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Arizona Department of Mines and Mineral Resources Mining Collection

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07/21/88

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: REPUBLIC MINE

ALTERNATE NAMES:

REPUBLIC COPPER PROSPECT
LUCKY ACE DEPOSIT
SUPER SIX GROUP
OCOTILLO COPPER CO. GROUP

PINAL COUNTY MILS NUMBER: 682

LOCATION: TOWNSHIP 9 S RANGE 3 E SECTION 33 QUARTER SE
LATITUDE: N 32DEG 35MIN 45SEC LONGITUDE: W 112DEG 02MIN 58SEC
TOPO MAP NAME: KOHATK - 7.5 MIN

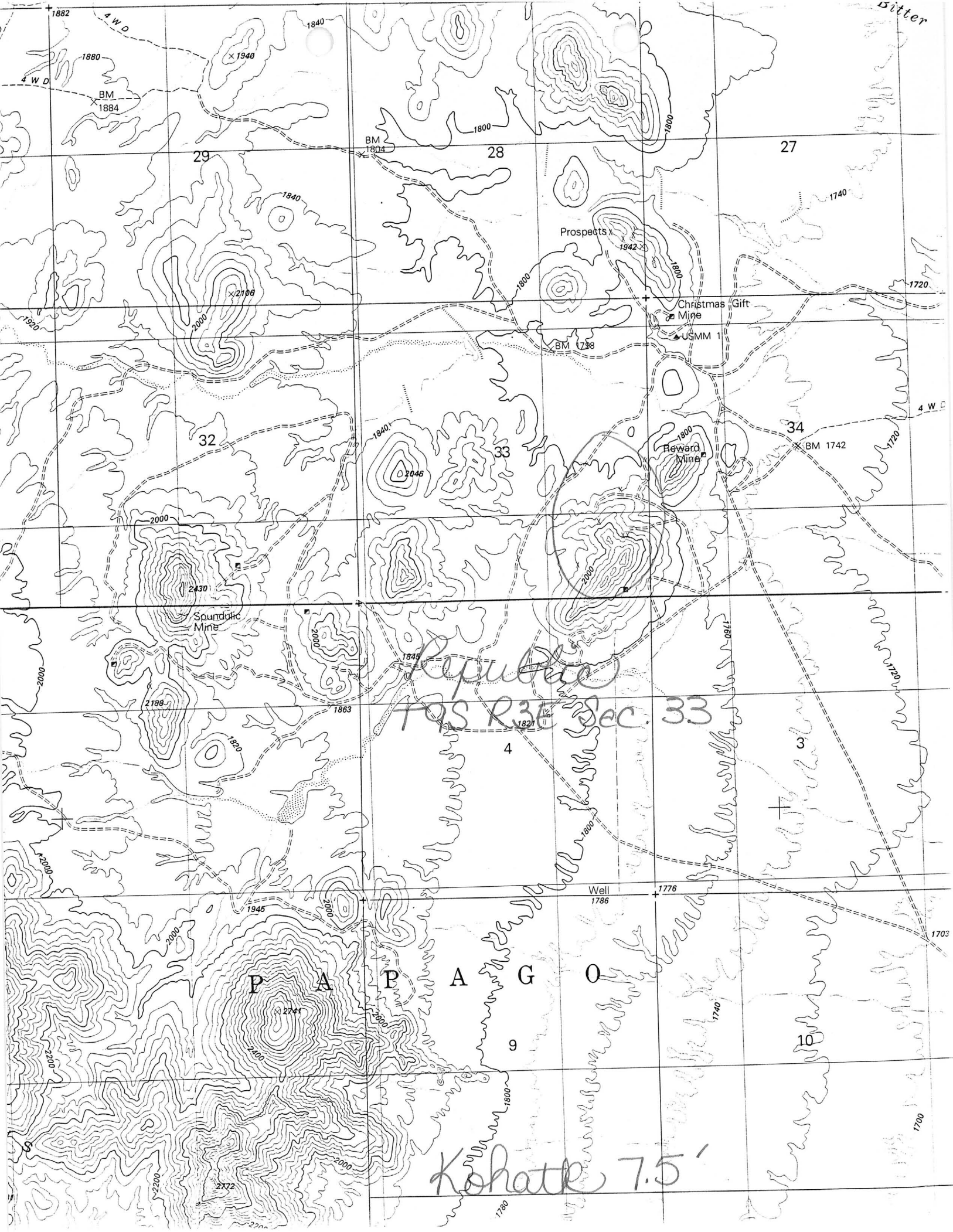
CURRENT STATUS: PAST PRODUCER

COMMODITY:

COPPER SULFIDE
GOLD
SILVER

BIBLIOGRAPHY:

TENNEY, J. "HIST OF MNG IN AZ" P 337; 1927-29
TENNEY, J.B. "ECON GEOL RECONN OF CASA GRANDE
MNG DIST" AZBM 1934 P 12-13
ADMMR REPUBLIC MINE FILE
ADMMR U FILE



Sitter

4 W D

1880

BM 1884

29

1840

X 1940

BM 1804

28

1800

27

1840

X 2106

2000

1720

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Spaulding Mine

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Christmas Gift Mine

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Republic of AS R3E Sec. 33

4

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Well 1786

1778

P A P A G O

9

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Kohatt 7.5'

