



CONTACT INFORMATION

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

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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: TROY PROPERTY

ALTERNATE NAMES:

PRATT TUNNEL
CENTRAL NEVADA MILLING CORP.
ALICE SHAFT
DAVIS SHAFT
LAST CHANCE CLAIM
BUCKEYE GROUP
MANHATTAN PROPERTY
HOMESTAKE CLAIM
TROY MANHATTAN COPPER CO. PROP
CLIMAX GROUP
NINETY-ONE GROUP
MS 1716, 1621, 1622

PINAL COUNTY MILS NUMBER: 136

LOCATION: TOWNSHIP 3 S RANGE 14 E SECTION 28 QUARTER N2
LATITUDE: N 33DEG 08MIN 41SEC LONGITUDE: W 110DEG 54MIN 05SEC
TOPO MAP NAME: HOT TAMALES PEAK - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

COPPER SULFIDE
COPPER OXIDE
GOLD
SILVER
LEAD
IRON HEMA-MAGNE
TUNGSTEN
MOLYBDENUM
VANADIUM
TUNGSTEN

BIBLIOGRAPHY:

ADMMR TROY PROPERTY FILE
HARRER, C.M., RECONNAISSANCE OF IRON RESOURCE
IN ARIZONA USBM IC 8236, 1964, P. 92
STEVENS, H. THE COPPER HANDBOOK VOL. III,
1903, P. 520
SEE ADMMR BUCKEYE MINE FILE
BLM MINING DISTRICT SHEET 656
SANSOME, F.L., RAY FOLIO 1923, P. 22

CONTINUED ON NEXT PAGE

CONTINUATION OF TROY MINE

SEE ADMMR NINETY ONE CLAIM FILE
SEE ADMMR RATTLER MINE FILE
SEE ADMMR ALICE MINE FILE

Troy

October 1, 1942

Mr. F. H. Hayes
Copper Division, War Production Board,
Temporary "R"
Washington, D. C.

Dear Harry:

You want to know problems that are interfering with copper production so here is another one for you.

The Troy Copper Company, which is located about six miles from Kelvin; Arizona, and is owned by John A. Devine, Harry R. Scott, and Harry A. Wright, is a property that has an estimated 200,000 tons of low-grade copper ore ranging from 2 to 9 per cent copper. The ore is almost entirely oxidized and is adaptable to leaching and a very considerable quantity of this ore is already broken and needs only to be taken out of the mine and leached.

In August they secured a preliminary development loan for \$5,000 which was used to clean out the property and when it was cleaned out they needed no further financing by the government, but were ready for production. They made application for a serial number but reported they were turned down by the Coordinator of Mines and told to operate on a P-100. The grounds for turning them down was that they were not employing 10 men and had not previously been in production. No consideration was given to their probable production nor was any consideration given to the fact that, inasmuch as the ore was already broken, it would take very few men to operate the property on a fairly substantial scale. They are preparing the property for a 100-ton daily production and probably will not use over 10 men in the work, but they have now been stalled and almost completely shut down for about three weeks because they could not get a small amount of lumber for their leaching tanks under such priorities as could be obtained under P-100 and they have been unable to get any relief. In other words, they are ready to go just as quickly as they can get a relatively small amount of lumber and they really are entitled to a serial number.

This is an old and wellknown property but it could not work as long as copper was under 15 cents. It has an important future possibility when developed below the carbonates and into the sulphide levels. However, it has ample justification for operation in the carbonate ores alone. Shipment of the ores is going to expend but very little in materials or in manpower - much less than the average mine - yet they are hung up simply because the Coordinator uses his rules to govern rather than to guide.

Mr. F. H. Hayes

-2-

October 1, 1942

The government has made an investment of \$5,000 in cleaning up this property and with that small amount they have made a potential producer as it needs no further government financing. They would have no difficulty getting the lumber that they need if they had a serial number as there is plenty available nearby them.

The man reporting to me as to the circumstances was Harry R. Scott of Kelvin, Arizona, although the applicant for the loan, which was granted and expended, was John A. Devine, Box 872, Globe, Arizona.

I would appreciate your advise as to what can be done about this.

With kindest personal regards, I am

Yours very truly,

CHARLES F. WILLIS, Consultant
Metals Reserve Company

CFW:MH

TROY-ARIZONA COPPER CO., Pinal County, Arizona. John A. Devine,
operator, Globe, Arizona.

A Preliminary Development Loan has been granted on this property for the purpose of cleaning out an adit to the lower levels and inspecting ores in the sulphide zones which are said to have been exposed.

A 100 ton leaching plant is nearing completion for the treatment of 200,000 tons of oxidized ores on the upper levels. Mill heads of 3% are expected to be maintained. The probable monthly production of the plant will be in excess of 150,000 pounds of copper per month.

This production can be maintained with a very small crew, as much of the material to be leached is already broken in the mine. Labor is, therefore, unlikely to be a major problem. The operators are, however, unable to obtain priorities on simple materials with which to complete the plant and to commence production. Unless priorities are granted in the immediate future the plans will have to be abandoned.

Report by Earl F. Hastings, October 9, 1942, to Copper Branch, War Production Board.

TROY MINE

PINAL COUNTY
RIVERSIDE DIST.

See: NINETY ONE CLAIM et al (file) & RFC file

See: RATTLER GROUP (file) - Pinal Co.

See: WEEDS MINES HANDBOOK, 1924, p 471

See: Production Possibilities of the Marginal Copper Mines in Arizona, 1941, p. 102
(Troy, Lucky Strike, Peg Leg)

See: IC 8236 p. 92 - magnetite, hematite

March, 1919, p. 30 & April, 1919, p. 32 of Ariz. Mng. Journal

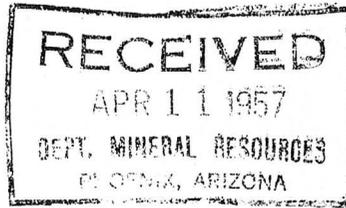
See: BANNER DISTRICT MISCELLANEOUS (Geology file)

UNIVERSAL COPPER CORPORATION

2603 E. 3RD STREET
TUCSON, ARIZONA

PHONE 5-7113

JAMES E. GAYLOR, PRESIDENT
LEWIS E. STICKRADT,
VICE-PRESIDENT & CHIEF ENGINEER



Dear Mr. Knight,

With reference to item in Pay Dirt requesting info on mining properties:

Since June 1956 I have been uncovering 2200 feet Pratt Tunnel at Alice Mine -- West end of old Gray Property near Ray. Expect to be in to 3 large bodies of ore in several more weeks. This mine could well become another Ray. It is on same Dripping Springs 9th. between Ray & Christmas -- close to Ray.

From 1900 to 1902 they were mining 17% ore from Alice shaft. Their shut-off was 7%. This came in about 50 years ago uncovering up a fabulous amount of ore. This area is highly mineralized with numerous high-grade outcroppings. There are dozens of chimneys in area. The tunnel cuts right thru one. It also cuts thru 260 feet of brecciated quartzite containing copper from 1 1/2 to 8%.

In the old days the closest civilization was
Casa Grande -- 75 miles away by wagon. Copper
was 9¢ per lb.

DMEA made a loan to this work of unearthing
during WW II. The people spent the money and
only got about 1/2 as far as we are now. The
difficult part is thru. Expect smooth sailing to
ore, about 350 ft. away now. Hope to reach it
in less than month.

Will sell to big company or operate --
depending on many factors to be considered after
complete analysis of ore in tunnel and shaft.
Will consider small financial assistance but
not ready to turn over managerial control at this
stage.

Would welcome you and/or your field engineer.
Will give you any info I can, or show you report.

Sincerely yours,
James E. Taylor

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



Alice Mine file

From Mine file

April 17, 1957

Mr. James E. Gaylor, President
Universal Copper Corporation
2603 E. 3rd Street
Tucson, Arizona

Dear Mr. Gaylor:

Thanks for your letter regarding your work of repairing
through the Pratt Tunnel at the Alice Mine.

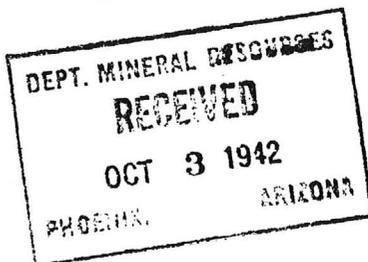
I hope that we can get out to the Alice next month.

With best wishes for your success,

Yours very truly,

FRANK P. KNIGHT,
Director.

FK:lp



J. H.

October 1, 1942

Mr. F. H. Hayes
Copper Division, War Production Board,
Temporary "R"
Washington, D. C.

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In August they secured a preliminary development loan for \$5,000 which was used to clean out the property and when it was cleaned out they needed no further financing by the government, but were ready for production. They made application for a serial number but reported they were turned down by the Coordinator of Mines and told to operate on a P-100. The grounds for turning them down was that they were not employing 10 men and had not previously been in production. No consideration was given to their probable production nor was any consideration given to the fact that, inasmuch as the ore was already broken, it would take very few men to operate the property on a fairly substantial scale. They are preparing the property for a 100-ton daily production and probably will not use over 10 men in the work, but they have now been stalled and almost completely shut down for about three weeks because they could not get a small amount of lumber for their leaching tanks under such priorities as could be obtained under P-100 and they have been unable to get any relief. In other words, they are ready to go just as quickly as they can get a relatively small amount of lumber and they really are entitled to a serial number.

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Temporary "R"
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-2-

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I would appreciate your advise as to what can be done about this.

With kindest personal regards, I am

Yours very truly,

CHARLES F. WILLIS, Consultant
Metals Reserve Company

CFW:ME

June 10, 1941

Mr. H. R. Scott
570 Broad Street
Globe, Arizona

Dear Mr. Scott:

I have received the three questionnaires that you sent on the Troy Mine, Peg Leg Mine and Lucky Strike Mine. In none of them, however, do you give us the information that we would need to include within our report to the government on potential copper production from Arizona small mines. It is absolutely necessary that we include within that report the price at which you can produce copper, the number of pounds of copper that can be produced annually, and the plant facilities and estimated cost of the capital investment necessary to get into production at the rate specified.

