



CONTACT INFORMATION

Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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Arizona Department of Mines and Mineral Resources Mining Collection

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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: DIAMOND JOE

ALTERNATE NAMES:

SILVER TRAIL MINES CO.
SILVER KING

MOHAVE COUNTY MILS NUMBER: 486A

LOCATION: TOWNSHIP 17 N RANGE 14 W SECTION 21 QTR. SE
LATITUDE:N 34DEG 50MIN 18SEC LONGITUDE:W 113DEG 45MIN 50SEC
TOPO MAP NAME: DIAMOND JOE PEAK - 7.5 MIN

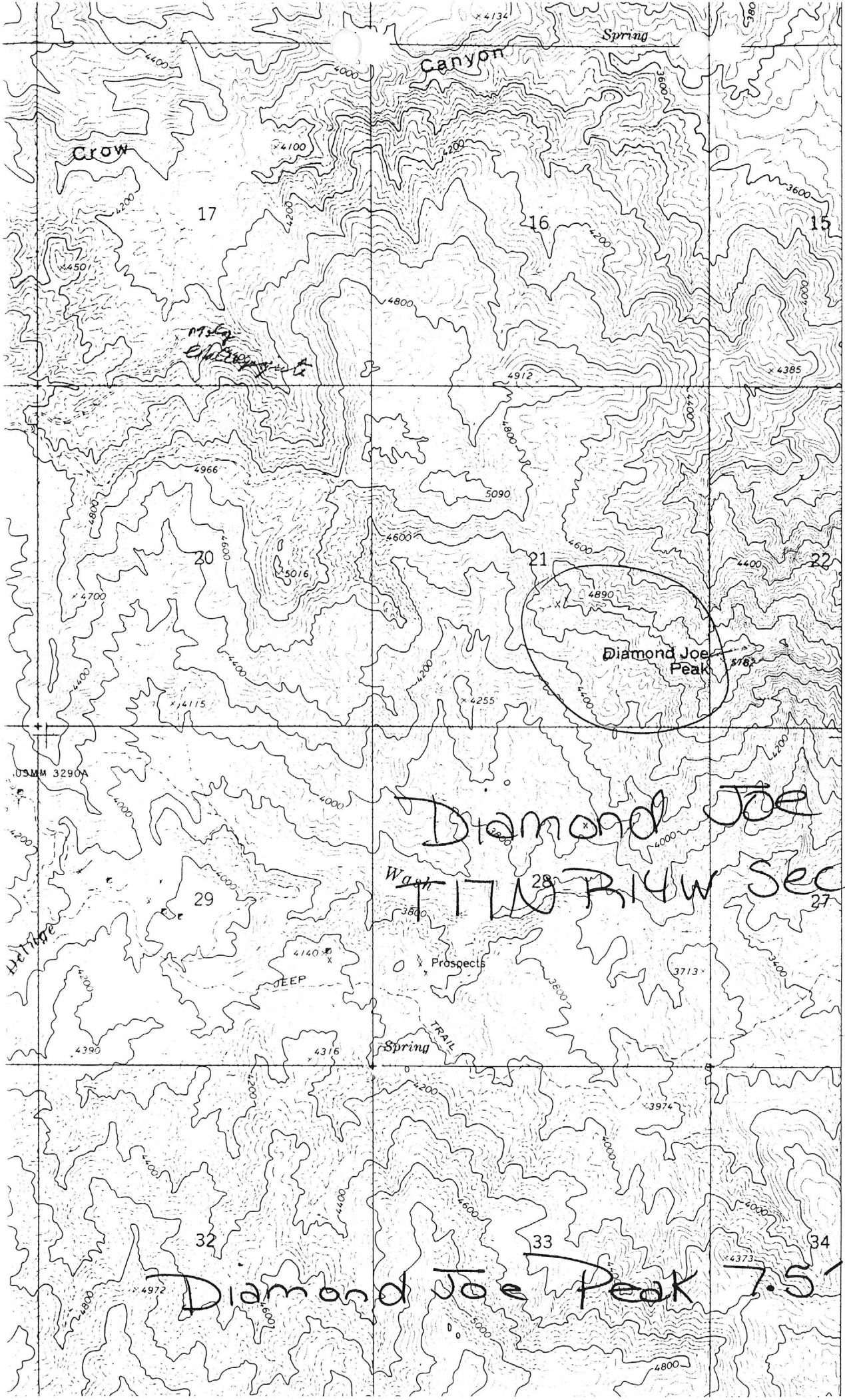
CURRENT STATUS: PAST PRODUCER

COMMODITY:

LEAD-PRIMARY
SILVER-BYPRODUCT
COPPER-BYPRODUCT

BIBLIOGRAPHY:

USGS DIAMOND JOE PEAK QUAD
ADMR MOHAVE CARD FILE
ADMR MOHAVE CUSTOM MILL PROJ. CARD FILE
ADMR DIAMOND JOE MINE FILE
AZ. MNG. JRNL. MAR. 1, 1920, P. 23 AND
MAY 1, 1921, P. 60



3861

3860

1 400 000
FEET

3859

3858

50'

