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CHARLES R. WARD CORPORATION*Mining Development & Mineral Recovery*

4706 EAST ALTA VISTA

PHOENIX, ARIZONA 85040

PARCEL # 15

LOCATION

The group of claims are located in the Cedar Valley Mining District, Mohave County, Arizona, on the Southwestern slope of the Wallapai Mountains, South of Kingman, 64 miles and East of Yucca, 28 miles. Both of these points are stations of the main line of the S. T. & S. F. Railroad. Kingman being the County Seat and supply point. Both are connected by a good auto road with these mines.

SIZE

The consolidated mineral claims and Mill Site cover an area of about 400 acres, 4 of the claims carry United States Patents, as does the Mill Site, the remaining claims have all been firmly held by a company for a period of years under the United States laws governing mineral locations.

TYPE OF ORE AND OPERATION

Underground operation. Principle ore, silver ranging from a low of 20 oz. per ton to a high of 500 oz. per ton. Gold averages 1 oz. for every 100 oz. of silver.

HISTORY

This district and some of the mines embraced in the consolidation was discovered in 1873, when the Cedar Valley Mining District was organized. From this period until 1883, the surface or chloride ores, yielding from 200 to 500 oz. of silver per ton, was arrastraed and amalgamated by the patio and barrell process, the bullion being about 930 fine in silver. This was shipped to San Francisco along with much of the sorted ore, this being packed to the Colorado River, a distance of 50 miles, then by boat and Ocean Steamer at a cost of \$100 per ton.

The operation of the Mill was intermittent, as at this time the metallurgy of these ores was not well understood. This fact, taken together with the reduced price of silver, excessive cost of hand mining, wagon haul, packing, railway and smelter charges; expenditures of a large amount of money in Mine purchase, erection of Mill, development of the mines, the building of two roads connecting with Yucca and Kingman, resulted in a cessation of all mining and milling by these operators.

After carefully examining and checking all available records, the property can safely be credited with a production of \$460,000.

Up to 1895 the production was \$175,000.

From April 1895 to January 1897 - a period of 20 months - a production of shipping ore, bullion, and concentrates was made amounting to \$275,000.

It must be remembered that the average cost of landing ore in San Francisco was \$100 per ton, and later, when the ore was shipped to El Paso or Kingman, this cost was somewhat reduced but still very high. The same ratio applied to the cost of mining, shipping and milling ores. Taking these features into consideration, the ore shipped can be estimated at \$150 per ton, figuring gold at \$20 per oz. and silver at 60 cents per per oz. The milling tonnage treated amounted to about 10,000 tons and from carefully checking all available sources of information, including present sampling, a gross value of \$35 per ton in gold and silver can be safely allowed with gold figured at \$20. and silver at 60 cents per oz.

DEVELOPMENT

ARNOLD CLAIM:	Arnold Shaft: $5\frac{1}{2} \times 7\frac{1}{2}$	297 feet
	Adit drift (S)	400 feet
	Adit drift (N)	150 feet
	100 foot level (S)	465 feet
	100 foot level (N)	200 feet
	200 foot level (S)	300 feet
	200 foot level (N)	25 feet
	250 foot level (S)	<u>35 feet</u>
		1872 feet

These developments were all made on what is known as the East Vein, which has been designated as the "Hangingwall of the contact fissure". The vein carries a width of two to five feet, with an average of four feet on the 200 foot level.

GENERAL LEE:	Shaft	125 feet
	Drift (S) on 50 foot level	150 feet
	Drift (N) on 50 foot level	150 feet
	Drift (S) on 75 foot level	30 feet
	Drift (N) on 75 foot level	120 feet
	Winze (N) on 75 foot level	25 feet

250 feet from the N. end line, a short tunnel crosscuts the West of Footwall vein at a depth of from 30' to 40' this was

stopped to the surface for a length of 120 feet. This was known as the "Mexican Stope" it was on the East or Hangingwall vein. 120 feet

Crosscut tunnel 555 feet
This tunnel crosscuts both the West or Footwall Vein and the East or Hangingwall Vein - it is inaccessible at present on account of slight caves backing up the water. 1275 feet

Drift (N) on Hangingwall 60 feet
60 feet

EVANGELIST	Crosscut tunnel to East or Hangingwall Vein	336 feet
	Drift (N)	15 feet
	Drift (S)	15 feet
		<u>366 feet</u>

ALL IN ALL THERE IS A GRAND TOTAL OF 6185 FEET OF DEVELOPMENT IN THE "CEDAR" GROUP CLAIMS.

From examination of books and vouchers, we find there has been shipped \$15,348.59 worth of ore carrying an average value of \$243.62 per ton. The lowest assay of any shipment being \$161.40 and the highest being \$415.16 and of the above valuation, about 10% was in gold.

There is a continuous orebody 100 feet in length, 160 feet in depth and 2 feet thick, making 320,000 cubic feet of ore this gives ore reserves of 27,000 tons.

The value of all ore the mine has heretofore produced has been over \$80.00 per ton.

We would be safe in estimating the net value of the 27,000 tons in reserve to be \$50.00 per ton (OLD PRICES), which would make ore in sight valued at \$1,350,000 after deducting reasonable expense for mining and treating.

GEOLOGY

The general geology of the Wallapai Range has been thoroughly covered by the United States Geological Surveys and other eminent Geologists, all agreeing as to its being a repository of a great variety of mineral bearing rocks, precious and rare metals.

Its mineralized fissures are located in the Pre-cambrian granitic rocks, this same complex covering a large area in this Country and extending beyond the Colorado River into Utah and Nevada, embracing many of the large ore producers in Arizona. The United States Geological Survey describes the Wallapai Mountains as "porphyritic, schistosed, the mineral bearing fissures being located in the granite diorite schist and quartzite, often impregnated or intruded by pegmatite, porphyry and diabase dyke". This defines perfectly the geology of the Southwestern slope in which the property is located.

CONCLUSIONS

These consolidated properties carry a strong and continuous vein system for a known length of upwards of 12,000 feet on the east and west veins the same length on the "Golden Sulphide" and 1500 feet on the "Pearl" and other veins embraced in this property.

Taking into account the fact that the figures shown were when gold and silver prices were extremely low by today's standards the property should deserve high consideration for investors looking for a very profitable return on their money.

NOTE

Information used in compiling this report came from R. S. Billings M. & M. E. report, dated 1923. R. C. Jacobson, Mining Engineer's report of 1927 and E. Martin Thorniley's report of 1929, who is also a Mining Engineer.

TERMS

\$ 3000 down and \$147,000 within 1 year 6 months.

REPORT

by

R. C. JACOBSON
Mining Engineer

CEDAR MINES

August 30, 1927

Briefly:-

The Cedar Mines have been operated at various intervals for about fifty years. The partial records show over \$ 450,000.00 gross production to 1923, from about 6000 feet of development; mostly lateral work at irregular intervals along a mile or more of the vein system. The old workings show no evidence of systematic development and the important geological features are still undetermined below the surface.

The improvements on the ground I estimate to have a value of over \$ 50,000.00, if it were necessary to install them at the present time.

From Mr. Billings report I judge 10,000 to 20,000 tons of commercial ore will be available with the unwatering and rehabilitating of the Arnold Mine below the two hundred level. The vein shows stronger in the shaft just above the 200 station, where the water stands at present, than in the 100 foot level.

I estimate each 100 feet of sinking below this level together with 500 feet of lateral work at 100 foot intervals should place in sight for mining approximately 12,500 tons of ore at a cost of about \$1.50 per ton. The General Lee and the Evangelist ore shoots, ending lining the Arnold to the south and north respectively should develop an equal amount of ore, while if the west vein be entered at depth from the Arnold shaft and the deeper

Revised

35.04

105.12
1726.40

39.20
765.60

50.92

35644
35644

392084



9194

45990
27582

321790
54960

376750
223136

153614

71377
499618
499618
5495798

20
50

377

ore found there carries the same relative value of surface to underground ore as in the Arnold an equal amount of ore will develop at about half the cost.

In all previous milling operations conducted at the mill the ores are reported to have been most refractory, as the \$8.00 to \$12.00 tailing piles evidence. However, improved flotation methods as applied in the rebuilt mill, of 40 tons capacity, have proved most satisfactory, resulting in about a 96 % extraction of all values. Of this I am positive as the assays were made in my own laboratory on daily mill runs at the time of operation June last.

The last operation 1926 to 1927 was handicapped by lack of ore development, inadequate mining equipment and sufficient finances to carry the operation to continuous production after the rehabilitation of the milling plant.

I estimate that \$25,000.00 to \$50,000.00 available capital should place the property on a producing basis of about 1000 tons per month (the capacity of the mill) within one year.

For your information I enclose herewith a copy of a concentrate settlement sheet of the Western Ore Purchasing Company of Kingman for a little over 9½ tons of dry concentrates which yielded the Cedar Mines \$ 1467.77 f.o.b. Kingman. Mr. Grosjean informs me

that the $9\frac{1}{2}$ tons of concentrate was made from about 96 tons of mine run ore from the 100 foot level of the Arnold shaft. This gives a mill value of \$15.29 per ton and a concentration ratio of 10 into 1 .

Assuming the tonnage statement to be correct, if we allow \$4.00 per ton for mining (which is about normal for this district in a 3 foot vein) 50¢ per ton to deliver to mill; \$2.00 for milling costs and \$15.00 per ton of concentrate haul to market at 10-1 ratio or \$1.50 per mine ton, we have a total mine ton cost of \$8.00; allow 30¢ (29¢) for overhead and miscellaneous expense and we have a net profit margin of \$7.00 per mine ton, at the market quotations as specified on the settlement sheet. Assuming 1000 ton per month production, which is capacity of the present mill, the sum mentioned above should return a very good profit.

As the water now stands at the 200 level of the Arnold shaft, but little expense will be on that level, hand sampling will determine its value, and if the ores show even half of the mill value as above, 200 feet of lateral drifting should place a years supply of ore in sight.

As to the geological features: I anticipate no immediate change above the 300 level and it is probable that the two ore shoots to the north and south will develop equally as well as the Arnold. The

West Vein has been entered at some depth on the Queen claim(200 feet) so I am informed but the drift entered a faulted zone near the shaft and the work was stopped without entering the vein proper. The value of vein fragments encountered there was upwards of \$40.00 per in gold and silver. This is the deepest work on the West Vein and tends to show that this vein will carry value to the same depth as the East. It is possible that a stress fracturing will enter about 400 feet down and may be the means of enrichment between the two veins especially in gold as is common in the Cerbat and Wallapai deposits farther North.

Additions to the surface improvements over the inventory in the Billings report are appended.

Considering the above and having been personally familiar with the mine and the district for some ten years past I have no hesitation to recommend the expenditure of amount mentioned with the firm belief that profit will result.

R.C.Jacobson
August 30th, 1927
Kingman,
Arizona.

Respectfully submitted
R.C. Jacobson
Mining Engineer

Inventory

Additional equipment placed on property since the Report
of Robert S. Billings in 1923

Mill--

	Value estimated		
100 H.P. Gasoline Engine	\$ 3,000.00	Installed	"
Starting engine & compressor	300.00		"
4 x 4 Allis Chalmers Ball Mill	4,500.00		"
Dorr Classifier	1,000.00		"
4 Kraut flotation machines	1,625.00		"
2 Callow Cone Tanks 8'	500.00		"
1-Small gas engine	200.00		"
2-Pumps	300.00		"
Belting	500.00		"
Shafting pullys and piping	1,000.00		"
Tools	100.00		"
Tramway	300.00		"

Mine-

Head Frame	250.00		"
25 H.P. Gasoling Hoist 500' cable	3,000.00		"
1-3000 lb Mine Skip			
60 H.P. Gas Engine	2,250.00		"
Air Drills hose etc	375.00		
Mine Tools	500.00		
Mine Cars	150.00		
Rail	1,100.00		"
Blacksmith shop tools	200.00		
Mine pipe 3000'	1,000.00		"

Boarding House

Equipment 30 men	1,000.00
Pipe line	120.00

\$ 23,270.00

This amount added to the inventory with the
Billings report will total in excess of \$ 50,000.00

REPORT
on the
MINING PROPERTY
of the
~~ARIZONA METAL MINES. INC.~~

in
CEDAR MINING DISTRICT
MOHAVE COUNTY. ARIZONA.

BY
E. MARTIN THORNILEY
MINING ENGINEER
GLENDALE. CALIFORNIA.

MAY. 1929.

2.10

E. MARTIN THORNILEY

MEMBER AMERICAN MINING CONGRESS

MINING ENGINEER

CABLE ADDRESS
"THORNLOS"

CODES WESTERN UNION
BEDFORD MENEIL

514 Porter St. Glendale.
May 1st 1929.

To the Board of Directors
Arizona Metal Mines Inc.
Reno. Nevada.

Gentlemen :

Pursuant to your instructions, I am handing you herewith my report pertaining to the physical conditions as existing at the present time, and covering the several mining claims now owned by your Company in Cedar Valley Mining District, Mohave County, Arizona.

In order to intelligently cover the history of these mines I have combined former reports made by Mr R.S. Billings, M & M.E. of Kingman, Arizona, also the metallurgical reports of Mr R.C. Jacobson, also of Kingman, Arizona.

All sampling, assaying and Reduction processes were worked out in Mr Jacobson's Laboratory and his full reports are tabulated herein.

Very truly yours

E. Martin Thorniley

The cedar group of claims are located in the Cedar Mining District, Graham County, Arizona located

MINING REPORT
ON
~~ARIZONA METAL MINES, INC.~~

By reference to Plate A. attached to this report, it will be noted that this consolidated mining property, incorporated under the name of the "Arizona Metal Mines, Inc." is located on the Southwestern slope of the Wallapai Mountains, South of Kingman, 64 miles and East of Yucca, 28 miles

Both of these points are Stations on the main line of the A.T. & S.F. Ry. Kingman being the County seat and supply point - both are connected by a fine auto road with these mines, the Sandy agricultural district being 12 miles East on the main auto road.

The consolidated mineral claims and Mill site cover an area of about 400 acres - 4 of the claims - the "Evangelist, Arnold, General Lee and Hubbard" carrying United States patents, as does the Mill site. the remaining claims have all been firmly held by your Company for a period of years under United States laws governing mineral locations.

The names of the claims are as follows, now tied into one group but known locally as the "Cedar group" and the "Fillmore group.

CEDAR GROUP

- EVANGELIST. ARNOLD. PRINCE. PHILADELPHIA.
- PENNSYLVANIA. GOLDEN SULPHIDES. GEN. LEE.
- HILL TOP. HUBBARD. GEORGETOWN. LIVE YANKEE.
- NEW IDEAL. JOINER. PEARL. FRACTION.
- MILL SITE.

FILLMORE GROUP

- HIDDEN TREASURE. ASSOCIATED No. 1. and No. 2.
- ASSOCIATED No. 3 and No. 4.

MILL EQUIPMENT

On the site of the old Chlorination Mill a complete and self contained up to date Flotation Mill has been erected, using the "Krout" Flotation cells, Allis Chalmers Ball mill etc, having a capacity of fifty tons per day - in addition to this there are five stamps left in the old battery, automatic feed.

1. Blake Crusher. 1. Concentrating table. 1. 60 H.P. Boiler. 4 Water tanks.
1. Oil tank. 1. Boiler pump.

A large and very complete Assay office and bucking room. cement floors.

This entire equipment, together with a large Mill building is in ex -

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cellent condition - the water supply comes from a Well and living Springs that can be increased to any capacity.

CAMP EQUIPMENT

Superintendent's House - 2 stories.
 6 -- Dwelling and Bunk houses.
 I -- Boarding house
 I -- Store Building
 I -- Office Building
 I -- Large Warehouse.
 I -- Assay Office.

Five of these buildings are of stone, 5 galvanised iron, 3 frame bldgs, all connected up by telephone with outside parts.

Two Mountain Roads to Yucca, Station on the Santa Fe. 28 miles distant, One road to Kingman via Sandy, 64 miles distant, 12 miles of Agricultural district.

MINE EQUIPMENT

I. Single action Hoist on the "Arnold Mine"
 I. Powder Magazine
 I. 40 H.P. Boiler
 I. Duplex Pump.
 I. Boiler Pump
 500 feet of $\frac{3}{4}$ inch Cable
 Skip - ars - rails Etc. On the "Lee" mine - cars and rails.

HISTORY AND PRODUCTION

This district and some of the mines embraced in this consolidation was discovered in 1873, when the Cedar Valley Mining District was organized.

From this period until 1883, the surface or Chloride ores, carrying from 200 to 500 ounces of silver per ton, with a gold content of about one ounce to every 100 ounces of silver per ton was Amalgamated and amalgamated by the patio and barrel process, the bullion being about 930 fine in silver - this was shipped to San Francisco - also much of the sorted ore, this being packed to the Colorado River, a distance of 50 miles, thence by boat and Ocean steamer at a cost of \$100 per ton.

The first crushing and roasting plant of four tons capacity was erected in 1878 in conjunction with this work.

In 1894 the "Cedar" group was consolidated and a 15 stamp amalgamating mill with concentrating tables and cyanide tanks erected.

The owners increased the depth of the "Arnold" shaft to 297 feet, partially stoping an upper level and further developed the "General Lee".

They operated the property from April 1895 to January 1897.

During this period considerable crude ore was shipped to the El Paso Smelter, also the Kingman Sampling Works.

The operation of the Mill was intermittent, as at this time the metallurgy of these ores was not well advanced - this fact - taken together with the reduced price of silver, excessive cost of hand mining, wagon haul, packing, railway and Smelter charges etc - resulted in a cessation of all mining and milling by these operators, after their expenditure of a large amount of money in Mine purchase, erection of Mill, development of the mines, the building of two fine roads connected with Yucca and Kingman.

After a careful examination and the checking up of all available records, the property can be safely credited with a production of \$460,000

Up to 1895 to production was \$175,000.

From April 1895 to January 1897 - a period of 20 months - a production of shipping ore, bullion, and concentrates was made amounting to \$275,000

It must be remembered that the average cost of landing ore in San Francisco was \$100.00 per ton, and later, when the ore was shipped to El Paso or Kingman, this cost was somewhat reduced but still very high.

The same ratio applied to the cost of mining, shipping and milling ores.

Taking these features into consideration, the ore shipped can be estimated at \$150.00 per ton, figuring gold at \$20 and silver at 60 cents per ounce.

The Milling tonnage treated amounted to about 13,000 tons and from a careful checking up of all available sources of information, including present sampling - a gross value of \$35.00 per ton in gold and silver can be safely allowed with gold at \$20 and silver at 60¢ per oz.

GEOLOGY AND VEIN SYSTEM

The general geology of the ^{R.}Wallapai Range has been thoroughly covered by the United States Geological Surveys and other eminent Geologists, all agreeing as to its being a repository of a great variety of mineral bearing rocks, precious and rare metals.

Its mineralised fissures are located in the pre - Cambrian granitic rocks, this same complex covering a large area in this Country and extending beyond the Colorado River into Utah and Nevada, embracing in its area, many of the large ore producers in Arizona and the States mentioned

The United States Geological Survey, describing the Wallapai Mountains states that they are "porphyritic, schistosed, the mineral bearing fissures being located in the granite diorite schist and quartzite, often impregnated or intruded by a pegmatite, porphyry and diabase dyke"

This defines perfectly the geology of the Southwestern slope in which the "Arizona Metal Mines" are located.

Cedar Consolidated

These

The large group of claims embodied in your holdings cover seven mineralized veins or fissures, all having a bold outcrop and all carrying milling ore, with a fair percentage of higher grade values.

Five of these veins are only developed in a superficial way, so that I have not paid particular attention to them in embodying this report.

The two veins, known as the West or Footwall vein and the "Arnold" or Hangingwall vein will be only described and emphasised.

In describing these two last named veins under the heading of "Geology and Vein System" - and later on - under the heading of "Ore developed and Available" it must be borne in mind that this report and examination has been made after a careful inspection of all the physical features of the property together with the individual reports of all examining Engineers, Managers and Superintendants up to the time of this examination.

This has taken considerable time on account of the inaccessibility of several of the openings, due to caved ground and water in the lower levels in the main shaft.

A thorough sampling has been made down to the 100 foot level in the "Arnold" shaft and along the drifts and raises etc.

DEVELOPMENT IN DETAIL

ARNOLD CLAIM :	Arnold Shaft : 5½ x 7½.....	297 feet
	Adit Drift (S)...50 foot Level.....	400 "
	ditto (N)... ditto.....	150 "
	100 foot Level (S).....	465 "
	ditto (N).....	200 "
	200 foot Level (S).....	300 "
	ditto (N).....	25 "
	250 foot Level (S).....	35 "

1872'

These developments were all made on what is known as the East Vein which I have designated as the "Hangingwall of this contact fissure".

The vein carries a width of two to five feet, with an average of four feet on the 200 foot level.

stop here

WIDE AWAKE CLAIM :	Tunnel.....	20 feet
	Open cut.....	10 "
	Shaft.....	10 "

40'

This development was on the "Golden Sulphide" vein, 4 to 6 feet wide, carrying ore from 12" to 24".

PRINCE CLAIM :	Shaft on Crosscut Vein.....	10 "
	Drift ditto.....	25 "
	Tunnel on Golden Sulphide Vein.....	10 "

45'

LITTLE MINISTER CLAIM : Shaft on N.end on West or Footwall Vein.....	20	feet.
The Vein is 20 feet wide at this point but caved.		
75 feet South of N.endline,a crosscut Tunnel was driven... cutting the vein at a shallow depth,the width of vein was 20 feet - now caved.	100	"
An opencut above Crosscut Tunnel - caved	25	" 145'
		<hr/> 3095'
On the N.end of this claim a shaft has been started,now down.....	12	"
PHILADELPHIA CLAIM : 3 Opencuts on Golden Sulphide Vein.	20	"
PENNSYLVANIA CLAIM : Shaft.....	50	"
Tunnel.....	25	"
Opencut.....	12	"
		<hr/> 87
This development on a strong vein running parrallel with the "Golden Sulphide,showing 10"of straight gold ore,fair values but not sampled.		
GOLDEN SULPHIDE CLAIM : Shaft.....	50	"
Crosscut Tunnel.....	15	"
Winze.....	40	"
Crosscut to Vein.....	20	"
Drift (S) On Vein.....	180	"
3 Opencuts.....	20	" 325'
		<hr/>
This development is all on the "Golden Sulphide"Vein with practically no Dumps,the ore being shipped or milled and much of the work inaccessible.		
NEW DEAL CLAIM : Assessment work.....	20	" 20'
On a parrallel vein W.of Footwall or West Vein.		
JOINER CLAIM : Assessment work.....	30	" 30'
On quartz vein W.of New Deal.		
FEDERAL CLAIM : Shaft and Tunnel.....	50	"
Same vein as New Deal & Fraction...		
2 shafts	20	" 70'
		<hr/>
HILL TOP & GEORGETOWN : Assessment work.....	30	" 30'
LIVE YANKEE : 2 Shafts.....	80	
2 "	20	
1 Tunnel.....	30	" 130'
		<hr/>

On Junction of East and West veins - workings caved - ore all milled.

HUBBARD CLAIM : Shaft..... 30 feet.... 30'
 Tunnel..... 20 "

On ore all shipped or milled
 this is from West vein.

Tunnel - off the Vein - 300 " 320'

PEARL CLAIM : Tunnel on Vein..... 15 "
 Crosscut Tunnel, not on Vein..... 30 "
 Opencut in ore..... 10 "
 2 - shafts - 30 feet, both in Ore..... 60 "
 I - shaft in Ore..... 60 "
 I - shaft in Ore..... 15 " 190'

Practically all of this ore from a two
 to four foot vein was shipped or milled.

GENERAL LEE CLAIM : Shaft..... 125 "
 Drift (S) on 50 foot level..... 150 "
 Drift (N) ditto 150 "
 Drift (S) on 75 foot level..... 30 "
 Drift (N) ditto..... 120 "
 Winze (N) ditto..... 25 "

start

250 ft from the N. end line, a short
 Tunnel crosscuts the West or Footwall
 vein at a depth of from 30' to 40' this
 was stoped to the surface for a length
 of..... 120 "

This was known as the "Mexican stop"
 it was on the East or Hangingwall vein.

Crosscut tunnel..... 555 " 1275'

This tunnel crosscuts both the West
 or Footwall Vein and the East or
 Hangingwall vein - it is inaccessible
 at present on account of slight caves
 backing up the water.

Drift (N) on Hangingwall..... 60 " 60'

EVANGELIST CLAIM : Crosscut tunnel to East or
 Hangingwall Vein..... 336 "
 Drift (N)..... 15 " 366'
 Drift (S)..... 15 "

Grand total of development in "Cedar" group claims..... 6185'

FORMER REPORTS OF ENGINEERS

stop

In 1888, an Engineer, officially vouched for by California and Nevada
 operators, states in his report, as follows :-
 "A shaft has been sunk on the "Arnold" claim, on the Hangingwall Vein
 to a depth of 110' or nearly 200' below the highest cropping of the Apex,
 each way from this shaft, and 110' above the bottom of same, there has been
 a level run over 600' in the ledge, showing a continuous orebody so far

as run, over 2' in thickness. In this Tunnel ledge about 300' S. of the shaft, there is a Winze sunk to a depth of 40', showing the ledge to be 3' thick.

