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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: CERRO COLORADO MINE

ALTERNATE NAMES:
HEINTZELMAN
SILVER QUEEN

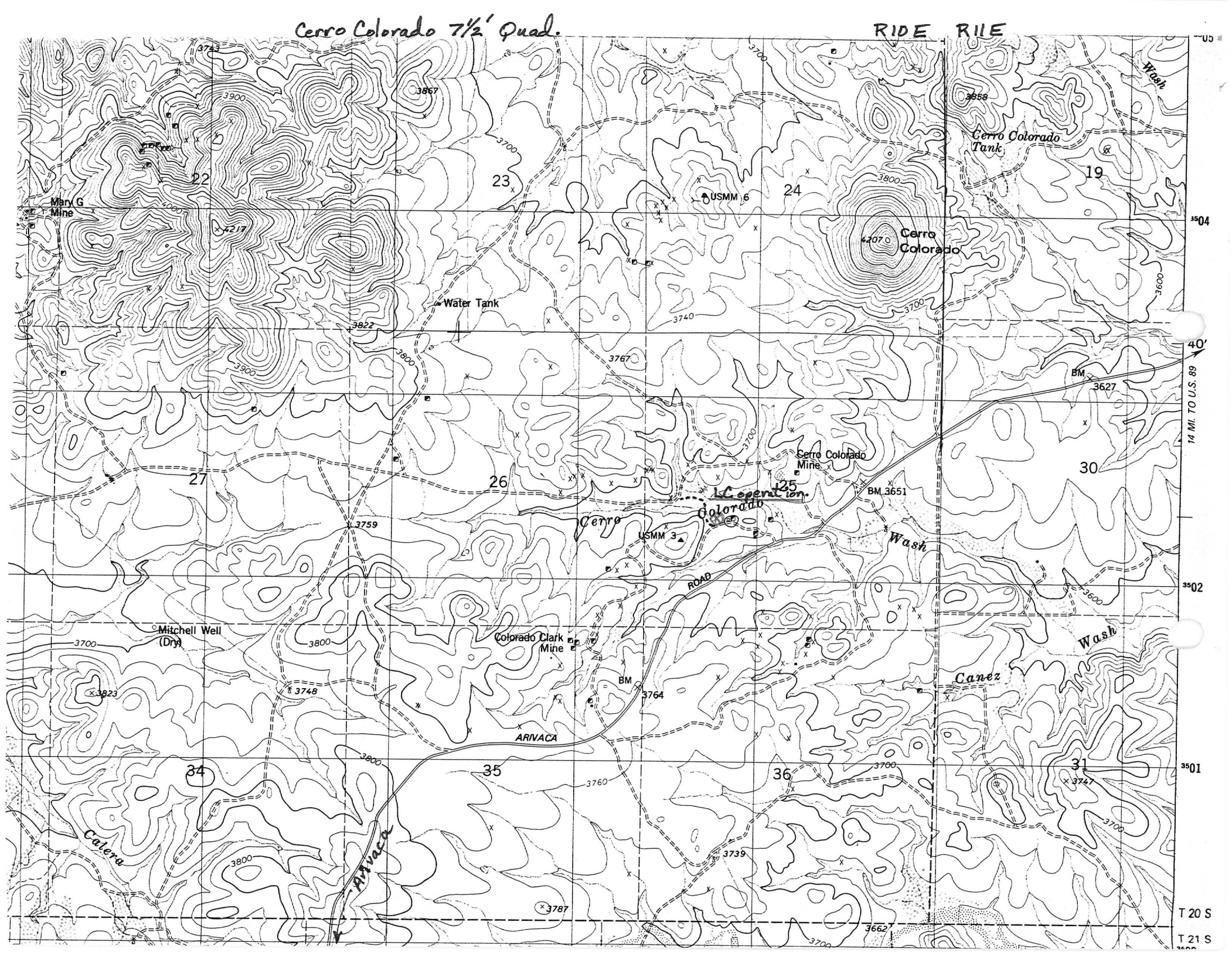
PIMA COUNTY MILS NUMBER: 98

LOCATION: TOWNSHIP 20 S RANGE 10 E SECTION 25 QUARTER NE
LATITUDE: N 31DEG 39MIN 32SEC LONGITUDE: W 111DEG 16MIN 20SEC
TOPO MAP NAME: ARIVACA - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
SILVER
GOLD LODE
LEAD
COPPER

BIBLIOGRAPHY:
ADMMR CERRO COLORADO MINE FILE
KEITH, S.B., 1974, INDEX OF MINING PROPERTIES IN PIMA COUNTY, AZ BUREAU MINES BULLETIN 189, P. 114
DUNNING, C.H. AND PEPLOW, E.H., JR., 1966, SILVER, HICKS PUBLISHING CO., PASADENA, CALIFORNIA, PP 47-51


Cerro Colorado 7½' Quad.
RIDE
RIE
Mary G Mine
Water Tank
USMM 6
Cerro Colorado
Cerro Colorado Tank
Wash
Cerro Colorado Mine
BM 3627
BM 3651
14 MI. TO U.S. 89
Operation
Colorado
Cerro
USMM 3
Wash
ROAD
Mitchell Well (Dry)
Colorado Clark Mine
BM 3764
Canez
Wash
ARIVACA
Calera
Arivaca
T 20 S
T 21 S
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3662

CERRO COLORADO MINE
SILVER QUEEN
HEINTZELMAN

PIMA COUNTY
CERRO COLORADO DIST.
T20S, R10E, Sec 25

ABM Bull. #2 - Arizona Place Names
ABM Bull. 122 p. 106
ABM Bull. 140 p. 97

IC 8252 p. 70

Mining World Dec. 1963 p. 36

Metal Mining & Processing Feb. 1964 p. 15
Metal Mining & Processing May 1964 p. 61
Metal Mining & Processing March 1965 p. 33

E&MJ Vol 165 No. 5 May 1964 p. 157
E&MJ Vol. 165 No. 3 March 1964 p. 124

Hinton's 1000 Old Arizona Mines p. 57

A Report on the Field Work, Prospecting & Geology of the District Contiguous to the Montana Mines, Ruby, Arizona, by F.E. Gregory, September, 1935, Geology file.

Geology Report on Cerro Colorado Claims by Michael Sheets in Confidential File.