3857

3856

(GUNSIGHT CANYON)
3253 1 SW

3855

T. 17 N.

SECTION MAP
of
DIAMOND JOE MINE

YUMA, ARIZONA

Scale 1" = 400' 300 300' 300'
Projected from Photograph
D.A. 110087

West Extension
Diamond Joe

E Tunnel

D Tunnel

Miller Slope

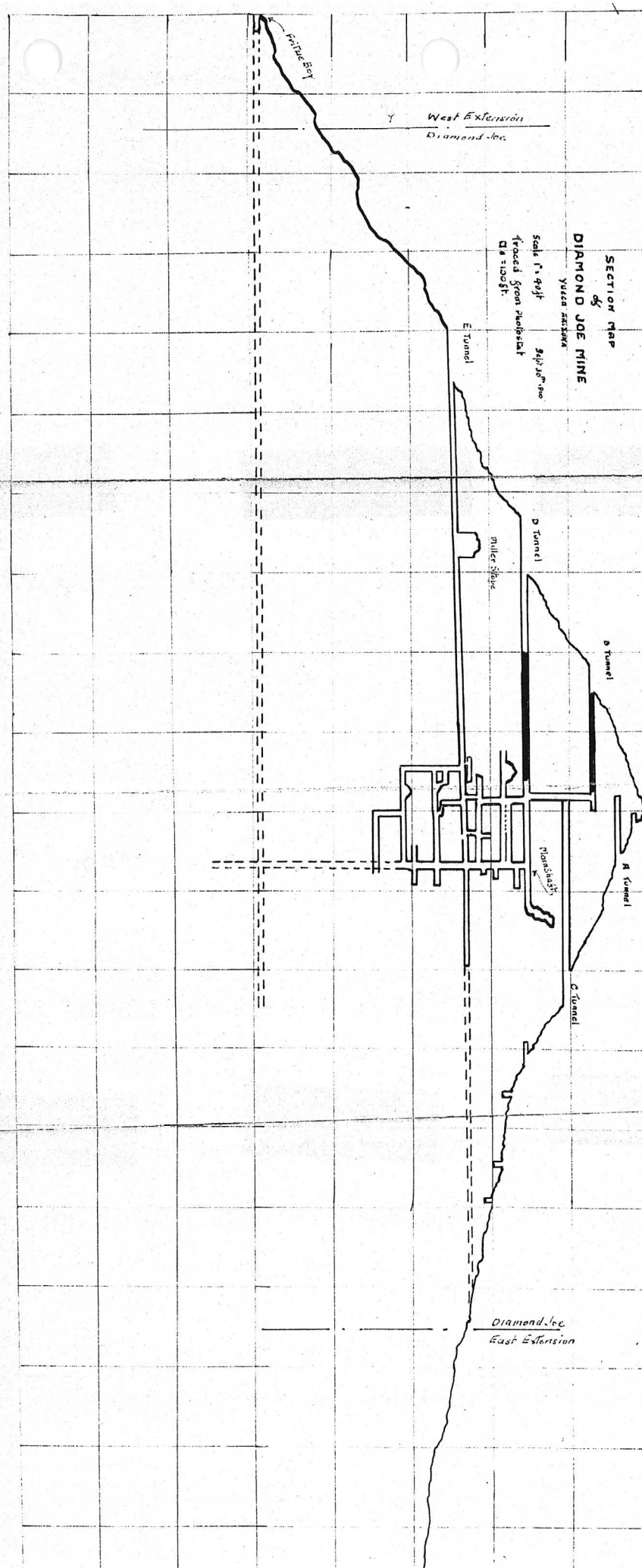
D Tunnel

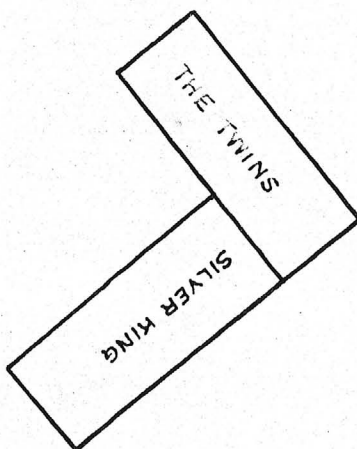
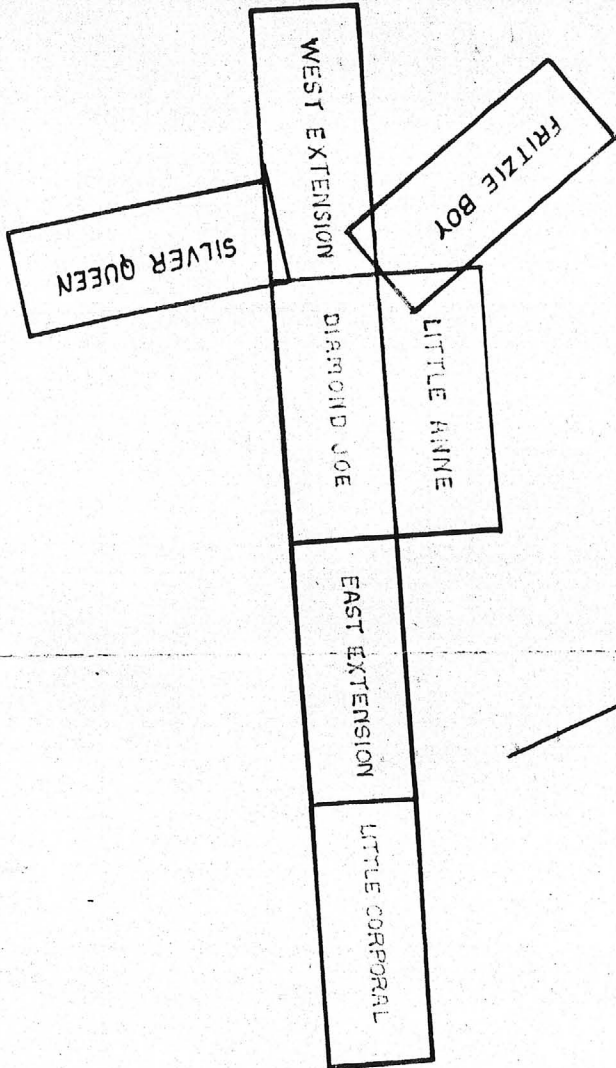
R Tunnel

C Tunnel

Diamond Joe
East Extension

Miller Bay





PLAT OF CLAIMS

DIAMOND JOE MINING CO.

YUCCA, ARIZONA



DIAMOND JOE MINE
No's. 1 & 2

MOHAVE CO.

CJH/WR 12/20/79 - Sylvester Dimmer and Howard Green are going to cyanide leach the dump of the Diamond Joe Mine, Mohave Co. William Hoveland of Riverside, CA is the present owner. Mr. Dimmer is incorporated under the name "Copper Basin, Inc." they will grind, table and cyanide agitate. An escapule unit has been purchased. The camp can be reached by passenger car via a turnoff 10 miles north of Wickiup between mileposts 114-113 and driving 8 miles west.

CJH WR 1/31/80: Doug Martin, 4728 N. 21st Avenue, Phoenix 85015, phone 246-9573, was in to see Mr. Jett. He reported that the Diamond Joe Mine, Mohave County, was about to be started up by a Mr. Dimmer and Howard Green. They are having a money problem so the timing is indefinite.

KAP WR 4/25/80: Ralph Baglino reported that Howard Green, phone 938-1315, and Sylvester Dimmer, phone 247-7299, are planning to operate the Diamond Joe Mine, Mohave County. The property is reportedly a silver mine.

KAP WR 5/5/80: Sel Dimmer reported he has a lease purchase agreement on the Copperville Mine and Diamond Joe Mine, in Mohave County. He said the Diamond Joe has shipped to Inspiration Consolidated Copper during the last decade. One shipment contained ore with 10 tr.oz./ton silver and the second shipment, 25 tr.oz./ton silver. He said his group is presently conducting milling tests on ore at the Diamond Joe and are able to produce 12-1 concentrate which recovers 4.8 of the 5.3 tr.oz./ton Ag in the ore. They have an agreement with Jerry Shupe in which he is to supply equipment and operating expenses.

CJH WR 9/12/80: Sylvester Dimmer, 9057 N. 52nd Avenue, Phoenix, Arizona 85302, holds lease with purchase option on the Diamond Joe and Copperville Mines, Mohave County. He has also staked some contiguous claims around the patented Diamond Joe Claims. Gulf Mineral Resources Co. has surrounded the Copperville Mine with claims.

Mill Visit - Sheldon Heath and two sons (Silver King Mining Co.?) have the Diamond Joe mine north of Wikieup and in the past two years have built a 100 ton mill themselves. Mill is reached by turning east to Big Sandy Hereford Ranch (Sign) at 14 miles N. of Wikieup on Route 93. Short way to the ranch. Turn right. Turn left at next ranch near by and follow Trout road to mill. Do not take right at fork, which crosses Big Sandy. Only a mile or so to the mill. Heath is son of well known Prescott rancher, Earl Heath. The mill is rated 100 tons per day but are putting through 60 tons because of need to grind to 100 mesh. Crusher, ball mill-rake classifier circuit and 3 flotation cells arranged for gravity flow make up the mill. The 3 men mine, truck ore, mill and truck concentrates (to El Paso). Have about a 25-ton Kenworth truck. Concentrates are air dried. The ore is chiefly oxide lead. Claim to be getting about 85 percent recovery. Have submitted ore to a number of metallurgical laboratories and say they finally have worked out their own flotation process. They say they are the sole proprietors and after a long struggle are now doing alright.

FPK Notes from field trip May 6 thru 15, 1969

Visited Sheldon Heath Mill (Silver King Mining Co) Mill shut down. Mr. Heath was working for Magnum until they stopped work. No information as to reasons for Silver King shutdown. FPK WR 9/5/69

Visited Diamond Joe (Heath Mill); idle - no one around. FTJ WR 11/7/69

To Wikieup-to local bar to get information from Fred Medlin who was not in. His wife said he ^{owned} the Diamond Joe mine southwest of Wikieup on Diamond Joe peak. Did not know of future plans. FTJ WR 1-8-71

According to Ron Hanna from his office visit 11/28/75 - owner, Fred Medlin was killed sometime in 1974.

