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540 NORTH FIR STREET—P. O. BOX 1096

MEDFORD, OREGON April 15. 1930

Remarks re the Report on the War Eagle Mine by W. B. Robinson and maps prepared by him in 1921 and 1922 .

The report so far as general remarks and orebody is concerned is up to date with exception that since that time approx. 2000 to 3000 tons of ore have been removed from the mine.

This makes very little difference in the estimation of available ore.

Valuation : The ore was valued on a \$ 55 per flask basis. The mercury price was considerably higher for quite a while and is more than double this price now. The total valuation of finished products can be therefore increased to a certain extent.

Mr. W. B. Robinson has underestimated in my opinion the importance of the " Big Dyke area" .

There is evidence that this extends to a considerable extent over the district not at all covered by the property of the War Eagle Mine. The fissure vein or in any case the identical ore is available on the other side of Evans Creek south of the War Eagle mine more than two miles away, proving also the extent of this fissure vein over a considerable larger area than taken into account.

The ore contains in my opinion in any case in some places a considerable higher gold value than taken into consideration and even the treated and untreated dump of discarded ore is valuable enough to warrant retreatment.

The method used before is unsuited for this ore and does not take into account that this complex ore has to be treated entirely different than ordinary mercury ore to recover not only the quicksilver but the more or just as valuable other minerals.

No equipment either for mining or treatment on the premises has any value whatsoever and only the camp building may be of benefit .

## Report on the War Eagle Quicksilver Mine

by W. B. Robinson M. E.

Medford, Ore. April 10. 1930

Location . About 25 miles north of Medford, Ore, in Meadows District by good road direct to mine and camp.

Property . Consists of 720 acres in Sections 8, 16 and 17 Twp. 34 S. R. 2 W , of which 520 acres are patented and about 200 acres held by location.

Topography This district is semi- mountainous but not precipitous, with the hills covered with excellent timber, pine, fir and oak.

Climate . The summers are dry with winter rains from November to April. Occasional snowfalls of a few inches in winter but at no time enough to interfere with all year mining operations. The elevation by aneroid is about 2000 feet.

Geology . The geology of this area is rather complex, the rocks being much altered and metamorphosed and difficult to exact classification, but in a general way they are quartzites, andesites and shales; and on the Eastern portion of the property sandstones and shales intruded with flows of tuffaceous rocks.

Ore Deposits The Ore deposits on this property are of two distinct natures, both geographically and geologically, and should be considered separately. The valuable minerals occurring are mercury either as metal or cinnabar, gold arsenic with possibilities of nickel and cobalt yet to determined.

Veins . The Rainier Vein , is a fissure vein through quartzite striking a little west of north and dipping sharply to the north. The fissure is very persistent, from four to six or seven feet in width, and filled with a sharp angular breccia composed of fragments of the quartzite.

Throughout the fissure the breccia has been permeable by hot ascending solutions, which deposited the sulphides, and in the portions of the vein, which were most open, resulting in the formation of rich shoots of cinnabar ore.

associated with the cinnabar are other sulphides, principally arsenic- pyrite, which is probably the gold carrier.

Development work . The development work done on the Rainier vein consists of two adit cross-cuts with drifts and raises opening the vein about 800 feet laterally and raises to the surface, or a vertical development of about 200 feet. A few small cuts on the surface at long intervals have been made and these cuts, together with the visible outcrop and the evidence of panning, have traced its course and proved the existence of cinnabar ores in the vein for a distance of at least 3000 feet. However the development work has all been confined to an area about 800 feet long and even here has been insufficient to thoroughly block out the ore. In this area has been opened up two shoots of high grade cinnabar ore occupying one half of the present openings. Surface prospecting along the veins shows the presence of several shoots entirely undeveloped as yet.

The ore was treated in the beginning in closed iron retorts and the quicksilver was extracted by this inadequate method with satisfactory results, as long as only high grade ore was treated.

But the dump of treated ore as well as the ore not considered worth while treating with this retorting system is evidence of the fact that this method must have been very wasteful, as this dump is rich enough to be considered as very good ore by any competent metallurgist.

The dump of already treated ore contains enough value alone to make its retreatment worth while and the rejected ore should also be treated. In the following estimate no account is taken of the very considerable values locked up in the treated and untreated ore on the dump.

Later on a Scott furnace was erected with considerable expense, which proved entirely unsuited for this particular ore, and as the management was unable to make a recovery with this furnace the mining was stopped and since that time no serious attempt was made to mine and extract the quicksilver.

No attempt was ever made to utilize the gold values or other possible byproducts. Meanwhile the old machinery used for mining has either deteriorated or has been sold and what is left is of no value for future mining operations, nor should any value be placed on existing furnaces.

The Camp contains a number of houses, which could be fixed up again for living quarters with very little expense.

Tonnage Estimate Rainier Vein Developed Section

An assay map accompanies this report showing a vertical section of the vein ( looking north) and on this I have outlined five ore blocks, which I call developed ore A, B, C, D? and E.

The data for the calculations on these blocks was largely assembled from the mine records and is not complete as desired, but the results are computed by averaging all the known factors as closely as possible, and the actual furnace run has quite closely checked these results.

Block A	width	4 ft.	mercury	2.67%	tons	5833
Block B	do	do	do	1.00%	do	14167
Block C	do	4.9	do	.50%	do	13226
Block D	do	5.31	do	1.31%	do	16549
Block E	do	4.5	do	1.00%	do	14344
Total					tons	63344

Average Width 4.5 ft.

Average tenor 1.07%

These blocks are credited with fifty feet below the drift levels and fifty feet ahead of the faces.

Probable additional Ore in fissure Vein .

Assuming the probability of the ore extending to a depth of 500 feet below the surface, and maintaining the same average width there would be probable ore blocks below the developed area containing apr. 84 000.

The development work on this fissure vein is incomplete yet but from indications over a distance of several miles it can be presumed that future development work will open up additional large ore bodies on this fissure vein.

Estimated Operating cost : The ore from the fissure vein is sulphide ore with arsenical pyrite, carries gold and should be used for a number of byproducts.

By proper methods of mining and experienced administration the cost of mining and treatment should not exceed \$ 6. 00 per ton; this sum to include all overhead.

It can be safely presumed that from \$ 3.00 to \$ 4.00 gold per ton can be recovered from the ore, altho indications point out that some of the ore is extremely rich in gold estimated from assays taken from the dump ore.

But as no exact data are available as to the origin of this high grade gold ore, assaying up to \$ 2500 per ton, no attempt is made to take account of such assays.

Arsenic as well as other byproducts are recoverable and may turn out just as remunerative as the quicksilver and a possible return is allowed for, but a very conservative estimate is made taken into account only a small percentage of arsenic.

The Quicksilver value based on 60 000 tons of blocked out ore and a price of \$ 100 per flask (the present price is apr. \$ 120 per flask)	is	\$ 1.716.000,00
Gold value on a \$ 3.00 per ton basis		\$ 180.000,00
Arsenic and other byproducts		\$ 180.000,00
Total gross value of blocked out ore		\$ 2.076.000,00
Estimated cost of mining and treatment for 60 000		\$ 360.000,00
Estimated net yield from blocked out ore		\$ 1.716.000,00

Estimated value from fissure vein ore

As no data are at hand as to the extend of the vein only the estimated quantity of 84 000 tons under the present developed area should be used for a valuation.

Assuming somewhat higher cost but the same general ore below present levels the above net yield should be recoverable from this portion of the mine and the estimated probable net yield from the fissure vein ore can be stimated at not less than

\$ 3. 500.000,00

Big Dyke Area Eastern portion of the property.

As will be seen on the accompanying claim map there is a strip of country lying east of the Rainier Vein, locally known as the Big Dyke.

This is somewhat a misnomer as it is only partly composed of volcanic rock, altho much evidence of volcanic action exists.

The "dyke" can be traced for several miles both north and south strike slightly east of north.

The exact boundaries on the sides have never been determined but it is certainly several hundred feet in width, and possible a thousand feet wide.

Ore Cinnabar is found all over this area extending far outside the property covered by this report. The ore is free from other sulphides and in places of very good grade. Practically all of the surface pans cinnabar.

The surface is so weathered into iron stained clays, kaolins, and altered shales that it is difficult to sample without extensive development work.

Present Development Almost no development work has been done in this area, there are two shallow shafts, a couple of adits driven in fifty or sixty feet, and two or three trenches on the surface. It will take considerable systematic work to arrive at any figure as to the total value of this deposit.

There are numerous streaks or bodies of iron stained clays carrying ores of very fair grades. On the Blue Jay claim a sample across 4 feet gave .30% and selected pieces here ran 6% mercury. An average of the dump gave .37% mercury.

