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12/05/88

PREPARED BY: DIETZ AND ASSOCIATES, 4706 N. 31ST DRIVE
PHOENIX, AZ. 85017 PHONE (602)841-1744

PRIMARY NAME: LEES PROPERTY

ALTERNATE NAMES:

PINAL COUNTY MILS NUMBER: 374B

LOCATION: TOWNSHIP 4 S RANGE 16 E SECTION 35 QUARTER SE
LATITUDE: N 33DEG 02MIN 18SEC LONGITUDE: W 110DEG 40MIN 46SEC
TOPO MAP NAME: CHRISTMAS - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER

BIBLIOGRAPHY:

✓ROSS, CLYDE P., ORE DEPOSITS OF THE SADDLE MTN AND BANNER MINING DISTRICTS, AZ., USGS BULL. 771, 1925, P. 47 *see Little Treasure*

✓USAEC PRELIM. RECONN. REPORT 172-488, 1953, P. 33 & 34 *attached*

4S 16E
34 & 35

GEOLOGICAL SURVEY

TRACE ELEMENTS PRELIMINARY RECONNAISSANCE REPORT

[illegible] K 908

[illegible] October 13, 1953

[illegible] R.H. Raup and B.V. Haines

[illegible] Arizona

[illegible] October 2-3, 1953

[illegible] Pinal

[illegible] Saddle Mountain

1. NAME OF PROPERTY: Saddle Mountain, Lee, and / Carmichael groups. 3 and 4 5 S. 16 E.

2. DIRECTIONS TO PROPERTY: From Winkelman P.O. drive 0.9 miles south on Arizona highway 77. Turn left /(east) on dirt road for 9.3 miles to Old Mill (abandoned millsite). Mines and prospects are on both sides of main ridge northwest of road.

3. OWNER OR LESSEE: Unknown.

ADDRESS:

4. PUBLISHED REFERENCES: Ross, C.P., 1925, Ore deposits of the Saddle Mountain and Banner mining districts, Arizona: U. S. Geol. Survey Bull. 771, 72 p.

5. MAIN WORKINGS: Three shafts more than 100 feet deep, several adits, and very many smaller workings. Probably more than 4000 feet of aggregate workings but individual workings are small.

6. TYPE OF EXAMINATION: Reconnaissance for radioactivity with a scintillation counter.

7. RADIOACTIVE DEPOSIT: NOTE AND AGE: Veins of Laramide age.

WALL ROCKS: Andesite, andesite breccia, and dikes of quartz-mica diorite.

ORE MINERALS, PRIMARY: Sphalerite, pyrite, and chalcopyrite.

ORE MINERALS, SECONDARY: Anglesite, cerussite, chrysocolla, and malachite.

GANGUE MINERALS: Quartz, calcite, barite, chlorite, sericite, gypsum, and iron oxides.

GEOLOGICAL RELATIONSHIP:

ATTITUDES: Veins strike N. 50° E. to N. 85° W., most are /northeasterly, dips are 57° S - 75°N.

LENGTH, STRIKE OR OTHER: Narrow (irregular) and discontinuous.

8. COUNTER TYPE: NICC scintillation counter model SM-3A, no. 011.

BACKGROUND RANGES: 0.006-0.008 mR/hr.

[illegible] No significant increase above background. 0.010 mR/hr. was maximum recorded.

9. SAMPLE INFORMATION:

SAMPLE NO.	LOT NO.	TYPE AND MATERIAL SAMPLES	[illegible]	[illegible]	LOCATION

No significant radioactivity.
No samples taken.

"THE U. S. GEOLOGICAL SURVEY MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION IN THIS REPORT AND MAKES NO RECOMMENDATIONS CONCERNING IT."

10. UNPUBLISHED REFERENCES: None known.

11. PREPARED, PRELIM. OR FINAL: [redacted]

[redacted]

[redacted]

12. PROOF OF OWNERSHIP RECEIVED: No

13. [illegible] No

DISTRIBUTION

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[illegible] SALT LAKE CITY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] GRAND JUNCTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] DENVER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] WASHINGTON	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

76081

33

12/05/88

PREPARED BY: DIETZ AND ASSOCIATES, 4706 N. 31ST DRIVE
PHOENIX, AZ. 85017 PHONE (602)841-1744

PRIMARY NAME: LITTLE TREASURE PROPERTY

ALTERNATE NAMES:
MELLOR CLAIMS
BIG TREASURE

PINAL COUNTY MILS NUMBER: 374A

LOCATION: TOWNSHIP 4 S RANGE 16 E SECTION 35 QUARTER SE
LATITUDE: N 33DEG 02MIN 06SEC LONGITUDE: W 110DEG 40MIN 34SEC
TOPO MAP NAME: CHRISTMAS - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
LEAD SULFIDE
COPPER SULFIDE
GOLD

BIBLIOGRAPHY:

✓ADMMR LITTLE TREASURE FILE + info attached
ROSS, CLYDE P., ORE DEPSOITS OF THE SADDLE attached
MTN AND BANNER MINING DISTRICTS AZ., USGS
BULL. 771, 1925, P. 46
USAEC PRELIM. RECONN. REPORT, 172-488, 1953, attached
P. 34
✓ADMMR U FILE, PINAL AG5 attached

LITTLE TREASURE PINAL COUNTY

Location: The Little Treasure Mine is in the SE¼ Sec. 35, T4S, R16E., and the NE¼ sec. 2, T5S, R16E. The property covers much of the northeast end of a mountain on the south side of Deer Creek and is about 9 miles by road from Winkleman and 3 miles by trail from Christmas station on the Arizona Eastern Railroad.

History: The claims were located by N. H. Mellor of Winkelman, about 1901 and have been controlled by him since then. He built the road from Dudleyville south of Winleman past this property to the coal prospects in Reed Basin in 1904 at a cost of $3,000 and has kept it in repair as far as his mine. A few carloads of ore have been shipped.

Property: The property comprises six unpatented claims. The principal workings are on the southeast side of the mountain, at an altitude of more than 2,700 feet. They consist of two tunnels roughly 240 and 150 feet long with a shaft about 55 feet deep connecting with the upper and shorter tunnel at its face. In the lower tunnel there is a winze and short crosscut. There are other small workings on the property, but recent work has been restricted to those described.

Character of the deposits: The country rock of the tunnels is a massive black basalt. This rock is doubtless of Cretaceous age and is thought to be of effusive origin. In the valley to the south a large dike of quartz-mica diorite which extends east from the Two Queens mine fingers out in a group of narrow dikes, of which the larger ones are shown somewhat diagrammatically on Plate 1.

The vein developed by the lower tunnel in the Little Treasure mine has an average strike of N 50° E., dips 55°-75° NW., and has a width of 30 to 40 inches of brecciated and altered rock between fairly definite walls of which the hanging wall is the more pronounced. The part of the vein that is thoroughly mineralized has a width of less than a foot. A small amount of sulphide is contained in the in the oxidized ore exposed at the mouth of the tunnel, and the proportion of sulphide increases until at the position of the winze there is almost no visible oxidation. Another vein exposed by the crosscut to the northwest strikes about N 70°E., dips nearly vertically, is 15 inches wide, and contains unoxidized sulphide ore.

The vein in the upper tunnel has an average strike of about N 75° E., with considerable variation the dip ranges from nearly vertical a t the mouth of the tunnel to about 80° S. near the face. The width of vein breccia exposed is 3 to 4 feet the walls are somewhat less well defined than those in the lower tunnel. The ore near the tunnel mouth and in the upper part of the shaft is oxidized, but at the bottom of the shaft there is some unoxidized sulphide. The vein structure is similar to that of the Big Rock vein and others of that type on the Saddle Mountain, Adjust, and neighboring properties. The hypogene minerals found are quartz, barite, calcite, galena, spahlerite, and pyrite. Oxidation was noted only near the mouths of the two tunnels and the upper part of the shaft, and even in these places it is far from complete. Specimens of ore from the lower part of the shaft and from the upper tunnel show some evidence of enrichment by descending.water. There are small cavities lined with wire silver and black films on galena and sphalerite and black stringers through the gnague which resembles argentite, although the amount in the specimens collected is too small for conclusive tests. Some of the ore contains dark-red grains that are probably pyrargyrite.

Taken from USGS 771 pages 46-47

LITTLE TREASURE PINAL COUNTY

The Geological Survey's office of Minerals Exploration has contracted to assist Big Treasure Mining and Development Co., a California Corporation, to explore for silver at its Little Treasure - Adjust Group of Claims in Pinal County, Arizona. The property is to be explored by surface drilling for silver-bearing ore deposits occurring along veins in volcanic and sedimentary rocks. The total cost of the work is estimated at 112,000 of which the government participation is 75% or $84,000.

Taken from Skillings Mining Review Dec. 3 1966 p30.

Big Treasure Mining and Development Co., Spenst M. Hansen, V. P., 125 Sedgefield Court, Dublin, California. (Little Treasure) Taken from Dept of Interior List(1966)

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reticulated with stringers of ribbon-banded quartz. On the upper slopes to the east the rock has a rusty color and is cut by a number of narrow shear zones containing some quartz and stained with limonite. There are a number of prospect pits here, and the shear zones are reported to contain gold. Several of the zones are offset by small faults. It is reported [49] that one of them is cut by a small andesitic dike similar in appearance to those which cut the ore in the Christmas mine.

LITTLE TREASURE MINE

Location.—The Little Treasure mine is in the SE. ¼ sec. 35, T. 4 S., R. 16 E., and the NE. ¼ sec. 2, T. 5 S., R. 16 E. The property covers much of the northeast end of a mountain on the south side of Deer Creek and is about 9 miles by road from Winkelman and 3 miles by trail from Christmas station on the Arizona Eastern Railroad.

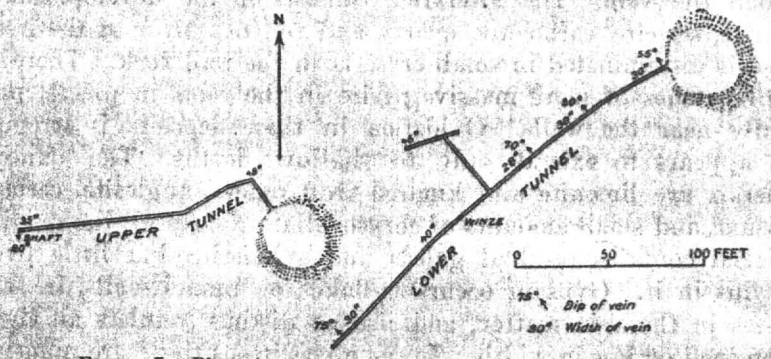


FIGURE 5.—Plan of principal workings at Little Treasure mine

History.—The claims were located by N. H. Mellor, of Winkelman, about 1901 and have been controlled by him since then. He built the road from Dudleyville south of Winkelman past this property to the coal prospects in Reed Basin in 1904 at a cost of $3,000 and has kept it in repair as far as his mine. A few carloads of ore have been shipped.