Reference: AMW, 3/20, p. 23; 5/20, p. 29; 5/1/21, p. 60

Kingman Mining Project, Underground map 1 section, 11/16/76

NAME: DIAMOND JOE *Sleeves Trail Mines Co.*

COUNTY: MOHAVE

DIAMOND JOE 7 1/2'

T 17 N R 14 W SEC. 21

E1 4600

DISTRICT: ~~4~~ CEDAR VALLEY
(Copperville Pass)

Mineralization: Lead Silver Pb Cu

Geology:

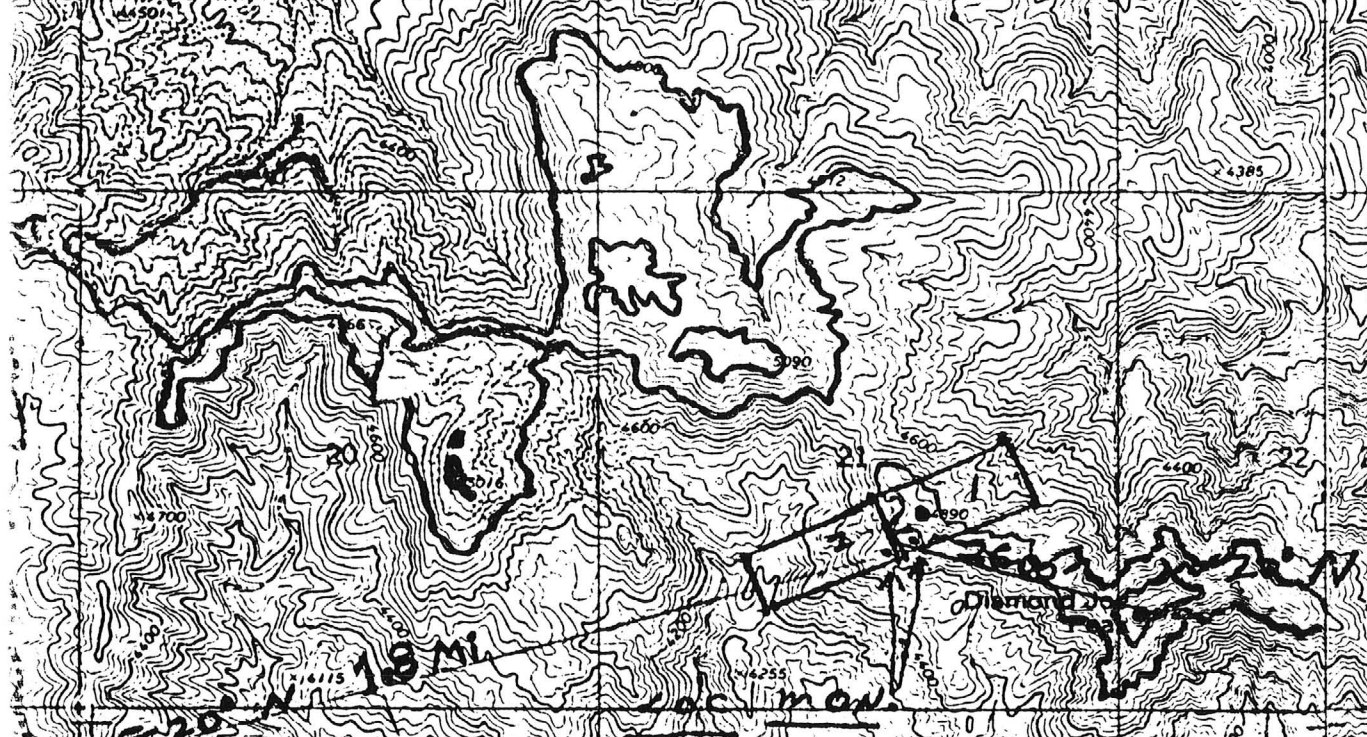
Type Operation: 300' deep.

Production: 8000 Tons + \$100,000 Annual in Shipping

References: Shipping to Householder (E. HOUSEHOLDER M.F.)

Mohave County Card File

Canyon
LODE CLAIMS
DIAMOND JOE #1
DIAMOND JOE #2



SEC 31
T 17 N
R 14 W
M/G 5 RM

OWNE
W G HOVELAND
19281 RANCHER
ROSE CIDE CA
928504

INDEPENDENT
CEDAR DIST

~~EXHIBIT A~~

The unpatented lode mining claims known as "Diamond Joe No. 1" and "Diamond Joe No. 2" described as lode mining claims. The veins are silver-bearing but also carry some gold, lead and copper.

The location of these claims is in the Cedar Mining District, Hualapai Mountains, Mohave County, Arizona. Taking Highway 93 for about 40 miles southeast of Kingman, turn right a little beyond milepost 113, then about 7 miles West take a secondary dirt road on the left for about 2 miles through two cattle gates to Crow Canyon Wash. Then up it about 3/4 miles to the switchback road on the left and turn about 2-1/2 miles to the end of the road and on the Diamond Joe No. 2. ^{THESE ARE TWO} ~~These are the only~~ claims known as Diamond Joe in that region. They are just ^{2600'} ~~3/4 mile~~ West by ^{20°} ~~10°~~ North ~~west~~ of Diamond Joe Peak. For further information, see location notice as described and recorded in Book 6B of Mines, pages 178-189 and Book 6-0 of Mines on page 245, County Recorder's Office, Kingman, Arizona. Also, these claims are in Township 17 North, Range 14 West, Sections ~~20~~ and 21.

CLAIMS ARE 1.8 mi E 20° N FROM
USMM 3290 A

OWNER: W.G. HOVELAND
17281 RANCHERO RD
RIVERSIDE CA 92504

THE SILVER TRAILS MINE ON "TOP OF THE WORLD"

AMST MAY 1 1921 P. 200

The property of the Silver Trails Mining Company, commonly known as the Diamond Joe, is located among the highest peaks of the Wallapai Range, where only its inaccessibility has kept it from being worked years ago.

Nature hides its mines in remote places, sufficiently remote that it takes a rich mine to first open up the district and permit of the lower grade natural resources to become available. It was not so many years ago that everything was remote, that there were few places in the western mineralized sections that were less than a hundred miles from the railroads or other method of transportation and many places were several hundreds of miles from anywhere.

In these days there were quite different districts flourishing than are active today for, with the coming of railroads, good roads and motor trucks nothing is now considered remote. Our methods of transportation have developed, however, faster than our resources have been worked out, so that in the past decade, the attention of the mining public has been largely to the deposits located on or near the railroad.

The past few years with its wonderful advance in motor truck transportation has almost eliminated the question of distance. Nothing is now remote than can be reached by road and it is certainly true that our future development of mineral in the United States is coming more from good roads and motor truck transportation than by railroad development.

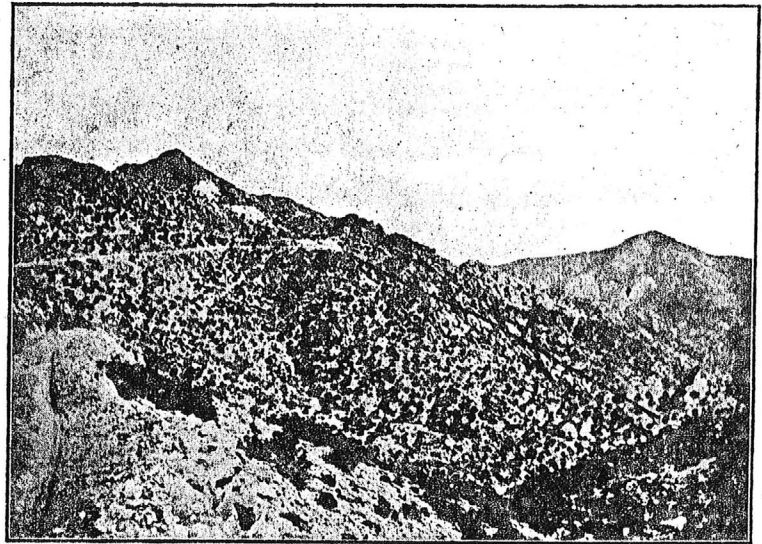
In the days of two decades ago, when everything was remote and nothing was more remote than anything else, the Cedar District in the Wallapai Mountains flourished. It flourished because it could produce right from surface workings silver ores that ran hundreds of ounces per ton which could stand shipping charges to transport by burro to the Colorado river and thence by water to Swansea, Wales, and it was only ore that would run 500 ounces or better that could stand this tax.

There are many workings in this district, worked to the grass roots from which

by a winch or possibly a horse whim. These properties were the banks of the "desert rats" of many years ago, the places that contained their wealth from which they could remove their few thousand dollars and then blow to San Francisco to spend it.

