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ANTLER MINE

(Two claims on the strike of the veins)

DISTRICT: Hualapai
LOCATION: Twelve miles east of Yucca Station, nearest operating mine is the Yucca Tungston five miles north.
OWNERS & OPERATORS: Leased by G. W. Wilson.
DATE VISITED: August 19, 1918 by J. L. White

NOTES:

Country rock: mica gneiss.

Two parallel veins striking due north and south are developed by several tunnels open cuts and shafts. At the north end of the claims in a gulch there is an outcrop of gossan 36 feet wide which shows copper stain. There are several shallow pits and one tunnel driven on the vein at this point.

The tunnel opened a chute of ore 250 feet long, having a maximum width of 2.5 feet, average width probably 15" to 18". This work was done twenty-five years ago, and the drifts are caved partly full and at present are dangerous. There is a large amount of copper sulphate along the chute.

Antler No. 4 is a sample of the best of the ore. The copper sulphate on the back and walls make it almost impossible to sample here. Only a little ore is left on the back. A dump of about 250 tons apparently sorted when the work was done, was sampled by Mr. Newton, assayed 5% copper, 10% zinc, and no gold or silver. This should represent what can be mined at a lower level.

About 800 feet south is a cross-cut tunnel 500 feet long, which cuts the two veins. The one furthest in (west) has been followed for 500 feet, and a chute of ore 300 feet long exposed, about 200 feet of it shows a width of ore from 1 to 3 feet that can be mined.

A pile of sorted ore on the dump (200 tons) sampled by Mr. Newton, assayed 6.68% copper, 19% zinc. Antler No. 3 is a grab from this dump.

The second, or East vein has been drifted on for 400 feet and for the greater part of this distance shows a strong vein with but little copper showing. It is a grass root tunnel and it can be expected

that ore will be found beneath. At one point there is a shaft to the surface and below the level to water ten feet. Near the shaft there has apparently been a considerable amount of copper carbonates mined and shipped as they are not on the surface.

Further, there is another tunnel that cannot be entered at present, no ore on this dump. Noen of the drifts on the veins have a back of over 30 feet.

The ore in the dumps is much weathered and altered and has the appearance of piled salt. It is heavily crusted and slacked to sand, and smells strongly of sulphur. In picking into the pile the steel is immediately coated with copper. I believe it would be possible to mine quite a little ore in a small way. It would be almost impossible to sample well, and the dumps of sorted ore on the surface will probably indicate best what grade of ore may be expected.

Samples Antler, 1 - 2 are from six cuts across the West vein widths 1 to 3 feet. The property is 12 miles from Yucca Station on a fair road with little grade.

There are no buildings or other improvements. Water is found at about 30 feet in the workings.

The ore in the north workings seems to be in line with the East vein, although I could not be sure.

The property appears to have great promise for leasers and possibilities for Company operation. It is not improbable however that the ore may run to zinc with a little depth.

SAMPLES

No.	Au.	Ag.	Cu.%	Ins.%	Zn.%
1	.03	2.07	7.68	28.4	16.1
2	.06	1.72	8.07	20.1	14.7
3	.02	2.18	5.33	46.4	8.3
4	.01	1.19	8.16	12.1	10.10

Grab of 200 ton Dump

Water Soluable	Zn%.	Cu.%
	5.10	0.04
	5.00	0.06

ELGIN B. HOLT* describes the

file

Antler Mine in Mohave County, Arizona





2.

Chlorine mine file



not checked
m-7

REPORT ON THE ANTLER MINE.

LOCATION:

Cedar Valley
Wallapai District, Mohave Co., Arizona.
Group consists of two patented claims.
Located 12 miles east of Yucca R.R. station.
Owned by Phelps-Dodge Corp
Examined by G. J. Harbauer, October 20 -24, 1925.

FORMATION:

Gneiss and schist in a granite mass. There are two parallel veins running about North 15° East and about 60 feet apart. They dip 75° to the West. The vein minerals consist largely of iron and zinc minerals with some copper minerals. There is very little quartz or lime present. The vein is leached to a depth of from 10 to 20 feet below the surface to which depth is found an iron oxide capping or gossan. Below this gossan is found a zone of secondary enrichment in which are found some sulphides of iron, zinc and copper as well as sulphates and oxides of these metals. This enriched zone extends to from 10-30 feet below the iron gossan and practically all of the ore mined to date has come from this zone.

Below this zone the vein contains massive sulphides of iron, zinc and copper, the zinc increasing in depth while the copper is diminishing

The width of the vein is variable and measures from a few inches to five feet. The average width is probably less than two feet. The vein cuts thru a low hill and can be traced on the surface for 1500 feet. Only the wider portions of the vein have been mined.