MILS CERRO COLORADO MINE

*

SILVER QUEEN MINE

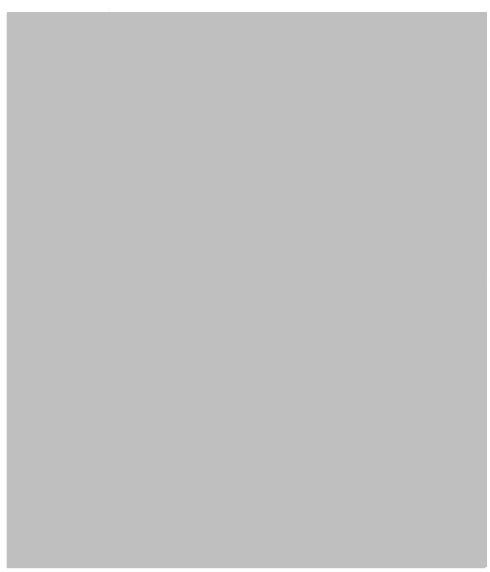
PIMA COUNTY

Mining World Dec. 1963 p. 36

Metal Mining & Processing Feb. 1964 p. 15

E&MJ Vol 165 No. 3 March 1964 p. 124

Mining World 12/1963



THE HISTORY

— OF THE —

Silver Queen Mine

— IN —

ARIZONA.

Nearly forty years ago a company was organized in the East called the "Sonora Exploring and Mining Company," to explore the[illegible] purchased afterwards by [illegible] known as

Silver Queen Mine,

LOCATED IN PIMA COUNTY, ARIZONA.

SAN FRANCISCO:

GEO. SPAULDING & CO., PRINTERS,

1890.

THE HISTORY

— OF THE —

Silver Queen Mine

— IN —

ARIZONA.

Nearly forty years ago a company was organized in the East called the "Sonora Exploring and Mining Company," to explore that portion of Mexican territory, purchased afterwards by the United States and added to Arizona, commonly known as the *Gadsden Purchase.*

In the spring of 1856, Frederick Brunchow, who was a graduate of the Royal Mining Academy of Berlin, Germany, was employed in New York City by Col. Charles D. Poston, the managing agent of this company, as their geologist, mineralogist and mining engineer.

They arrived at Tubec, where the company had previously established its headquarters, in August of the same year. At that time, exploring trips into the surrounding mountains were made by parties of seven or eight men, well armed and equipped, with water and provisions, and consequently new mining discoveries must have been slow and hazardous.

* * * *

Mr. Brunchow, in one of his reports, says: "On January 21, "1857, I proceeded to where I had discovered, on a previous ex- "pedition, specimens of very rich ore; and on the 23d of Jan- "uary the vein was cut by one of our prospecting ditches, show- "ing the enormous value of the vein, which was named after "the (then) President of the company—

"THE HEINTZELMAN MINE.

"These specimens I then assayed, and they yielded the same "as thirty pounds of ore afterwards taken by Col. Poston to

" the U. S. Mint in San Francisco, to wit: from $5,000 to $8,-
" 600 of silver per ton."

* * * *

This mine was found in the foot-hill spurs of the *Cerro Colorado* mountains, where wagons could roll up to its shaft, and is about 3,000 feet above sea level. Another report says:
" The main shaft, on this mine, was commenced February 15,
" 1858, and was pushed down sixty feet by October of the same
" year."

* * * *

Mr. Brunchow, continuing, says:

" The ores from the 60-foot level were carefully assayed by
" me, and they yielded from 1,000 to 4,000 ozs. silver per ton—
" some of the ore gave the enormous result of $20,000 a ton.
" The vein dips 80° to the west, and I thought a perpendicular
" shaft forty feet from the vein would strike it 250 feet be-
" low the surface. The shaft was sunk in solid rock, and the
" whole mass was blasted with great difficulty. The shaft
" was 9x4 feet, and divided 6x4 for hoisting ore, and 3x4 to
" put in the necessary pumps. The ores in the depths of the
" mine are richer than they are above. I consider the Heintzel-
" man vein as one of the richest silver mines in the world, and
" I see no obstacle in obtaining results equal to the most cele-
" brated mines of Mexico. Even the red clay, near the walls
" of this vein, yield ninety ounces of silver to the ton."

Mr. B. also reported:

" Finding very rich specimens of iodide and bromide of silver
" and a silver amalgam; also native silver in the Heintzelman
" vein."

* * * *

During 1858 the estimate made by competent miners of the value of ore extracted from the Heintzelman mine, when the shaft was only fifty feet deep, was $100,000! That year Louis A. Garnett, in San Francisco, assayed ore from this mine, running from $4,000 to $9,000 a ton; and seven and one-half tons of ore was sold in San Francisco for *one dollar per pound.*

* * * *

In 1859 Herman Ehrenburg, topographical engineer of the company, in his report, says:

" In the Heintzelman mine we own one of the richest in the
" world, if properly opened. It is the universal law, in the de-
" posits of silver ore, that they increase in per cent. of silver as
" they recede from the surface, and this law holds good in the
" Heintzelman, for the ore on the lowest levels reached, prov-
" ing better than those above."

* * * *

Guido Kustel, master of the amalgamation works of the company in 1859—Mr. K. graduated at the Royal Academy of Frieburg, Saxony, and went to Arizona from San Francisco—says:

" Of all the *smelted* ore, the average has been 46 cents per
" pound ($920 a ton)—a wonderful yield. The famous Real
" del Monte, of Mexico, does not yield near as high a percent-
" age—their average is $63 a ton, and the clay-walls of the
" Heintzelman, alone, yield $90 a ton."

* * * *

The machinery hauled from San Diego for this company, during 1859, cost $500 a ton. Indeed, all the provisions and necessities of life, delivered at the mine, cost so much that it now seems like a fable.

* * * *

In 1860 S. H. Lathrop, one of the Directors of the company, after being upon the ground and in charge of the property for one year, says:

" I see no material difference in the several levels—30, 60 or
" 100 feet. I hope to reach the 142-foot level in two months,
" March, 1860.

" It is for the interest of the company to continue work on
" the main shaft without interruption; *it can now hardly be said*
" *we are beyond surface working.*

" Losses from theft and Indian depredations, for the year,
" have been serious. I think the Heintzelman vein is our prin-
" cipal one, and the yield will continue down 2,000 to 3,000
" feet, as silver mines do in South America and Mexico."

* * * *

The celebrated Baron Humboldt, while on his visit to Mexico, stated :

" That (in his opinion) the proportion of silver in ore would
" be found to increase as you advance toward the north."

This remark applied to Sonora, at which time this Territory belonged, and this he accounted for geologically, by the *dip* of the veins, "that as the lodes trended southward, the value would "only be found at great depths," which theory, since his day, subsequent developments have fully confirmed.

* * * *

One of the historians of Arizona says:

"The breaking out of the civil war (1861) brought to an abrupt ending all effort to develop mining industry, and retarded "for years our Territorial advancement.

"The garisons stationed in Arizona were withdrawn, and the "population left to the mercy of the Apaches."

* * * *

Hamilton, in his "Resources of Arizona," says:

"The famous 'Cerro Colorado' (the Heintzelman re-located) "is about sixty miles south of Tucson, and ten miles north of "Arivaca. It was one of the first mines worked by Americans in Arizona, and has produced over $2,000,000. At the "breaking out of the civil war, the Apaches destroyed the buildings and hoisting works, and compelled the abandonment of "the property. Large quantities of ore have been stolen from "this mine, and it is said the town of Saric, in Sonora, was "built up on the proceeds of this plunder."