There are many such properties as this in the Cedar Mining District on the east slope of the Wallapai Mountains for it peculiarly lended itself to this kind of mining and among these old mines, there was none more important than the Old Diamond Joe, where the walls of the vein

Old Diamond Joe property which includes Diamond Joe peak, one of the landmarks of the Wallapai Range. It is located at an altitude of about 5,600 feet and is on the east slope of the range, necessitating crossing the range from the nearest road point, Yucca, 26 miles away. Fortunately, the Arizona Southwestern Mining Company, owning the Copperville mine, found a road across the range necessary to their work several years ago and at a cost of \$75,000 put a road over the mountain on a 10% grade, which road is a direct asset to the Silver Trails Company. T



Diamond Joe Peak Showing Two Upper Dumps and Present Workings. Line Shows Course of View and Arrow Points to Lower Tunnel Site

stand almost up to one hundred feet with nothing between them except the space that was originally filled with the ore that made the "Chloriders" their stake. These walls stand mutely as the monument to the men who risked the Indians and their treachery and who mined from the kind of mines that did not require a million dollar investment before the values could be extracted.

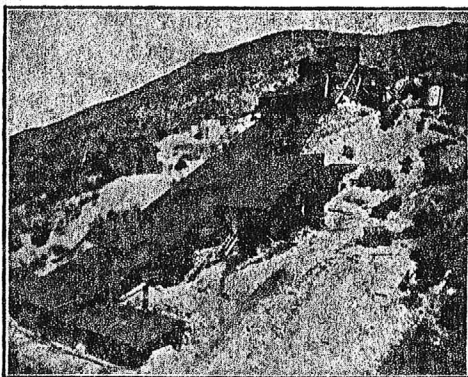
While today it might be possible for a small group of men to go in and repeat what the "Chlorider" did a few years ago, our sense of conservation does not permit us to throw away material that our present day mechanical development has made possible to yield a profit. While it is still possible to mine in the Cedar District the several hundred ounce chloride and bromide silver ores, it would mean the leaving of hundreds of thousands of tons of ore which will net a profit when milled. While a half million dollars has been produced from the upper workings of the Diamond Joe mine by "Chloriders," the ground from which that half million was produced probably contained not less than an equal amount of mill ore which is forever lost.

The Silver Trails Mines Company was organized 14 months ago, taking over the

are, however, road possibilities down Big Sandy which marks the east side of the Wallapai, and a three-mile connection will bring a road without appreciable grades.

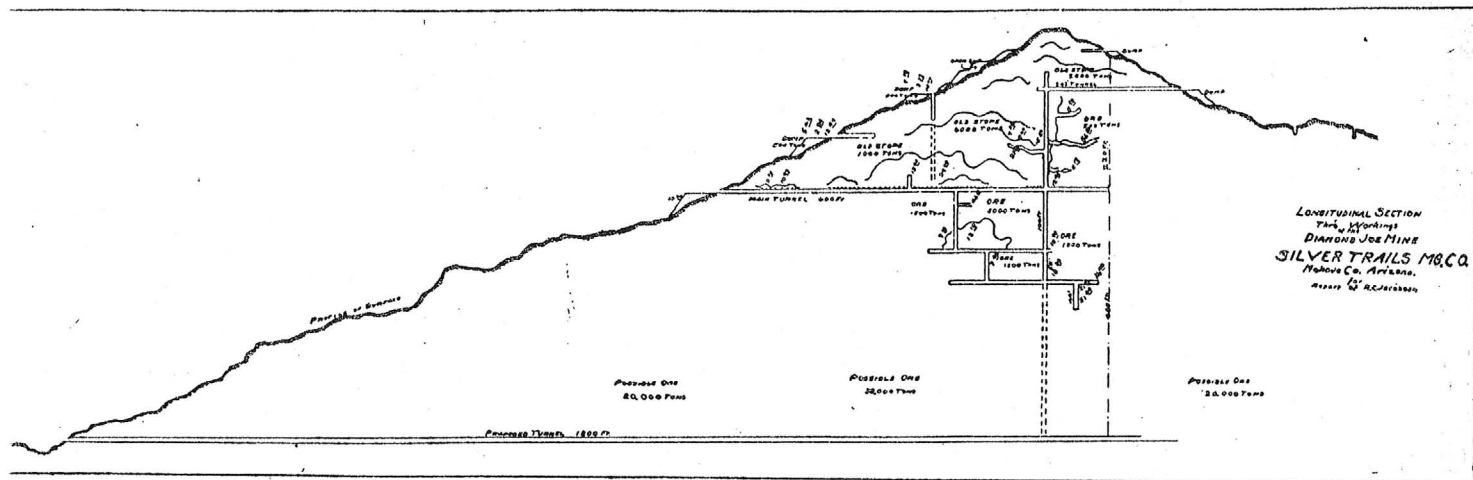
The Cedar Mining District, in which Silver Trails property is, centrally located is one that has been a producer for many years and contains some of the mines that have made mining history in this section. The Dean, Leviathan, Copperville, and others that have production records date back to the 70's. The district as a whole consists of pre-Cambrian granites that vary in their acidity. Some show strongly biotitic and base, while others range the more acid granite porphyries, in cases running almost to a quartz porphyry rather than true granite. The acidity of the rocks have had their direct effect on mineralization.

Crossing the country in various directions are fault fissures, probably slipping no great throw in most cases but sufficient to permit of the passage of mineralizing solutions and replacement of more acidic phases of the granite with the tendency to eliminate or lessen mineralization with increasing biotite. At Diamond Joe, or the Silver Trails is probably one of these fissure veins, a repl



The Diamond Joe Mill, Cedar District

hundreds of thousands of dollars have been taken out and shipped. Then a little more depth might be gained and the dumps resorted and shipped as the methods of transportation became more improved. The limits came, however, at shallow depths, for the machinery was not available to go further than could be conveniently handled



nt vein along a fault fissure, traceable a great length and due to its hardness ough the quartz content, sticks up ough the granite, having greater resist- ce to erosion.

The mineralizing has been from the cen- out, filling the various slips in the shed zone of faulting and replacing the k mass between these slips and out into wall to some extent. The vein matter ac- npanying the metals is generally quartz, l while there is some lime associated it slight and apparently has had no effect the mineralization. The vein has been ored for a width up to 12 feet, the pay eaks of very rich chloride and bromides ying from a knifeblade up to several hes but in all cases where the chlorides l bromides are found the rock interven- carries good mill values. Associated h the silver values is some lead and n, sulphide specks in some cases on the

upper levels but mostly thoroughly oxi- dized. In fact, the working so far opened in the whole property have not been be- low the oxidized zone and it has only been recently in the winze below the 400 that sulphides have commenced to show in quantity.

Omitting any details of the work in the upper levels, i. e., above the 280 or main level, the ground opened up now shows ore in almost its entire length and width. Details are impossible above this level, due to the fact that these levels are the relics of the days of the "chloriders" and are caved and not accessible. The principal work has been done on the 280, 350 and 400-foot levels and a winze is now being sunk below this lower level. All of the work has been on the vein and much ore has been extracted from development work alone. In fact, during the operation of the mill on the property, the ore worked

came out of development and no stoping has been done.

The development of the Diamond Joe vein offers one of the most ideal tunnel development projects imaginable as a 1,100-foot tunnel driven on the vein would give depth of 800 feet or 400 feet greater depth than is reached at the present time. At the same time it would open up the vein for that entire length. This tunnel project is included in the plans of the company and a mill site has been provided so that the future mill of the prop- erty may have all ore handled to it through the tunnel.

Some 2,000 feet of lateral development work has been done on the three levels above mentioned and, while considerable quantities of high grade shipping ore is available, the greater part is a milling value which will run from 12 to 16 ounces in silver and 20 to 25 per cent lead.

