and are not apt to be of a pockety character as are many of the other types of ore deposits.

CONTACT VEINS: In veins of this class of ore deposits, the metaliferous accumulations are found between the planes of contact of 2 dissimilar rocks, which are unlike in their mineralogical and characteristics. The veins so far discovered on this mining property belong to the above 2 classes.

GENERAL PRINCIPLES RELATING TO ORE DEPOSITS: Ore deposits occur most frequently in the older formations and in the crystalline or volcanic rocks, at or near the junction of volcanic rocks and sedimentary formations,

2. They are most frequently associated with porphyries and other igneous rocks, and in formations that are generally tipped up at large angles.

3. The nearer a vein approaches a vertical position, the richer the ore is likely to be.

4. A heavy gossan (iron capping) indicates extensive sulphide ore-bearing bodies at depth.

5. The richer ore is generally found between the moderately hard parts of the wall rock.

6. Veins that follow the general course of the mountain ranges are nearly always the most prominent and productive.
7. A change in either strike or dip in a vein is generally accompanied by local enrichments, at or near the angle.
8. When veins intersect dikes, or other veins, there generally results at the intersection an enrichment of the ore.
9. If a vein pinches, the narrow parts are generally richer than the wider parts.
10. The vein that is cut through or faulted by another and intersecting vein, is the oldest and likely to be the most productive.
11. Gold veins, carrying their values in whole or part in cubical iron pyrites, very rarely afford values when the ore changes to a marcasite or white iron.
12. Intrusive porphyry, more especially quartz porphyry, in a vein or when occurring in any form nearby, is a favorable indication of valuable ore deposits.

PERSISTENCE OF VEINS AND CONTINUITY IN DEPTHS: The features exhibited by the fissure and contact veins on this property are such as to lead to the belief that they were formed at considerable, although not abysmal depths; that, in other words, the outcrops of the veins now found were originally covered by several hundred feet of material formation subsequently removed by erosion. The deposits are apt to be persistent with depth, that is, there is no reason to expect that the ore-shoots will become less numerous or valuable with deep development than they are near the surface, but below the ground-water level.

OXIDATION OF OUTCROPS: It should not be expected to find the mineral filling of the veins is the same at the outcrops as at greater depths unless erosion is taking place very rapidly. The portion of the vein above ground-water level is usually quite different in appearance and often in value from that below the ground-water. This is due to the fact that the sulphides are readily attacked by the constituents of the atmosphere, and are converted to oxides, carbonates, or less commonly, silicates. As regards gold, it can be said that in practically every case, the oxidizing of the vein while resulting in the removal of some of the ingredients, leaves the gold unattacked, so the oxidized outcrop is richer than was the original vein. Not only is the ore there of higher grade, but it is wholly or partially free from sulphides, and is then said to constitute "free milling ore" and the gold is much more cheaply recovered than when enclosed in sulphides.

Having now explained the geology and veins at length, so that the person unfamiliar with mining into whose hands this report may pass will comprehend, I now pass on to the genetic agencies of the ores contained in the veins.

GENESIS OF THE ORES: From the fact that these veins occupy important parallel systems of fractures which can be traced for long distances, and which doubtless continue in depth commensurate with their extension in length, and also that so far as proved they exhibit no notable change in the character of their filling, we may feel confident that the fissures were channels conveying hot ascending currents of waters as the chief factor in the deposition, and that these thermal waters obtained their heavy metals from gaseous emanations along magmas cooling at great depth.

PLACER GOLD: The Salmountain Group was first located as placer claims and worked extensively by hydraulic sluicing. The source of the gold was evidently contained in the vein and in innumerable small quartz veinlets in the greenstone and serpentine rocks now clearly seen at the head of the large open-cut on the Mystery claim. In fact, it seems to be often true, that in southern Oregon the source of the placer gold is frequently the tiny veinlets of the Colebrooke, Dothan, and Myrtle formations. Some idea of the distance which placer gold has come may be derived from its appearance. If smoothly rounded or flattened, it has probably come a long distance, while if rough and angular, its source is likely to be near at hand, which is the case in this instance.

The great weight of gold, as well as other valuable minerals frequently found in placer deposits, gives them a tendency to work to the bottom of the bed, and such deposits are frequently, although not always, richest along the bed-rock. Sometimes, where impervious layers exist above bed-rock the valuable metals may be concentrated on top of these, which then constitutes false bed-rocks.

The disintegration of the outcrops of the veins and rocks adjoining, under the action of atmospheric agents, release the gold, platinum and other unalterable substances contained in the rocks, and these were carried down by the rains and a huge landslide into the gulch in which the large open-cut has been developed on the Mystery claim.