1780

1700

1700

1700

1700

*GENERAL REFERENCES

REFERENCE 1 F1 < ABG MT - USGM FILE DATA _____

REFERENCE 2 F2 < ADMR FILE DATA _____

REFERENCE 3 F3 < USGS MF-931 _____

REFERENCE 4 F4 < TENNEY, JAMES B, HISTORY OF MINING IN ARIZONA 1927-1929 p 337 _____

F5 < TENNEY, J. B, ECONOMIC GEOLOGICAL RECONNAISSANCE OF CASA GRANDE MINING DISTRICT, AZ BUREAU OF MINES, 1934, p 12-13 _____

U.S. CRIB-SITE FORM

RECORD IDENTIFICATION

RECORD NUMBER B10 < _____ > RECORD TYPE B20 < X, 1 M > DEPOSIT NUMBER B40 < _____ >

REPORT DATE G1 < 8.2 MO. > INFORMATION SOURCE B30 < 1.2 > FILE LINK IDENT. B50 < USGM-004 021 1091 >

REPORTER(SUPERVISOR) G2 < ROTH, FRANCES A. (last, first, middle initial) > < GEST, DON (last, first, middle initial) >

REPORTER AFFILIATION G3 < ABG MT > SITE NAME A10 < REPUBLIC MINE >

SYNONYMS A11 < LUCKY ACE, SUPER SIX >

LOCATION

MINING DISTRICT/AREA A30 < VEKOL DISTRICT >

COUNTY A60 < PINAL > STATE A60 < AZ > COUNTRY A40 < U.S. >

PHYSIOGRAPHIC PROV A63 < 1.2 >

DRAINAGE AREA A62 < 1.5, 0.5, 0.3, 0.6, 1. >

QUADRANGLE NAME A90 < VEKOL MOUNTAINS > LAND STATUS A64 < 0.0, 1. >

SECOND QUAD NAME A92 < _____ > QUADRANGLE SCALE A100 < 6.25, 0.0. >

ELEVATION A107 < 2,000.0 FT. > SECOND QUAD SCALE A91 < _____ >

UTM

NORTHING A120 < 36.0, 6.5, 3.0. >

EASTING A130 < 4.0, 1.5, 7.0. >

ZONE NUMBER A110 < 1.2 >

*ACCURACY

ACCURATE ACC (circle)

ESTIMATED (5) < LOCATION MEASURED TO ADIT SYMBOL >

IN GENERAL AREA OF MINE >

GEODETTIC

LATITUDE A70 < _____ N >

LONGITUDE A80 < _____ W >

CADASTRAL

TOWNSHIP(S) A77 < 0.0, 9. S. > RANGE(S) A78 < 0.0, 3. E. >

SECTION(S) A79 < 33 >

SECTION FRACTION(S) A76 < SE >

MERIDIAN(S) A81 < GILA AND SALT RIVER >

POSITION FROM NEAREST PROMINENT LOCALITY A82 < ABOUT 9 MILES SOUTHEAST OF LITTLE TABLE TOP MOUNTAIN >

LOCATION COMMENTS A83 < ADJOINS REWARD MINE WHICH IS TO THE NORTHEAST >

ESSENTIAL INFORMATION

ESSENTIAL SOMETIMES OR HIGHLY RECOMMENDED

COMMODITY INFORMATION

COMMODITIES PRESENT C10 < C.U., A.G., A.U., ... >
ORE MINERALS C30 < CHRYSOCOLLA, CHALCOHITE, MALACHITE, AZURITE >
COMMODITY SUBTYPES C41 < >
GEN. ANALYTICAL DATA C43 < >
COM. INFO. COMMENTS C50 < >

* SIGNIFICANCE

PRODUCER NON-PRODUCER
MAJOR PRODUCTS MAJOR < C.U., A.G., A.U., ... >
MINOR PRODUCTS MINOR < A.G., A.U., ... >
POTENTIAL PRODUCTS POTEN < >
OCCURRENCES OCCUR < >

* PRODUCTION

PRODUCER NON-PRODUCER
PRODUCTION (YES) (circle) PRODUCTION SIZE (SM) MED LGE (circle one)
PRODUCTION UNDE NO (circle one)

EXPLORATION OR DEVELOPMENT

* STATUS PRODUCER NON-PRODUCER
STATUS AND ACTIVITY A20 < Y > STATUS AND ACTIVITY A20 < L >

DISCOVERER L20 < >
YEAR OF DISCOVERY L10 < > NATURE OF DISCOVERY L30 < > YEAR OF FIRST PRODUCTION L40 < 1914 > YEAR OF LAST PRODUCTION L45 < 1917 >
PRESENT/LAST OWNER A12 < ELLIOT BROS. (1932) >
PRESENT/LAST OPERATOR A13 < GADSDEN COPPER CO. (1917) >
EXPL./DEV. COMMENTS L110 < VAN H. BROOKS AND DAVID W. CUMMINGS OPERATED BOTH THE REPUBLIC AND REWARD MINES IN 1912 THROUGH 1916; THE GADSDEN COPPER CO. ALSO OPERATED BOTH MINES IN 1917 >