Property.—The property comprises six unpatented claims. The principal workings are on the southeast side of the mountain, at an altitude of about 2,700 feet. They consist of two tunnels roughly 240 and 150 feet long with a shaft about 55 feet deep connecting with the upper and shorter tunnel at its face. In the lower tunnel there is a winze and short crosscut. (See fig. 5.) There are other small workings on the property, but recent work has been restricted to those described.

[49] Mellor, N. H., personal communication.

Character of the deposits.—The country rock of the tunnels is a massive black basalt. This rock is doubtless of Cretaceous age and is thought to be of effusive origin. In the valley to the south a large dike of quartz-mica diorite which extends east from the Two Queens mine fingers out in a group of narrow dikes, of which the larger ones are shown somewhat diagrammatically on Plate I.

The vein developed by the lower tunnel in the Little Treasure mine has an average strike of N. 50° E., dips 55°–75° NW., and has a width of 30 to 40 inches of brecciated and altered rock between fairly definite walls, of which the hanging wall is the more pronounced. The part of the vein that is thoroughly mineralized has a width of less than a foot. A small amount of sulphide is contained in the oxidized ore exposed at the mouth of the tunnel, and the proportion of sulphide increases until at about the position of the winze there is almost no visible oxidation. Another vein exposed by the crosscut to the northwest strikes about N. 70° E., dips nearly vertically, is 15 inches wide, and contains unoxidized sulphide ore.

The vein in the upper tunnel has an average strike of about N. 75° E., with considerable variation. The dip ranges from nearly vertical at the mouth of the tunnel to about 80° S. near the face. The width of vein breccia exposed is 3 to 4 feet; the walls are somewhat less well defined than those in the lower tunnel. The ore near the tunnel mouth and in the upper part of the shaft is oxidized, but at the bottom of the shaft there is some unoxidized sulphide. The vein structure is similar to that of the Big Rock vein and others of that type on the Saddle Mountain, Adjust, and neighboring properties. The hypogene minerals found are quartz, barite, calcite, galena, sphalerite, and pyrite. Oxidation was noted only near the mouths of the two tunnels and the upper part of the shaft, and even in these places it is far from complete. Specimens of ore from the lower part of the shaft and from the upper tunnel show some evidence of enrichment by descending water. There are small cavities lined with wire silver and black films on galena and sphalerite and black stringers through the gangue which resemble argentite, although the amount in the specimens collected is too small for conclusive tests. Some of the ore contains dark-red grains that are probably pyrargyrite.

LEE GROUP

J. W. Lee has claims covering most of the irregular area southeast of mineral monument 2180 bordered on the northwest and south by the claims of the Saddle Mountain group and on the northeast by the Little Treasure property. He also has some claims between Pool's mine and the Carmichael group. There are several tunnels, other workings, and trails on these claims, made in the course of assessment work. The deposits are similar & related to others in this vicinity.

TRACE ELEMENTS PRELIMINARY RECONNAISSANCE REPORT

[illegible] Kemp and D.V. Haines — October 10, 1953

October 1 and October 7, 1953 — Arizona

Pinal

Saddle Mountain

1. Deer Creek area (Little Treasure, SE¼ sec. 35 T. 4 S. R. 16 E.
Lee's mine and others).

2. From Winkelman P.O. drive 0.9 miles south on Arizona highway 77. Then turn left (east) on dirt road for 8.8 miles to Deer Creek tributary. Mines are on both sides of the tributary and Deer Creek for approx. 1 mile downstream.

3. Unknown.

4. Ross, C.P., 1925, Ore deposits of the Saddle Mountain and Banner mining districts, Arizona: U.S. Geol. Survey Bull. 771, 72 p.

5. Over 1000 feet of aggregate workings. Two caved adits (Little Treasure), two fairly long adits (one at Lee's mill below the Adjust mine), a 300-ft and a 100-ft shaft, plus many smaller pits and workings.

6. Reconnaissance for radioactivity.

7. No — Breccia zones of Laramide age.

Andesite, basalt, and dikes of quartz-mica diorite.

Galena, sphalerite, pyrite, argentite(?), pyrargyrite(?), and minor chalcopyrite and bornite. Gold is reported.

Oxidized lead minerals.

Quartz, calcite, barite, and iron oxides.

Steeply-dipping veins in breccia zones.

Individual veins traceable for short distances only. — Widest vein seen is three feet.

8. NICC scintillation counter model SN-34, no. 011; NICC Geiger counter model 2610A, no. 1330.

Scintillation counter: 0.002 — 0.009 mR/hr. — No increase.
Geiger: 0.02-0.04 mR/hr.

No anomalous radioactivity.
No samples taken.

"THE U. S. GEOLOGICAL SURVEY MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION IN THIS REPORT ..."

10. None known.

11. [redacted]

[redacted]

12. No — No

76081

34

Pinal County **Arizona** State

Chief Mineral **Silver** No. **Ag-5**
Accessory Minerals **Lead**

Property Name: **Little Treasure Mine**

Location: **About 6 air mi NE of Winkelman Sec 35, T4S, R16E**

Owner: Name Address Date

N H Mellor **Winkelman** 1925

Operator:

Production:
Total_____ From_____ to_____
Present Rate_____ per_____. Date_____

Source of Information:
USGS Bull 771, p 46

USBM Report: File No._____

Status Date

Classification: **Prospect**

(See other side for general information)

c/6.7

12/05/88

PREPARED BY: DIETZ AND ASSOCIATES, 4706 N. 31ST DRIVE
PHOENIX, AZ. 85017 PHONE (602)841-1744

PRIMARY NAME: SPAZ MAUGH MINING CO. PROP.

ALTERNATE NAMES:

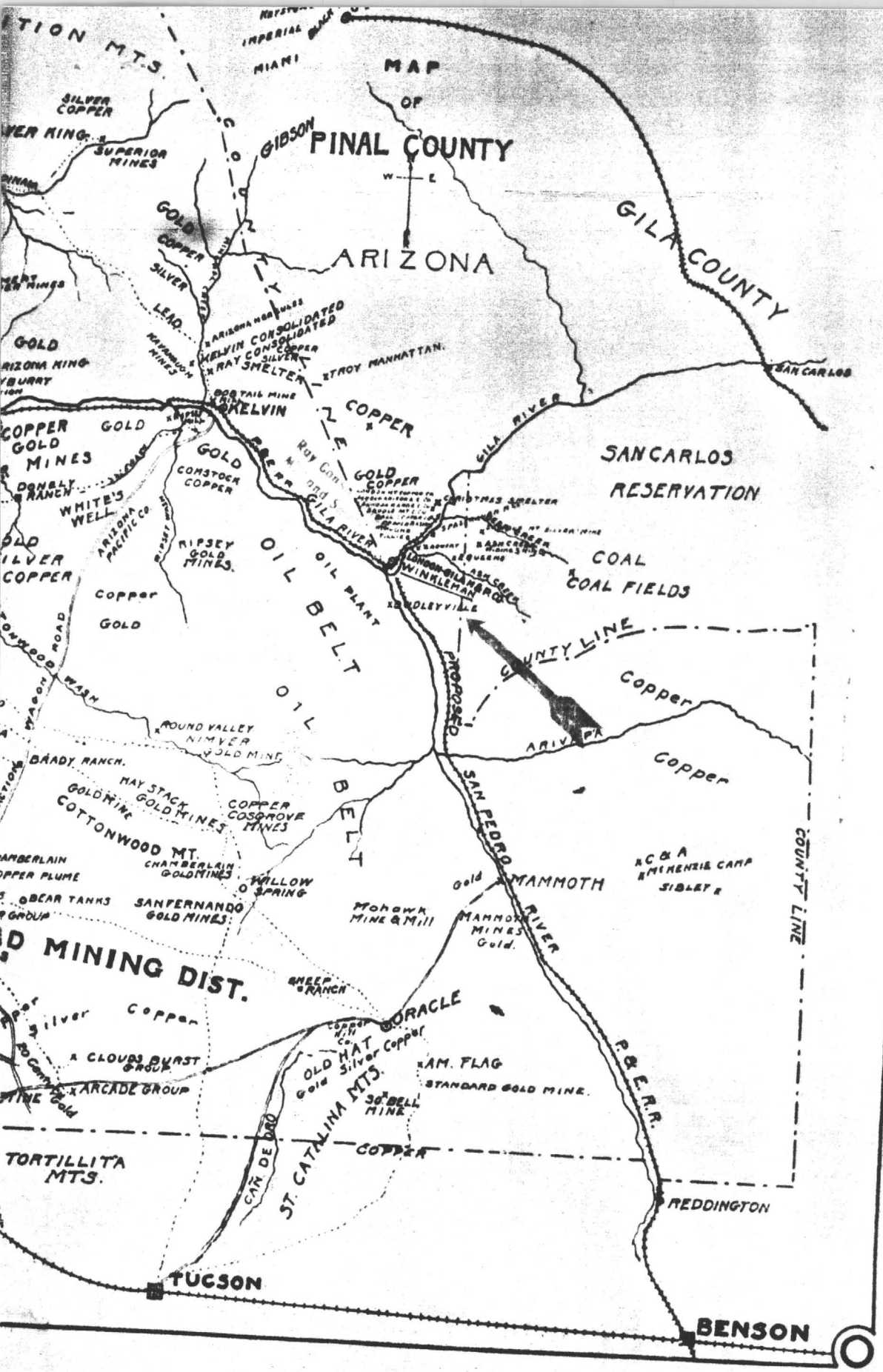
PINAL COUNTY MILS NUMBER: 373

LOCATION: TOWNSHIP 4 S RANGE 16 E SECTION 33 QUARTER SE
LATITUDE: N 33DEG 02MIN 16SEC LONGITUDE: W 110DEG 43MIN 27SEC
TOPO MAP NAME: CHRISTMAS - 7.5 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:
UNKNOWN

BIBLIOGRAPHY:
✓ ADMMR LONDON-GILA GROUP FILE


MAP OF PINAL COUNTY
ARIZONA
GILA COUNTY
SAN CARLOS RESERVATION
COAL FIELDS
OIL BELT
OIL PLANT
KELVIN
GIBSON
MIAMI
IMPERIAL
SILVER COPPER
SUPERIOR MINES
GOLD
COPPER
SILVER
LEAD
KELVIN CONSOLIDATED
RAY CONSOLIDATED
SMELTER
TROY MANHATTAN
COPPER GOLD MINES
GOLD
COMSTOCK COPPER
WHITE'S WELL
ARIZONA PACIFIC CO.
RIPSEY GOLD MINES
COPPER
GOLD
GILA RIVER
SAN CARLOS
WINKLEMAN
BUDLEYVILLE
COUNTY LINE
Copper
ARIZ PA
Copper
PROPOSED
SAN PEDRO RIVER
ROUND VALLEY
NIMVER GOLD MINE
BRADY RANCH
HAY STACK GOLD MINES
COPPER COSGROVE MINES
COTTONWOOD MT.
CHAMBERLAIN GOLD MINES
WILLOW SPRING
SAN FERNANDO GOLD MINES
BEAR TANKS
Mohawk MINE & Mill
MAMMOTH
MAMMOTH MINES Gold
C & A
McKENZIE CAMP
SIBLEY
COUNTY LINE
MINING DIST.
SHEEP RANCH
ORACLE
Silver
Copper
CLOUDS BURST GROUP
ARCADE GROUP
OLD HAT
Gold
Silver Copper
AM. FLAG
STANDARD GOLD MINE
30 BELL MINE
P. & E. R.R.
TORTILLITA MTS.
CAÑ DE ORO
ST. CATALINA MTS.
COPPER
REDDINGTON
TUCSON
BENSON