* * * *

The Heintzelman mine was re-incorporated in the East by some members of the old Sonora Mining Company; but one of the locators refused to enter into this incorporation, and consequently a fierce contest waged for years between them.

The *unwritten* history of this mine, from the days when the *Apaches* swept everything away in 1863–4, until the Silver Queen location, in the eagerness of men to secure possession of such a mining property, seems to have resulted disastrously, and ended only in personal and wearisome conflict.

It was once re-located under the name of the "Cerro Colorado;" then it was called again by other owners the "Cerro Colorado Company," but under this management they commenced work in 1879, sinking the shaft ten feet, besides drifting, &c., and reported leaving the main shaft 222 feet deep.

* * * *

This brings the history down to the period of the

SILVER QUEEN,

incorporated under the laws of the State of California, April 14th, 1882.

A copy of the report made by the President of this company at the stockholders' meeting in June, 1889, is the best method, perhaps, to show the present condition of the property:

"For the information of the stockholders of the Silver Quee "Mining Company, the following statement is respectfully sub-"mitted:

"The mining claim now known as the Silver Queen Mine, "situated in Arizona Mining District, Pima County, about "fifty-five miles south of Tucson, on the great Southern "Pacific Railroad, Arizona, was located January 1st, 1882. "Application for patent was made in September, 1883. An "adverse claim was filed and suit commenced in the U. S. "Court at Tucson, the following November. The plaintiffs' attorneys succeeded in postponing the trial of this "case for eighteen months, or until May, 1885, when it came "on for trial before Judge Fitzgerald. From May until "November no decision was filed, and the Judge was superseded; here we were, the Judge removed, our case "tried, many of our witnesses gone beyond our reach. Judge "Barnes was appointed by the President to succeed Fitzgerald "and our case again came up for trial *de novo*, in February "1886, and it was decided in our favor *from the Bench*.

"The patent papers were then forwarded to Washington. "There the papers remained two years and eight months, or "until December, 1888, before they were reached by the Commissioner.

"When the Commissioner took the application up, he discovered that a slight omission had been made in the publi-"cation of the application. It did not state the distance the "claim was from the Government mineral monument; hence, "the Commissioner refused to approve the application or take "further action until a republication, posting, &c., were again "had. We deemed it best to republish, which was again com-

" menced December 17th, 1888. At the expiration of the " sixty days, our agent attempted to make final proof, when, " to his surprise, he found the application had been published " in two issues *only;* for some cause, never satisfactorily ex- " plained, it had been dropped out of the paper! Another trial " was made, commencing March 2d, 1889, and at the expiration " of the time required by law, final proof was made, and the pa- " pers again all forwarded to Washington; and, at last, I have " the satisfaction to state that I have just received a letter " from Messrs. Britton & Gray, Washington, D. C., dated June " 18, 1889, which states ' that the Silver Queen entry has been " ' approved for patenting, and that patent is now being pre- " ' pared.'

" I have given the history of the numerous delays and diffi- " culties in obtaining this patent, that a better understanding " may be had of what has been accomplished.

" It has been the purpose of the Directors to *first* obtain a " patent to the mine, before making much development; there " has, however, been a great deal of work done to hold proper " possession, prepare the mine, and have it ready for future ope- " rations. You are aware the *Silver Queen* is an old mine, " having been worked more than thirty years ago. The vein, " or veins, are in a porphyry formation, and dip to the west at " an angle of about 80°.

" The main shaft was sunk in the west or hanging wall, in " very hard rock, called metamorphic clay-slate—its present " depth is about 225 feet. It being in such hard rock, it was " timbered only at the stations.

" The water was taken out of the mine about one year ago, " and has since been kept out—in fact the mine has but very lit- " tle water to contend with, making ten to twelve barrels daily, " being entirely ' surface water.'

" The shaft has been re-timbered at the stations, and made " safe and secure. At the 200-foot station it was found in a " very bad condition; the ore veins having been gouged out by " the long bars used by Mexican miners, and the surplus rock " caved into the shaft. We have made the shaft s cure, with " solid timber work from the bottom upwards, for about fifty " feet, where the rock is solid and undisturbed.

" We find the timbers in the drifts and stopes as sound and " secure as when placed there thirty years ago. This work and " the main shaft gives us the actual benefit of at least $100,000 " worth of ' development work.'

" *No systematic drifting and stoping of ore was done below the* " 60-*foot level ! !* On the 200-foot level a cross-cut and few " feet of drifts *is the only work.* On the 150-foot level more " drifting was done; but no stoping of ore, though there was " much gouging, showing that it was hasty work. On the 100- " foot level it has the same appearance, and that it was rapidly " done, with the view of extracting all they could before having " to leave.

" Above ground some of the old buildings have been repaired " and re-roofed by us, making very comfortable quarters. A " substantial building covers the hoisting works and blacksmith " shop.

" Near the ' arroyo ' (or gulch) which crosses the claim, a shaft " has been sunk fifty feet, and from all we can learn, the vein " under this arroyo has not been worked, and this shaft is in- " tended to reach that ground. Another shaft has been sunk " about seventy feet, striking a small vein or stringer of very " fine ore, which is constantly improving as the shaft goes " down; this is a very lucky and important *find* for the com- " pany. The mine is now ready for action and enlarged work; " fifty (50) men can be employed taking out ore—not all profit- " ably at once—for systematic methods must be inaugurated " first, as in all such cases. It has heretofore been the pur- " pose of the management to proceed safely; their *first* object " being to acquire undisputed title; and *secondly,* to prepare the " mine for work at as small a cost as we could.

" While it would seem that active and methodical work need " not be longer delayed on account of the non-receipt of the " *patent;* and while the prospects are very flattering, and I might " say *assuring a very valuable property,* yet, after thirty years' " experience in mining myself, I would recommend the same " careful progress in the future as in the past, with the view of " keeping the disbursements within the receipts, as nearly as " possible. Although there has been large values extracted

" from this mine in early days, still it can only be called *surface*
" *work*, as a Director of the old company said in 1860; and the
" greater value by far remains within our grasp, as the vein
" matter concentrates on a lower level, in my opinion. 'All
" ores, whether rich or poor, have to undergo the same manip-
" ulation;' but the ore in this mine *is all of high grade, and will*
" *stand shipping*—hence, there is no necessity for the present
" of large expenditures to erect a working plant.

" Respectfully,

" H. J. McKUSICK,

" President S. Q. Mg. Co."

* * * *

THE TITLE.