DESCRIPTION OF DEPOSIT

DEPOSIT TYPE(S) C40 < REPLACEMENT/VEIN VEINS >
DEPOSIT FORM/SHAPE M10 < DISSEMINATED >
DEPTH TO TOP M20 < > UNITS M21 < > MAXIMUM LENGTH M40 < > UNITS M41 < >
DEPTH TO BOTTOM M30 < > UNITS M31 < > MAXIMUM WIDTH M50 < 40 > UNITS M51 < FT >
DEPOSIT SIZE M15 < (SM) M15 (MEDIUM) M15 (LARGE) (circle one) MAXIMUM THICKNESS M60 < > UNITS M61 < >
STRIKE M70 < > DIP M80 < >
DIRECTION OF PLUNGE M100 < > PLUNGE M90 < >
DEP. DESC. COMMENTS M110 < REPLACEMENT DEPOSIT ALONG FAULT AND DIKE STRIKING NORTH EAST IN A LIMESTONE BED DIPPING 30 DEGREES WEST >

DESCRIPTION OF WORKINGS

* Workings are: SURFACE M120 UNDERGROUND M130 BOTH M140 (circle one) OVERALL LENGTH M190 < > UNITS M191 < >
DEPTH BELOW SURFACE M160 < 100 > UNITS M161 < FT > OVERALL WIDTH M200 < > UNITS M201 < >
LENGTH OF WORKINGS M170 < 170 > UNITS M171 < FT > OVERALL AREA M210 < > UNITS M211 < >
DESC. OF WORK. COM. M220 < LARGEST WORKING IS A SHAFT 100FT DEEP WITH A DRIFT OF 170 FT AT THE BOTTOM >

GEOLOGY

* AGE OF HOST ROCK(S) K1 < M.I.S.S., ... >
HOST ROCK TYPE(S) K1A < LIMESTONE >
AGE OF IGNEOUS ROCK(S) K2 < L.C.R.E.T., -T.E.R.T.V. >
IGNEOUS ROCK TYPE(S) K2A < QUARTZ MONZONITE PORPHYRY DIKES, DACITE DIKES >
AGE OF MINERALIZATION K3 < L.C.R.E.T., -T.E.R.T.V. >
PERT. MINERALS (NOT ORE) K4 < LIMONITE, TARCOSITE, GYPSUM >
ORE CONTROL/LOCUS K5 < NORTH EAST STRIKING FAULT AND DIKE >
MAJ. REG. TRENDS/STRUCT. N5 < NORTH EAST STRIKING FAULT, E-W STRIKING FAULTS, DEOS STRIKE NE DIP 20 TO 35 NW >
TECTONIC SETTING N15 < >
SIGNIFICANT LOCAL STRUCT. N70 < NORTH EAST STRIKING FAULT AND DIKE, MINOR NW STRIKING FAULTS >
SIGNIFICANT ALTERATION N75 < OXIDATION >
PROCESS OF CONC./ENRICH. N80 < >
FORMATION AGE N30 < M.I.S.S., ... >
FORMATION NAME N30A < ESCABROSA LIMESTONE >
SECOND FM AGE N35 < >
SECOND FM NAME N35A < >
IGNEOUS UNIT AGE N60 < >
IGNEOUS UNIT NAME N50A < >
SECOND IG. UNIT AGE N55 < >
SECOND IG. UNIT NAME N55A < >
GEOLOGY COMMENTS N85 < TENNY OATES LIMESTONE AS PENNSYLVANIAN, MF-931 OATES LIMESTONE MISSISSIPPIAN. >

GENERAL COMMENTS

GENERAL COMMENTS GEN < >

Excerpt from Economic Geological Reconnaissance
of Casa Grande Mining District
By J. B. Tenney

REPUBLIC MINE

Location and Mining Property

The Republic copper mine covers a large group of claims about three miles southwest of the Reward Mine in the Vekol mountain amphitheater. A considerable amount of work has been done at various parts of the group chiefly in open cuts, shallow pits and inclined shafts. The most extensive workings are at the southwestern end of the group where a large open cut was made and a vertical shaft over 100 feet deep was sunk.

The principal production was made in 1917 when a little ore was sorted and shipped. The property is owned by the Elliott Brothers of Casa Grande.

Geology and Ore Occurrence

The ore occurs as contact replacement deposits of Pennsylvanian limestone in close association with dikes of porphyry classified in the field as quartz monzonite. The dip of the limestone is about 20 degrees west. Several irregular dikes of porphyry outcrop, and the ore, consisting of chrysocolla and carbonate veinlets in gossans of limonite and jarosite with abundant gypsum replaces favorable beds close to the contacts. Considerable lime garnet occurs on the contacts. The strongest mineralization is at the southwest end of the property on a low ridge of Pennsylvanian limestone. The limestone is cut by a large northeasterly striking fault bringing basal Cambrian or pre-Cambrian quartzite up on the western side. The fault has been invaded by a dike of porphyry classified in the field as quartz monzonite about 200 feet wide, which increases, 1000 feet to the south, to an outcropping mass about 1000 feet in diameter. A gossan outcrop with veinlets of chrysocolla and malachite was here trenched to a depth of about ten feet for a length on the strike of about 200 feet and with a width of over 50 feet. Abundant lime garnet occurs on the eastern side of the gossan. The porphyry is itself mineralized for a few feet away from the contact by limonite pits and a few small veinlets of chrysocolla.