"From examination of books and vouchers, I find there has been shipped \$15,348.59 worth of ore carrying an average value of \$243.62 per ton. The lowest assay of any shipment being \$161.40 and the highest being \$415.16, and of the above valuation, about 10% was in gold.

"In addition to this ore shipped there has been treated in Arastra, surface ores which produced a bullion value of \$170.00 per ton.

"There is a continuous orebody 1000' in length, 160' in depth, and 2' thick, making 320,000 Cu. ft of ore - this gives ore reserves of 27,000 tons".

"The value of all ore the mine has heretofore produced has been over \$80.00 per ton.

"I feel safe in estimating the net value of the 27,000 tons in reserve to be \$50.00 per ton, which would make ore in sight valued at \$1,350,000 after deducting reasonable expense for mining and treating."

"It is highly important to state in this connection that no estimate of ore has been made in the large or Footwall ledge.

In 1894 another Engineer reports as follows :-

"The main "Arnold" shaft is sunk 260' - the N. Adit is 100' long, with vein continuous, the S. Adit is 383', with vein also continuous.

The S. Adit has been chlorided partly in the richer stopes, showing fully 6' removed as width of vein.

In the N. Adit the ore is continuous, encountering some very rich chloro bromide of silver in roof near Shaft - the 60' level is short, showing excellent ore.

Below this level, the ore in the shaft is 28" wide and averages for 40' Silver 26 oz. gold 45/100 oz.

The N.W. drift is 48' long, showing ore from 14" to 20" carrying a value of from \$40 to \$75 per ton.

The S.W. drift, 102' long, shows the ore seam in the roof continuous but varying."

"The average value of the ore is somewhat difficult to get at in the present condition of the workings but from samples taken on the second Winze in the Adit level from the N. drift in the 100' level, the S.E. drift and Winze, and from other drifts and winzes, an average of 12 samples gives \$34.02 in silver and \$13.02 in gold, or a total of \$47.04 per ton.

Continuing his report on the "Evangelist" claim, he states :-

"A Tunnel was started on the West ledge and has been run a distance of 336' at which point it enters the East vein or ledge, 200' below the surface, on the pitch of the Ledge.

567.00 Silver
60 / 34.02
30
40
34
420
42

START

24

The East ledge at this point is 20' between walls - on the Footwall there is 4" to 6" of ore that assays 164 ounces silver - then there is 18' of Ledge matter and on the Hangingwall or East wall, there is 2' of ore that assays \$42.50 per ton in gold and silver - 80% of the value being in gold.

This return was from a three ton sample taken from the 15' drift run on the ledge at this point. At this point there is 200' of backs.

"No work has been done on the West vein on this claim, which is equally as important as the one demonstrated - the claim adjoins the "Arnold".

"In 1901 the "Arnold" shaft was sunk to 200' - another Engineer states that on account of water he could not get to the bottom of the shaft,

The ore body on the 100' level shows strong from 3' to 5' wide for the length of the drift, which is 400' long, maintaining high values.

"The veins have been prospected in many places by shallow openings, my samples, except from the "Arnold" were taken from these surface workings.

From East Vein "Lee" shaft Tunnel.

340 oz Silver.	4.60 oz Gold.....	\$432.00
5 "	0.15 "	8.00
Lee West vein showing Iron S. end.		
9.3 Silver.	0.09 oz Gold.....	11.70
Lee Mexican slope. Ledge 2 1/2'		
52.03 Silver.	0.17 oz Gold.....	55.70

In 1904 the "Arnold" shaft was sunk to a depth of 250' - a further report compiled by another Engineer states that on the 100' level the ore shoot extends for a distance of 320' to the S.E. and 80' to the N.W., the shoot has an average width of 18" of first class ore, beside the milling ore lying alongside, which has a width of from 2' to 3' additional.

"Samples taken along this ore shoot on the 100' level gave the following results :-

No. 1.	32.02 oz Silver -	0.24 oz Gold.....	\$ 37.00
2.	51.01 "	0.46 "	60.30
3.	247.00 "	1.64 "	279.80

No. 1. was taken along the length of the shoot, an average of 400'.

No. 2. was a part of the paystreak from the N.W. of the shaft.

No. 3. was a rich part of the paystreak mixed with quartz from both side of the shaft.

"I could only explore about 30' on each side of the shaft on the 200' level on account of the drift being filled with debris, but the ore shoot shows the same characteristics as in the 100' level - the vein however shows a greater width.

"This vein is exceedingly strong and can be easily traced for a distance of two miles on the surface - the hangingwall being *especially* fine and hard.

"In all previous reports the East Hangingwall and the West Footwall have been treated as two separate veins - this is due to the fact of a difference in the ore.

"As a matter of fact they constitute one large strong contact fissure, exposed for practically 7,500 feet within the "Cedar"holdings and 5000 feet within the "Fillmore"holdings, where the veins merge.

"The fissure carries a Diorite hangingwall and a Granite footwall, ranging from 50' to 200' apart - the intervening mass consisting of a contact mineralisation of porphyry, quartz and the softer granites.

"This is clearly proven at the "Arnold"shaft, where in grading across 100' between these walls, a number of smaller stringers of ore were disclosed and the higher grade was shipped with other ores.

"It is also proven in the "Evangelist"crosscut tunnel, where the formation between the Foot and Hanging wall is shown to be porphyry with oxidised feeders of iron and quartz.

"The West or footwall vein has a dip to the W. whilst the Hangingwall vein dips slightly to the E. - with depth, these will probably unite, making for important bodies of milling ore.

Before closing these excerpts from Engineering reports dating back to 1888, 1895, 1901 and 1904, I recognise the fact that I am quoting "ancient history".

Under ordinary circumstances such information would be of little use in a report that is intended to cover the present condition of these mines, but as will be shown later on in this report, under the heading of "Ore available and Developed" - a very minimum amount of these ores in the several properties have been mined, shipped, or milled - and although only a small part of these developments can at this date be examined or sampled - yet the fact remains that under water, or covered by caved ground, the physical conditions covering the values previously reported upon remain practically intact and ready for exploitation.

ORE DEVELOPED AND AVAILABLE

As already stated, the present physical condition of the Arnold, General Lee, Evangelist and Fillmore mines, which carry the principle development of this consolidation makes it difficult to calculate the ore tonnages and values available.

I am therefore confining "tonnages available together with assay values" to the sampling recently conducted by R.C. Jacobson E.M. down to the 100 foot level in the "Arnold" workings, ~~together with the findings during examination of the "Fillmore" group.~~

I am attaching herewith a longitudinal section through the East vein at "Arnold shaft" showing sectioned stoped in Adit level and a small portion on the 100' level.

In addition to which the present physical condition of the "Fillmore" workings is given in full.

START

Down to the 100 ft level in the Arnold there is a block of positive ore remaining of 6,250 tons and an average value of \$30.00 per ton.....\$187,500.00
 This ore is South of the Shaft.

On the same level and N. of the Shaft there is a block of positive ore remaining of 1666 tons and an average value of \$30.00 per ton..... 49,980.00

At the "Fillmore" there is a block of 3000 tons positive ore, having a value of \$30 per ton..... 90,000.00

Total tonnage positive ore..... \$327,480.00

In the "Arnold" workings and down to the 200' level there is a block, S. of the shaft of 12,000 tons of probable ore (this ore has been partially sampled showing a width of 4 feet, but not resampled at time of examination, owing to water conditions)
 The value of this ore maintains at \$30..... \$360,000.00

N. of the shaft and up to the Adit level there is a computed block of 10,134 tons of probable ore valued at \$30. per ton..... 304,020.00

N. of the raise between the Adit level and the 100 ft level there is a block of 3000 tons probable ore value \$30. per ton..... 90,000.00

Between the 200' and 295" (or bottom of the Shaft) there is a block of 7,800 tons of ore valued at \$30. per ton..... 234,000.00

Total probable ore opened by shaft... \$988,000.00

Whilst there are other ore bodies partially opened up - these cannot be examined as they are contained in the older workings and portions of the drifts, tunnels etc are caved.

STOP

I am herewith appending the sampling chart that explains assay map.

Assay Map showing sampling of the
Fillmore workings

START

Number	Ounces Silver	Width	Remarks
1.	48.00	2'0"	North Stope
2.	19.80	5'5"	Bottom of Drift
3.	21.28	6'0"	Back of Drift
4.	71.00	3'0"	In Stope
5.	30.00	6'5"	Bottom of Drift
6.	21.20	5'0"	Back of Drift
7.	51.58	1'0"	Footwall
8.	102.16	2'0"	Hangingwall
9.	46.08	5'5"	Back of Drift
10.	21.73	6'0"	ditto
11.	19.86	7'0"	ditto
12.	36.48	5'7"	Face of Footwall vein
13.	32.60	4'5"	Back of Hanging 'w V'
14.	76.62	3'0"	Face of Drift Hangingwall Vein
15.	29.36 <i>126.66</i>	Dump.	
16.	46.03 <i>199.80</i>	Second Dump.	

183.46

STOP

Additional to my examination of the "Fillmore" claims, which are the Southern extension of the "Arnold vein system" I am including the physical report on the last work done in the mine, together with a full report pertaining to present methods of ore reduction and preparation for the market.

The whole of this research work was undertaken by Mr R.C. Jacobson, Engineer and Metallurgist, of Kingman, Arizona.

"Since my last visit to your property about a year ago, I find that you have continued the S. drift on the 100 ft level to a point about 156 feet from the crosscut intersection - the N. drift is in about 40 ft from the same point, the footwall has been crosscut about 18 ft, in the vicinity of the old shaft, and the hanging wall, a distance of about 3 feet, an upraise from the face of the N. drift reaches about 31 feet above the drift level and a stope some 25 feet in length by the same in height has been opened in the vein directly above the crosscut intersection.

Both the stope and raise have evidently reached the upper limit of the sulphide ore zone in this particular strata, as evidenced by the absence of mineral in the wide talc gauge and in the broken filling at these points - this characteristic is typical of the other ore bodies of the district.

The main vein seems to be cut at a narrow angle by a second fracture that in places shows very rich ore.

This vein will likely diverge from the main ore body and strike to the S.E. it may be followed as far as it shows commercial ore, but I believe very little ore will be found beyond the influence of the main fissure.

At the junction, the two veins make a particularly handsome ore shoot, about 30 feet long and in places 10 feet wide.

The footwall vein is 4 to 6 feet wide and filled with the typical white or gray brittle quartz of the Cedar district - this fracture will likely be your permanent ore shoot.

The assay plan of Plate I speaks for itself, and Plate No. 2 shows a longitudinal section on which I have indicated the probable trend of the ore shoots.

I estimate that you have exposed so far, 3000 tons of average 40 ounce silver ore, and note that I have assumed a portion of this ore below the 100 ft level.

I judge the footwall ore shoot will continue at least 100 feet more to the S. and likely much further, and from observation of other similar ore shoots in the Range, believe you will find the vertical limits of the enriched zone to be 150 to 200 feet apart.

This ground should be prospected with all despatch by driving the 100 ft level S. and the length of this ore shoot will determine the logical distance to sink before again opening the ore body.

I have made numerous laboratory flotation tests with a view to determine

if the ores opened are amenable to oil flotation.

We were not successful at first, but the first two tests gave some encouragement, and the third test proved the method practical - while the other four were made to determine if a selective treatment would separate the zinc, iron and lead.

Test No. 7 shows we were on the right track, but the silver content is so high in the zinc product that, after a conference with Mr. Manson, of the Western Ore Purchasing Co., we decided that it would be better to ship the product as a lead ore, and pay the zinc penalty, which is not excessive, especially if consideration is given to the fact that the high ratio of concentration and high value of the mixed products makes very little penalty to a ton of the mine run.

These two tests are displayed on Plate No. 4. The values given are net f.o.b. Kingman Sampler, after deducting all Smelter and R'd freight charges and market deductions.

With this information at hand, the flow sheet was designed that seemed to be the most elastic method to treat ores on the ground. See Plate No. 3.

The material used for the tests was the reject from all of my samplings including two large samples taken from the ore piles on the surface.

You will note that this composite sample of 43.60 ounces of silver is a very close approximation to the average mine sample as tabulated on Plate No. 1.

You will also note that I estimate 11 tons of mine run ore will yield one ton of concentrates, for which Mr. Manson offers \$385.14 cash f.o.b. Kingman, Arizona, as per letter inclosed.

This allows one ton of mine run at \$33.14 in place of \$30 as allowed.

From this deduct the mining, milling and hauling charges, which I estimate as \$4.00 - \$2.00 - and \$1.36 respectively, and allow 42% per ton for incidentals, repairs and overhead - making in all \$7.78, this leaves a total net profit of \$25.23 per ton.

The estimate of 3000 tons of positive ore in the "Fillmore" will yield \$75,690.00 net profit from this block alone and providing the ore shoot is opened 150 feet in length by 6 feet in width on the 200 foot level, at a cost not to exceed \$50.00 per foot for sinking and \$15.00 for drifting, we are justified in assuming that there will be developed an additional 9000 tons of the same grade ore for about \$1.00 per ton.

Suitable Air Compressors and power drills are maintained at both the "Arnold" and "Fillmore" shafts.

SUMMARY AND CONCLUSION

These consolidated properties carry a strong and continuous vein system for a known length of upwards of 12,000 feet on the East and West Veins the same length on the "Golden Sulphide" and 1500 feet on the "Pearl" and other veins embraced in this property.

Sufficient work has been done on the main vein system to demonstrate their continuity in length and breadth, depth giving a good mining width and assured values that will assure a good profit.

There is at the present time an up to date "Krout Flotation Mill installed at the Mine, this has a capacity of fifty tons per day and should be stepped up to at least one hundred tons per day.

Trial runs have been made through the Mill, proving its efficiency and high extraction at a low cost per ton.

There need be no mistakes in the economical development of the known ore bodies.

There are no physical or metallurgical obstacles to prevent an intelligent management from making a large and legitimate profit at practically no risk to the investment, as the ore bodies, together with their values are positively proven and assured.

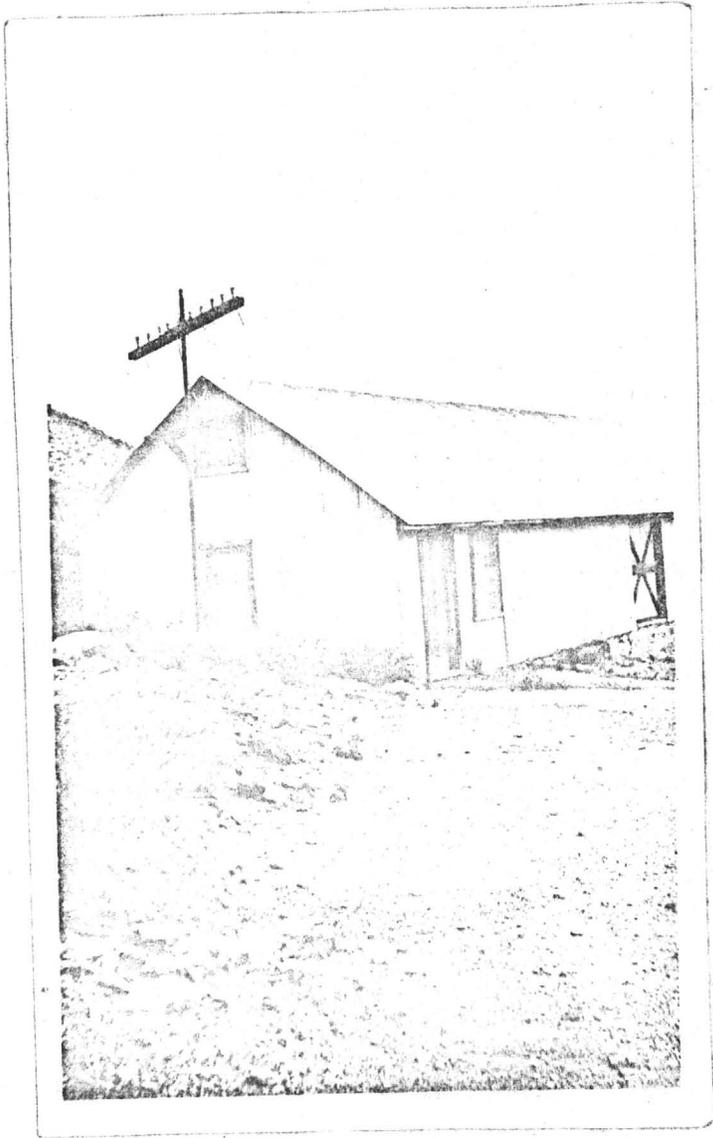
They can be mined and milled at a reasonable cost -making a desirable concentrate for which there is always a ready market.

I have therefor no hesitation in recommending this property as being in readiness for the steady production of Bullion.

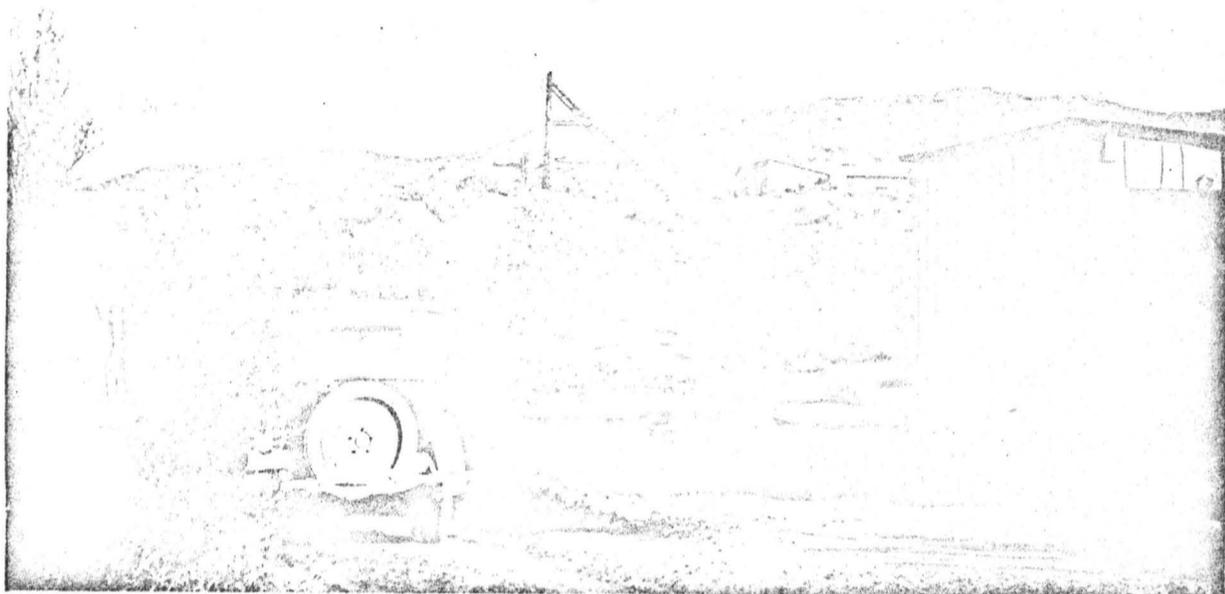
Respectfully submitted

Member of the Australian Institute Mining Engineers.
ditto Victoria Chamber of Mines
ditto Fellow of the Geological Society of Aust.

This report is issued in duplicate. May 1929.



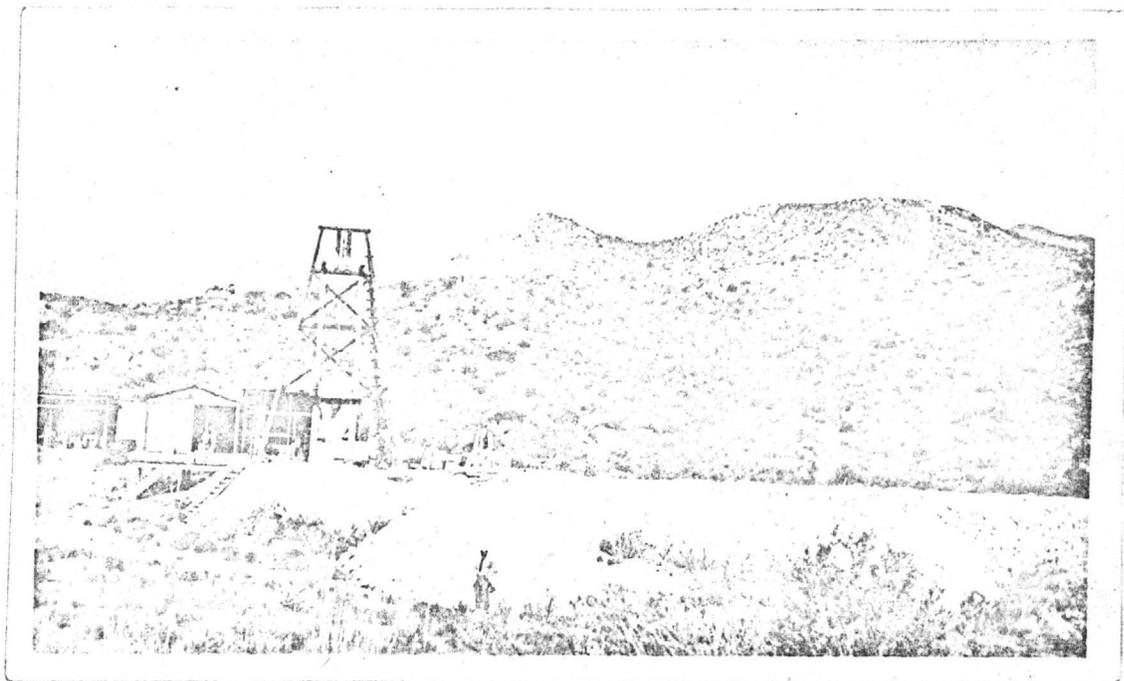
Mine Warehouse



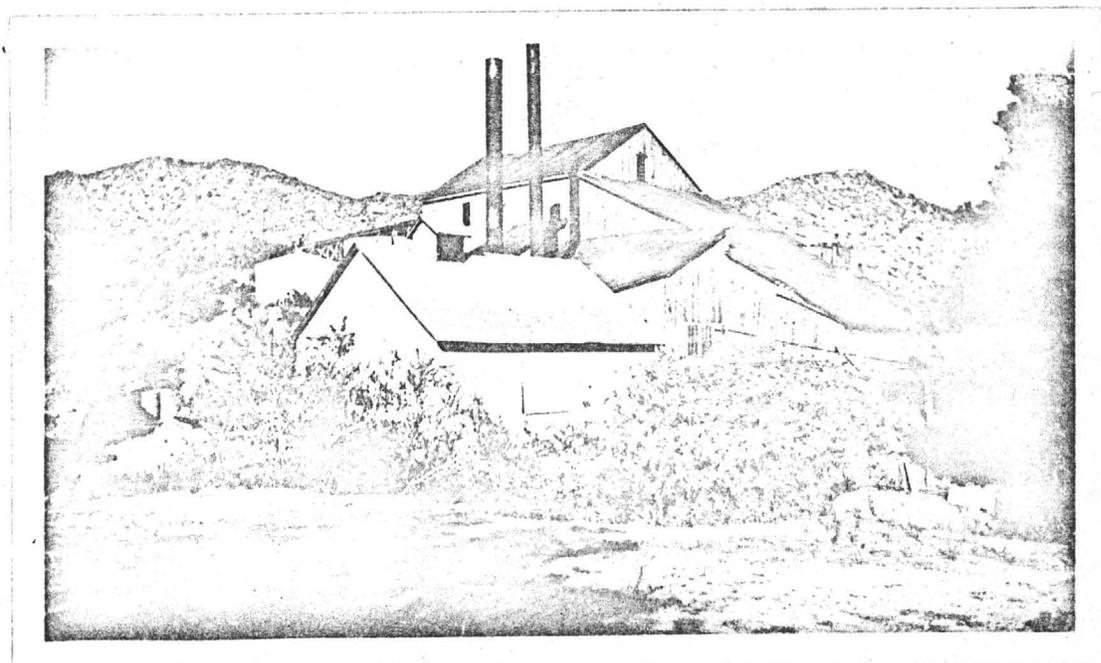
View of Headframe and Hoist House
looking South



View of Ore and Waste Dumps
looking West



Head Frame - Fillmore Mine.



Flotation Mill & Building

EXCERPTS FROM THE REPORT OF
James A. Pritchard
on the Arnold Gold & Silver Mining Company.
Nov. 1888

The vein or ore channel extends nearly north and south, it is of great width and remarkable in extent, it being traceable by bold croppings for a distance of six miles.

The east or hanging wall of the vein is granite. The west or foot wall is much softer and of porphyritic granite.