A PATENT from the U. S. General Land Office, No. 51,080, Mineral Certificate No. 403, was issued and signed by Benjamin Harrison, President of the United States, on June 26th, A. D. 1889!! Recorded August 6th, 1889, by the County Recorder of Pima County, Tucson, Territory of Arizona, pages 445 to 448, in Book of Records.

San Francisco, March, 1890.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Silver Queen Mine Date Sept. 3, 1963

District Cerro Colorado District - Pima County Engineer Axel L. Johnson

Subject: Field Engineer's Report. Information from Bill Hord & personal visit.

References: Report of May 7, 1963 and previous reports.

Sub-Lessee & Operator: Walter Bopp, 43 S. Sixth Avenue, Tucson, Arizona. Mr. Bopp has a sublease on part of the Silver Queen claim - a 75 ft. square.

Present Mining Activity: Mining operations were closed down temporarily on account of water about 2 weeks ago (Aug. 16) and will be resumed in about 2 weeks (Sept. 16) with 3 men working one shift, 5 days per week.

Annual assessment work on some State claims in the vicinity is now being done while waiting for the rains to stop and permitting operator to resume work in the shaft. The water is now up to within 6 feet of the collar of the shaft.

Review of Recent Operations: Since my report of May 7, 1963 the following work was done:

(1) The shaft was sunk an additional 70 ft. & is now down to 165 ft.
(2) Drifting was started on the 160 ft. level and this drift is now in a distance of 20 ft. to the west of the shaft.

The Silver Shield Mine will be operated alternately with the Silver Queen. However, no work has been done at this property since March 5, 1963.

*

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine: Silver Queen Mine — Date: May 7, 1963

District: Cerro Colorado District, Pima Co. — Engineer: Axel L. Johnson

Subject: Field Engineers Report. Information from Bill Hord & Personal visit.

References: Reports of Jan. 8, 1963, Nov. 7,26, 1962 & Sept. 27, 1962.

Sub-Lessee & Operator: Walter Bopp, 43 S. Sixth Ave., Tucson, Arizona. Mr. Bopp has a sub-lease on part of the Silver Queen claim - a 75 foot square.

Mining Activity: Drifting on the 95 ft. level - 3 men working, day shift only.

Review of Operations:

(1) Operations were closed down the last part of Nov. 1962 and the working force was moved to the Silver Shield Mine for retimbering and repairing the Silver Shield shaft.

(2) Operations were resumed the first part of March, 1963, and the vertical shaft at the Silver Queen was sunk to a depth of 95 ft.

(3) A drift was started on the 95 ft. level, and this is now in a distance of about 30 ft.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Silver Queen Mine Date Jan. 8, 1963

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Bill Hord & personal visit.

References Report of Nov. 7 - Nov. 26, 1962

Owners (correction)
Albert Steinfeld & Co., a corporation
and
Arizona Building Co., a corporation
Harold Steinfeld signed the non-liability notice for both companies.

Lessee John L. Mercer, 1361 E. Valencia Road (Rte. # 3-Box 30) Tucson
Lease and option was made and executed to Mr. Mercer on Sept. 12, 1962, signed by Harold Steinfeld for owners.
Sub-Lessee - Walter Bopp, 435 S. Sixth Ave., Tucson, Ariz.

Principal Mining Activity None. Mine was shut down about 6 weeks ago on account of (a) compressor needed overhauling, and (b) owners wanted to do some work on Silver Shield Mine while repairs to compressor were being made. Very little, if any progress was done on the shaft sinking since the last report of Nov. 7- 26.

Proposed Plans To continue sinking operations at a later date.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Silver Queen Mine Date Nov. 7-Nov. 26, 1962

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Bill Hord, Walter Bopp & personal visit.

References Report of Sept. 27, 1962

Location In Cerro Colorado Mts., about 12 miles west of Kinsley and about 47 miles SW of Tucson. Sec. 25 - T 20 S - R 10 E.

Number of Claims 1 patented claim.

Owner Harold Steinfeld, Tucson, Arizona.

Lessee John L. Mercer, 1361 E. Valencia Road, Tucson (Rte. # 3 - Box 30)
According to recent information, this is a lease with option to purchase, not an outright purchase as reported previously in the Sept. 27 report.

Sub-Lessee (on part of the claim -- a 75 foot square) - Walter Bopp, 43 S. Sixth Ave., Tucson, Ariz. This is a straight lease for a period of 2 years.

Principal Minerals Silver

Present Mining Activity Shaft sinking. 3 men working, one shift, 5 days per week.

Past History See report of Sept. 27,1962

Old Mine Workings See report of Sept. 27, 1962

Review of Recent Operations This work was started on Oct. 22, and the shaft is now down (as of Nov. 26) to a depth of about 30 ft. The shaft is a 2 compartment vertical shaft, 5' x 7' outside or 4' x 6' inside. The shaft location is on the edge of a rather large wash, the shaft collar being only about 2.5 ft. above the level of the wash. The shaft location is about 750 ft. south of the old Silver Queen vertical shaft, (reported to be 600 ft. deep), and is about 175 ft. SE of the old Cerro Colorado veins, which shows mined out surface workings.

Proposed Plans Mr. Bopp stated that he plans to sink the shaft to a depth of from 100 to 200 ft. or until he gets below an ore pocket, which he believes is there. He stated that this ore pocket is not connected with the main ore vein, which he knows is at least 150 ft. from the shaft location. He stated that he took a lease on only a 75 ft. square, as this is sufficient to take care of the area of the ore body. He did not elaborate on how he knows or believes that such an ore body exists at that location.

*

SQ

CERRO COLORADO MILL PIMA COUNTY

Mine visit to Cerro Colorado mine. Watchman living on property reported to have been told to move. Belongs to Steinfeld's. GWI WR 7-6-68

Mr. Bott started sinking on the Silver Ray shaft near the old Cerro Colorado. GWI QR 10-1-70

MG/WR 10/20/78 - Visited mine, no activity, mill has been totally dismantled and removed; three small house trailers that are apparently occupied on the east side of the property. 1/19/79 a.p.

MG WR 8/2/85: Visited the Cerro Colorado mine (Pima County). There is no activity at this mine.

MG QR 7/31/87: Provided general information on the Cerro Colorado mining district in Pima County to Mr. Dan Aiken of Cyprus Sierrita. He is investigating the precious metal potential of the area because he believes gold and silver may be zoned around possible porphyry copper deposits. Phelps Dodge may have drilled a porphyry system in the area north of the Cerro Colorado mine (file) Pima County.

SILVER QUEEN MINE PIMA COUNTY

Active Oct. 1963

Telephone call from Walter Bopp saying that they discontinued exploration for silver on account of low grade after drifting 55 ft. on the 160 ft. level. ALJ WR 7-13-64

Walter Bopp reported that the Silver Queen mine at Cerro Colorado has been closed down permanently. ALJ Note 9-1-64 Lolita Mine report

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DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Cerro Colorado Mill Date May 4, 1965

District Cerro Colorado District - Pima County Engineer Axel L. Johnson

Subject: Field Engineer's Report. Information from Lujan Juan - Caretaker

References: Report of Jan. 5, 1965 and previous reports.