DEVELOPMENT WORK:

The development work has been divided between two main adit levels both of which were started as crosscuts to the vein from opposite sides of the hill and were continued on the vein as drifts. The adit driven from the North side of the hill is 50 feet higher than the south adit level.

A shaft was sunk below each of the adit levels and both shafts were full of water nearly to the adit levels at the time of this examination.

SOUTH ADIT WORKINGS:

The south adit workings consist of a main crosscut 600 feet long from which two drifts were driven north and south on the two parallel veins. The east drift follows the main or larger vein, and is

250 feet long. It connects with a vertical shaft at a point 31 feet below its collar. This shaft is said to be 150 feet deep and is still open above the adit level, although the timbers look unsafe.

The west drift, which is 60 feet from the east drift, has a length of 400 feet and follows a narrow vein that has been unproductive owing to the low grade and small width of the mineral contained.

These two drifts do not develop the veins to a depth of over 50 feet in their entire length and the portions of the veins exposed in these drifts seem to be mostly in the leached zone.

Several shallow winzes were sunk below the drifts but could not be examined as they were full of water from recent heavy rains.

The south adit workings contain a total of about 1550 feet of development work^{of} which 1350 feet is drifting and crosscutting and 200 feet is shaft, winzes and raises.

Very little stoping was done in the south adit workings.

NORTH ADIT WORKINGS:

The north adit workings consist of a crosscut to the vein 95 feet long from which a drift was driven 90 feet to the north and 300 feet to the south. An inclined shaft of unknown depth was sunk at a point 15 feet south of the crosscut and is said to have a depth of at least 45 feet below the adit level. A west crosscut was driven from the main drift to pick up the smaller west vein but failed to pick it up.

A maximum depth of 70 feet below the outcrop is attained by the north adit level and considerable stoping has been done both below and above the drift and there are three raises to the surface. The total amount of development work in the north adit workings is 600 feet of drifting and crosscutting and 210 feet of shaft, winzes and raises, making a total of 810 feet.

OTHER WORKINGS:

Aside from the north adit and south adit workings there are several small shafts and surface cuts. A 35 foot shaft was sunk from the top of the hill and a 35 foot shaft was sunk at a point north of the north adit portal.

A total of about 2500 feet of development work in all was done on the property and much of this was useless work as it is of a grass roots nature and develops only the leached portion of the veins.

The south shaft is said to be 150 feet deep, and if so, this is the greatest depth attained on the vein.

ORE BODIES:

The main vein, from which all of the shipments of ore have come, varies in width from a few inches to 5 feet, but averages about 2 feet. The ore mined so far has come from a narrow zone of secondary enrichment which extends in depth to from 10 to 30 feet below the leached iron capping. Below this zone of enrichment is found the primary sulphide ore in which the copper content decreases in depth and the zinc content increases.

There was some stoping done around the shaft in the south adit workings where a body of iron oxides containing copper sulphate and sulphides was found. Another similar oxide body was found under the gulch in the north adit and produced several carloads of shipping ore, the records of which are not at hand.

Some stoping was also done above and below the north adit drift level but this stoping was confined to a shallow zone just below the iron capping which extends to a depth of about 20 feet below the outcrop.

The best ore now exposed in the mine is in the south face of the stope above the south end of the north adit level. Here it was that the last stoping was done and a sublevel driven south on this ore should produce shipping ore for at least 50 feet in length as it would connect with the shaft on the hill from which a carload was shipped which assayed 18.44% Cu.

An extension of the south adit level drift toward this shaft should also develop some ore of a shipping grade, but the cost of this development work would not be justified unless the ore developed were of a better grade than that of the last four carloads shipped from the property.

There is no advantage in gaining depth on the vein after the primary sulphides have been reached on account of the decreasing copper content, and the possible tonnage developed by a drift is only equal to the ore contained in the enriched zone lying above the primary ore. As far as I could find out there has been no money made on the whole by lessees of the mine, even tho only a small amount of development work was done by them during their operations.

The Southwest Leasing Co. had a lease on the property in 1918

but a record of their shipments is not at hand. Tony Hill had a lease about that time and made a little money on the first few cars shipped. He sold out his lease to Newby for \$2500 and Newby threw up the lease after having lost \$26,000 on it. Tony Hill later acquired another lease and after shipping several cars with little profit he sold his lease for \$200 to Jack Wilson who installed machine drills and shipped the last four cars that were marketed from the property. He lost money on the lease as copper dropped in price. His ore assayed less than 9% copper.