On the questionnaire regarding the Troy Mines you stated under the question "How much copper could this property produce annually on a 14¢ price" "large output". This would be absolutely meaningless on a report as we must remember the authorities in Washington are not going to bother to guess, and are depending upon us to give them some factual data, particularly when it is stated that \$25,000 would be needed for a leaching plant.

On the Peg Leg and Lucky Strike Mines no information was given at all at which price copper could be produced or the quantity. We would greatly appreciate additional data from you as we would like to include these three mines within our report.

Included within this report we anticipate putting a brief description of the properties which will be listed as potential producers. In order to have these brief reports uniform in their contents we have gotten up another questionnaire showing the points we want to cover, and it will be greatly appreciated if you will fill in one of these questionnaires for each the Troy, the Peg Leg, and Lucky Strike and return them to us.

Trusting that we will have an early reply, I am

Yours very truly,

Chairman, Board of Governors
Arizona Department of Mineral Resources

CFW:LP
Enc.

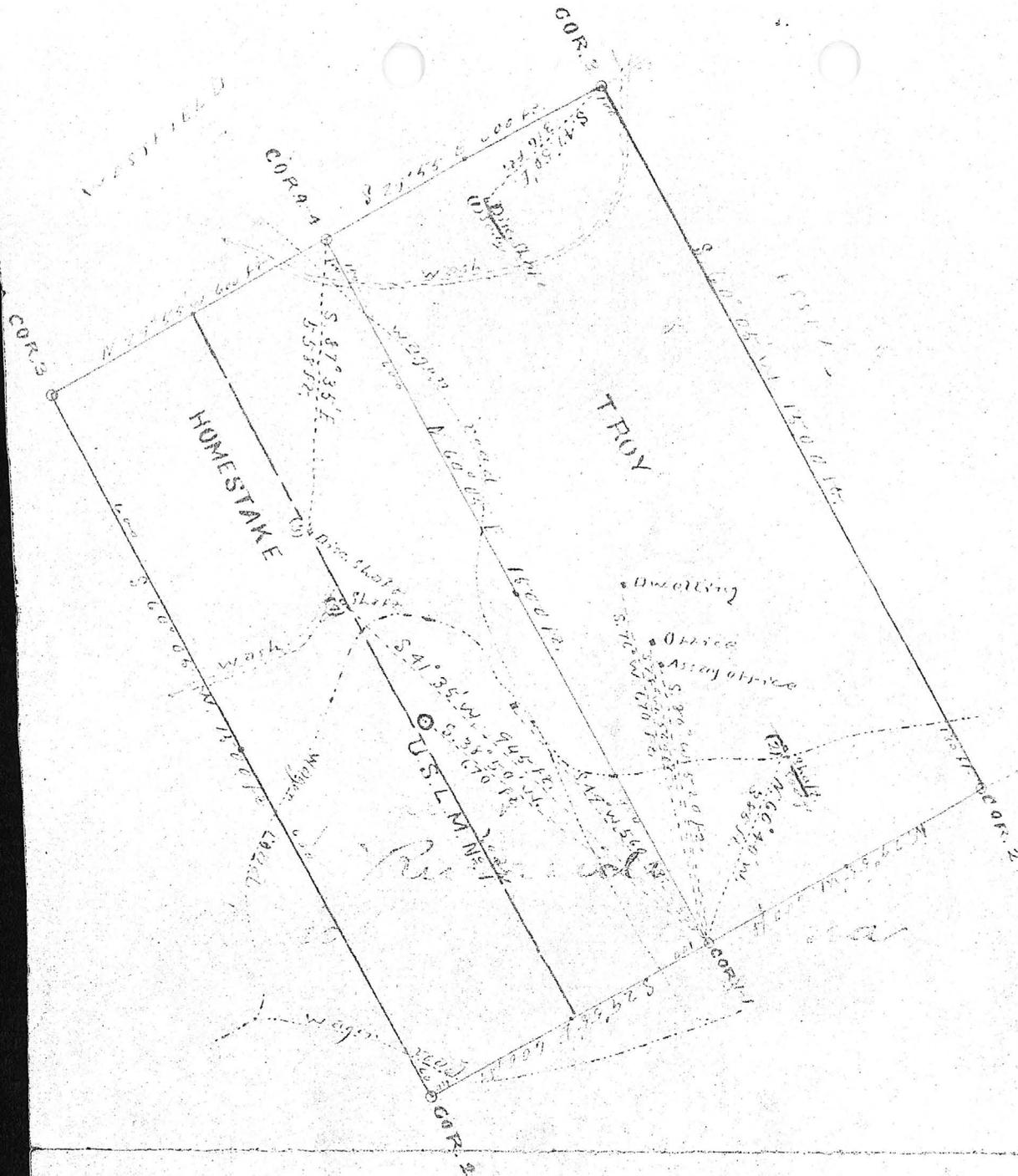
April 1916

Arizona Manhattan

The Arizona-Manhattan company, formerly the Troy-Manhattan company, owns extensive properties at Troy, which is six miles northeast of Kelvin and almost on a direct line drawn from Ray to Hayden. The company's holdings consist of 50 claims, with an area of about 1,000 acres. The mine has about six miles of openings, including something like 7,000 feet of tunnels, the longest of which, the Alice tunnel, is about 1,700 feet long. There are four shafts on the property, including a 500-foot two-compartment main working shaft. The claims lie in the Dripping Spring range, and are located on the Christmas and London-Arizona ore zones.

The old company owned the Riverside smelter, which was blown in in 1901 and closed down in 1904. A new smelter was blown in in January, 1905, and ran ten days, when it was forced to shut down by reason of a washout, which prevented the receipt of fuel.

The announcement that the company is preparing to resume operations is another indication of the increasing interest in the copper district of northeastern Pinal and Southern Gila counties.



SURVEY No. 1621
 GILA LAND DISTRICT
 Surveyed 23.2.1902
 by Robert G. Gullett
 and J. W. Brown, Surveyors

PRELIMINARY GEOLOGIC REPORT ON MINERAL SURVEYS 1533,1737 and
2447, PINAL AND GILA COUNTIES, ARIZONA IN TOWNSHIP 3S, RANGE 14E

BY John Rothermel, President, Silver Nickel Mining Co.
June 16, 2005

Mineral Survey No 2447 consists of eight (8) patented mining claims comprising approximately 150 acres located about 26 miles southwest of Globe, Arizona in Pinal and Gila counties. The property lies in the rugged Dripping Spring Mountain Range, which is a product of complex faulting. Rock units include the middle Cambrian Troy Quartzite, Devonian Martin formation, Cretaceous-Tertiary diabase, Mescal Limestone, Dripping Spring Quartzite, Abrigo Formation, and Escabrosa Limestone.

The south half of Section 23 is cut by numerous dikes of rhyolite-dacite porphyry and hornblende andesite porphyry. There are also two small rhyolite-dacite porphyry plugs. One of the plugs covers the area of the water tank. The mineralization is structurally connected with the extensive faulting and fracturing. This area of investigation is an example of a fault mosaic, the faults trend in both NW-SE and NE-SW direction, thus forming an intricate network.

The faults appear normal in nature. Extent of displacement, relative ages and causes of the faulting were not determined. The faulting and dikes with porphyritic textures are probably related to the underlying intrusions.

Two vertical joint patterns were noticed in the field, one striking NW-SE and one NE-SW. Elevations of Section 23 range from a high of approximately 3500 feet to a low of approximately 3,380 feet.

The terrain consists of two high hills, connected by a saddle. The topography slopes downward to the north at a fairly steep angle. Examination of the area suggests that the broken, irregular topography is the product of intricate and unsystematic faulting. Differential erosion of the different rock types is also responsible for slopes, bluffs and rugged outcrops.

Vegetation consists of scattered junipers, saguaro cacti, prickly pears, some oak trees, and scattered range grasses. Several cuts and an open shaft were noted in the area of the saddle. The mineralogical character seems to be quite simple. The ores from the saddle area range from magnetite, hematite to admixed magnetite-hematite to limonite forming incrustations on the former two with copper carbonate staining. The field evidence indicates that the iron and uranium were derived from the diabase. The iron ore occurs as a large massive body within the Martin formation near the saddle close to the diabase.

I observed field criteria by which both magmatic segregation and contact metasomatism (replacement) were recognized.

Review of the map of Metallic Mineral Districts of Arizona by Stanley B. Keith, Don E. Guest and Ed DeWitt reveals that the Dripping Springs Laramide intrusive (late Cretaceous to early Tertiary covers this area of investigation. These Laramide igneous intrusions are the host rocks for most of Arizona's copper porphyry deposits. The Copper Depot, Copper Depot 2, Atlas No. Three, Antelope and New Century were originally located for rich copper mineralization. The rhyolite-dacite porphyry and hornblende andesite porphyry rocks being the host rock for the copper mineralization. These dikes traverse the south half of the section in an east to west and northeast to southwest direction. These porphyry dikes are feeders from the Laramide intrusive which under lie the area between this property and the old town of Troy. Field evidence for this are the numerous dikes with porphyritic textures, breccia zones with angular or locally rounded fragments and epidote and chlorite alteration and secondary biotite alteration. Copper ore has been mined from these porphyry dikes. Silver Nickel Mining Co's property consists of eight (8) patented mining lode claims located in Section 23, Township 3 South, Range 14 E (south half).

Phelps Dodge Exploration Corporation has located unpatented mining lode claims in Sections 21,22,23,25,26,27,34,35 called the Troy claims.

General topography of the investigated property lends itself to open pit operations. Average slope of the deposit is 30%. There is an access road into these patented claims which traverses the claims to the saddle on the Hoosier Boy. There is no road access to the southern portion of the section. Access is by foot. The Troy Ranch Road continues in a southwesterly direction to the Troy Ranch.