Future Possibilities

The ore occurrence is similar to that at the Reward. The ore is low to medium grade and thoroughly oxidized, and necessitates careful sorting to stand transportation charges. The mineralization is strong and the association with a large mass of porphyry makes a condition favorable for the existence of replacement along favorable beds at greater depth. Deep prospecting is justified for possible sulphide ore amenable to concentration by selective flotation into a high grade shipping product.

Copper Silver ✓

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine LUCKY ACE +

Date July 28, 1941.

District Casa Grande, Pinal Co, Arizona.

Engineer Miles M. Carpenter, E. M.

Subject: Confidential Reconnaissance Report for Mrs. Laura H. Combs. ✓

1796 Sutter St San Diego Cal.

This report is based on an examination made July 19, 1941 together with an acquaintance in this district spanning a period of twenty-five years. During the six hours spent on the property the surface and the accessible openings were inspected in an effort to find answer to the question of whether or not there is copper ore of shipping or milling grade in sight. A yes or no answer cannot be given on the data at hand and the descriptive report which follows, given in non-technical language, is limited to features which bear upon this question.

Location This property is located about 40 miles by road south-west from Casa Grande, a town on the Southern Pacific railroad which serves as shipping point for ores and a source of supplies. Few of the common mining supplies are carried locally and must be shipped in. Truck service from Tucson, Phoenix and Los Angeles supplements rail service and should insure prompt deliveries. This is important in a mining operation, a convenient source of supplies reflecting lower costs.

Type of Deposit It belongs to the limestone-porphry type of deposit, common in southern Arizona and before development of the immense disseminated deposits, the principal source of copper ores. Bisbee is the outstanding mine of this type now approaching sixty years of steady production and still going strong. Other camps of this type are Courtland, Gleeson, Helvetia, Twin Buttes and Silverbell, each of which produced millions of dollars in copper. These mines all lie east from the property examined, Silverbell with a record exceeding \$13,000,000 being the closest, about 40 miles.

Scores of other deposits of this type are to be found in every direction, some of which have produced considerable, some little or nothing.

The characteristics of this type are a body of limestone into or against or near which a later igneous rock (porphyry) has come. Limestone is a base, chemically, and the porphyry is acid, hot and under heavy pressure. Such a condition results in the formation of certain minerals often but not always accompanied by copper minerals. In most cases, now that the outcrops have been viewed and picked into by prospector after prospector during the past three quarters of a century, the copper minerals if present have not yet been uncovered by erosion or previous development. The vital factor in the value of a deposit of this type is the quantity and grade of the copper minerals, and unfortunately for the mine investor there is no inexpensive and dependable guides to the location of paying ore bodies.

True, the rock relations and the accessory minerals developed may give strong indications to the student of ore deposits, but the controlling factors are the amount of copper liberated by the magma and the precipitation of this copper in your deposit. These factors deeply hidden and often obscured by later earth movements are extremely difficult to appraise.

Lucky Ace Deposit This occurs on the east and the west margins of a small block of limestone about 2000 feet from north to south and 600 feet east to west, dipping about 20 degrees north. The height of the hill is 100 feet or so above the surrounding terrain which consists of igneous rocks of many varieties.

No breaks or indications of mineralization were noted in the body of the limestone hill or on its north end. The south end showed signs of contact action in several places but nothing approaching commercial ore.

The east slope of the hill extending across the arroyo some 500 feet from the contact is opened by twenty or more workings, some of them several hundred feet in extent but all are untimbered. The principal workings are grouped in the southern third of the contact area, the more important being two inclines dipping north at about 20 degrees, one about 200 ft the other 300 feet or more. Closer to the hill is a shaft vertical or almost so, apparently 100 feet or more in depth judging from the size of the dump. It appears to have been sunk entirely in limestone. Across the arroyo to the east is another low angle incline dipping north, called for identification the 40° shaft. The three incline shafts mentioned all appear to be in porphyry (igneous rock) and do not expose a contact with limestone, at or near which ore would be expected in this type of deposit.

The vein material in these shafts shows weak mineralization, cracks filled with iron stained material approaching stockworks in appearance. There is a marked absence of free quartz, alteration being toward kaolin. Copper minerals mainly silicates occur sparingly in veinlets and disseminated specks. Both iron and the copper minerals decrease perceptibly with depth.

A sample taken in a channel cut near the portal of the 200 foot incline gave the following assay results:

Silver 0.4 oz., Copper 0.52%

The hanging wall rock near the bottom of the 300 foot incline was classified by the Arizona Bureau of Mines as "felsite", and the footwall rock at the same place as "rhyolite porphyry, almost coarse enough to be called a granite porphyry." There is very little difference in these two rocks.