On the Homestake claim six samples were cut in continuous channel for 57 feet along the side of an adit as follows:

20 feet iron stained clay	.26%
7 do harder grey material	.11%
10 do soft white kaolin	.03%
10 do iron stained rock	.03%
10 do do	.08%

or an average of .117%

The Homestake shaft itself was inspected to a depth of about 40 feet, or water level, but only two samples could be taken, which gave .04% and .03% respectively.

A dump sample of this shaft ran .06% and a very considerable quantity of hard light colored quartzite present on the dump must have been extracted from below present water level. This ran .60% in mercury.

Excluding the assay of 6% from the selected sample at the Blue Jay, the average of the 25 assays taken at wide intervals in this area was .20% mercury.

Tonnage : Any estimate of tonnage on this area is manifestly impossible under present lack of development, but taking into account the fact that cinnabar is found by panning throughout this area, that in places shoots of high grade ore have been cut by the shallow workings, but in no place determined as to size, and also the fact that this dyke is most likely the source of the cinnabar deposited in the fissure vein, it is reasonable to expect that systematic development work here will open up immense quantities of commercial ore.

Summary and Conclusion :

This mine presents wonderful possibilities not only as a mercury mine but as a possible gold mine and a source of byproducts under skilled management and careful administration.

The mine not only in my own opinion but of well known quicksilver specialists should become the source of the quicksilver supply in future to such an extent, that it will play a very important part in the quicksilver market in the U. S.

The mine can provide right away with proper equipment a sufficient tonnage for a treatment plant and gradually the undeveloped area can be opened up.

But the fissure vein ore is not a simple mercury ore as found in the average mine and allowance must be made for the treatment of the ore for gold and other byproducts, which of course necessitates a different equipment as used in the average mercury mine.

WAR EAGLE MINE

Gold Hill

JACKSON

(HG)

State of Oregon  
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES  
702 Woodlark Building  
Portland, Oregon  
April 7, 1950

Mercury  
War Eagle

Memo to F.W.L.

Mr. Ralph Kepfield of Longview, Washington, one of the numerous stockholders in the War Eagle quicksilver mine in Jackson County, was in the office April 7. Mr. Kepfield stated that he and his associates are contemplating whether to resume activity at the mine or give the whole thing up. He apparently knows little about mining in general, and even less about the mercury business in particular. After learning that the price of quicksilver was greatly decreased and that nearly all the mines were down throughout the country, he indicated that he did not believe the time to be propitious for reopening the property.

Mr. Kepfield stated that six or seven thousand dollars in Federal taxes remain unpaid, although he believed that other commitments had been taken care of, including assessment work. Apparently the property is owned by a Chicago investment group, but a group of promoters had control of it during the war, during which time they failed to operate and contented themselves with raising, according to Kepfield, more than \$100,000.

R.S.M.



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REPORT ON THE  
WAR EAGLE QUICKSILVER MINE

by

C. N. SCHUMTTE.

Location: The War Eagle Mine is situated in Sections 7, 8, 9, 16, 17, 20 and 21 of T. 34 S., R. 2 W. Willamette Meridian in Jackson County, Oregon .

The mine camp is 26.2 miles north of Medford, Oregon, over the main highway, then a country road and the last 3.5ths of a mile over the mine road. The roads are good and the property is accessible at all times of the year. The location of the property in relation to the nearest towns, railroads and general topography is shown in Fig. 1 in page 2.

This vicinity is known as the Meadows District and is traversed from north to south by Evans Creek. The Meadows District contains many quicksilver prospects. Two, besides the War Eagle, have been on production, namely, the Dave Force Mine and the Chisholm Mine.

Property bounds: Cinnabar was known to occur in this general vicinity as early as 1900 because transfers of property made at that date describe it as "valuable cinnabar mines". There are stories current that Chinese worked some of the prospects even earlier and sold their quicksilver to nearby gold miners.

The War Eagle vein was found by Carl Hurltelson in 1916 on what is now the Rainier claim. This was during the world war when the price of quicksilver was high and in the excitement following the discovery of high grade ore, many claims were staked out in the vicinity. Later it was found that many of these had been staked on patented ground which made the location invalid but nevertheless they appear as claims

in the title conveyance papers concerning the property.

From the abstract of title it appears that the War Eagle property consists of the south half of section 8, the north-east quarter of section 17, the northwest quarter of the north-west quarter of section 16 and 36 mining claims named as follows:

Blue Ribbon, Outcrop, Red Ridge, Broadway, Lucky Strike (Lucky Stroke)  
Blue Bell, Rainier, War Eagle, Challenge (Challance), Harold, Lorence,  
Robin (Robbin), Utah, Selma (Nelma), Quicksilver, Elmer, Tacoma (Telma)  
Carroll (Carrol), Summit (Summitt), Rainbow, Homestake, Cedar, Lucille,  
Blue Jay, Hedge, Ruston (Rushton Rustan), Josephine, Lynx, Mountain  
View, Meadows, Fir, Badger, Agnes, Junction, Coyote and Rocky Point.

All of these claims excepting the last three are shown with the date of their location, in their presuasive position on the ground, in Fig. 8, to be found in the pocket at the end of this report. Three other claims named Skookum, Ledge Pot and Red Dewey (Mrs. Dewey) are shown on the map and may be relocations of the three claims named above under new names. The description of the various claims in the recorders' office is very vague as usual and the map is merely the best representation that can be made from the available data.

I was informed that either assessment work had been done or notice of intention to hold under the suspension - of - assessment work-law had been recorded for all claims held by location.

If this is true, the property would seem to include the Dave Force mine of the Quicksilver Producers Co., in the north east corner of section 20, as shown on Plate 20 of Bulletin 850 of the U.S. Geological Survey. Aside from this point which should be cleared up, it is not very important whether the unpatented claims are held or not with the exception

of the Rainier, War Eagle and perhaps the Skookum claims, as all the other workings are included in the patented ground outlined by a heavy line in Fig. 2.

Ownership: Ownership of the property is now vested in a trustee for the bondholders of the former Medford Reducing and Refining Co. The chairman of the bondholders' committee of five is Allen J. Postel, Bank of Mascoutah, Mascoutah, Ill., who has authority to act in all matters concerning the property.

General Description: Near the War Eagle Mine, Evans Creek runs south thru a valley a half a mile wide and about 1600 feet in elevation. West of Evans Creek the hills rise steeply some 1800 feet to the top of the ridge in which the mine lies. The hill slopes are covered with a good stand of timber, mainly pine, fir and oak, so that all timber needed for mining purposes and for fuel can be cut on the property. Water for camp purposes is supplied by several springs.

The summers are dry and hot. Winter rains occur from November to April with occasional light snow fall. Seasonal rainfall is about 12".

Medford is a convenient supply base and good labor is available at reasonable wages.

History: The War Eagle mine was discovered in 1916 by Carl Burtelson. It was developed by the Rainier Mining Co., until 1919 when it was taken over by the newly incorporated War Eagle Mining Co.

During 1919 a Johnson McKay retort was in operation and 565 flasks or 42,375 lbs. of quicksilver were produced to August, 1920, according to the report of Clifford Dennis at that date.

At the time of Dennis' report, the stope under the discovery shaft had been mined. (See Fig.3 in the pocket at the end of this

report). The upper and lower tunnels had been run. From the upper tunnel drifts had been run east some 55 feet and west for 160 feet. Since then the east drift has been extended 300 feet and the west drift has been extended from the center of the stope to under the upper tunnel some 400 feet and some 300 feet of work done on a branch drift. Three raises have been run as shown on the map and a winze has been sunk from the lower level.

A 25 ton Scott furnace plant was built on the property in 1920.

It was operated only a short time in 1921 as this latter year was a disastrous one for quicksilver mining in the U.S., in which practically all our quicksilver mines were forced to shut down due to low prices and inability to sell their product. By 1926 the War Eagle Mine Co. became so involved and indebted that the property was sold under foreclosure to satisfy debts and claims against it.

The property was bought by Bertelsen, Harder, Kidd and Hilsinger. They turned the property over to the Medford Reducing and Refining Co. They were to receive a cash payment for the property but finally accepted stock and bonds of the company in payment for the property. This Medford Reducing and Refining Co. was capitalized at \$1,500,000 and an issue of \$160,000 first mortgage bonds was put out. This company appears to have been largely a promotion scheme and the property passed into the hands of the receiver in the spring of 1929. The mine then became the property of the bondholders.

From government statistics, the production of the War Eagle mine to the end of 1920, was 581 flasks and probably 59 more flasks have been produced to date, making a total of 640 flasks.

Most of the production was made in years of high quicksilver

prices so that the total value of the product is about \$69,000.