Geological mapping of these sections is attached to the report. Most of the early production from these claims is unrecorded although I did find a MILS-Data sheet showing that uranium was mined underground from these claims.

Mineral Survey No. 1533 lies approximately 2 miles east of Mineral Creek on the northwest slope of Scott Mountain approximately $\frac{3}{4}$ mile south of the Monitor Mine in Section 6. This is another area that displays characteristics of a copper porphyry system. The Monitor Mine is presently under exploration by General Minerals Corporation with an option agreement with Teck Cominco American Inc. Asarco also holds mining claims and property in this area and vicinity. The Ray open pit copper mine lies just west of Scott Mountain. General Minerals Corporation has previously conducted geological, geochemical and geophysical studies on the Monitor Mine property and vicinity.

Silver Nickel Mining Co's property on Scott Mountain consists of four (4) patented mining claims. Silver Nickel Mining Co. has acquired the Reksom Lode MS 1737, which is located just west of the Gladstone Mine (Ray Mine) on Haley Mountain, in Section 7. Asarco owns mining claims and real property in this section. The Reksom Lode is only 2 miles east of the old site of Ray. These 250 acres of patented mining

claims represent a large block of deeded land situated in copper porphyry exploration targets in the Copper Basin country of southern Arizona. The Copper Basin country is a prime exploration target area for copper porphyry deposits as Laramide intrusives are clustered in this area.

In 2003 Arizona accounted for 67 percent of the US copper production.

Section 23 is unique in that uranium mineralization has been mined from the Devonian Martin dolomite. The iron and uranium probably are derived from the diabase dikes and sills. These massive structures are 30 to 40 feet wide. There is over 150,000 tons of this material exposed on the surface. This metasomatic environment should be examined for uranium.

Diabase alteration may have been a significant component of the supply of copper to the Laramide districts of this area. The central part of southeastern Arizona contains an unusual abundance of diabase. Diabase is abundant on the property and is probably a source of the copper in the Dripping Springs Mountains.

John Rothermel
President, Silver Nickel Mining Co.
e-mail [silvernickelco @aol.com](mailto:silvernickelco@aol.com)

TROY MINE

BANNER DISTRICT

Interview with Bert Reed, Chief Geologist, Inspiration Copper Co. 9/27/63
and with "Rusty" Carley Moore 9/26/63.

Inspiration is now preparing to make a geophysical survey of Moore's part of the Troy, particularly the high Magnetite area, that Moore estimates to contain 1-3 percent of copper. If the geophysical survey shows good results, drilling will follow. Inspiration recently optioned this property for 2 years.

MEMO IAS 9/27/63

Visited H. C. Weed and Bert Reed, Inspiration Copper Co. Mr. Reed said they had drilled 4 holes at the Troy with disappointing results. Further work in the area is not anticipated in the near future.

FTJ WR 10/1/65

Inspiration Consolidated Copper drilled the Troy property in the Pinal Mountains during the last quarter.

FTJ Annual Report June 30, 1967

Inspiration still has option on the Troy property but are inactive at time of visit.

FTJ WR 9/29/67

Inspiration drilling at Troy.

FTJ WR 5/31/68

Contacted Jim Gaylor, Tucson, 886-9663, regarding his ad in E/MJ for 24 copper claims (see ad attached). The claims are the major portion of the Troy Mine group in Pinal County. He claims to have extensive reports on the property but will not provide the DMR with copies as he wants all interested parties to come to him for information. KAP WR 7/18/75

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DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Troy Mine

Date Oct. 1, 1956

District Dripping Springs District -- Pinal Co.

Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from James E. Gaylor, Pres. Universal Copper Corp.

Location Sections 28 & 29 -- T 3 S - R 14 E . About 5 1/2 miles east of Ray.

Number of Claims 13 unpatented claims.

Owners Universal Copper Corp., James E. Gaylor, Pres., 2603 E. Third St., Tucson, Ariz.
Mr. Gaylor reports that he owns 51 % of the stock of the corporation.

Operators Same as above.

Principal Minerals Copper and Lead.

Number of men employed 3

Production Rate None to date. Co. engaged in cleaning out an old adit.

Geology Mr. Gaylor reports that ore is found in porphyry dikes and also in veins.

Ore Values Mr. Gaylor reports that the ore in the porphyry dikes runs about 2 or 2 1/2 per cent copper, while the ore in the veins runs from 7 % and up in copper.

Mine Workings -- Old

- (1) Old shaft (the Alice shaft) Incl. --- 350 to 400 ft. deep, with 4 levels.
- (2) Inclined winze, 100 ft. deep, sunk from the 4th level, and intersecting adit.
- (3) Old adit, 2200 ft. long, and intersecting the bottom of the winze.

Mr. Gaylor reports that the old workings are over 50 years old.

Past History Mr. Gaylor reports that the mine was worked from ~~1900~~ 1900 to 1902, and believes that shipments totaled almost 100,000 tons. Mr. Gaylor also states that, in mining this ore, everything below 7 % in copper was left in the mine.

Present Operations Company is engaged in cleaning out the old adit (2200 ft. long), and are now in a distance of 1000 ft. This work started the last week in June.

Proposed Plans To continue cleaning out this adit the remainder distance through to the winze. After this, considerable sampling and exploration work will be done to find an ore body that can be mined.

See Mining World Vol 19, No. 7, June 1957, p 93

ever issued, being full of deliberate lies, and the company cannot be regarded otherwise than as an intentional swindle.

TROUGH-GULLY COPPER SYNDICATE CO., D. AUSTRALIA.

Office: 46 Dame St., Dublin, Ireland. Mine office: Tamworth, N. S. W., Australia. Sir. E. Cochrane, Rev. J. Robinson, J. Mulligan and W. F. Cotton, directors. Organized Jan. 8, 1908, under laws of Ireland, with capitalization £17,000, shares £1 par.

TROUT CREEK COPPER MINING CO.

Dead. Formerly had an office at 317 Fidelity Bldg., Tacoma, Wash.

TROY CONSOLIDATED MINING CO. ARIZONA.

Office: 25 Broadway, New York, N. Y. Mine office: Troy, Pinal Co., Ariz. Works office: Florence, Frémont Co., Colo. Hon. A. B. Lewis, president. Capitalization \$4,000,000, shares \$10 par. Is practically a reorganization of the Troy-Manhattan Copper Co., though latter retains its corporate existence, and holds 160,000 shares of Troy Consolidated. Present company is said to have furnished a working capital of \$750,000, which is doubted.

Lands, 50 claims, area circa 1,000 acres, 6 miles northeast of Kelvin and 7 miles from a railroad. Mine has about 6 miles of openings, including circa 7,000' of tunnels, the Alice tunnel being circa 1,700' long, with back of about 800'. Has 4 shafts, including a 500' two-compartment main working shaft. Ores in upper workings are slightly auriferous and argentiferous oxides, succeeded by sulphide ores claimed to range 8 to 16% in copper tenor, with small gold and silver values. Vein is 3' to 11' in width, and widest in the bottom working, where it is very soft, requiring spilling. The 400' Sisson shaft shows a 6' body of sulphide ore, said to average about 5.5% copper. The 375' two-compartment Buckeye shaft has a 5' ore body, with a 2' paystreak carrying 9% copper, and the Buckeye winze is claimed to show a 25' vein of malachite, giving smelter returns of 6 to 10% copper, which estimates probably are excessive. The '91 claim has a 2' to 8' vein of wulfenite, for which a 40-ton concentrator was built, near the Davis shaft, but this ore body apparently did not prove of commercial value. About \$750,000 has been expended on the property, by various managements and under various organizations, but it does not seem proven that large and permanent ore bodies have been developed. Mining equipment includes 2 gasoline hoists, a Leyner air-compressor and an electric plant, petroleum being used for fuel.

The old smelter, of 60 tons daily capacity, at Riverside, on the Gila River, was blown in 1901, and closed permanently, August, 1904, never running regularly, and experiencing much trouble from shortage of both coke and water. A new smelter, blown in January, 1905, ran 10 days, closing ostensibly on account of a washout, preventing the receipt of fuel, but in all likelihood

Mines Handbook Vol. IX

TROY-TUBUTAMA.

1341

the smelters did not run regularly because lacking an adequate ore supply. The Rocky Mountain smelter of the Colorado Smelting & Refining Co., at Florence, Colorado, bought late 1907, was rated at 500 tons daily capacity, but has been idle since circa 1902, and apparently never was a success. Smelter is said to have been bought for \$400,000, and apparently management planned shipping ore from Arizona to Colorado, for reduction, which seems an idea of doubtful value. Suspended operations October, 1907. Results from mine, under various managements and ownerships, have been distinctly disappointing.

TROY COPPER CO. ARIZONA.

Dead. Merged, 1902, in Troy-Manhattan Copper Co. Formerly at Troy, Pinal Co., Ariz.

TROY GOLD MINING CO. COLORADO.

Dead. Formerly at Granite, Chaffee Co., Colo. Described Vol. VI.

TROY-MANHATTAN COPPER CO. ARIZONA.

Office: 25 Broadway, New York, N. Y. Is practically out of business, having transferred its property at Troy, Pinal county, Arizona, 1907, to the Troy Consolidated Mining Co., for a stock interest of 160,000 shares in the latter-named corporation. Fully described Vol. VI.

TRUE BLUE COPPER MINES, LTD. BRITISH COLUMBIA.

Dead. Formerly at Ainsworth, Slocan district, B. C.

TRUE BLUE MINE. AUSTRALIA.

Mine office: Stanthorpe, Queensland, Australia. Lenox & Rannie, owners. Mine has a vein of 8' to 15' width, carrying considerable ore assaying 17.12% copper and 33 oz. silver, which is shipped for smelting, low-grade ore being concentrated at an adjoining mill and shipped to London. Production, 1906, was 112,000 lbs. fine copper and 1,767 oz. silver.