On the Arnold mine there appears two ledges on the surface, distant from each other about 100 feet. One upon either wall, but both are clearly within the same ore fissure or channel and are separated as far as depth has yet been reached by a dike of porphyry of the finest quality, which certainly is the natural home of the precious metals.

The development upon this mine has nearly all been done upon what is called the east or hanging wall vein—which proves to be very regular in size and grade. The ledge varies in thickness from $1\frac{1}{2}$ to 4 feet. It has been penetrated by a shaft which was made to follow the ore and has been continuously in high grade ore of good average thickness of $2\frac{1}{2}$ feet.

The shaft is 110 feet deep or near 200 feet below the highest croppings of the ledge. Each way from the shaft and 110 feet above the bottom of the same there has been a level run over 600 feet on the ledge showing a continuous ore body, so far as run, over two feet in thickness and where the level is not run, croppings and development of contiguous ground shows the existence of the ledge. Above this tunnel some ore has been extracted. In this tunnel about 300 feet south of the shaft there has been a winze sunk to a depth of 40 ft. which we entered and found the ledge $2\frac{1}{2}$ to 3 feet thick, and from which we took samples. This was the lowest depth we could reach in the mine owing to water in the shaft but at this point the ore showed a permanent and well defined ledge 3 feet thick.

I had access to the records of ore worked at the mine and shipped to different points for sale and treatment from 1876 to present date. This gives reliable data as to value of selected ore. The lowest assay on any shipment made being \$161.40 and the highest \$1200.00. From 10% to 20% of this valuation was gold. The higher silver content the higher the gold values. The actual bullion produced by ore crudely treated at the mine was at the average rate of \$170.00 per ton. What its assay value was or what percentage was lost by this treatment is not known. From the large sample I took from ores that were thrown back after being cobbled for shipment, even at the low price of silver I got an average value of \$81.56 per ton.

In arriving at the quantity and value of ore reserves I have chosen to be more conservative than anyone owning the property would be willing to adopt as the basis of sale.

I allow 50 feet below the lowest workings of the mine and reduce the average thickness to 2 feet. We have a continuous ore body 1000 feet in

length and 160 ft. deep and 2 ft. thick. 12 cu. ft. of this heavily mineralized ore is sufficient to a ton.

This gives an ore reserve of 27,000 tons. The value of all ore mined having been proved in the way it has, as stated above to be over \$80.00 per ton I feel safe in estimating the net value of the 27,000 tons to be \$50.00 per ton. This would make ore in sight valued at more than one and a quarter million dollars. It is highly important to state in this connection that we make no estimate of ore in the large or foot wall vein from the fact that only croppings appear. I am informed that this ledge in the adjoining claims both on the south and on the north have been penetrated by shaft on one claim 40 feet and on another 100 ft. and that both claims have yielded ore valued over \$200 per ton. So while it is possible this large ledge upon the Arnold mine may to the same depth as the other is estimated produce even greater values than the one estimated, yet as it has not been proven by penetration I have given no estimate of its value. This ledge appears to me to have wonderful possibilities and I recommend that work be done on it.

In conclusion I want to add that I regard this property with exceeding great favor. The great length as well as width of the ore channels gives the axiomatic proof of permanent depth.

San Francisco, Cal.
Nov. 1, 1888.

EXCERPTS FROM GILLIS' REPORT
ON THE
QUEEN AND EVANGELIST CLAIMS
To Philip P. Baker
1895

Each claim has two veins or lodes almost parallel with each other and about 200 feet apart.

On the Queen claim the croppings are 700 ft. long on the south end and 20 ft. wide and 400 ft. on the north end. Very strong and bold.

The developments on the Queen west vein are as follows, 300 ft. from the south end line a shaft has been sunk to a depth of 130 ft. on the vein. At 90 ft. a drift has been run south 60 feet. On the 130 ft. level drifts have been run south 50 ft. and north 50 ft.

A tunnel 200 ft. north of the shaft intersects the vein 82 ft. from its mouth and 90 ft. deep on the vein. Drifts have been run on the vein 50 feet to the south and 80 feet north. Good ore showing in all the openings.

Open cuts run at different places on the surface shows the ore from 2 ft. to 4 ft. wide with values from \$50 to \$70 per ton. At another point the ledge shows 12 to 15 ft. wide with values from \$8 to \$20 per ton.

Six samples taken from the 90 ft. level south of the shaft, vein 5 feet wide gave the following values:

No. 1 \$54.00 in gold and silver.

No. 2 \$39.50 in gold and silver.

No. 3 \$160.80 in gold and silver.

No. 4 \$40.75 in gold and silver.

No. 5 \$38.00 in gold and silver.

No. 6 \$37.50 in gold and silver.

Silver figured at 60c per oz.
Average value \$61.77.

Seven samples taken from the 130 ft. level, north and south of shaft, average width of the vein taken, 2 feet:

No. 1 \$342.42 in gold and silver.

No. 2 \$170.19 in gold and silver.

No. 3 \$131.97 in gold and silver.

No. 4 \$105.57 in gold and silver.

No. 5 \$95.80 in gold and silver.

No. 6 \$124.07 in gold and silver.

No. 7 \$172.91 in gold and silver.

Making an average value of \$163.28.

Six samples taken from the tunnel levels, vein 2 feet wide:

No. 1 \$327.00 in gold and silver.

No. 2 \$260.00 in gold and silver.

No. 3 \$100.00 in gold and silver.

No. 4 \$45.00 in gold and silver.

No. 5 \$20.00 in gold and silver.

No. 6 \$70.00 in gold and silver.

Making an average value of \$137.00.

Silver figured at 60c per oz.

EXCERPTS FROM THE REPORT OF

Major Horace M. Russell

April 1901.

On the Claims of the Cedar Valley Gold & Silver M. Co.

"The east ledge on the Arnold claim has the most development work done on it.

The main shaft has been sunk to a depth of 200 feet. On the 100 ft. level drifts have been run from the shaft 70 ft. northwest and 400 ft southeast on the ore chute. On account of water I could not get to the bottom of the main shaft.

The ore body in the 100 ft. level shows strong from 2 ft. to 5 feet wide. The ore chute is over 400 ft. long on this level and holds very regular in width and high in values. See assay returns.

Nearly 300 feet in from the mouth of the shaft on the adit level a winze has been sunk to the 100 ft. level which discloses a strong ore body from top to bottom of an average width of 2½ feet. The ore has been stoped at this point on the adit level about 80 feet to the surface. I believe this ore body will continue to great depth and should improve in values with depth. I was told the ore held as good and strong to the bottom of the shaft.

The veins are easily traceable the full length of the claims and have been prospected in many places by shallow openings. My samples, except from the Arnold, were taken from these surface workings.

Fourteen samples taken by myself from different parts of the mines gave the following assay values:

QUEEN

38.2 oz. silver 0.9 oz. gold	\$56.20.
104.1 oz. silver 1.02 oz. gold	\$124.50
71 oz. silver 0.25 oz. gold	\$76.00

ARNOLD

100 ft. winze taken every few feet from top to bottom of 2½ ft. ledge.

28.7 oz. silver 0.19 oz. gold	\$32.50
-------------------------------------	---------

From 2 to 5 ft. ledge on 100 ft. level.

243 oz. silver 0.12 oz. gold	\$245.40
------------------------------------	----------

Shaft No. 2 forty ft. deep 2 ft. ledge.

23 oz. silver 0.16 oz. gold	\$26.20
-----------------------------------	---------

Selected

94 oz. silver 1.86 oz. gold	\$131.20
-----------------------------------	----------

122 oz. silver 0.61 oz. gold	\$134.20
------------------------------------	----------

Large Croppings

19 oz. silver 0.05 oz. gold	\$20.00
-----------------------------------	---------

LEE

From east vein Lee shaft tunnel.

340 oz. silver 4.60 oz. gold	\$432.00
------------------------------------	----------

Lee long stope across 24 ft. ledge.

5 oz. silver 0.15 oz. gold	\$8.00
----------------------------------	--------

Lee west vein showing Iron south end.

9.8 oz. silver 0.09 oz. gold \$11.60

Lee Mexican stope ledge 2½ ft.

52.3 oz. silver 0.17 oz. gold \$55.70

HUBBARD

8 ft. croppings very strong ledge.

2 oz. silver 0.1 oz. gold \$4.00

Making an average value of 14 samples \$96.95

In my opinion the mines are all right and will be made a valuable property with proper development. I advise the sinking of the present deepest shaft on the Arnold to a depth of at least 700 ft. with crosscuts and levels every 100 ft. Also sink the shaft on the Queen 500 or 600 feet."

Los Angeles, Cal.

April, 1901.

EXCERPTS FROM THE REPORT OF
E. C. Eddie, E. M.
on the "Arnold" and "Queen" Claims in the Cedar Mines Group.
1904

There are two great veins traversing the Company's property from northwest to southeast, known as the "Queen" and "Arnold" veins respectively. The Arnold has been developed more extensively. A single compartment shaft has been sunk on this vein to a depth of 250 feet with levels driven at the 100 and 200.

On the 100 ft. level the ore chute extends for a distance of 320 feet to the southeast from the shaft and 80 feet to the northwest. This chute has an average width of 18 inches of first class ore, besides the milling ore lying alongside which has a width of two to three feet additional.

Samples taken along this ore chute on the 100 ft. level gave the following results:

Number 1 32.2 oz. Silver 0.24 oz. gold - - \$37.00.

Number 2 51.1 oz. silver 0.46 oz. gold - - \$60.30.

Number 3 247.0 oz. silver 1.64 oz. gold - - \$279.80.

Number one was taken along the length of the chute an average of the 400 feet.

Number two was a part of the pay streak from northwest of the shaft.

Number three was a rich part of the pay streak mixed with quartz from both sides of the shaft.

I could only explore about 30 feet on each side of the shaft on the 200 ft. level on account of the drift being filled with debris but the ore showed the same characteristics as in the 100 ft. level and the vein showed much wider.

This vein is exceedingly strong and can be easily traced for a distance of two miles on the surface. It has a dip of about 60 degrees with walls of Diorite. The hanging wall being especially even and very hard. This fact is fortunate as it will enable you to mine the ore at a comparatively small expense for mine timbering.

Queen

The Queen vein runs parallel to the Arnold and at a distance of from 100 ft. to 150 ft. to the west at the Arnold shaft. This vein is also in diorite. On the surface these two veins seem to come together on the Hubbard claim about three thousand feet to the southeast.

The Queen seems to be a stronger vein than the Arnold but with less development. One shaft has been sunk to a depth of 140 ft. but is caved and could only be examined to a depth of about 60 ft. I am informed that the full width of the bottom of the shaft is in good grade ore. The ore in sight and on the dump is certainly of very good grade as the assay value of several samples shows 145.2 oz. silver and 0.82 oz. gold \$161.60. This ore shows a very heavy sulphide. There has been a large amount of surface work done on both veins of this claim by chloriders, who I am informed mined and

shipped a large amount of very rich ore, which the workings would indicate.

Samples taken from the ledge several hundred feet northwest of the shaft gave:

72.0 oz. silver	0.16 oz. gold	\$75.20.
31.4 oz. silver	0.15 oz. gold	\$34.40.
47.2 oz. silver	0.06 oz. gold	\$48.40.
30.4 oz. silver	0.36 oz. gold	\$37.60
57.4 oz. silver	0.08 oz. gold	\$59.00.

From the amount of croppings in sight and the ore blocked out in the Arnold mine I believe you have sufficient ore of good grade in sight to operate the 15 stamp mill that is on the property for a number of years and from my observation there should not be any trouble in extracting a high percentage of the values.

Both the Queen and Arnold are strong, powerful veins and have every indication of being true fissures. In conclusion I want to say that you have a very fine proposition and there is no question in my mind, that properly handled you will make a great financial success.

HISTORY OF THE CEDAR MINES CONSOLIDATED PROPERTY

Cedar, Arizona.

By J. J. Jerome, Yucca, Arizona

April 25, 1921.

The Arnold Lode, about 2 1-3 miles in length, was discovered in the Fall of 1873 by W. F. Arnold and J. B. Magendie, who made the first locations thereon, naming one the Arnold and the other the General Lee mining claims.

In a short time all the remainder of the lode was located by others. The most prominent of the latter locations being known as the Silver Queen.

As was the custom in the early days a district was immediately formed and named the Cedar Valley Mining District and a recorder for the same was duly elected.

Outcrops of very high grade chloride ores were found on several of the locations on the surface and some of the owners commenced operations by building horse Arastras and amalgamating the ores by the patio and barrel process. The Chloride ores thus worked assayed from 200 to 300 and more ozs. in silver and with a gold content of about 1 oz. gold to every 100 ounces silver. The bullion thus obtained would assay about 930 fine in silver and were shipped to San Francisco.

Other owners of claims would hand sort the ore and pack same by burro and mule train to the Colorado river a distance of 50 miles and then ship by river boat and ocean steamer to San Francisco where the ores were sampled and sold in the open market.

The average cost of such transportation was \$100.00 per ton from the mine to the place of sale.

The first mine sale and transfer of any importance was that of the Arnold location in 1876 for the sum of \$11,000.00.

The new owners continued to work the arastra and produce bullion, and also to ship ore to San Francisco until the coming of the railroad in 1883, when shipments by rail were made to El Paso and later to the new town of Kingman where sampling works had been established.

From the year 1873 up until 1893 when the slump in silver came the Arnold mine produced in bullion and ore shipments, to my knowledge, values to the amount of \$117,000.00 and all of the ore from which these values came was taken from two shallow surface tunnels along the vein and one shaft 100 feet in depth.

The next sale was that of the Silver Queen mine in 1878 for the sum of \$8,000.00 cash. The purchasers erected a small dry crushing and roasting plant of three or four tons daily capacity and located about a mile from the mine. The ore being carried to the mill by pack train. A portable whim was erected at the mine and a shaft sunk to the depth of 140 feet where the inflow of water prevented further sinking with this equipment.

At that depth a drift about 70 feet long was opened on the vein and the

ores taken therefrom roasted and milled. The assay values of the same being about 80 ozs. silver and 1 oz. gold per ton of ore.

About this time the owners disagreed as to the working of the property and the mine was closed down leaving that grade of ore along the floor of the drift and in both faces of the drift untouched. The whole production of the Queen mine up to that time from both ore shipments and arastra and mill bullion was some \$55,000.00.

In 1881 some of the owners of the Arnold bought the General Lee mine and paid \$50,000.00 in gold coin for it and also the Hubbard location at the south end of the Gen. Lee, paying \$2,500.00 for same. Up to this time the ore shipments and arastra and bullion production from the surface ores of the General Lee amounted to \$25,000.00 The new owners did no further development work on these properties but contented themselves with getting United States patent for them in due time.

In 1882 the Evangelist location was sold for \$15,000.00 but the new owners did no work except the annual assessment work and finally had it patented. They apparently regarded it as a good investment on account of its situation between the Arnold and Silver Queen mines. Its previous ore sales being about \$3,000.00.

In 1894 the Baker Brothers purchased the entire group of mines and soon after (April 1895) commenced work on some of the principal claims and also rebuilt and added to the capacity of the mill. It being made 15 stamps complete with plates and concentrators and later cyanide tanks installed.

The Arnold lode consists of two separate veins of ore, the same being about 100 ft. apart on the surface running nearly due north and south and can be readily traced for a distance of at least 2 1-3 miles.

The small or east ledge follows along an extremely hard Diorite reef or dike, this being the hanging wall of the ledge. The west or big ledge is on the granite foot wall of the lode. At the Arnold shaft and dump it shows that the intervening matter between the two veins is a mass of more or less mineralized porphyry and in grading across that 100 ft. several small stringers of ore were disclosed and the high grade from them was shipped with the other ores.

On the Arnold mine the shaft and tunnel work has all been done on the small or east ledge. At the Silver Queen the shaft and other work is on the big or west vein. On the General Lee work has been done on both veins and pay ore shipped from them.

The work done in 1895 by Baker Brothers was sinking the Arnold shaft another hundred feet and a little drifting on the ledge both north and south at this point which disclosed the ore shoot as large and regular as above and with average values as in the upper workings. Some surface work was done on the Queen and considerable ore treated in the mill. The big slump in the price of silver and high transportation costs made further work discouraging so they quit the latter part of 1896. During this time all work was done by hand which made ore extraction somewhat higher than it would be at this time when machine drills could be installed.

About 1907 another company had an option on this property and the most they did was to build a good wagon road from the mine to Yucca a dis-

tance of 28 miles to the railroad. They were only there six months and as I am informed by men who worked at the mine they did not get mine development under way.

During the '80s when I was in charge of operations on the Arnold mine, as I said before, I mined thousands of dollars worth of rich ores from the long surface tunnel on the ledge from a shoot of ore that showed 600 feet long and it is my opinion that development at depth will show this property to be one of the big mines of the West.

Yucca, Ariz.
Apr. 25, 1921.

MINING REPORT
ON
CEDAR CONSOLIDATED MINES

The Cedar group of claims are located in the Cedar Valley Mining District, Mohave County, Arizona located on the Southwestern slope of the Wallapai Mountains, South of Kingman, 64 miles and East of Yucca, 28 miles.

Both of these points are Stations on the main line of the A.T. & S.F.Ry. Kingman being the County seat and supply point - both are connected by a fine auto road with these mines, the Sandy agricultural district being 12 miles East of the main auto road.

The consolidated mineral claims and Mill site cover an area of about 400 acres - 4 of the claims - the "Evangelist, Arnold, General Lee and Hubbard" carrying United States patents, as does the Mill site, the remaining claims have all been firmly held by your Company for a period of years under United States laws governing mineral locations.

The names of the claims are as follows, now tied into one group but known locally as the "Cedar group" and the "Fillmore group."

CEDAR GROUP

EVANGELIST. ARNOLD. PRINCE. PHILADELPHIA.
PENNSYLVANIA. GOLDEN SULPHIDES. GENERAL LEE.
HILL TOP. HUBBARD. GEORGETOWN. LIVE YANKEE.
NEW IDEAL. JOINER. PEARL. FRACTION. MILL SITE.

FILLMORE GROUP

HIDDEN TREASURE. ASSOCIATED No. 1. and No. 2
ASSOCIATED No. 3 and No. 4.

HISTORY AND PRODUCTION

This district and some of the mines embraced in the consolidation was discovered in 1873, when the Cedar Valley Mining District was organized.

From this period until 1883, the surface or Chloride ores, carrying from 200 to 500 ounces of silver per ton, with a gold content of about one ounce to every 100 ounces of silver per ton was Arrastraed and amalgamated by the patio and barrell process, the bullion being about 930 fine in silver -

this was shipped to San Francisco - also much of the sorted ore, this being packed to the Colorado River, a distance of 50 miles, thence by boat and Ocean steamer at a cost of \$100 per ton.

out The first crushing and roasting plant of four tons capacity was erected in 1878 in conjunction with this work.

out In 1894 the "Cedar" group was consolidated and a 15 stamp amalgamating mill with concentrating tables and cyanide tanks erected.

out The owners increased the depth of the "Arnold" shaft to 297 feet, partially stoping an upper level and further developed the "General Lee."

out They operated the property from April 1895 to January 1897.

out During this period considerable crude ore was shipped to the El Paso Smelter, also the Kingman Sampling Works.

The operation of the Mill was intermittent, as at this time the metal -- lurgy of these ores was not well advanced - this fact - taken together with the reduced price of silver, excessive cost of hand mining, wagon haul, packing, railway and Smelter charges, etc. - resulted in a cessation of all mining and milling by these operators, after their expenditure of a large amount of money in Mine purchase, erection of Mill, development of the mines, the building of two fine roads connected with Yucca and Kingman.

After a careful examination and the checking ~~up~~ of all available records, the property can be safely credited with a production of \$460,000.

Up to 1895 to production was \$175,000.

From April 1895 to January 1897 - a period of 20 months - a production of shipping ore, bullion, and concentrates was made amounting to \$275,000.

It must be remembered that the average cost of landing ore in San Francisco was \$100.00 per ton, and later, when the ore was shipped to El Paso or Kingman, this cost was somewhat reduced but still very high.

The same ratio applied to the cost of mining, shipping and milling ores.

Taking these features into consideration, the ore shipped can be estimated at \$150.00 per ton, figuring gold at \$20 and silver at 60 cents per ounce.

The Milling tonnage treated amounted to about 10,000 tons and from a careful checking ~~up~~ of all available sources of information, including present sampling - a gross value of \$35.00 per ton in gold and silver can be safely allowed with gold at \$20 and silver at 60 cents per ounce.

GEOLOGY AND VEIN SYSTEM

The general geology of the Wallapai Range has been thoroughly covered by the

United States Geological Surveys and other eminent Geologists, all agreeing as to its being a repository of a great variety of mineral bearing rocks, precious and rare metals.

Its mineralised fissures are located in the pre - Cambrian granitic rocks, this same complex covering a large area in this Country and extending beyond the Colorado River into Utah and Nevada, embracing in its area, many of the large ore producers in Arizona and the States mentioned.

The United States Geological Survey, describing the Wallapai Mountains states that they are "porphyritic, schistosed, the mineral bearing fissures being located in the granite diorite schist and quartzite, often impregnated or intruded by a pegmatite, porphyry and diabase dyke."

This defines perfectly the geology of the Southwestern slope in which the Cedar Consolidated Mines are located.

The large group of claims embodied in these holdings cover seven mineralised veins or fissures, all having a bold outcrop and all carrying milling ore, with a fair percentage of higher grade values.

Five of these veins are only developed in a superficial way, so that I have not paid particular attention to them in embodying this report.

ONLY The two veins, known as the West or Footwall vein and the "Arnold" or Hangingwall vein will be ~~only~~ described and emphasised.

In describing these two last named veins under the heading of "Geology and Vein System" - and later on - under the heading of "Ore developed and Available" it must be borne in mind that this report and examination has been made after a careful inspection of all the physical features of the property together with the individual reports of all examining Engineers, Managers, and Superintendants up to the time of this examination.

This has taken considerable time on account of the inaccessibility of several of the openings, due to caved ground and water in the lower levels in the main shaft.

A thorough sampling has been made down to the 100 foot level in the "Arnold" shaft and along the drifts and raises etc.

DEVELOPMENT IN DETAIL

ARNOLD CLAIM:	Arnold Shaft: 5½ x 7½.....	297 feet
	Adit Drift (S) 50 foot level	400 feet
	Adit Drift (N) 50 foot level	150 feet
	100 foot level (S)	465 feet
	100 foot level (N)	200 feet
	200 foot level (S)	300 feet
	200 foot level (N)	25 feet
	250 foot level (S)	35 feet
		<u>1872 feet</u>

These developments were all made on what is known as the East Vein which I have designated as the "Hangingwall of the contact fissure."

The vein carries a width of two to five feet, with an average of four feet on the 200 foot level.

GENERAL LEE CLAIM: Shaft.....125 feet
 Drift....(S) on 50 foot level.....150 feet
 Drift....(N) on 50 foot level.....150 feet
 Drift....(S) on 75 foot level..... 30 feet
 Drift....(N) on 75 foot level.....120 feet
 Winze....(N) on 75 foot level..... 25 feet

250 feet from the N. end line, a short Tunnel crosscuts the West of Footwall vein at a depth of from 30' to 40' this was stoped to the surface for a length of.....120 feet This was known as the "Mexican Stope" it was on the East or Hangingwall vein.

Crosscut tunnel.....555 feet 1275'

This tunnel crosscuts both the West or Footwall Vein and the East or Hangingwall Vein - it is inaccessible at present on account of slight caves backing up the water.

Drift (N) on Hangingwall..... 60 feet 60'

EVANGELIST CLAIM: Crosscut tunnel to East or Hangingwall Vein.....336 feet
 Drift (N)..... 15 feet 366'
 Drift (S).....15 feet

Grand total of development in "Cedar" groupclaims.....6185'

"From examination of books and vouchers, I find there has been shipped \$15,348.59 worth of ore carrying an average value of \$243.62 per ton. The lowest assay of any shipment being \$161.40 and the highest being \$415.16, and of the above valuation, about 10% was in gold.

"In addition to this ore shipped there has been treated in Arastra, surface ores which produced a bullion value of \$170.00 per ton.

"There is a continuous orebody 1000' in length, 160' in depth, and 2' thick, making 320,000 Cu. Ft. of ore - this gives ore reserves of 27,000 tons."

"The value of all ore the mine has heretofore produced has been over \$80.00 per ton.

"I feel safe in estimating the net value of the 27,000 tons in reserve to be \$50.00 per ton, which would make ore in sight valued to \$1,350,000. after deducting reasonable expense for mining and treating!"

"It is highly important to state in this connection that no estimate of ore has been made in the large of Footwall ledge.

In 1894 another Engineer reports as follows:

"The main "Arnold" shaft is sunk 260' - the N. Adit is 100' long, with vein continuous, the S. Adit is 383' , with vein also continuous.

The S. Adit has been chlorided partly in the richer stopes, showing fully 6' removed as width of vein.