While several large gold nuggets have been taken from this cut, some of the pieces of precious metals contained therein are often so minute as to float readily on water when dry, and it is in the "floury" condition of this gold that presents the principal difficulty in its recovery. In concentration, the material concentrated consists principally of the magnetic black oxide of iron called magnetite, which is responsible for the term applied (several pages missing)

Note: A number of pages of the original report, from which this copy is made, were misplaced and lost, hence, it is impossible to make a copy of the complete report.)

CHROMITE: This mineral is also found in the serpentine or associated with the basic rocks in the process of alteration to serpentine. It varies considerably in appearance, in some places it is very fine grained and dull lustered, while in others it is coarse, and decidedly metallic in aspect. It is of fair grade containing about 46 per cent of chromic oxide, iron 20 per cent, silica 22 per cent, and alumina 2 to 8 per cent. The present price of chrome, containing 50 per cent of chromic oxide is 60 cents per unit.

HISTORY: The claims of the Salmon Mountain and Bryant Groups were first located and worked by a Corporation named the Salmon Mountain Coarse Gold Mining Company, with a capital stock of \$500,000. who started hydraulic mining on the north slope of the Salmon Mountain at an elevation of 2100 feet on what is now known as the Brown Porphyry claim. They used water with nearly 200 feet head conveyed by flume a distance of about 3 miles from the upper part of Johnson Creek. The cut is over 500 feet in length, 200 feet in width, and varies in depth from 50 to 100 feet. It is in fragmental material of igneous origin,

except at the lower and below the tailings dump, where Eocene shales and sandstones occur. Since this Company was dissolved, the cut has been worked spasmodically during the rainy season for a number of years. When running under a good head of water and operating one giant, the mine is said to have paid about \$100. per day, with the gold uniformly distributed through the whole mass. Some of the gold recovered in this work was very heavy, the largest piece, the Dunbar Nugget being of the value of \$2,200. Other smaller nuggets taken from this cut ran from \$300. to \$700. in value. This fragmental material of volcanic origin forms a bench with small depressions on the steep slope of Salmon Mountain, and is due to a large slide of erosion material from the Mystery Vein which crosses above the head of the open cut. The rock is a mixture of dark porphyry, purplish and greenish greenstone, and serpentine of igneous origin, in places brecciated, much fractured and easily goes to pieces. The gold appears to be derived from numberless small quartz veins, and its intimate association with the igneous rock is exceptional. The platinum is also found uniformly distributed through the mass of slide, and is most abundant near the exposure of serpentine from which it is derived. For some unaccountable reason, the hydraulic operations of this Company never extended down to the bed-rock, they having ground-sluciced all the auriferous material some 20 to 25 feet above the bed-rock, with the inevitable result that, owing to the heavy gravity of the gold and platinum and the soft, fragmental and porous nature of the material over which they were ground-slucicing, the greater portion of the gold was carried by gravity and water downwards towards the bed-rock, and has so enriched it as to make it a most valuable asset to this property.

DEVELOPMENT WORK ON BRYANT GROUP: The Salmon Mountain Coarse Gold Mining Co. did all of the work so far as development has extended upon this group of claims. It consists of a crosscut tunnel (Now caved at the entrance) named the Dodge tunnel, driven in a southerly direction for a distance of 800 feet, intersecting 2 veins, one at a distance of 400 feet from the portal, 8 feet in width between walls of greenstone and porphyry, said to contain values averaging \$6. per ton, and one at the face of the tunnel with a paystreak consisting of stringers of quartz from 5 to 24 inches in width, reported to carry values in gold from \$10. to \$11. per ton. The portal of this tunnel is on the Headquarters claim, but assuming from the direction of the small portion that is open, it must soon pass into the Mystery claim of the Salmon Mountain group.

On the Jumbo Claim of the Bryant Group, the same Company drove an upper tunnel, which is situated about 40 feet west of the Dodge tunnel, and is 200 feet higher in elevation. This tunnel is driven as a cross-cut, is 100 feet in length, and intersects a vein of gold-bearing ore upon which 2 drifts running east and west have been driven. The west drift is in a distance of 100 feet from the tunnel, and at a point 40 feet from the tunnel an incline has been sunk on the dip of the vein for a distance of 60 feet. The east drift is in a distance of 150 feet on the vein, and near the face of the drift a cross fissure ~~was~~ was encountered running south-west, which has been drifted upon in that direction for 45 feet. This cross fissure is reported to be 12 inches wide, and the main vein is said to be 30 inches in width. The gold values in the cross fissure are said to be from \$6 to \$7 per ton, and a shipment of 4 tons of hand-picked ore from the main vein to the Selby Smelter at San Francisco, the returns from which show a little in excess of \$100 per ton in gold values.