ORE SHIPMENTS:

Thirteen cars of ore were shipped to Humboldt by leasers in 1922 and 1923 and the average assay value of these shipments was as follows: Au. 0.01 oz.; Ag. 1.98 oz.; Cu. 9.56% (6.01% to 18.44%); Insol. 18.9%; Fe. 22.5%; CaO. 0.3%; S. 27.9%; Zn. 10.3%

The average value of the last four cars shipped was as follows: Au. 0.015 oz.; Ag. 2.35 oz.; Cu. 7.31% (6.01% to 8.57%); Insol. 18.1% Fe. 22.3%; CaO. 0.3%; S. 30.2%; Zn. 13.4%.

Samples taken by Harbauer October 20th-24th, 1925: The average of the 13 samples taken on this examination from ore still showing in the mine was as follows: Au. 0.016 oz.; Ag. 1.6 oz.; Cu. 5.92% (3.02% to 9.60%); Inso. 16.5%; Fe. 23.3%; S. 28.8%; Zn. 10.5%;

The average analysis of the samples taken in the oxidized zone just below this iron cap is as follows: Au. 0.025 oz.; Ag. 2.2 oz.; Cu. 8.95%; Insol. 19.3%; Fe. 21.8%; S. 20.5%; Zn. 4.7%.

The average analysis of the samples taken in the sulphide ore is as follows: Au. 0.015 oz.; Ag. 1.5 oz.; Cu. 5.37%; Insol. 15.9%; Fe. 23.6%; S. 30.3%; Zn. 11.5%.

CONCLUSIONS:

No great tonnage of oxidized ore can be expected as the oxidized and enriched zone extends only about 10-30 feet below the leached iron capping. The grade of this ore and the small amount that can be developed would not justify extending the drifts to develop it.

The average of the sulphide samples indicates that the sulphides in depth would not be commercial ore for a copper smelter at a normal price for copper.

To resume operations on a lease, using hand mining, would re-

quire an initial expenditure of at least \$600.00 for track, loading platform, tools and camp equipment, and no one who has worked on a lease there will consider another lease at the present market price for copper (14½¢)

The cost of marketing the ore from this property would include the following items:

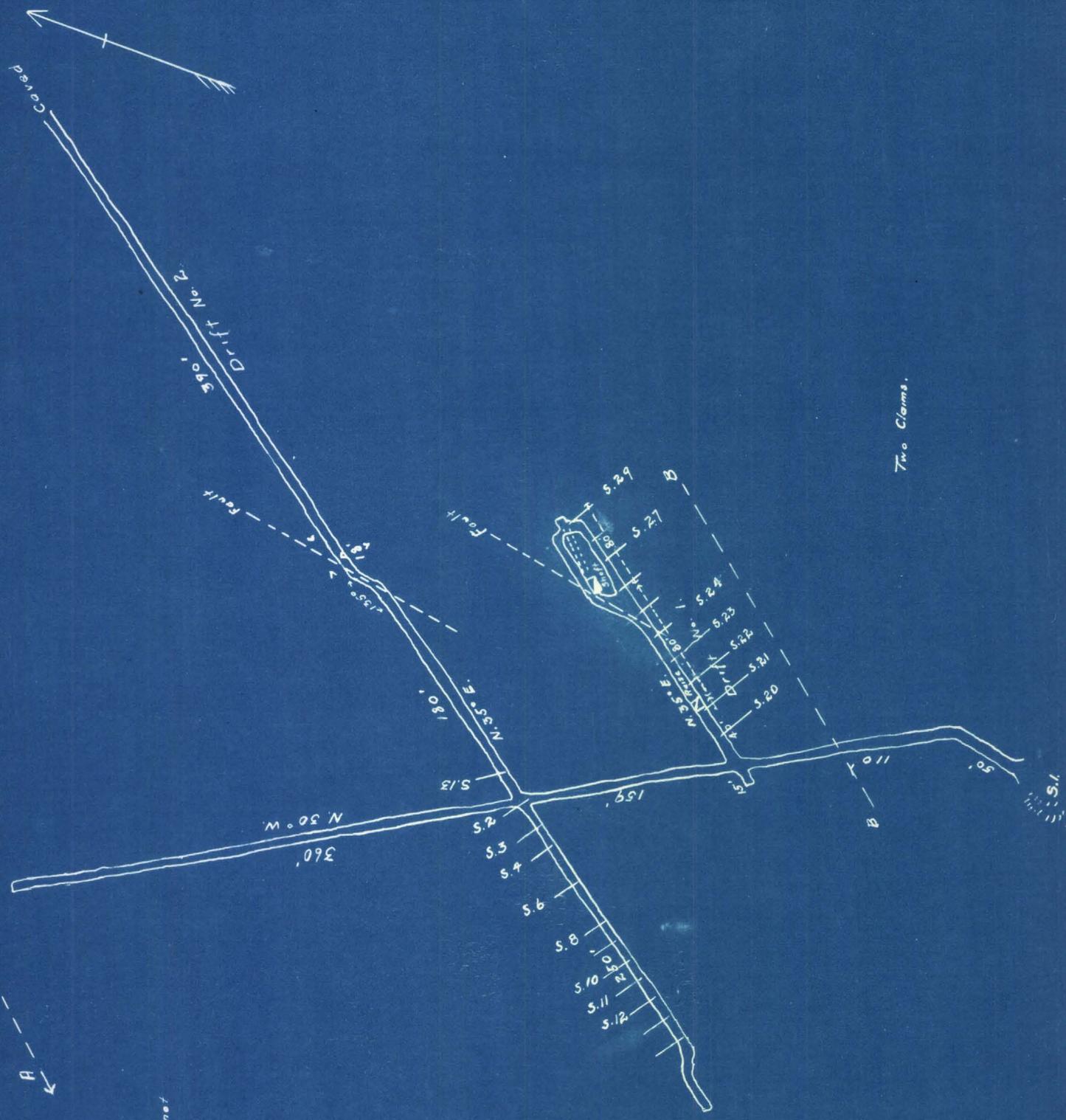
Initial expenditure and development per ton	\$ 1.50
Stopping and tramping	4.00
Truck haul (12 miles, shovelling both ends)	3.50
Freight - Yucca to Humboldt	2.30
Treatment charges (no penalty for zinc)	3.85
Royalty (10% of gross smelter returns)	<u>1.50</u>