In the N. Adit the ore is continuous, encountering some very rich chlorobromide of silver in roof near Shaft - the 60' level is short, showing excellent ore.

Below this level, the ore in the shaft is 28" wide and averages for 40' silver 26 oz. gold 45/100 oz.

The N.W. drift is 48' long, showing ore from 14" to 20" carrying a value of from \$40 to \$75 per ton.

The S.W. drift, 102' long, shows the ore seam in the roof continuous but varying.

"The average value of the ore is somewhat difficult to get at in the present condition of workings but from samples taken on the second Winze in the Adit level from the N. drift in the 100' level, the S.E. drift and Winze, and from other drifts and winzes, an average of 12 samples gives \$34.02 in silver and \$13.02 in gold, or a total of \$47.04 per ton.

Continuing his report on the "Evangelist" claim, he states:

"A Tunnel was started on the West ledge and has been run a distance of 336' at which point it enters the East Vein or ledge, 200' below the surface, on the pitch of the Ledge.

The East ledge at this point is 20' between walls - on the Footwall there is 4" to 6" of ore that assays 164 ounces silver - then there is 18' of Ledge matter and on the Hangingwall or East wall, there is 2' of ore that assays \$42.50 per ton in gold and silver - 80% of the value being in gold.

This return was from a three ton sample taken from the 15' drift run on the ledge at this point. At this point there is 200' of backs.

"No work has been done on the West vein on this claim, which is equally as important as the one demonstrated - the claim adjoins the "Arnold."

"In 1901 the "Arnold" shaft was sunk to 200' - another Engineer states that on account of water he could not get to the bottom of the shaft.

The ore body on the 100' level shows strong from 2' to 5' wide for the length of the drift, which is 400' long, maintaining high values.

"The veins have been prospected in many places by shallow openings, my samples, except from the "Arnold" were taken from these surface workings.

"From East Vein "Lee" shaft Tunnel.

340 oz. Silver.	4.60 oz. Gold.....	\$432.00
5 oz. Silver	0.15 Gold.....	8.00
Lee West vein showing Iron S. and		
9.8 Silver.	0.09 oz. Gold.....	11.70
Lee Mexican stope Ledge 2 $\frac{1}{2}$ '		
52.03 Silver.	0.17 oz. Gold.....	55.70

In 1904 the "Arnold" shaft was sunk to a depth of 250' - a further report compiled by another Engineer states that on the 100' level the ore shoot extends for a distance of 320' to the S.E. and 80' to the N.W., the shoot has an average width of 18" of first class ore, beside the milling ore lying alongside, which has a width of from 2' to 3' additional.

"Samples taken along this oreshoot on the 100' level gave the following results:

No. 1.	32.02 oz Silver - 0.24 oz Gold.....	\$ 37.00
2.	51.01 oz Silver - 0.46 oz Gold.....	60.30
3.	247.00 oz Silver - 1.64 oz Gold.....	279.80

No. 1 was taken along the length of the shoot, an average of 400'.

No. 2 was a part of the paystreak from the N.W. of the shaft.

No. 3 was a rich part of the paystreak mixed with quartz from both sides of the shaft.

"I could only explore about 30' on each side of the shaft on the 200' level on account of the drift being filled with debris, but the oreshoot shows the same characteristics as in the 100' level - the vein however shows a greater width.

"This vein is exceedingly strong and can be easily traced for a distance of two miles on the surface - the Hangingwall being especially fine and hard."

"In all previous reports the East Hangingwall and the West Footwall have been treated as two separate veins - this is due to the fact of a difference in the ore.

"As a matter of fact they constitute one large strong contact fissure, exposed for practically 7,500 feet within the "Cedar" holdings and 5000 feet within the "Fillmore" holdings, where the veins merge.

"The fissure carries a Diorite hangingwall and a Granite footwall, ranging from 50' to 200' apart - the intervening mass consisting of a contact mineralisation of porphyry, quartz and the softer granites.

"This is clearly proven at the "Arnold" shaft, where in grading across 100' between these walls, a number of smaller stringers of ore were disclosed and the higher grade was shipped with other ores.

"It is also proven in the "Evangelist" crosscut tunnel, where the formation between the Foot and the Hangingwall is shown to be porphyry with oxidised feeders of iron and quartz.

"The West or footwall vein has a dip to the W. whilst the Hangingwall vein dips slightly to the E.- with depth, these will probably unite, making for important bodies of milling ore.

Before closing these excerpts from Engineering reports dating back to 1888, 1895, 1901, 1904, I recognise the fact that I am quoting "ancient history."

Under ordinary circumstances such information would be of little use in a report that is intended to cover the present condition of these mines, but as will be shown later on in this report, under the heading of "Ore available and Developed" - a very minimum amount of these ores in the several properties have been mined, shipped, or milled - and although only a small part of these developments can at this date be examined or sampled - yet the fact remains that under water, or covered by caved ground, the physical conditions covering the values previously reported upon remain practically intact and ready for exploitation.

Down to the 100 foot level in the Arnold there is
a block of positive ore remaining of 6,250 tons
and an average value of \$30.00 per ton.....\$187,500.00
This ore is South of the Shaft.

On the same level and N. of the Shaft there is
a block of positive ore remaining of 1666 tons
and an average value of \$30.00 per ton..... 49,980.00

At the "Fillmore" there is a block of 3000 tons
positive ore, having a value of \$40.00 per ton..... 90,000.00

Total tonnage positive ore.....\$327,480.00

In the "Arnold" workings and down to the 200'
level there is a block, S. of the shaft of
12,000 tons of probable ore (this ore has
been partially sampled showing a width of
4 feet, but not resampled at time of ex-
amination, owing to water conditions)
The value of this ore maintains at \$30.....\$360,000.00

N. of the shaft and up to the Adit level
there is a computed block of 10,134 tons
of probably ore valued at \$30.00 per ton.....304,020.00

N. of the raise between the Adit level and
the 100 foot level there is a block of
3000 tons probable ore value \$30.00 per ton.....\$ 90,000.00

Between the 200' and 295' (or bottom of the
Shaft) there is a block of 7,800 tons of
ore valued at \$30.00 per ton..... 234,000.00

Total probable ore opened by shaft.\$988,000.00

Whilst there are other ore bodies partially opened up - these
cannot be examined as they are contained in the older workings
and portions of the drifts, tunnels, etc. are caved.

SUMMARY AND CONCLUSION

These consolidated properties carry a strong and continuous vein system
for a known length of upwards of 12,000 feet on the East and West Veins
the same length on the "Golden Sulphide" and 1500 feet on the "Pearl"
and other veins embraced in this property.

Assay Map Showing Sampling of the
Fillmore Workings

Number	Ounces Silver	Width	Remarks
1.	48.00	2'0"	North Stope
2.	19.80	5'5"	Bottom of Drift
3.	21.28	6'0"	Back of Drift
4.	71.00	3'0"	In Stope
5.	30.00	6'5"	Bottom of Drift
6.	21.20	5'0"	Back of Drift
7.	51.68	1'0"	Footwall
8.	102.16	2'0"	Hangingwall
9.	46.08	5'5"	Back of Drift
10.	21.72	6'0"	Back of Drift
11.	18.86	7'0"	Back of Drift
12.	36.48	5'7"	Face of Footwall Vein
13.	32.60	4'5"	Back of Hanging'w V'
14.	76.62	3'0"	Face of Drift Hangingwall Vein
15.	29.36	Dump.	
16.	46.08	Second Dump.	

Average 42.05

Cedar

Concentrates

A Concentrated Summary of the Mining Activities of the Southwest

COCHISE COUNTY

The **Swishelm Gold-Silver Company**, recently shipped a carload of ore to the **Calumet & Arizona** smelter at Globe, which showed a silica content of 65 per cent and the gold-silver content valued at \$31.80, of which \$8.60 was gold and \$23.20 was in silver.

Shipments of silver, gold and lead ore from the **Tombstone** district both by lease and the **Bunker Hill** company continue to average in the neighborhood of 100 ton cars a month, according to the report at the local depot. With silver around \$1.30 an ounce this means a net return of at least \$100,000 per month.

It is reported that a rich body of ore has been struck on the properties of the **Arizona Mining** company, at **Dragassays** on the body running \$75 to \$100 in silver and lead.

The **Calumet & Arizona Mining** company have declared a quarterly dividend of \$1.00 per share, payable March 22nd, an increase of 50 per cent over the quarter.

A strike of sulphide copper ore is reported by the **Middlemarch** mine, situated five miles from **Pearce**. Ore carrying high values of silver and gold was discovered in the main shaft at the 800-level.

L. Fuffner of **Paradise** reports several mining properties in the neighborhood in which he is interested are being favorably, the **Cochise Mines** company has recently installed a steam engine which is driving a decompression tunnel. Also the **Ajax** property will start work soon, as well as the **Top Extension Co.**

Shattuck Arizona, in the last two or three months has shown signs of a revival in operations, after a period of partial suspension of the mines because of fire.

GILA

The production of the **Miami Copper** mine is being kept down awaiting a market. Production is averaging the same as 1914 production.

Work on the main shaft of the **Iron** mine in the **Globe** district from the 1300 to 1500 foot level was started recently. Progress on the building for a new concentrator is rapid. Ore recovery is being steadily increased.

Old Dominion at **Globe** is doing deep sinking. The main operating shaft has been sunk from the 18th to the 19th level; **K** shaft from the 19th to the 20th level; **Grey** from the 14th to the 16th level.

According to the report for the quarter ending December, 1919, more than 120 feet of new shafting has been added to the **Foot** mine of the **Superior and Boston** companies at **Globe**. Several small stopes are being opened on the 400 level. Drifting on the 600 level is also reported to be in progress.

Van Dyke Copepr company of **Miami** has established the world's record in sinking, having sunk 10 feet a day

for one month of 31 days, or a total of 308 feet.

It is reported that a rich strike has been made on the 140-level of the **Irene** mine which is situated in the **Globe** district, about one mile north of the **Old Dominion**.

The **Porphyry Mining** company of **Globe** has successfully completed the under-raiming of the drill hole for the 12½-in. casing at the old **Barney** shaft and the casing lowered to a depth of 500 feet.

The **Gila Copper Sulphide** company at **Christmas** has emerged from its trouble with formal action by Judge **Sawtelle**, in the U. S. Court of **Arizona**, in dismissing the receivership and turning the property back to the owners.

GREENLEE

The **Stargo** mine, located one mile out of **Morenci**, has been shipping to the **C. & A. Smelter**. The silica content has been as high as 82 per cent and the net return on a carload after paying all freight and smelter charges was between \$1100 and \$1200.

The \$150,000 mill of the **Duncan Mining & Milling** company has been completed and is now ready for operations. As soon as the mine is unwatered, which will take about 15 days more, active mining operations will be commenced.

MOHAVE

W. D. Grannis has made preparations for the resumption of work on the **Great Republic** mine of the **Arizona Bullion** company in the **Cedar** District. The **Great Republic** is one of the old producers of the **Cedar** district and they claim to have gold opening running better than 50 ounces of silver.

President Wold, of the **Tom Reed** company, **Oatman**, reports conditions better at **Oatman** than at any time in the last three years. **Oatman** is said to be paying the highest wages of any gold camp in the world.

The **Potosi** mine, formerly the **Bella Union**, situated at **Chloride**, is reported to have been taken over by **Chas. Schoenmehl**, who is planning a campaign of development.

The shaft of the **Kingman Silver-Gold** Mines company, situated about eighteen miles from **Kingman**, in what is known as **Hardy's Butte**, has reached a depth of 30 feet and a big hoist and compressor installed. The work from now on is to be carried on with machine drill and big progress is expected.

Considerable excitement has been caused in **Oatman** by the opening of an ore body in a crosscut from the tunnel level of the **Alexander** mine of the **Oatman Southern Mining** company. Four feet of the vein are reported to have given assays of more than \$2,000 to the ton.

The **Combination Silver Mines** company of **Hackberry**, which took over the **Combination** properties recently, is getting shaped up for a busy season of mining is the report coming from that section.

The crosscut from the 540-level of the **Telluride** mine at **Oatman**, has been carried over 40 feet and is close to the ore shoot that was encountered on the 330-level.

Leasers of the **Rainbow** mines at **Chloride** have entered an ore body three feet in width that gives average samples of from \$50 to \$75 per ton. This ore body was encountered close to the lower level and gives backs of 250 feet for stoping.

Recently the **Chloride Queen Mining** company shipped a small car of ore to the smelter at **Humboldt** which netted \$1270 or \$35 per ton.

It is rumored that the **Senate Silver Mines** company and the **Hackberry** will consolidate.

It is understood that the **Elkhart** mine is to undergo thorough development after which the main shaft will be actively extended in depth, crosscuts will be carried to both walls and into the paralleled veins.

Operators of the **Antler and Copper World** claims, east of **Yucca**, are sinking a winze below the 100-level of the **Antler**. Ore taken from this winze is said to carry values of 24 ounces silver, 30 per cent copper and a small amount of gold.

A good body of ore is reported 390 feet from the portal of the tunnel being driven by the **Gates Ajar**, **Kingman**. The ore shows silver-lead values.

The **Goldroad Annex Mines** company at **Kingman** is being financed to the extent of \$50,000 for development work, according to report.

The **Copper Age** mine at **Chloride** which is owned by the **Arizona Ore Reduction** company, is driving its tunnel towards a cross vein, and at a depth of 2800 feet from the portal has struck a flow of water that is said to indicate proximity to the vein.

The mines and holdings of the **Arizona Butte Mines** company have been examined recently by eastern men and it is announced that they recommend the financing of the properties on a large scale. New equipment will have to be installed to carry on this work.

The **Diana** at **Chloride** is making good headway according to recent reports from that section. On the 300 the drift has been cut 70 feet west and 18 feet east. Fifty feet west of the main shaft a crosscut is being run to tap the foot wall. An eighty-foot ore shoot is encountered which shows to be a very good milling ore.

The shaft of the **United American** at **Kingman** has reached a depth of 450 feet. The vein now being entered is unexplored, no work having been done on it at any point, although the outcrop looks good.

Drifting is being carried on to the east of the shaft on the 650 level of the **Gold Ore** mine.

It is reported in **Kingman** that the **Diamond Joe** mine has just made a shipment of concentrates.

A new lease has been made on the **Rainbow** at **Chloride**. A strike of high grade was recently made and the ore is being hauled down for shipping.

GOLDFIELD MINING CAMP

By ALFRED STRONG LEWIS

It is little realized by the numerous tourists and passengers going over the Apache Trail or Roosevelt Highway that in passing through "Goldfield" they are getting a view of one of Arizona's once famous gold camps that produced millions and probably contains millions yet untouched. An occasional comment on Cal Warrington's hillside mineral display or a question of inquiry occasioned by the old buildings and head frame of the Mammoth and Goldfield is passed by and forgotten.

Goldfield has never "come back". It alone of all the old abandoned pioneer mining camps has not been systematically mined. In truth, since the decease of the original operators and the subsequent period of abandonment no material extension of the old workings or exploration of new ground has been accomplished.

The Goldfield district is in the shape of a basin, the entrance to which is through a natural gateway, with the Bulldog peak on the west and the Superstition mountain on the east, the northern rim being formed by a low range of hills.

The name Bulldog was derived from a peculiarly carved peak, at the base of which is located this once famous gold district. Any of the old timers in this country will recall the wonderfully carved likeness of a bulldog, resting on a peak just to the west of the Bulldog mine. It seemed to those with vivid imaginations that nature had set this guardian there to hold secure the virgin metals in the ground below. This old time land mark was destroyed by vandals who, in drunken orgy climbed the mountain and blew it into fragments with a great charge of dynamite.

Many weird tales have been told about Superstition mountain. Most of them are credited as being old Indian legends and traditions. One of these which seems reliable relates how an old agricultural tribe of Indians, native to the land, was driven up into these mountains by a roving, predatory band of Apaches. The only canyons through which escape was possible were then guarded until death from starvation overtook the entire tribe. Since that time all Indians have been superstitious of the mountain and have given it a wide berth on account of the many and varied sounds of the wind whining through the fantastically carved pinnacles, being mistaken for the perpetual moaning of the spirits of a long deceased people.

Geology—The evidence at hand proves that the district has been subjected to prolonged, but intermittent volcanic activity. The repeated volcanic eruptions have broken up the country forming numerous cracks and fissures, many of which extended to profound depths and served as vents for highly charged vapors and hot solutions to bring up the precious metals, and form the rich ore deposits. The ore deposits were hundreds and perhaps thousands of feet deep when made. The broken up structure of rock formation, and the softened character of same, due to strong chemical action, of the ancient volcanos, made it an easy prey for

the processes of erosion. Millions of tons of over-burden have been washed from above the Goldfield deposits and the detritus carried down, thus helping to gradually fill up the enormous chasm which today is the wonderful Salt River Valley, with a depth of soil of one thousand feet, and no one knows how much deeper. Thus Nature in her titanic power has exposed a great mining district, and with the waste material has made a broad valley of priceless farming land.

George U. Young, although greatly handicapped through lack of adequate funds, has been patiently toiling away against almost inseparable odds for many years. His property, the Mammoth, is conceded to contain one of the largest low grade ore bodies of gold in the United States. He has had many flattering offers for the property but has preferred to retain it rather than accept terms uncommensurate with his own valuation.

The old Bulldog property has produced rich gold ore from silified lenses in a wide spar ledge. This property has about one-half mile of workings with the greatest depth only 100 feet. Well informed mining men state that this property is strikingly similar to the Oatman and Nevada properties and are confident in their prediction that permanent high grade gold and silver ore deposits will be encountered at 300 to 400 feet of depth.

The Goldfield Development Company have a property which yields many rich samples of gold ore from surface workings. Sufficient funds were raised upon the merits of the property to have systematically developed the same but unfortunately the funds never reached the property.

The Buckhorn-Boulder is one of the old properties in the district. The dump and camp buildings stand out prominently upon the slope just below the cliffs of Superstition mountain and can be plainly seen from the Roosevelt Highway. This prop-

erty was originally worked for its gold values but recent development by the present organization has exposed copper ore of exceptional promise. Besides having a fissure vein with high grade values of both copper and gold, this property has a porphyry zone several hundred feet in width which contains disseminated copper values. This zone has indications of being very large in extent. If future development meets with the same results as current developments, it is not unlikely that another big low grade copper camp ranging with Ray and Miami may here be developed. The Buckhorn-Boulder people, however, are reported to be confining their attention for the present to their better grade ores and planning to erect a small mill to extract the gold and concentrate the copper with the view of making the profits from these ores pay for the development later on of the extensive areas of low grade disseminated porphyry ores. The personnel of the company such as to induce confidence in the successful outcome of their enterprise.

Virgin Ground—There is a great deal of virgin ground in this district which is held by various individuals. Most of this seeking outside capital for exploration purposes and no doubt many opportunities for exploration work exist here.

It would be unfair to the Phoenix well as the Mesa merchants and business men if something were not said in praise of their financial as well as moral support of the many efforts which have been made to open up Goldfield property. Faith in the ultimate future success of the Goldfield district still exists in the minds of all who are familiar with the true situation. Systematic development along economical lines with adequate capital requirements will no doubt some day justify the prediction so many times expressed by those who know this district best, that Goldfield will rank with Arizona's big producing camps.



On the Desert—Superstition Mountain in the Distance

Establishment of Mineral Monument

Cedar Valley Mining District, Mohave County, Arizona

I selected as a convenient and prominent natural object in the vicinity of numerous mines of the District a large granite boulder of more than a hundred tons weight, situated conspicuously on a ridge near the north end of the mine and immediately to the right of the trail leading from the Hampden Mill through Cedar Valley Pass to Deluge Wash. The Boulder is circular in form fully 18 ft. in circumference and stands solitary exposing 8 ft. of solid granite above the surface.

Upon the western face of this boulder I cut with a cold chisel the following inscription: "U.S.M.M. No. 1, C'dr V'l'y Dist. Est. March 15, 1883"; for United States Mineral Monument No. 1, Cedar Valley District, established March 15th, 1883. The first letter of the inscription (U) is the trigonometrical point of reference. There being no trees nor rock in place near at hand to be used as bearing objects, from this point I take the following observations on adjacent Mountain Peaks:

Bates Peak bears N. $11^{\circ} 4'$ E.

Arnolds Peak bears N. $51^{\circ} 19'$ W.

Pilgrims Mountain bears S. $58^{\circ} 15'$ W.

Yeoman's Peak bears S. $15^{\circ} 15'$ W.

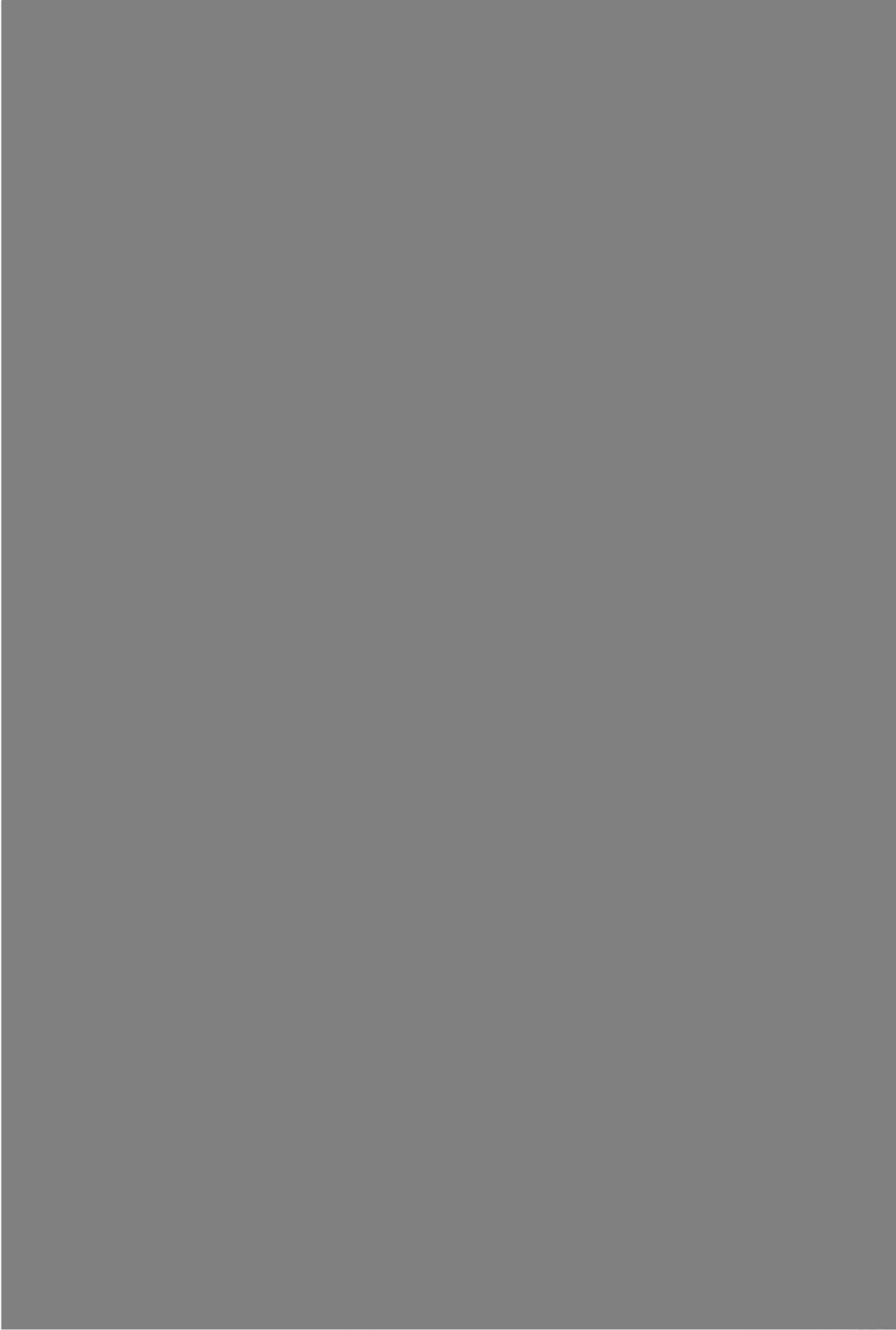
Falvas' Butte bears S. $19^{\circ} 5'$ E.

Using a Burts Solar Compass (Gurley Make) I found the Latitude to be $34^{\circ} 39'$ N. and the variation of the needle to be $14^{\circ} 15'$ E.

Ridgley C. Powers
Surveyor of Mineral Lands

June 23, 1976

THE LAKE HAVASU CITY *Herald*



CHARLES R. WARD CORPORATION

Mining Development & Mineral Recovery

4728 N. 21ST AVENUE

PHOENIX, ARIZONA 85015

JOINT VENTURE PROPOSAL

It is the intention of the C. R. Ward Corporation to enter into a Joint Venture Agreement with the Capital Management Corporation to share in the Cedar Mining Project for a twenty-five percent (25%) interest at a cost of approximately \$350,000.