TRURO MINING & REDUCTION CO. MONTANA.

Office: Cleveland, Ohio. Mine office: Basin, Jefferson Co., Mont. Lands, known as the Buckeye Mine, have a 170' shaft, with about 600' of workings, showing ore giving fair assay values in lead, copper, silver and gold. Has steam power a small

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TROY-ARIZONA COPPER COMPANY

ENGINEERS

The following well known Engineers have been employed to examine the property:

LEO VON ROSENBERG

Mr. Von Rosenberg was on the property at various times from 1912 to 1916, studying its geology, securing and adding desirable claims and sinking test shafts.

ROY G. MEAD

Mr. Mead was employed from 1912 to 1916 by the Department of the Interior as Mineral Examiner of the General Land Office. This work took him all over California and Arizona and enabled him to study the Geology and various classes of mining and development work in these States. He has passed upon the holdings of many of the important Companies operating in Arizona and has done much work in the mineral belt in which Troy is located.

G. G. WALD

At the time Mr. Wald made his examination of the property he was in the employ, as Engineer, of the Ray Consolidated Copper Company located about five and one half miles from Troy, and consequently understood this territory.

JOHN C. DEVINE

Mr. Devine was employed by the Ray Consolidated Copper Company for a period of ten years, about 1916, at which time he was Assistant Superintendent at the Ray Mines, he voluntarily resigned and has given his personal attention to our property. He has done a large amount of shaft and tunnel work at the mine and consequently is the best informed man about the underground conditions there.

EXTRACTS FROM ENGINEERS' REPORTS

GEOLOGY

LEO VON ROSENBERG:

The geology of the area in which the property of the Troy-Arizona Copper Company is situated, is more or less complex. Briefly stated, the rocks of the locality are granite, granodiorite, diabase, porphyry, limestone, quartzite, schist and conglomerates. The diabase, granite, granodiorite and the porphyry occur as intrusions. The porphyry occurs mainly in the form of a very strong and persistent dikes, cutting through the granite diabase, etc. Very probably the diabase was the first intrusion into the sedimentary rocks (sandstone, limestone, etc.,) when they were still in the horizontal position. The intrusion of the diabase was followed by the intrusion of the granite rocks, which caused the displacement of the diabase and further tilting of the sedimentary rocks. Then occurred the intrusion of the porphyry, followed by the ore deposition. It might be stated that the intrusions of the porphyry are closely related to the ore deposition although the diabase may also have been a mineralizing agent. At various times the whole area was subject to much faulting and shattering.

The porphyry dikes are from a few feet to fifty feet in thickness, and in some cases are much thicker. They have a general northeasterly and southwesterly strike; in the eastern portion of the property, however, they assume a more easterly and westerly course. The dip of most of the dikes is rather steep. The ore occurs along the fault fissures in the granite and diabase (usually along or near the porphyry dikes) and also in the fractures of the sedimentary rocks, and along the bedding planes of the same. The mineralogical character of the ore is virtually the same as that of the ores produced in various mines at Globe, Cananea, Clifton, etc.

The ores consist of carbonates of copper and of the various copper and iron oxides and sulphides. The predominating gangue is quartz. Generally stated the ore bodies carrying oxides occur mainly in the contact of the different sedimentary rocks, also in the contact of the sedimentary rocks and porphyry and diabase.

The sulphide ores will be found mainly in veins occurring in granite rocks, and in the porphyry and diabase. However, sedimentary copper ores may also be found in the veins associated with the intrusive rocks, especially in the upper part of these veins.

GEOLOGY East group of claims.

ROY G. MEAD:

"Briefly stated the geological formation underlying the group in question, consists of a basal granite exposed over the northern and eastern part, which is overlaid on the south by sedimentary series consisting of quartzite and limestone which is traversed by an easterly direction by diabase and porphyry dikes. There has been considerable faulting and displacement of the sedimentary beds which renders the geological structure more or less complex. However, the pronounced faulting offers very favorable conditions for ore deposition.

Two mineralization dikes traverse the area in an easterly direction; one a diabase dike averaging one hundred feet in width, lying between the granite and the limestone; the other a porphyry dike averaging two hundred feet in width, lying between the quartzite on the south and the limestone on the north, along which is exposed the Rattler Vein. The porphyry dike caused a faulting of the sedimentary beds resulting in a drop or displacement of several hundred feet on the north side, and the present position of the limestone which is apparently below and underlying the quartzite.

The porphyry dike is in my opinion the source of the mineralization in the limestone designated as the Queen Vein, as well as the source of the mineralization in the Rattler vein. Owing to the fact that the limestone is a soluble rock, it offered a favorable condition for the deposition of copper and iron from the mineralized solutions coming from the porphyry dike, and there resulted therefrom the Queen vein. As the mineralization extended upward from the dike, it follows that it became weaker the farther it got from the porphyry dike, consequently, the richer ore bodies are to be expected near the dike which fact is being proven by the work now being carried on in the Rattler workings; the deeper work now showing an ore with a higher copper content and less magnetite than the ores found nearer the surface. While large bodies of secondary sulphide ore are to be expected in the limestone beds, the future of the property as a steady producer of copper depends on the development of the primary sulphide ores which will no doubt be found below the limestone in the Rattler vein and in the porphyry dike. In view of the extensive body of secondary ores in the limestone the source of which is the porphyry dike, there is every reason to believe that the primary ores will be very extensive and of a commercial grade.

The diabase dike lying between the limestone and granite is of later origin than the porphyry dike, and no doubt was intruded after the faulting of the sedimentary rocks. This dike has had very little mineralizing effect upon the adjacent limestone. The dike, is, however, very much altered near the surface, showing indications of being mineralized below the surface, and it is quite probable that is explored with depth it will be found to contain primary ores. The old Sisson shaft was sunk on the contact of the diabase and the limestone, and it is reported that low grade sulphide ores were encountered in the bottom of the shaft."

GEOLOGY: West group of claims.

ROY G. MEAD:

"The geologic formation underlying the area embraced by the west end group is more or less complex owing to extensive faulting and displacement, caused by the numerous eruptive dikes which traverse the area. Briefly stated, the formation consists of a basal granite and diabase overlain by a sedimentary series consisting of quartzite, limestone, schist and conglomerate. The diabase occurred in the form of intrusions, and displaced the sedimentary beds. After the intrusion of faults followed by later intrusions of porphyry in the form of strong persistent dikes cutting the granite, diabase and sedimentary beds, the ore deposition followed the intrusion of the porphyry dikes and its source is traceable to the primary mineralization which came up with the porphyry dikes.

There are no less than twelve porphyry dikes traversing the group, all of which have had an important bearing on the mineralization of the area and with exploration at depth will be found to contain primary copper sulphides in sufficient quantity to be commercial ore under the present modern methods of mining and ore reduction.

The dikes vary from fifty to one hundred feet in width, and in many cases are considerably wider, they are, with few exceptions, nearly vertical, and traverse the property in a general northeasterly and southwesterly direction. The secondary surface ore bodies occur along the contact of the porphyry and limestone, and are known as contact ore bodies when occurring in the limestone.

The surface showings and conditions on the property are quite similar to those on some of the principal copper properties of Arizona, such as the Magma mine, Old Dominion and Copper Queen, where rich surface carbonate ores were found in limestone and other sedimentary rocks, the source of which was traceable to primary sulphide ores occurring at depth in porphyry and diabase dikes."

GEOLOGY:

G. G. WALD:

"The country rocks are quartzite, limestone, diabase, porphyry and granite. The overlying sedimentary formations have been shattered, faulted and tilted by the intrusion of the porphyry and later, of the diabase. These eruptive rocks were intruded, in places, into the bedding planes of the sedimentaries, and also followed up planes of weakness developed at angles to the bedding planes. These fissures and dikes strike generally in a northeast to southwest direction. There is one marked exception to this rule, the Climax fault, which strikes north 10 degrees east, and dips 60-65 degrees to the northwest, cutting the numerous NE-SW faults at angles varying from 45 to 60 degrees. The Climax fault is a strong fissure; on the Climax No. 3, a width of thirty feet between well defined walls was measured. Just north of here the fault swings around into the northwest and widens out. The space between the walls is filled with crushed drag from the quartzite and lime beds, it cuts, and both porphyry and diabase have been intruded into the fault. On the surface it is strongly iron stained, and at many places shows stains and stringers of copper carbonate. At the point at which the shaft is located the fault material is especially well leached and kaolinized; further to north the outcrop is more siliceous.

The fissuring and faulting of the sedimentary formations by the intrusions of the igneous rocks has created an ideal condition for the deposition of minerals and mineral bearing solutions. The values consist of carbonates and silicates of copper, and chalcopyrite and chalcocite, the sulphides of copper. As far as developed, this mineralization has been found to consist of replacement ore bodies in the sedimentary deposits. The ores were deposited from vapors and mineral bearing waters accompanying and emanating from the igneous intrusions. In this

section the porphyry and diabase are both mineral carriers and mineralizing agents. Note the Magma Mine, where the ore body is associated with porphyry dike intruded into a fault fissure cutting the sedimentary beds. The diabase is not as favorable for ore deposition, but at Globe and Ray, sulphide and oxide ores have been found in the diabase, usually as a contact.

Development to date has disclosed several mineralized areas almost exclusively in the NE-SW veins and faults. The Buckeye, Alice and Rattler Sisson workings are examples of this ore occurrence. Although considerable ore was shipped and smelted, the ore bodies were of low grade and of limited extent.