The formation in which the "40%" shaft is sunk is similar to that of the two inclines just described but the rocks show more alteration and stronger mineralization. Copper shows in bunches or pockets up to a foot or so across, and laboratory tests confirm the field classification of chrysocolla with black copper oxide. The dense, reddish-brown nodular bunches are iron, classified as a mixture of limonite and magnetite.

To summarize conditions on the east contact, it may be said that the igneous rocks exposed are a medium grained gray granite and medium to acid porphyry rocks, probably intrusive into overlying limestone which has been eroded. The north portion of this contact zone shows a near conglomerate and mineralization in this formation is practically none. There has been heavy weathering and the rocks that are not wash covered are difficult to identify.

The contact is irregular and obscure, but where exposed shows a fairly strong development of the contact minerals, notably epidote, garnet, iron oxides and oxidized copper minerals and stains. For several hundred feet out from the limestone in the altered igneous rocks are some dimly marked veins, 4 to 6 feet in thickness with exposures of oxidized copper minerals, weak and in no place sufficiently concentrated to be called ore, even of mill grade.

In fairness to the property, however, it must be recognized that development so far accomplished on the east contact has not opened or explored the limestone-porphry contact which should be the locus of ore bodies. The considerable footage of workings already done might be used to advantage in exploring the contact, following a detailed survey and mapping of the geologic features.

On the west contact it is the north end that shows the strong mineralization and here are indicated ore bodies of size and grade to be workable at the present price level of 13¢ per pound for copper, and if the price of this metal is allowed to rise a few cents a pound it would become attractive as a small scale development-production operation.

A small hill composed chiefly of quartz porphyry is in direct contact with the limestone and the surface shows strong contact action and at least one ore body of commercial size and grade. A vertical shaft 200 feet in depth and timbered has been sunk near the contact. Timbering is in good shape including ladders. At the 100 foot level a short drift leads to a stope extending considerably below this level and a short distance above. The vein width appears to be two to three feet, the length and depth could not be determined tho about thirty feet of each could be seen.

The ore is an uncommon type, being a glassy black copper oxide with specks of green silicate. A sample of a few pounds of this ore found on the dump gave the following assay result:

Silver 0.9 oz. Copper 9.15%

Ore of this grade at current metal prices of 12¢ a pound for copper and 71¢ an ounce for silver would bring about \$16.00 per ton smelter payments for metals from which would be deducted treatment charges, penalties and freight estimated at \$5.00 to \$6.00 a ton, leaving \$10.00 to \$11.00 a ton as the value of the ore at shipping point. Hauling would cost \$2.50 to \$3.00 a ton, leaving \$7.00 to \$8.00 a ton to cover the cost of mining, sorting and overhead expense. Each cent advance in the market price of copper would increase the operating margin about \$1.50 per ton.

History In 1912, this property was being held by Van H. Brooks and David W. Cummins, manager and watchman respectively of the Reward Mine, under the name of the Republic group.

It was brought to the attention of the American Smelting & Refining Company in 1914 and a preliminary examination made by Stockter.

In 1916 the property was examined by the U. S. Smelting, Refining & Mining Company, (F. B. Weeks, chief geologist) and it is reported that an offer of \$100,000 on lease and bond for the group was reported. The company asked for a development period of six months before making the first payment but the owners declined the offer and turned the property into the Ocotillo Copper Co. controlled by M. L. Effinger who also held option on the Reward mine. Some development and a small production was made. Copper at this time was 23½¢ per pound. Apparently sufficient capital was not forthcoming for a thorough exploration and the property consisting of 14 claims was again offered for sale in 1917.

The original owners, Brooks and Cummins both died and in the slump in metal prices which followed the world war this property reverted to the public domain.

In 1933, it was reported held by the Elliot brothers of Casa Grande, under the name of New Republic.

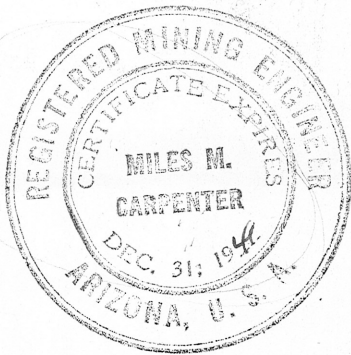
In 1936, the property was located by Thomas Wilson, Cunningham, Henkle and others as the Super Six Group of 8 claims, styled a relocation of the New Republic group. A report of the property at this time was made by Frank M. Leonard, Jr.

In January 1939, J. F. Andrews of Casa Grande was offering the property for sale as the Republic mine owned by five locators, and reported two car loads of ore shipped to the Magma Smelter at Superior

Under the name, Republic Mine, this property is described briefly in a bulletin issued by the Casa Grande Chamber of Commerce in conjunction with the Arizona Bureau of Mines. J. B. Tenney was the reporting engineer who gives the resume quoted below under the heading of Future Possibilities:

"The ore occurrence is similar to that at the Reward. The ore is low to medium grade and thoroughly oxidized, and necessitates careful sorting to stand transportation charges. The mineralization is strong and the association with a large mass of porphyry makes a condition favorable for the existence of replacement along favorable beds at greater depths. Deep prospecting is justified for possible sulphide amenable to concentration by selective flotation into a high grade shipping product." -January, 1933-

From the brief and incomplete examination of this property it appears that the area at the northwest contact, located as Lucky Ace No. 4, calls for further consideration as a shipping grade deposit. The 200 foot shaft, the incline, and other openings already made will be of much value in reducing the cost of further exploration of this attractive contact.