There are several possible ways in which to finance this project:

- 1) Deposit funds as needed into a joint checking account.
- 2) Purchase a \$350,000 Time Certificate of Deposit (Which will draw interest) as collateral for a Demand Note (10% simple interest) of which deposits into a joint checking account will be made upon need. The Demand Note and interest will be payable at the end of a twelve month period or before, depending upon arrangements made with the bank.
- 3) Issue a Letter of Credit to the Ward Corporation with a \$350,000 maximum. The mine then borrows the amounts needed from time to time and repays this loan at a set amount plus interest from the Gross Profit prior to any disbursements. Due to the fact no funds will be borne by Capital Management, the percentage of the Net Smelter Returns will be reduced.
- 4) Enter into a contractual agreement with the bank where they supply all funds at a cost of a portion of Capital Management's percentage of the Net Smelter Returns.
- 5) It is advisable to discuss this with the bank and/or accountant in planning this venture to customize the manner of payments and/or loan to your particular situation.

CHARLES R. WARD CORPORATION

Mining Development & Mineral Recovery

4728 N. 21ST AVENUE

PHOENIX, ARIZONA 85015

PRODUCTION ESTIMATE

Mill will process 100 tons per each 24 hour period

Assay averages for the two mines to be worked are as follows:

	<u>Gold</u>	<u>Silver</u>	<u>Value</u>
Arnold	0.27	104.17	\$455.00
Gen. Lee	<u>1.25</u>	<u>101.78</u>	<u>582.10</u>
Average	0.76	102.98	\$528.92
If Mill is 80% efficient	0.60	82.38	\$423.14
The Conservative Figure Used	0.25	50.00	\$240.00
	- - - - -	- - - - -	- - - - -

Therefore, 100 tons per day	\$24,000
Seven days per week	\$168,000
Four weeks per month	\$672,000

If production was to begin approximately the third month, the following table will show the Net Profit and investments without taxes included:

MINE	%	INVESTMENT	PROFIT	MONTH
MINE	100%	\$373,581	\$5,001,401	4th
CAPITAL MANAGEMENT	25%	304,581	1,141,664	5th
BARETTA MINING COMPANY	5%	54,000	235,249	5th
WARD CORPORATION	70%	15,000	4,033,487	3rd

The "%", percentage is according to the Joint Venture Agreements
The "Investment" indicates the amount forwarded
The "Profit" is that figure less the investment
The "Month" shows when the first clear profits are realized after all invested money is recovered.

CHARLES R. WARD CORPORATION

Mining Development & Mineral Recovery

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PHOENIX, ARIZONA 85015

ESTIMATED EXPENDITURES

The following is a breakdown of equipment and material needed to place the Arnold and General Lee Claims into production.

The dollar figures are general and are contingent upon how and the type purchases made.

At the present time, excellent used equipment is available as are complete crushing and milling plants.

As the case may be, through careful planning and financing the monthly and total expenditure could possibly be as much as 20% lower.

(602) 968-1275

(602) 277-2483

CHARLES R. WARD CORPORATION

Mining Development & Mineral Recovery

4728 N. 21ST AVENUE

PHOENIX, ARIZONA 85015

EXCERPTS

from

the

Report of

MAJOR HORACE M. RUSSELL

on

CLAIMS OF THE CEDAR VALLEY GOLD & SILVER M. CO.

April 1901

EXCERPTS FROM THE REPORT OF

Major Horace M. Russell

April 1901.

On the Claims of the Cedar Valley Gold & Silver M. Co.

"The east ledge on the Arnold claim has the most development work done on it.

The main shaft has been sunk to a depth of 200 feet. On the 100 ft. level drifts have been run from the shaft 70 ft. northwest and 400 ft south-east on the ore chute. On account of water I could not get to the bottom of the main shaft.

The ore body in the 100 ft. level shows strong from 2 ft. to 5 feet wide. The ore chute is over 400 ft. long on this level and holds very regular in width and high in values. See assay returns.

Nearly 300 feet in from the mouth of the shaft on the adit level a winze has been sunk to the 100 ft. level which discloses a strong ore body from top to bottom of an average width of 2½ feet. The ore has been stoped at this point on the adit level about 80 feet to the surface. I believe this ore body will continue to great depth and should improve in values with depth. I was told the ore held as good and strong to the bottom of the shaft.

The veins are easily traceable the full length of the claims and have been prospected in many places by shallow openings. My samples, except from the Arnold, were taken from these surface workings.

Fourteen samples taken by myself from different parts of the mines gave the following assay values:

QUEEN

38.2 oz. silver 0.9 oz. gold	\$56.20.
104.1 oz. silver 1.02 oz. gold	\$124.50
71 oz. silver 0.25 oz. gold	\$76.00

ARNOLD

100 ft. winze taken every few feet from top to bottom of 2½ ft. ledge.

28.7 oz. silver 0.19 oz. gold	\$32.50
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From 2 to 5 ft. ledge on 100 ft. level.

243 oz. silver 0.12 oz. gold	\$245.40
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Shaft No. 2 forty ft. deep 2 ft. ledge.

23 oz. silver 0.16 oz. gold	\$26.20
-----------------------------------	---------

Selected

94 oz. silver 1.86 oz. gold	\$131.20
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122 oz. silver 0.61 oz. gold	\$134.20
------------------------------------	----------

Large Croppings

19 oz. silver 0.05 oz. gold	\$20.00
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LEE

From east vein Lee shaft tunnel.

340 oz. silver 4.60 oz. gold	\$432.00
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Lee long stope across 24 ft. ledge.

5 oz. silver 0.15 oz. gold	\$8.00
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Lee west vein showing Iron south end.

9.8 oz. silver 0.09 oz. gold \$11.60

Lee Mexican stope ledge 2½ ft.

52.3 oz. silver 0.17 oz. gold \$55.70

HUBBARD

8 ft. croppings very strong ledge.

2 oz. silver 0.1 oz. gold \$4.00

Making an average value of 14 samples \$96.95

In my opinion the mines are all right and will be made a valuable property with proper development. I advise the sinking of the present deepest shaft on the Arnold to a depth of at least 700 ft. with crosscuts and levels every 100 ft. Also sink the shaft on the Queen 500 or 600 feet."

Los Angeles, Cal.

April, 1901.

EXCERPTS FROM THE REPORT OF
James A. Pritchard
on the Arnold Gold & Silver Mining Company.

Nov. 1888

The vein or ore channel extends nearly north and south, it is of great width and remarkable in extent, it being traceable by bold croppings for a distance of six miles.

The east or hanging wall of the vein is granite. The west or foot wall is much softer and of porphyritic granite.

On the Arnold mine there appears two ledges on the surface, distant from each other about 100 feet. One upon either wall, but both are clearly within the same ore fissure or channel and are separated as far as depth has yet been reached by a dike of porphyry of the finest quality, which certainly is the natural home of the precious metals.

The development upon this mine has nearly all been done upon what is called the east or hanging wall vein—which proves to be very regular in size and grade. The ledge varies in thickness from 1½ to 4 feet. It has been penetrated by a shaft which was made to follow the ore and has been continuously in high grade ore of good average thickness of 2½ feet.

The shaft is 110 feet deep or near 200 feet below the highest croppings of the ledge. Each way from the shaft and 110 feet above the bottom of the same there has been a level run over 600 feet on the ledge showing a continuous ore body, so far as run, over two feet in thickness and where the level is not run, croppings and development of contiguous ground shows the existence of the ledge. Above this tunnel some ore has been extracted. In this tunnel about 300 feet south of the shaft there has been a winze sunk to a depth of 40 ft. which we entered and found the ledge 2½ to 3 feet thick, and from which we took samples. This was the lowest depth we could reach in the mine owing to water in the shaft but at this point the ore showed a permanent and well defined ledge 3 feet thick.

I had access to the records of ore worked at the mine and shipped to different points for sale and treatment from 1876 to present date. This gives reliable data as to value of selected ore. The lowest assay on any shipment made being \$161.40 and the highest \$1200.00. From 10% to 20% of this valuation was gold. The higher silver content the higher the gold values. The actual bullion produced by ore crudely treated at the mine was at the average rate of \$170.00 per ton. What its assay value was or what percentage was lost by this treatment is not known. From the large sample I took from ores that were thrown back after being cobbled for shipment, even at the low price of silver I got an average value of \$81.56 per ton.

In arriving at the quantity and value of ore reserves I have chosen to be more conservative than anyone owning the property would be willing to adopt as the basis of sale.

I allow 50 feet below the lowest workings of the mine and reduce the average thickness to 2 feet. We have a continuous ore body 1000 feet in

length and 160 ft. deep and 2 ft. thick. 12 cu. ft. of this heavily mineralized ore is sufficient to a ton.

This gives an ore reserve of 27,000 tons. The value of all ore mined having been proved in the way it has, as stated above to be over \$80.00 per ton I feel safe in estimating the net value of the 27,000 tons to be \$50.00 per ton. This would make ore in sight valued at more than one and a quarter million dollars. It is highly important to state in this connection that we make no estimate of ore in the large or foot wall vein from the fact that only croppings appear. I am informed that this ledge in the adjoining claims both on the south and on the north have been penetrated by shaft on one claim 40 feet and on another 100 ft. and that both claims have yielded ore valued over \$200 per ton. So while it is possible this large ledge upon the Arnold mine may to the same depth as the other is estimated produce even greater values than the one estimated, yet as it has not been proven by penetration I have given no estimate of its value. This ledge appears to me to have wonderful possibilities and I recommend that work be done on it.

In conclusion I want to add that I regard this property with exceeding great favor. The great length as well as width of the ore channels gives the axiomatic proof of permanent depth.

San Francisco, Cal.

Nov. 1, 1888.

HISTORY OF THE CEDAR MINES CONSOLIDATED PROPERTY

Cedar, Arizona.

By J. J. Jerome, Yucca, Arizona

April 25, 1921.

The Arnold Lode, about 2 1-3 miles in length, was discovered in the Fall of 1873 by W. F. Arnold and J. B. Magendie, who made the first locations thereon, naming one the Arnold and the other the General Lee mining claims.

In a short time all the remainder of the lode was located by others. The most prominent of the latter locations being known as the Silver Queen.

As was the custom in the early days a district was immediately formed and named the Cedar Valley Mining District and a recorder for the same was duly elected.

Outcrops of very high grade chloride ores were found on several of the locations on the surface and some of the owners commenced operations by building horse Arastras and amalgamating the ores by the patio and barrel process. The Chloride ores thus worked assayed from 200 to 300 and more ozs. in silver and with a gold content of about 1 oz. gold to every 100 ounces silver. The bullion thus obtained would assay about 930 fine in silver and were shipped to San Francisco.

Other owners of claims would hand sort the ore and pack same by burro and mule train to the Colorado river a distance of 50 miles and then ship by river boat and ocean steamer to San Francisco where the ores were sampled and sold in the open market.

The average cost of such transportation was \$100.00 per ton from the mine to the place of sale.

The first mine sale and transfer of any importance was that of the Arnold location in 1876 for the sum of \$11,000.00.

The new owners continued to work the arastra and produce bullion, and also to ship ore to San Francisco until the coming of the railroad in 1883, when shipments by rail were made to El Paso and later to the new town of Kingman where sampling works had been established.

From the year 1873 up until 1893 when the slump in silver came the Arnold mine produced in bullion and ore shipments, to my knowledge, values to the amount of \$117,000.00 and all of the ore from which these values came was taken from two shallow surface tunnels along the vein and one shaft 100 feet in depth.

The next sale was that of the Silver Queen mine in 1878 for the sum of \$8,000.00 cash. The purchasers erected a small dry crushing and roasting plant of three or four tons daily capacity and located about a mile from the mine. The ore being carried to the mill by pack train. A portable whim was erected at the mine and a shaft sunk to the depth of 140 feet where the inflow of water prevented further sinking with this equipment.

At that depth a drift about 70 feet long was opened on the vein and the

ores taken therefrom roasted and milled. The assay values of the same being about 80 ozs. silver and 1 oz. gold per ton of ore.

About this time the owners disagreed as to the working of the property and the mine was closed down leaving that grade of ore along the floor of the drift and in both faces of the drift untouched. The whole production of the Queen mine up to that time from both ore shipments and arastra and mill bullion was some \$55,000.00.

In 1881 some of the owners of the Arnold bought the General Lee mine and paid \$50,000.00 in gold coin for it and also the Hubbard location at the south end of the Gen. Lee, paying \$2,500.00 for same. Up to this time the ore shipments and arastra and bullion production from the surface ores of the General Lee amounted to \$25,000.00 The new owners did no further development work on these properties but contented themselves with getting United States patent for them in due time.

In 1882 the Evangelist location was sold for \$15,000.00 but the new owners did no work except the annual assessment work and finally had it patented. They apparently regarded it as a good investment on account of its situation between the Arnold and Silver Queen mines. Its previous ore sales being about \$3,000.00.

In 1894 the Baker Brothers purchased the entire group of mines and soon after (April 1895) commenced work on some of the principal claims and also rebuilt and added to the capacity of the mill. It being made 15 stamps complete with plates and concentrators and later cyanide tanks installed.

The Arnold lode consists of two separate veins of ore, the same being about 100 ft. apart on the surface running nearly due north and south and can be readily traced for a distance of at least 2 1-3 miles.

The small or east ledge follows along an extremely hard Diorite reef or dike, this being the hanging wall of the ledge. The west or big ledge is on the granite foot wall of the lode. At the Arnold shaft and dump it shows that the intervening matter between the two veins is a mass of more or less mineralized porphyry and in grading across that 100 ft. several small stringers of ore were disclosed and the high grade from them was shipped with the other ores.

On the Arnold mine the shaft and tunnel work has all been done on the small or east ledge. At the Silver Queen the shaft and other work is on the big or west vein. On the General Lee work has been done on both veins and pay ore shipped from them.

The work done in 1895 by Baker Brothers was sinking the Arnold shaft another hundred feet and a little drifting on the ledge both north and south at this point which disclosed the ore shoot as large and regular as above and with average values as in the upper workings. Some surface work was done on the Queen and considerable ore treated in the mill. The big slump in the price of silver and high transportation costs made further work discouraging so they quit the latter part of 1896. During this time all work was done by hand which made ore extraction somewhat higher than it would be at this time when machine drills could be installed.

About 1907 another company had an option on this property and the most they did was to build a good wagon road from the mine to Yucca a dis-

tance of 28 miles to the railroad. They were only there six months and as I am informed by men who worked at the mine they did not get mine development under way.

During the '80s when I was in charge of operations on the Arnold mine, as I said before, I mined thousands of dollars worth of rich ores from the long surface tunnel on the ledge from a shoot of ore that showed 600 feet long and it is my opinion that development at depth will show this property to be one of the big mines of the West.

Yucca, Ariz.
Apr. 25, 1921.

EXCERPTS FROM THE REPORT OF
E. C. Eddie, E. M.
on the "Arnold" and "Queen" Claims in the Cedar Mines Group.
1904

There are two great veins traversing the Company's property from northwest to southeast, known as the "Queen" and "Arnold" veins respectively. The Arnold has been developed more extensively. A single compartment shaft has been sunk on this vein to a depth of 250 feet with levels driven at the 100 and 200.

On the 100 ft. level the ore chute extends for a distance of 320 feet to the southeast from the shaft and 80 feet to the northwest. This chute has an average width of 18 inches of first class ore, besides the milling ore lying alongside which has a width of two to three feet additional.

Samples taken along this ore chute on the 100 ft. level gave the following results:

Number 1 32.2 oz. Silver 0.24 oz. gold - - \$37.00.

Number 2 51.1 oz. silver 0.46 oz. gold - - \$60.30.

Number 3 247.0 oz. silver 1.64 oz. gold - - \$279.80.

Number one was taken along the length of the chute an average of the 400 feet.

Number two was a part of the pay streak from northwest of the shaft.

Number three was a rich part of the pay streak mixed with quartz from both sides of the shaft.

I could only explore about 30 feet on each side of the shaft on the 200 ft. level on account of the drift being filled with debris but the ore showed the same characteristics as in the 100 ft. level and the vein showed much wider.

This vein is exceedingly strong and can be easily traced for a distance of two miles on the surface. It has a dip of about 60 degrees with walls of Diorite. The hanging wall being especially even and very hard. This fact is fortunate as it will enable you to mine the ore at a comparatively small expense for mine timbering.

Queen

The Queen vein runs parallel to the Arnold and at a distance of from 100 ft. to 150 ft. to the west at the Arnold shaft. This vein is also in diorite. On the surface these two veins seem to come together on the Hubbard claim about three thousand feet to the southeast.

The Queen seems to be a stronger vein than the Arnold but with less development. One shaft has been sunk to a depth of 140 ft. but is caved and could only be examined to a depth of about 60 ft. I am informed that the full width of the bottom of the shaft is in good grade ore. The ore in sight and on the dump is certainly of very good grade as the assay value of several samples shows 145.2 oz. silver and 0.82 oz. gold \$161.60. This ore shows a very heavy sulphide. There has been a large amount of surface work done on both veins of this claim by chloriders, who I am informed mined and

shipped a large amount of very rich ore, which the workings would indicate.

Samples taken from the ledge several hundred feet northwest of the shaft gave:

72.0 oz. silver	0.16 oz. gold	\$75.20.
31.4 oz. silver	0.15 oz. gold	\$34.40.
47.2 oz. silver	0.06 oz. gold	\$48.40.
30.4 oz. silver	0.36 oz. gold	\$37.60
57.4 oz. silver	0.08 oz. gold	\$59.00.

From the amount of croppings in sight and the ore blocked out in the Arnold mine I believe you have sufficient ore of good grade in sight to operate the 15 stamp mill that is on the property for a number of years and from my observation there should not be any trouble in extracting a high percentage of the values.

Both the Queen and Arnold are strong, powerful veins and have every indication of being true fissures. In conclusion I want to say that you have a very fine proposition and there is no question in my mind, that properly handled you will make a great financial success.

EXCERPTS FROM GILLIS' REPORT
ON THE
QUEEN AND EVANGELIST CLAIMS
To Philip P. Baker
1895

Each claim has two veins or lodes almost parallel with each other and about 200 feet apart.

On the Queen claim the croppings are 700 ft. long on the south end and 20 ft. wide and 400 ft. on the north end. Very strong and bold.

The developments on the Queen west vein are as follows, 300 ft. from the south end line a shaft has been sunk to a depth of 130 ft. on the vein. At 90 ft. a drift has been run south 60 feet. On the 130 ft. level drifts have been run south 50 ft. and north 50 ft.

A tunnel 200 ft. north of the shaft intersects the vein 82 ft. from its mouth and 90 ft. deep on the vein. Drifts have been run on the vein 50 feet to the south and 80 feet north. Good ore showing in all the openings.

Open cuts run at different places on the surface shows the ore from 2 ft. to 4 ft. wide with values from \$50 to \$70 per ton. At another point the ledge shows 12 to 15 ft. wide with values from \$8 to \$20 per ton.

Six samples taken from the 90 ft. level south of the shaft, vein 5 feet wide gave the following values:

- No. 1 \$54.00 in gold and silver.
- No. 2 \$39.50 in gold and silver.
- No. 3 \$160.80 in gold and silver.
- No. 4 \$40.75 in gold and silver.
- No. 5 \$38.00 in gold and silver.
- No. 6 \$37.50 in gold and silver.

Silver figured at 60c per oz.
Average value \$61.77.

Seven samples taken from the 130 ft. level, north and south of shaft, average width of the vein taken, 2 feet:

- No. 1 \$342.42 in gold and silver.
 - No. 2 \$170.19 in gold and silver.
 - No. 3 \$131.97 in gold and silver.
 - No. 4 \$105.57 in gold and silver.
 - No. 5 \$95.80 in gold and silver.
 - No. 6 \$124.07 in gold and silver.
 - No. 7 \$172.91 in gold and silver.
- Making an average value of \$163.28.

Silver figured at 60c per oz.

Six samples taken from the tunnel levels, vein 2 feet wide:

- No. 1 \$327.00 in gold and silver.
- No. 2 \$260.00 in gold and silver.
- No. 3 \$100.00 in gold and silver.
- No. 4 \$45.00 in gold and silver.
- No. 5 \$20.00 in gold and silver.
- No. 6 \$70.00 in gold and silver.

Silver figured at 60c per oz.

Making an average value of \$137.00.

FOREST SERVICE RESPONSE TO
NOTICE OF INTENT
(Operating Plan Not Required)

CODE 2810

TO: Operator

Ben Goldman
Name

August 20, 1980

130 South Rush
Address

Prescott, Arizona 86301

Ph# 778-2019

We have evaluated your Notice of Intent to Operate dated 8/15/80 for the Silver Queen

#2 Lode mining claims, pursuant to 36 C.F.R. 252,4 and F.S.M. 2817.1.

The scope of your proposed operation indicates that your proposed operation is exempt from the requirement for an Operating Plan. The basis for determination is as follows:

1. No structures are planned.
2. Access will be accomplished by existing roads.
3. No significant disturbance is planned as a result of this operation.

Please be aware that the following stipulations apply to this operation:

1. The operator agrees to notify the authorized officer of any discovery of cultural or natural history resources within the area covered by this Notice. This authorization to proceed does not constitute permission so as to relieve the operator from criminal prosecution under the Antiquities Act (P.L. 59-209).
2. This response does not constitute recognition or certification of ownership by any person named as owner herein.
3. This response does not constitute now or in the future recognition or certification of the validity of any mining claim to which it may relate or to the mineral character of the land on which it lies.
4. This operation is authorized to begin on August 20, 1980 (a date not prior to date of approval). If operations are proposed to exceed one year, an addendum to this plan should be filed. A substantially changed operation will be covered by a new Notice of Intent to Operate.
5. All internal combustion engines must be equipped with an approved spark arrestor prior to operation on Government land.
6. Other stipulations (attach if appropriate) (Yes) ~~XXXX~~ Attached Letter

If you have any questions concerning the above, you should contact us at your earliest convenience. Maintaining good communications with this office during this operation will be mutually beneficial, so please do not hesitate to contact me or my field representative at any time.

The above stipulations have been reviewed and are agreed upon.

Ronald Thompson
District Forest Ranger
Bradshaw Ranger District
RFD #7 Box 3451
Prescott, Arizona 86301

Operator

June 21, 1989

Mr. Robert W. Boven
733 Winter St.
Spring Lake, MI 49456

Dear Mr. Boven:

Please excuse my delay in responding to your letter regarding the "Little Minister" mining claim. I own 15 claims which surround the Cedar Patented Mine property. I would be interested in selling both the patented and unpatented property.

Please feel free to contact me if you have any further questions.

Sincerely,

DOUGLAS K. MARTIN
315 W. Monterosa
Phoenix, AZ 85013

DKM:ndh

D.K. Martin & Assoc.
315 W. Monterosa
Phoenix, AZ 85013

Address until May 31, 1989:
Robert W. Boven
212 W. Southern #6
Mesa, AZ 85212
Phone: (602) 898-1836

Address after May 31, 1989:
Robert W. Boven
733 Winter St.
Spring Lake, MI 49456
Phone: (616) 847-0671

May 18, 1989

Dear Mr. Martin & Assoc.:

Are you interested in selling the small 3 acre pie shaped mining claim named "LITTLE MINISTER" which is between the "SILVER QUEEN" and the "EVANGELIST" claims in Cedar Valley ?

Additional Identification is Book 1211 Page 378 AMC # 258443
Location SE 23 T.16 1/2 N., R15W.
NE 26 T.16 1/2 N., R15W.

Sincerely,

Robert W. Boven

CHARLES R. WARD CORPORATION

Mining Development & Mineral Recovery

4706 EAST ALTA VISTA

PHOENIX, ARIZONA 85040

PARCEL # 15

LOCATION

The group of claims are located in the Cedar Valley Mining District, Mohave County, Arizona, on the Southwestern slope of the Wallapai Mountains, South of Kingman, 64 miles and East of Yucca, 28 miles. Both of these points are stations of the main line of the S. T. & S. F. Railroad. Kingman being the County Seat and supply point. Both are connected by a good auto road with these mines.

SIZE

The consolidated mineral claims and Mill Site cover an area of about 400 acres, 4 of the claims carry United States Patents, as does the Mill Site, the remaining claims have all been firmly held by a company for a period of years under the United States laws governing mineral locations.

TYPE OF ORE AND OPERATION

Underground operation. Principle ore, silver ranging from a low of 20 oz. per ton to a high of 500 oz. per ton. Gold averages 1 oz. for every 100 oz. of silver.

HISTORY

This district and some of the mines embraced in the consolidation was discovered in 1873, when the Cedar Valley Mining District was organized. From this period until 1883, the surface or chloride ores, yielding from 200 to 500 oz. of silver per ton, was arrastraed and amalgamated by the patio and barrell process, the bullion being about 930 fine in silver. This was shipped to San Francisco along with much of the sorted ore, this being packed to the Colorado River, a distance of 50 miles, then by boat and Ocean Steamer at a cost of \$100 per ton.