I would estimate that this amount of quicksilver has been produced from some 3,300 tons of ore and the yield must have been about 13 lbs. of quicksilver per ton. Note: It is rumored that the production was considerably larger. This may be true but there are no figures available to prove it. If true it is to the credit of the mine.

The actual work of exploration and development thus far done and its probable cost, is as follows:

250 feet of crosscuts @ \$5.00 per foot	\$1,250.00
1700 feet of drifting do	8,500.00
300 feet of raises do	1,500.00
250 feet of shaft @ \$25.00 per foot	<u>6,250.00</u>
	\$17,500.00

The cost of sorting and retorting (3 ton retort) with one man per shift @ \$4.00 and 1½ cords of wood at \$2.50 per cord delivered, was probably \$3.50 per ton or a total of \$11,500.00.

The cost of mining should not have exceeded \$3.00 per ton or a total of \$9,900.00.

Thus the actual operating cost of the production was about \$39,000.00 against a value of \$69,000.00 for the quicksilver that was produced. The difference of \$30,000 is more than ample to have paid for the needed equipment so that an equitable operating profit should have been made.

This is very good for a new mining project and shows the possibilities of the mine regardless of how the various promotions have turned out.

Geology: The general geology of the Meadows District and of the War Eagle Mine is described in the Geological Survey Bulletin 860, on pages 50 and 53.

Two rock formations are found on the mine property. The May Creek schist is the one in which the operations, described above, were done.

The second formation is the Umpqua formation which consists of rather flat bedded shales and sandstones and in this formation a new quick-silver discovery has recently been made on the property in what is termed the "coal area", the location is shown on Fig. 2.

At the War Eagle mine (Rainier and War Eagle claims) the May Creek schist strikes northeast. The fault in which the ore occurs cuts thru the schist a strike N. 70° W. as shown on the plan in Fig. 3.

In the upper workings the dip of the fault is steeply N.E. but it reverses at the lower level and is S.W. in the mine below it. The ore occurs in sheets between the walls of the fault. These walls are from 3 to 12 feet or more apart and are marked by distinct slickensides in a hard tough fault gouge. The cinnabar has been smeared out on the slicks by post-mineral movement.

The schist forming the wall rocks is a dense impervious rock, and the rising mineral-bearing solutions which formed the ore-bodies were confined by it and by fault gouges to the spaces between the walls of the fault zone. In this fault zone the schist was brecciated and a preliminary silification deposited chalcedony in the voids of the breccia. Further movement of the fault brecciated this chalcedony and then mercury and iron sulphides were deposited from solutions in the interstitial space of the breccia. The mercury sulphide deposited as the red cinnabar and the iron sulphides were deposited as pyrite and marcasite. The marcasite contains arsenic, the no arsenical mineral has been identified.

To judge by the striated surfaces of the slickensides, the fault

movement had both a vertical and horizontal component. Such a movement usually forms bodies of breccia shaped like inclined flattened cylinders which act as a receptacle rock for the ore depositions.

In the War Eagle mine at least two such ore bodies were formed and have been partially stoped. The mineralizing solutions rose in the fault zone because the impervious nature of the wall rocks and gouges prevented their dissemination. They then carried their load of mineral matter into the interstitial space of the breccia and here their upward course was slowed down or they were trapped by overhead gouges and cooled sufficiently to precipitate the sulfides thus forming the ore bodies.

The "COAL AREA" is south of the camp and below it in elevation. Here Rattlesnake Creek runs southeasterly towards Evans Creek. The northwest side of Rattlesnake Creek makes a steep six foot bank at the site of the new discovery. Here a "coal seam" was exposed in the bed of the creek and an examination was found to contain cinnabar.

A short inclined shaft was put down and drifts and crosscuts were run from it. A sketch of the workings as they are today is given in Fig.4 on page 10. A photograph of the shaft's mouth is shown on page 11.

This discovery is found in the Umpqua formation and as developed today there is exposed the coal seam that outcropped, about 18" thick.

Below this is a band of clay-shale about 18" thick, then another coal seam 24" thick and then more clay-shale below this for at least 12 inches.

The coal seams carry cinnabar while the intervening clay-shale bands seem to be barren when panned. The coal seams vary in cinnabar content

from place to place but as exposed they are nowhere barren and in places ran 1 or even 2% in quicksilver.

Too little work has been done as yet to judge of the size or importance of this discovery. There may be more coal seams below those found. The source of the cinnabar-that is, whether a fault served as conduit to lead the mineral solutions to the coal beds - has not yet been determined, but it seems probable that the coal may have been the cause for the precipitation of the cinnabar from the solution.

The War Eagle Mine: A plan and section of the mine is given in Fig.3. The photographs on page 13 show the tunnels.

The workings shown in Fig.3 in dotted outline below the discovery shaft were largely inaccessible at the time of my visit. They are partly caved and partly filled. The best ore has been gouged out but cinnabar can be seen on the slips and in narrow seams.

West of No. 3 raise a narrow stope has been carried up as shown in the section. The east wall of this stope in the raise was tested by samples No. 4 and 5. Sample #4 assayed 10.8 lbs. over a 3 foot width. No.5 ran 3.4 lbs. per ton over 2½ foot width. In each sample the best ore was exposed in a width of about one foot and this represented the narrow end of an ore body that had been wider in the stope. Samples No.2 and 3 representing 3 foot width indicate that there is low grade left on the east and below No. 3 raise. An area east of No.3 raise <sup>(equal)</sup> <sub>size</sub> to the stope west of the raise should give some 500 tons of 5 to 6 lb.ore that can be sorted to 100 to 150 tons of 1% ore for the retort.

Going east from these workings the end of the upper level has not been driven far enough east to encounter the oreshoot stoped above the winze tho the end is in heavy sulfides similar to those occurring west of the ore in the lower stope.



The large stop on the lower level has also been gouged of its high grade ore tho here again cinnabar can be seen on slips and in seams. The downward extension of this ore shoot was exposed by the winze and was stoped east of the upper part of it.

The winze which is said to be 100 feet deep was unwatered at the time of my visit for 60 feet below the lower tunnel.

Samples No. 6 and 7 were taken in heavy sulfides showing faint traces of cinnabar on slips while Sample No.8 was taken in the end of the stoped area. The east end of the lower level is again in heavy sulfides with faint streaks of cinnabar. The south split of the vein in the lower tunnel shows colors of cinnabar about 100 feet in from the turn-off on the south wall.

In general the mine shows the usual dilapidated appearance of a mine long shut down and having had its best ore gouged out by leasers.

No systematic or planned mining and exploration has thus far been carried on. Only gouging has been done on the best ore exposures. In many places the foot and hanging walls have not even been reached and it is possible that good ore may be in the walls of some of the present drifts. The ore shoots appear to rake or pitch to the east at a rather flat angle.

It is my impression that the cinnabar came in ahead of the main deposition of iron sulfides and that it will be found on the top and east side of the oreshoots while the heavy barren iron sulfides came later and are mainly on the bottom and west sides of the oreshoots.

If this proves to be the case it will be a valuable guide to future prospecting. The lower part of the shaft has passed out of the oreshoot unless the ore is in the wall of it, but of course the shaft (would)

be useful in continuing the development at depth.

The possibilities for finding ore in this area that has been opened up so far are by no means exhausted. A few raises and many short crosscuts may open up considerable ore at small expense.

Since the winze has already been sunk for 100 feet, a new level can be opened and the downward extension of the upper ore bodies can be developed at comparatively low cost. The evidence of stoping in winze as well as the appearance of the ore shoots on the lower levels makes it very probable that the ore will go down. The cost of drifting and stoping will be low as the ground stands well without timbering and the flow of water in the shaft is not great.

The mine offers a good chance of developing ore bodies sufficiently large and high enough in grade to pay for finding and treating them and returning a commensurate profit besides.

The samples taken were not of course meant to block out ore. They were merely taken to confirm or disprove visual indications of certain vital points, mainly the present extremities of the workings. Good ore, better than that in any of the samples taken can be seen in stopes. Much of this ore is difficult to reach at present and the ground has not been blocked out so that it can be measured. There is however, plenty of ore in sight that can be sorted to retort grades for a small operation such as those obtaining in the past.

A furnace operation of say 25 tons per day as contemplated when the Scott furnace was built, could not be supplied with ore in the present condition of the mine. Further development would be necessary to assure the regular output of such a tonnage from the stopes.

At present the equipment at the mine is limited to a small portable

compressor, a Cameron sinking pump used in unwatering the shaft, track, cars, sinking buckets, picks, shovels and small tools.

The "Coal Area" Mine: This recent discovery is most interesting and may prove very important on further development. A plan and section of the present workings is given in Fig. 4 on page 10.

Four samples were taken in these workings. These samples were cut vertically across the coal seams. Nos. 9 and 10 were 5 foot vertical cuts, about half the sample being the mineralized coal and the rest the barren clay-shale.

