

Circle
1935

To carry out desired program of development and operation
on the properties of

MINERALS EXPLORATION COMPANY

We should have as soon as possible:

To put Noonday in production	\$5,000.00	
To buy machinery for Musick & build plant and buildings	21,000.00	
To make down payment and start development on Riverside, Syndicate and Vesuvius	<u>8,000.00</u>	\$34,000.00

By October 1st:

To buy winter supplies for Noonday and Musick (operations on others to be discontinued for first winter)		15,000.00
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Each month thereafter until July 1, 1936:

To carry payroll nine months	3,000.00	27,000.00
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By June 1st, 1936:

To complete Vesuvius development and build mill		<u>20,000.00</u>
		<u>96,000.00</u>

Note: Production profit should carry all development
from June 1, 1936

We must have before Sept. 15, 1935:

To make down payments and start work where agreed		7,000.00
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By June 1st, 1936:

To build mills, do development and buy supplies		<u>89,000.00</u>
		<u>96,000.00</u>

A BRIEF REPORT ON THE PROPERTIES OF THE MINERALS EXPLORATION
COMPANY

Bohemia District, Lane County, Oregon

No attempt will be made in this report to tell the history, geology and general economic conditions of the Bohemia District, as these have all been fully covered in other reports on the district in general.

A modern flotation plant is now in process of construction on both the Helena and Champion mines. Both companies have considerable tonnage of very good ore, assured and at least partially blocked out.

The free milling or oxidized ores were nearly all mined from the developed mines in the Bohemia district between 1895 and 1910. Improved recovery in method, better transportation for concentrates, and higher price for gold now makes it possible to mine the base ore at a large profit.

The Minerals Exploration Company now holds a number of very favorable contracts on mining properties in the Bohemia District, and it is their intention to develop and operate these properties.

The contracts now held, and those now being negotiated, have been carefully made; not binding the company to large payments on specified dates. These contracts all call for payment on a royalty basis with a small amount of work per month required in most cases to hold the contract in force. As fast as money is available, it will be expended to carry out the proposed program of development and plant construction on one or two of the best properties, and intensive development will be started on other properties as the funds are available to warrant it.

Expenditures will be authorized by the board of directors on the advice of Mr. Robert M. Betts, whose record as a successful

mine manager is one of the best in the State.

Following are listed the properties held by the Company in the order of their importance, with a few facts about each: (see exhibit A)

- | | |
|---------------|-------------------------------------|
| (1) Musick | (2) Noonday (contract not complete) |
| (3) Vesuvius | (4) Syndicate |
| (5) Riverside | (6) El Capitan |

The Musick Mine consists of six claims located on both sides of the Calapooia divide. The old mill site and adit to mine workings are on the East side of the mountain and at an elevation of about 5100 feet. There are on this property two veins, one known as the Musick from which came all the former production, about 35,000 tons and on which is over 4000 feet of development, and one known as the California on which only about 300 feet of development work has been done. These two veins intersect at about a 16 degree angle at the west end of the present workings. The map and data sheet with it show the location and approximate tonnage of the six ore shoots in the Musick vein, besides which there is considerable tonnage of good ore in the California vein and in the dump at the #4 level of the Musick vein.

A drift is now in 300 feet on the vein on the west side of the mountain. If this drift were extended about 3500 feet farther it would open up all the present ore shoots at about 860 feet greater depth, with good indications that additional shoots will be developed before those known to exist are reached. This level should develop an additional 250,000 tons. There is no reason why the values should not go down to this depth, as adjoining mines have found very good ore at much lower elevations.

However, as the development of this lower level would take some time, and as there is already assured about 41,000 tons above 6 level, or the old working level (See exhibit B and map of Musick), it is proposed to build as soon as possible, a 25 ton plant at the portal of #6 level and take profit (see exhibits B & C) from this operation to develop the lower level. In making calculations, mining costs were placed at \$5.00 per ton, and milling costs at \$2.50 per ton. Recent experience in the district has proved these figures, particularly the mining cost, can be lowered considerably. This is made possible by the extraordinarily good walls, very little timbering being necessary. This favorable factor exists in the Musick, Vesuvius, Noonday and El Capitan, and to some extent in the Riverside and Syndicate.