PRATT TUNNEL: On the Pratt tunnel dump a pure crystalline quartzite with disseminated values in chalcocite, was found. The tunnel is now inaccessible, and no assay maps are available at the mine. The map shows that two beds of the brecciated quartzite were crosscut near the end of the tunnel; the first, 30 feet wide, was drifted on for 120 feet, and the second 260 feet wide, was drifted on for 80 feet. It is reported that this quartzite ran 2% copper; and the fact that the drifts were driven on the quartzite, and at no other part of the tunnel, indicates that encouraging values were encountered. However, at that time ore of 2% copper had no commercial value. This quartzite ore could be cheaply milled, and as it will have a high ratio of concentration, would be pay ore today, if a sufficient tonnage was developed. A sample taken of this quartzite on the surface of the dump ran trace of copper; a second taken below the surface, where values have been concentrated by surface waters since the rock was mined, ran 5.1% copper. These samples merely show that there is copper in the quartzite. If the old assay maps or data are extant, and show the copper values reported, it would pay to open up the Pratt tunnel, as there is a possibility here of developing a considerable tonnage of low grade ore."

GEOLOGY :

JOHN C. DEVINE: "The formations consist of limestones, quartzite, diabase and porphyry. The latter eruptives occur in the form of intrusions, having caused minor displacements in some instances of the overlying sedimentaries. These displacements are usually marked by distinct brecciation, and ore deposits of varying degrees of importance are in evidence along the lines of faulting.

Massive outcrops of iron scossan mark the proximity of the mineralized portions of the western half of the property, and on the eastern half, large bodies of magnetic iron ore are found closely defining the mineral zone."

DEVELOPMENT:

"The development done by the former company, consisting of several shafts, a number of levels, tunnels, etc., was largely ill advised. It is of no particular importance, and probably will be of little use in future operations.

A NEW PLAN OF DEVELOPMENT HAS BEEN INAUGURATED:

Recently a new shaft was started in Climax No. 2 claim, situated on the south slope of Climax Hill. This shaft has reached a depth of 80 feet. It is in the meta-diabase. The territory embraced by the south slope of Climax hill shows many prominent croppings of hematite. Judging from these surface showings, and from the openings already made, it is reasonable to expect that by further development large bodies of valuable copper ore will be opened up. In this part of Climax hill, it is reported that a considerable amount of very rich ore was taken from the shallow workings of Climax No. 3 claim, and also from the Copper-Glance claim. Assays of a number of samples taken from the various openings on Climax Hill showed good copper values.

A new shaft was started on the California claim, situated on the east slope of Climax Hill. This shaft is now 100 feet deep. It is in meta-dabase. In the bottom, the material is heavily mineralized, showing iron pyrite. The shaft should be sunk about 200 feet deeper, cross cuts should then be run about 500 feet northwesterly and about 200 feet southerly. Judging from the surface indications, consisting of heavy gossan (hematite and limonite) about six veins should be intersected by these cross cuts. It is reasonable to assume that when some of these veins have been opened up, levels should then be run on them in a southwesterly direction; ultimately the levels should be connected by cross cuts with the new Climax No. 2 shaft.

It is reasonable to expect that with the development recommended, a large copper mine will be opened up in Climax Hill."

THE RATTLER MINE: "The vein of the Rattler is reached by a short tunnel in southerly direction, mainly through diabase and lime. The vein is intersected at a point 150 feet from the mouth. The workings consist of various drifts and a number of large, irregular chambers from which ore has been extracted. The vein is exposed in most of the workings. It lies at an angle of about 20 degrees, dipping to the south. The thickness of the vein varies from 2 to 8 feet. The ore is magnetic (magnetite). There are a number of faults or slips. Apparently several veins course through the Rattler claim.

According to the assays of a number of samples taken from the ore exposures, the ore carries from 2 to 9% copper; 4% sulphur; 32% iron oxide; 10% magnesia; some alumina and a small amount of lime. The returns of ore shipped in quantity several years ago to the Humbolt smelter, near Prescott, Arizona, show on the average as follows: Copper 3.55%; Silica 30%; Iron 24%; Sulphur 3.8%.

Thirty two tons of sorted ore shipped as a test, in January 1914, to the smelter of the American Smelting and Refining Company at Hayden, Arizona, contained:

Copper 5.22%; Iron 30.8%; Insolubles 19.2%

The gold and silver contents of the ore amount to about \$ 1.50 ton.

The indications are that even with a comparatively moderate amount of development work, a considerable tonnage of this class ore could be made available. The workings of the old Sisson Mine, the shaft of which is about 400 feet west of the Rattler Mine, are now inaccessible below the first level. on this level, at the shaft, a very strong vein of red hematite is exposed, the surface showing in the eastern part of the Copper Reef claim adjoining the Rattler claim on its west line, is exceedingly favorable. The cropping of rich ore should be followed by an incline. With a moderate amount of prospect work, very likely quite a tonnage of rich ore could be extracted. The vein exposed by the croppings is no doubt a continuation of one of the Rattler veins. It is reported that very good sulphide ore was encountered in the lower Sisson workings. This class of ore, mixed with copper bearing magnetite would make a good smelting product.

The development proposed might be supplemented by diamond core-drilling."

DEVELOPMENT: (West group of claims)

ROY G. MEAD:

"The Alice vein traverses the Dime, Alice and Maggie claims, and is a contact vein having a limestone hanging wall and a granite porphyry dike for a footwall. The general strike of the vein is about north 60 degrees east, and the dip about 45 degrees to the northwest. The vein filling is iron oxide accompanied with copper carbonate ores and altered porphyry. The vein has been explored to a depth of about 350 feet by means of the Alice incline shaft and the Pratt tunnel, and a large tonnage of carbonate ores extracted, which had a copper content of

in excess of ten per cent. The development work on this vein, while quite extensive, was done for the purpose of extracting the carbonate ores, and not with a view of developing the primary ore bodies; therefore, sufficient depth has not been attained to reach the primary ores.

In the Pratt tunnel, which has reached a distance of 2,300 feet, sulphide ore in shattered quartzite was encountered at a distance of about 1,600 feet from the portal and at a vertical depth of about 500 feet. The mineralization consisted of fine particles of copper sulphide and native copper extending over 50 feet in width near the granite porphyry dike, the average copper content being about 2.5 per cent. This mineralization is undoubtedly the Alice vein exposed at depth below the limestone, and the mineralization in the quartzite is traceable to the granite porphyry dike. The fact that the values are in the quartzite is conclusive evidence that further depth is required in order to reach the primary sulphide ores. The ore developed in the tunnel is however, at the present time, commercial ore, although when the tunnel was driven several years ago it was considered too low grade, as at that time the possibility of mining low grade copper ores was not an established fact.

The Alice shaft follows the vein filling between the limestone and porphyry and the ore deposits encountered are typical of the secondary ores worked in the early days by the principal copper mines, which are today getting their output from primary sulphides in porphyry. There is no record of the tonnage of carbonate ores obtained from the workings, and the shaft is now inaccessible. A map compiled by the writer several years ago when the ore body was exposed is a geological section of the ore exposure of the shaft at the third and fourth levels. The ore exposed at that time was high grade and assayed from six to twelve per cent.

The fact that the mineralization near the surface in the limestone is so pronounced, together with the fact that there is a large area of mineralization in the quartzite, now commercial ore, exposed in the deeper workings, is conclusive evidence that the porphyry will be found to contain workable deposits of primary sulphide ores when developed below the leached zone. The surface showing, together with past development work, warrants systematic exploration, which in my opinion will lead to development of a large producing copper mine."

DEVELOPMENT:

JOHN C. DEVINE:

For convenience in the discussion of the development I shall divide the property into two groups, viz: The east & west end.

Taking up the east end group, the Rattler vein is found traversing the group and prominently outcropping for a distance of several thousand feet. Deposits of low grade ores are in evidence at several points along the outcrop, and on the Rattler claim, where most of the development has centered, a large body of magnetite has been opened that carries copper values ranging from 2 per cent to as high as 5 per cent.

Considerable ore has been shipped from this deposit and more is available for shipment at this time.

The vein of magnetite lies on a diabase footwall and beneath an altered limestone hanging wall, the values below the oxidized zone consisting of finely divided particles of chalcopyrite and bornite very evenly disseminated throughout the entire mass.

The development as it stands today has exposed considerable ore of milling grade and some more that could be shipped at a profit.

Continued development to the west closely following the ore strata would undoubtedly open an extensive body of commercial ore.

The ore now developed on this end of the property and probable ore that can be readily added to the reserves by following the ore on the 2nd level of the vertical shaft, places this property in position
wherein

immediate shipments can be started.

Thousands of tons of low grade milling ore in the mine and stock piled on the surface offer immediate opportunity for the first unit of a reduction plant, and it can therefore be stated that this end of the property has passed beyond the prospective stage of development, and with little expense it could be placed in the producing class. Proper experiments should be made in order to determine the best and most efficient process of recovering the copper values from these low grade ores. In view of the high percentage of iron or magnetite contained in the ore the writer believes that separation by magnetic attraction will give satisfactory results. If flotation becomes necessary this unit could easily be added afterwards.

Taking up the west end of the property which embraces all the area west of the camp, we find the development well advanced and with comparatively limited further development this end of the property could also be made to produce ore, the volume of which would depend entirely on the magnitude of operations.

Traveling west from the camp we come first to the Climax shaft which is equipped with a hoist and compressor and has reached a total depth of 500 feet vertically. This shaft was designed to explore what is known as the Climax fault, an intrusion of porphyry, forty or fifty feet in width carrying copper values in the oxidized zone in the form of carbonates, and evidencing a very much leached condition, and indicating that when the primary zone is reached high grade copper should be found in quantity.

The prominent features of this fault are its strength of regularity, traceable of the surface as it is for a distance of more than two thousand feet. Copper values are to be seen along the fault at several points where surface work has been done.

The shaft was started in the porphyry but left it within the first hundred feet, the porphyry having pitched sharply to the west. At the 500 foot level a cross cut was started to cut the porphyry, but this work never reached the contact due to the suspension of operations. It is estimated that 150 feet of drifting will cut therein. This work should be completed and the shaft should be sunk 225 feet deeper and a drift started to the west with the ultimate purpose of exploring the very favorable ground lying between the Climax shaft and the Alice mine.

The approximate cost of finishing the development at this point as above indicated would be about \$ 20,000.00 and the work could be accomplished in from 3 to 4 months after the shaft was unwatered.