Total Cost and Deductions \$ 16.65

With a silver value of 2 oz. per ton at 70¢ per ounce, the smelter would pay \$1.05 per ton for the silver and the ore would have to assay 7.3% copper in addition to the silver value in order to break even at a 14½¢ price for copper.

As the average copper content of the last four cars shipped was 7.3% it is quite evident that no profit can be made on a lease at this time as the grade of ore cannot be expected to improve and the tonnage of even this same grade of ore is limited to a small zone of secondary enrichment.

A man familiar with the early day operations on the property stated that the vein in the bottom of the 150 foot shaft assayed only 1% copper and contained a large amount of zinc, and this coincides with the tendency of the samples taken to show decrease in copper content in depth and accounts for the fact that there has been no deep mining done on the property.



Two Claims.

Workings 1000' N. of "A" but cannot be entered.

*copied - not checked.
M.A.*

DISTRICT Hualapai.
PROPERTY Antler Mine, two claims on the strike of the veins.
LOCATION Twelve miles east of Yucca Station, nearest operating mine is the Yucca Tungston five miles north.
OWNERS & OPERATORS Leased by G. W. Wilson.
DATE VISITED August 19, 1918 by J. L. White.
NOTES Country rock: mica gneiss.

Two parallel veins striking due north and south are developed by several tunnels open cuts and shafts. At the north end of the claims in a gulch there is an outcrop of gossan 36 feet wide which shows copper stain. There are several shallow pits and one tunnel driven on the vein at this point.

The tunnel opened a chute of ore 250 feet long, having a maximum width of 2.5 feet, average width probably 15" to 18". This work was done twenty-five years ago, and the drifts are caved partly full and at present are dangerous. There is a large amount of copper sulphate along the chute.

Antler No. 4 is a sample of the best of the ore. The copper sulphate on the back and walls make it almost impossible to sample here. Only a little ore is left on the back. A dump of about 250 tons apparently sorted when the work was done, was sampled by Mr. Newton, assayed 5% copper, 10% zinc, and no gold or silver. This should represent what can be mined at a lower level.

About 800 feet south is a cross-cut tunnel 500 feet long, which cuts the two veins. The one furthest in (west) has been followed for 500 feet, and a chute of ore 300 feet long exposed, about 200 feet of it shows a width of ore from 1 to 3 feet that can be mined.

A pile of sorted ore on the dump (200 tons) sampled by Mr. Newton, assayed 6.68% copper, 19% zinc. Antler No. 3 is a grab from this dump.

The second, or East vein has been drifted on for 400 feet and for the greater part of this distance shows a strong vein with but little copper showing. It is a grass root tunnel and it can be expected that ore will be found beneath. At one point there is a shaft to the surface and below the level to water ten feet. Near the shaft there has apparently been a considerable amount of copper carbonates mined and shipped as they are not on the surface.

Further, there is another tunnel that cannot be entered at present, no ore on this dump. None of the drifts on the veins have a back of over 30 feet.