The ore in the Musick mine varies considerably in character. That in shoots A, B, C and D (see exhibit B, or map) being very base with some galena and chalcopyrite, and varying amounts of pyrite and sphalerite, the average ratio of concentration in this ore will be about 8 to 1. The ore in shoots E, F and California having only a small sulfide content, mostly pyrite, will make an average ratio of concentration of about 25 to 1. This will make it possible to handle a lower grade ore from these last named shoots, as shipping costs of concentrates will not be so great. The ore in shoots A, C, B & D is of average hardness, but that in the others is very easy to mine.

There is an ample supply of mill water flowing from the mine and a good spring for drinking close by.

NOONDAY:

Since the date of the enclosed reports (See Exhibits D & E) a modern 25 ton flotation plant was erected on the property by the Grouse Mountain Mining Company. The Company built a very good plant, but lacked funds to do any development work so the development suggested by Mr. Betts in his report (See Exhibit D) has not been done.

This company was so short of funds that necessary supplies could not be purchased for the winter. The plant was not completed until the middle of December, so only a limited amount of ore already developed was mined. This ore was of very good grade, recovery was satisfactory and profit certain (See Exhibits F & G) It is a regrettable fact, however, that this company had during construction and through the winter, operated to a great extent on credit. This fact, and dissention among the stockholders soon brought operations to a standstill.

The Minerals Exploration Company expects to take over this mine, put the small amount of ore now developed through the mill and carry out the proposed development of the Maggie vein and other shoots on the Annie (See Exhibits D & E)

VESUVIUS:

This property joins the Musick on the north and consists of eleven patented claims. All ore developed has been mined. This was all in the oxidized zone, elevation on the working level being about 5500 feet. A deep drift and crosscut, open and in good working condition, will only have to be extended five hundred feet to reach the ore shoots worked out on this old level, giving a stoping depth of about 650 feet (See Exhibit H) Ore from this level can be taken to the mill site at the Musick lower level with a 400 foot tramway.

There ^{are} ~~is~~ 6000 feet of development on this property, at least 6500 tons have been mined, and completed development of Wild Hog tunnel should develop at least 30,000 tons more of good ore. There is no need to repeat other details about the property given in Exhibit H, as Mr. Elmer's work was carefully done and has been checked.

SYNDICATE:

This group consists of 15 claims all unpatented, covering the eastward extension of the Annie and Henry veins from the Noonday. Very little work has been done but surface cuts and short drifts expose good ores, which justify development work. One vein on this property is as much as 60 feet wide and can be traced on the surface for three quarters of a mile.

RIVERSIDE:

Three patented claims. The workings are east of the Noonday and south of the Syndicate. An 1800 foot drift at about 3000 feet elevation gives a 1000 feet of depth on a vein that is wider than the drift most of the way. According to common report, this drift passes through two ore shoots, one of which is over 400 feet long. The portal is caved, but dump samples show fair gold values in base ore. It will only cost a very moderate amount to put this drift in working order again, and it is believed there is now enough ore proven to justify a plant, provided it is of milling grade. This property can be proved for about \$2,000.00.

EL CAPITAN:

This property consists of 4 unpatented claims lying south of the Musick at 1000 feet lower elevation.

Surface cuts show a strong continuous vein. Two ^{short}~~smaller~~ drifts have produced free milling ore which has been treated in a very small stamp mill. This vein shows massive bodies of stibnite, the sulfide of antimony, which is unusual in this district.


Kenneth Watkins

EXHIBIT B

ADDITIONAL DATA TO GO WITH MAP OF MUSICK MINE

Large vein known as the California intersects the Musick vein with 16 degree angle at west end of 4 level. This vein is actually two parallel veins about 20 feet apart. Each vein averages about 4' in width. Surface cuts show good ore on North vein. Drift in 300 feet.

There is a drift in 300 feet on the west side of the divide which, if extended about 2000 feet will give 860 feet greater depth than 6 level, with the probability that undeveloped ore shoots will be encountered before the now developed ore shoots are reached.

-ESTIMATED TONNAGE-

Shoot A--260 feet long, mostly stoped. Floor samples by F. Bartels

show values \$14.50 to \$190.00--two blocks left--1200 tons.

Shoot B--100 feet long, some ore left between 2 and 4 levels-1500 tons

Shoot C--80 feet long, much galena. Average assay \$97.00, 1000 tons

Shoot D--190 feet long. \$12.50 per ton, 6000 tons above 4 level.