DEVELOPMENT OF THE SALMON MOUNTAIN GROUP: Considering the long time these claims have been held by the aforementioned Company and the present owners, very little development work other than the large open-cut has been accomplished. The energies of the owners appear to have been more devoted to "pocket" hunting than to a systematic and economic development of the property. So long as they could more easily obtain free gold to the value of a value of a few hundred dollars per year from the many rich pockets of ore discovered on these claims, which enabled them to live, they were content to wait until outside capital could be interested to take over and develop the property, hence the veins are at this time practically untouched.

On the Brown Porphyry Claim a tunnel has been started in the open cut near its upper end, and driven in a southerly direction for a distance of 81 feet through a soft porphyry formation. Numerous stringers of quartz carrying gold are exposed in this work and which show good values in panning. Another tunnel (caved) near the west end line of this claim has been driven in a southerly direction for 15 feet, and intersects a vein 42 inches wide in porphyry formation reported to assay \$33.60 to the ton.

On the Mystery Claim, at an elevation of 2400 feet, a lower cross-cut tunnel (caved) running in a southerly direction has been driven through a schist and porphyry formation, and cuts an orebody 8 feet wide which is reported to carry gold and copper values. An upper incline shaft, at an elevation of 2640 feet, has been sunk to a depth of 11 feet at a point near the contact of a porphyry dike with the Mystery Vein. It follows the dip of the Mystery Vein, which has a width of 4 feet, and from pannings made from decomposed quartz filling, shows good gold values.

Another tunnel, called No. 3, is situated a little to the west of the above shaft, and 25 feet vertically above it. This has been driven in a distance of 40 feet, and cuts 4 small stringers of ore from 4 to 13 inches wide, from which assays show gold values of \$6 to \$8 per ton. Two of these stringers are sufficiently close to each other as to enable them to be worked as one vein averaging 20 inches in width.

On the Cold Spring Claim, above the wagon-road, a small tunnel 12 feet in length has cut a vein of ore which shows a pay-streak 9 inches wide, carrying appreciable free gold values.

The work on the Hill Top Claim consists of an open-cut 16 feet long, excavated in the oxidized zone of the porphyry dike, and is reported to carry free gold to the value of \$40 per ton.

Development work on the Eagle Claim consists of a shaft sunk to a depth of 8 feet, from the bottom of which free gold can be panned.

The Thelma, Salmon Gulch, Midas, Fraction and Lonely Mollie claims are practically undeveloped at this time, and their intrinsic value as gold producers unknown.

RECOMMENDATIONS: For the proper development and operation of the two group of claims comprised in this property, I recommend that the tunnels on the various claims which have caved, be cleaned out and re-timbered, so that access can be had to the veins, and that a systematic and careful sampling made of all the veins and exposed ore-bodies, with a view of determining which veins or parts of them can be worked at a profit. After this is accomplished, a system of proper and economic development by tunnels can be laid out, keeping in mind a gravity system of concentrating the whole output of the mines to the orebins to be erected at the proposed Milling Plant, at the least possible cost. A gravity aerial cable tramway of 200 tons daily capacity, centrally located with regard to the main tunnels, appears at this time the most feasible conveyer.

The main haulage tunnels should be enlarged and retimbered to 7 feet x 6 feet in the clear, laid with 16 lb. steel rails, and equipped with steel Truax end-dump ore cars. Levels or drifts should be run on the veins, upraises driven, and the ore-bodies systematically blocked out ready for stoping. For this purpose, to ensure speedy development and an ample supply of ore for the mill, an air compressor of 10 drill capacity should be installed, and the mine equipped with Sullivan Rock Hammer Rotating Drills and Stoppers.

COLD STAMP MILL, GENERAL SPECIFICATION:

No. of Stamps - - - - -	40
Weight per Stamp - - - - -	850 lbs.
Capacity in 24 hours - - - - -	120 tons
No. of Grizzlies, 4 ft. x 10 ft. - - - - -	1
No. of Crushers, Gyratory - - - - -	1
No. of Ore Bin Gates - - - - -	8
Overhead Crab and Chain Blocks - - - - -	2
No. of Automatic Ore Feeders - - - - -	8
No. of Copper Plates - - - - -	8, 4 ft. x 12 ft.
No. of Frue Vanners - - - - -	5
No. of Wilfley Tables - - - - -	5
Horse-power required to drive Mill - - - - -	100
Water required in gallons per hour - - - - -	6400
Total approximate weight in tons - - - - -	113

This Mill should be erected in the gulch immediately below the tailings dump of the large open-cut, where the contour of the ground is most favorable to running the ore through the mill by gravity.

For the purpose of driving the mill and air compressor, a hydro-electric generating plant should be erected on the Power Site Claim situated on Johnson Creek, upon which there is a fine dam site between almost perpendicular walls, and a solid and impervious bed-rock, thus ensuring a firm foundation. From this point, the power will be conveyed over a copper wire transmission line to the Mill, and there transformed to the required voltage necessary for the various motors. Electric lighting should be installed in all the buildings.