12/05/88

PREPARED BY: DIETZ AND ASSOCIATES, 4706 N. 31ST DRIVE
PHOENIX, AZ. 85017, PHONE (602)841-1744

PRIMARY NAME: ADJUST GROUP

ALTERNATE NAMES:
HOPE METALS
BLUE BIRD VEIN
SILVER CROSS CLAIMS
GOLD GULCH
LAURENCE
PAT. CLMS. 2179, 2180, 2182
BIG TREASURE
ODELL

PINAL COUNTY MILS NUMBER: 369

LOCATION: TOWNSHIP 4 S RANGE 16 E SECTION 34 QUARTER S2
LATITUDE: N 33DEG 01MIN 50SEC LONGITUDE: W 110DEG 41MIN 36SEC
TOPO MAP NAME: CHRISTMAS - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
SILVER OXIDE
GOLD LODE
LEAD
ZINC
COPPER

BIBLIOGRAPHY:
ADMMR ADJUST GROUP FILE - info attached
ROSS, CLYDE P., ORE DEPTS. OF SADDLE MTN. AND BANNER MINING DISTRICT attached
AZ BLM MINING DISTRICT SHEET 701
ADMMR LITTLE TREASURE FILE
ADMMR U FILE PINAL AG4
CLAIMS EXTEND INTO SEC. 35 & 36, & SEC. 1-4, & 9 T5S-R16E

Pinal County | Arizona State | Chief Mineral Silver No. Ag 4
Accessory Minerals Gold

Property Name: Adjust Mine (Odell) Location: About 6 mi NE of Winkleman
Secs 34, 35, T4S, R16E

Owner: Name Address Date

Operator:

Production:
Total $100,000 silver From 1922 to 1927
Present Rate _____ per _____. Date _____

Source of Information:
USGS Bull 771, p 41
Ariz B of M Bull 140 for production

Status Date

USBM Report: File No. _____

Classification: Mine

(See other side for general information)

COMMODITY INFORMATION

COMMODITIES PRESENT C10: C.U., A.G., P.B.
ORE MINERALS C30: GALENA, SPHAL., RITE, PYRITE, BORNITE, CHAL.OPYRITE
COMMODITY SUBTYPES C41:
GEN. ANALYTICAL DATA C43:
COM. INFO. COMMENTS C60:

* SIGNIFICANCE

	PRODUCER	NON-PRODUCER
MAJOR PRODUCTS	MAJOR: P.B., A.G.	MAIN COMMODITIES PRESENT C11:
MINOR PRODUCTS	MINOR: C.U., A.G.	MINOR COMMODITIES PRESENT C12:
POTENTIAL PRODUCTS	POTEN:	
OCCURRENCES	OCCUR:	OCCUR:

*PRODUCTION

PRODUCER	NON-PRODUCER
PRODUCTION (YES) (circle) PRODUCTION SIZE (SML) MED LGE (circle one)	PRODUCTION UND NO (circle one)

*STATUS EXPLORATION OR DEVELOPMENT

PRODUCER	NON-PRODUCER
STATUS AND ACTIVITY A20: 4	STATUS AND ACTIVITY A20:

DISCOVERER L20: ADJUST MINING CO.
YEAR OF DISCOVERY L10: NATURE OF DISCOVERY L30: B YEAR OF FIRST PRODUCTION L40: 1920 YEAR OF LAST PRODUCTION L45: 1939
PRESENT/LAST OWNER A12: ADJUST MINING CO. (1920), HOPE METALS CO. (1935), RALPH GREENLAW (1946)
PRESENT/LAST OPERATOR A13: ADJUST MINING CO. (1920-24), HOPE METALS CO. (1934-36), C. McGOWAN, R. GREENLAW
EXPL./DEV. COMMENTS L110: 12 UNPATENTED CLAIMS, EXPLORATION BY ASARCO ON PROPERTY IN 1967

DESCRIPTION OF DEPOSIT

DEPOSIT TYPE(S) C40: VEIN
DEPOSIT FORM/SHAPE M10: TABULAR
DEPTH TO TOP M20: UNITS M21:
DEPTH TO BOTTOM M30: UNITS M31:
DEPOSIT SIZE M15: (SMALL) M15 (MEDIUM) M15 (LARGE) (circle one)
STRIKE M70: N 76 E
DIRECTION OF PLUNGE M100:
DEP. DESC. COMMENTS M110: BLUE BIRD VEIN COMPLETELY OXIDIZED FROM THE SURFACE TO ABOUT 50 FT. IN DEPTH. AVERAGE WIDTH 4 FT.

MAXIMUM LENGTH M40: 920 UNITS M41:
MAXIMUM WIDTH M50: 12 UNITS M51: FT
MAXIMUM THICKNESS M60: UNITS M61:
DIP M80: VERTICAL
PLUNGE M90:

DESCRIPTION OF WORKINGS

Workings are: SURFACE M120 UNDERGROUND (M130) BOTH M140 (circle one)
DEPTH BELOW SURFACE M160: UNITS M161:
LENGTH OF WORKINGS M170: 1500 UNITS M171: FT
DESC. OF WORK. COM. M220: PRINCIPAL DEVELOPMENTS ON THE BLUE BIRD VEINS.

OVERALL LENGTH M190: 1500 UNITS M191:
OVERALL WIDTH M200: UNITS M201:
OVERALL AREA M210: UNITS M211:

GEOLOGY

AGE OF HOST ROCK(S) K1: CRET.-PALEOG.
HOST ROCK TYPE(S) K1A: ANDESITE
AGE OF IGNEOUS ROCK(S) K2: CRET.-PALEOG. 63 MY ON QUARTZ DIORITE CREASEY AND KNITLER, 1962
IGNEOUS ROCK TYPE(S) K2A: ANDESITE, QUARTZ MICA DIORITE
AGE OF MINERALIZATION K3: PALEOG.
PERT. MINERALS (NOT ORE) K4: QUARTZ, BARITE, CALCITE
ORE CONTROL/LOCUS K5: NE TRENDING VEINS
MAJ. REG. TRENDS/STRUCT. N15: NE TRENDING QUARTZ-MICA DIORITE DIKES (ROSS, 1925)
TECTONIC SETTING N15:
SIGNIFICANT LOCAL STRUCT. N70:
SIGNIFICANT ALTERATION N75: ANDESITE IN VEINS LARGELY REPLACED BY VEIN MINERALS
PROCESS OF CONC./ENRICH. N80:
FORMATION AGE N30:
FORMATION NAME N30A:
SECOND FM AGE N35:
SECOND FM NAME N35A:
IGNEOUS UNIT AGE N50:
IGNEOUS UNIT NAME N50A:
SECOND IG. UNIT AGE N55:
SECOND IG. UNIT NAME AND AGE N55A:
GEOLOGY COMMENTS N85: RELATED IN STYLE OF MINERALIZATION TO CHRISTMAS MINE, 3 MILES NW IN GILA COUNTY

GENERAL COMMENTS

GENERAL COMMENTS GEN:

*GENERAL REFERENCES

adjust grp.

REFERENCE 1 P1 <USBM-ABGMT PRODUCTION DATA FILE>

REFERENCE 2 *P2 <USBM FILE DATA - CLUSTER #684>

REFERENCE 3 P3 <ARIZONA DEPARTMENT OF MINERAL RESOURCES FILE DATA>

REFERENCE 4 P4 <ROSS, C.P. 1925, ORE DEPOSITS OF THE SADDLE MOUNTAIN AND BANNER MINING DISTRICTS, ARIZONA, USGS BULL, 771, P. 41-43.>

F5< USGS BULLETIN 1161-E, 1964>
F6< GREASEY, S.C. AND KISTLER, R.W. 1962 USGS PP 450-D, p D4-D5.>

mills 369

U.S. CRIB-SITE FORM

RECORD IDENTIFICATION

*RECORD NUMBER B10 <>
*RECORD TYPE B20 <X,1,M>
DEPOSIT NUMBER B40 <>
*REPORT DATE G1 <82,07,03> (YR MO)
*INFORMATION SOURCE B30 <1,2>
*FILE LINK IDENT. B50 <USBM-0040210095>

*REPORTER(SUPERVISOR) G2 <LARABA PETER (last, first, middle initial)> <GEST, DON (last, first, middle initial)>
*REPORTER AFFILIATION G6 <ABGMT>
*SITE NAME A10 <ADJUST MINE>
*SYNONYMS A11 <HOPE METALS,>

LOCATION

*MINING DISTRICT/AREA A30 <SADDLE MOUNTAIN DISTRICT>
*COUNTY A60 <PINAL>
*STATE A50 <A,Z>
*COUNTRY A40 <U,S>
*PHYSIOGRAPHIC PROV A63 <1,2,V>
*DRAINAGE AREA A62 <1,5,0,5,0,1,0,0,V>
*LAND STATUS A64 <4,7,V, ,V,(1,9,7,8,)>
*QUADRANGLE NAME A90 <CHRISTMAS (1,9,6,8,)>
*QUADRANGLE SCALE A100 <2,4,0,0,0>
SECOND QUAD NAME A92 <( )>
SECOND QUAD SCALE A91 <>
*ELEVATION A107 <,3,6,4,0,V,E,T,>

UTM

*NORTHING A120 <3,6,5,5,1,4,0,>
*EASTING A130 <5,2,8,7,9,0,>
*ZONE NUMBER A110 <+,1,2>

*ACCURACY

ACCURATE (ACC) (circle)
ESTIMATED EST <>

GEODETIC

*LATITUDE A70 < - - N>
*LONGITUDE A80 < - - W>

CADASTRAL

*TOWNSHIP(S) A77 <00,4,S,V, ,V, ,V, ,V, >
*RANGE(S) A78 <01,6,E,V, ,V, ,V, ,V, >
*SECTION(S) A79 <34 ,V, ,V, ,V, >
*SECTION FRACTION(S) A76 <C OF SE OF SE>
*MERIDIAN(S) A81 <GILA AND SALT RIVER>

POSITION FROM NEAREST PROMINENT LOCALITY A82 <1.4 MILES SW OF LEE MOUNTAIN (ELV. 3786).>
LOCATION COMMENTS A83 <CLAIMS EXTEND INTO SECTION 35, AND TO 1-4, AND 9, T5S, R16E.>

* ESSENTIAL INFORMATION
+ ESSENTIAL SOMETIMES OR HIGHLY RECOMMENDED

Form C. Q. 2270

ORE SETTLEMENT
PHELPS DODGE CORPORATION
COPPER QUEEN BRANCH
REDUCTION WORKS, DOUGLAS, ARIZONA

June 29, 1929.