Since the coal is much lighter than the clay-shale and as the coal can easily be sorted out, a 10 lb. product could be delivered to the plant at low cost. The cinnabar content of the coal varies greatly from place to place as was shown by panning and in some places was very high. The 4 lb. average of the 4 samples is probably a fair one for a 5 foot height of roughly half coal and half clay-shales. The "coal" appears to be a low grade lignite. The cinnabar is disseminated thru it in fine little crystals and flakes and pans out readily.

Equipment at this prospect consists of the incline track, hoist, car and small tools. When visited a trickle of the creek water was running into the workings but was draining again into the floor.

"Big Dyke Area" This area lies along the top of the ridge south of the camp. The top of the ridge is made by a white rhyolite tuff. In places a sharp offset, resembling a fault scarp occurs. On the Ledge Pot claim a shaft has been sunk (on this presumptive fault); the dump pans cinnabar.

Further along on the Homestake claim a shaft and tunnel are found,

the dumps of which pan cinnabar and show an occasional high grade specimen. In this vicinity a black rock was found which proved to be an augite basalt, presumably from a nearby dyke. This is significant because this is the type of rock that is always found at the California quicksilver mines and is there genetically related to the ore deposition.

These prospects on the hill are accessible only by trail and not enough work has been done on these to prove their worth.

Reduction Plants: The Scott furnace plant erected in 1920 has been partly torn down. A photograph of it is shown on page 18. Part of the fire brick and tile of the furnaces has been used to build retorts at various sites on the property. The furnace could be restored but a new condenser would have to be built. This latter would be advisable in any case as the old condensers were not the best type for the purpose. An old set of retorts is built near the furnace.

At the "Coal Area" mine, a small concentrating plant consisting of a cylindrical mill, concentrating table and sluice boxes has been built for concentrating the ore. The concentrate is retorted in one of two small retorts (illustrated on page 11) which have been built for that purpose.

"Buildings": The campsite on the property is between the War Eagle mine and the "Coal Area" mine but nearer the latter. The buildings, bunk houses and a boarding house large enough for a small crew. There is also a blacksmith shop, garage and several smaller sheds for storing tools and supplies. Some of the buildings are shown in the photographs on pages 18 and 19.

"Notes on the War Eagle Metallurgy: The War Eagle mine is perhaps the only quicksilver mine in the United States that has an appreciable arsenic content in the ore. La Soterrana in Spain has a sim-

ilar ore.

The arsenic vaporizes on being heated as does the mercury and it condenses as a gray powder in the form of arsenic trioxide. Both when retorting or furnacing these ores, the arsenic trioxide powder and the finely divided mercury condense together, hence the mercury must be separated from the arsenic before being bottled for shipment.

The best method of doing this at the War Eagle mine is to agitate the mixture of arsenic trioxide and mercury in about five parts of water for half an hour in which time the mercury droplets coalesce and the quicksilver can be drawn off ready to be bottled. In Spain at La Soterrana, the mixture was retorted with litharge, yielding mercury and lead arsenate. Such a process is expensive and would probably not pay in the U.S. and here it is better to waste the arsenic.

Since the arsenic is in the marcasite only, selective flotation would serve to remove the arsenic from the ore before it is roasted. Such a process has already been developed for La Soterrana by Prof. Maurice Rey of the University of Liege in Belgium. Selective flotation experiments are now being made by the "Rare and Precious Metals Experiment Station" of the U.S. Bureau of Mines at Reno, Nevada., on War Eagle, Ore.

Test to determine the best concentration and roasting methods for the "Coal Area" ore are now being carried on at the War Eagle mine by Mr. George Schumacher, a well known industrial chemist of Medford, Ore.

## Sample Record

### War Eagle Mine

- Sample No.1 Lower level, east end. Sample cut horizontally for five feet across face. Pyrite shows to right of center. Slicks on each wall. No visible cinnabar.
- Sample No.2 Lower level, west end of N.drift, 10 feet beyond center of No. 3 raise and 15 feet from end of drift. Sample cut in back of drift across the vein 3 feet wide. Cinnabar shows for about 1 foot in width. Could be sorted to between 2 and 3 to 1.
- Sample No.3 Lower level, west end of N.drift 55 feet out from center of No.3 raise. Sample cut horizontally on a slant across 10 feet of ore representing 3 feet in width. A poor sample but no other way to take it. Original drift was long alongside the ore and then the wall was shot down exposing it. Ore may go into the wall for a greater width and better grade.
- Sample No.4 Up No.3 raise, 29 feet from lower level and east wall of raise. Fair showing of cinnabar, sample cut 3½ feet horizontally across face.
- Sample No.5 Up No.3 raise, 45½ feet from lower level on east wall of raise. Fair showing of cinnabar. Sample cut 2½ feet horizontally across face.
- Sample No.6 Down winze, 45 feet below lower level. Sample cut on west wall of winze for 5 feet horizontally. Heavy iron sulfides with a little cinnabar paint visible on slicks. Apparently under the ore.
- Sample No.7 Down winze, 53 feet below lower level. Sample cut on east wall of winze for 5 feet horizontally. Heavy iron sulfides particularly on the footwall of the shaft. Shaft dips S. and vein dips south.
- Sample No.8 Down winze, 30 feet below lower level and 25 feet east of shaft at lower end of stope. Sample cut 3 feet horizontally on east face of stope.

Note: It has often been asserted that the War Eagle ore contains gold in appreciable quantities. Hence a composite sample of the rejects of the above 8 samples was run for gold. This assay gave only a trace of gold.

Note: No samples were taken in the high grade ore as this is easily visible and could be estimated by eye. The heavy iron sulfides make estimation by panning difficult, hence some low grade ore was tested by assay as were the barren looking iron sulfides under the ore.

### Coal Area Mine:

- Sample No.9 Near entrance to mine on south wall. Sample cut vertically for five feet cutting two coal seams and two clay-shale beds. Some cinnabar visible. Average showing.

- Sample No.10 Twelve feet further in than sample No.9, on same wall. Sample out vertically for five feet starting in clay shale above upper coal seam. Average showing.
- Sample No.11 Seven feet to north of entrance tunnel in a small chamber 4 feet wide. Sample out for 4 feet vertically from back to clay-shale floor on west wall. Two coal seams with clay-shale layer between. Average showing in coal but proportionately more coal than in samples 9 and 10.
- Sample No.12 Twenty eight feet in from entrance of north wall of tunnel. Sample out 3 feet vertically. Because of spreader on set and mud on floor could get only a 3 foot out. Cut 2 coal seams and thick layer of clay-shale. Not so much cinnabar visible.

Note: Many other samples were panned. The clay-shale seems to be barren and is heavy while the coal is light in weight. Both are soft and easily worked. The clay-shale and coal can be easily separated by sorting.

ASSAYS made by Abbot A. Hanks, Inc.,  
624 Sacramento Street,  
San Francisco.

August 14th, 1936.

War Eagle Mine	Sample	Mercury	
	1	0.02	
	2	0.29	
	3	0.08	
	4	0.54	
	5	0.17	
	6	0.01	
	7	0.01	
	8	0.19	
	9	0.20	
	10	0.18	
	11	0.27	
	12	0.15	

comp. sample 1 to 8 Gold Trace.



### Present Situation of the Quicksilver Industry.

In recent years it has become more and more important that quicksilver is a rare metal of increasing importance in industry. In proof of this statement the fact can be cited, that quicksilver is the only metal (except gold of course) that did not fall below its pre-war average price in this last world wide depression. This argues the indispensability of quicksilver in industry far better than any statistics and indicates higher prices for quicksilver will prevail in the future as the pick-up in industry gains momentum.

Again, quicksilver is an indispensable "war mineral". It is used for fulminate (to fire explosives), corrosive sublimate (sanitation), and calomel (for the troops) in war time and the recent re-armament program all over the world is using increasing amounts of quicksilver.

World quicksilver production is confined to a few countries only. These are the U. S., Spain, Italy and smaller amounts are furnished by Mexico, Russia and China.

The export of quicksilver from Italy has been curtailed by Mussolini. Spain is now in the throes of a revolution which seriously impairs the production and export of quicksilver from that country.

Thus, besides the usual increase in the price of quicksilver as the country emerges from a depression (following the 1921 depression the average annual increase in the price of quicksilver was about \$.10 per flask from \$40 to \$120 per flask) there are at present special factors that tend to increase the price.

Because of this the present is a particularly favorable time to begin the production of quicksilver.