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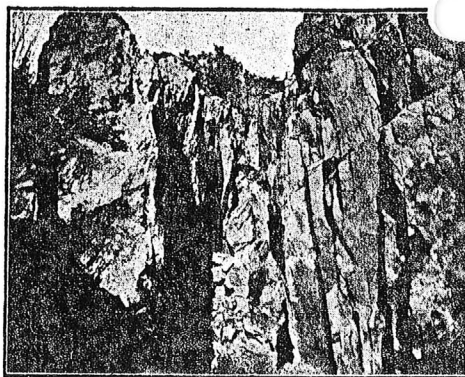
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While ordinarily it has been considered that chloride and bromide silver ores do not lend themselves readily to milling, this has not been the case with the Diamond Joe as there is a 50-ton mill on the property which has been in very satisfactory operation, flotation of the chlorides being accomplished by the use of soda cake, coating the chlorides with sodium sulphide.

The mill is located on a molybdenum property owned by the same company and was originally constructed to mill molybdenum ore during the war time demand. The mill, however, was converted to be used for Diamond Joe ores very successfully.

The mill consists of a 50 to 75-ton storage bin under cover, grizzly grates, a ten by twelve rock crusher of the Blake type, ore feeder, 4x5 ball mill, a Dorr simplex classifier in closed circuit with the ball mill, two Simpson Pneumatic flotation machines, and a 14-foot Wilfley concentrating table, concentrate settling tanks, drying vats, water storage tanks, etc. Power is obtained from a 60 H. P. Fairbanks-Morse type Z oil engine. Water is piped from Crow Canyon to a cement reservoir alongside the mill and above the operating floors.

The present flow sheet is as follows: Rock crusher and grizzly product 1½" feed to ball mill by mechanical ore feeder; crushed to 60-mesh in ball mill and classified product of proper consistency, feed by gravity to a ten-foot Simpson pneumatic flotation machine; air under four pounds pressure is supplied by a rotary blower. This machine acts as a rougher, the tailings passing over the Wilfley table and thence to tail race—the table middlings are returned to head feed for re-treatment, the machine concentrate is run



High Side Walls Left When the Upper Workings of a Decade Ago Caved on the Diamond Joe Vein. They Show the Volume of Ore That Must Have Been Extracted.

by gravity to the 6-foot cleaner machine, the concentrate going to an Allen Cone settling tank, and the overflow through a series of three redwood settling tanks. The cleaner tails are returned to the system and by sand pump.

The Diamond Joe mine stands out as an example of the opportunities of the Cedar District, a district which, in the 70's, was one of those furnishing considerable quantities of high grade silver ore. The vein of the Diamond Joe, with its caved workings above the 280 level, shows that it was one of the producers at that time and the records of sampling works in Kingman verify this fact.

It has only been unworked since the

panic of 1893, due to the fact that there were mines nearer railroad transportation and more accessible, but with the lessening of the number of mines to be found on or near the railroad right of way the coming of cheap transportation truck, such districts are placed within reach and cheap access to transportation and advantages.

The Silver Trails Mining Company is much to commend it. They have a silver development program that promises to make new ore very fast. They have in stock but little of their treasury stock, which combined with low capitalization, makes much larger individual portion for share holder. They have ready for operation a mill that has proven successful enough ore in sight in their upper level to keep that 50-ton mill going for a considerable time and the yield should be care of the development of the mine.

At the present time the mill is 2½ miles from the mine and 800 feet below it, this haul can easily be eliminated by tramming the ore to a raise in the molybdenum property and dropping it to the tunnel level and tramping it directly to the mill. Rather than increase the size of the present mill, even though the ore resembles might warrant it, it would be better to wait until the lower tunnel project is put through and a new and larger mill placed where costs could be lessened and greater ultimate profits made.

The Silver Trails Mining Company, under good management, economical operation, and has every earmark of running a mine, with the proper development program carried out. It is one of Mohave County's future assets and distinctly a mine of tomorrow.

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Concentrates

A Concentrated Summary of the Mining Activities
of the Southwest

COCHISE COUNTY

The **Swisshelm Gold-Silver Company**, Tucson, recently shipped a carload of ore to the Calumet & Arizona smelter at Douglas, which showed a silica content of 8.8 per cent and the gold-silver content amounted to \$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 leaser and the **Bunker Hill** company continue on average in the neighborhood of 100 forty-ton cars a month, according to the car report at the local depot. With silver around \$1.30 an ounce this means a production of at least \$100,000 per month.

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

The **Calumet & Arizona Mining** company have declared a quarterly dividend of \$1 per share, payable March 22nd. This is an increase of 50 per cent over the last quarter.

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

Otto L. Fuffner of Paradise reports that several mining properties in the Chiricahua in which he is interested are progressing favorably, the **Cochise Mineral Mines** company has recently installed a Deisel engine which is driving a development tunnel. Also the **Ajax** property will start work soon, as well as the **Hill Top Extension Co.**

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

GILA

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

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

The **Old Dominion** at Globe is doing some deep sinking. The main operating shaft has been sunk from the 18th to the 20th level; K shaft from the 19th to the 21st; the Grey from the 14th to the 16th level.

Since the report for the quarter ending December, 1919, more than 120 feet of drifting has been added to the Foot vein of the **Superior and Boston** company at Globe. Several small stopes are being opened on the 400 level. Drifting on the 600 level is also reported to be progressing.

The **Van Dyke Copepr** company of Miami has established the world's record in shaft 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 operation 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.

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THE SILVER TRAILS MINE ON "TOP OF THE WORLD"

The property of the Silver Trails Mining Company, commonly known as the Diamond Joe, is located among the highest peaks of the Wallapai Range, where only its inaccessibility has kept it from being worked years ago.

Nature hides its mines in remote places, sufficiently remote that it takes a rich mine to first open up the district and permit of the lower grade natural resources to become available. It was not so many years ago that everything was remote, that there were few places in the western mineralized sections that were less than a hundred miles from the railroads or other method of transportation and many places were several hundreds of miles from anywhere.

In these days there were quite different districts flourishing than are active today for, with the coming of railroads, good roads and motor trucks nothing is now considered remote. Our methods of transportation have developed, however, faster than our resources have been worked out, so that in the past decade, the attention of the mining public has been largely to the deposits located on or near the railroad.

The past few years with its wonderful advance in motor truck transportation has almost eliminated the question of distance. Nothing is now remote than can be reached by road and it is certainly true that our future development of mineral in the United States is coming more from good roads and motor truck transportation than by railroad development.

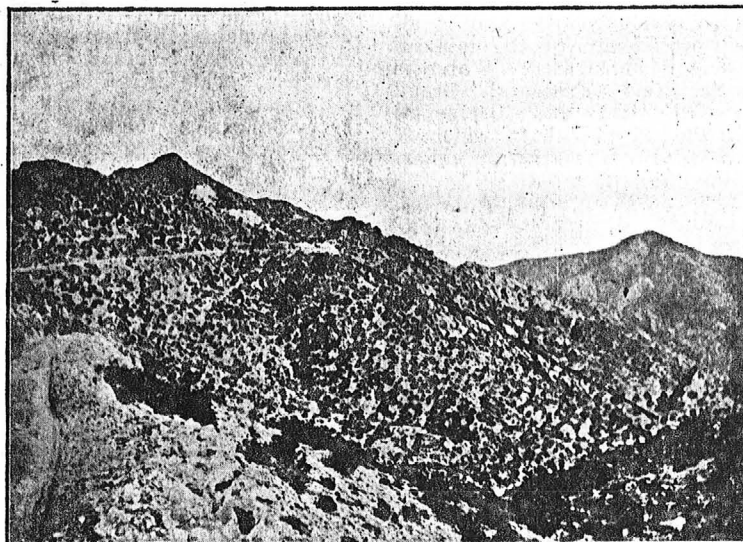
In the days of two decades ago, when everything was remote and nothing was more remote than anything else, the Cedar District in the Wallapai Mountains flourished. It flourished because it could produce right from surface workings silver ores that ran hundreds of ounces per ton which could stand shipping charges to transport by burro to the Colorado river and thence by water to Swansea, Wales, and it was only ore that would run 500 ounces or better that could stand this tax.