Present Status: Mill is now closed down for repairs. These repairs, however are done intermittently, according to availability of the mechanics of the company to work on them.

Mr. Juan stated that the mill will be started up as soon as these necessary repairs have been made. This was expected to be May 10 or May 11, but may be delayed on account of the hoist breaking down at the Glove Mine.

At the present time, the ore trucked from the Arizona Mine at Ruby is dumped in piles at the back of the mill for milling later.

*

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Cerro Colorado Mill Date Jan. 5, 1965

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from mill foreman, Modesto Lopez.

References: Report of Jan. 7, 1964 and Nov. 8, 1963.

Present Activity: Milling ore from Arizona Mine, operating day shift only, with 3 men working. Milling about 40 tons of ore per day.

Only 6 flotation cells are in use at present. A bulk concentrate, containing lead, copper and zinc is produced and stockpiled for future shipment.

*

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Cerro Colorado Mill Date January 7, 1964

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Harry G. Lehman

References: Report of Nov. 8, 1963

Owners of Ground: Albert Steinfeld & Co., a corporation and Arizona Building Co., a corporation, own the Silver Queen patented mining claim on which the mill is built.

Owners of Mill: Arivaca Mining Corp., 107 W. President, Tucson. Harry G. Lehman, Exec. V. Pres. & Gen. Mgr. A closed corporation. This company bought out U.S. Magnetite about Nov. 1, 1963. Tom Garrity, New York City, part owner of U.S. Magnetite, retained a certain amount of stock in the new company.

Principal Minerals: Lead, zinc, copper, gold & silver.

Present Mining Activity: Milling ore from Arizona Mine, operating 2 shifts. 4 men working (2 on each shift). Milling about 80 tons of ore per day.

Ore Values: Reported by Mr. Lehman to be $30 to $35 ore viz: Copper, 0.51%; Lead, 6.0% to 7%; Silver, 3 oz. to 5 oz.; Gold, 0.3 oz. to 0.4 oz., balance in Zinc.

Mill Equipment:

(1) 1 - 14 ton coarse ore bin
(2) 1 - 10" x 21" Telsmith jaw crusher, crushing to 3/4"
(3) 1 - conveyor belt
(4) 1 - 20 ton fine ore bin
(5) Feeder
(6) Conveyor belt
(7) 1 - 5' x 6' Ball Mill of 80 ton capacity
(8) 1 - Wemco Classifier
(9) 1 - Conditioner (home made)
(10) 18 - Flotation Cells
(11) 1 - Eimco Filter

Review of Recent Operations: Milling operations were shut down from about Nov. 15th to Dec. 31, while the mill was being completed.

Following work was done:

(1) Ball mill was overhauled and speeded up to obtain more capacity.
(2) 12 additional flotation cells were installed, making 18 in all.
(3) An Eimco Filter was installed.
(4) A shed was built over the flotation cells and filter.

Milling was started again on Jan. 2, 1964, with 4 men on 2 shifts.

A copper-lead concentrate is obtained from the milling operation, which will be shipped to the A.S. & R. smelter at El Paso, Texas. The first shipment is scheduled to be made about Jan. 13th.

No zinc concentrate has been produced as yet, the ore being milled at present being relatively low in zinc content.

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4 Men working Mill construction started in Aug. '63, Milling ore started about Nov. 1, '63

ALJ Letter (ALJ report File) March 6, 1964.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine 'Cerro Colorado Mill Date November 8, 1963

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Harry G. Lehman and Jerry Delgado.

References: Report of Cerro Colorado Mine and Mill under date of Sept. 3, 1963 & earlier reports.

Principal Minerals: Lead, zinc, copper, gold & silver.

Present Activity: Milling ore from the Arizona Mine near Ruby was started about one week ago. (The ores in the Cerro Colorado Mine will be milled later, according to Mr. Lehman.) The mill now operates from 10 to 12 hours per day, milling about 20 tons of ore per day. 3 men are working in the mill, 2 men in the mine and 2 men hauling ore to the mill.

Mill Equipment: Mill now consists of the following equipment:

(1) 1 - 14 ton coarse ore bin
(2) 1 - 10" x 21" Telsmith jaw crusher, crushing to 3/4"
(3) 1 - conveyor belt
(4) 1 - 20 ton fine ore bin
(5) Feeder
(6) Conveyor belt
(7) 1 - 5' x 6' Ball mill of 50 ton capacity
(8) 1 - Eimco Classifier
(9) 1 - Conditioner (home made)
(10) 6 - Flotation cells

There is no dryer, settling tank, or tailings pond as yet. Mr. Delgado informed the field engineer that these will be installed in a week to 10 days, and also that 12 additional flotation cells will be installed shortly, making a total of 18 cells.

Only one concentrate product is obtained at present, most of the zinc being wasted. After the additional 12 flotation cells are installed, a zinc concentrate will be obtained as well as a lead-copper.

Mill Capacity: Approximately 60 to 65 tons per 24 hr.

Mill Heads: Estimated by Jerry Delgado to be viz: Lead 7%, Zinc 7%, Copper 0.5%, Silver 7 oz., Gold 0.4 oz. He stated that the ore varies greatly as mining operations are still near the surface.

Markets: Copper-lead concentrates are sent to the A.S. & R. smelter at El Paso, Texas. Zinc concentrates will be sent to the A.S. & R. smelter at Amarillo, Texas.

Proposed Plans: (1) Completion of the mill installation as shown above.
(2) Milling on a 3 shift - 24 hour basis.

Note:- No report has been made as yet of the Arizona Mine in the Oro Blanco District, near Ruby. This report will be made after engineer's next trip into the area.

Active October 1963 - 4 men

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Cerro Colorado Mine & Mill. (also called Silver Queen) Date Sept. 3, 1963

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Harry G. Lehman, & personal visit.

References Report of May 7, 1963, & report of Mar. 24, 1947 by Roger I. C. Manning.

Location In Cerro Colorado Mts., about 12 miles west of Kinsley & 47 miles SW of Tucson.

Owners Albert Steinfeld & Co., a corporation and Arizona Building Co., a corporation.

Lessees & Operators U. S. Magnetite, Inc., 107 W. President, Tucson, Ariz.
Harry G. Lehman, Manager, 107 W. President, Tucson.
This is a lease with option to buy.
Mr. Lehman states that a new company will be formed soon, with the U. S. Magnetite owners, and additional investors. (Note change of name & address)

Number of Claims 1 patented claim, the Silver Queen, with the exception of a 75 ft. square subleased to Walter Bopp (See report of Silver Queen Mine -- May 7, 1963 & prev.)