BOUGHT OF Hope Metals Company,
ADDRESS Winkleman, Arizona.
MATERIAL Lead Concentrates SHIPPED FROM Winkleman, Arizona.

Date Received	CAR Initial	CAR Number	WEIGHT Wet	WEIGHT Moisture	WEIGHT Dry
June 21	SP	31508	67760		
		Less 3 Boards	156		
			67604	1.0	66928

Smelter Lot No. 567 June 1929
Shipper's Lot No. 1 (Lead)
Date Sampled 6/25/29
E. & M. Journal Quotations
Average for week ending 6/19/29
N. Y. Silver 52.77 c per oz
N. Y. Copper c per lb
Deduction c per lb
London Lead £ per L. T
London Lead c per lb
N. Y. Lead 7.00 c per lb
Deduction 1.40 c per lb

PER TON OF 2000 LBS.

	Assay		Deduct		Pay For		PAYMENTS	AMOUNTS Per Ton	AMOUNTS Total
Gold	.54	oz.		% &		% =	oz. @ $ 20.00 per oz.	10.80	
Silver	84.01	oz.	5	% &		% = 79.8095	oz. @ 52.77 c per oz.	42.12	
Copper		%		lbs. & % of balance		% =	lbs. @ c per lb.		
Lead	9.8	%	1.5	units & 10 % of balance	7.47	% =	lbs. @ 2.60 c per lb.	8.37	
Deduct	lb. lead for each lb. of copper paid for =				lbs.	= 149.4	Total Payments		61.29

	Analysis		Deduct	Charge For		CHARGES		
				Treatment increase Max.		Treatment Base	4.50	
Insol	.4	%			% @		1.50	
S	36.3	%	1.0	35.3	% @	10 c per unit	.94	
Zn	11.0	%			% @	20 c per unit	1.50	
Sb	0.5	%	.25	.25	% @	c per unit		
						1.50¢ per unit	.37	
				Pay For		Total Treatment	8.81	
Fe	26.6	%	16.5	10.1	% @	LESS CREDITS		
		%			% @	6 c per unit	.61	
		%			% @	c per unit		
						c per unit		
						Net Treatment		8.20
						Net Price per ton f. o. b. Douglas		53.09

Gross Proceeds on	33.464	Dry Tons @ $	53.09 per ton		1776.60
Less Freight From Winkleman	On 33.88	Gross Tons @ $	4.00 per ton		135.52
Less					
Balance Due Hope Metals Company					1641.08

Correct JTS:BP
Checked
Approved

Inv. Clerk
Manager

FORM S-A 20M 5-34 M'M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Collins Pacific Company — EL PASO, TEXAS, Aug. 7, 1934

ADDRESS San Francisco, Calif. — SHIPPING POINT Winkleman, Ariz. — SMELTER LOT 1408

CLASSIFICATION Concentrates — SHIPPER'S LOT

CAR NO.	CAR INITIAL	WEIGHT IN AVOIRDUPOIS POUNDS: GROSS	SACKS No.	SACKS Weight	NET WEIGHT	Moisture %	DRY WEIGHT
23912	SP				62040	6.7	57863

Gold Realized Price 34.9125
Mint 20.67
Excess 14.2425
90% " 12.81825
Schedule 19.50
Net 32.31825
Final Settlement - B/ L 7-30-34

N. Y. METAL QUOTATIONS

Settlement Date	8-3-34	
Silver	64125	Cts. per Oz.
Foreign Silver		
Lead	0	Per 100 Lbs.
E. & M. J. Copper	8650	Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	NET PAID FOR		RATE	VALUE AMOUNT PER TON	VALUE AMOUNT TOTAL
GOLD	.31	oz.						oz.	32.31825	6.79	
SILVER	71.0	oz.				95	67.45	oz.	.626 25	42.24	
LEAD		%						Lbs.			
COPPER	.23	%			4.6			Lbs.			

TOTAL PAYMENTS FOR METALS — 49.03

DEDUCTIONS

				DEBITS	CREDITS
Regular Lead Deduction	%		Basing Charge FOB El Paso	3.20	
% Copper Paid For					
Total Lead Deduction			Handling Sacks		
Copper Deficiency	8# - 4.6# = 3.4# = .0615			.21	

ANALYSIS		Deduction	NET		RATE	
Insoluble	%			%	@	Cts.
Silica	%			%	@	Cts.
Alumina	%			%	@	Cts.
Zinc	%			%	@	Cts.
Sulphur	%			%	@	Cts.
As Sb	%			%	@	Cts.
Bi	%			%	@	Cts.
Iron	%			%	@	Cts.
Lime	%			%	@	Cts.

TOTAL DEDUCTIONS — 3.41 — 3.41

NET VALUE PER TON — 45.62

					DEBITS	CREDITS
Total Value on		Dry Tons @	45.62	Per Ton		1360.31
Less Freight on	28.9415	Wet Tons @	4.60	Per Ton	142.69	
Less Freight on Sacks Returned	31.020					
Less Demurrage		Switching			2.25	
Less Umpires					3.12	
Less Duties and Brokage						
			Advance		1100.00	
BALANCE DUE SHIPPER					72.25	
					1320.31	1320.31

MADE BY _____ CHECKED _____ CORRECT _____ APPROVED _____

FORM 2 A 437 M M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

(COPY)

BOUGHT OF Collins Pacific Co. EL PASO, TEXAS, 9/13/34

ADDRESS Winkelman, Ariz. SHIPPING POINT Hayden, Ariz SMELTER LOT 1827

CLASSIFICATION Cts. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No	SACKS Weight	Net Weight	Moisture %	Dry Weight
15449	SP				31480	4.5	30063
Gold realized price				34.9125			
Mint		"		20.67			
Excess		"		14.2425			
90% "		"		12.81825			
Schedule		"		19.50			
Net		"		32.31825			
B/L 8/27/34							

N. Y. METAL QUOTATIONS

Settlement Date 9/3/34
B/L Date

Silver	64125	Cts. per Oz.
Foreign Silver	49525	
Lead	$	Per 100 Lbs.
E. & M. J. Copper	8650	Cts. per Lb.

LONDON LEAD PER 2240 LBS.

£ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	.20	oz.						oz.	32.31825	6.46	
SILVER	74.7	oz.				95	70.965	oz.	.62625	44.44	
LEAD		%						Lbs.			
COPPER	.24	%			4.8			Lbs.			
TOTAL PAYMENTS FOR METALS											50.90

DEDUCTIONS	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $.....per ton	3.20	
.....% of $.....excess over $.....per ton		
Handling Sacks		
Copper Deficiency 8# - 4.8# = 3.2# @ .0615	.20	

ANALYSIS		Deduction	Net		Rate
Insoluble	%			%	@ Cts.
Silica	%			%	@ Cts.
Iron	%			%	@ Cts.
Lime	%			%	@ Cts.
Zinc	%			%	@ Cts.
Sulphur	%			%	@ Cts.
Alumina	%			%	@ Cts.
As	%			%	@ Cts.
Sb	%			%	@ Cts.
Bi	%			%	@ Cts.

	DEBITS	CREDITS
TOTAL DEDUCTIONS	3.40	3.40
NET VALUE PER TON		47.50

					DEBITS	CREDITS
Total Value on	15.0315		Dry Tons @	47.50 Per Ton		714.00
Less Freight on	15.740	Min 30	Wet Tons @	4.60 Per Ton	138.00	
Less Freight on Sacks Returned			Hauling Charge			
Less Demurrage			Switching		2.25	
Less Umpires						
Less Duty and Brokerage						
Amount withheld pending receipt of Silver Affidavit					155.75	
Royalty						
BALANCE DUE SHIPPER					418.02	
					714.00	714.00

MADE BY CHECKED CORRECT APPROVED

FORM 2-A 10-22-37M-7

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Mines — E.C.W.Bowen — EL PASO, TEXAS, 11/26/35

ADDRESS Winkleman, Arizona — SHIPPING POINT Winkleman, Arizona — SMELTER LOT 2342

CLASSIFICATION Concts — SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
Truck		5627	67	48	5579	3.1	5406

N. Y. METAL QUOTATIONS

	Settlement Date 11/22/35	B/L Date
Silver	77	Cts. per Oz.
Foreign Silver	65375	
Lead	$ 4.50	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.38	oz.					0.38	oz.	32.81825	12.47	
SILVER	102.6	oz.				95	97.47	oz.	.755	73.59	
LEAD	12.1	%	1.5	10.6	212	90	190.8	Lbs.	.03075	5.87	
COPPER	.27	%	no pay					Lbs.			
TOTAL PAYMENTS FOR METALS											91.93

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
....10 % of $...66.93 excess over $...25.00 per ton - max	1.30	
Handling Sacks	.50	

Copper Deficiency

ANALYSIS			Deduction	Net			Rate		DEBITS	CREDITS
Insoluble	15.5	%			%	@		Cts.		
Silica	11.6	%			%	@		Cts.		
Iron	18.5	%			%	@		Cts.		
Lime	1.9	%			%	@		Cts.		
Zinc	15.6	%	10.	5.6	%	@	30	Cts.	1.68	
Sulphur	29.0	%			%	@		Cts.		
Alumina	3.2	%			%	@		Cts.		
As&Sb	.4	%			%	@		Cts.		
Bi		%			%	@		Cts.		
TOTAL DEDUCTIONS									7.18	7.18
NET VALUE PER TON										84.75

			DEBITS	CREDITS
Total Value on	2.7030	Dry Tons @ 84.75 Per Ton		229.08
Less Freight on	2.8135	Wet Tons @ Per Ton		
Less Freight on Sacks Returned		Freight Emergency Charge		
Less Demurrage		Switching		
Less Umpires				
Less Duty and Brokerage				
Amount withheld pending receipt of Silver Affidavit		Sampling	8.00	
		BALANCE DUE SHIPPER	221.08	
			229.08	229.08

CHECKED CORRECT APPROVED

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS, 12/19/35

ADDRESS Winkleman, Ariz. SHIPPING POINT Hayden, Ariz. SMELTER LOT 2503

CLASSIFICATION Concts. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
123401	PA	9294	153	106	9188	4.8	8747

N. Y. METAL QUOTATIONS

	Settlement Date 12/13/35	B/L Date 12/10/35
Silver	77	Cts. per Oz.
Foreign Silver	6275	
Lead	$ 4.50	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.30	oz.					0.3	oz.	3281825	9.85	
SILVER	102.7	oz.				95	97.565	oz.	.755	73.66	
LEAD	10.3	%	1.5	8.8	17.6.	90	158.4	Lbs.	.03075	4.87	
COPPER	.26	%	No pay					Lbs.			
TOTAL PAYMENTS FOR METALS											88.38

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
10 % of $ 63.38 excess over $ 25.00 per ton Max	1.30	
Handling Sacks	.50	