There are many workings in this district, worked to the grass roots from which

by a winch or possibly a horse whim. These properties were the banks of the "desert rats" of many years ago, the places that contained their wealth from which they could remove their few thousand dollars and then blow to San Francisco to spend it.

There are many such properties as this in the Cedar Mining District on the east slope of the Wallapai Mountains for it peculiarly lent itself to this kind of mining and among these old mines, there was none more important than the Old Diamond Joe, where the walls of the vein

Old Diamond Joe property which incl Diamond Joe peak, one of the landmarks of the Wallapai Range. It is located at an altitude of about 5,600 feet and is on the east slope of the range, necessitating crossing the range from the nearest road point, Yucca, 26 miles away. Fortunately, the Arizona Southwestern Mining Company, owning the Copperville mine, found a road across the range necessary to their work several years ago and cost of \$75,000 put a road over the mountain on a 10% grade, which road is a distinct asset to the Silver Trails Company. T



Diamond Joe Peak Showing Two Upper Dumps and Present Workings. Line Shows Course of View and Arrow Points to Lower Tunnel Site

stand almost up to one hundred feet with nothing between them except the space that was originally filled with the ore that made the "Chloriders" their stake. These walls stand mutely as the monument to the men who risked the Indians and their treachery and who mined from the kind of mines that did not require a million dollar investment before the values could be extracted.

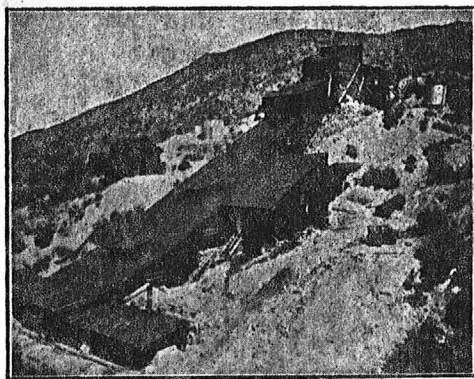
While today it might be possible for a small group of men to go in and repeat what the "Chlorider" did a few years ago, our sense of conservation does not permit us to throw away material that our present day mechanical development has made possible to yield a profit. While it is still possible to mine in the Cedar District the several hundred ounce chloride and bromide silver ores, it would mean the leaving of hundreds of thousands of tons of ore which will net a profit when milled. While a half million dollars has been produced from the upper workings of the Diamond Joe mine by "Chloriders," the ground from which that half million was produced probably contained not less than an equal amount of mill ore which is forever lost.

The Silver Trails Mines Company was organized 14 months ago, taking over the

are, however, road possibilities down Big Sandy which marks the east side of the Wallapai, and a three-mile connection will bring a road without appreciable grades.

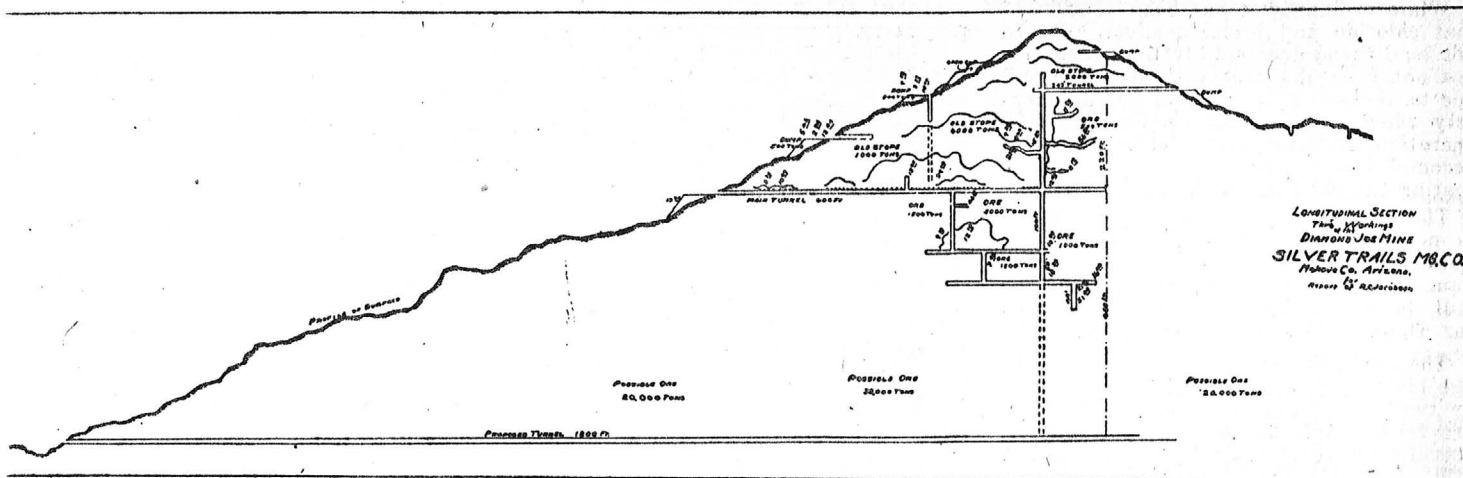
The Cedar Mining District, in which Silver Trails property is centrally located is one that has been a producer for many years and contains some of the mines that have made mining history in this section. The Dean, Leviathan, Copperville, and others that have production records date back to the 70's. The district as a whole consists of pre-Cambrian granites that vary in their acidity. Some show strongly biotitic and base, while others range from the more acid granite porphyries, in cases running almost to a quartz porphyry rather than true granite. The acidity of the rocks have had their direct effect on mineralization.

Crossing the country in various directions are fault fissures, probably slipping no great throw in most cases but sufficient to permit of the passage of mineralizing solutions and replacement of more acidic phases of the granite with the tendency to eliminate or lessen mineralization with increasing biotite. Diamond Joe, or the Silver Trails is typically one of these fissure veins, a replacement



The Diamond Joe Mill, Cedar District

hundreds of thousands of dollars have been taken out and shipped. Then a little more depth might be gained and the dumps resorted and shipped as the methods of transportation became more improved. The limits came, however, at shallow depths, for the machinery was not available to go further than could be conveniently handled



nt vein along a fault fissure, traceable a great length and due to its hardness ough the quartz content, sticks up ough the granite, having greater resist- ce to erosion.

The mineralizing has been from the cen- out, filling the various slips in the shed zone of faulting and replacing the k mass between these slips and out into wall to some extent. The vein matter ac- npanying the metals is generally quartz, l while there is some lime associated it slight and apparently has had no effect the mineralization. The vein has been oised for a width up to 12 feet, the pay eaks of very rich chloride and bromides ying from a knifeblade up to several hes but in all cases where the chlorides l bromides are found the rock interven- carries good mill values. Associated h the silver values is some lead and n, sulphide specks in some cases on the

upper levels but mostly thoroughly oxidized. In fact, the working so far opened in the whole property have not been below the oxidized zone and it has only been recently in the winze below the 400 that sulphides have commenced to show in quantity.

Omitting any details of the work in the upper levels, i. e., above the 280 or main level, the ground opened up now shows ore in almost its entire length and width. Details are impossible above this level, due to the fact that these levels are the relics of the days of the "chloriders" and are caved and not accessible. The principal work has been done on the 280, 350 and 400-foot levels and a winze is now being sunk below this lower level. All of the work has been on the vein and much ore has been extracted from development work alone. In fact, during the operation of the mill on the property, the ore worked

came out of development and no stoping has been done.

The development of the Diamond Joe vein offers one of the most ideal tunnel development projects imaginable as a 1,100-foot tunnel driven on the vein would give depth of 800 feet or 400 feet greater depth than is reached at the present time. At the same time it would open up the vein for that entire length. This tunnel project is included in the plans of the company and a mill site has been provided so that the future mill of the property may have all ore handled to it through the tunnel.

Some 2,000 feet of lateral development work has been done on the three levels above mentioned and, while considerable quantities of high grade shipping ore is available, the greater part is a milling value which will run from 12 to 16 ounces in silver and 20 to 25 per cent lead.