Miles M. Carpenter E.M.
Miles M. Carpenter, E. M.
Field Engineer

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine LUCKY ACE Date July 28, 1941.
District Casa Grande, Pinal Co, Arizona. Engineer Miles M. Carpenter, E. M.
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The hanging wall rock near the bottom of the 300 foot incline was classified by the Arizona Bureau of Mines as "felsite", and the footwall rock at the same place as "rhyolite porphyry, almost coarse enough to be called a granite porphyry." There is very little difference in these two rocks.

The formation in which the "40%" shaft is sunk is similar to that of the two inclines just described but the rocks show more alteration and stronger mineralization. Copper shows in bunches or pockets up to a foot or so across, and laboratory tests confirm the field classification of chrysocolla with black copper oxide. The dense, reddish-brown nodular bunches are iron, classified as a mixture of limonite and magnetite.

To summarize conditions on the east contact, it may be said that the igneous rocks exposed are a medium grained gray granite and medium to acid porphyry rocks, probably intrusive into overlying limestone which has been eroded. The north portion of this contact zone shows a near conglomerate and mineralization in this formation is practically none. There has been heavy weathering and the rocks that are not wash covered are difficult to identify.

The contact is irregular and obscure, but where exposed shows a fairly strong development of the contact minerals, notably epidote, garnet, iron oxides and oxidized copper minerals and stains. For several hundred feet out from the limestone in the altered igneous rocks are some dimly marked veins, 4 to 6 feet in thickness with exposures of oxidized copper minerals, weak and in no place sufficiently concentrated to be called ore, even of mill grade.

In fairness to the property, however, it must be recognized that development so far accomplished on the east contact has not opened or explored the limestone-porphry contact which should be the locus of ore bodies. The considerable footage of workings already done might be used to advantage in exploring the contact, following a detailed survey and mapping of the geologic features.

On the west contact it is the north end that shows the strong mineralization and here are indicated ore bodies of size and grade to be workable at the present price level of 12¢ per pound for copper, and if the price of this metal is allowed to rise a few cents a pound it would become attractive as a small scale development-production operation.

A small hill composed chiefly of quartz porphyry is in direct contact with the limestone and the surface shows strong contact action and at least one ore body of commercial size and grade. A vertical shaft 200 feet in depth and timbered has been sunk near the contact. Timbering is in good shape including ladders. At the 100 foot level a short drift leads to a stope extending considerably below this level and a short distance above. The vein width appears to be two to three feet, the length and depth could not be determined tho about thirty feet of each could be seen.

The ore is an uncommon type, being a glassy black copper oxide with specks of green silicate. A sample of a few pounds of this ore found on the dump gave the following assay result:

Silver 0.9 oz. Copper 9.15%

Ore of this grade at current metal prices of 12¢ a pound for copper and 71¢ an ounce for silver would bring about \$16.00 per ton smelter payments for metals from which would be deducted treatment charges, penalties and freight estimated at \$5.00 to \$6.00 a ton, leaving \$10.00 to \$11.00 a ton as the value of the ore at shipping point. Hauling would cost \$2.50 to \$3.00 a ton, leaving \$7.00 to \$8.00 a ton to cover the cost of mining, sorting and overhead expense. Each cent advance in the market price of copper would increase the operating margin about \$1.50 per ton.

History In 1913, this property was being held by Van H. Brooks and David W. Cummins, manager and watchman respectively of the Reward Mine, under the name of the Republic group.

It was brought to the attention of the American Smelting & Refining Company in 1914 and a preliminary examination made by Stockter.

In 1916 the property was examined by the U. S. Smelting, Refining & Mining Company, (V. B. Weeks, chief geologist) and it is reported that an offer of \$100,000 on lease and bond for the group was reported. The company asked for a development period of six months before making the first payment but the owners declined the offer and turned the property into the Occotillo Copper Co. controlled by H. L. Kiffinger who also held option on the Reward mine. Some development and a small production was made. Copper at this time was 23¢ per pound. Apparently sufficient capital was not forthcoming for a thorough exploration and the property consisting of 14 claims was again offered for sale in 1917.

The original owners, Brooks and Cummins both died and in the slump in metal prices which followed the world war this property reverted to the public domain.

In 1933, it was reported held by the Elliot brothers of Casa Grande, under the name of New Republic.

In 1936, the property was located by Thomas Wilson, Cunningham, Henkle and others as the Super Six Group of 6 claims, styled a relocation of the New Republic group. A report of the property at this time was made by Frank M. Leonard, Jr.