The ore in the dumps is much weathered and altered and has the appearance of piled salt. It is heavily crusted and slacked to sand, and smells strongly of sulphur. In picking into the pile the steel is immediately coated with copper. I believe it would be possible to mine quite a little ore in a small way. It would be almost impossible to sample well, and the dumps of sorted ore on the surface will probably indicate best what grade of ore may be expected.

Notes on Antler Mine--Continued.

Samples Antler, 1 - 2 are from six cuts across the West vein widths 1 to 3 feet. The property is 12 miles from Yucca Station on a fair road with little grade.

There are no buildings or other improvements. Water is found at about 30 feet in the workings.

The ore in the north workings seems to be in line with the East vein, although I could not be sure.

The property appears to have great promise for leasers and possibilities for Company operation. It is not improbable however that the ore may run to zinc with a little depth.

SAMPLES

No.	Au.	Ag.	Cu.%	Ins.%	Zn.%
1	.03	2.07	7.68	28.4	16.1
2	.06	1.72	8.07	20.1	14.7
3	.02	2.18	5.33	46.4	8.3
4	.01	1.19	8.16	12.1	10.10

Grab of 200 ton Dump.

Water Soluable	Zn%.	Cu.%
	5.10	0.04
	5.00	0.06

copied & not checked M.A.

DISTRICT: Cedar Valley
PROPERTY: Antler Mine
LOCATION: 12 miles by wagon road east of Yucca, the latter the nearest station on main line of Santa Fe Railroad
OWNERS: Phelps Dodge Corporation, A.B. Peach, Prescott, the local agent.
DATE VISITED: August 6th and 17th, 1919

NOTES:

Geology

A gneissoid granite cut by bands of injection gneiss and Micropegmatite. The two parallel veins are fissures striking parallel with the cleavage planes in the gneiss north 35 degrees east, dipping 65° to the west. Veins outcrop on the surface for fifteen hundred to two thousand feet. Both veins show some cross filled fissures and faulting. Vein filling is quartz and chloritic schist.

At present time due to all workings having been exposed for twenty years there is a large amount of copper and zinc sulphate on the walls which preclude the possibility of accurate sampling, and which are hardly indicative of original grade of primary ores.

Development

On the south end of the property a cross-cut tunnel was driven with a maximum depth of fifty feet at points where the veins were cut. This cross-cut as shown by attached map, was extended into the hanging wall a distance of three hundred and sixty feet. From this cross-cut a drift was driven south twenty feet on the first or east vein and two hundred and eighty feet north on the same vein. On the second or hanging wall vein a drift was driven two hundred and fifty feet south and five hundred and forty feet north. The number one, or east vein, shows a shoot of ore two hundred and eight feet long, with ore in the north face, though the south face is barren. Number two, or west vein, shows a shoot of ore 430 feet in length and cut off by a fault at the north end. Width of ore on both veins varies from nothing to six feet. Average width on number two drift is twelve to fifteen inches. Number one drift - thirty inches.

To the north of these workings a thousand feet are other shallow workings, either badly caved, or full of water, but showing considerable oxidized ore and stain.

Shaft Number one on the east vein near the south end of the property and driven on the shoot from which samples twenty to twenty-nine were taken is reported to be one hundred feet deep, and inspection of the dump disclosed some heavy iron sulphide which probably came from the bottom of this shaft. Sample Number 30 was from this grade of material.

At this point, and for a considerable distance north and south, the vein filling is highly leached, and samples from 19 to 29 are indicative of this material. Mr. Jerome, of Yucca, who worked in the bottom of this shaft, stated that there was several feet of iron in the bottom which carried low values in copper, high iron and considerable zinc.

NOTES (Continued)

Results of Sampling:

South Drift No. 2 Vein

<u>Number</u>	<u>Width</u>	<u>Location</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Zn</u>
1	13	Dump	.02	1.54	5.91	6.2
2	15	X Ct	.02	2.20	6.70	16.3
3	30	20 So	.02	1.40	4.39	16.50
4	0	40 "	.03	4.53	3.13	10.40
5	16	60 "	No Sample			
6	0	80 "	.02	2.0	8.20	8.60
7	12	100 "	No Sample			
8	0	120 "	T	1.14	2.53	8.9
9		140 "	No Sample			
10	10	160 "	.02	3.22	6.41	2.6
11	18	180 "	.02	1.86	1.07	1.10
12	24	200 "	.02	1.0	5.13	8.9
13	0	220 "	No Sample			
14	0	240 "	No Sample			

North Drift No. 2 Vein

13	24	25' No	.03	1.77	9.76	13.50
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North Drift No. 1 Vein

20	18	20' No	.02	.62	12.15	4.9
21	24	40	T	.52	2.7	T
22	24	60	.02	.96	2.16	T
23	36	80	.01	.31	.33	T
24	48	100	.02	1.16	.66	T
25	H.W.	120	Vein in H. Wall			
26	H.W.	140	" " "			
27	48	160	T	T	1.46	T
28		180	Vein in H. Wall			
29	24	200	.02	1.16	1.42	T
30	Shaft		.02	.80	1.70	T

Of the above samples, number 13 north drift No. 2 Vein is the only sample of unaltered primary chalcopyrite ore obtainable and is characteristic of the better grade of ore which might be found by developing the property at a lower level.

