



CONTACT INFORMATION

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

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Arizona Department of Mines and Mineral Resources Mining Collection

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11/20/90

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: GOLDFIELD MINE

ALTERNATE NAMES:

BLACK QUEEN PROPERTY
MAMMOTH GROUP
YOUNG MINES LTD GROUP
HALL PROPERTY
MOTHER HUBBARD GROUP
CLARK-OLIVER GOLD PROPERTY
LOREDI RESOURCES LTD GROUP
MS 1130
OLD WASP

PINAL COUNTY MILS NUMBER: 40C

LOCATION: TOWNSHIP 1 N RANGE 8 E SECTION 1 QUARTER W2
LATITUDE: N 33DEG 27MIN 30SEC LONGITUDE: W 111DEG 29MIN 30SEC
TOPO MAP NAME: GOLDFIELD - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

GOLD
SILVER

BIBLIOGRAPHY:

ADMMR GOLDFIELD MINE FILE
BLM MINING DISTRICT SHEET 117
GOLDFIELD MINE FLAT MAPS (21 MAPS)
SEE: ADMMR BLACK QUEEN FILE
ADMMR GEOLOGY FILES YOUNG MINES FOLIO
WILSON, E.D., & OTHERS AZ LODE GOLD MINES AND
GOLD MINING, AZBM 137, 1967, P. 167-168
BLM MINING DISTRICT SHEET 117
ADMMR GEOLOGY FILE - JINKS JIMMIE E., MINERAL
INVESTIGATION OF THE SUPERSTITION
WILDERNESS & CONTIGUOUS REAR II FURTHER
PLANNING AREAS, GILA, MARICOPA & PINAL
COUNTIES. (MLS 136-82), P. 3, & PLATE 1

Arizona Department of Mines and Mineral Resources
Verbal Information Summary

Mine: **Goldfield**

County: **Pinal**

Location: **T1N, R8E, Sec. 1**

Date: **March 17, 1999**

Engineer: **Nyal Niemuth**

Clay Worst of Old Wasp Mining Co., 5289 E. Apache Trail, Apache Junction, AZ 85219, 602-982-2671, mill/mine phone 602-982-6673 reports they have completed construction of a new mill. They are planning on doing some waste stripping to get at the continuation of the mineralized zone at depth. He welcomes ADMMR staff to come by and see the plant. Although not required a call first would be appreciated so he can provide a tour of the facility.

ADMMR

Arizona Department of Mines and Mineral Resources

1502 West Washington, Phoenix, AZ 85007 Phone (602) 255-3795
Toll Free in Arizona 1-800-446-4259 FAX (602) 255-3777

December 13, 1996

Mr. Don Wolfram, ESQ
5254 E. Apache Trail
Apache Junction, AZ 85219

Handwritten:
Mina Pila
Goldfield Mine
file
Pinal Co.

Dear Mr. Wolfram:

It was a pleasure to meet with you in our office last Wednesday and Thursday to review your Black Queen Mine holdings and the Sullivan report. I will add the Sullivan report to our file on the property. Several people have expressed an interest in the property in the past.

On behalf of the Board of Directors of the Arizona Department of Mines and Mineral Resources, myself, the staff and volunteers I thank you for the gift of the gold specimen from the Black Queen Mine. We do not have very many specimens from this mine and the "picture rock" is some of the best. They will be put to good use in our permanent collection. Our collection is dependent on generous donations by people like you. In fact, that is the only way we have of expanding our collection. The Department as an agency of the State of Arizona is considered a nonprofit organization for taxing purposes.

We are always trying to improve and expand our archive and library with new information about old mines and we would be glad to receive any old files that you may want to clean out of your system. They would be incorporated into our files and made available to the interested public.

The Department's collection of information from the Goldfield Area is incomplete and we particularly need information on the underground workings. Good information is essential for the development of the property.

Sincerely,

H. Mason Coggin, PE & LS
Director

HMC/hmc

Do Not Reproduce

Tom Russell, one of the owners of Goldfields Mines, Goldfields District, stated that the increase in price of domestically mined gold would make it profitable to reopen Goldfields Mines. The ore at the time the mine was closed averaged \$7.50 per ton. The new price would increase this to \$15. Since this mine lies in a long crescent shaped body with a maximum width of 250 feet, it should be workable by open pit or cut methods. The gold bearing material has been severely shattered and weathered, so that the cost of breaking would be low. A large reserve of such material is present and according to Mr. Russell the old mill was making a good recovery at the end of operations. LAS 2-4-59

Tom Russell stated that as soon as a mineral surveyor was obtained, his group will survey the Goldfield Mine Group for patent. All work for patent had been completed. LAS WR 6-5-59

Roy Galbraith reported that John Lewis had been killed in an automobile accident and that Mrs. Lewis was in critical condition. He had not heard any of the particulars. LAS Memo 3-8-62

Mr. Denham spoke of Messrs. Wallace and Simpson drilling at the old Mammoth gold mine at Goldfield. A trip was made to there where Mr. Wallace said had drilled 8, 40-50 ft. vertical holes in the vicinity of the old mine and none were blanks. He pans some of the dry cuttings. The drill was on a hole near the old mill foundations about 100 yards from the old shaft. He claimed that hole was particularly rich, however, he made no attempt to pan while I was there. He is from Atlanta and claims to have backing from Germany. They have a lease-option to buy the one patented claim of the Mammoth. GW WR 11/17/75

WR GW 11-9-77 - Brad Denham, Apache Junction, said a California concern was opening the old gold mine at Goldfield and had some extremely high-grade ore in sight. This may be a pillar above an old stope. 11-15-77 bh

WR/GW 1/13/78 - Clark & Oliver have been doing some surface mining at the Goldfield Mine and had approached one of Mr. Dick Chase's partners for a lease. 2/23/78 a.p.