An electric driven pump will also be required at the Power Plant to pump a supplementary supply of water to that which will be obtained from the stream flowing under the large opencut, for supplying the Mill.

A Mill and Power Plant of the above requirements is now offered for sale by the Lucky Boy Mines Co. of Portland, and is at their mine near Blue River, 48 miles from Eugene. It has only operated about 2 years, is well known to the writer of this report, and can be purchased for about 75 per cent of the value of second-hand machinery and the cost of taking down. An aerial cable Tramway is included with this Milling Plant, which is of sufficient length to meet the requirements of this property.

A small Saw Mill with portable steam engine and boiler combined will also be required to cut the lumber for erection of buildings, and also the mine timbers. This, also, I am lead to believe, can be obtained from the same Company as the Milling Plant, and I would suggest that an engineer be sent to the Lucky Boy Mine to make a thorough inspection of all their plant, with a view to purchase if found in satisfactory condition.

Such a plant as the above would suffice for several years, or until the oxidized zone of the ore-bodies is worked out, but after the permanent water level is reached, below which the ore will turn refractory, ~~an~~ an addition to the Mill of either a Cyanide or Flotation plant will become necessary to successfully treat the ores lying below that level.

After the mill is erected and ready for operating, the rich ground still remaining in the large opencut lying upon the bed-rock, which I estimate at 57,600 tons, can then be milled and the gold and platinum extracted. In addition to this tonnage there are at least another 60,000 tons of tailings, which careful sampling and assaying may show a profit above treatment charges. The former owners are reported to have already extracted a sum exceeding \$100,000. from the material in this opencut by their crude methods of extraction, and the whole of the above tonnage can be delivered by a power scraper into the ore-bins at the Mill at a cost not exceeding 6 cents per ton.

The values contained in the above tonnage after recovery should furnish sufficient and ample capital for the exploitation and thorough development of the quartz veins, which can be proceeded with during the time the opencut material is being milled, and so have the quartz ores ready to take the place of the opencut material when the same is exhausted.

TIMBER: All of the claims in both groups being thickly covered with large cedar, spruce and fir trees, an ample supply of timber for cordwood, stulls, and mining sets, and conversion into lumber for building purposes, is thereby assured for many years to come.

WATER: Water for domestic purposes is obtained from Cold Spring, a fine stream emerging from the rock within a few feet from the cabin door on the Salmon Mountain ~~Mine~~ Group. There is also on the Bryant Group another fine stream near the cabin sufficient to supply all requirements. The water required for the concentrating plant will be taken from the gulch upon which the Mill will be built, supplemented by water pumped from the Power Plant on Johnson Creek, a distance of about one half mile.

OPERATING EXPENSES AND PROFITS: It is impossible at this time for me to give even an approximate estimate of the cost of operating the mine and the values to be derived from the ores, for the reason that by the time capital is raised to commence operations, the labor conditions, high cost of tolls and supplies will no doubt have materially altered and would greatly affect the cost of production. Also, until the tunnels are accessible, no efficient and reliable sampling can be made to ascertain the average gold and platinum value of the ore-bodies. So that any estimate made at this time would be misleading. Suffice it is to say, that from the result of my examination of the property, I am in position to state that I firmly believe that the property, when once opened up and equipped with machinery, carries all the ear-marks of becoming a large and profitable gold and platinum producer.

APPROXIMATE COST OF EQUIPMENT: The following is an approximate estimate of the sums required for the equipment of these two groups of mining claims, and to mine and mill the ores contained therein upon an extensive scale:

Milling and Power Plants - - - - -	\$150,000.
Air Compressor - - - - -	7,000.
Air Receiver, Pipes, etc. - - - - -	1,000.
Air Rotating Drills and Steel - - - - -	4,000.
Drill Sharpener - - - - -	4,000.
Steel Rails and Mine Cars - - - - -	3,500.
Aerial Tramway complete - - - - -	20,000.
Transmission Line - - - - -	3,000.
Donkey Engine and Scraper - - - - -	3,400.
Telephones and Line - - - - -	800.
Erecting Mill and Power Plants - - - - -	15,000.
Mill and Power Plant Buildings - - - - -	12,000.
Other Buildings - - - - -	10,000.
Improving Wagon-road - - - - -	5,000.
Assay Outfit and Furnace - - - - -	800.
Office Fixtures - - - - -	500.
Mine Supplies - - - - -	4,000.
Freight on Machinery, etc. - - - - -	15,000.
Incidentals - - - - -	6,000.