Principal Minerals Silver, copper, & lead -- in the form of argentite, tetrahedrite and galena.

Present Mining Activity Building a mill --- 4 men working, day shift only.
Work on the mill started 1 month ago, and is expected to be finished in another month.

Review of Recent Operations (1) Dewatering of the shaft
(2) Repairing shaft down to a depth of 400 ft., with some retimbered.
(3) Repairing underground workings on 5 levels --- 50, 100, 150, 200 and 250 ft. levels.
(4) Underground work was suspended about August 1st, and work on mill construction was started a few days afterwards.

Milling Facilities The mill is about half completed. When finished, it will consist principally of the following equipment:
(1) 1 -- 10 ton coarse ore bin.
(2) 1 -- 10" x 21" Telsmith Jaw Crusher.
(3) 1 -- Conveyor belt.
(4) 1 -- 30 ton fine ore bin.
(5) 1 -- 5' x 6' Ball Mill.
(6) 1 -- Classifier.
(7) 1 set of flotation cells for lead and copper separation.
(the last item has, as yet, not been delivered)

Proposed Plans Mr. Lehman informed the field engineer that his company had obtained an option (a lease with option to buy) on the Sheehey property near Ruby, called the Arizona, owned by a Mrs Sheehey of Nogales. This property has lead, copper and zinc ores, which the operators will mine and haul to the Cerro Colorado mill for milling. The ores from the Arizona will be mined and milled before operations are started on the mining of the ore in the Cerro Colorado mine, according to present plans.
Engineer will visit the Arizona property on his next trip to the area, after mining operations have started.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Cerro Colorado Mine — Date May 7, 1963

District Cerro Colorado District, Pima Co. — Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Harry G. Lehman

References: Report of March 24, 1947 by Roger I.C. Manning.

Location: In Cerro Colorado Mts., about 12 miles west of Kinsley and about 47 miles SW of Tucson.

Owners: Albert Steinfeld & Co., a corporation & Arizona Building Co., a corporation.

Lessees: U.S. Magne Pipe Corp., 6970 S. Tucson Blvd., Tucson, Ariz.
Harry G. Lehman, Mgr., 107 W. President, Tucson, Ariz.

Number of Claims: 1 unpatented claim, with the exception of a 75 ft. square leased to Walter Bopp (see report of Silver Queen Mine).

Principal Minerals: Silver & copper.

Present Mining Activity: Repairing of old vertical shaft. 7 men working, day shift only.

Geology: Vein material reported to be quartzite and the country rock schist and shale.

Past History & Production: (1) Mine is reported to have been operated by a Mr. Poston and Samuel Colt in the 1860s and closed down in 1874.
(2) The 550 ft. vertical shaft was sunk about 1900. (See report of March 24, 1947.) Arizona Bureau of Mines Bulletin #140, "Arizona Metal Production" gives the production of the Cerro Colorado district as $300,000 worth of silver from 1858 to 1884.

Old Mine Workings: (1) Vertical shaft reported to be 550 ft. deep, and now repaired to a depth of 400 ft.
(2) A series of old open cuts from the 1860 operations and older.

Review of Recent Operations: (1) Lease and option was made and executed by owners to John L. Mercer, 1361 E. Valencia Road, Tucson on Sept. 12, 1962.
(2) Mr. Mercer reported, on Feb. 27, 1963, that U.S. Magne Pipe Corp, 6970 S. Tucson Blvd., Tucson (present operators) had been given a lease on the property.
(3) Dewatering of the shaft by present operators.
(4) Repaired shaft to a depth of 400 ft., replacing about 100 ft. of timber.

Proposed Plans: (1) Mapping & sampling of the underground workings.
(2) Long hole drilling.

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DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Silver Queen Mine (Cerro Colorado) Date Sept. 27, 1962

District Cerro Colorado District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from John L. Mercer. Not visited.

Location In Cerro Colorado Mts., about 12 miles west of Kinsley and about 47 miles SW of Tucson.

Number of Claims 1 patented claim

Owner John L. Mercer, 1361 E. Valencia Road, Tucson (Rte. # 3 - Box 30)
This was ~~purchased~~ leased recently from Harold Steinfeld, Tucson.

Principal Minerals Silver

Present Mining Activity None at present.

Past History Mine is reported to have been operated by a Mr. Poston and Samuel Colt in the 1860s. It was closed down in 1874.

Old Mine Workings According to Mr. Mercer, there is a 6' x 12' vertical shaft, about 600 ft. deep, which is filled with water to within 30 ft. of the top. The timber has been rotted out, but Mr. Mercer claims that the shaft is not caved in, as it is sunk in solid rock, and not in the ore vein. There are several levels in the mine, but, according to Mr. Mercer, there was not much mining below the 350 ft. level.

Proposed Plans Mr. Mercer plans to diamond drill the property, drilling the holes at angles which will intersect the ore vein. He will concentrate his efforts to explore in the sulfide zone, below the 350 ft. level.

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DEPARTMENT OF MINERAL RESOURCES
State of Arizona
MINE OWNER'S REPORT

Date 1/26/60

1. Mine: Cerro-Colorado Mine (Formerly Silver Queen)
2. Location: Sec. 25 Twp. 20 Range 10 Nearest Town ..... Distance .....
   Direction ..... Nearest R.R. ..... Distance .....
   Road Conditions .....
3. Mining District and County: Arivaca
4. Former Name of Mine: Silver Queen
5. Owner: Albert Steinfeld &Co & Arizona Building Company
   Address: .....
6. Operator: Not operating
   Address: .....
7. Principal Minerals: .....
8. Number of Claims: Lode ..... Patented ..... Unpatented .....
   Placer ..... Patented ..... Unpatented .....
9. Type of Surrounding Terrain: .....
10. Geology and Mineralization: .....
11. Dimension and Value of Ore Body: .....

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective leasors or buyers.

(over)

CERRO-COLORADO MINE

PIMA COUNTY
ARIVACA DIST.

Letter and blank MO Report mailed to Mrs. Harold Steinfeld,

Pioneer Hotel, Tucson, Arizona, Jan. 21, 1960.

Mr. and Mrs. Frank Sumpano, 5217 S. 6th Ave. Tucson,
Owners of the Cerro Colorado and Silver Hill Mines.

ALJ. WEEKLY REPORT Dec. 17, 1960

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Jones, Richard D.: M.S., 1957; Geology of the Cerro Colorado Mining District, Pima County, Arizona.

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Mineralization in the district is confined to narrow quartz veins with infrequent sulphide mineralization. Total production, largely agentiferous tetrahedrite and galena, was $316,000.

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from: ARIZONA GEOLOGICAL SOCIETY DIGEST, Tucson, Arizona, Oct., 1958

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CERRO COLORADO MINE

PIMA COUNTY
ARIVACA DIST.