Copper Deficiency

ANALYSIS		Deduction	Net		Rate		DEBITS	CREDITS
Insoluble	18.4 %			%	@	Cts.		
Silica	%			%	@	Cts.		
Iron	19.5 %			%	@	Cts.		
Lime	%			%	@	Cts.		
Zinc	13.2 %	10.0	3.2	%	@ 30	Cts.	.96	
Sulphur	28.2 %			%	@	Cts.		
Alumina	3.9 %			%	@	Cts.		
As Sb	%			%	@	Cts.		
Bi	%			%	@	Cts.		
TOTAL DEDUCTIONS							6.46	6.46
NET VALUE PER TON								81.92

				DEBITS	CREDITS
Total Value on	4.3735	Dry Tons @ 81.92	Per Ton		358.28
Less Freight on	4.6470	Wet Tons @ 7.54	Per Ton	35.04	
Less Freight on (Sacks Returned)		Freight Emergency Charge	10% 3.50	4.20	
Less Demurrage		Switching		1.13	
Less Umpires		Sampling		6.00	
Less Duty and Brokerage					
Amount withheld pending receipt of Silver Affidavit		PART RETURNED FROM GOVERNMENT		60.79	
BALANCE DUE SHIPPER				251.12	
				358.28	358.28

MADE BY CHECKED CORRECT APPROVED

FORM 2-A 4-37 M'M

(COPY)

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS, 1/11/36

ADDRESS Winkelman, Ariz. SHIPPING POINT Hayden, Ariz. SMELTER LOT 28

CLASSIFICATION Concts. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
15948	SP	6162	84	70	6092	3.9	5854

N. Y. METAL QUOTATIONS

Settlement Date 1/4/36
B/L Date 12/30/35

Silver	77	Cts. per Oz.
Foreign Silver	4975	
Lead	$ 4.50	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.33	oz.					0.33	oz.	32.81825	10.83	
SILVER	86.0	oz.				95	81.7	oz.	.755	61.68	
LEAD	8.8	%	1.5	7.3	146	95	138.7	Lbs.	.03075	4.27	
COPPER	.47	%	No	Pay				Lbs.			
TOTAL PAYMENTS FOR METALS											76.78

DEDUCTIONS	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
10 % of $ 51.78 excess over $ 25.00 per ton Max.	1.30	
Handling Sacks	.50	

Copper Deficiency

ANALYSIS			Deduction	Net		Rate		DEBITS	CREDITS
Insoluble	16.4	%			%	@	Cts.		
Silica		%			%	@	Cts.		
Iron	22.8	%			%	@	Cts.		
Lime		%			%	@	Cts.		
Zinc	11.6	%	10.0	1.6	%	@ 30	Cts.	.48	
Sulphur	30.7	%			%	@	Cts.		
Alumina	2.8	%			%	@	Cts.		
As		%			%	@	Cts.		
Sb		%			%	@	Cts.		
Bi		%			%	@	Cts.		
TOTAL DEDUCTIONS								5.98	5.98
NET VALUE PER TON									70.80

			DEBITS	CREDITS
Total Value on	2.9270	Dry Tons @ 70.80 Per Ton		207.23
Less Freight on	3.0810	Wet Tons @ 6.76 Per Ton	20.82	
Less Freight on Sacks Returned		Frt.Emerg.Chge. 10%	2.08	
Less Demurrage		Switching	2.25	
Less Umpires		Sampling	7.00	
Less Duty and Brokerage				
Amount withheld pending receipt of Silver Affidavit			65.16	
Royalty				
		BALANCE DUE SHIPPER	109.92	
			207.23	207.23

MADE BY CHECKED CORRECT APPROVED

FORM 2-A [0-35 M'M]

AMERICAN SMELTING & REFINING COMPANY

EL PASO SMELTING WORKS

ORE SETTLEMENT

BOUGHT OF Hope Metals Company — EL PASO, TEXAS, 1/30/36

ADDRESS Winkleman, Ariz. — SHIPPING POINT Winkleman, Ariz. — SMELTER LOT 153

CLASSIFICATION Concts. — SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
229443	AT	9640	123	95	9545	5.0	9068

N. Y. METAL QUOTATIONS

	Settlement Date 1/24/36	S/L Date 1/21/36
Silver	.77	Cts. per Oz.
Foreign Silver	.4475	
Lead	$ 4.50	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.5	oz.					0.5	oz.	32.81825	16.41	
SILVER	80.1	oz.				95	76.095	oz.	.755	57.45	
LEAD	7.8	%	1.5	6.3	126	90	113.4	Lbs.	.03075	3.49	
COPPER	.32	%	No pay					Lbs.			
TOTAL PAYMENTS FOR METALS											77.35

DEDUCTIONS

	DEBITS	CREDITS	
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70		
10 % of $ 52.35 excess over $ 25.00 per ton — Max.	1.30		
Handling Sacks	.50		

Copper Deficiency

ANALYSIS			Deduction	Net		Rate	
Insoluble	13.2	%			%	@	Cts.
Silica		%			%	@	Cts.
Iron	30.3	%			%	@	Cts.
Lime		%			%	@	Cts.
Zinc	5.1	%			%	@	Cts.
Sulphur	36.1	%			%	@	Cts.
Alumina	2.2	%			%	@	Cts.
As Sb		%			%	@	Cts.
Bi		%			%	@	Cts.

	DEBITS	CREDITS
TOTAL DEDUCTIONS	5.50	5.50
NET VALUE PER TON		71.85

				DEBITS	CREDITS
Total Value on	4.5340	Dry Tons @ 71.85	Per Ton		325.77
Less Freight on	4.8200	Wet Tons @ 6.76	Per Ton	32.58	
Less Freight on Sacks Returned		Freight Emergency Charge	10%	3.26	
Less Demurrage		Switching		2.25	
Less Umpires		Sampling		6.00	
Less Duty and Brokerage				111.26	
Amount withheld pending receipt of Silver Affidavit					
BALANCE DUE SHIPPER				170.42	
				325.77	325.77

CHECKED — CORRECT — APPROVED

FORM 2-A TO-35 M'M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS, 2/13/36

ADDRESS Winkelman, Ariz. SHIPPING POINT Winkelman, Ariz. SMELTER LOT 257

CLASSIFICATION Concts. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
36857	S.P.	11780	171	130	11650	3.7	11219

N. Y. METAL QUOTATIONS

Settlement Date	2/7/36	B/L Date 2/4/36
Silver	.77	Cts. per Oz.
Foreign Silver	.4475	
Lead	$ 4.50	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.46	oz.					0.46	oz.	32.81825	15.10	
SILVER	86.6	oz.				95	82.27	oz.	.755	62.11	
LEAD	10.8	%	1.5	9.3	186	90.	167.40	Lbs.	.03075	5.15	
COPPER	.32	%	No	Pay				Lbs.			
TOTAL PAYMENTS FOR METALS											82.36

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
10 % of $ 57.36 excess over $ 25.00 per ton Max.	1.30	
Handling Sacks	.50	

Copper Deficiency

ANALYSIS		Deduction	Net		Rate
Insoluble	15.4 %			%	@ Cts.
Silica	%			%	@ Cts.
Iron	26.3 %			%	@ Cts.
Lime	%			%	@ Cts.
Zinc	7.0 %			%	@ Cts.
Sulphur	31.9 %			%	@ Cts.
Alumina	3.2 %			%	@ Cts.
As Sb	%			%	@ Cts.
Bi	%			%	@ Cts.

	DEBITS	CREDITS	
TOTAL DEDUCTIONS	5.50		5.50
NET VALUE PER TON			76.86

	DEBITS	CREDITS
Total Value on 5.6095		431.15
Less Freight on 5.8900	39.82	
Less Freight on Sacks Returned	3.98	
Less Demurrage	2.25	
Less Umpires		
Less Duty and Brokerage		
Amount withheld pending receipt of Silver Affidavit	5.00	
	148.82	
BALANCE DUE SHIPPER	231.28	
	431.15	431.15

Dry Tons @ 76.86 Per Ton

Wet Tons @ 6.76 Per Ton

Freight Emergency Charge 10%

Switching

Sampling

MADE BY CHECKED Correct APPROVED

FORM E-A 10-33 M'M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS, 3/21/35

ADDRESS Winkleman, Ariz. SHIPPING POINT Winkleman, Ariz. SMELTER LOT 42.0

CLASSIFICATION Ore. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
27750	SP	7220	130	75	7145	1.7	7024

N. Y. METAL QUOTATIONS

	Settlement Date 3/2/35	B/L Date 3/25/35
Silver	.77	Cts. per Oz.
Foreign Silver	.4475	
Lead	$	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.15	oz.					0.15	oz.	32.61825	4.92	
SILVER	78.4	oz.				95	74.48	oz.	.755	56.25	
LEAD	1.6	%	No pay					Lbs./			
COPPER	.10	%	"	"				Lbs.			

TOTAL PAYMENTS FOR METALS 61.15

DEDUCTIONS

	DEBITS	CREDITS	
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 ... per ton	3.70		
10 ... % of $ 36.15 ... excess over $ 25.00 ... per ton	1.30		
Handling Sacks	.50		

Copper Deficiency

ANALYSIS			Deduction	Net		Rate	
Insoluble	66.2	%			%	@	Cts.
Silica		%			%	@	Cts.
Iron	4.4	%			%	@	Cts.
Lime		%			%	@	Cts.
Zinc	2.9	%			%	@	Cts.
Sulphur	5.2	%			%	@	Cts.
Alumina	7.4	%			%	@	Cts.
As Sb		%			%	@	Cts.
Bi		%			%	@	Cts.

TOTAL DEDUCTIONS 5.50 5.50

NET VALUE PER TON 55.65

	DEBITS	CREDITS
Total Value on 3.5130 Dry Tons @ 55.65 Per Ton		195.44
Less Freight on 3.6100 Wet Tons @ 6.75 Per Ton	24.40	
Less Freight on Sacks Returned Freight Emergency Charge 10 $	2.44	
Less Demurrage Switching	2.25	
Less Umpires		
Less Duty and Brokerage Sampling	7.00	
Amount withheld pending receipt of Silver Affidavit	84.36	
BALANCE DUE SHIPPER	74.99	
	195.44	195.44

MADE BY CHECKED CORRECT APPROVED

FORM 2-A 10-35 M-M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS, 3/25/36

ADDRESS Winkelman, Ariz. SHIPPING POINT Winkelman, Ariz. SMELTER LOT 507

CLASSIFICATION Ore. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
97258	AT	4880	79	35	4845	2.0	4748

N. Y. METAL QUOTATIONS

Settlement Date	3/14/36	B/L Date 3/10/36
Silver	.77	Cts. per Oz.
Foreign Silver	.4475	
Lead	$	Per 100 Lbs.
E. & M. J. Copper	.089	Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.18	oz.					0.18	oz.	32.31825	5.82	
SILVER	57.2	oz.				95	54.34	oz.	.755	41.05	
LEAD	1.0	%	No pay					Lbs.			
COPPER	0.07	%			1.4			Lbs.			
TOTAL PAYMENTS FOR METALS											46.85

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $.....per ton	4.20	
.....% of $.....excess over $.....per ton		
Handling Sacks	.30	
Copper Deficiency 8 # = 1.4 # = 6.6 # @ .06375	.42	

ANALYSIS			Deduction	Net		Rate	
Insoluble	57.8	%			%	@	Cts.
Silica		%			%	@	Cts.
Iron		%			%	@	Cts.
Lime	4.2	%			%	@	Cts.
Zinc		%			%	@	Cts.
Sulphur	0.7	%			%	@	Cts.
Alumina	3.8	%			%	@	Cts.
As Sb	8.2	%			%	@	Cts.
Bi		%			%	@	Cts.