CONCLUSION: The foregoing pages of this report will give some idea of the valuable properties which this Syndicate is proposing to acquire, and in conclusion, I will say that both these groups of mining claims possess exceptional merit, and from my examination I am in a position to give a fairly definite opinion, being led to believe from the facts herein given, that with a wise and judicious expenditure of a reasonable amount of capital devoted to further exploration and development on the lines laid down in this report, under able and conservative management, would result in the discovery of rich and important ore-bodies, such as would quickly place the property upon a self-sustaining and dividend paying basis. The property lends itself readily to cheap development by means of tunnels, as the mountain drops nearly 2000 feet in a distance of less than a mile. The open cut has all the characteristics of a continued hydraulic proposition and the existence of gold and platinum in paying quantities has been fully demonstrated, and even the modest amount of work already done in the development of the quartz veins has disclosed sufficient evidence of the presence of considerable gold in the several veins as should encourage the Syndicate to believe that proper exploration will reveal its presence in large paying quantities and will add another mine to the list of Oregon producers.

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W. Bertram Hancock, E.M.

SALMON MOUNTAIN DYKE GROUP

Coos County, Oregon

E. J. Wemlinger

REPORT BY

H. G. KLEINSCHMIDT, E.M.

The group of claims which this report is concerned consists of 11 unpatented lode mining locations, embracing an area of 200 acres, and is located about 50 miles from the Pacific Ocean, in a region of abundant rainfall and consequent sources of water supply, and lies at an elevation of from 1200 to 300 feet above sea level. The climate conditions are such that outdoor work and operations can be prosecuted at all times the year round without interference from either cold or snow.

A railroad is within 2½ to 3 miles of the property and from thence is a road that can be used part way by automobile at all seasons, but for part way only during the dry season; but this road could be put into all year travel condition, or a new road built, at a comparatively small cost.

There is an abundance of timber, consisting of red fir, white and yellow pine, some lodge-pole pine and white cedar, furnishing an ample source of timber, suitable for all mining, construction and other requirements, as well as for lumber and domestic use.

Water sufficient for a 2000-ton milling plant is readily accessible and available, and more can be developed and secured at comparatively reasonable costs, besides provision being made for the re-use of the portion of original waters as can be economically regained, as suitable and usable water.

The general topography of the country is very rough, consisting of high steep hills and deep gulches, and is due primarily to an intense folding of a series of sedimentaries, including formations from the Cretaceous upwards, and in this particular area followed by invasions of a series of intrusives on a large scale; later erosion following the unequal conditions of hard and soft strata and the intrusives have resulted in the present topography in the main, though several minor contributory causes and agencies, such as slumping from decomposition, etc., are also present, the whole result being a very rough area of numerous hills, ridges and gulches, with many tortuous drainage channels and many streams affording excellent water sources and storage reservoir sites; however, in the instance of this deposit, these erosional conditions have afforded a favorable set of mining conditions, as the deposit is exposed and can be approached with working faces from three sides and continue to be worked in this manner to comparatively great depths. The difference in elevation at the lowest point of exposure of the deposit in place, and its highest point, being more than 2000 feet.

There is no equipment on the property, and only one building, which building is suitable for a combined bunk and boarding house for from 6 to 8 men, and will afford headquarters in the starting off stage of any operations.

TITLE:

The title is vested in what is known as location by pre-emption, the locations being lode locations, and the title is a good, clear one.

HISTORY AND DEVELOPMENT:

The deposit was first discovered in the "Pioneer Gold Days" and yielded a considerable sum from pockets near the surface in the search for veins in place and some attempts were made to work these veins on a small scale, but without success; many pits and shallow shafts were sunk in these operations. Finally, in the hope of finding large, rich veins, a small company was formed which excavated one tunnel 900 feet in length and another 400 feet in length, and a small "freak" mill was set up, but, of course, no success attained this venture. This 900 foot tunnel reaches a verticle depth of a little over 900 feet, due to the steep pitch of the hill, and this tunnel is entirely within the deposit as is, also, the other one which attains a depth of at least 400 feet. At one time, a placer operation was very successful as far as it progressed. This will be referred to later on. The owners immediately preceding the present owners did the tunnel work spoken of and became involved amongst themselves in disputes, the property in the meantime lying idle, became open for location, and the present owners located.

GENERAL GEOLOGY:

No detailed geological work has heretofore ever been done in this district by anyone and all examinations heretofore made have been concerned with sampling only, and it is not my purpose or intention to burden this report with any detailed technical geology or theories, but I will confine myself, in the main, to a brief statement of the salient features, which can readily be seen by field observation.

The ore-body itself consists of a mass of intensely serpentized peridotite for all depths thus far reached, and the areial extent of which has not been as yet disclosed or determined, but which is exposed and known over an area of approximately 200 acres, most of which is contained within this group of claims and the balance of which can also be obtained upon reasonable terms.

This body of peridotite is so far as exposed about 3000 feet long and 3000 feet wide and was intruded into and through a series of sedimentaries of which the exposed parts are probably near the horizon between the lower and upper Tertiary. That the peridotite did not reach the surface at any time can well be seen, for parts of it are yet covered by what was once a soft shale and this horizon expresses the upper limits of the original intrusion. In places yet remaining, there are from a couple of feet to not more than 20 feet of this shale, though from the greater part of this exposed ore-body this shale has been removed by erosion, etc.