Shoot E--250 feet long on 4 level, \$21.00 per ton, 7000 tons.

Shoot F--Intersection shoot 100 feet long. 10 to 14 feet wide, 15,000

tons above 4 level. \$10.15 per ton.

Shoot on N. California Vein--\$25.00 per ton, 6000 tons above mill level.

No. 4 Dump--\$15.00 per ton, 2500 tons.

Total Estimated Tonnage above 6 level--41,200 tons

VALUE	\$636,000.00
PROFIT (estimated)	300,000.00

AMOUNT OF MONEY NEEDED TO CARRY OUT PROPOSED PROGRAM ON LEUSICK

Payment due July 15th	\$900.00	
Track	260.00	
Compressor and machines	3,000.00	
Mill-complete, labor, lumber & machinery	12,000.00	
Buildings other than mill	1,800.00	
Assay equipment	200.00	
Transportation	<u>3,000.00</u>	\$21,160.00
Winter Supplies (200 days)		
Food	3,200.00	
Dynamite	1,400.00	
Gasoline	600.00	
Diesel	500.00	
Flotation reagents	1,300.00	
Timber & Lagging for mine	<u>550.00</u>	7,550.00
Payroll for Winter		<u>12,000.00</u>
		\$40,710.00

This will mine and mill 5000 tons of \$20.00 ore, with at least 85% extraction - 20% bullion and 65% in concentrates with a 10 to 1 ratio.

Bullion	\$20,000.00
Concentrates - \$65,000.00 less deductions & smelting charges of \$7500.00 and shipping costs of \$7500.00	<u>50,000.00</u>
Total	70,000.00

Silver will net about \$5,000.00 and lead about \$2,000.00

EXHIBIT C

DEVELOPMENT OF LOWER MUSIC LEVEL

Road	\$500.00	
Building	1,100.00	
Compressor	2,000.00	
Machine & Fittings	<u>400.00</u>	\$4,000.00
Drift 300 feet		
Raises 1500 feet		<u>22,500.00</u>
		\$26,500.00

VESUVIUS

Payment	1,000.00	
Buildings & Equipment	1,100.00	
Compressor	2,000.00	
Machine & Fittings	400.00	
Ventilation pipe 3200'	400.00	
Compressed air pipe	<u>600.00</u>	5,500.00
500' drift and 700' raise		<u>6,000.00</u>
		11,500.00

SYNDICATE

Payment	1,000.00	
Buildings	100.00	
Tools	50.00	
Rent camp, 2 months	<u>300.00</u>	1,450.00
Required labor 3 months		<u>1,000.00</u>
		2,530.00

RIVERSIDE

Payment	\$500.00	
Buildings	200.00	
Tools	<u>50.00</u>	750.00
Required labor 3 months		<u>1,080.00</u>
		1,830.00

NOONDAY

To take care of back bills on equipment	\$3,000.00
Track	200.00
Vent. pipe and compressor pipe	500.00
Lagging	300.00
100' X cut and 200' drift	1,500.00
75' winze @ \$20.00 per foot	<u>1,500.00</u>
	7,000.00
This work should produce 1000 plus tons of ore from shoot already opened on #2 level and 800 plus tons from winze. It will cost to mine and mill this ore shoot about-	
	15,000.00
After completion of Maggie crosscut, winter supplies and labor will about equal Musick estimate, or	
	<u>20,000.00</u>
	42,000.00

Total Estimated cost of entire proposed program
until June 1, 1936

\$124,050.00

REPORT ON THE NOONDAY MINE, GROUSE MOUNTAIN, LANE COUNTY, OREGON.

The property of the Noonday Mine consists of five patented and one unpatented claims, situated in the Bohemia District, approximately thirty-five miles from Cottage Grove, Oregon. A good mountain road leads to the property from the end of the railroad and highway about fifteen miles distant.

The property is traversed by two major veins and a number of others of which little is known, but which are potential prospects for ore.