General Summary: The War Eagle Mine had an initial period of production with retorts which was profitable. Then a furnace plant was built but this intended operation came to grief in the depression of 1921 when practically all quicksilver mines in the United States were forced to shut down. A later promotion scheme came to grief in 1929. Despite these unsuccessful attempts at operation which were due to underfinancing and mismanagement respectively, the record of the mine as shown by work done against value of quicksilver produced, is a good one as outlined on pages 6 and 7.

Even tho the best ore has been gouged out of the present workings, enough remains in the old stopes to show the character of the ore and the nature of its occurrence. The mine has been opened up to a point where relatively little additional work should develop sizeable ore reserves in the War Eagle Mine.

The new discovery in the "Coal Area" is very promising and should be developed.

The property is large, consisting of 520 acres of patented ground and over 300 acres of mining claims outside of this ground.

This ground contains many other cinnabar showings that should be explored. The property is covered with a good stand of timber and a camp has been established that is large enough to house a crew for any contemplated development work.

With this mine, as with all other quicksilver mines it is practically impossible to place a definite value on the property as a mine.

It is for this reason that quicksilver mines are usually sold on a royalty basis with seller and buyer fixing prices and terms on a mutually agreeable basis.

The buyer seeks terms that will give him an operating profit above royalty payments. He then operates the mine as long as he can make such a profit. If the ore gives out he quits with such profit as he has made and the owner has received his royalty payments and gets back the property. If the operator finds large or high grade ore bodies he completes payment for the mine from royalties and takes over the property. The owner then is satisfied because he has received his price and the operator is satisfied because the price came out of the mine over and above his operating profit. This is the fairest possible deal, as the price comes out of the mine and both seller and buyer profit from the arrangement according to the merits of the mine and their own skill in management and negotiation.

Conclusion: In view of the favorable outlook for the quicksilver industry at the present time, I can recommend the development of the War Eagle property as an equitable mining venture that promises a profitable operation after the expenditure of a comparatively moderate sum of money for development and equipment.

GEORGE SCHMACHER  
Industrial and Metallurgical Research  
P.O. Box 1096

Medford, Oregon .

War Eagle Mine, Beagle, Ore., Jan. 15th, 1936.

The enclosed report was made by Mr. C. N. Schuette, Mining Eng. 306 Call Bldg., San Francisco, with the following letter dated Aug. 23th, 1936, accompanying it.

"Herewith I submit to you a report on the War Eagle Mine in Jackson County, Oregon.

The data presented in this report were gathered during a visit to the property from Aug. 3rd to Aug. 7th, 1936.

The report contains maps and photographs to illustrate pertinent data presented in the text, 12 samples were taken for assay and numerous pannings were made both underground and on the surface.

The working history of the mine, that is the cost of the actual amount of work done as compared to the value of the output, is a good one. There is at present enough ore exposed in the mine to carry on a small retort operation. There is not enough ore exposed at present to carry on a furnace operation but comparatively little additional work should develop enough ore for this purpose.

The new discovery of ore in the "Coal Area" mine is very promising and should be developed.

The present is a favorable time in which to initiate new quicksilver producing enterprises. The development of the War Eagle property is recommended as an equitable mining venture that should result in a successful operation if adequately financed and carefully managed."

(Signed)

C. N. Schuette

# State Department of Geology and Mineral Industries

1069 State Office Building  
Portland 1, Oregon

## WAR EAGLE MINE

Gold Hill District  
Jackson County

The War Eagle Mine is the most active mine in the area at this time. It is located in secs. 7, 8, 17 and 18, T. 34 S., R. 2 W. "Total production up to 1927 was 565 flasks which was sold for \$59,325", which was estimated as being recovered from 1500 tons of ore.<sup>1</sup>

### Workings

"The present workings consist of the main level, comprising an adit 180 feet long and 1,230 feet of drift along the vein; a winze sunk from this level now full of water but reported to be 100 feet deep; and a second level 65 feet above level 1, composed of 180 feet of drift along the vein and a crosscutting adit 53 feet long. Most of the vein above level 1 has been mined from two stopes, one between levels 1 and 2, the other from level 2 to the surface. There is another stope above level 1, but this was inaccessible when the mine was visited."<sup>2</sup>

The workings had not been extended beyond those described. Present work consists of cleaning the mine, re-timbering where necessary, building chutes and timbering stopes in preparing to deliver ore to the mill upon completion of the installation.

The main adit follows a fault zone which strikes N 70° W, and which stands almost vertical. Walls of the fault zone are separated by about 4 to 6 feet of silicified breccia and fault gouge. The breccia is composed of chalcedony fragments surrounded and cemented by marcasite. Cinnabar is associated with

<sup>1</sup> Kellogg, A. E., Mining Journal (Arizona), vol. 11, pp. 7-14-15, Sept. 1927.

<sup>2</sup> Wells, F. G., and Waters, A. C., "Quicksilver Deposits of Southwestern Oregon," U. S. Geol. Survey Bull. 850, p. 48, 1934.

the marcasite which also contains some arsenic. In the past the latter has caused difficulty in treating the ore.

The present operators have built a mill with which, by crushing and screening, it is planned to separate the marcasite and cinnabar from the breccia fragments. Then, by passing this initial concentrate over tables and, if necessary, through flotation cells, they expect to reduce 100 pounds of ore to 5 pounds of concentrate. These concentrates will then be run through a five-ton furnace. Mr. Bailey, the mill superintendent, informed the writer that by pre-drying and using indirect heat, the concentrate could be handled successfully. In a recent communication, Mr. Bailey reported that in the initial operation of the mill the concentrates ran 23 per cent.



WAR EAGLE MINE, INC.

~~EXCEPTING BUILDING GOODS ETC~~

SAMS VALLEY, OREGON

by this report, complied with all the provisions of Preference Rating Order P-56 and has applied Ratings only in accordance therewith;

- (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the ratio of inventory (quantity) to current production has not exceeded the ratio of average year and inventory (quantity) to average production for the years 1938, 1939, and 1940;
- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

*Mineral Mines Inc*

*War Eagle Mine By J M Parson Treasurer*

*June 10<sup>th</sup> 1942*

Date

Signature of Authorized Official

Title







RECEIVED  
APR 14 1942

STATE DEPARTMENT OF  
MINES & GEOLOGY

MONTHLY REPORTS OF PURCHASES  
Machinery, Supplies, Maintenance Items and Repairs under  
Preference Rating Order.

Name of mine operator or authorized agent for such operator:  
Mineral Mines, Inc.

Address, War Eagle Mine, Sams Valley, Oregon

Mine Serial No. 33-21

Purchases made in Month of March, 1942

1. Purchases to which Rating A 8 has been applied during month:

Quantity	Material	Supplier	
2	1/2" - 2" Nipples	Hubbard Brothers	Medford, Ore.
1	1/2" #7- Valve	"	"
1	1/2" #18 - Valve	"	"
1	1" Solid Shaft Collar	"	"
1	12" Rd. B. File	"	"
1	2" x 3" Galv. Nipple	"	"
6	1-1/4 Black ells	"	"
1	HC 760 - 3" Brush	"	"
20	30-A 750 V Cart. Fuses	Trowbridge & Flynn	"
1	Plate	Trowbridge & Flynn	"
1	Coil	"	"
1	WEMCO 2 pan filter complete with vacuum pump, filtrate re- ceiver, fittings, 3 HP. Motor and drive	Western Machinery Co. San Francisco	
	To labor to dismantle, trans- port and ship	"	
2	Canvas's for above	"	
2	Burlaps for above	"	
2	Caulking ropes for above	"	

CERTIFICATION.

The undersigned hereby certifies to the Office of Production Management that:

- (1) He executed the foregoing statement on behalf of and by authority of the above named Mine Operator;
- (2) The above named mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56 and has applied Ratings only in accordance therewith.
- (3) During such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the ratio of inventory (quantity) to current production has not exceeded the ratio of average year and inventory (quantity) to average production for the years 1938, 1939, and 1940;
- (4) The facts stated herein are, to the best of his knowledge and belief, true and correct.

Date  
April 9

Signature of Authorized Official

Title

Treasurer

War Eagle Mine  
Mineral Mines Inc. By J. M. Parson

**MONTHLY REPORT OF PURCHASES**  
**Machinery, Supplies, Maintenance Items and Repairs**  
**under Preference Rating Order P. 56.**

Name of Mine Operator or authorized agent for such operator \_\_\_\_\_  
 Mineral Mines Inc.