The next development of importance on the west end of the property is centered on the Alice and adjoining ground, and is very extensive. However, due to a long period of idleness considerable of this work is inaccessible at this time. Much ore has been mined from this part of the property, mostly high grade copper, and in the writer's opinion a big mine will be the inevitable result of intelligent development through the Pratt tunnel on the west end of the group.

The Pratt tunnel which was driven a total distance of about 2,000 feet, some years ago, has opened up some very good ore in two different places. The elevation of this tunnel is about 250 feet deeper than either the Climax or Alice shaft, and just brings the development to the primary zone where both primary and secondary sulphides are in evidence quite abundantly. The tunnel cut two different ore veins, one known as Klondike vein measuring four feet in width and averaging about 2% copper. Very little work was done on this vein due to the low tenor of the ore which at that time was not considered commercial. The evolution of the metallurgical processes however, has demonstrated that low grade ores can be made profitable by applying the modern methods of concentration and flotation.

A second area of low grade sulphides was encountered 400 feet east of the Klondike vein and this was cross cut a total width of 150 feet. The

ore here was not developed to any extent either, due to the above reasons. In both instances the ore occurs in a much shattered and brecciated quartz formation, and a fine separation of the values could be obtained by concentration with a very high ratio of recovery.

This part of the property offers a better opportunity than any other for the opening up of a mine of large proportions, and there is no doubt in my mind that any development extended to the east from this tunnel following the present low grade ore, will from time to time encounter deposits of high grade ore, the existence of which was fairly well determined by the work done from the Alice shaft.

The work done on the east side of the Alice shaft on the lowest level cut a porphyry fault running somewhat across the general trend of formations, and it is this fault that produced some very high grade ore and appeared to be making downward with increasing strength. It would require driving the Pratt tunnel five or six hundred feet east in order to cut this ore, and considering the pitch of the ore body a stopping background of about 400 feet would result from this development. An approximate estimate of the cost of reopening the Pratt Tunnel and driving east to the ore above mentioned, would be about seven months."

ECONOMIC CONDITIONS:

JOHN G. DEVINE:

"The property is so situated with relation to the railroad that transportation facilities should be ideal. The embarking point could be located at Erman Siding, 1-1/2 miles east of Ray Junction and thus reduce the distance from the railroad to the mines to five miles. Cheap transportation could be obtained by the use of motor trucks and trailers.

It has been suggested in this connection that an aerial tramway might be considered to deliver supplies to the portal of the Pratt Tunnel and transport ore from this end of the property to the railroad. The project is entirely feasible and the distance would be reduced to 3-1/2 miles, all down grade to the railroad.

The proximity of the Hayden Smelting Plant, a unit of the American Smelting and Refining Company's string of smelters, which lies about fifteen miles east of the property is an economic factor of more than ordinary value. The short railroad haul together with the efficient method of transporting ores and concentrates that could be developed, would contribute largely to the profitable marketing of the low grade ores now available on the property, which have heretofore not been considered commercial partly due to inadequate transportation facilities."

CONCLUSIONS:

LEO VON ROSENBERG:

"It is reasonable to expect that the development recommended, the existence of large quantities of workable ore will be demonstrated.

Altogether the future of the property is very bright. It must be borne in mind that the condition of a number of copper properties, which are now large producers, was at one time not at all encouraging as is the present showing at the Troy mines.

The Troy Arizona Copper Property forms a very attractive mining proposition which with proper development has every promise of becoming one of the great copper producers of Arizona.

A few weeks ago I visited the property for the third time. After another examination of the property, I am still more convinced of its great possibilities. There can be developed at least three if not more, great copper mines. One or two of the great mines will be opened up by the development proposed on Climax Hill. The Copper Glance itself will become a great mine. The showing on Climax Hill is most promising, and it is surprising that this part of the property has been so long neglected.

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The claims southwest of the Tiger can also be expected to contain workable ore bodies.

I am convinced that by the development proposed to be done on the Manhattan group, large and profitable ore bodies will be opened up.

I will not go into details, but I must state that I am much impressed with the great possibilities which this property possesses and I urge that drilling and other development recommended in my report of last year be begun as soon as possible. With an expenditure of from \$ 100,000.00 to \$ 150,000.00 several great copper mines will be opened up on the property."

CONCLUSIONS: East group of claims

ROY G. MEAD:

"In my opinion the future of the property is very bright and with well directed development work large bodies of secondary sulphide ores will be developed in the limestone, which in itself will make the property a very large producer of copper. In addition, extensive bodies of primary sulphide ores will be developed by exploring the porphyry dille and the Rattler Vein at a sufficient depth below the surface."

CONCLUSIONS: West group of claims

ROY G. MEAD:

"All of the previous development work on the property was done with the end in view of obtaining carbonate ores. This was a time when ore carrying less than 7% copper was considered unprofitable to extract, and before the time of working low grade primary sulphide ores. The history of the property is quite similar to numerous other properties in Arizona, all of which are now on a steady producing basis, drawing their output from the primary sulphide encountered in the deep-seated eruptive dikes. With the favorable surface showing on this property and its similarity to the other prominent copper producing properties in Arizona, I feel justified in my opinion that proper development work will result in a large producing copper mine."

CONCLUSIONS:

G. G. WALD:

"The property lies in the mineral belt of the South West, and surface indications and geological conditions are favorable for the mineralization of the Climax vein, especially at its intersection with the various NE to SW cross faults. The fact that the faults intersect at an acute angle is a favorable condition as the zone of shattering is larger than if they cut at right angles. These shattered zones, and also the limestone beds are most likely to contain ore bodies.

The leached zone will be found to be comparatively shallow and the highest grade ore will be found at the water level at the point of transition from oxidized to sulphide ores.

Revenue could doubtless be derived from cheap development obtained, by letting leases on the carbonate ores exposed on the surface and in old workings."

CONCLUSIONS:

JOHN G. DEVINE:

"In conclusion it is to be noted that with the expenditures of an amount somewhat less than \$ 100,000.00 on the east and west end of the property combined, the proposition will be converted into a steady producer and in consequence ample justification for a more elaborate plan of operations will inevitably follow:

The limit of volume of ore that could be mined here once the property is properly opened up should be very intensive, and judging from a

comparison of the formations here and those of other large producers in the district, mining costs could be maintained at low or lower than those of any other property now producing on a large scale. Due to the possibility of considerable high grade ore running 10 per cent or better, being encountered in cross faults throughout the area, it can be stated beyond the adventure of a doubt that commercially the property will average better than five per cent on a very large scale of operation."

Arizona Department of Mineral Resources, Capitol Building, Phoenix, Arizona

QUESTIONNAIRE

Relating to survey of potential copper production from Arizona small and marginal mines for national defense purposes;

Name of mining property... Troy Mine

Location... Troy, Arizona

Ownership... H. R. Scott, D. P. McGarvin

Name of Manager... H. R. Scott

Post Office address... 570 Broad St., Globe, Arizona

Copper production (pounds) during each of the past five years:

1936..... 1937..... 1938.....

1939..... 1940.....

1941 rate of copper production based upon first four months.....

How much copper could this property produce annually

on a 14 cent price? ..Large output.....

on a 16 cent price?

on a 18 cent price?.....

on a 20 cent price?.....

What price copper is necessary for this property? ..14¢..... cents per pound?

What plant facilities would be required and how much is the estimated cost in the event a 14 cent price could be assured? ... Leaching plant - approximately \$25,000..

a 16 cent price could be assured?

18 cent price?

20 cent price?

For what length of time would assurance of price and sale of full production be necessary? ... Three years.....

How long would it take, after financing has been provided for, before production on the above basis could be reached? Sixty to ninety days

Does your organization have the facilities for raising the necessary capital to increase production to the amount stated? No

If not, do you believe that your company would be amenable and agreeable to government financing? Yes

Do you believe that you could finance the capital investment yourself on some such basis as a guarantee of sale of output at a fixed price and for a definite period, with damages to cover unamortized portion of capital investment in the event the government failed to take the output for the agreed upon time - or some similar arrangement? Yes

Please let us have your comments on the probability or possibility of your organization participating in such a program for national defense purposes Yes

What would be your ideas on financing and carrying out such a plan as is indicated by these questions? With copper at 14¢ we believe that we could produce considerable tonnage which will be of that much benefit to our country in the present emergency.

Kindly list names and addresses of other potential copper producers in Arizona whose operations should be included within this survey.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT



Date April 16, 1940

Mine Troy Mines.

District Riverside Mining District,
Pinal County

Former name Troy Copper Co.

Owner Scott and McGarvin.

Operator " "

President

Mine Supt.

Principal Metals Copper, Gold and Silver

Production Rate

Power: Amt. & Type

Operations: Present Building roads, cleaning drifts.

Location Kelvin, Arizona

Address Kelvin, Arizona

Address " "

Gen. Mgr.

Mill Supt.

Men Employed None

Mill: Type & Cap.

Operations Planned

Number Claims, Title, etc. 7 claims (unpatented)

Description: Topog. & Geog. Rugged country. Part of Pinal Mts., elevation 3600 feet.

Mine Workings: Amt. & Condition One shaft 500 ft. 1000 feet of drifts and cross-cuts.

(over)

Geology & Mineralization The rock of the locality are granite, Granodiority diabase, porphyry, limestone, quartzite, schist and conglomerates. The values occurs in oxide in upper levels and sulphides on lower levels.

Ore: Positive & Probable, Ore Dumps, Tailings On one level the ore is from 2 to 8 ft. wide, runs from 2 to 9% copper. An estimate of 200,000 tons blocked out.

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route $4\frac{1}{2}$ miles off Kelvin-Winkleman Highway. 3 miles East of Kelvin. Mountain road, but passable. Can inquire at Kelvin P. O.

Water Supply Plenty of water.

Brief History Was worked 40 years ago by Troy Copper Company.

Special Problems, Reports Filed Have report of 4 engineers.