That the peridotite did not reach a higher horizon than this former overlying shale body spoken of is also evidenced by the fact that this shale horizon lies conformably and in a continuously connected sedimentary series with the formations of this series, and is conformable both by this consideration as well as by its conformity to the angular attitude of formation of which it is a part. Therefore, the conclusion that the age of the peridotite is Tertiary is justified.

Whether this peridotite body is of a dike or laccolith structure is not determinable from as brief a field observation as I made, as I was hampered and handicapped by a broken leg during my examination, which prevented me from doing much traveling in the rough "going" in this area, and it will take either careful field work on the surrounding ~~strata~~ or actual prospecting and developing on the ore-body itself to determine its limits.

The wall-rocks of this intrusive mass or ore-body will, for several hundred feet, be sandstones in the main, one wall intercalated with small stratas of arenaceous shales all altered to parti or pseudo quartzites, resulting in satisfactory wall-rock conditions, and in deeper formations, whether of shale, either arenaceous or argillaceous or of sandstones, will also be metamorphosed to the crystalline form and be cemented by the calcic and siliceous emanations for a sufficient distance from the contact zone to cause and constitute satisfactory wall-rock conditions.

The entire peridotite body has been permeated by calcite and quartz to such an extent and degree that all interstices, however minute, are filled as well as are all other spaces, resulting in a stock-work of veinlets radiating in every conceivable direction. In the first few hundred feet of the ore-body, calcite is greatly predominant, almost to the exclusion of quartz; then "quartz" fills start to appear in increasing amounts and this quartz filling will finally predominate and pass into either great parent master quartz veins or a large pegmatitic quartz core, though I am decidedly inclined to the conclusion of the quartz veins from both structural and geo-chemical reasons, which I do not intend here to discuss.

It is needless to say, however, that following the serpentization and the decomposition of these peridotites (whether or not such decomposition or alteration was or was not superinduced or aided in the ore-making process), some genitic influence or agency was set up at depth which produced the calcic and siliceite "fills"; I will refrain from discussing this feature, though I have very definite ideas of the entire geo-chemistry of this deposit, and competent cover or mantle to confine the intensity of the action to a concentration within the deposit itself, especially in its upper horizon.

The deposit may, from an economic standpoint, be roughly divided into three main parts, consisting of (1)- a slide of several million tons of ore; (2)- an outer oxidized shell or mantle body; (3)- the underlying primary zone and its phases of passage from the calcite ores to the calcite quartz ores, and finally to the relatively pure quartz stage, though it is well to state that the only places thus far disclosed by openings are the calcite fills and the calcite quartz fills

sion founded upon the nature of the deposit and the processes involved in its genesis, which appear to be very clear to me, but the discussion of which I will not enter into in a report of this nature.

ORES AND VALUES:

There occurs upon the property a large slide of several million tons of ore, which slide lies partly on ground not underlain by the ore deposit and in part lying on the ore and in one part was worked by placer methods, and in this part proved to be some 40 to 50 feet deep; this slide covers from 60 to 80 acres of ground. This material has been broken and decomposed to such an extent that it consists of material in size from "fines" upward to that of fairly coarse, but not overly large size.

At the point where this material was placed, about 30,000 tons were removed and \$125,000. in gold recovered therefrom, and this can be confirmed from a true record, though a great deal of fine gold was not recovered, and the tailing material yet remaining there, upon "panning", yields gold, and upon then grinding yields more gold. This placer operation was discontinued only because of tailing difficulties and different ownership of property, etc., all of which reasons are readily observable upon the premises.

This entire slide could be handled by power-shovel methods or sluicing through "open" sluices into a mill, but to conduct this sluicing operation, a flume of about 2 miles in length would have to be constructed. The ore of this slide and of the oxidized zone are somewhat higher grade than the primary zone in that part thereof which is straight calcic stage. This increased richness of the slide ore and the oxidized zone is due to secondary enrichment by mechanical concentration alone, and there has been no secondary enrichment through chemical agencies, such as that from manganese and chlorine, and as sometimes occurs also in heavy or massive pyrrhotitic bodies containing gold values.

There is a decided lack of iron derived from iron pyrite and of manganese, even in the deepest exposures showing but very little iron sulphide, and this sulphide is pyrite. Also, small amounts of copper sulphide show, associated with some of the calcite streaks, and in some instances very small amounts of small garnet crystals occur alongside of the calcite streaks in the serpentine muds. There is also a small amount of silver and platinum reported as occurring, but I will not dwell upon these nor upon any of the other numerous minerals which may occur in the deposit.