Address War Eagle Mine, Sams Valley, Oregon Mine Serial No 33-21

Purchases Made in Month of February 19 42

Quantity	Material	Supplier
		Garmany Electric
239½ lbs	#4 W. P. Wire	
50 lbs	#6 W. P. Wire	
10'	Conduit	
2	2½" Bends	
33	Service Insulators	
80'	350,000 C.M. Wire	
3	2½" Bushings	
2	2½" Locknuts	
20'	1½" Conduit 26.21 C	
1	1½" EII	
4	1½" Couplings .26	
2'	1½" Flec Conduit	
2'	1½" Connectors	
2	2½" Connectors	
2'	2½" Conduit	
1	10" x 12" x 6" Junction Box	
1	100 Amp 250 Volt 3 pole Sw.	
3	100 " Removable Fuses	
108'	#4 R. C. Wire	
1	2½" x Close Nipp11	
4	2½" Couplings	
2	¾" E Condulets & Covers	
86'	86' 14-2 Romex	
3	3" Romex 3" Boxes	
3	1 Duplex Rec & Plates	
1	¾ x ½ Flush Bushing	
4	Romex Taplets	
3	Romex Box Conectors	
5	3" Chain pull Rec	
1	½" E Conduit & Cover	

**RECEIVED**  
 MAR 9 - 1942

STATE DEPARTMENT OF GEOLOGY  
 & MINERAL INDS.



Quantity	Material	Supplier
		Lorenz Co. Medford, Ore
20'	3" down spout	
2	1 1/4"--3/4" reducer	
2	1/2"--3/4" reducer	
12	10"--3/4" wood screws	
4	6"--1/2" wood screws	
2	3/4" Valves	
12'	3/4" round iron	
2	Bars solder	
1	box rivits 1/8"	
4	sheets 20 guage gal iron 4' x 8'	
		Rouge River Hardware Co. Grants Pass, Oregon
2 1/4#	Nichaloid babbet	
		Hubbard Bros Medford, Oregon
1	Keg 40 Common nails	
		Trowbridge & Flynn Elect. Co. Medford
24	15 Amp 250 V fuse Non renewable	

## Certification:

The undersigned hereby certifies to the Office of Production Management that:

- (1) he executed the foregoing statement on behalf of and by authority of the above named Mine Operator;
- (2) the above-named mine Operator has, during the period covered by this report, complied with all the provisions of preference rating order P-56 and has applied Ratings only in accordance therewith;
- (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the ratio of inventory(quantity) to current production has not exceeded the ratio of average year and inventory (quantity) to average production for the years 1938, 1939 and 1940;
- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

March 7-42 *Mineral Mines Inc. I M Parson Treasurer*  
 Date Signature of Authorized Official Title

MON THLY REPORTS OF PURCHASES  
Machinery, Supplies, Maintenance Items and Repairs  
under Preference Rating Order

Name of mine operator or authorized agent for such operator:

Mineral Mines, Inc.,

Address War Eagle Mine, Sams Valley, Oregon Mine Serial No 33-21

Purchases made in Month of January 19 42

I. Purchases to which Rating A 8 has been applied during Month:

Quantity	Material	Supplier
----------	----------	----------

Lorenz Co.  
Medford, Oregon

100	2" 6" 28 ga stove pipe	
2	6" Adj stove pipe ells	
3	12" 18T hi speed H.S. Blades	
1	box No 27L Alligator Lacing	
7	# 180 D Gates Vo/co Ropes	
1	14.6 P.D. 7 Grove D Sheave. 2 5/8" Bore, 5/8" Keyway	
1	8' x 8' 3 mesh 12 gauge black steel wire cloth.	
2	# 5W2LAP RP Shovels	
1	# 4W2CBL Sp Shovels	
12	12" 24T Carbon Blades	
2	8" MB. Files	
24	Ge. 100 Watt 250 volt	
4	GE. 150 Watt 250 volt	
2	10' x 3' Galvanized Rain spout	
20	Strap fastners	
	Asbestos	
6	GE, 75 Watt 120 volt	
6	Ge. 60 Watt 125 Volt	
1	lb pump packing 3/8"	
1	2560 Gates Belt	

\*-----

II. Purchases to which A 3 has been applied during month:

Bowser Equipment Co.  
111 N. Fir St.  
Medford, Oregon

1 Allis Chalmers Power Unit L.-90.

Application Order No 1386 O.P.M. Authorization Serial No269249

CERTIFICATION:

The undersigned hereby certifies to the Office of Production Management that:

(1) he executed the foregoing statement on behalf of and by authority

✓

- of the above named Mine Operator;
- (2) the above named mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56 and has applied Ratings only in accordance therewith;
  - (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the ratio of inventory(quantity) to current production has not exceeded the ratio of average year and inventory(quantity) to average production for the years 1938, 1939, and 1940;
  - (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

Feb 7-42      Mineral Mines Inc By J M Parson      Treasurer  
Date                      Signature of Authorized Official                      Title

MON THLY REPORTS OF PURCHASES  
Machinery, Supplies, Maintenance Items and Repairs  
under Preference Rating Order

Name of mine operator or authorized agent for such operator: \_\_\_\_\_

Mineral Mines Inc.

Address War Eagle Mine, Sams Valley, Oregon Mine Serial No, 33-21

Purchases Made in Month of December 19 41

I. Purchases to Which Rating A-S H as been applied during month:

Quantity	Material	Supplier
		H.B.Ellis, Electric Co. Gold Hill, Oregon
14	1/2" locknuts	
10'	1 1/4" conduit	
100'	3/4" "	
10	3/4" bushings	
4	3/4" nipples	
4	3/4" Lb.	
3	4" outlet boxes	
1	3/4 conduit & cover	
1	2 circuit fuse cabinet	
2	3 1/4" outlet box and covers	
6'	Bare wire	
100'	#14 Wire	
20	12 amp, fustrons	
10	1 time cart fuses	
25	1 1/4 x 3/4" reducing washer	
12	1" knockout seals	
4	4141H9 safety switches	
500'	#10 RC	
1500	#12Rc	
3	1 1/4" ground clamps	
16	3/4" FR wedges	
31	3/4 conduit locknuts	
1	1/4" short Galv. nipple	
87'	# 4RC code wire	
1	1 1/4 x 3/42 hex bushings	
10	75 amp. 250 v. 1 time fuse	
1	Gal Toledo thread cutting oil	
50	1 1/2" gal locknuts	
37	1/2 Bushings	
50	3/4 x 1/2" reducing washers	
6	3/8 x 4 machine bolts	
6	3/8 x 5 machine bolts	
250'	1/2" steel tubes	
50 ft	3/4" steel tubes	
30	3/4" Outlet Boxes	
12	Handy boxes	
1	3/4" Service Head	
250'	Non Metallic Cable	
50	SP 7051 Box Connectors	

✓



Quantity	Material	Supplier
		Lorenz & Co. Medford, Oregon
1	Set of Truck chains 32 x 6 heavy duty	
128	sp feet of 9 mesh screen	
2	6 inch three cornered files 8 teeth to the inch	
2	" " " " 4 " " " "	
6	Bronze welding rods	
1	lb or pkge 1/4" pump packing	
200	feet of black stove pipe 6" Diameter	
1	90 degree Reversal Elbow 6" "	
1	45 degree Reversal Elbow 6" "	
1	Sheet corrugated iron 3 ft by 8 ft	
4	Metal lath sheets 3 ft by 8 ft	
1	1/2" PP valve	

CERTIFICATION:

The undersigned hereby certifies to the Office of Prduction Management that:

- (1) he executed the foregoing statement on behalf of the and by authority of the above named Mine Operator;
- (2) the above-named mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56 and has applied Ratings only in accordance therewith;
- (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the rator of inventory(quantity) to current production has not exceeded the ratio of average year and inventory(quantity) to average production for the years 1938, 1939, and 1940;
- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

Feb 4/43  
Date

Mineral Mines Inc By J M Parson  
Signature of Authorized Official

Treasurer  
Title

MONTHLY REPORT OF PURCHASES  
Machinery, Supplies, Maintenance Items and Repairs  
under Preference Rating Order P. 56.

Name of mine operator or authorized agent for such operator \_\_\_\_\_

Mineral Mines Inc.