In January 1939, J. F. Andrews of Casa Grande was offering the property for sale as the Republic mine owned by five locators, and reported two car loads of ore shipped to the Magma Smelter at Superior

Under the name, Republic Mine, this property is described briefly in a bulletin issued by the Casa Grande Chamber of Commerce in conjunction with the Arizona Bureau of Mines. J. B. Tenney was the reporting engineer who gives the resume quoted below under the heading of Future Possibilities:

"The ore occurrence is similar to that at the Reward. The ore is low to medium grade and thoroughly oxidized, and necessitates careful sorting to stand transportation charges. The mineralization is strong and the association with a large mass of porphyry makes a condition favorable for the existence of replacement along favorable beds at greater depths. Deep prospecting is justified for possible sulphide amenable to concentration by selective flotation into a high grade shipping product." -January, 1933-

From the brief and incomplete examination of this property it appears that the area at the northwest contact, located as Lucky Ace No. 4, calls for further consideration as a shipping grade deposit. The 200 foot shaft, the incline, and other openings already made will be of much value in reducing the cost of further exploration of this attractive contact.



Miles M. Carpenter E.M.
Miles M. Carpenter, E. M.
Field Engineer

REPUBLIC MINE

PINAL COUNTY

See Memo - Lewis A. Smith, 5/18/66 in Newmont Lease (file)

Conference with H. D. Osborne, Box 731, Casa Grande, Ariz. 9/21/66

Osborne stated that sites for drill holes had been prepared on the Reward Group. The five drills are now concentrated next to the south and southwest borders of the Reward Group. The four diamond drills are in the process of deepening holes previously sunk to the water level with rotaries. The drill that was on the Copperosity is now returned to the main site after rather unsatisfactory results. Several holes were completed since the last visit.

The lease renewal is still being kicked around in Washington. A brief visit was made to the property but no contact was made prior to the conference with Osborne.

The areial photographer who did some detailed photographs of the Republic-Reward area showed a few of them.. They were exceptional in detail.

LAS Memo 9/21/66

U.S. Smelting Refining & Mining Co. has changed to UV Industries.

See: Casa Grande (Mines File) Casa Grande History Report

REPORT OF THE REPUBLIC MINES

of the

O C A T E A M I N I N G C O M P A N Y

Ocatillo
Copper Co.

LOCATION & CLAIMS: The property is located in Casa Grande Mining District, Pinal County, Arizona, about twenty-five miles south of Casa Grande, a station on the main line of the Southern Pacific Railroad and consists of fifteen full mining claims.

GEOLOGICAL: A considerable portion of the area is made up of carboniferous sedimentaries, consisting of limestone, shales and quartzites, all probably resting on Pinal Schists, as a basal rock. This applies almost exclusively to the southern portion of the area, while further to the north much monzonite porphyry is in evidence. Also a band of porphyry is found trending nearly north and south along the western portion of the property, and is in contact with the lime which lies to the east. Considerable faulting has occurred, principally induced by action from a deep seated magma, which resulted in an upward breaking of the overlying rocks, which later settled back, resulting in block faulting with the intrusive magma in contact with or filling the opened spaces as dykes, between the ragged, fractured planes of the sedimentaries.

ORE OCCURRENCE: The character of the ore, exposed to date, consists of the sulphide, chalcocite, the oxide melaconite and carbonate, both malachite and azurite. Also copper silicate, chrysocholla, is probably present. The oxide and carbonates are associated with much iron oxide and manganese, and the ground in which they occur is very much leached. The sulphide is found disseminated in the porphyry, while the other ores only are found in the contact veins and on the eastern portion of the property in the lime and shales.

The only sulphide so far found is disseminated in the porphyry together with carbonate ore. The oxide and carbonate ores are found in the contact veins as well as in the lime and shales on the eastern portion of the property. In the contact vein on the Oxide Copper and Oxide No. 2 claims there has been exposed a very strong contact-metamorphic vein, carrying good values in copper, with some silver, for a distance of about six hundred feet. In places it has a width of forty feet, all thoroughly mineralized and leached. This vein is at the contact of the porphyry and lime and there are indications that there are large mineral replacements in the lime, but no development work has as yet been done in the lime. In the porphyry, to the west, there are places where there are good showings of sulphide ore, and I believe that this area will produce a large tonnage of ore of this character, disseminated through the porphyry. On the Cuprite, C. No. 2 and C. No. 3 in the lime and shales there are some excellent showings, mostly of carbonate ore, but at one place chalcopyrite has been found. This area is unusually well mineralized and would be so considered, even on the ground of the large producing copper mines of the State.

The original sources of the copper were undoubtedly both from the overlying, but now greatly denuded sedimentaries, and the deep seated magma, of which the porphyries are an expression.

The contraction of the intrusives, caused by cooling, resulted in shrinkage planes, affording channels for the circulating waters. This water, together with the gasses and superheated steam, from the molten mass, all containing copper, coming in contact with the limestones and other rocks, all acting as precipitating agents, has resulted in the deposition of the contained minerals. Since the latest volcanic activity an immense amount of erosion has occurred, and the ore contained in the

eroded rocks has been dissolved and carried to greater depth by the circulating waters.