The ^rstrike of the major veins, known as the Annie and the Maggie, is roughly north and south and the dip is almost vertical. Development and mining has been carried on principally in the Annie Vein on which two or three thousand feet of tunnels, raises and winzes have been driven. There are two main levels, known as the No. 2 and No. 3 and three intermediate levels known as the A, B & C. From the number one level quite a tonnage of ore was stoped and milled nearly forty years ago. No attempt was made to estimate this tonnage as the stopes after all these years are not in good condition. Since that time a little high grade ore has been shipped from the different intermediate levels. This ore has varied from \$155.00 to \$350.00 per ton, figured on the present price of gold.

The geology of the district, according to the U. S. Geological Survey is principally andesite which has been intruded by numerous gran0-diorite dikes which have formed the channels for subsequent mineralization. The minerals are chiefly gold, silver, lead and zinc, but the ore is principally valuable for its gold and silver content.

The ore varies in width from eighteen inches to eight and ten feet. The stopes extend down to the number two level but from there to the number three level it is practically virgin ground and the ore exposed at different points on all the levels is of good width and shows ore of

Milling and shipping quality. On sub-level B the vein shows from two and a half to four feet and values from thirty dollars to one hundred twelve dollars. From just below this level fifteen tons of ore was shipped averaging one hundred fifty-five dollars per ton. On the number three level north, immediately below, the ore is more than three feet wide and samples from eight to fifty dollars per ton. On the number two level about three hundred feet north of any workings on the other levels the vein shows four feet in width and sixteen dollars per ton. On the Maggie vein practically no development has taken place but the vein has been followed along the outcrop for hundreds of feet and commercial ore has been found in various cuts along its strike. A crosscut from the number three level has been driven to a point estimated to be only forty feet from the Maggie vein. The continuation of this crosscut to its intersection with the vein would give approximately four hundred feet of stoping ground.

Milling tests on the Noonday ore show that as high as a ninety five per cent recovery can be made by flotation but it is probably that in actual practice a figure somewhat lower than this should be counted on, but it is safe to assume that over ninety per cent of the values can be saved.

While some difficulty will be experienced during the winter months, due to the excessive snowfall, this should not be serious enough to prevent continuous operation.

Conclusions: In view of the past production of this property and the amount of development work which has already been accomplished, and the excellent showings of ore at different points on the property, I recommend it without reservation and suggest that a flotation plant of approximately twenty five tons per day be installed, that the crosscut on number three level be extended to the Maggie vein and that the ground on the Annie vein be prepared for stoping to provide tonnage for the mill.

Signed ROBT M BETTS

Registered Mining Engineer
State of Oregon
Number 1001.

LOCATION OF PROPERTY

The Noonday Mine now owned by the Grouse Mountain Mining Co., is situated in the Bohemia District, 35 miles S. E. of Cottage Grove, Oregon. This mine is in the center of the district and lies between two of the biggest producers, the Helena and the Champion. Elevation of the property is between 3600 feet and 5500 feet. The present working adit is about 4800 feet.

HISTORY

The history of this mine is essentially the history of the other mines in the district. Discovered in 1887, the vein was first opened by shaft and then by a short 30 foot crosscut. The ore from this level was hauled by sleds three-quarters of a mile to the Knott Mill, the only mill in this district. Shortly thereafter the No. 2 level was opened by a 100 foot crosscut, giving over 100 feet in depth on the vein. The Knott Mill was then moved to a point a little distance below the No. 2 level and in 1896 the mine was purchased by the Noonday Co., who built a twenty stamp mill three-fourths of a mile away on Horseheaven Creek, and the No. 3 level was opened by a 470 foot crosscut giving 168 feet of depth below the No. 2 level. This adit and the mill were connected by an ariel tramway.

When the ore was opened up on the No.3 level it was found to be base and not workable by the then known processes. A raise was put through to the No. 2 level and stoping was continued above that level for about two years, at which time the then known shoots of free-milling ore were exhausted. The zone of oxidation where the free-milling ore occurs is seldom over 150 feet deep in this district. The total production of the mine is unknown as accurate records were not kept at that time. It is estimated as high as \$700,000.00

Since 1917 shipments of untreated base ore were made to the smelters at irregular intervals. The ore shipped paid a profit to the owners but they used such primitive methods of mining and transportation was so difficult over the then nearly impassable roads that only a small tonnage was shipped at irregular intervals until December 1932.

The gold and silver assay value of these shipments at present prices, ran from \$150.00 per ton to \$350.00 per ton. Figures taken from authentic smelter receipts.