JOHN L. MERCER, 1361 E. Valencia Rd., Tucson, Ariz. (Rte.#3-Box 30), received application forms and other information on OME exploration loans. Discussion of the Silver Queen Mine in Cerro Colorado District (silver), which he recently purchased from Harold Steinfeld.

AXEL L. JOHNSON - Weekly Report - Sept. 28, 1962

CERRO - COLORADO

The Cerro Colorado Mine owned by the Arizona Holding Company, Harold Steinfeld, Tucson, Agent, is located in Township 20 South, Range 10 East, ~~Santa Cruz County~~ Pima, on the north side of the Arivaca-Hinsley Junction highway, approximately 9 miles northeast of Arivaca.

It consists of one patented claim deeded to Steinfeld by Mr. C. E. Udall, Ruby Star Route, who owns between 50 and 60 surrounding claims. The principal work on the one claim consists of a series of open cuts which were worked about the time the Tucumcori (ca.) Mission was founded. In addition to this work there is a single compartment 550 ft. vertical shaft sunk about 1900. Manuel Carillo who now resides in Tempe, Arizona, was superintendent during the shaft sinking operations.

According to best information available values were principally copper, 22% and silver, 6000 ozs. Vein material appears to be quartzsite with hanging and foot walls of schist and shale.

Mr. J. E. Spurr wrote a report on this property in 1906. This property was once called the Silver Queen and some claim that there is a small amount of stoping done on the 150 foot level of the aforementioned shaft.

March 24, 1947

Roger I. C. Manning
Field Engineer

Ariz Mining Journ Vol 4, no 12 1921

Sec 2 pgs, 26, 27

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Excerpted from NO TH OM MEXICO by Carey Mc. l s

P.142 - 5. Apaches and Copper

In the year 1800 a Spanish colonel Jose Carrasco, guided by an Apache Indian discovered the famous Santa Rita silver and copper mine in Western New Mexico. A native of Rio Tinto, Carrasco quickly identified the ores of the Santa Rita, for he remembered the appearance of copper ores from his youth. While the nearest smelter was four hundred miles from the mine, poverty had decreed that the peon population of Mexico should have a copper coinage. For many years, Santa Rita ores were carried by pack-trains to smelters in Mexico and sold for 65¢ a pound. As early as 1804, the Santa Rita was being operated on a fairly large scale with over six hundred employees living in the community which had grown up about the property. Incidentally, one of the watchtowers built by the Spanish still stands at the mine. The Santa Rita is, perhaps, the most famous mine in Western America for it was here that the techniques of copper-mining were first developed in the Southwest.

The Heintzelman mine, thirty miles from Tubac, with its attractive farms and orchards, had also been worked at an early date. Some eight hundred Mexican miners were employed in 1859 at the mine which was then producing $100,000 in silver a year. Along with the Santa Rita and many other mines, the Heinzelman property was abondoned during the apache raids. At one time, the Arizona Mining Company at Tubac found itself besieged on one side by the Apaches and on the other by a band of enraged Sonorans. Engine boilers weighing six thousand pounds, which had been laboriously freighted in from Lavaca, Texas, a distance of 1,200 miles, were abondoned in 1861 when the owners were forced to move out.

Mexican miners from Sonora were employed, from the earliest date, at both the Santa Rita and Heintzelman mines. The prevailing wage of from fifty cents to a dollar a day was paid, according to Mowry, "in large part in merchandise sold at large profits,@ Since bullion was too clumsy to handle, wages were paid in company-issued boletas or paper bills with the denominations indicated by the figures of animals,-pigs, roosters, cows, and horses. "The only difference between peonage and Negro slavery," wrote Will H. Robinson, "was that a peon miner could not be sold from one master to another" (6). Visiting the reopened Santa Rita on pay-day, J. Ross Browne reported that "under every tree sits a group of thriftless vagabonds, conspicuous for their dirty skins and many-colored sarapes, shuffling the inevitable pack of cards or casting their fortunes of greasy 'hobos' upon capricious hazards of fortune. The earnings of the month are soon disposed of. The women and children are left dependent upon new advances from the store-houses; the workingmen are stupefied by mescal and many nights of debauch, and when all is over, the fandangos at an end, and the monte tables packed up, every miner is bankrupt."

A curious and accidental by-product of the final "pacification" of the Apaches in Arizona was the discovery of important new copper deposits by cavalry officers. The famous Bisbee mines were

discovered around 1875 by cavalrymen in hot pursuit of Apaches. The development of these new properties was largely based upon the early experimental techniques which had been evolved at the Santa Rita mine and at various mines in Sonora. When Henry Lesinsky began to develop the righ copper deposits at Clifton in 1872, one reads that he went to Juarez to employ Mexican laborers who were 'considered very skillful smelter men." These miners constructed the first furnaces to smelt copper ores in Arizona which were "of the Mexican type, built of adobe," and fired by charcoal made from mesquite (7) The adobe furnace had a capacity of about two tons of ore per day and its fire was sustained by hand bellows. Mexican miners, using burros, packed the crude ores from the mountains to the smelters. The smelted ore was then packed by ox and mule teams, operated by Mexicans, to Kansas City. Don Antonio, foreman of the Clifton mine, rose throughout Sonora recruiting Mexicans to work in the copper mines.

Western mining developed, of course, by a series of "waves": first, gold, then silver, and finally copper. At first only the high-grade copper ores-those that ranged from five to twenty per cent copper were exploited; but a new process was perfected around 1892 for smelting the low-grade ores (the disseminated or porphyry ores). The smelting of these ores involved an enormous capital outlay and brought about a rapid consolidation in ownership. Simultaneously new processes were developed for extracting ores in the underground mines. One of these techniques was the "cave-in" system whereby a whole section of earth would be caved in by a single blast. This system greatly increased the amount of ore that could be produced in a day, but the system was-and still is-extremely dangerous. Experienced miners often refused to work in underground mines where it was used: but Mexican immigrants, excluded from the skilled miner category, were compelled to work in these mines. In this way a rift developed, which has not yet been healed, between Mexican and non-Mexican labor in the copper mines.

Between 1858 and 1940 the Arizona mines produced three billion dollars worth of metal. Copper production increased from 8000,000 pounds in 1874 to 830,628,411 pounds in 1929. It was the vast expansion in the electrical industry which enabled copper, "the red metal," to dethrone its "white rival," silver. One might say, therefore, that Mexican miners in the copper mines of Arizona, Utah and Nevada, have played an important role in making possible the illumination of America by electricity.

CERRO COLORADO GROUP

4/1/36

LOCATION

8.5 Miles N 45 East of Arivaca, Arizona along the north side of the Amado-Arivaca highway.

OWNERS

Mr. C. Udall of Tucson and various associates.