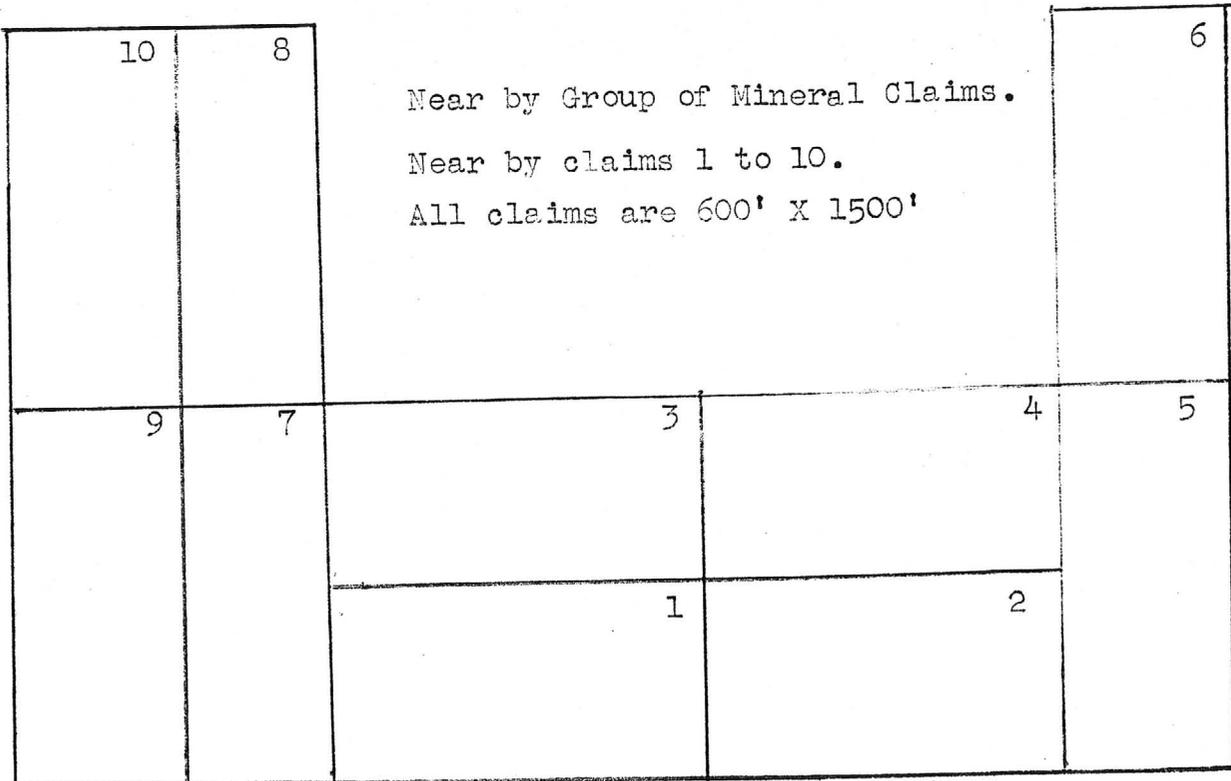
Remarks This property could be used as leaching or smelter.

If property for sale: Price, terms and address to negotiate. Would sell for reasonable terms.

Signed.....Harry R. Scott.....

Kelvin, Arizona.

Use additional sheets if necessary.



Group of Ten Mineral Claims
 known as 91 group.

(or as West End Group)

All claims are 600' X 1500'

	Last Chance.		
Grey Horse.	91.		Buck Eye.
	Hillside No. 1.	Hillside No. 2.	Bee Hive.
			Copper Glance.
	Climax No. 1. (Patented) (Not in group)		Climax No. 2.
			Limestone.

Group of Ten Mineral Claims known
 as Ninety One Group.
 (Or West End Group)
 All claims are 600' X 1500'

STATUS OF DORMANT MINES

MINE NAME: The Gray Copper Co

LOCATION: Gray Ariz

OWNER AND/OR LEASEE: H R Scott

ADDRESS: Box 1005 Globe Ariz

APPROXIMATE PRODUCTION (Year of 1945):

COPPER _____ Lbs. LEAD _____ Lbs.

ZINC _____ Lbs. (OTHER) _____

CHECK THE CHIEF CAUSE OF YOUR DISCONTINUED PRODUCTION:

- (A) Easily available ore worked out.
- (B) Increased costs, but have quantity similar to past grade of ore.
- (C) Too close a margin to develop more ore.
- (D) _____

If you have ore ready to mine please give your estimate of the amount of metal (name each metal) that you could produce in one year (after allowing 60 days to get started) if there were premiums above present market prices. Name amount with a low premium, and amount at a high premium; such as:

- Copper at 22½¢ plus 5¢ premium..... 1,000,000 Lbs.
- Copper at 22½¢ plus 10¢ premium..... 1,500,000 Lbs.

If you do not have ore ready to mine please discuss the following:

- (A) Do you think a reasonable development program would produce a justified tonnage of commercial ore at above mine?

Yes

- (B) With a premium price (guaranteed for one year) could you carry out such a development program yourself? What premium?

5 per cent

(C) If you could not do this yourself, would a quick drilling program by some government agency (at government expense) be sufficient?

yes

(D) Or would you prefer a loan plan similar to the arrangements during World War II?

How about a combination plan in two stages such as follows?

Stage 1: Government engineers review project and, if a little drilling appears to be justified and a preliminary key to the situation, such drilling program to be agreed upon by owner and government engineer, paid for by the government, but let by contract.

Stage 2: If results of drilling (or without drilling) justify underground development and/or production equipment, same to be obtainable via a mortgage loan on property.

Please discuss the above:

This property has never had a drill on it and any plan would be justified to prove the ore is below at present the Canadian Government Co is mining lead zinc & silver at present

SUGGESTIONS:

DATE Aug 5th 1950

SIGNATURE H. R. Scott

from the desk of



DEL W. FISHER

Jack Brown

found him at

Peter Crawford

34 miles South
of Globe

TROY MINES

Cu

Plinal

11 -

S 28 & 29, T 3 S, R 14 E

Scott & McGarvin, Box 2893, Globe

'42

NAME OF MINE: TROY
OWNER:

COUNTY: Gila
DISTRICT: Dripping Springs
METALS: Cu

OPERATOR AND ADDRESS

MINE STATUS

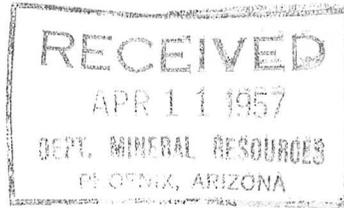
Date:	OPERATOR AND ADDRESS	Date:	MINE STATUS
10/45	H.R.Scott, Box 2893, Globe	10/45	Installing leaching plant.
		4/46	Milling

UNIVERSAL COPPER CORPORATION

2603 E. 3RD STREET
TUCSON, ARIZONA

JAMES E. GAYLOR, PRESIDENT
LEWIS E. STICKRADT,
VICE-PRESIDENT & CHIEF ENGINEER

PHONE 5-7113



Dear Mr. Knight,

With reference to item in Pay Dist requesting info on mining properties:

Since June 1956 I have been uncovering 2200 foot Pratt Tunnel at Alice Mine -- West end of old Gray Property near Ray. Expect to be in to 3 large bodies of ore in several more weeks. This mine could well become another Ray. It is on some Dripping Springs 9 1/2 m. between Ray & Christmas -- closer to Ray.

From 1900 to 1902 they were mining 17% ore from Alice shaft. Their shut-off was 7%. This came in about 50 years ago covering up a fabulous amount of ore. This area is highly mineralized with numerous high-grade outcroppings. There are dozens of chimneys in area. The tunnel cuts right thru one. It also cuts thru 260 feet of brecciated quartzite containing leppes from 1 1/2 to 8%.

October 1, 1942

Mr. F. H. Hayes
Copper Division, War Production Board,
Temporary "R"
Washington, D. C.

Dear Harry:

You want to know problems that are interfering with copper production so here is another one for you.

The Troy Copper Company, which is located about six miles from Kelvin; Arizona, and is owned by John A. Devine, Harry R. Scott, and Harry A. Wright, is a property that has an estimated 200,000 tons of low-grade copper ore ranging from 2 to 9 per cent copper. The ore is almost entirely oxidized and is adaptable to leaching and a very considerable quantity of this ore is already broken and needs only to be taken out of the mine and leached.

In August they secured a preliminary development loan for \$5,000 which was used to clean out the property and when it was cleaned out they needed no further financing by the government, but were ready for production. They made application for a serial number but reported they were turned down by the Coordinator of Mines and told to operate on a P-100. The grounds for turning them down was that they were not employing 10 men and had not previously been in production. No consideration was given to their probable production nor was any consideration given to the fact that, inasmuch as the ore was already broken, it would take very few men to operate the property on a fairly substantial scale. They are preparing the property for a 100-ton daily production and probably will not use over 10 men in the work, but they have now been stalled and almost completely shut down for about three weeks because they could not get a small amount of lumber for their leaching tanks under such priorities as could be obtained under P-100 and they have been unable to get any relief. In other words, they are ready to go just as quickly as they can get a relatively small amount of lumber and they really are entitled to a serial number.

This is an old and wellknown property but it could not work as long as copper was under 15 cents. It has an important future possibility when developed below the carbonates and into the sulphide levels. However, it has ample justification for operation in the carbonate ores alone. Shipment of the ores is going to expend but very little in materials or in manpower - much less than the average mine - yet they are hung up simply because the Coordinator uses his rules to govern rather than to guide.

Mr. F. H. Hayes

-2-

October 1, 1942

The government has made an investment of \$5,000 in cleaning up this property and with that small amount they have made a potential producer as it needs no further government financing. They would have no difficulty getting the lumber that they need if they had a serial number as there is plenty available nearby them.