ECONOMIC GEOLOGY, etc.

The exceedingly rough topography allows all mines to be economically opened by drifts or crosscuts and this property can be mined by crosscuts for 800 feet more in depth. There is plenty of good fir timber on the property for mine timbers. The climate is mild with fairly heavy snowfall in winter. Good water is plentiful.

Transportation was very difficult until recently. In the last two years the U. S. Forest Service has build a good road into the district which when finished this summer will allow a car to drive to Cottage Grove, 35 miles distant, in one and a half hours.

It is only 15 miles to the railroad from the mine.

SAMPLING METHODS

All samples were taken personally by the author and precautions were taken against any chance of salting by mine owners. The values obtained checked well with former samples cut by R. S. Dixon and others. The samples are true cross sections of the vein at the points sampled. Assays were made by the Eugene Assay Office, a reliable firm.

TESTS ON ORE

It being well determined that flotation was the most feasible method of extracting the values from the ore, a number of tests on recovery were made by the Minerals Separation Co. of San

State College, School of Mines by the author.

These tests show that by fine grinding a recovery of 90% or better can be expected, making a concentrate with a gold and silver value of \$150.00 per ton and up to over \$1000.00. These concentrates also contain considerable lead, so much as 36%, and some zinc, but because of the low price of these metals their value is not considered in estimates of profit, although the lead value will carry at least a part of the shipping costs of the concentrates.

ASSURED MINERAL

Although no ore is blocked out in the strictest sense of the term, the ore-shoot on which all calculations of profit are based is opened on three levels with a vertical distance of 168 feet and by these levels and a crosscut on No. 2 level for a horizontal distance of 250 feet. In as much as these values are fairly consistent for this difference in depth, it is reasonable to assume that they will continue for hundreds or thousands of feet farther down. Because of the steep mountain sides it is a known fact that these veins extend down at least 2000 feet without change in character.

With a 90 per cent recovery the extraction should be above \$20.00 per ton, leaving a gross profit of \$12.00 plus per ton. With a 25 ton mill a gross profit of \$300.00 a day or \$90,000.00 a year may be expected.

The 10,000 tons in this ore-shoot on the above basis will yield a gross profit of \$120,000.00. From this amount will have to come amortization of the investment, development of more ore-shoots and net profit.

It is reasonable to suppose that in this ore-body will occur more lenses of rich ore assaying \$100.00 or better a ton like that shipped

from the B intermediate. Such lenses occurred in the ore taken from the upper levels, some going over \$1,000.00 per ton. It is certain that in the main vein to the east of the raise there occurs a large shoot of lower grade ore which will take a much high ratio of concentration, thereby lowering shipping and smelting costs, and in the Maggie vein parallel to the Annie about forty feet more of crosscut will give 350 feet of depth on a known but entirely unexploited ore-shoot. Evidence of ore-shoots in other places occur and it is certain that the values extend downward at least some distance below No. 3 level.

Signed KENTON WATKINS.

American Smelting and Refining Co.

Tacoma, Wash. July 10, 1935

Bought of Grouse Mountain Mining Co.

Cottage Grove, Ore.

Material: Sack concentrates

Smelter Lot 2275

Date received: July 1, 1935

Car or Vessel: Truck

Silver Quot.
Date 7/1/35
77¢

Copper Quot.

7.775 less 2-3/4 ¢ 5.025

Zn.	As.	Sb.	Ni.	Bi.
9.0	.13	-	-	-

Lot No.	Wet	Dry	Assays			Contents		
No. Sacks	Weight H2O	Weight	Au	Ag	Cu	Au	ozs	Ag Cu lbs
2275	23,000						ozs	
Sacks	<u>260</u>							
	22,740	10.10	20,443	4.58	11.35	2.74	46.814	116 560
				Less 1 oz silver				10
				Less 20 lbs. copper				204
							<u>46.814</u>	<u>106 356</u>

Gold Realized Price	\$34.9125		
" Mint "	20.6718		
" Excess "	14.2407		
90% of Excess	\$12.8166		
Add.....	<u>19.0000</u>		
46.814 ounces at.....	\$31.8166	\$1,489.46	
Silver @ 77¢ ounce		81.62	
Copper @ 5.025¢ Pound		<u>17.89</u>	\$1,588.97
Base Charge	\$6.00		
Zinc less 5% @ 30¢	<u>1.20</u>		
	7.20	\$73.59	
Material in sacks 75¢ ton		<u>8.63</u>	<u>82.22</u>
			\$1,506.75

To be paid upon receipt by us of properly executed affidavit which will qualify the silver content of this shipment for sale to the U. S. Government.