TOTAL DEDUCTIONS	5.12		5.12
NET VALUE PER TON			41.73

			DEBITS	CREDITS
Total Value on	2.3740	Dry Tons @ 41.73 Per Ton		99.07
Less Freight on	2.4400	Wet Tons @ 7.54 Per Ton	18.40	
Less Freight on Sacks Returned		Freight Emergency Charge . . . 10 %	1.84	
Less Demurrage		Switching Reweigh	3.15	
Less Umpires		Sampling	8.00	
Less Duty and Brokerage			41.62	
Amount withheld pending receipt of Silver Affidavit				
BALANCE DUE SHIPPER			26.06	
			99.07	99.07

CHECKED CORRECT APPROVED

FORM 2-A 437 M'M

(COPY)

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Co. EL PASO, TEXAS 3/25/36

ADDRESS Winkelman, Ariz. SHIPPING POINT Winkelman, Ariz. SMELTER LOT 506

CLASSIFICATION Concts. SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
87258	SP	10140	142	90	10050	2.3	9819

N. Y. METAL QUOTATIONS

Settlement Date 3/14/36
B/L Date 3/10/36

Silver	.77	Cts. per Oz.
Foreign Silver	.4475	
Lead	$ 4.60	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.51	oz.					0.51	oz.	32.81825	16.74	
SILVER	128.6	oz.				95	122.17	oz.	.755	92.24	
LEAD	8.1	%	1.5	6.6	132	95	125.4	Lbs.	.03175	3.98	
COPPER	.3	%	No Pay					Lbs.			
TOTAL PAYMENTS FOR METALS											112.96

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
10 % of $ 87.96 excess over $ 25.00 per ton Max.	1.30	
Handling Sacks	.50	

Copper Deficiency

ANALYSIS			Deduction	Net		Rate	
Insoluble	16.5	%			%	@	Cts.
Silica		%			%	@	Cts.
Iron	26.8	%			%	@	Cts.
Lime		%			%	@	Cts.
Zinc	6.2	%			%	@	Cts.
Sulphur	32.0	%			%	@	Cts.
Alumina	3.2	%			%	@	Cts.
As		%			%	@	Cts.
Sb		%			%	@	Cts.
Bi		%			%	@	Cts.

	DEBITS	CREDITS
TOTAL DEDUCTIONS	5.50	5.50
NET VALUE PER TON		107.46

			DEBITS	CREDITS
Total Value on	4.9095			527.57
Less Freight on	5.0700	Dry Tons @ 107.46 Per Ton		
Less Freight on Sacks Returned		Wet Tons @ 7.54 Per Ton	38.23	
Less Demurrage		~~Hauling Chgs.~~ Frt. Emerg. Chge. 10%	3.82	
Less Umpires		Switching	2.25	
Less Duty and Brokerage		Sampling	5.00	
Amount withheld pending receipt of Silver Affidavit				
Royalty			193.43	
		BALANCE DUE SHIPPER	284.84	
			527.57	527.57

MADE BY CHECKED CORRECT APPROVED

FORM S-S 4-36 M'M

AMERICAN SMELTING & REFINING COMPANY
EL PASO SMELTING WORKS
ORE SETTLEMENT

BOUGHT OF Hope Metals Company — EL PASO, TEXAS, ~~4/13/36~~ 4/21/36

ADDRESS Providence, R. I. — SHIPPING POINT Winkelman, Ariz. — SMELTER LOT 747

CLASSIFICATION Concts. — SHIPPER'S LOT

CAR No.	CAR Initial	WEIGHT IN AVOIRDUPOIS POUNDS Gross	SACKS No.	SACKS Weight	Net Weight	Moisture %	Dry Weight
Truck & LCL	SP	2591	44	26	2565	1.0	2539

N. Y. METAL QUOTATIONS

Settlement Date	4/13/36	B/L Date 4/7/36
Silver	.77	Cts. per fn.
Foreign Silver	.4475	
Lead	$ 4.60	Per 100 Lbs.
E. & M. J. Copper		Cts. per Lb.

LONDON LEAD PER 2240 LBS. £ s d

Exchange N. Y.

PAYMENTS FOR METALS

ELEMENTS	Assay per Ton 2000 Lbs.		Deducted	Net Assay	Equivalent in Lbs.	Per Cent Paid For	Net Paid For		Rate	VALUE Amount Per Ton	VALUE Amount Total
GOLD	0.42	oz.					0.42	oz.	32.81825	13.78	
SILVER	141.6	oz.				95	134.52	oz.	.755	101.56	
LEAD	7.0	%	1.5	5.5	110	95	104.5	Lbs.	.03175	3.32	
COPPER	.43	%	No pay					Lbs.			
TOTAL PAYMENTS FOR METALS											118.66

DEDUCTIONS

	DEBITS	CREDITS
BASE CHARGE: F. O. B. El Paso, for Metal Payments, not exceeding $ 25.00 per ton	3.70	
10 % of $ 93.66 excess over $ 25.00 per ton — Max	1.30	
Handling Sacks	.50	
Copper Deficiency		

ANALYSIS			Deduction	Net		Rate
Insoluble	27.4	%			%	@ Cts.
Silica		%			%	@ Cts.
Iron	21.3	%			%	@ Cts.
Lime		%			%	@ Cts.
Zinc	7.8	%			%	@ Cts.
Sulphur	25.1	%			%	@ Cts.
Alumina	7.6	%			%	@ Cts.
As Sb		%			%	@ Cts.
Bi		%			%	@ Cts.

	DEBITS	CREDITS
TOTAL DEDUCTIONS	5.50	5.50
NET VALUE PER TON		113.16

				DEBITS	CREDITS
Total Value on	1.2695	Dry Tons @ 113.16	Per Ton		143.66
Less Freight on	1.2955	Wet Tons @ 8.32	Per Ton	10.78	
Less Freight on Sacks Returned	.52	Freight Emergency Charge . . . 10%	1.08	1.60	
Less Demurrage		Switching			
Less Umpires	Hauling (Shelter Sand & Gravel Co.)			2.59	
Less Duty and Brokerage		Sampling		9.00	
Amount withheld pending receipt of Silver Affidavit				54.98	
BALANCE DUE SHIPPER				64.71	
				143.66	143.66

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wide, trending about N. 80° E., which again is about the average strike of the dikes. The Columbia mine and a number of others are in this area. The strikes of the dikes in both groups are fairly consistent within the group but are independent of the direction of the major faults in the region. The dikes and the veins associated with them appear to occupy fissures and shear zones formed subsequently to much of the faulting in the region, although some of the dikes near Troy seem to follow fissures that form parts of the regional fault pattern. The set of fractures now occupied by the dikes and ore deposits was probably produced at an early stage in the structural disturbance in which the quartz-mica diorite was intruded. Where the fractures were closely spaced the diorite magma may have split up into smaller masses than it could elsewhere. Another possibility is that under the areas of closely spaced dikes there are diorite masses larger than any exposed at the surface and that the force of intrusion of these masses caused the production of fractures in the overlying rocks through which narrow apophyses from the diorite magma were thrust.

As the ore deposits are interrelated, it follows that gradations between them may be expected. It is conceivable that a vein containing no contact-metamorphic minerals might be found to grade into a contact-metamorphic deposit where the conditions were favorable. Typical contact-metamorphic deposits can be formed only in rock susceptible of replacement of that character. In these two districts the rocks known to be suitable for such replacement comprise the purer beds of the Tornado limestone and certain beds in the Martin limestone, especially one near its base. Deposits have also been found in the Troy quartzite and in a rock supposed to belong to the Mescal limestone, but they are of less value. It is probable that valuable contact-metamorphic deposits of any great size will not be found in any of the rocks in the region other than those enumerated above, and that most of the large ore bodies of this type are confined to the Tornado and Martin limestones.

Although all the deposits were produced in the same period of mineralization they were doubtless not all formed simultaneously, and different types were probably formed at slightly different times. The contact-metamorphic deposits were doubtless produced in general at an early stage. The order of formation of the pyritic deposits, disseminated and in shear zones, and the lead-silver veins is not known. If order of deposition of the minerals in the ore is a criterion, then it would seem that the pyritic deposits are younger than those of galena and sphalerite, but other evidence is lacking.

From the facts above set forth something can be inferred as to future possibilities in the exploitation of specific deposits, and

examples of such inferences are given below. The Cretaceous strata that form the wall rock of the veins of the Saddle Mountain district are underlain by the Tornado limestone, which is cut by quartz-mica diorite, perhaps by a large mass of this rock. Consequently contact-metamorphic deposits may be expected in the limestone, but it is by no means certain that they lie under the deposits now being worked, which may be underlain by quartz-mica diorite in which there has been little or no valuable mineralization. Before passing out of the Cretaceous rocks the lead-silver veins may grade into pyritic deposits in depth, or the reverse may be true, according to which is the older. At the Christmas mine the bottom of the No. 3 shaft is probably less than 200 feet above the lower limit at which valuable ore bodies are to be expected, but on the downthrown side of the Christmas fault limestone lithologically favorable to the production of ore bodies extends to much greater depths and has not yet been explored.

MINES AND PROSPECTS

ADJUST MINE

Location.—The Adjust mine, owned by the Adjust Mining Co., is on the south side of Deer Creek in secs. 34 and 35, T. 4 S., R. 16 E., about 2½ miles by trail from Christmas station on the Arizona Eastern Railroad. A branch of the road from Winkelman through Old Mill extends to the southern base of the hill on which the mine is situated, the distance being about 8½ miles. At present supplies are brought in by automobile on this road. When ore is shipped it is taken to Christmas station by burro pack train down Deer Creek.

Property.—The Adjust Mining Co., which has recently been reorganized, has 13 unpatented claims, on which there are a number of shafts, adits, and cuts. The principal developments are on the Blue Bird vein, shown in Figure 4, where there are more than 1,500 feet of workings. About 640 tons of ore,[39] principally oxidized material, has been shipped. In May, 1922, after a shutdown of several months, the mine was reopened with the intention of carrying out sufficiently extensive development to determine the value of the ore bodies to a depth of 300 feet or more.

Character of the deposits.—The country rock is principally Cretaceous andesite, but there are some small dikes of gray porphyry, probably quartz-mica diorite. These dikes are too small to show on Plate I, but larger ones have been mapped northwest and southeast of the property. Several veins crop out, but only one, called

[39] Heron, C. M., letter dated July 12, 1922.