The operation of the Mill was intermittent, as at this time the metallurgy of these ores was not well understood. This fact, taken together with the reduced price of silver, excessive cost of hand mining, wagon haul, packing, railway and smelter charges; expenditures of a large amount of money in Mine purchase, erection of Mill, development of the mines, the building of two roads connecting with Yucca and Kingman, resulted in a cessation of all mining and milling by these operators.

After carefully examining and checking all available records, the property can safely be credited with a production of \$460,000.

Up to 1895 the production was \$175,000.

From April 1895 to January 1897 - a period of 20 months - a production of shipping ore, bullion, and concentrates was made amounting to \$275,000.

It must be remembered that the average cost of landing ore in San Francisco was \$100 per ton, and later, when the ore was shipped to El Paso or Kingman, this cost was somewhat reduced but still very high. The same ratio applied to the cost of mining, shipping and milling ores. Taking these features into consideration, the ore shipped can be estimated at \$150 per ton, figuring gold at \$20 per oz. and silver at 60 cents per oz. The milling tonnage treated amounted to about 10,000 tons and from carefully checking all available sources of information, including present sampling, a gross value of \$35 per ton in gold and silver can be safely allowed with gold figured at \$20. and silver at 60 cents per oz.

DEVELOPMENT

ARNOLD CLAIM:	Arnold Shaft: $5\frac{1}{2} \times 7\frac{1}{2}$	297 feet
	Adit drift (S)	400 feet
	Adit drift (N)	150 feet
	100 foot level (S)	465 feet
	100 foot level (N)	200 feet
	200 foot level (S)	300 feet
	200 foot level (N)	25 feet
	250 foot level (S)	35 feet
		<u>1872 feet</u>

These developments were all made on what is known as the East Vein, which has been designated as the "Hangingwall of the contact fissure". The vein carries a width of two to five feet, with an average of four feet on the 200 foot level.

GENERAL LEE:	Shaft	125 feet
	Drift (S) on 50 foot level	150 feet
	Drift (N) on 50 foot level	150 feet
	Drift (S) on 75 foot level	30 feet
	Drift (N) on 75 foot level	120 feet
	Winze (N) on 75 foot level	25 feet

250 feet from the N. end line, a short tunnel crosscuts the West of Footwall vein at a depth of from 30' to 40' this was

stopped to the surface for a length of 120 feet. This was known as the "Mexican Stope" it was on the East or Hangingwall vein.

120 feet

Crosscut tunnel 555 feet
This tunnel crosscuts both the West or Footwall Vein and the East or Hangingwall Vein - it is inaccessible at present on account of slight caves backing up the water.

1275 feet

Drift (N) on Hangingwall

60 feet
60 feet

EVANGELIST

Crosscut tunnel to East or Hangingwall Vein
Drift (N)
Drift (S)

336 feet
15 feet
15 feet
366 feet

ALL IN ALL THERE IS A GRAND TOTAL OF 6185 FEET OF DEVELOPMENT IN THE "CEDAR" GROUP CLAIMS.

From examination of books and vouchers, we find there has been shipped \$15,348.59 worth of ore carrying an average value of \$243.62 per ton. The lowest assay of any shipment being \$161.40 and the highest being \$415.16 and of the above valuation, about 10% was in gold.

There is a continuous orebody 1000 feet in length, 160 feet in depth and 2 feet thick, making 320,000 cubic feet of ore this gives ore reserves of 27,000 tons.

The value of all ore the mine has heretofore produced has been over \$80.00 per ton.

We would be safe in estimating the net value of the 27,000 tons in reserve to be \$50.00 per ton (OLD PRICES), which would make ore in sight valued at \$1,350,000 after deducting reasonable expense for mining and treating.

GEOLOGY

The general geology of the Wallapai Range has been thoroughly covered by the United States Geological Surveys and other eminent Geologists, all agreeing as to its being a repository of a great variety of mineral bearing rocks, precious and rare metals.

Its mineralized fissures are located in the Pre-cambrian granitic rocks, this same complex covering a large area in this Country and extending beyond the Colorado River into Utah and Nevada, embracing many of the large ore producers in Arizona. The United States Geological Survey describes the Wallapai Mountains as "porphyritic, schistosed, the mineral bearing fissures being located in the granite diorite schist and quartzite, often impregnated or intruded by pegmatite, porphyry and diabase dyke". This defines perfectly the geology of the Southwestern slope in which the property is located.

CONCLUSIONS

These consolidated properties carry a strong and continuous vein system for a known length of upwards of 12,000 feet on the east and west veins the same length on the "Golden Sulphide" and 1500 feet on the "Pearl" and other veins embraced in this property.

Taking into account the fact that the figures shown were when gold and silver prices were extremely low by today's standards the property should deserve high consideration for investors looking for a very profitable return on their money.

NOTE

Information used in compiling this report came from R. S. Billings M. & M. E. report, dated 1923. R. C. Jacobson, Mining Engineer's report of 1927 and E. Martin Thorniley's report of 1929, who is also a Mining Engineer.

~~TERMS~~

~~\$ 3000 down and \$147,000 within 1 year 6 months.~~

PARCEL # 15

LOCATION: Cedar Valley Mining District, Mohave County, Arizona, approximately 64 miles south of Kingman, Arizona

SIZE: 4 patented, 16 unpatented + mill site totaling approximately 400 acres.

TYPE OF ORE:and ASSAYS: An underground operation (not including the processing of existing dumps). Silver is the principal ore ranging from 20 ounces to 500 ounces per ton. Gold averages 1 ounce for every 100 ounces of silver.

HISTORY: This district and some of the mines embraced was discovered in 1873 and the surface or chloride ores, yielding from 200 to 500 ounces of silver per ton was arrastraed and amalgamated by the patio and barrel process, the bullion being about 930 fine in silver. This was shipped to San Francisco along with much of the sorted ore.

The operation of the mill was intermittent, as at this time the metallurgy of these ores was not well understood. Due to cost factors and poor planning, After carefully examining and checking all available records, the property can safely be credited with a production of \$460,000.

Up to 1895, the production was \$175,000

From April 1895 to January 1897 a production of shipping ore, bullion and concentrates was made amounting to \$275,000.

DEVELOPMENT: The Arnold Claim totals 1872 feet underground



ESTIMATED EXPENDITURES

	COST	1ST MONTH	2ND MONTH	3RD
GENERAL LEE				
4 Mucking Machine	12,000	1,000	1,000	1,000
200' Mine Rail & Acces.	625	625	-	-
4 Mine Rail Switches	100	100	-	-
1 30' belt Conveyor	300	300	-	-
1 50 ton ore bunker	1,000	1,000	-	-
Electric Lights & Etc.	250	250	-	-
1 Air Blower	500	500	-	-
1 Roll Air Blower Pipe	40	40	-	-
1 Mine Water Pump	800	800	-	-
2" steel Water Line	1,000	1,000	-	-
4 Mine Ore Cars	1,200	100	100	100
Compressed Air Line	1,200	1,200	-	-
2 Air Receiver Tanks	600	600	-	-
Lumber and Timber	3,000	1,500	1,500	750
1 Air Chain Saw	200	200	-	-
2 Electric Saws	100	100	-	-
2 Electric Drills & Bits	150	150	-	-
6 Air Stoper Drills & Bits	8,000	800	800	800
$\frac{1}{4}$ mile Electric Line	750	750	-	-
$\frac{1}{4}$ Mile Compressed Air Line	2,460	2,460	-	-
	<u>34,275</u>	<u>13,475</u>	<u>3,400</u>	<u>2,650</u>
				<u>2,650</u>
ARNOLD				
2 Air Receiver Tanks	600	600	-	-
200' Mine Rail & Acces	625	625	-	-
1 Cable Hoist & Engine	800	800	-	-
1 Incline Headframe	2,500	2,500	-	-
1 Mucking Machine	3,000	300	300	300
Compressed Air Line	600	600	-	-
3 Stoper Drills & Steel	4,000	400	400	400
1 Sump Pump	800	800	-	-
1 Air Blower	500	500	-	-
1 Roll Air Blower Pipe	40	40	-	-
Electric Lights & Acces.	200	200	-	-
Lumber and Timber	3,000	1,500	1,500	750
1 Air Chain Saw	200	200	-	-
2 Electric Saws & Blades	125	100	25	-
2 Electric Drills & Bits	150	125	25	-
1 Mine Ore Car	300	30	30	30
1 100 ton Ore Bunker	1,000	1,000	-	-
$\frac{1}{2}$ Mile Electric Line	1,500	1,500	-	-
$\frac{1}{2}$ Mile Waste Mine Water Line	1,240	1,240	-	-
$\frac{1}{2}$ Mile Compressed Air Line	2,640	2,640	-	-
	<u>23,820</u>	<u>15,700</u>	<u>2,280</u>	<u>1,480</u>
INSURANCE				
Workmens Compensation		3,400	3,400	3,400
Liability		500	500	500
Equipment		100	100	100
Property		100	100	100
		<u>4,100</u>	<u>4,100</u>	<u>4,100</u>

ESTIMATED EXPENDITURES

RECORDED
 27/28000487000

MILL SITE

1 100 ton per day mill	100,000	100,000	-	-
Excavation Work	2,500	2,500	-	-
Excavation Labor	5,000	5,000	-	-
1 500 KVA Generator	20,000	920	920	920
Electric Switch Panels	2,000	2,000	-	-
1 150' Well and Pump	4,000	4,000	-	-
2 Water tanks	4,000	4,000	-	-
Water Line and Valves	400	400	-	-
1 320KVA Standby Generator	12,000	550	550	550
Foundation Work	2,800	2,800	-	-
	<u>152,700</u>	<u>122,170</u>	<u>1,470</u>	<u>1,470</u>

CAMPSITE

Excavation Work	1,000	1,000	-	-
Electrical	600	600	-	-
½ Mile Electric Line	1,500	1,500	-	-
Water System	1,500	1,500	-	-
Sewer System	900	900	-	-
Water Filter System	200	200	-	-
	<u>5,700</u>	<u>5,700</u>	<u>-</u>	<u>-</u>

AREA AND ROADS

Road Work and Grading	3,000	3,000	200	200
Fencing and Gates	2,000	2,000	-	-
Signs and Locks	350	350	-	-
Gutters and Drains	200	200	-	-
	<u>5,550</u>	<u>5,550</u>	<u>200</u>	<u>200</u>

EQUIPMENT

Dozer Rental	5,000	5,000	-	-
Welder and Supplies	4,500	120	120	120
Temporary Electric Supply	1,800	125	125	-
2 Dump Trucks	20,000	2,000	2,000	2,000
Hand Tools (picks shovels)	500	50	50	25
Safety Equipment	500	500	-	25
Helmets & Battery Lights	1,500	150	150	25
Hardware (nails,bolts,etc)	900	450	450	225
½ton 4WD Pickup	6,200	163	163	163
Communications on site	1,500	1,500	-	10
Communications off site	3,000	1,800	150	100
	<u>45,400</u>	<u>11,858</u>	<u>3,208</u>	<u>2,693</u>

ENGINEERING & ASSAYING

Engineering	2,000	2,000	1,000	1,000
Pre Assaying	500	500	500	-
Shipping Samples	700	700	700	-
	<u>3,200</u>	<u>3,200</u>	<u>2,200</u>	<u>1,000</u>

ESTIMATED EXPENDITURES

FUEL AND OIL

Dump Trucks	320	320	320	320
Pick Up Truck	100	100	100	100
Compressor	460	460	460	460
Dozer	1,200	1,200	-	-
Generators	2,475	2,475	2,400	2,400
Welder	100	100	100	75
Deliveries	50	50	50	50
Misc.	50	50	50	40
	<u>4,755</u>	<u>4,755</u>	<u>3,480</u>	<u>3,445</u>

ASSAY & MANAGEMENT OFFICE

Building & Erection	7,000	7,000	-	-
Equipment	7,000	7,000	-	-
Assay Chemicals	90	90	40	40
	<u>14,090</u>	<u>14,090</u>	<u>40</u>	<u>40</u>

OVERHEAD

Equipment Tax & License	250	250	-	-
Property Payments	35,000	2,500	2,500	2,500
Property Taxes	25	25	-	-
	<u>35,275</u>	<u>2,775</u>	<u>2,500</u>	<u>2,500</u>

CONTINGENCY

	25,000	2,500	2,500	2,500
	<u>25,000</u>	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>

WAGES

ARNOLD:	2 shifts, 4 men	5,120	5,120	5,120	5,120
	2 shifts, 1 hoist man	1,600	1,600	1,600	1,600
Gn LEE:	2 shifts, 8 men	15,360	15,360	15,360	15,360
MILL:	3 shifts, 1 Operator	2,880	2,880	2,880	2,880
	2 Truck Drivers	1,200	1,200	1,200	1,200
	3 shifts, 2 mill helper	3,360	3,360	3,360	3,360
	1 Welder, Carpt, Plmbr	960	960	960	960
OFFICE:	1 Superintendent	2,600	2,600	2,600	2,600
	1 Secretary/Bookkeeper	1,000	1,000	1,000	1,000
	1 Assayor	1,600	1,600	1,600	1,600
	2 General Helpers	1,260	1,260	1,260	1,260
		<u>36,940</u>	<u>36,940</u>	<u>36,940</u>	<u>36,940</u>

ESTIMATED EXPENDITURE SUMMARY

	COST	1ST MONTH	2ND MONTH	3RD MONTH
General Lee	34,275	13,475	3,400	2,650
Arnold	23,820	15,700	2,280	1,480
Insurance	4,100	4,100	4,100	4,100
Mill Site	152,700	122,170	920	1,470
Campsite	5,700	5,700	-	-
Area and Roads	5,550	5,550	200	200
Equipment	45,400	11,858	3,208	2,693
Engineering & Assaying	3,200	3,200	2,200	1,000
Fuel and Oil	4,755	4,755	3,480	3,445
Assay & Management Office	14,090	14,090	40	40
Overhead	35,275	2,775	2,500	2,500
Contingency	25,000	2,500	2,500	2,500
Wages	36,940	36,940	36,940	36,940
	<u>390,805</u>	<u>242,812</u>	<u>61,768</u>	<u>59,018</u>
TOTALS	390,805	242,812	61,768	59,018

Mathew W. Allen
978 - 1327
June 12, 1975

To: Charles Ward Corporation

Re: Test Results on ore sample received 6/11/75

Qualitative chemical analysis to determine the presence of anions, by my observation, conclusively indicate the presence of the following anions (metals), using an arbitrarily assigned scale to show relative concentrations, ie. 1 to 10. The number, 1 (one), representing only the slightest trace observable.

<u>METAL ION</u>	<u>VALUE ASSIGNMENT</u>
Silver Ag	4 - 5
Iron Fe	7 - 8
Copper Cu	3 $\frac{1}{2}$

At this point in time, my chemical tests do not relate adequately enough in my mind with quantitative measurements but may eventually with acquired skill demonstrate approximate ranges of quantity.

The test for Silver is conclusive especially when the several confirmatory tests are followed and observed carefully. In the initial or primary test for Silver, the Silver ion reacts with Chloride ion, when added, to give a milky white precipitate. The precipitate may be dense and curdy if a heavy concentration of Silver exists. Lesser concentrations of Silver will be demonstrated by as little as an opal hue to the solution upon addition of the Chloride. In either case, whatever amount of the precipitate occurs, exposure to light darkens the precipitate, and in the case of a heavy show, if it is Silver, the precip will become almost black or dark gray.

An important consideration is that the sample was not a concentrate of the ore. The entire sample was crushed to a maximum size of $\frac{1}{4}$ inch, mixed together with the fines and about 50 grams of the approximate overall 1500 gram sample was reacted with the leaching reagents to provide the basic test solution.

In the case of the lesser, most usual shows of Silver ion concentration, the presence of Iron ions, and/or Lead ions can hinder the observation of further confirmation tests.

The primary test for Silver, in this case, resulted in a cloudy solution which did darken on exposure to light, a definite positive show for the presence of Silver. No Lead was observed or confirmed, however, considerable Iron was present and was needfully removed by precipitation and filtration. Confirmation tests for Silver were then performed on the filtrate solution free of Iron. Positive confirmations were observed and noted.

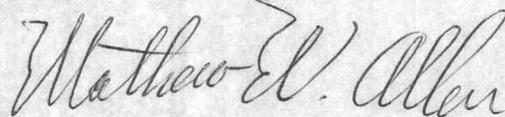
The presence of Copper is a simple determination but is also hindered by Iron ions as the same test reagent is used. Iron must again be precipitated and filtered. A clear or true, blue solution positively confirms Copper; the depth of color superficially indicates concentration of the Copper.

Flame, bead and charcoal block tests would further confirm the above findings, however, at this time, I am not equipped to perform these tests.

MOST HUMBLE RECOMMENDATIONS:

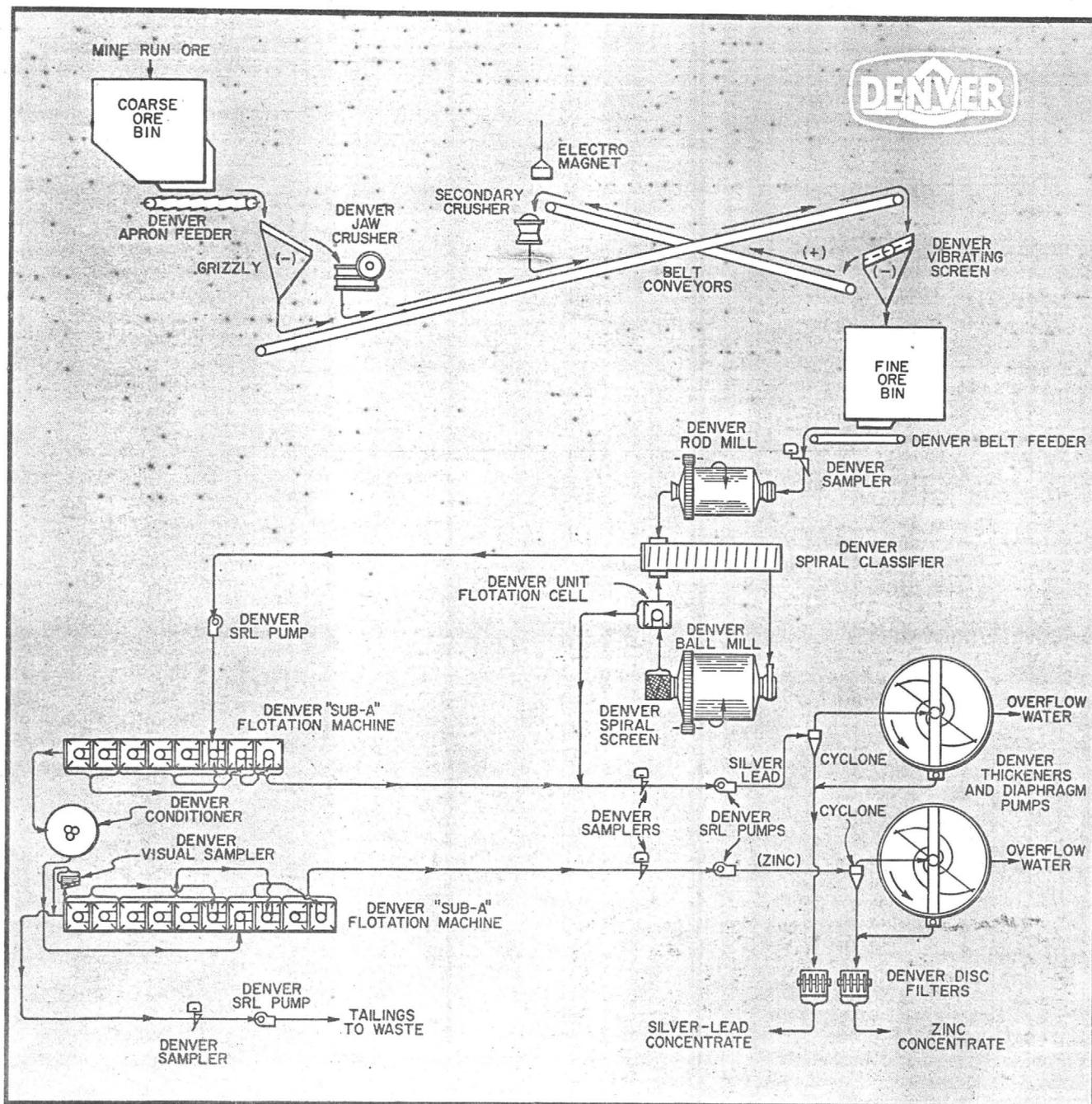
This remaining sample and others of its kind should be assayed for quantitative values of Silver and Copper. Although Silver is the principal metal sought, Copper as a 2 to 5 per cent ore as I believe was indicated, could and most probably would be a commercial byproduct depending on the retrieval processes used.

Sincerely,



Mathew W. Allen

SILVER-LEAD-ZINC



SILVER-LEAD-ZINC FLOTATION

The Problem

The recovery of silver minerals occurring in a lead-zinc sulfide ore is efficiently accomplished using the above flowsheet. The process consists of selective flotation to produce a mixed silver-lead concentrate for maximum smelter return and a separate zinc concentrate. Over-grinding of silver minerals is detrimental to efficient flotation recovery, so the Denver Unit Cell is used in the grinding circuit to recover a large part of the silver and lead values as soon as liberated.

The flowsheet is for a plant having a capacity in the range of 300 to 500-tons per day.

The Flowsheet

CRUSHING SECTION: The crushing section consists of primary and secondary crushing with intermediate screening. Both crushers are located in the same building and conveniently attended by one operator. A minimum of conveying equipment is required by this arrangement. Dust collecting facilities are, likewise, limited to only one building.

GRINDING CIRCUIT: The crushed ore after automatic sampling is subjected to two-stage grinding using a Denver Rod Mill in open circuit and a Denver Ball Mill in closed circuit with a Denver Classifier. The

Mine Averages

Ref	tonnage	Gold	Silver	Value / Ton	Total Value
<u>Arnold</u>					
1	40,850				
2	32,500			476.80	19,477,280
4				672.67	
5	27,000				
7				548.48	
	<u>33,450</u>			<u>565.98</u>	<u>18,932,131</u>
<u>Evangelist</u>					
1				354.00	
3	8,000				
	<u>8,000</u>			<u>354.00</u>	<u>2,832,000</u>
<u>Lee</u>					
1				569.00	
2	25,000				
3	8,000				
4				569.54	
	<u>16,500</u>			<u>569.27</u>	<u>9,392,955</u>
<u>Queen</u>					
3	8,000				
4				377.92	
6				450.00	
7				687.40	
8				1005.29	
	<u>8,000</u>			<u>630.15</u>	<u>5,041,216</u>
<u>Surface</u>					
4				82.50	
7				211.52	
9	6,000			147.01	882,060
<u>Hubbard</u>					
4	0			9.30	
	<u>71,950</u>			<u>453.28</u>	<u>56,557,642</u>
					29,693,948

$$Au = \$130.00 \quad Ag = \$4.00$$

Ref	mine	tonnage	Gold	Silver	gross value	total value
1	Arnold	40,850	0.78	110	541.4	
					497	
					392	
					(476.8)	19,477,280
1	Evangelist				354	
1	Lee		1.25	101.7	569	
2	Arnold	32,500				
2	Lee	25,000				
3	Queen	8000				
3	Evangelist	8000				
3	Lee	8000				
4	Queen		.72	71.08	377.92	
4	Arnold		.40	75.35	353.40	
					445.80	
					1218.80	
					(672.67)	
4	Surface		.05	19	82.50	
4	Lee		1.25	101.76	569.54	
4	Hubbard		.01	2	9.3	
5	Arnold	27,000				
6	Queen		1.0	80	450.00	
7	Arnold		.78	111.77	548.48	
7	Queen		.82	145.2	687.40	
7	Surface		.16	47.64	211.52	
8	Queen				514.54	
					1360.12	
					1241.21	

Report on Cedar Mine

E. Martin Thorniley - Mining Engr

(1929)

Down to the 100' level in Arnold there is a block of
 - Positive ore remaining of 6,250 tons

- average value (\$30.00)

this ore is south of shaft

when 60¢
gold \$20

North of Shaft 100' 1666 tons $\frac{26}{.45} = \$479/\text{ton}$
 40 of (\$30.00) $\frac{32.02}{.24} = \$133.42$ $\frac{51.01}{.46} = \$110.89$
~~\$223.39~~ $\frac{247}{1.64} = \$150.61$

down to 200' south 12,000 tons
 (30.00)

200' north completed 10,134 tons

n of raise between adit & 100' 3000 tons

between 200 & 205 7,800

34,600

average cost $\frac{164}{283.22} = .58$ } \$354
 Lee $\frac{340}{4.6} = 73.91$ }
 $\frac{52.07}{.17} = 306.29$ }
 2.8
 .09

RC Jacobson Mining Engr 1927

from Bellows report judges

below 200' 20,000 tons

300' 12,500

between Arnold & Gen Lee

100' 12,500

200' 12,500

Bellows, R. S. Mining & Mechanical Engineer

John Owens 8000

Erwin Lee 8000

Lee 8000

Queen ③ 8000
 Queen ④ 8000
 Lee ② 8000

43.60
 701.4

407.04
 447.08
 580.80

Queen ④
~~3.9~~ 36.2
 1.02 104.1
 .25 71
 .72 71
 Amel ③
 .19 28.7
 .61 122

445.8
 1218.8

Surface ④
 Lee ②
 .12 243
 .16 23
 .05 19
 4.6 340
 .15 5
 .09 9.8
 0.17 52.3
 1.29 101.76

Hulland ④
 .01 2

Amel ⑤ 27,000
 Queen ⑥
 Amel ⑦
 Queen ⑦

1.0 80
 .24 37.2
 .46 51.1
 1.64 247
 .82 145.2

190.72

Surface ⑦

.16	72
.15	31.4
.06	47.2
.36	30.4
.08	57.4

Queen ⑧

514.54
1360.12
1141.21

Russell, H M

1901

Queen valves	38.2	104.1	71 Ag	71 av
	.9	1.02	.25 Au	.72 av

Cement

shaft

28.7	122	# 445.80	Queen	3/8"
.19	.61	1218.80		

100'

243

.12

Raise

23

.16

Surface

19

.05

Lee

340

5

9.8

52.3

~~340~~

4.6

.15

.09

0.17

~~.16~~

Hubbard

2

.01

Pritchard, J. A.