CLAIMS

About 20 claims are held in this group, many of which are relocations of old abandoned claims and mines.

GEOLOGY

The mineralized belt lies along a moderately deformed zone that extends from the west side of the Las Guijas mountains eastward to the Sierra Colorado Mts., a distance of about 10 miles air line. Here a complex system of rhyolite dikes and flows have invaded the Comanchian sediments and the basal andesite.

Subsequent movement has formed rather limited ore reservoirs along the rhyolite-sedimentary and andesite contacts. Thermal waters have played an important part in the preparation of the present structures. Picture rock of hematite and quartz is common, as is massive calcite veins. The veins all appear to cut off at the contact of the sediments with the basal (red) andesite, usually at a depth of a hundred feet or less.

Metasomatic processes have been active in the wall rocks and along certain rhyolite dikes resulting in filling of minor cavities, crustification and cone structure ("picture rock"). This makes prospecting difficult as much of the country rock has been altered to the point of semblance to ore.

The deposits, are all of the epithermal type and true to the characteristics of this class the major values found are in silver, with but minor values in lead, zinc and copper.

The Sierro Colorado No.1 has a reputed production of from $50,00 to $250,000 depending on who tells the story. It is known however, that high grade silver ore of considerable value was taken from the mine in the early days of the district. The deposit was in a series of small lenses from the surface down to a depth of less than 100 feet. Here the values declined rapidly with depth.

A small sample of ore (Ag 79.5 oz) secured by the writer showed extensive secondary enrichment, the silver being present as crerargyrite and minor embolite a certain indication of their secondary origin. Quartz, adulara and limonite along with brecciated and partly altered wall rock forms the major portion of the gangue.

Two shafts have been sunk on the property one about 150 yards N.W of the present highway the other some 300 yards northward. The workings are under water and badly caved. It is said that the south shaft was sunk to a depth of 300 feet but the ore was very low grade.

The possibilities of further rich strikes in this district are very good, but it is purely a prospecting project, and with but little chance of any important tonnage produced.

The present owners are very active and have sunk a number of shafts on various claims, but to dat@have produced but little shipping ore.

Excerpted from NO TH :)M MEXICO by Carey Mc. lli s

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Jones, Richard D.: M.S., 1957; Geology of the Cerro Colorado Mining District, Pima County, Arizona.

The Cerro Colorado mining district is located in southeastern Pima County, Arizona, 50 miles from Tucson.

Volcanic rocks and some sedimentary rocks of unknown age and correlation are exposed within the district. Quartz latite porphyry, as flows or shallow intrusives, and sandstone and arkose are the oldest rocks. These are overlain by a younger series, consisting of limestone, conglomerates, and andesite prophyry flows, breccias, and agglomerates.

Structures of the district include major east-west faults having strike-slip movement, northeast, northwest, and north-south faults, a northward trending syncline, and an arcuate arrangement of quarts prophyry dikes and sills. Dike rocks of miscellaneous other compositions are also present. The arcuate structure suggests the presence of an upward thrusting underlying intrusion, but the structure may be due to deflection of the dikes along major fault trends.

Mineralization in the district is confined to narrow quartz veins with infrequent sulphide mineralization. Total production, largely agentiferous tetrahedrite and galena, was $316,000.

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from: ARIZONA GEOLOGICAL SOCIETY DIGEST, Tucson, Arizona, Oct., 1958

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Excerpted from N^RTH ROM MEXICO by Carey M ill ms

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Mexican miners from Sonora were employed, from the earliest date, at both the Santa Rita and Heintzelman mines. The prevailing wage of from fifty cents to a dollar a day was paid, according to Mowry, "in large part in merchandise sold at large profits,@ Since bullion was too clumsy to handle, wages were paid in company-issued boletas or paper bills with the denominations indicated by the figures of animals,-pigs, roosters, cows, and horses. "The only difference between peonage and Negro slavery," wrote Will H. Robinson, "was that a peon miner could not be sold from one master to another" (6). Visiting the reopened Santa Rita on pay-day, J. Ross Browne reported that "under every tree sits a group of thriftless vagabonds, conspicuous for their dirty skins and many-colored sarapes, shuffling the inevitable pack of cards or casting their fortunes of greasy 'hobos' upon capricious hazards of fortune. The earnings of the month are soon disposed of. The women and children are left dependent upon new advances from the store-houses; the workingmen are stupefied by mescal and many nights of debauch, and when all is over, the fandangos at an end, and the monte tables packed up, every miner is bankrupt."

A curious and accidental by-product of the final "pacification" of the Apaches in Arizona was the discovery of important new copper deposits by cavalry officers. The famous Bisbee mines were

discovered around 1875 by cavalrymen in hot pursuit of Apaches. The development of these new properties was largely based upon the early experimental techniques which had been evolved at the Santa Rita mine and at various mines in Sonora. When Henry Lesinsky began to develop the righ copper deposits at Clifton in 1872, one reads that he went to Juarez to emply Mexican laborers who were 'considered very skillful smelter men." These miners constructed the first furnaces to smelt copper ores in Arizona which were "of the Mexican type, built of adobe," and fired by charcoal made from mesquite (7) The adobe furnace had a capacity of about two tons of ore per day and its fire was sustained by hand bellows. Mexican miners, using burros packed the crude ores from the mountains to the smelters. The smelted ore was then packed by ox and mule teams, operated by Mexicans, to Kansas City. Don Antonio, foreman of the Clifton mine, rose throughout Sonora recruiting Mexicans to work in the copper mines.

Western mining developed, of course, by a series of "waves": first, gold, then silver, and finally copper. At first only the high-grade copper ores-those that ranged from five to twenty per cent copper were exploited; but a new process was perfected around 1892 for smelting the low-grade ores (the disseminated or porphyry ores). The smelting of these ores involved an enormous capital outlay and brought about a rapid consolidation in ownership. Simultaneously new processes were developed for extracting ores in the underground mines. One of these techniques was the "cave-in" system whereby a whole section of earth would be caved in by a single blast. This system greatly increased the amount of ore that could be produced in a day, but the system was-and still is-extremely dangerous. Experienced miners often refused to work in underground mines where it was used: but Mexican immigrants, excluded from the skilled miner category, were compelled to work in these mines. In this way a rift developed, which has not yet been healed, between Mexican and non-Mexican labor in the copper mines.

Between 1858 and 1940 the Arizona mines produced three billion dollars worth of metal. Copper production increased from 8000,000 pounds in 1874 to 830,628,411 pounds in 1929. It was the vast expansion in the electrical industry which enabled copper, "the red metal," to dethrone its "white rival," silver. One might say, therefore, that Mexican miners in the copper mines of Arizona, Utah and Nevada, have played an important role in making possible the illumination of America by electricity.

Excerpted from NORTH FROM MEXICO by Carey McWilliams

P.142 - 5. Apaches and Copper

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