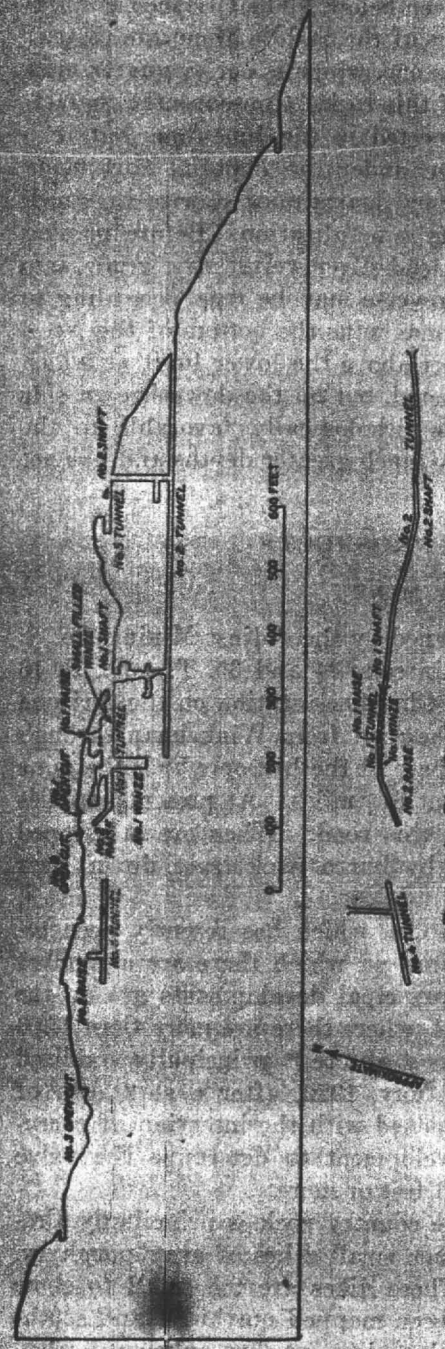

FIGURE 4.—Blue Bird workings of Adjust Mining Co.

the Blue Bird vein, has been developed to any extent. The Blue Bird vein has a proved length of nearly 1,500 feet and may be much longer. Its average strike is about N. 70°–80° E., but there are numerous variations beyond these limits. The dip is to the northwest in some places and to the southeast in others, but in general the vein is nearly vertical. The vein has well-defined and fairly continuous slickensided walls from 3 feet or less to as much as 7 feet apart. Between the walls there is altered and brecciated country rock interleaved with bands of vein matter. The amount of mineralization varies notably. There are considerable stretches in which the vein filling is of too low tenor to be regarded as ore, and in few places does ore fill the whole space between the walls. In No. 1 tunnel the well-mineralized part of the vein is 1 to 2 feet wide. In places in No. 1 shaft and parts of No. 2 tunnel the width is as much as 3 feet. Assays show that for a length of 200 feet in No. 2 tunnel ore of sufficiently high tenor to be profitably mined is exposed. This ore shoot is also exposed in No. 1 shaft and tunnel. In addition samples of satisfactory tenor from other parts of the workings have been assayed.

The gangue minerals noted are quartz, barite, and calcite. The sulphides are galena, sphalerite, and pyrite, with small amounts of copper minerals, probably chalcopyrite and bornite. The andesite included in the vein is nearly everywhere thoroughly altered and largely replaced by vein minerals. The ore in places is stained with limonite, and the sulphides are partly or completely oxidized. The distribution of such material is irregular, but it appears that oxidized ore rarely extends much over a score of feet below the surface. Much of the ore mined contains about 30 ounces of silver and a small fraction of an ounce of gold to the ton, although ore containing more than 250 ounces of silver to the ton has been found. In 1920 325.11 tons of ore averaging 0.15 ounce of gold and 49.99 ounces of silver to the ton was shipped, and in 1921 298 tons averaging 0.15 ounce of gold and 48.46 ounces of silver to the ton.[40] The shipments consisted principally of oxidized ore, more or less hand sorted. The ore which it is planned to develop in the immediate future is principally sulphide material. Tests made by the company's engineers[41] on a composite sample of sulphide ore show that gravity concentration is hindered by the abundant barite, but flotation gives satisfactory results. To determine the distribution of the gold and silver, separate concentrates of the lead, iron, zinc, and slimes were made. It was found that the concentrates containing large proportions of lead, iron, and slime contained two or three times as much silver and gold as those high in zinc, but that the zinc concentrates contained too much silver to be discarded. These tests appear to indicate that most of the precious metals are associated with the galena and pyrite, but that some are too closely associated with the sphalerite to be separated by the methods of concentration used.

SADDLE MOUNTAIN GROUP

Location.—The claims of the Saddle Mountain group lie north of Old Mill, on the ridge between Ash Creek and Deer Creek, southeast of the Adjust Mining Co.'s property.

History.—In 1900 the Saddle Mountain Mining Co. was organized by G. B. Chittenden, and a portable concentrating mill was erected on Ash Creek at the site of an arrastre put up by previous prospectors. The ruins of this mill still remain and the place is known as Old Mill. A little over $120 a ton was paid by a smelter in El Paso for the first two carloads of concentrates derived from oxidized ore shipped. The ore concentrated assayed about 12 ounces in silver and $1.50 in gold to the ton. A third car of concentrated sulphide ore was shipped. The concentrate in this car was found to average only about $30 a ton, although the ore treated was about as rich as that from the oxidized zone previously concentrated. This result

[40] Data furnished by Adjust Mining Co. from smelter returns.
[41] Heron, C. M., letter dated July 12, 1922.

R E P O R T

on

RALPH M. GREENLAW'S

PROPERTY

FRED H. PERKINS

CONSULTING MINING ENGINEER,

REGISTERED MINING ENGINEER, STATE OF ARIZONA

No. 368

No. 918 North 2nd. Street,

Phoenix, Arizona

I N D E X

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SITUATION:-

The former holdings of the Hope Metals Company, now owned by Ralph M. Greenlaw, Providence, R. I., are situated in Pinal County, Arizona, Saddle Mountain District, which is nine (9) miles Southeasterly from Winkelman, the present shipping point on the Southern Pacific Railroad. A fairly good wagon road connects the present camps and Winkelman. A pack trail to Finney, the nearest railroad point, is two (2) miles long.

TOPOGRAPHY:-

The topography of the Saddle Mountain District is rough, varying in elevation from 2000 ft. to 4500 ft. above sea level. Sharp peaks and ridges cut by steep sided canyons make up the surface of this area. Ash and Deer Creeks afford the principal drainage for the district, both of which finally flow into the Gila River.

GEOLOGY AND COMMERCIAL CONDITIONS:-

Blue Bird vein on the Adjust group of claims has a N 76°E strike and a dip generally vertical. Country rock is principally andesite with ocassionally dikes of gray porphyry paralleling the vein. The presence of gray porphyry is generally associated with the better ores in vein proper. The vein is well defined and has almost continuous slickensided walls. Width of vein is a few inches to twelve (12) ft., average about four (4) ft. The vein is banded in structure and mineralization. The gangue minerals are quartz, barite, and calcite, with altered brecciated country rock mixed with the banded leaves of ore. There are three well defined chutes of ore throughout the workings opened up at present, an extent of about fifteen hundred (1500) ft.

About two thirds of the vein along its length, the vein filling is too lean to mill. The vein is completely oxidized from the surface to about fifty (50) ft. in depth, at which point the sulphides of galena, sphalerite and pyrites are noted. Most of the gold and silver values are in the sulphides in the lower levels.

Little Treasure Group:-

The principal vein on the Little Treasure group has a N 70°E strike, and a dip almost vertical. Oxidization is very shallow, and the walls are only fairly well defined. The average width vein is two and one half (2½) ft. Vein gangue is a highly altered breccia. Present development shows two ore chutes, one chute having a decided zinc content.

CLAIMS:-

The former holdings of the Hope Metals Company are comprised of fifty eight (58) lode unpatented mining claims, and four (4) mill sites. The mining claims are in five (5) groups, and in each group all claims are contiguous. The claims cover a total of eleven hundred (1100) acres, the names of which, together with the book and page numbers of the record of the location or amended location notices thereof, in the office of the County Recorder of Pinal County, at Florence, are as follows, to wit:-

NAME OF CLAIM	NUMBER AND NAME OF BOOK	PAGE NO.
North Side	45 Book of Mines	52
Tunnel	" " " "	53
Silver Leaf	" " " "	54
South Side	" " " "	55

NAME OF CLAIM	NUMBER AND NAME OF BOOK	PAGE NO.
Little Treasure	45 Book of Mines	56
Bluff	" " " "	57
East End	" " " "	58
High Point	" " " "	45
Sunrise	" " " "	46
Mountain View Fraction	" " " "	47
Richard	" " " "	48
Big Dike	" " " "	49
Mountain View	" " " "	50
Edward	" " " "	51
Laurence	" " " "	8
Little Doris	" " " "	10
Ancho	" " " "	11
Red Raven	44 " " "	472
Corner Stone Fraction	" " " "	479
Gold Section Fraction	" " " "	482
Gold Gulch No. 2	" " " "	483
Submarine No. 2	" " " "	484
Homestake No. 1	45 " " "	26
Homestake No. 2	" " " "	27
Red Raven	" " " "	28
Submarine No. 3	" " " "	29
Submarine No. 1	" " " "	30
Sylvester	" " " "	31
Eagle	" " " "	32
Gold Gulch No. 1	" " " "	33
High Ball	" " " "	34
Corner Stone	" " " "	35
San Pedro	" " " "	36

NAME OF CLAIM	NUMBER AND NAME OF BOOK	PAGE NO.
Gold Section No. 1	45 Book of Mines	37
" " " 2	" " " "	38
" " " 3	" " " "	39
" " " 4	" " " "	40
" " " 5	" " " "	41
" " " 6	" " " "	42
" " " 7	" " " "	43
" " " 8	" " " "	44
Midway	" " " "	7
Midway Extension	" " " "	9
Silver Dollar No. 1	" " " "	12
" " " 2	" " " "	13
" " " 3	" " " "	14
Adjust No. 1	" " " "	15
" " 2	" " " "	16
" " 3	" " " "	17
" " 4	" " " "	18
Silver League	" " " "	19
Silver League Extension	" " " "	20
Lulu	" " " "	21
Ninety Six	" " " "	22
Blue Bird	" " " "	23
New York	" " " "	24
Manhattan	" " " "	25
Silver Lead	49 " " "	83

NAME OF MILL SITE	NUMBER AND NAME OF BOOK	PAGE NO.
The Gold Gulch	1 Record of Mill Sites	195
Tunnel	" " " " "	235
Silver Leaf	" " " " "	235

NAME OF MILL SITE	NUMBER AND NAME OF BOOK	PAGE NO.
Little Treasure	1 Record of Mill Sites	236

Together with all water rights and rights of way.

TITLE:-

The title is held by performance of annual assessment work as prescribed by the United States Government. So far as could be determined on the ground, there are no adverse claimants.

No abstract of title has been made for this report, but an abstract should be made for the protection of the owner.

ROADS:-

A fair wagon road eight (8) miles long connects the holdings with Winkelman, the nearest Post Office. Finney, the nearest railroad point is, at present, via pack-trail two (2) miles long.