Address War Eagle Mine, Sams Valley, Oregon Mine Serial No 33-21

Purchases Made in Month of November 19 41

I. Purchases to which Rating A 8 has been applied during month:

Quantity	Material	Supplier
----------	----------	----------

H.B.Ellis Electric Co.  
Gold Hill, Oregon

12	D2 - $\frac{3}{4}$ " Ground Wedges	
3	Only 4141H9 CH Switches	
25	" $\frac{3}{4}$ " Cond. Locknuts	
25	" $\frac{3}{4}$ " Cond. Bushings	
9	" 30 A 250V Renewable fuses	
1	" $1\frac{1}{4}$ " by Sh Galv. Nipple	
25	" $1\frac{1}{4}$ " by $\frac{3}{4}$ " Reducing Washers	
12	" 1" Knock-Out Seals	
87'	# 4 RC SB Code Wire	
1	Only $1\frac{1}{4}$ " by $\frac{3}{4}$ " Blk. Hex Bushing	
20	" 30A 250V Super Lag fuse Links	
25	" $1\frac{1}{4}$ " by $\frac{3}{4}$ " Redusing Washers	
12	" 1" Knock-Out Seals	
12	Handy boxes	
12	513 LC outlet boxes	
12	3 $1\frac{1}{4}$ " plain outlets	
3	$3\frac{1}{4}$ Services heads	
2	#120SN entrance switches	
100'	#8RC	
2	$1\frac{1}{2}$ " WT angle sockets	
24	$1\frac{1}{2}$ "ST connectors	
8	#2594 handy box covers	
10	H61 Bryant tumbler switches	
10	2510 duplex covers	
11	H&H duples outlets	
10	3 $1\frac{1}{4}$ " porcelain recpt	
6	Chain pull - H268	
100'	$1\frac{1}{2}$ " steel tube	
2	$3\frac{1}{4}$ " grd clamps	
2	150 watt silver bowls	
3	60 " plain lamps	
1	$1\frac{1}{2}$ " service head	
6'	ground wire	
20	1" to $\frac{3}{4}$ " knockout reducing washers	
200'	$3\frac{1}{4}$ " Galvanized conduit pipe	
100'	$1\frac{1}{2}$ " Galvanized conduit Pipe	
4	$1\frac{1}{4}$ " to $3\frac{1}{4}$ " Reducing bushings, Galvanized	
500'	R.C. #12 wire	
2	1 $1\frac{1}{4}$ " Type E Form 35 unilet Porcelin covers 3 or 4 hole	
60	#10 copper lugs	

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FEB 11 1942  
STATE DEPT OF ENERGY  
& MINERAL IND.

Quantity	Material	Supplier
		Lorenz Co. Medford, Oregon
1	Only # 7566 Stanley rule	
1	" 8" Williams Super Wrench	
1	" 6" #206 Donialson Wrench	
2	1/8" Carbon Steel Bitstock drills	
2	1/4" " " " "	
1	3/8 " " " "	
6	1/4 by 4 Carriage Bolts	
6	1/4 by 5 " "	
7 pces	1/2 inch round by 6ft 6inch Iron rods	
48	2" Screws Flatheads	
1	1/4" Die	
6	6 1/2" by 12 Ft Bolts	
3	12" hacksaw Blades	
6	1/2" plugs	

**Certification:**

The undersigned hereby certifies to the Office of Production Management that:

- (1) he executed the foregoing statement on behalf of and by authority of the above named Mine Operator;
- (2) the above-named mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56 and has applied Ratings only in accordance therewith;
- (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business and the ratio of inventory(quantity) to current production has not exceeded the ratio of average year end inventory(quantity) to average production for the years 1938, 1939, and 1940;
- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

Feb 2<sup>nd</sup> 42  
Date

Mineral Mines Inc. By J. M. Parson Treasurer  
Signature of Authorized Official Title

# State Department of Geology and Mineral Industries

1069 State Office Building  
Portland 1, Oregon

WAR EAGLE MINE (quicksilver)

GOLD HILL AREA

JACKSON COUNTY

**Owner:** Mineral Mines, Inc., 1310 N. 45th, Seattle, Washington, a Washington corporation; Clay Nixon, Pres., Dexter Horton Building, Seattle; Mrs. L.M. Parson, Sec.-treas.

**Location:** The property is located mainly in sec. 17, in  $W\frac{1}{2}$  sec. 16,  $W\frac{1}{2}$  SW $\frac{1}{4}$  sec. 9,  $S\frac{1}{2}$  secs. 7 and 8, NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec. 20, and NW $\frac{1}{4}$  NW $\frac{1}{4}$  sec. 21, all in T. 34 S., R. 2 W. in the so-called Meadows district. The mine may be reached from the town of Gold Hill as follows: Crater Lake highway (State 234) 12 miles to Evans Creek road, thence 6.7 miles to road forks, thence on right fork 1.85 miles to private road on the left, thence .45 miles to the mine office. The total distance from Gold Hill is 21 miles.

**Area:** 750 acres (in excess of 36 mining claims, mostly patented).

**History:** "The War Eagle mine was discovered in 1916 by Carl Burtelson. It was developed by the Rainier Mining Co. until 1919 when it was taken over by the newly incorporated War Eagle Mining Co. During 1917 a Johnson McKay retort was in operation and 565 flasks of quicksilver were produced to August 11, 1920, according to a report of that date by Clifford Dennis.

.... "At the time of Dennis' report, the steps under the discovery shaft had been mined. The upper and lower tunnels had been run. From the upper tunnel, drifts had been run 120 feet to the east and 100 feet west. Since then the east drift has been extended some 40 feet ....

"A 25-ton Scott furnace plant was built on the property in 1920. It was a well-built plant and operated normally although the operators seemed greatly troubled by the fact that arsenic trioxide condensed with the quicksilver in the condensers. As explained in the chapter on metallurgy this is unavoidable when the ore contains arsenical minerals and the War Eagle ore was known to have a large arsenic content.

"The new plant was operated only a short time in 1921 as this was a disastrous year for quicksilver mining in the United States in which practically all our quicksilver mines were forced to shut down due to low prices and inability to sell their product.

"By 1926 the affairs of the War Eagle Mining Co. had become so involved that the property was sold under foreclosure to satisfy debts and claims held against it.

"It was bought by Bertelson, Harder, Kidd and Hilsinger. They turned the property over to the Medford Reducing and Refining Co. for stock and bonds of this company. This Medford Reducing and Refining Co. was capitalized at \$1,500,000 and an issue of \$160,000 first mortgage bonds were put out. This company appears to have been largely a promotion scheme and the property passed into the hands of the receiver in the spring of 1928. The mine then became the property of the bondholders.

"Total production to the end of 1937 is some 640 flasks. As most of this product was made in years of high prices the total value of the mine's output is about \$69,000. Total tonnage treated was about 3,300 tons so that the average grade of the ore was 15 lbs. per ton. It is rumored that the production was larger but there are no figures available to prove it.

"The workings total some 2,400 feet. Then about one flask of quick-silver has been produced for every four feet of workings thus far run."

In 1941 and 1942, Mineral Mines Inc., prospected the coal vein, and installed a flotation plant to handle this ore. It was found that the cinnabar is closely related to the fault zone, and does not occur uniformly throughout the coal seam.

Development: No additional work has been done, except in the coal, since Schuette's report. The coal adit is 960 feet long and the face is about vertically under the mill (Company Report). The adit slopes toward the face at an angle of 5 degrees. A small amount of ore has been mined from this adit and hauled to the mill for treatment.

Geology: The geology of the cinnabar occurrences is described by Schuette (38:115) as follows:

"This War Eagle mine on the War Eagle and Rainier claims is in the May Creek Schist, which strikes northeast. The mine fault, in which the ore occurs, cuts through the schist with a strike of N. 70° W. as shown on the plan of the mine. In the upper workings the dip of the fault is steeply NE but it reverses at the lower level and is SW in the mine below it. The ore occurs in sheets between the walls of the fault. These walls are from 3 feet to 12 or more feet apart and are marked by distinct slickensides in hard tough fault gouge. The cinnabar has been smeared out on the slickensides by post-mineral movement.

"The schist forming the wall rocks is a dense impervious rock and the rising mineral-bearing solutions which formed the orebodies were confined by it and by the fault gouge to the space between the walls of the fault zone. In this fault zone the schist was brecciated and a preliminary silicification deposited chalcedony

in the voids of the breccia. Further movement of the fault brecciated this chalcedony and then mercury and iron sulfides were deposited from solution in the interstitial space of the breccia. The mercury sulfides deposited as the red cinnabar and the iron sulfides were deposited as pyrite and marcasite. The marcasite contains arsenic although no arsenical mineral has been identified. To judge by the striated surface of the slickensides the fault movement had both a vertical and horizontal component. Such a movement usually forms bodies of breccia, shaped like inclined flattened cylinders, which act as the receptacle rock for the ore.

"In the War Eagle mine at least two such orebodies were formed and have been partially stoped. The mineralizing solutions rose in the fault zone because the impervious nature of the wall rocks and gouges prevented their dissemination. They then carried their load of mineral matter into the interstitial space of the breccia and here their upward course was slowed down or they were trapped by overhead gouges and cooled sufficiently to precipitate the sulfides thus forming the orebodies. The workings shown in dotted outline under the discovery shaft are largely inaccessible being partly caved and partly filled. Cinnabar could be seen on the wall slips and in seams in the back.

"West of No. 3 Raise a narrow stope has been carried up on stulls. The east wall of this stope in the raise showed fair ore and ore can be seen in the back of the lower level.