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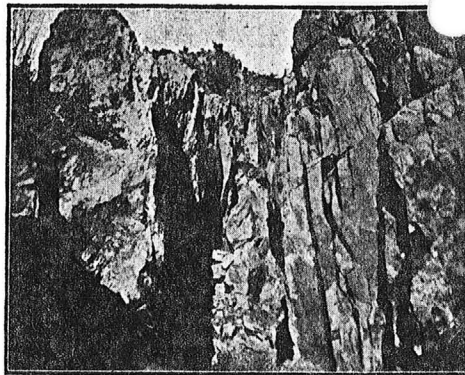
"Our Customers are our Allies"

While ordinarily it has been considered that chloride and bromide silver ore would not lend themselves readily to milling, this has not been the case with the Diamond Joe as there is a 50-ton mill on the property which has been in very satisfactory operation, flotation of the chlorides being accomplished by the use of soda cake, coating the chlorides with sodium sulphide.

The mill is located on a molybdenum property owned by the same company and was originally constructed to mill molybdenum ore during the war time demand. The mill, however, was converted to be used for Diamond Joe ores very successfully.

The mill consists of a 50 to 75-ton storage bin under cover, grizzly grates, a ten by twelve rock crusher of the Blake type, ore feeder, 4x5 ball mill, a Dorr simplex classifier in closed circuit with the ball mill, two Simpson Pneumatic flotation machines, and a 14-foot Wilfley concentrating table, concentrate settling tanks, drying vats, water storage tanks, etc. Power is obtained from a 60 H. P. Fairbanks-Morse type Z oil engine. Water is piped from Crow Canyon to a cement reservoir alongside the mill and above the operating floors.

The present flow sheet is as follows: Rock crusher and grizzly product 1½" feed to ball mill by mechanical ore feeder; crushed to 60-mesh in ball mill and classified product of proper consistency, feed by gravity to a ten-foot Simpson pneumatic flotation machine; air under four pounds pressure is supplied by a rotary blower. This machine acts as a rougher, the tailings passing over the Wilfley table and thence to tail race—the table middlings are returned to head feed for re-treatment, the machine concentrate is run



High Side Walls Left When the Upper Workings of a Decade Ago Caved on the Diamond Joe Vein. They Show the Volume of Ore That Must Have Been Extracted.

by gravity to the 6-foot cleaner machine, the concentrate going to an Allen Cone settling tank, and the overflow through a series of three redwood settling tanks. The cleaner tails are returned to the system and by sand pump.

The Diamond Joe mine stands out as an example of the opportunities of the Cedar District, a district which, in the 70's, was one of those furnishing considerable quantities of high grade silver ore. The vein of the Diamond Joe, with its caved workings above the 280 level, shows that it was one of the producers at that time and the records of sampling works in Kingman verify this fact.

It has only been unworked since the

panic of 1893, due to the fact that there were mines nearer railroad transportation and more accessible, but with the lessening of the number of mines to be found on or near the railroad right of way, the coming of cheap transportation trucks, such districts are placed within reach and cheap access to transportation and advantages.

The Silver Trails Mining Company is much to commend it. They have a similar development program that promises to make new ore very fast. They have little of their treasury stock, but combined with low capitalization, make much larger individual portion for share holder. They have ready for operation a mill that has proven successful enough ore in sight in their upper level to keep that 50-ton mill going for a considerable time and the yield should care of the development of the mine.

At the present time the mill is 2½ miles from the mine and 800 feet below it, this haul can easily be eliminated by tunneling the ore to a raise in the molybdenum property and dropping it to the tunnel level and tramping it directly to the mill. Rather than increase the size of the present mill, even though the ore reserve might warrant it, it would be better to wait until the lower tunnel project is put through and a new and larger mill placed where costs could be lessened and greater ultimate profits made.

The Silver Trails Mining Company, under good management, economical operation, and has every earmark of being a mine, with the proper development program carried out. It is one of Mohave County's future assets and distinctly a mine of tomorrow.

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None Too Good

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Concentrates

A Concentrated Summary of the Mining Activities
of the Southwest

COCHISE COUNTY

The **Swisshelm Gold-Silver Company**, Tucson, recently shipped a carload of ore to the **Calumet & Arizona** smelter at Douglas, which showed a silica content of 38.8 per cent and the gold-silver content amounted to \$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 leasor and the **Bunker Hill** company continue on a verage in the neighborhood of 100 forty-ton cars a month, according to the report at the local depot. With silver around \$1.30 an ounce this means a production of at least \$100,000 per month.

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

The **Calumet & Arizona Mining** company have declared a quarterly dividend of \$1 per share, payable March 22nd. This is an increase of 50 per cent over the last quarter.

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

Otto L. Fuffner of Paradise reports that several mining properties in the Chiricahua in which he is interested are progressing favorably, the **Cochise Mineral Mines** company has recently installed a Deisel engine which is driving a development tunnel. Also the **Ajax** property will start work soon, as well as the **Hill Top Extension Co.**

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

GILA

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

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

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

Since the report for the quarter ending December, 1919, more than 120 feet of drifting has been added to the **Footwall** vein of the **Superior and Boston** company at Globe. Several small stopes are being opened on the 400 level. Drifting on the 600 level is also reported to be progressing.

The **Van Dyke Copepr** company of Miami has established the world's record in shaft 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 operation 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.