DEVELOPMENT: A shaft, one hundred feet deep, has been sunk in the porphyry a short distance to the west of the contact vein, on the Oxide No.2 claim and a drift run one hundred and seventy feet northward. At a point eighty feet from the shaft a winze has been sunk twenty-five feet and a short drift run from the bottom of the winze. The drift from the bottom of the shaft was run in the porphyry for about fifty feet, where the vein was encountered, and for the remaining distance run in the vein. All the work done in the vein showed considerable good copper ore and where the winze was started there was about three feet that ran about twenty per cent copper. The vein is all thoroughly oxidized and leached, indicating that most of the values have been leached and carried to greater depth. The greater part of the ore encountered here is copper oxide, carrying much manganese, a further proof that the originally contained copper has migrated downward. No attempt has been made here to determine the width of the vein, as no cross-cutting has been done to the lime and the eastern side of the drift, after encountering the vein, is all vein matter, and it probably extends some distance into the lime. A short distance ahead of the breast of the drift, at the surface, the mineralized area is known to be at least forty feet in width. On the shaft dump there is about ten tons of ore that will run about fifteen per cent copper. Extending from the shaft, westward eighty feet, a surface cut has been made in the porphyry. This has shown considerable sulphide ore for the entire distance. A sample of the entire dump from this cut returned three ounces silver and 2.89% copper per ton. A sample from sorted ore, from here, assayed 17.5 ounces silver and 33% copper. Several shallow shafts have been sunk on the vein to the north of the one hundred foot shaft, all

showing ore, and it is claimed that considerable ore has been shipped from these workings. The appearance of the dumps would bear out this claim. The vein has been opened by shallow pits and cuts for about four hundred feet southerly from the shaft. These openings all show ore.

On the eastern portion of the property and west of the road several openings, consisting of shafts and inclines, have been made, all of which show ore. The shafts are all vertical and the inclines of too flat an inclination to follow the ore, with the result that neither have proven the extent of the ore except at the surface.

ACCESSIBILITY: The property is reached by a good wagon road practically level for the whole distance, from Casa Grande on the Southern Pacific R.R., about twenty-five miles distant. The trip is made, each way, in two hours with a Ford car. Hauling costs average about \$6.00 per ton.

POWER: For small units, internal combustion engines, using distillate are the most economical. For large installations crude oil would be more desirable.

TIMBER & LUMBER: All lumber and timber have to be hauled from the railroad. The price delivered at the mine, at the present time, is about \$35.00 per one thousand feet.

MINING COSTS: The expense of mining in this district is very reasonable. Good Indian and Mexican labor can be secured for from \$2.00 to \$3.50 per day.

WATER: Would have to be developed by wells, as the nearest supply of good domestic water is at the Indian village of Santa Rosa, about two miles to the east, where the government has drilled a well from which the surrounding country is supplied.

WOOD: There is an abundant supply of mesquite and other desert growths for domestic fuel purposes.

CONCLUSION: I consider the ground covered by the Republic Group of Claims as very promising, and I have no hesitancy in saying that it appeals to me as the best undeveloped area that I have ever investigated in Arizona. The contact vein will undoubtedly produce a very large tonnage of high grade secondary ore from a shallow depth and at greater depth there should be found the sulphide ore, which from its adaptability to concentration, should that be required, and probable extent will prove equally as profitable. The development work done from the one hundred foot shaft would indicate that the zone of secondary enrichment was just being entered, although I should expect the best results at and below the ground water level. Just where the permanent water level will be encountered it is impossible to say, but judging from development in other properties in the same district, I believe it could reasonably be expected at a depth of not to exceed four hundred feet.

There is another feature that makes this property very attractive to one familiar with past mining development in the Southwest, which is the reasonable expectation of developing a large tonnage of disseminated porphyry ore. Sufficient work has not yet been done to prove the extent of an ore body of this character, but that it exists of a good commercial grade is proven, and its extent can be very easily and cheaply proven.

Also, I believe, from the garnetized and altered condition of the lime, to the east of the contact, that ore bodies will be found as replacements in the lime, as this is not an unusual occurrence where similar conditions exist. On the eastern portion of the property there will undoubtedly be developed large

ore bodies. While considerable prospecting work has been done here, no plan "of following the ore" has been attempted. Where shafts have been sunk, they have been driven vertically and the several inclines have been extended at a dip too near the horizontal. The result has been that the ore has been passed through at a very shallow depth, and entirely in the leached zone. The area of known mineralization here is extensive and undoubtedly development will prove some connection mineralogically between the eastern and western mineralized areas. Either of the above described areas considered separately would constitute a good mining venture, and considered together they come as near eliminating the chances, which are always present in undeveloped mining property, as anything which I have ever investigated.

The development of the contact vein can be cheaply and quickly done, and I believe that with an expenditure of from \$75,000 to \$100,000 that it will be on a dividend basis. This estimate would include mine equipment and development, some road repairing and complete the payment on the property. The first work undertaken should be the placing of a gasoline hoist, of about 25 H.P., at the present shaft and continue the sinking. At each one hundred feet stations should be cut and the sinking continued, until a depth of five hundred feet is attained. Before this depth is reached water would probably be encountered and it might be necessary to install a pump. The sinking, together with the necessary timbering, ladders, etc., would cost approximately \$40.00 per foot for the total of five hundred feet. Other work could be laid out and prosecuted at the same time should the management so decide.

Respectfully submitted,

(Signed) R. W. Hollis.

Phoenix, Arizona,
May 29th, 1917.