"East from these workings on the upper level the end of the level is in heavy sulfides showing no cinnabar. These are similar to the heavy sulfides occurring west of the ore in the lower level stope above the winze. The orebody on the lower level, at the winze, has been partially stoped above and below the level.

"The east end of the lower level is in heavy sulfides again and is beginning to show faint streaks of cinnabar. The mining has been done in a rather slipshod manner due apparently to inexperience.

"The creshoots appear to rake or pitch down to the east at a rather flat angle. The cinnabar seems to be on the top and east side of the creshoots while the heavy barren sulfides are on the bottom and west sides. This suggests that the cinnabar may have been deposited ahead of the other sulfides.

"In 1936, Geo. Schumacher while prospecting down Rattlesnake Creek near the common corner of Sections 8, 9, 17, and 16, found cinnabar in a 'coal' seam in the flat-bedded shales and sandstones of the Umpqua formation ....

"This coal area is south of the camp and below it in elevation. Here, Rattlesnake Creek runs southeasterly towards Evans Creek. The southwest side of the creek makes a steep 6-foot bank at the

site of the new discovery. Here, a 'coal seam' was exposed in the bed of the creek and on examination it was found to contain cinnabar.

"A short inclined shaft was put down and a drift and some cross-cuts were run from it .... The 'coal seam' (actually a lignite) that outcropped was about 18 inches thick. Below this was a stratum of clay shale about 18 inches thick; below this was a coal seam some 24 inches thick and below this was clay shale for at least 12 inches.

"The coal seams carry cinnabar while the intervening clay shale bands seem to be barren when panned. The coal seams vary in cinnabar content from place to place but as exposed they were nowhere barren and in places panned over 1 per cent in quicksilver.

"In 1937 a new tunnel was started into the S.W. side of the creek some 200 feet below the discovery tunnel. This runs S.W. and then turns to the right paralleling the creek. This work exposes coal seams up to four feet thick in places that also carry cinnabar. The N.E. side of the creek has not yet been prospected for this coal seam.

The coal vein is in Eocene (Umpqua) siltstone and sandstone. The sandstone approaches graywacke in composition. The coal is lignitic, as is most of the coal of the Rogue River coal field. It is  $1\frac{1}{2}$  to 3 feet thick with numerous bone partings. At least two coal seams occur; the upper one is thinner than the lower and they are separated by sandstone from 6 inches to 2 feet in thickness. Apparently a third seam occurs near the present face of the coal adit.

The coal vein dips 5-10 degrees, S. 45-70 degrees W. The strike is N. 20-45 degrees W. A prominent normal fault, trending N. 45-50 degrees W., strikes along the southwest side of the coal adit, and is probably a bedding-plane fault. Part of the fault has a dip of 45 degrees, but flattens to 25 degrees and less as it passes into the coal area.

Cinnabar was deposited in fractures in the coal, and appears to be richer in the upper seam. Deposition was not uniform and, as a result, accurate sampling is difficult. Cinnabar is found also in the siltstone between coal seams near the face of the adit. Heaviest concentration of ore seems to be near the fault plane, where it flattens. Insufficient prospecting has been done to the northeast to prove the quantity of ore in that direction. From field examination it seems that the quantity decreases to the northeast. No ore has been found southwest of the fault.

Metallurgy: "Reduction Plant: The Scott furnace plant erected in 1920 has been partly torn down as can be seen in Photo 22. Part of the firebrick and tile of the furnace has been used to build retorts at various sites on the property. The furnace could be restored but a new condenser would have to be built ....

"The War Eagle mine is perhaps the only quicksilver mine in the United States that has an appreciable arsenic content in the ore. La Soterrana mine in Spain has a similar ore.

"The arsenic vaporises on heating, as does the mercury, and it condenses as a gray powder in the form of arsenic trioxide. When retorting or furnacing these ores the arsenic trioxide powder and the finely divided mercury condense together and the mercury must be separated from the arsenic before bottling. In Spain the mixture was retorted with litharge yielding mercury and lead arsenate. Such a process would probably not pay here in the United States and it is better to waste the arsenic. Tests made on the War Eagle arsenical soot showed that the mercury could easily be separated from the arsenic trioxide by agitating the mixture in about 5 parts of water for half an hour, in which time the mercury droplets coalesce and the quicksilver can be drawn off ready to be bottled.

"Since the arsenic is in the marcasite only, selective flotation would serve to remove the arsenic from the ore before it is roasted. Such a process has been developed for La Soterrana mine in Spain by Prof. Maurice Rey of the University of Liege in Belgium.

"Some tests were made on War Eagle ore by the Rare and Precious Metals Experiment Station of the U.S. Bureau of Mines at Reno, Nevada, under the direction of Edmund S. Leaver. This investigation showed that the oxidized ore does not concentrate well by either gravity concentration or flotation. Leaching with alkaline sulfides was not thought feasible because of the acid salts in the ore.

"The sulfide ore was amenable to selective flotation, using lime and alkaline cyanide to depress the pyrite. Recovery and ratio of concentration, it was found, would probably depend largely on the fineness of grinding."

Equipment: The present Company has been working only on the ore in coal and selection of a flow sheet has been based on the separation of cinnabar from this material. Ore is stored in a 60-ton ore bin and goes over a 1½-inch grizzly. Oversize is shale as the coal breaks very fine. The flow sheet is essentially as follows: undersize from the grizzly goes to a 3-ft. by 8-ft. rod mill which discharges to a 4-ft. by 18-ft. classifier. Discharge from the classifier goes to six flotation cells, concentrates from which go to a thickener and a filter. The concentrates are to be retorted. Oversize from the classifier goes to a 50-ton ball mill and back into the circuit.

A small retort, built by Mr. Parson, is to be used to retort the concentrate. It has a rotating cylinder, about 16 inches by 5 feet, that is hand-charged. The retort is oil-fired. It is claimed that 300 lbs. of dry concentrates can be handled in an hour.

Reference: Schuette, 38:113-120 (quoted).

Report by: R.C.T., October 27, 1942.



The Mining Journal - January 30, 1938

"The old War Eagle quicksilver mine in the Meadows district near Gold Hill, Oregon, is being reopened by the Mineral Mines, Inc., of Seattle, Washington. C. O. White of Seattle is superintendent in charge at Gold Hill. Workings are being retimbered, a compressor has been installed, and several new buildings and a saw mill are under construction. A 50-ton retort designed by White is to be installed in the immediate future."

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# *Department of Geology and Mineral Industries*

## MEADOWS QUICKSILVER AREA AND MEDFORD CANTONMENT

702 Woodlark Building  
Portland, Oregon

Herewith is tracing showing the location of the Medford Cantonment boundary in relation to the mineral properties of the northeast portion of the Gold Hill area, locally known as The Meadows.

You will note that all the properties, with two exceptions, lie outside the cantonment boundaries. The two exceptions are the WAR EAGLE and the CINNABAR MOUNTAIN (various known as Lucky Strike, Webb & Tainor, etc.)

WAR EAGLE. The old workings on the Rainier property were all west of the cantonment boundary. However, the coal area is right on the line between secs. 16 and 17, with a possibility that part of the coal area will be within the boundary, as projected. It is the coal area which the War Eagle is contemplating working; this portion was seen by E.K.N., on his recent visit there. If the War Eagle operators are able to operate efficiently, there is reason to believe that the War Eagle will be a producer of quicksilver. As such, consideration should be given them so that their property is permitted to operate outside the cantonment boundary, and have access, by the present road, to the "outside". Schuette discusses the coal veins of the War Eagle Mine in Bull. # 4, but note that the coal drift is not indicated on his fig. 14 except as "coal area".

CINNABAR MOUNTAIN. This property is within the boundary of the cantonment by approximately  $1\frac{1}{4}$  miles. To leave this property outside the reservation would give the cantonment too narrow a limit for service as an artillery range. In brief, if Cinnabar Mtn. is left outside the cantonment, there will be no cantonment as there will be no artillery range.

In view of the above fact, and the added fact that the property is not producing, and is not a potential big producer, it would seem to me that this property should be sacrificed for the sake of the cantonment. I believe that the cantonment has more value than the cinnabar property, to national defense.

Therefore, in view of the above, I have indicated a suggested revision of cantonment boundary, on the tracing. This boundary would permit the War Eagle to operate its coal seam, and to have access by existing roads, to a market.

I talked briefly with Captain Bean, Constructing Quartermaster, on Saturday, June 14, 1941, about this matter, and he suggested that the boundary be left essential as it is, - except that a slight jog be made to accommodate the War Eagle property. This, I believe would be satisfactory, if the War Eagle is granted permission to truck over reservation grounds.

I can find no evidence of additional mineral properties within the cantonment. However, my complete file of Jackson County mines is in the Portland Office, and I cannot make a complete check.

Ray C. Treasher,  
Field Geologist 6/14/41