Conclusion

This property would be a good leasing proposition for a few men, but the expenditure necessary to equip the the property for deeper work is hardly justified by the amount of ore available at the present time. About five hundred tons of ore could be mined including one hundred tons now on the dump at a reasonable cost after equipping the property with house tents, blacksmith shop and cleaning out and placing track.

REPORT ON THE ANTLER MINE

LOCATION: Cedar Valley District, Mohave Co., Arizona. Group consists of two patented claims. Located 12 miles east of Yucca R. R. station

OWNERS: Phelps-Dodge Corporation

DATE VISITED: October 20-24, 1925 - Examined by G. J. Harbauer.

FORMATION:

Gneiss and schist in a granite mass. There are two parallel veins running about North 15° East and about 60 feet apart. They dip 75° to the West. The vein minerals consist largely of iron and zinc minerals with some copper minerals. There is very little quartz or lime present. The vein is leached to a depth of from 10 to 20 feet below the surface to which depth is found an iron oxide capping or gossan. Below this gossan is found a zone of secondary enrichment in which are found some sulphides of iron, zinc and copper as well as sulphates and oxides of these metals. This enriched zone extends to from 10-30 feet below the iron gossan and practically all of the ore mined to date has come from this zone.

Below this zone the vein contains massive sulphides of iron, zinc and copper, the zinc increasing in depth while the copper is diminishing.

The width of the vein is variable and measures from a few inches to five feet. The average width is probably less than two feet. The vein cuts thru a low hill and can be traced on the surface for 1500 feet. Only the wider portions of the vein have been mined.

DEVELOPMENT WORK:

The development work has been divided between two main adit levels both of which were started as crosscuts to the vein from opposite sides of the hill and were continued on the vein as drifts. The adit driven from the North side of the hill is 50 feet higher than the south adit tunnel.

A shaft was sunk below each of the adit levels and both shafts were full of water nearly to the adit levels at the time of this examination.

SOUTH ADIT WORKINGS:

The south adit workings consist of a main crosscut 600 feet long from which two drifts were driven north and south on the two parallel veins. The east drift follows the main or larger vein, and is 250 feet long. It connects with a vertical shaft at a point 31 feet below its collar. This shaft is said to be 150 feet deep and is still open above the adit level, although the timbers look unsafe.

The west drift, which is 60 feet from the east drift, has a length of 400 feet and follows a narrow vein that has been unproductive owing to the low grade and small width of the mineral contained.

These two drifts do not develop the veins to a depth of over 50 feet in their entire length and the portions of the veins exposed in these drifts seem to be mostly in the leached zone.

Several shallow winzes were sunk below the drifts but could not be examined as they were full of water from recent heavy rains.

The south adit workings contain a total of about 1550 feet of development work of which 1350 feet is drifting and crosscutting and 200 feet is shaft, winzes and raises.

Very little stoping was done in the south adit workings.

NORTH ADIT WORKINGS:

The north adit workings consist of a crosscut to the vein 95 feet long from which a drift was driven 90 feet to the north and 300 feet to the south. An inclined shaft of unknown depth was sunk at a point 15 feet south of the crosscut and is said to have a depth of at least 45 feet below the adit level. A west crosscut was driven from the main drift to pick up the smaller west vein but failed to pick it up.

A maximum depth of 70 feet below the outcrop is attained by the north adit level and considerable stoping has been done both below and above the drift and there are three raises to the surface. The total amount of development work in the north adit workings is 600 feet of drifting and crosscutting and 210 feet of shaft, winzes and raises, making a total of 810 feet.

OTHER WORKINGS:

Aside from the north adit and south adit workings there are

several small shafts and surface cuts. A 35 foot shaft was sunk from the top of the hill and a 35 foot shaft was sunk at a point north of the north adit portal.

A total of about 2500 feet of development work in all was done on the property and much of this was useless work as it is of a grass roots nature and develops only the leached portion of the veins.

The south shaft is said to be 150 feet deep, and if so, this is the greatest depth attained on the vein.