Ounces 116 - 10 @ 77 - 69-3/4 - 7-1/4..... 7.69
 Grouse Mountain Mining Co..... 1,499.06
 Cottage Grove, Ore.

CONCLUSIONS AND RECOMMENDATIONS

The Vesuvius Mines Company has performed the outstanding development of the Bohemia District, Lane County, Oregon. The District at large has given substantial net returns during its early history when surface ores were worked in the simplest type of free-milling plants.

From comparatively shallow and from strictly surfact diggings, the Vesuvius Group gave a considerable tonnage in early day operation. In the years prior to 1921, by which time upper levels had been worked out, the construction of a long adit had not reached the downward extension of two shoots which had been worked on and probably exhausted in the upper working levels.

The unfortunate demise of the directing individual of the Vesuvius Mines Company in 1921 left the enterprise without an active head, since which date all operations have been discontinued and the property has laid dormant.

A regrettable fact due to the death of Mr. Hard, the secretary and manager, was the loss of all mine and mill records excepting maps dated 1908 and certain detached assay slips and bullion receipts which are referred to in the following pages. There are no data in existence, it is believed, to show what tonnage has been treated or returns gained.

A total expenditure of not less than \$240,000 was made on this group during the operating period.

This resulted in the construction of not less than 6,000 feet of underground workings and complete mill, tramway and camp equipment and buildings. The workings of value at this date for further development of the property are in perfect operating condition, equipped with cars, track,

expenditure to make it up to date in efficiency.

This report is, for this reason, a seller's report, made, as is stated in the letter of transmission, by an independent engineer who has no interest, real or anticipated, in the shares of the company nor in a commission from its sale.

There is no common sense nor geological reason why the downward extension of the shoot worked out above will not be cut by Wild Hog adit with an expenditure well in keeping with its possibilities and fully justified by existing conditions.

Vesuvius Group topography is such that one-third of the expected ore above Wild Hog adit will probably be semi-free milling and the remainder mixed, massive sulfide and semi-free milling. Below that elevation the ores may be expected to be entirely sulfide and it is to ores of that type that the district at large will owe its greater future profits.

Development in the district at large proves this beyond question and the particular attention of the investing investigator is called to this important factor.

An expenditure of less than \$30,000 will develop to a depth of 600 to 650 feet two shoots known and exhausted above.

The length of one of these shoots is 120 feet at the lowest workings above. The other has a length unknown to the writer.

HISTORICAL DATA

Gold was first discovered in Bohemia district in 1858. In 1857 a five-stamp mill was built on the Knott claim and was run till 1877 on free-milling surface ores. From 1877 to 1891 little was done in the district. Beginning the latter year prospectors again entered the field and many locations were made.

These resulted in opening the Helena, Champion and Musick Groups where operations were carried on at a profit until the free-milling ores then developed had been worked down to sulfide ores.

During this operating period gold-silver ores of high values were

Exhibit H

worked in each of the properties named but when the sulfide ores were met at depth, no profit could be made from their treatment in the free-milling plants and the individual operators sold to a single holding company.

This was in 1900 and between that date and 1908 a considerable sum was spent for equipment at the Champion Group. A hydro-electric plant was constructed seven miles below on Frank Brice Creek and various detached units from the other properties were assembled into one thirty-stamp mill at the Champion.

Electric haulage was installed underground at Champion, a surface gravity plane connected that mine with the mill and a surface tramway with electric motor handled ore from Musick Mine to Champion Mine.

It is common knowledge that these operations were conducted by men with no knowledge of mining.

Newly developed free-milling ores were treated in the Champion plant, no provision was made for the treatment of the complex sulphides which were opened there and at Musick, and after an expenditure of more than \$300,000 and recovery of less than two-thirds that amount the combined properties were closed down. The Helena had not been worked since 1905 and is known to have sulfide ore of good width and fair value.