In the oxidized zone, there is considerable serpentine mud or attrition clay alongside the calcite streaks, and in the veins hereafter mentioned, these muds occur at all horizons thus far exposed. When the quartz phase "fill" begins to appear, the values again begin to increase; in fact, all quartz occurrences show very good values and in excess of those in the average calcite occurrences, and the positive ~~indications~~ indications are that the quartz phases will prove to be the highest grade and most valuable part of this deposit.

In the 900 foot tunnel, and in the 400 foot tunnel, the oxidized shale shows for a depth of 300 feet. This is followed by the calcite fill zone or phase to a depth of 700 feet. Here the quartz begins to make appearance and increases to appreciable quantities to the final depth of 900 feet is reached. It is my opinion that this quartz calcite zone will continue for about between 200 and 400 feet more, and that then the quartz fill stage will predominate for about another 600 to 800 feet, and then pass off to the phase of quartz in veins. This conclusion just mentioned, and mentioned hereinbefore, is also borne out by observation in another part of this area, where 2 large quartz veins, each of about 100 feet average width, occur for several thousand feet in length; and, though this occurrence is in a different formation, i.e., a granitic rock, they are very valuable gold veins, which, so far as the workings prosecuted on have been carried, show an average "free" gold content of well over \$4.00 per ton, and a decided increase in value to the depths thus far attained.

Following erosional planes along the length of these veins, a set of conditions from the outcrop of the veins upward in an ascending column is as follows: (1) Outcrop of the veins themselves. (2) Quartz stock-work fill of fair value at its base and low-grade at its summit. (3) Quartz calcite stock-work fill of low-grade. (4) Calcite stock-work fill, very low value; and, except the very lowest part of Horizon Number 2, none of these horizons consist of economically valuable or workable ore above the vein quartz phase from the genesis of which the calcite and siliceous emanations were undoubtedly derived, and these veins are very good workable gold veins. One of these veins shows a gossan indicating the former presence of some pyrite, manganese and copper sulphides, and increases in gold values as depth is attained has thus far been the order, and, in my opinion, these outcrops are and have been rather impoverished than enriched. These veins occur in an area 3 or 4 miles from this deposit and the highest part of their outcrop where the outcrops enter under cover, the differences in elevation of these points and of the 900 foot tunnel, spoken of on this other property, is approximately from 1200 to 1500 feet, and these veins and their surrounding conditions are simply mentioned here as field observation confirmatory to the rather theoretic conclusion advanced as to the occurrences which are as yet not disclosed in the deposit with which this report is concerned.

Two sets of sampling by competent and responsible parties, known to me, gave an average of about \$6.00 per ton recoverable gold in the "slide" ore-body, and on the oxidized ore 2 different results appear: one set gave approximately \$4.50 per ton recoverable gold and one set \$2.50. This wide divergence, however, is easily explainable, as in this sampling, as determined by me after an examination of the assay

maps and finding the focus points on the premises, it shows that a great many samples of this one set were taken in areas of the overlying shale and these samples showed assays from a few cents up to \$1.25 per ton, and averaged close around \$1.00 in recoverable gold. But this shale does not represent even one per cent of the oxidized zone and the average thus arrived at is certainly not a fair one.

The primary ore in the calcite fill zone gave an average of \$3.00 in both sets of samplings, and the quartz calcite zone gave \$4.00 in both sets on the only openings and exposures of this condition; that is to say, in the long tunnel from a depth of 700 feet to the face.

The short tunnel gave \$4.50 in the oxidized zone and \$3.00 in the primary calcite zone, but has not yet reached the quartz calcite zone. All values stated are values as determined from recoveries of actual mill tests, and milling costs hereinafter mentioned are also partly based on the results of mill tests made on these ores. However, taking the lowest figure of \$2.40 per ton recoverable gold as the true value, and an average of the entire deposit, it would yet remain a deposit of the most economic importance, as it covers an already known area of at least 200 acres and depths of 400 to 900 feet, respectively, have been proved for at least this average value, and as the nature of the deposit is such that the conclusion that the entire mass will "prove out" a better average than this is most certainly warranted from the standpoint of consideration. The gold is of flake lamellar or tabular form and is comparatively heavy, though it varies from fine gold up to pieces of considerable size, the largest so far discovered weighing more than 100 ounces.

The 2 tunnels mentioned, cross in their length several vein-like structural conditions which may be properly classed as veins, varying from 18 inches to 8 or 9 feet in width, and these veins show average values across them of from \$8.00 to as high as \$300.00 per ton, which last value shows for 4 feet wide in a vein in the short tunnel, and here is also a streak of calcite one inch in thickness, in addition to the 4 feet of \$300. ore, and this one inch of calcite shows a value of \$3,000.00 per ton; but, I think that this is a local condition of pocket occurrence, though most certainly one is warranted to sink on this rich stringer as it may result in a very large piece of ore containing several thousand dollars.