The man reporting to me as to the circumstances was Harry R. Scott of Kelvin, Arizona, although the applicant for the loan, which was granted and expended, was John A. Davine, Box 872, Globe, Arizona.

I would appreciate your advise as to what can be done about this.

With kindest personal regards, I am

Yours very truly,

CHARLES F. WILLIS, Consultant
Metals Reserve Company

CFW:MH

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Copper Division, War Production Board,
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Yours very truly,

CHARLES F. WILLIS, Consultant
Metals Reserve Company

CFW:MH

TROY MINE

BANNER DISTRICT

Interview with Bert Reed, Chief Geologist, Inspiration Copper Co. 9/27/63
and with "Rusty" Carley Moore 9/26/63.

Inspiration is now preparing to make a geophysical survey of Moore's part of the Troy, particularly the high Magnetite area, that Moore estimates to contain 1-3 percent of copper. If the geophysical survey shows good results, drilling will follow. Inspiration recently optioned this property for 2 years.

MEMO LAS 9/27/63

Visited H. C. Weed and Bert Reed, Inspiration Copper Co. Mr. Reed said they had drilled 4 holes at the Troy with disappointing results. Further work in the area is not anticipated in the near future.

FTJ WR 10/1/65

Inspiration Consolidated Copper drilled the Troy property in the Pinal Mountains during the last quarter.

FTJ Annual Report June 30, 1967

Inspiration still has option on the Troy property but are inactive at time of visit.

FTJ WR 9/29/67

Inspiration drilling at Troy.

FTJ WR 5/31/68

Contacted Jim Gaylor, Tucson, 886-9663, regarding his ad in E/MJ for 24 copper claims (see ad attached). The claims are the major portion of the Troy Mine group in Pinal County. He claims to have extensive reports on the property but will not provide the DMR with copies as he wants all interested parties to come to him for information. KAP WR 7/18/75

For Sale
24 COPPER CLAIMS
(480 acres) surrounded by Kennecott's open pit claims at Ray, Ariz. Good showing of copper, gold, & silver. Near river, hwy. RR, 6 smelters and refinery. Only \$1,500,000 for quick sale. No free options. Agents 5%. Send geologist to evaluate. Billion dollar potential.
Jim Gaylor
602-886-9663 Tucson

E/MJ—June 1975

TROY MINE

PINAL COUNTY
RIVERSIDE DIST.

See: NINETY ONE CLAIM et al (file) & RFC file

See: RATTLER GROUP (file) - Pinal Co.

See: WEEDS MINES HANDBOOK, 1924, p 471

See: Production Possibilities of the Marginal Copper Mines in Arizona, 1941, p. 102
(Troy, Lucky Strike, Peg Leg)

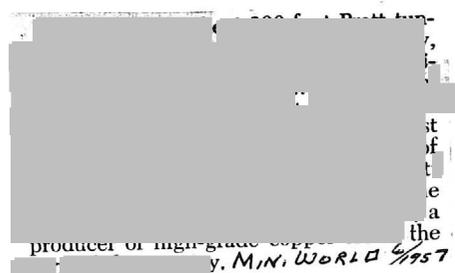
See: IC 8236 p. 92 - magnetite, hematite

March, 1919, p. 30 & April, 1919, p. 32 of Ariz. Mng. Journal

See: BANNER DISTRICT MISCELLANEOUS (Geology file)



the Ariz. Mng. Journal - 1919



producer of high-grade copper
y. MIN. WORLD 1957

Group of Ten Mineral Claims
known as 91 Group.

(or as West End Group)

All claims are 600' X 1500'

	Lest Chance.			
Grey Horse.	91.			
	Hillside No. 1.	Hillside No. 2.		
	Climax No. 1. (Patented) (Not in group)		Climax No. 2.	
	Buck Eye.			
		Buck Eye.		
		Bee Hive.		
		Copper Glance.		
				Limestone.

All claims are 600' X 1500'

(or as West End Group)

Group of Ten Mineral Claims known
as Ninety One Group.

10	8	<p>Near by Group of Mineral Claims. Near by claims 1 to 10. All claims are 600' X 1500'</p>		6
9	7			5
		3	4	
		1	2	

Arizona Department of Mineral Resources, Capitol Building, Phoenix, Arizona

QUESTIONNAIRE

Relating to survey of potential copper production from Arizona small and marginal mines for national defense purposes;

Name of mining property... Troy Mine

Location... Troy, Arizona

Ownership... H. R. Scott, D. P. McGarvin

Name of Manager... H. R. Scott

Post Office address... 570 Broad St., Globe, Arizona

Copper production (pounds) during each of the past five years:

1936..... 1937..... 1938.....

..... 1939..... 1940.....

1941 rate of copper production based upon first four months.....

How much copper could this property produce annually

on a 14 cent price? .. Large output.....

on a 16 cent price?

on an 18 cent price?.....

on a 20 cent price?.....

What price copper is necessary for this property? .. 14..... cents per pound?

What plant facilities would be required and how much is the estimated cost in the event a 14 cent price could be assured? .. Leaching plant - approximately \$25,000..

.....

a 16 cent price could be assured?

.....

18 cent price?

.....

20 cent price?

.....

For what length of time would assurance of price and sale of full production be necessary? .. Three years.....

How long would it take, after financing has been provided for, before production on the above basis could be reached? Sixty to ninety days

Does your organization have the facilities for raising the necessary capital to increase production to the amount stated? No

If not, do you believe that your company would be amenable and agreeable to government financing? Yes

Do you believe that you could finance the capital investment yourself on some such basis as a guarantee of sale of output at a fixed price and for a definite period, with damages to cover unamortized portion of capital investment in the event the government failed to take the output for the agreed upon time - or some similar arrangement? Yes

Please let us have your comments on the probability or possibility of your organization participating in such a program for national defense purposes Yes

What would be your ideas on financing and carrying out such a plan as is indicated by these questions? With copper at 14¢ we believe that we could produce considerable tonnage which will be of that much benefit to our country in the present emergency.

Kindly list names and addresses of other potential copper producers in Arizona whose operations should be included within this survey.

Date 6/3/41

Signed D. P. McGarvin

MT-17

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

DEPT. OF MINERAL RESOURCES
OCT 3 1942
ARIZONA

Date April 16, 1940

Mine Troy Mines.

District Riverside Mining District,
Pinal County

Former name Troy Copper Co.

Owner Scott and McGarvin.

Operator " "

President

Mine Supt.

Principal Metals Copper, Gold and Silver

Production Rate

Power: Amt. & Type

Operations: Present Building roads, cleaning drifts.

Location Kelvin, Arizona

Address Kelvin, Arizona

Address " "

Gen. Mgr.

Mill Supt.

Men Employed None

Mill: Type & Cap.

Operations Planned

Number Claims, Title, etc. 7 claims (unpatented)

Description: Topog. & Geog. Rugged country. Part of Pinal Mts., elevation 3600 feet.

Mine Workings: Amt. & Condition One shaft 500 ft. 1000 feet of drifts and cross-cuts.

(over)

Geology & Mineralization

The rock of the locality are granite, Granodiority diabase, porphyry, limestone, quartzite, schist and conglomerates. The values occurs in oxide in upper levels and sulphides on lower levels.

Ore: Positive & Probable, Ore Dumps, Tailings

On one level the ore is from 2 to 8 ft. wide, runs from 2 to 9% copper. An estimate of 200,000 tons blocked out.

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route 4½ miles off Kelvin-Winkleman Highway. 3 miles East of Kelvin. Mountain road, but passable. Can inquire at Kelvin P. O.

Water Supply Plenty of water.

Brief History Was worked 40 years ago by Troy Copper Company.

Special Problems, Reports Filed Have report of 4 engineers.

Remarks This property could be used as leaching or smelter.

If property for sale: Price, terms and address to negotiate. Would sell for reasonable terms.

Signed Harry R. Scott
Kelvin, Arizona.

Use additional sheets if necessary.

STATUS OF DORMANT MINES

MINE NAME: St. Mary Copper Co

LOCATION: Mary Ann

OWNER AND/OR LEASEE: H R Scott

ADDRESS: Box 1005 Mary Ann

APPROXIMATE PRODUCTION (Year of 1945):

COPPER _____ Lbs. LEAD _____ Lbs.
ZINC _____ Lbs. (OTHER) _____

CHECK THE CHIEF CAUSE OF YOUR DISCONTINUED PRODUCTION:

- (A) Easily available ore worked out.
- (B) Increased costs, but have quantity similar to past grade of ore.
- (C) Too close a margin to develop more ore.
- (D) _____

If you have ore ready to mine please give your estimate of the amount of metal (name each metal) that you could produce in one year (after allowing 60 days to get started) if there were premiums above present market prices. Name amount with a low premium, and amount at a high premium; such as:

Copper at $22\frac{1}{2}\phi$ plus 5ϕ premium..... 1,000,000 Lbs.
 Copper at $22\frac{1}{2}\phi$ plus 10ϕ premium..... 1,500,000 Lbs.

If you do not have ore ready to mine please discuss the following:

- (A) Do you think a reasonable development program would produce a justified tonnage of commercial ore at above mine?

yes

- (B) With a premium price (guaranteed for one year) could you carry out such a development program yourself? What premium?

5 per cent

(C) If you could not do this yourself, would a quick drilling program by some government agency (at government expense) be sufficient?

yes

(D) Or would you prefer a loan plan similar to the arrangements during World War II?

How about a combination plan in two stages such as follows?

Stage 1: Government engineers review project and, if a little drilling appears to be justified and a preliminary key to the situation, such drilling program to be agreed upon by owner and government engineer, paid for by the government, but let by contract.

Stage 2: If results of drilling (or without drilling) justify underground development and/or production equipment, same to be obtainable via a mortgage loan on property.

Please discuss the above:

this property has
never had a drill on it and
any plan would be justified to
probe the ore is below at present
the Candium Ironment Co is mining
lead zinc & silver at present

SUGGESTIONS:

DATE Aug 5th 1950

SIGNATURE H. Rasco