From 1912 to 1918 limited surficial development work was done at the Champion and Musick and free-milling ores resulting were treated at the Champion Mill.

Was and post-war conditions made refinancing a monumental task but the past year has, so far as this district is concerned, cured this in good measure and considerable attention is now being given to the district.

This is eminently deserved and is based, as it must be, on the plan of developing and treating complex sulfide ores.

This plan is fully justified and if carried to conclusion in the hands of trained men will certainly result in commensurate, and may result in very high, returns on the investments required.

DISTRICT AND LOCAL GEOLOGY

The Bohemia District in which Vesuvius Group occupies approximately a central position has an extension easterly and westerly of about 4 miles and northerly and southerly of 6 to 7 miles.

The district lies along the crest of the Calapooia Mountains, a westerly arm of the Cascade Range.

The Calapooias are a giant andesitic uplift of the Tertiary Age, along which are high peaks heavily timbered at elevations below 5,000 feet.

The relief of the district is marked. Bohemia and Fairview peaks have elevations respectively of 5,960 and 5,925 feet, while the narrow valley of Sharp's Creek, four to five miles distant, has an elevation of 2,1000 feet.

Erosion of glaciation and glacial streams has been rapid, resulting in deeply incised cirques and gulches with steep walls.

The easterly slope of Bohemia peak is a cirque cut by glacial action at an remote period and still almost perennially occupied by snow and ice.

Musick Mine lies on this slope and glacial ice has carved off the top of the vein at so recent a period that the oxidized zone is of limited extent and semi-sulfide ores crop at the surface.

The Vesuvius Group occupies the southwesterly slope of Fairview peak and crosses that mountain with its northerly lines. Extending easterly it crosses the Musick Saddle and the Story claim lies along the apex of the ridge between Fairview and Grouse Mountains.

The elevation at Vesuvius' lowest workings is such that ores are entirely oxidized. The Vesuvius rocks are andesitic lavas, varying from light to dark gray in color and weathering to nearly white where decomposition is most advanced.

The chief constituents are soda-lime feldspar with limited hornblende. The fracture is uneven. Quartz in general is limited, but the structure in places is porphyritic with phenocrysts. At the Jasper out quartz is massive to a width of 6 feet.

As shown on Plate 4, where every opening, except the crosscuts, is along a vein, the general strike is easterly-westerly. The dip is 50 to 60 degrees to the south with occasional steeper inclination.

The veins are replacements along well defined fissures and vary in width from two to seven feet. Due to the effect of leaching, outcrops are not pronounced.

The fracturing of the country rock resulted in two major fissures, one of which is the Jasper vein and the other the Wild Hog vein.

The better enrichments here, as elsewhere in the district, are found at the point of junction of the major fracture and of auxiliary fractures or complementary fissures.

There is evidence to indicate that the major fracture planes are older and that enriching solutions have come up through the complementary fissures which, so far as can be seen in this examination, do not cross the major planes and invariable join them from the hanging wall side. This may apply only at the present elevations, but it is certain that at the points of contact and for varying distances along the vein as the contact is approached and after it has been passed, enrichments do occur.

This is indicated at the approaching of Stocks-Harlow to Jasper vein and clearly shown at contact of Jasper-Vesuvius veins in Vesuvius ground.

EXPECTATIONS AT DEPTH

The extension of Wild Hog adit, as shown on Plant No. 4 will cut the downward extension of Jasper-Vesuvius shoot at a greater depth of 600 to 650 feet on the vein.

This will be at an elevation of 5,000 feet, at which elevation the sulfides of copper, lead and zinc will have been entered.

There will be a slight increase in general gold values over those in the area above Vesuvius Main Adit, a considerable increase in silver content and an irregular pay content of the sulfides named.

Crude ore of a shipping grade is to be expected at this elevation, but its quality will not be so great as at succeeding lower elevations and it is probable that all ore broken will go to the mills.

the Vesuvius Adit will be in leached ore where gold is the only metal of value.

Below the Wild Hog elevation an area of secondary enrichment is to be expected where gold and silver content is enhanced and where lead will be the dominant sulfide with zinc and copper as complementary minerals of pay value.

What area this zone will have is unknown to the writer or to anyone else, but its extension in length can be forecast with some degree of accuracy when the shoot at the junction of Jasper-Vesuvius veins has been opened for its full extent..