ORE BODIES:

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There was some stoping done around the shaft in the south adit workings where a body of iron oxides containing copper sulphate and sulphides was found. Another similar oxide body was found under the gulch in the north adit and produced several carloads of shipping ore, the records of which are not at hand.

Some stoping was also done above and below the north adit drift level but this stoping was confined to a shallow zone just below the iron capping which extends to a depth of about 20 feet below the outcrop.

The best ore now exposed in the mine is in the south face of the stope above the south end of the north adit level. Here it was that the last stoping was done and a sublevel driven south on this ore should produce shipping ore for at least 50 feet in length as it would connect with the shaft on the hill from which a carload was shipped which assayed 18.44% Cu.

An extension of the south adit level drift toward this shaft should also develop some ore of a shipping grade, but the cost of this development work would not be justified unless the ore developed were of

a better grade than that of the last four carloads shipped from the property.

There is no advantage in gaining depth on the vein after the primary sulphides have been reached on account of the decreasing copper content, and the possible tonnage developed by a drift is only equal to the ore contained in the enriched zone lying above the primary ore. As far as I could find out there has been no money made on the whole by lessees of the mine, even tho only a small amount of development work was done by them during their operations.

The southwest Leasing Co. had a lease on the property in 1918 but a record of their shipments is not at hand. Tony Hill had a lease about that time and made a little money on the first few cars shipped. He sold out his lease to Newby for \$2500 and Newby threw up the lease after having lost \$26,000 on it. Tony Hill later acquired another lease and after shipping several cars with little profit he sold his lease for \$200 to Jack Wilson who installed machine drills and shipped the last four cars that were marketed from the property. He lost money on the lease as copper dropped in price. His ore assayed less than 9% copper.

ORE SHIPMENTS:

Thirteen cars of ore were shipped to Humboldt by leasers in 1922 and 1923 and the average assay value of these shipments was as follows: Au. 0.01 oz.; Ag. 1.98 oz.; Cu. 9.56% (6.01% to 18.44%); Insol. 18.9%; Fe. 22.5%; CaO. 0.3%; S. 27.9%; Zn. 10.3%.

The average value of the last four cars shipped was as follows: Au. 0.015 oz.; Ag. 2.35 oz.; Cu. 7.31% (6.01% to 8.57%); Insol. 18.1% Fe. 22.3%; CaO 0.3%; S. 30.2%; Zn. 13.4%.

Samples taken by Harbauer October 20th-24th, 1925: The average of the 13 samples taken on this examination from ore still showing in the mine was as follows: Au. 0.016 oz.; Ag. 1.6 oz.; Cu. 5.92% (3.02% to 9.60%); Insol. 16.5%; Fe. 23.3%; S. 28.8%; Zn. 10.5%.

The average analysis of the samples taken in the oxidized zone just below this iron cap is as follws: Au. 0.025 oz/ Ag. 2.2 oz.; Cu. 8.95%; Insol. 19.3%; Fe. 21.8%; S. 20.5%; Zn. 4.7%.

The average analysis of the samples taken in the sulphide ore is as follows: Au. 0.015 oz.; Ag. 1.5 oz.; Cu. 5.37%; Insol. 15.9%; Fe. 23.6%; S. 30.3%; Zn. 11.5%..

CONCLUSIONS:

No great tonnage of oxidized ore can be expected as the oxidized and enriched zone extends only about 10-30 feet below the leached iron capping. The grade of this ore and the small amount that can be developed would not justify extending the drifts to develop it.

The average of the sulphide samples indicates that the sulphides in depth would not be commercial ore for a copper smelter at a normal price for copper.

To resume operations on a lease, using hand mining, would require an initial expenditure of at least \$600.00 for track, loading platform, tools and camp equipment, and no one who has worked on a lease there will consider another lease at the present market price for copper (14 $\frac{1}{2}$ ¢)

The cost of marketing the ore from this property would include the following items:

Initial expenditure and development per ton	\$ 1.50
Stoping and tramming	4.00
Truck Haul (12 miles, shovelling both ends)	3.50
Freight - Yucca to Humboldt	2.30
Treatment charges (no penalty for zinc)	3.85
Royalty (10% of gross smelter returns)	1.50
	<hr/>
Total Cost and Deductions	\$16.65

With a silver value of 2 oz. per ton at 70¢ per ounce, the smelter would pay \$1.05 per ton for the silver and the ore would have to assay 7.3% copper in addition to the silver value in order to break even at a 14 $\frac{1}{2}$ ¢ price for copper.

As the average copper content of the last four cars shipped was 7.3% it is quite evident that no profit can be made on a lease at this time as the grade of ore cannot be expected to improve and the tonnage of even this same grade of ore is limited to a small zone of secondary enrichment.