CLIMATE:-

These claims are from two thousand (2000) ft. to thirty five hundred (3500) ft. above sea level. At this elevation the climate is very mild the year round. There is little or no snow in the winter. The annual rainfall is around three (3) inches. Generally speaking, the climatic conditions are exceptionally favorable, and the work need never be interrupted by unfavorable weather.

WATER:-

A pipe line twelve thousand (12,000) ft. long brings mill water from the Gila River. The well is situated one mile below the Christmas power house, and is equipped with a 40 HP U. S. electric motor, and a Worthington duplex pump,

2" discharge, which delivers 1000 gallons of water per minute to a 49,000 Gal. steel tank above the mill. Most of the joints in the pipe line are welded.

A 40 ft. well on Ash Creek, in the Little Treasure Group, has a Meyer "bulldozer" pump, driven by a 1 3/4 HP gasoline engine, and a pipe line 1,000 ft. long, which delivers water to a 5,000 Gal. steel tank above the Little Treasure Camp. This water is used for all domestic purposes at this time. Both Deer Creek and Ash Creek flow on the surface nine (9) months of the year. The No. 4 tunnel on the Blue Bird vein makes a little water which is collected in a forty (40) ft. winze on the vein below the tunnel level. At Present the water is removed by a "tugger" hoist and a bucket.

LABOR:-

Good, steady, capable miners can be obtained for five dollars ($5.00) per day. This rate is used as a basis for estimates of mining costs. Muckers, car men and laborers command from three dollars ($3.00) to four and one half dollars ($4.50) per day. After the camp is well established and outfitted it might be possible to establish a slightly lower rate of pay. There is a large field of mines close to the camp to draw labor from, and no difficulty will be experienced in getting any and all kinds of help for this operation.

POWER:-

Power for this property is purchased from the United States, through the San Carlos Irrigation Project, Coolidge Division, which maintains a power line to within nine thousand (9,000) ft. of the camp. From this point to the mill the mine property owners have and maintain a line of their own. The cost

of power is one and three-tenths (1 3/10) cents per kilowatt, with a minimum purchase of one hundred dollars ($100.00) per month.

EQUIPMENT:-

The Little Treasure Camp has a combined office and residence of three rooms, with shower room, screened porch, and a reinforced concrete vault, 10 ft. by 12 ft. Also, three two-room cabins, a four-car garage, gasoline pump of 500 Gal. capacity, a good well equipped with gasoline engine (1 3/4 HP) and pump, and one thousand (1,000) ft. of 1½" pipe delivering water to a 5,000 Gal. steel tank located above the camp. Camp water supply is by gravity flow from tank. A telephone and line six (6) miles long connects this camp with the Adjust Mine and the pump station on the Gila River. The camp is all wired and electric lighted. A wagon road runs from camp to dump sites of both tunnels.

The Adjust Mine has a cook shack (for dining room and kitchen) and separate house for cooks living quarters; a bunkhouse for twelve (12) men; a combined shower, wash and change room, in connection with a large recreational room; a three (3) room building for general office and assay shop; a blacksmith shop fitted with forge and air-driven steel sharpener (Ingersoll-Rand # 33) and a large space for supplies, fittings and storage; a compressor house enclosing two (2) air compressors, and a 75 HP Westinghouse electric motor with belting, switch board, etc; a small house for making up fuses and carbide storage; a group of transformers enclosed with wire fencing; a tugger hoist and cable; four thousand eight hundred (4,800) ft. of "tee" mine rail; five (5) mine cars; seven (7) air drills; four hundred (400) lineal ft. of metal air tubing, and three hundred (300) ft. of canvas air duct;

a large quantity of pipe for air line underground.

A power line of 9,000 ft. supplies the mill and camps with power. A telephone line connects the camps and the lower pump on the Gila River.

A pipe line comprised of 4,200 ft. of 3 inch diameter, and 8,000 ft. of 4 inch diameter pipe (most joints welded) furnishes water supply to the mill.

The mill is composed of ore bins, Gates # 4 primary crusher, Hardinge 6' x 22" conical ball mill, Dorr duplex classifier, flotation units, belt elevator, and a 36' x 8' Dorr thickener, complete, and three electric motors of 50, 30 and 5 H. P.

DEVELOPMENT:-

Main workings on the Little Treasure Mine consist of two (2) tunnels. The upper tunnel is two hundred fifteen (215) ft. long, with a raise fifty (50) ft. to the surface. The lower tunnel is four hundred (400) ft. long, and has three (3) forty (40) ft. raises, one twenty five (25) ft. winze, and one twenty (20) ft. winze. The distance between the upper and lower tunnels is seventy five (75) ft. vertically. With the showing in these two tunnels, it would be advisable to go as low on the mountainside as possible and drift in of the vein at this level. This third (3rd) level could be one hundred eighty (180) ft. lower than the present workings, and still be safely above creek level. Much splended grade of mill dirt has been developed by the above workings.

The main workings and development on the Adjust Group of claims is on the Blue Bird claim.

No. 1 Level has nine hundred (900) ft. of tunnel, many raises

and stopes, and seven (7) winzes seventy five (75) ft. deep which connect with No. 2 level.

No. 2 Level has a tunnel twelve hundred forty (1240) ft. long, one sixty (60) ft. winze and one ninety (90) ft. winze. A small amount of stoping has been accomplished on this level.

No. 3 Level has a tunnel five hundred (500) ft. long on the vein. (caved)

No. 4 Level is an eight hundred ninety (890) ft. cross cut to and beyond the vein. At the seven hundred twenty (720) ft. point in the cross cut is a drift easterly on the vein two hundred twenty (220) ft., and a drift seven hundred ten (710) ft. long on the vein in a westerly direction. On this drift there are nine (9) raises respectively, of 30 ft., 25 ft., 25 ft., 30 ft., 180 ft., 25 ft., 85 ft., 25 ft., and 40 ft., and one winze 40 ft. deep.

Very little timbering is necessary on the 1st, 2nd, and 3rd levels. Pillars of low grade ore can be left often enough to keep the ground from caveing. The same condition holds good in the Little Treasure Mine. The Blue Bird development work to date shows three (3) distinct ore chutes extending downward from the surface to and beyond the No. 4 level. Both the Little Treasure and the Blue Bird veins are of the true fissure type of vein, and will undoubtedly furnish ore for a great depth.

At a depth very little lower than the No. 4 level, and as a permanent water level is approached, we can expect to leave the leached zone values and run into an enriched zone of vein filling.

ASSAYS:-

Following samples taken from the 40 ft. winze below tunnel level No. 4 ---

DESCRIPTION	GOLD (ounces	SILVER per ton)	LEAD (% per	ZINC ton)
Track level plus 5 ft. E & S sides	.06	15.6	0.5	2.3
" " " 5 " W & S "	.01	0.6		
" " " 10 " E & S "	.02	4.3	0.2	1.0
" " " 10 " W & S "	.02	3.4		
" " " 15 " E & S "	.03	11.9	0.4	1.3
" " " 15 " W & S "	.01	1.0		
" " " 20 " E & S "	.01	0.9		
" " " 20 " W & S "	.01	0.6		
" " " 25 " E & S "	.01	0.6		
" " " 25 " W & S "	.01	0.6		
" " " 30 " E & S "	.03	9.2		
" " " 30 " W & S "	.04	15.8		
" " " 33 " E & S "	.04	12.1		
" " " 35 " E & S "	.02	9.1	0.3	0.9
" " " 35 " W & S "	.01	1.4	0.2	0.5
" " " 38 " E & S "	.015	7.2	0.2	1.2

94.3

Following samples taken from Raise # 2, west drift, No. 4 level ---

DESCRIPTION	GOLD (ounces	SILVER per ton)	LEAD (% per	ZINC ton)
Track level plus 15 ft. to 45 ft.	.031	1.03	0.27	0.9
" " " 50 " E & W sides	.03	1.5	0.3	2.5
" " " 77 " E & W "	.03	1.6	0.3	2.3
" " " 85 " E & W "	.03	1.0	0.4	3.0
" " " 89 " E & W "	.04	1.6	0.3	2.4

A smelter return dated May 9, 1939 for a shipment of mill

concentrates consisting of nine (9) tons gave returns of $61.75 per ton for the gold and silver content. The same returns show 10.35% but did not assay for zinc, though this element was high. These concentrates were shipped to the American Smelting and Refining Company at Hayden, Arizona, but the smelter there does not pay for lead and zinc. Mill sheets show that the nine (9) tons of concentrates came from treatment of approximately two hundred seventy (270) tons of ore. This ore was secured from drifting, raising and clean-up along tunnel level No. 4. It is not a fair sample of ore in the ore chutes proper, as no attempt was made to keep wall material out of the material going to the mill.

COSTS:-

The cost of mining and milling of the ores found in the Adjust group of claims, provided the recommended changes are made in the mill, are as follows:-

Mining and development -------	$1.50 per ton
Milling ----------	1.14 " "
Loss of values in milling ----	.39 " "
Total ----	$3.03 per ton

The above costs include such items as labor, powder, timber, oil and gasoline.

CONCLUSIONS:-

A small profit can be realized from milling the ore derived from the three (3) ore chutes between level No. 2 and level No. 4. The combined length of the chutes measures five hundred sixty five (565) ft. along tunnel No. 4. The average thickness of the ore in the chutes is four (4) ft. The distance between levels two and four (2 & 4) along the chute

is five hundred sixty five (565) ft., although the vertical distance between levels two and four (2 & 4) is only three hundred sixty (360) ft.

This block of ore is only opened on the top and bottom, and cannot be called "blocked out" ore for a certainty, but we can reasonably expect ore all the way between levels. To cut mining and development costs, a raise along one of the ore chutes from level No. 4 to level No. 2 would serve a double purpose, that of furnishing ventilation, and blocking out probable ore.

Reasonably high grade ore in the upper workings, with a decrease in values going down to the No. 4 level leads me to believe a leaching process has gone on. Such being the case, an enrichment of the vein can be expected at or near the permanent water level in the mine. I feel sure that the real mine is below tunnel level No. 4. Sinking would be the right method for future development.

Ore mined and hauled from the Little Treasure Mine could be treated at a profit. A tunnel one hundred eighty (180) ft. lower than the lowest present tunnel on Little Treasure could be driven on the vein all the way, and would be good mining.

The mill as it stands now could be greatly improved by replacing the Gates crusher with a gyratory type of crusher, and capable of crushing fifty (50) tons of ore to $\frac{1}{2}$ inch mesh. As it is, to get fifty (50) tons through the Gates crusher, the product is so coarse the ball mill is overworked. Thus the capacity of the mill is cut down about one half. Several minor changes would also improve the production of the concentrates both in cost and quantity.

The present showings justify the expenditure for further

and more systematic prospecting. This property is a very promising prospect, and its future development is a legitimate venture, and recommends itself as worthy of the investment required.

SIGNED Fred H. Perkins (sgd.)
FRED H. PERKINS
CONSULTING MINING ENGINEER
REGISTERED MINING ENGINEER
STATE OF ARIZONA
#368

Dated:

Phoenix, Arizona
August 21st., 1939

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