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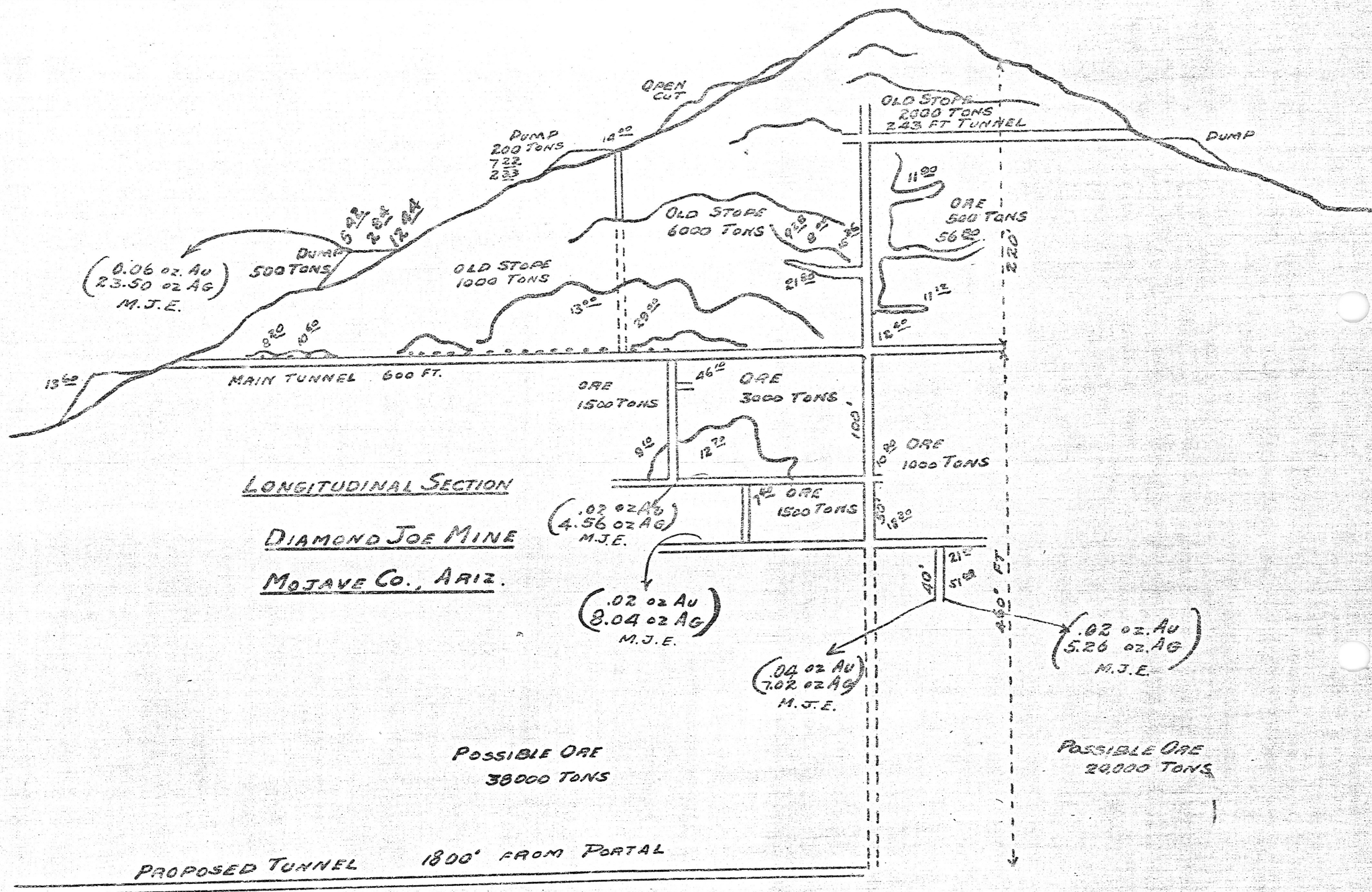
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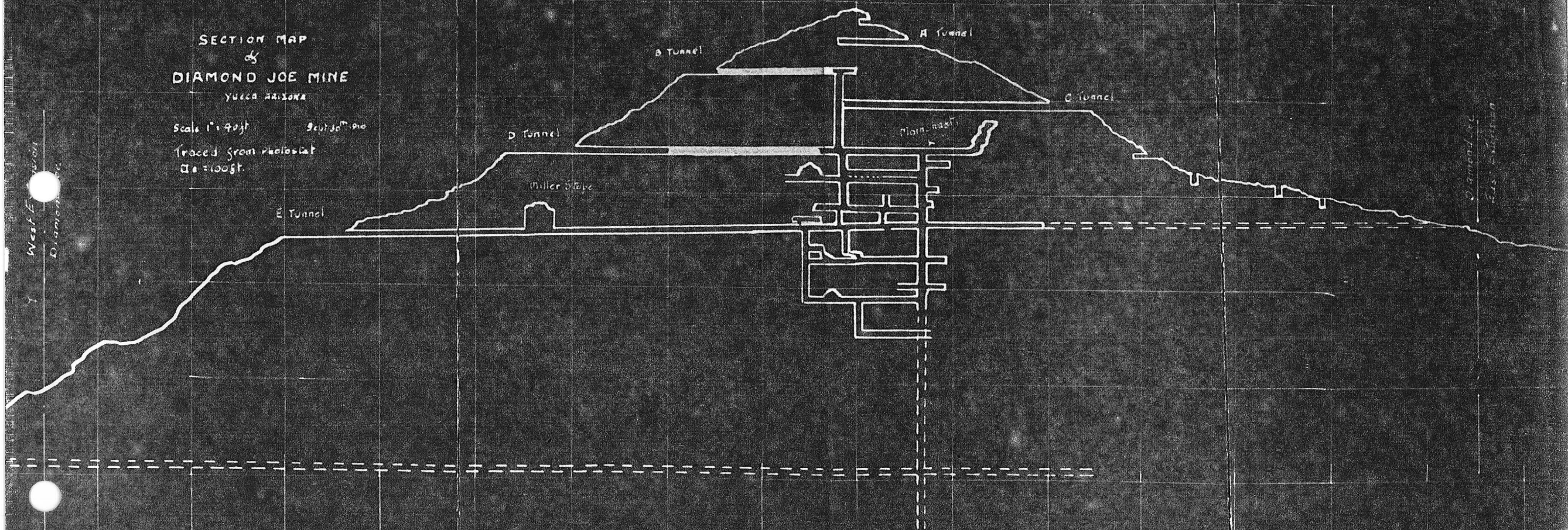


SECTION MAP
of
DIAMOND JOE MINE
YUCCA ARIZONA

Scale 1" = 40 ft

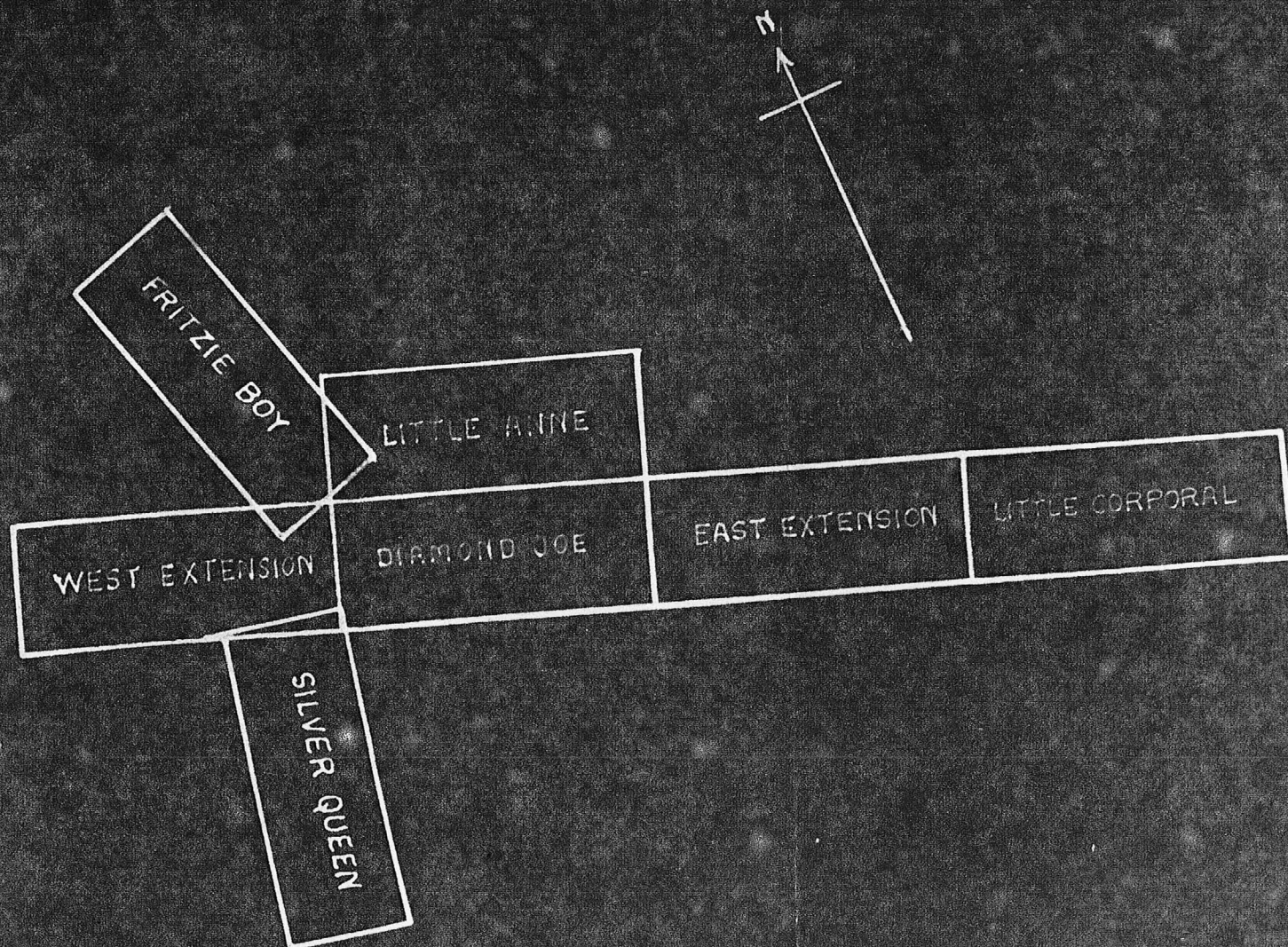
Sept 30th 1910

Traced from photostatic
of a float.



West E. section
Diamond Joe

Diamond Joe
East E. section



PLAT OF CLAIMS
DIAMOND JOE MINING CO.
YUCCA, ARIZONA