In the early day workings, large pieces of calcite ore were found on occasions containing from several hundred dollars to several thousand dollars worth of gold and in the working of this deposit, as a whole, these same conditions will be found and disclosed. None of these vein sample values or any high-grade pocket sample values were included in any set of sampling in arriving at the general average value for the whole mass of the deposit, but the veins and pockets will unquestionably considerably enhance the general average value and there will be days during the working of this deposit which will show several thousand dollars more recovery than for the average days.

The significance of the stock-work conditions so far found in all parts of the deposit, together with the nature of the gold and its occurrence, and its continuous close and invariable association with the calcite and quartz, wherever found, cannot be too greatly stressed as pointing not only to the conclusion of the average and consistent and continued value throughout the entire deposit, and it also farther-more points most conclusively to the reasonable probability of a decided increase after the quartz fill stage and the vein quartz stage is reached; and all of the foregoing considerations are further more borne out by the nature of the genesis of the deposit itself.

Such sampling as was done by me was simply checking here and there the results of others, and, as in all instances where checking was done, the results were alike, or so nearly so as to make no difference; it is justifiable to suppose that the sampling results heretofore given are correct and are results of capable and careful sampling, and as my checking was done "at random", it could hardly be so peculiarly coincident, under such extreme conditions, that it should check so consistently and closely. However, whatever may be said, here exists a set of indicated conditions well worthy of the thorough investigation and examination on the part of any financially able to undertake the operation of this property after satisfactory examination.

It is my opinion that an operation started on what might be said to be a comparatively small scale, say, of a plant of 200-tons or more daily capacity, on the "slide" ore would soon pay out the entire venture and work it up to a large scale operation, and the mining and milling of this ore will be cheaper or less costly than any other ore in the deposit, because it is already mined and already partly milled, in so far as the crushing and grinding processes are concerned; and I will say that this ore will not cost to exceed 50¢ per ton in a large mill to about 70¢ per ton in a mill of from 200-tons capacity up.

Due to the extreme friability of all the ores and their low mining costs, and their consequent easy-crushing, grinding, etc., the entire cost of mining, milling, losses, and all other costs, will not exceed 80¢ to \$1.00 per ton, depending upon the magnitude of the operation.

It would not surprise me in the least if this entire deposit will average well over \$3.00 per ton in recoverable gold milling values, and that there will here be proved to be a most wonderful valuable gold mine, even at an average of \$2.50 per ton. In addition to the gold values, the deposit in all parts sampled shows an average content of more than 3 per cent chromite, which may be recovered to a considerable extent during the process of milling and may also prove to be of great value; but, in this report, is simply mentioned as one for future consideration and of possible added value to anyone who may be interested in such ~~mining~~ consideration.

As to mining methods, these will lie wholly within the judgment of the operators, but the property is amenable to operation by the "glory hole" or open bench stoping, or open cut faces, or such like to a depth of more than 2,000 feet before any sinking of any nature will be necessary and at or above this level I expect to see the parent master quartz veins and vein quartz encountered, which, of course, will somewhat change the methods of mining from that point.

Milling methods employed for the gold recovery will also be a matter of judgment of the operators, but in any event, no other than a simple gold milling flow sheet will be necessary until gold bearing sulphides are reached in the lower horizon.

In conclusion, I will also state that the "slide" heretofore mentioned caused the exposure of the larger part of this deposit and in such a manner as to expose it for an elevational difference equivalent to a depth of several hundred feet of the ore-body throughout the calcite horizon along a steep, sloping planal section on such a large scale as to render rather positive evidence of the continuity and regularity of the values of the entire mass for these horizons, as well as to confirm my conclusions deducted from the nature, occurrences and genesis of the deposit; and it leaves small room for any other possibility. This area is, of course, now oxidized and constitutes the larger part of the exposed oxidized zone.

The sampling results heretofore mentioned were obtained from several hundred samples taken in several hundred places in all accessible workings and in numerous pits, cuts and trenches excavated for the purpose and distributed all over the areal extent of the ore-bodies in such a fashion and manner as to clearly determine, at least, the minimum average value of several hundred million tons of ore.

The only reason that any other of the examining parties heretofore mentioned did not undertake this enterprise is that the funds available and at their immediate disposal were insufficient, and they were also were confronted with the added and, to them, adverse conditions of the business deal then demanded, but which feature has now been altered, as to price, payments and terms.

It is the province of a report of this nature to concern itself with stating the facts found and to advance opinions and conclusions based on the evidence of the conditions disclosed by such examination and investigation and to either condemn or recommend this property, and I unhesitatingly recommend it to such parties as are able to properly finance and operate it for their examination and investigation.

My examination was made during the early part of October, 1932.

(SIGNED) H. G. Kleinschmidt,
Mining Engineer and Geologist

NOTE: Mr. Kleinschmidt is a graduate of the University of California