(1888)

Cement 110'

27,000

Jerome, J. J. (1921)

Queen

80

1.0

E. C. Eddie E. M. (1904)

Cement 100'

32.2

71.1

247.0

0.24

0.46

1.64

Queen

145.2

.82

Surface

72.0

31.4

47.2

30.4

57.4

.16

.15

.06

~~36~~.36

.08

P. P. Baker (1895)

Queen Titus Au & Ag # 514.54

1360.12

1141.21

References

①	E. M. Thorniley	1929	Mining Engr
②	R. C. Jacobson	1927	Mining Engr
③	R. S. Billings	1921	M M Engr
④	H. M. Russell	1901	
⑤	J. A. Pritchard	1988	
⑥	J. J. Jerome	1921	
⑦	E. C. Eddie	1904	E M Engr
⑧	P. P. Baker	1895	
⑨	C. R. Ward	1975	

Ore tonnages $\frac{\text{Cost}}{\text{ton}}$ $\frac{\text{Value}}{\text{ton}}$ average value

Arnold ①

6,250	.24	32.02	479
1,666	.46	40 51.01	392
12,000	2.47 1.64	247	
10,134			
3,000			
<u>7,800</u>			

Constant ①

354

Lee ①

4.6	340
.15	5
9.8 .09	9.8
.17	52.03

Arnold ②

20,000
12,500
Lee 12,500
12,500

8/12/75

Cedar Samples to Walt Statter - Iron King

		Au	Ag	Cu	Pb	Zn
# 1	MONTEZUMA (END OF DRIFT)	.01	.59			
# 2	✓	.006	.52			
# 3	✓ (BLACK ROCK)	.012	.09			
# 4	✓	.006	.24			
# 5	✓ (GREEN ROCK)	.004	.26			
# 6	✓ (FALLEN ORE)	tr	.54			
# 7	✓ (BLACK STRINGER)	.006	.14		nil	.04
# 8	✓ (GREY VEIN)	.02	3.68			
# 9	✓ (GREEN OUTCROP)	.008	1.79			
# 10	✓ (BLACK CROSS VEIN)	tr	.18		nil	.1
# 11	✓ (BLACK OUTCROP)	.008	.25			
# 12	✓	.012	1.79			
# 13	✓ (WEST DUMP)	.012	.31	.05		
# 14	✓ (NORTH DUMP)	.016	1.79	.06		
# 15	✓ (1 st cut)	.016	0.27			
# 16	✓ (2 nd cut)	.008	.21			
# 17	✓ (3 rd cut)	.01	0.39			
# 18	✓ (4 th cut)	.006	0.32			
# 19	✓ (5 th cut)	.016	.55			
# 20	Lower Queen #1	.004	.70			
# 21	✓ ✓ #2 (Grey Rock)	tr	.10			
# 22	✓ ✓ #3 (dark vein)	tr	.52			
# 23	✓ ✓ #4	.006	0.42			
# 24	✓ ✓ #5 (lower dump)	0.48	3.17	0.06		



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3521 North Central Avenue • Phoenix, Arizona 85012

w/ 250' 200' holes & slope
maps correct & blocks of
evaluated could intersect
body - then justify opening
up underground workings

I.B.M. COPIES

Estimate 1 week on property
could go sample same thing
we did

If some results then nothing
since have location of samples
could determine vein structure
& characteristics then only
samples & now mineralization

if surface map w/ shaft & open
pit & those along vein then can
come up w/ something

SCORING

PRINTING WHILE YOU WAIT OR OVERNIGHT
FREE PICK-UP AND DELIVERY. OPEN SATS. 8:30 - 12:30



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Estimate 10 days total ^{PAPER MASTERS}
 the ^{OFFSET PRINTING} have report which will ^{MULTI-COLOR PRINTING}
 interest or ^{PADDING} interested principals
 - to get ^{I.B.M. COPIES} under ground & clear
 up in quite expensive & spend
 \$ in ^{STAPLING} wrong direction ^{METAL PLATES}
 2 or 3 or 4 holes at interest
 holes & good ^{BINDING} enough ^{ITEK} than
 go down & look ^{DRILLING} the justify
 expenditure ^{PERFORMING}
 East vein of Arnold. A & C
 80' below ^{COLLATING} audit levels ^{ROUND CORNERING}
 interest ^{CUTTING} w/ holes - then if
 show will be satisfactory
 then 2 more holes ^{SCORING} between 100' &
 200'

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& BUSINESS SUPPLIES, INC.**
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The justified w/ Arnold.

3623
OFFSET PRINTING
9
875

150
MULTI-COLOR PRINTING
5
1550

825
PAPER MASTERS
750
PADDING
1625

will be gone to 7:00 this evening -

I.B.M. COPIES

G.B. BINDING

leaving 7:05 am this evening

STARTING

METAL PLATES

drilling - \$7.5 x 2 = 5.00
5 holes 200 = 1000 ITEK
7000
350
COLLATING
2350

BINDING
FOLDING
PERFORATING
DRILLING

135 000 ton
5.5
1.25 ROUND CORNERING
277-6053
CUTTING

SCORING

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Dick Miertiz

4/15/75

works available

you see

Low Queen

Arnold

Smaller diggings

I.B.M. ~~Series~~ *Montezuma*

What do you think wrong
(Sample wrong)

most not accessible

if don't show mineralization

no Geological Maps

if samples obtained from there

involved lots of time to set out
ground

Suggests:

- ① surface geological Map & Sample
- ② if ① successful (not necessarily)
if lenses continuous at depth?

Think more of drilling project
to open now is to shoot in dark

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& BUSINESS SUPPLIES, INC.**
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Cedars

Arnold

Fillmore

Assay -

Skyline # 742510

12/26/74

1. Arnold Dump # 2 Cedars
I.B.M. COPIES
Au 0.070 Ag 0.49

2. Arnold Mill # 3 Tails
STAPLING
Au 0.40 Ag 12.26

3. Fillmore Dump # 4 Cedars
BINDING
Au < 0.005 AgEK 2.10

4. Fillmore Dump # 5 Dump
FOLDING
PERFORATING
Au < 0.005 Ag 4.36

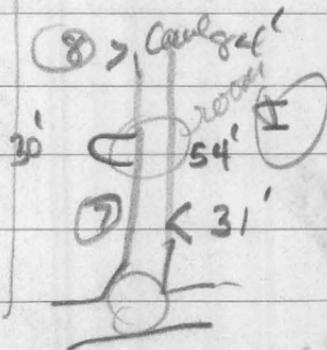
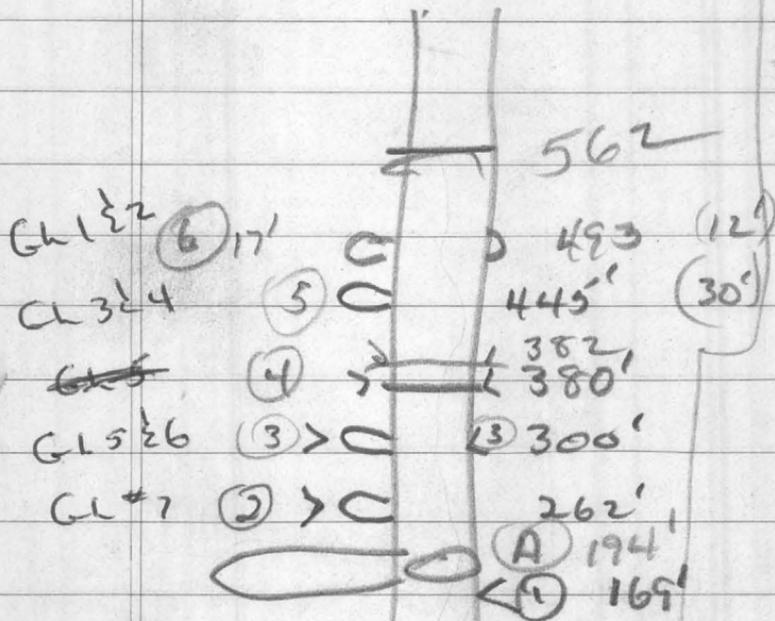
5. Silver Queen Dump
CUTTING
Au 0.020 Ag. 4.80

SCORING

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General Lee

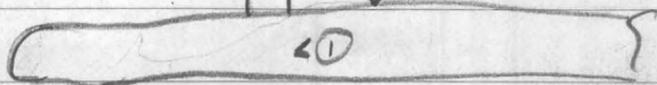
10/2



Lower Queen

← north

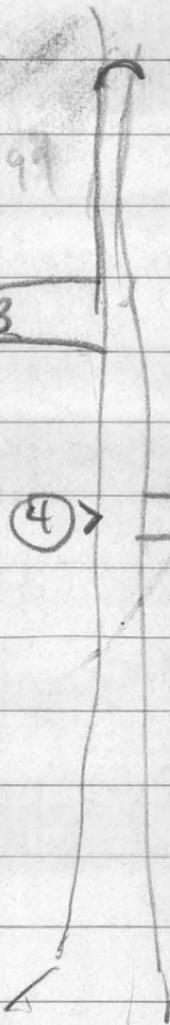
25' (2)



119

98

(A)



(A)

83

(4)

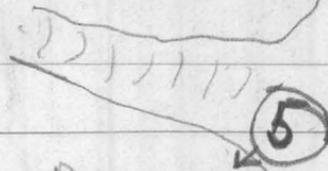
13

50'

B

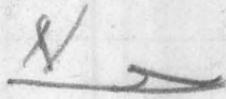
74

Dump

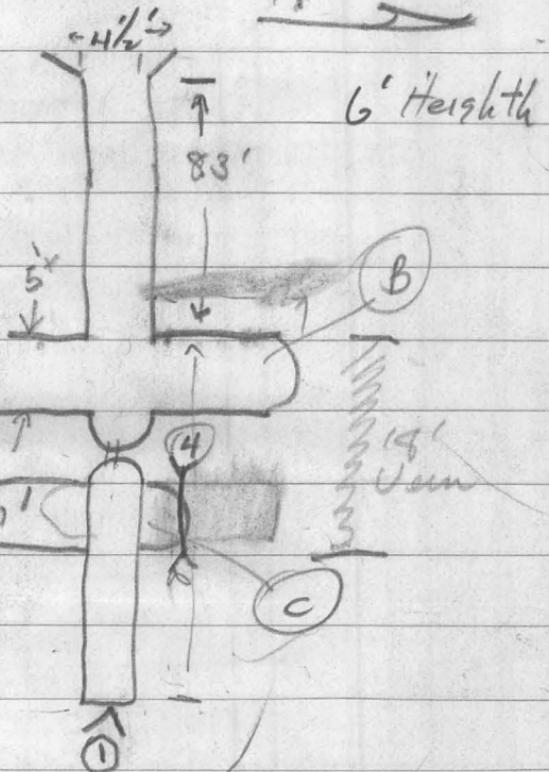


Dump

Montezuma



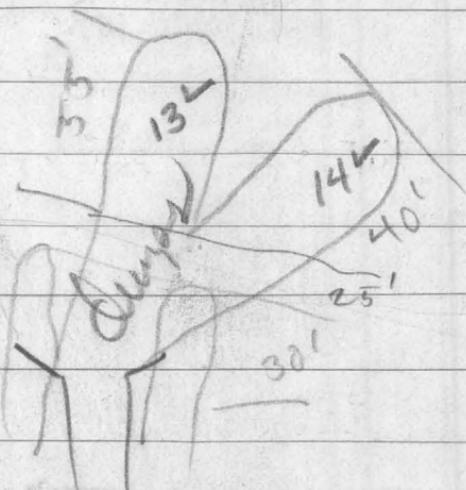
$$\begin{array}{r} 194 \\ 106 \\ \hline 300 \end{array}$$



$$\begin{array}{r} 353 \\ 452 \\ \hline 805 \end{array}$$

$$\begin{array}{r} 353 \\ 179 \\ \hline 532 \end{array}$$

$$\begin{array}{r} 194 \\ 61 \\ \hline 262 \end{array}$$



(14) North Dump

(15) ~~cut~~ on road above drift

(16) ~~cut~~ 2 - 2' vein

(17) ~~cut~~ 3 Sample both sides 6' vein

(18) cut #4 10' in 5' vein
both sides

(19) cut #5 across vein

Lower Queen

20 (1) across top at 98' in (A)

21 (2) Gray rock on E side (A)

22 (3) dark rock vein in (A) at
29' in

23 (4) across vein at (B) E drift

24 (5) Lower Dump

Mont

① End of E drift - black micaceous silt

② ~~center~~ top of (C) ~~steps~~

③ black from #2 only

④ center face slope North end

⑤ Green colored rock #B

⑥ center floor of hollow

⑦ Black Slumps in quartziferous rock at 37' in (B)

⑧ center Gray 3' vein in North end of B

⑨ at 124' in Hole B East wall
green outcrop

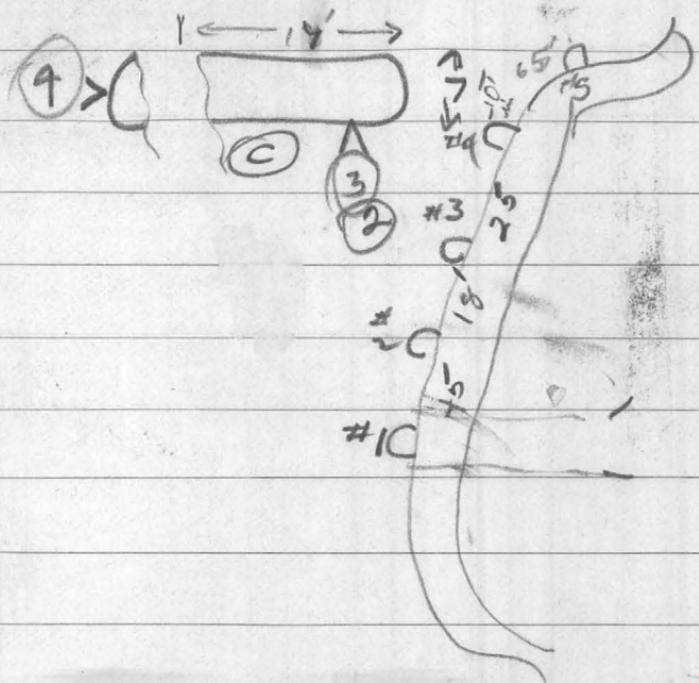
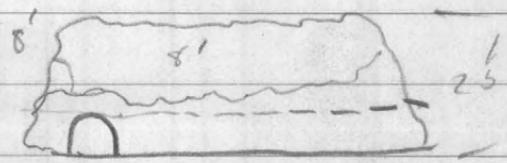
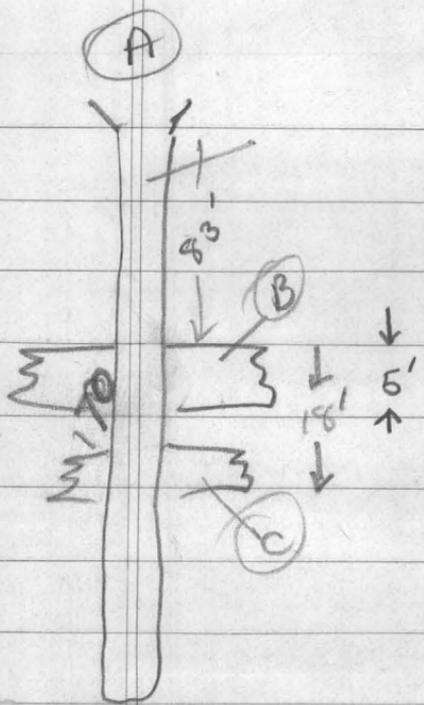
⑩ ~~black 2~~ vein running N-S
at end of 106' west out

⑪ Hole B 53' in black outcrop
on East wall

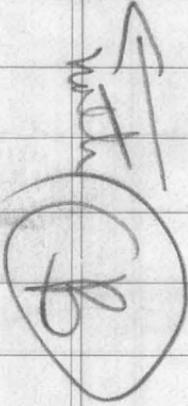
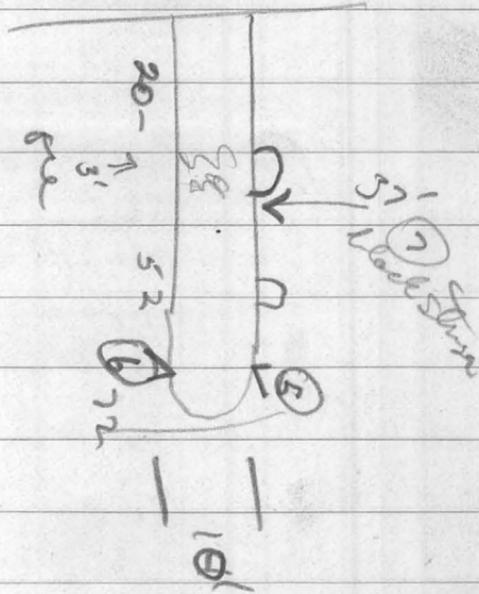
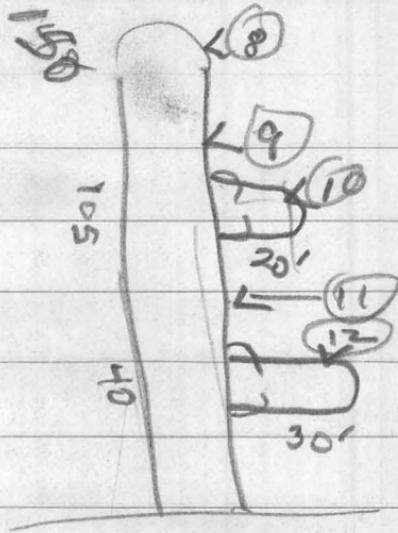
⑫ 9' vein running N-S in B, North
#10 in center of vein

119
92
27

Mont



mont



① Fillmore dump

- 25 ① General Fee
169' ~~black~~ from 6" vein
do (black grey orange black grey)
- 26 ② 262' 10' adit to north
across 3' vein
- 27 ③ 1' vein - sampled 300' on 15'
adit to north - both sides
- 28 ④ 6" vein at 380' on side
↓ drift ↓ sampled
12" vein at 382'
- 29 ⑤ at 445' - 30' adit north on 1' vein
Sampled across vein along tunnel
- 30 ⑥ 493' 2 adits Sampled both ends
- 31 ⑦ Slope A 31' across fall line
- 32 ⑧ across floor at 84' S' vein
Tunnel continues

SPECIMEN SUBMITTING
& REPORT FORM

19
25 26

STATE OF ARIZONA
DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES

APR 11 12 1975
DATE RECEIVED
3 8

POTABLE WATER ANALYSIS -
BACTERIOLOGICAL

SPECIMEN NO. 5676
9 14

cealed bleach

SYSTEM NO.

Cl₂ RESIDUAL _____ Mg/l

BACKGROUND BACTERIA
PRESENT

TOTAL COLIFORM (MF)
10 _____ /100 ML

20 SPC _____ /ML

30 5 COLIFORM FOUND (MT)
10 ML PORTIONS

NAME OF CLIENT C.R. WARD CORP		IDENTIFICATION NO.		COLLECTED BY DKM	
ADDRESS 4728 NO 21 ST AVE			DATE COLLECTED 4-15-75		HOUR 10 AM
CITY PHX	STATE AZ	ZIP 85015	COUNTY MARICOPA		CODE 1

LAB PERFORMING TEST

PHOENIX = 1
FLAGSTAFF = 2 27
TUCSON = 3

28 DO NOT CHARGE = 1

1 ROUTINE SAMPLE
2 RESAMPLE

15 16
1 PUBLIC WATER SYSTEM
2 INDIVIDUAL

3 SWIMMING POOL
4 SEMI-PUBLIC

MAILING ADDRESS OF REPORT C.R. WARD CORP		
ADDRESS 4728 NO 21 ST AVE		
CITY PHOENIX	STATE ARIZ	ZIP CODE 85015

DETAILED DESCRIPTION AND
LOCATION OF SAMPLING POINT OPEN PIAI

PIPE FROM MILL SITE

REMARKS REPAIRING - CEDAR VALLEY

CODE
1

H. GILBERT CRECELIUS, Ph. D.
DIRECTOR

DATE REPORTED 4/12/75 ANALYST JW

The presence of organisms of the coliform group as indicated by sample examined shall not exceed the following limits:

3 or more 10 ml portions of sample tested by the multiple tube procedure (30)

or

4 or more coliform colonies/100 ml of sample are found and counted on the membrane filter (MF) using the membrane filter procedure (10)

If results reported exceed the above the owner of the water supply system must:

1. Immediately collect a resample from the same sampling point showing contamination. Resamples collected on two consecutive days must be resubmitted.
2. All resamples must be clearly identified and the routing slip checked resample.
3. Upon notification of confirmed contamination from the Department, the water company must locate and remove, by disinfection methods, the causative source of contamination.

SPECIMEN SUBMITTING
& REPORT FORM

19

25 26

STATE OF ARIZONA
DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES

DATE RECEIVED
APR 16 12 17 PM '75

POTABLE WATER ANALYSIS -
BACTERIOLOGICAL

SPECIMEN NO.

02607

9

14

SYSTEM NO.

*acid
bleach*

17

24

NAME OF CLIENT

C.R. Ward Corp.

IDENTIFICATION NO.

COLLECTED BY

ADDRESS

4728 N. 21st Ave.

DATE COLLECTED

15 Apr. 75

HOUR

7:30 AM

CITY

Phoenix

STATE

Az.

ZIP

85015

COUNTY

Maricopa

CODE

1

LAB PERFORMING TEST

PHOENIX = 1

FLAGSTAFF = 2

TUCSON = 3

27

28

DO NOT CHARGE = 1

1

ROUTINE SAMPLE

2

RESAMPLE

1

PUBLIC WATER SYSTEM

2

INDIVIDUAL

3

SWIMMING POOL

4

SEMI-PUBLIC

MAILING ADDRESS OF REPORT

C.R. Ward Corp.

ADDRESS

4728 N. 21st Ave.

CITY

Phoenix

STATE

Ariz

ZIP CODE

85015

DETAILED DESCRIPTION AND
LOCATION OF SAMPLING POINT

Evangelist Mine

REMARKS

*CFDAIR VALLEY
Mining Dist.*

CODE

H. GILBERT CRECELIUS, Ph.D.
DIRECTOR

** OPEN POND FED
BY CAVEO MINE*

©s

DATE REPORTED

4/18/75

ANALYST

JAW

10

20

30

CL₂ RESIDUAL _____ Mg/l

BACKGROUND BACTERIA
PRESENT

TOTAL COLIFORM (MF)
_____/100 ML

SPC _____ /ML

COLIFORM FOUND (MT)
0.5 /10 ML PORTIONS

15 16

8

The presence of organisms of the coliform group as indicated by sample examined shall not exceed the following limits:

3 or more 10 ml portions of sample tested by the multiple tube procedure (30)

or

4 or more coliform colonies/100 ml of sample are found and counted on the membrane filter (MF) using the membrane filter procedure (10)

If results reported exceed the above the owner of the water supply system must:

1. Immediately collect a resample from the same sampling point showing contamination. Resamples collected on two consecutive days must be resubmitted.
2. All resamples must be clearly identified and the routing slip checked resample.
3. Upon notification of confirmed contamination from the Department, the water company must locate and remove, by disinfection methods, the causative source of contamination.