A man familiar with the early day operations on the property stated that the vein in the bottom of the 150 foot shaft assayed only

1% copper and contained a large amount of zinc, and this coincides with the tendency of the samples taken to show decrease in copper content in depth and accounts for the fact that there has been no deep mining done on the property.

ANTLER MINE

DISTRICT: Cedar Valley
LOCATION: 12 miles by wagon road east of Yucca, the latter the nearest station on main line of Santa Fe Railroad.
OWNERS: Phelps Dodge Corporation, A. B. Peach, Prescott, the local agent.
DATE VISITED: August 6th and 17th, 1919.

NOTES:

G E O L O G Y

A gneissoid granite cut by bands of injection gneiss and Micropegmatite. The two parallel veins are fissures striking parallel with the cleavage planes in the gneiss north 35 degrees east, dipping 65° to the west. Veins outcrop on the surface for fifteen hundred to two thousand feet. Both veins show some cross filled fissures and faulting. Vein filling is quartz and chloritic schist.

At present time due to all workings having been exposed for twenty years there is a large amount of copper and zinc sulphate on the walls which preclude the possibility of accurate sampling, and which are hardly indicative of original grade of primary ores.

D E V E L O P M E N T

On the south end of the property a cross-cut tunnel was driven with a maximum depth of fifty feet at points where the veins were cut. This cross-cut as shown by attached map, was extended into the hanging wall a distance of three hundred and sixty feet. From this cross-cut a drift was driven south twenty feet on the first or east vein and two hundred and eighty feet north on the same vein. On the second or hanging wall vein a drift was driven two hundred and fifty feet south and five hundred and forty feet north. The number one, or east vein, shows a shoot of ore two hundred and eight feet long, with ore in the north face, though the south face is barren. Number two, or west vein, shows a shoot of ore 430 feet in length and cut off by a fault at the north end. Width of ore on both veins varies from nothing to six feet. Average width on number two drift is twelve to fifteen inches. Number one drift - thirty inches.

To the north of these workings a thousand feet are other shallow workings, either badly caved, or full of water, but showing

considerable oxidized ore and stain.

Shaft Number one on the east vein near the south end of the property and driven on the shoot from which samples twenty to twenty-nine were taken is reported to be one hundred feet deep, and inspection of the dump disclosed some heavy iron sulphide which probably came from the bottom of this shaft. Sample Number 30 was from this grade of material.

At this point, and for a considerable distance north and south, the vein filling is highly leached, and samples from 19 to 29 are indicative of this material. Mr. Jerome, of Yucca, who worked in the bottom of this shaft, stated that there was several feet of iron in the bottom which carried low values in copper, high iron and considerable zinc.

Results of Sampling:

South Drift No. 2 Vein

<u>Number</u>	<u>Width</u>	<u>Location</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Zn</u>
1	13	Dump	.02	1.54	5.91	6.2
2	15	X Ct	.02	2.20	6.70	16.3
3	30	20 So	.02	1.40	4.39	16.50
4	0	40 "	.03	4.53	3.13	10.40
5	16	60 "	No Sample			
6	0	80 "	.02	2.0	8.20	8.60
7	12	100 "	No Sample			
8	0	120 "	T	1.14	2.53	8.99
9		140 "	No Sample			
10	10	160 "	.02	3.22	6.41	2.6
11	18	180 "	.02	1.86	1.07	1.10
12	24	200 "	.02	1.0	5.13	8.9
13	0	220 "	No Sample			
14	0	240 "	No Sample			

North Drift No. 2 Vein

13	24	25 ¹ No	.03	1.77	9.76	13.50
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North Drift No. 1 Vein

20	18	20 ¹ No	.02	.62	12.15	4.9
21	24	40	T	.52	2.7	T
22	24	60	.02	.96	2.16	T
23	36	80	.01	.31	.33	T
24	48	100	.02	1.16	.66	T
25	H.W.	120	Vein in H.Wall			
26	H.W.	140	"	"	"	
27	48	160	T	T	1.46	T
28		180	Vein in H.Wall			
29	24	200	.02	1.16	1.42	T
30		Shaft	.02	.80	1.70	T

Of the above samples, number 13 north drift No. 2 Vein is the

only sample of unaltered primary chalcopyrite ore obtainable and is characteristic of the better grade of ore which might be found by developing the property at a lower level.

C O N C L U S I O N

This property would be a good leasing proposition for a few men, but the expenditure necessary to equip the property for deeper work is hardly justified by the amount of ore available at the present time. About five hundred tons of ore could be mined including one hundred tons now on the dump at a reasonable cost after equipping the property with house tents, blacksmith shop and cleaning out and placing track.

W. V. DeCamp