169.2 Au
 453.5 Ag
 .60 cu



**HUGHES REPRODUCTION
 & BUSINESS SUPPLIES, INC.**
 3521 North Central Avenue • Phoenix, Arizona 85012
 264-4181

6/9

Iron King Assays

		Au ^{3.38}	Ag ^{6.62}		
1	Arnold Shaft	0.02	1.46	mill	Pb 10.00
2:	✓ ✓	0.55 ^{93.06}	16.13 ^{73.15}	mill	Pb 166.21
3.	✓ ✓	0.16 ^{27.02}	11.82 ^{53.60}	mill	Pb 80.62
4.	✓ ✓	0.035 ^{5.92}	12.2 ^{55.33}	mill	Pb 61.25
5.	Glory Hole Dump	0.015 ^{2.54}	10.2 ^{46.26}	1.23	cu 48.80
6.	Cranky Hank	tr	1.28 ^{5.80}		5.80
	Crazy Hank	.005 ^{.85}	0.9 ^{4.08}	mill	Pb 4.93
1	Glory Hole shaft west	0.15 ^{25.38}	9.89 ^{44.85}	0.07	70.31
4	✓ ✓ drift	tr	6.4 ^{29.02}	0.13	29.15
6.	Arnold Center Dump	0.435 ^{73.60}	41.81 ^{189.61}	mill	Pd 263.21
2	Dump west of 86	0.02 ^{3.38}	16.94 ^{76.82}	0.56	cu 80.5



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3521 North Central Avenue • Phoenix, Arizona 85012
264-4181

1st assay averages

Cedar Project

10.00
166.21
80.62
61.25
263.21
80.51

661.80

= \$110.30

25 mi mill

85.30

x 50 TPD

\$14265

639.75 Tonn

3625.25

x .25%

906.31

x 7 days

6344

x 4 wk

25376.73



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**HUGHES REPRODUCTION
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264-4181

from King Assay office
Walt Stetler

632-7410

632-7616 if no answer

		Au	Ag	Pb
1	amul slas	.02	1.46	-
2		.55	16.13	-
3		0.16	11.82	-
4	✓ ✓	.035	12.2	-
5	Clay hole deep	.015	10.2	1.23 ^{cu}
6.	Crazy Hank	tr	1.28	
	Crazy Hank	.005	.9	-
1	Clay hole slas west	.015	9.89	.12 ^{cu}
4	✓ ✓ drift	tr	6.4	.21 ^{cu}
6	Arnold ltr deep	.435	41.81	nil



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**HUGHES REPRODUCTION
& BUSINESS SUPPLIES, INC.**
3521 North Central Avenue • Phoenix, Arizona 85012
264-4181

2 dup w.f 86

AW
1.02

A9
16.94

CC
1.56



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1. The first step is to identify the problem.
 2. The second step is to plan a solution.
 3. The third step is to execute the plan.
 4. The fourth step is to check the solution.

Health

$\frac{0.6}{96}$
 96

$$\begin{array}{r}
 110.50 \\
 \underline{50} \\
 55.25.00 \\
 \underline{350}
 \end{array}$$

$$\begin{array}{r}
 50 \\
 \underline{35} \\
 25.0 \\
 18 \\
 \hline
 35.01.46 \\
 19.13 \\
 11.82 \\
 12.2 \\
 41.81
 \end{array}$$

$$\begin{array}{r}
 5 \overline{) 83,42} \quad 16.68 \\
 \underline{5} \\
 33 \\
 \underline{30} \\
 34 \\
 \underline{30} \\
 42
 \end{array}$$

$$\begin{array}{r}
 4 \\
 \hline
 16.88
 \end{array}$$

CHARLES R. WARD CORPORATION
4706 E. Alta Vista
Phoenix 85040
D.K. Martin, v.p.
968-1275 & 277-2483

1974

Cedar Valley Mines (file)
Ironwood Mining Company (file)
GW WR 10/22/75
Silverado Mine (file) Mohave

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

J.H. Jett - Director
X Cedar Valley Mines
Dept. Mining Copy

February 3, 1976

MEMORANDUM FOR THE RECORD.

C
O
P
Y

AVI 2/3/76

Telephone call from Mr. Grant Howard of Phoenix, telephone number 265-7819 - asked about Cedar Mineral Company, Kingman - selling 25-year limited partnerships - will be managed by Alpha Management Corporation as a General Partner.
President: D. Mel Alexander
V.P. & Gen.Mgr. - Charles Ray Ward
Staff Engineer - Doug. Martin
Attorney - Schunerlow (?)

The partnerships not registered or qualified anywhere. Will lease Au and Ag claims with option to purchase 675 acres, some patented work will start at Old Arnold Shaft. Milling will be contracted with local firm. Have six months option on 1.45% V₃O₅ property South of Wikieup. *in Wikieup*

Note: See Cedar Valley Mines file.

John H. Jett
Director

cc - Tucson office

plant mill
Black
Blax source mill

STATE OF ARIZONA
DEPARTMENT OF MINERAL
MINERAL BUILDING, FAIRGROU
PHOENIX, ARIZONA 850

PHONE (602) 277-2483



Cedar Mineral Company
MINING DEVELOPMENT
& MINERAL RECOVERY

4728 NO. 21ST AVE.
PHOENIX, ARIZONA 85015

Charles R. Ward
GENERAL MANAGER

March 30, 1976

Mr. Doug Martin
Cedar Mineral Company
4728 North 21st Avenue
Phoenix, Arizona 85015

Dear Mr. Martin:

On Monday, March 29, 1976, I toured the property of Cedar Mineral Company at/or near the old mining camp of Cedar in Mohave County. I was accompanied by Mr. Glen Walker, Field Engineer for the Department, and Mr. Ray Ward, General Manager of Cedar Mineral Company. Mr. Lloyd Dixon was at the mine. I want to list the equipment and recent work that I saw.

It is obvious that roadwork has been done. In addition, a trailer camp area mill site and office site have been established.

The trailer camp area that had been leveled appeared large enough for ten to twelve large trailers. One large trailer, (12 x 50 est.) was set up. A large water tank was in place on a hill above the camp. A water well had been recently drilled below camp. I was told the well was a 6 inch hole, 80 feet deep, with 4 inch electric submersible pump installed. An outlet pipe, electric cable and starter switch was noted.

Equipment noted at the mill site was as follows:

1. Ball mill 100 HP (est. 5 x 6)
2. Jaw crusher, El Paso Foundry (6 x 18) est.)
3. Two storage bins (concentrate)
4. Oliver Drum Filter (3 x 4 est.)
5. Wemco spiral classifier
6. Deco float cell
7. Small crucible furnace
8. DFC blower (Lab).
9. Miscellaneous electric motors, switch gear, starters and resistors.
10. Stack of pipe, from 1/2" thru 4" size
11. Conveyor belt parts
12. Stack of core boxes
13. Bucket elevator parts
14. Conveyor stand
15. Assorted pumps and valves
16. Apron feeder
17. Galvanized iron for building

C
O
P
Y

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

18. Three barrels of grinding balls
19. Miscellaneous assortment of gears, bolts, iron, etc.

Equipment noted at the mine includes:

1. Combination back-hoe, front end loader - Case
2. H&B Hoist, no motor, 42" diameter drum
3. 125 KW Onan diesel generator
4. 400 Amp electric welder
5. Two self contained house trailers (est. 24 and 28 feet)
6. Diesel fuel storage tank
7. Miscellaneous electric wire and switch gear
8. Mine timbers
9. Two Jack legs
10. Several miscellaneous pumps
11. A 10 x 10 (est.) tool shed at the shaft, containing cutting torch, lights, lubricants and other miscellaneous supplies.
12. Small blower with plastic tubing for ventilation
13. Coppus vent blower
14. Miscellaneous tools, including double jacks

The shaft, which I was advised was the Arnold Shaft, had new timbers the first 20 feet or so. As far as could be seen, the other old timbering looked in good shape -- new ladders had been installed.

A small pipe headframe (sinking), with a small two drum contractor hoist was erected on the Arnold Shaft. I was told this was leased equipment. A large compressor nearby was also leased.

As we toured the property, a number of cuts across the strike of the veins (when visible) were noted. These cuts were made by a bulldozer. Some back hoe work had been done in clearing access to adits. Several were visible.

Two late model pick-ups, one a four-wheel drive and a flat bed truck were observed. One pick-up was used for transportation from Wikieup to the mine. The four-wheel drive unit was used to get to various sections of the property.

The surface tour was quite complete. One adit was entered and a drift was followed and cross-cuts noted. Much surface geology was noted. No attempt was made at any evaluation of any kind. No engineering data was studied. This letter is to merely note equipment personally observed.

I want to thank you for the most excellent tour. Mr. Walker and I both appreciated your generosity.

Very truly yours,

John H. Jett
Director

DD

C
O
P
Y

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

*yellow on art
white - cedar mine
file*

C
O
P
Y

May 11, 1976

Mr. Douglas K. Martin
Charles R. Ward Corporation
4728 North 21 Avenue
Phoenix, Arizona 85015

Dear Doug:

Thank you for sending the Department a copy of your letter on the Cedar mine. Your courtesy is appreciated.

I hope you get your partners' problems solved rather quickly and can proceed with your development work.

Very truly yours,

John H. Jett
Director

E

MILLERS FALLS
ONION SKIN
SECTION CONTINUED

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

File: ~~Cedar~~ Mineral Project
X-Ref: Charles R. WARD Corp.
Alpha: "W"
Pink REading Copy

June 21, 1976

C
O
P
Y

Mr. D. K. Martin
Vice President
Charles R. Ward Corporation
4728 North 21st Avenue
Phoenix, Arizona 85015

Dear Mr. Martin:

Thank you again for your excellent cooperation -- we appreciate it. The report will go into our confidential file. We visited the operation in order to obtain data to pass on to others. We have been asked a number of times as to the credibility and capability of the company concerned. We thought going and seeing for ourselves was the only way to find out. You helped us a lot. Thanks again.

Very truly yours,

John H. Jett
Director

JHJ:PP

MILLERS FALLS
COTTON SEED
COTTON CONTENT

CHARLES R. WARD CORPORATION

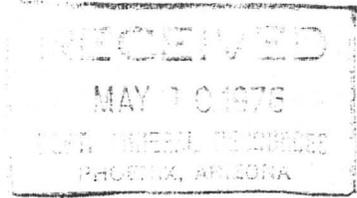
Mining Development & Mineral Recovery

4728 N. 21ST AVENUE

PHOENIX, ARIZONA 85015

AK

Joe



Circulate then file

May 6, 1976

Mr. Stanley George
5001 Duverney
Laguna Hills, California
92653

Dear Mr. George:

Re: Cedar Mine

Hoping you have received our payment for May on the Cedars' Property.

To date we have sunk the Arnold Shaft to the 200 foot level and re-established a 435 foot drift to the south on the one hundred (100) foot level and are now working on the drift to the south on the two hundred (200) foot level.

A 4" producing well has been drilled at the old mill site; a camp site leveled off for approximately 10 trailers; have a 150 ton per day floatation mill in pieces sitting on the partially completed new mill site situated on the east side of the new road; the General Lee tunnel has been run approximately 580 feet with rails, portal, etc., ready for mining.

At present, due to our partners having tax and mal-practice insurance problems, we are temporarily closed

Mr. Stanley George
May 6, 1976

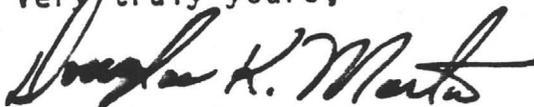
Page Two

down with a watchman on the property to maintain the pumps and prevent vandalism.

Our assays are averaging approximately 25 oz. of silver per ton with a quarter ounce of gold.

We are very encouraged with all we have discovered, proven, and justified.

Very truly yours,



D. K. Martin
Vice-President

DKM/jer

cc: State of Arizona
Department of Mineral Resources

CHARLES R. WARD CORPORATION

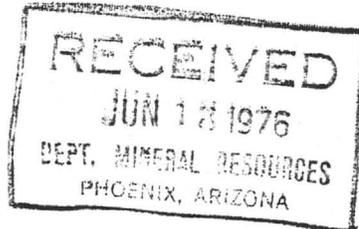
Mining Development & Mineral Recovery

4728 N. 21ST AVENUE

PHOENIX, ARIZONA 85015

*let me
Phillips
read*

June 17, 1976



Mr. John Jet
Department of Mineral Resources
Mineral Building, Fairgrounds
Phoenix, Arizona 85007

Dear Mr. Jet:

Re: Flow Sheet and
Smelting Research

Mr. Ken Phillips of your Department phoned us yesterday from the office of J & J Smelting, Hisperia, California concerning his research and our Cedar Mineral project.

Permission was granted Mr. Rego (Vice-President) to make available all information in his possession concerning the Cedar Project.

Please be aware the particular flow sheet and information granted to Mr. Phillips is confidential and not for publication but for your eyes only.

The ore Mr. Rego processed and of which the flow sheet constructed was of our combined surface random samples mixed with ore from the Arnold Shaft.

Our purpose for this was to obtain a basic beginning or idea of what and how the average low grade ore could be processed plus check the reliability of J & J Smelting.

At this time, we are satisfied as to the report submitted by J & J Smelting.

Thank you for your cooperation.

Sincerely,

D. K. Martin
D. K. Martin
Vice President

*Dear Mr. Martin .
Thank you again for your excellent
cooperation - as appraised it. The
report will go into our confidential file.*

*We were visiting the operation in order to obtain data to
pass on it others. As have been asked a number of times
a to the credibility and capability of the company concerned. Then
we thought going and seeing for ourselves was*

DKM/ier

Affidavit of Labor Performed and Improvements Made

STATE OF ARIZONA, }
County of MARICOPA } ss.

I, DOUGLAS K. MARTIN being duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one years of age, and resides at PHOENIX in MARICOPA County, State of Arizona, and is personally acquainted with the mining claim known as CEDAR VALLEY MINES
(See Exhibit "A")

mining claim, situate in CEDAR VALLEY Mining District, County of MOHAVE, State of Arizona, the location notice of which is recorded in the office of the County Recorder of said County, in Book of Records of Mines, at page (See Exhibit "A"); that between the 1st day of AUGUST, A. D. 1975, and the 31st day of JULY, A. D. 1976, at least FORTY FIVE THOUSAND (\$45,000.00) dollars worth of work and improvements were done and performed upon said claim, not including the location work of said claim. Such work and improvements were made by and at the expense of Cedar Mineral Company by Charles R. Ward Corporation, 4215 N. 16th St, # 7, Phx, Az. 85016 owner of said claim for the purpose of complying with the laws of the United States pertaining to assessment of annual work, and Cedar Mineral Company, Alpha Management Corporation, J. D. Oliver Corporation

were the men employed by said owner and who labored upon said claim, did said work and improvements, the same being as follows, to-wit: Mapping Property and re-establishing markers, Developing additional water supplies, constructing new and improving roads and mill site & campsite, sinking to the 300 foot level- Opening adits, drifts, simpling and assaying the various surface and underground indicated orebodies and veins.

When recorded, please return to:

C. R. WARD CORPORATION
4215 NORTH 16TH STREET
Suite 7
Phoenix, Arizona, 85016

C. R. Ward Corporation

Douglas K. Martin
D. K. Martin, Vice President

Subscribed and sworn to before me this 1st day of Sept, A. D. 1976

(My commission expires.....)

Notary Public
(Notary Public)

Affidavit of Labor Performed and Improvements Made

STATE OF ARIZONA, }
County of MARICOPA } ss.

I, DOUGLAS K. MARTIN being duly sworn, deposes and says that he is a citizen of the United States and more than twenty-one years of age, and resides at PHOENIX in MARICOPA County, State of Arizona, and is personally acquainted with the mining claim known as CEDAR VALLEY MINES
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were the men employed by said owner and who labored upon said claim, did said work and improvements, the same being as follows, to-wit: Mapping Property and re-establishing markers, Developing additional water supplies, constructing new and improving roads and mill site & campsite, sinking to the 300 foot level- Opening adits, drifts, simpling and assaying the various surface and underground indicated orebodies and veins.

When recorded, please return to:

C. R. WARD CORPORATION
4215 NORTH 16TH STREET
Suite 7
Phoenix, Arizona, 85016

C. R. Ward Corporation
Douglas K. Martin
D. K. Martin, Vice President

Subscribed and sworn to before me this 1st day of Sept, A. D. 1976

(My commission expires _____)
Notary Public



RAUL H. CASTRO
GOVERNOR

Arizona
State Land Department

1624 WEST ADAMS
PHOENIX, ARIZONA 85007
602 - 271-4634



OFFICE OF
STATE LAND COMMISSIONER

June 12, 1975

C. R. Ward Corporation
4728 North 21st Avenue
Phoenix, Arizona 85015

Attention: Mr. Douglas K. Martin

Dear Mr. Martin:

We are returning both copies of the three Statement of Claims you filed with this Department on June 11, 1975.

While you were in the office, we neglected to note that none of the claims were properly notarized and that both copies were not signed with original signatures.

We would request that this be done and the claims returned so that we may continue to process them.

Sincerely,

Andrew L. Bettwy
State Land Commissioner

BY 
Richard A. Gessner
Water Rights Division

ALB:RAG:sw

Encls.

3 September 1975

State of Arizona
State Land Department
1624 West Adams
Phoenix, Arizona 85007

RE: Appl #: 32719 Water Rights
32720
32721

Dear Mr. Gessner:

As required, the following excerpts from engineering reports to establish the use of water and verification for the above listed applications:

FROM: "Report on the Mining Property of the Arizona Metal Mines Inc., in Cedar Mining District, Mohave County, Arizona by: E. Martin Thorniley, Mining Engineer, Glendale, California, May 1929":

Pages 1 & 2: "This entire equipment, together with a large Mill Building is in excellent condition - the water supply comes from a Well and Living Springs that can be increased to any capacity."

NOTE: The following was supplied by the springs and well: 6-Dwelling & Bunk Houses

- 1-Boarding House
- 1-Store Building
- 1-Office Building
- 1-Large Warehouse
- 1-Assay Office.
- 1-40 H.P. Boiler
- 1-Duplex Pump

"This district and some of the mines embraced in this consolidation was discovered in 1873, when the Cedar Valley Mining District was organized."

"In 1894 the 'Cedar' Group was consolidated and a 15 stamp amalgamating mill with concentrating tables and cyanide tanks erected."

Several additional reports list equipment including pumps requiring water from the springs, well and drift drainage such as 4-Kraut flotation Machines, a 4 x 4 Allis Chalmers Ball Mill, etc.

The crew now working the Cedar Mines have excavated and traced the original pipes to the springs and redeveloped the water supply.

If copies of the reports and additional supporting evidence is required, please request same.

Very truly yours,

DKM/dm

C O P Y O F

REPORT OF THE CEDAR VALLEY GOLD AND SILVER MINING COMPANY'S CLAIMS.

BY:- H.M.RUSSEL, M.E.

THIS group consisting of sixteen claims, is situated in the Cedar Valley mining district, Mojave County, Arizona, in the Hualapi Mountains, nearly South of Kingman and ten miles West of the Big Sandy, Yucca Station, on the Santa Fe Railroad is the nearest Railroad Station, and is about twenty-eight miles distant, over fair mountain road.

The formation is granite, cyanite and porphyritic. The mountains in which the mines are situated are very highly mineralized, having a great variety of colors.

The East Lodge has the most development work done on it, on the Arnold Claim, Main shaft 200 feet deep; levels 70 feet West and 400 foot East at the 100 foot level. I could not get to bottom of main shaft on account of water; nor west of shaft in 100 foot level; but east in the 100 ft. level the ore body shows strong from two to five feet wide. The ore chute seems to be about 400 feet long on this claim and holds very regular. (See assays for values.) In the 100 ft. level, nearly 300 feet East of shaft, we have about 200 feet in depth. The winze from adit to 100 feet level shows ore from top to bottom, an average width of 2-1/2 feet, and has been stoped to surface, about 80 feet above the adit at winze. I believe this ore body will continue to great depth and should improve with depth. The ore is quite regular and continues, where I could get into the winze, and that was in the adit, running East from shaft 400 feet and gaining a depth of about 400 feet; the 100 ft. level running East nearly 400 feet and through a winze from adit to 100 ft. level and 300 feet East of main shaft, (being as near as I could get to shaft on account of water,) to the winze 300 feet East. The ore averages 2-1/2 feet wide all the way, and from the level to the adit, 100 feet above, shows the same. From the adit to the surface it had mostly all been stoped out. I was told that the ore held as good and strong to the bottom of the 200 foot shaft.

There are several other shafts at different places all along the ledges, but we could not get into them, as they have been abandoned for several years

and were caved, but I was told they had produced some very high grade ore.

The veins or ledges are easily tracable the full length of the claims, and have a good many small openings along the ledge. My samples, except from the "ARNOLD", were taken from very near the surface. Results are as follows:-

Of the fourteen samples taken by myself from different parts of the mines and along the surface the assay values were as follows:-

In Silver	- - - - -	\$49.12
" Gold	- - - - -	12.76
Making an average in gold and silver of		<u>\$61.88</u>

Mr. Baker gave me 52 assays made by A.E.Vandercook, mill man and assayer in charge of their works in 1897. The 52 assays gave an average per ton of :-

Silver	- - - - -162 ozs. at 60 cents	- - - - -	\$ 97.20
Gold	- - - - -	- - - - -	84.29
Total of Gold and Silver,	- - - - -	- - - - -	<u>\$ 181.49</u>

You can take this for what it is worth.

Wood can be had but not in abundance, at \$5.00 per cord. It would be cheaper to use oil, I think.

Water I think can be developed for fifty stamps. The mines seem to develop water as they gain depth. I am told there was considerable water here last year, while all the country around was dry, it being the driest for many years.

"The Arnold" has good shaft house, 25 H.P. boiler, fair hoist for about about 300 feet, good blacksmith shop, plenty of tools for quite extensive work, a good magazine, good iron T rails in all the drifts; the main shaft well timbered, with good skip and necessary buckets, etc. Ore bins, holding 150 to 200 tons, with good track from mines to ore bins and good road to mill. Fifteen stamp mills all complete with four Springer Vanner concentrators; good copper plates, all in very good condition, sufficient water tanks and about 200 ton ore bin, outside and 150 ton bin inside of mill. Liberal supply of all kinds of belting, bolts, pipes and in fact everything necessary for present demands.

One office building, store and living house, first-class. One cook house large enough to seat about 60 men, One dwelling house for superintendent, nine smaller houses, suitable for dwellings. Good assay office with everything complete excepting scales. The buildings are all first-class and are being kept up in good shape.

ASSAYS.

TOTAL
GOLD AND SILVER

No. 1 -	From west end 50 feet shaft, "Queen" tunnel, gold 9/10 oz. \$18.60; Silver 38-2/10 ozs. \$22.92	\$ 41.52
No. 2 -	From selected ore east vein, "Lee" shaft tunnel, Gold 4-60/100 ozs. \$105.08 Silver, 340 ozs. \$204. 00	309.08
No. 3 -	From "Lee" long stope, across 24 foot ledge, Gold 15/100 ozs. \$3.10; Silver 5 ozs. \$3.00	6.10
No. 4 -	From "Arnold" 100 ft. winze, taken every few feet from top to bottom of 2-1/2 ft/ ledge. Gold 19/100 ozs. \$3.92; Silver 28-7/10 ozs. \$17.22.	21.14
No. 5 -	From "Hubbard" 8 ft. ledge on surface. Very strong ledge Gold 1/10 oz. \$2.07; Silver 2 ozs. \$1.20	3.27
No. 6 -	From main 100 foot level of "Arnold" 2 to 5 ft. ledge Gold 12/100 oz. \$2.48; Silver 243 ozs. \$145.80 -	148.28
No. 7 -	From "Lee" West Vein; Mexican prospect hold, showing lots of iron near south end, Gold 9/100 oz. \$1.86; Silver 9-8/10 oz. \$ 5.88	7.74
No. 8 -	Details of locality, etc. omitted by copyist, but total values in gold and silver are,	62.29
No. 9 -	Taken from "Arnold" shaft No. 2, 2 ft. ledge, 40 feet in width, 200 feet South of shaft, Gold, 16/100 ozs., \$31.31; Silver 23 ozs. \$13.80	17.11
No. 10 -	From "Loo" stope, worked out by Mexicans, ledge about 2-1/2 feet, but continues with ore and porphyry for 28 feet, Gold 17/100 ozs. \$3.51; Silver 52-3/10 ozs. \$31. 38	34.89
No. 11-	Picked No. 5. Gold, 1-36/100 ozs. \$34.32; Silver, 94 ozs. \$56.40	90.72
No. 12 -	From "Arnold" No. 6 Gold 61/100 ozs. \$12.61; Silver 122 ozs. \$73.20	85.81
No. 13 -	No. 2, large croppings, Gold 5/100 ozs. \$1.03; Silver 19 ozs. \$11.40	12.43
No. 14 -	From No. 2, "Queen" Gold 25/100 ozs. \$5.37; Silver 71 oz. \$42.60	47.97

The foregoing is a report of an examination of the Cedar Valley Gold and Silver Mining Company's Claims, made by Major Horace M. Russell, of Los Angeles, California, April 26. 1901.