ENGINEERS REPORT

FROM: Richard R. Beard

February 10, 1984

Apache Mining & Development Co.

Box 1445

Goldfield, Arizona 85220

Property: *(Goldfield File)*

Old Wasp patented claim in SW $\frac{1}{4}$, Sec 1, T1N R8E and unpatented claims southwest of the Old Wasp.

Mr. Jack Quay took me on a tour of the mine and plant and introduced me to Mr. Housely who is in charge of the operation.

They are currently producing from open cuts and exploring for near surface "ore" zones. They are planning to start sinking an exploration/production shaft on the ore zone from which they have been producing. Some drilling has been done but the underground work should provide a clearer picture of the ore body. Water may prove to be a problem since the water table is just 40 feet from the surface.

The ore is crushed, ground in ball mills and then tabled.

GOLDFIELD PROPERTY

PINAL COUNTY

NJN WR 4/24/87: Darrel Hand (card) visited and reported that a Superior Court judge order has given him title to the Black Queen (file) and Mammoth (Goldfield Mine - file) Maricopa, Pinal County and other claims listed on the order. A copy has been placed in the file. Mr. Hand has the title, but reports that he has still not gotten Mr. Sanstead (card) off of the Mammoth Claim. Work over the last 2 years on the Black Queen has consisted of a mill building. Mr. Hand feels the drilling Dick Hewitt did on the Black Queen and that Brace/Ansco Resources did on the Mammoth has defined reserves sufficient to begin operations. He hopes to begin mining soon.

MG WR 5/15/87: The owner of the Old Wasp patented mining claim (Goldfield Property file, Pinal Co) is Mr. Clay Worst, 5289-A East Apache Trail, Highway 88, Apache Junction, AZ 85219, phone 982-2671.

NJN WR 5/6/88: Tom Kilby, 1651 S. Dobson, #207, Mesa, Arizona 85202, 730-9551 reports that they are currently selling granite from the ~~Old Wasp~~, (Goldfield Mine - file) Pinal County and are no longer producing any gold. *MAINT. TH*

Arizona Department of Mines and Mineral Resources
INFORMATION FROM MINE CARDS IN MUSEUM

ARIZONA

MM-1002 Gold Ore

PINAL COUNTY

GOLDFIELD MINE

(Apache Trail)

MILS E 40C

9-AAA's

Goldfield Mine feet

GOLDFIELD MINE

Do Not Reproduce

Maricopa and Pinal Counties

JHJ/Memo 1/22/80 - Mr. Hankins said the (Black Queen) supposedly same as Goldfield Mine has changed owners. The new owners are erecting a mill that uses a new secret process. It is an air separator. Units will be installed of 50 TPD capacity. Eventually five units will be installed.

RRB WR 6/13/80: Rob Charson of Apache Junction was in the office to research refining and refiners. He is operating a small crusher, ball mill and table on the Goldfield Mines property. He is working for the owners, Sandy Sandstead and Larry Follet. He had had some dealings with Bahamian and had the feeling that he was getting a snow job.

Ken Phillips and I visited the property later in the week. They have gold ore showing in an open cut in narrow stringers (3 to 6") and had some beautiful specimens. We suggested that they should hire a consultant to evaluate the property and develop a flow-sheet, if feasible.

Approximately two miles north of Goldfield we visited an unknown mine that appeared to have been operated recently. A small drill rig was rigged up as a hoist using 20-gallon garbage cans to hoist the ore. There was a ventilation shaft with a fan about 15' to the east.

KAP WR 11/14/80: While at the Iron King Assay Office, Jack Hamilton, Tonto Mining and Milling, was making flotation tests on gold ores from Black Queen and Mammoth Mines, Goldfield District, Pinal County. J. Keller, along with Dick Powell and Earl Millian have acquired an interest in the mine. He reported that they have done considerable additional drilling and have bought out Sandy Sandsted's portion of the mine. They are hopeful that the Tonto Mill will be capable of processing the ore after it is mined. Their present plans are to purchase the mill and retain Jack Hamilton as consultant in the mill operation. The mill will be operating at its present location with the ore being hauled from Apache Junction to Pumpkin Center.

NJN WR 1/15/82: Vern Doyle with the Department of Water Resources called. He reported Daryl Land is requesting three well permits from his agency to obtain water for a gold mining operation at the Goldfield Mine, Maricopa-Pinal Counties. The rate requested is 1000 gallons/ton ore. It is not known whether this will be for mining, processing, both or for what number of tons it will be required.

RRB WR 4/10/81: Braxton Ezell, an attorney from Florida was in to investigate the Goldfield Mines for his clients. They have hired Ed Gray of Albuquerque, New Mexico as geologist.

NJN WR 1/29/82: It was reported that a Mr. ^{SANSTEAD} Hapstead is operating a gold recovery unit on the Mammoth claim, Goldfield District, Maricopa-Pinal County. The machine, supposedly just out on the market incorporates a trommel, table and is self contained.

NJN WR 2/5/82: Visited the Goldfield Mine, Pinal County. A new building was under construction. The security guard present would not let me enter but it appeared that some milling equipment was already set up in the building. He did comment that a Mr. Winters was in charge of the project and all inquiries should be directed to him. A rotary drill with drilling crew was operating on the property, but of course would not comment on their activities.

NJN WR 10/29/82: Jerry Sanstead reported that Mr. Boroughs had refused their monthly lease payment on the Mammoth and Black Queen Claims in Pinal County. Mr. Boroughs also is just a leasor of the property, however, he apparently defrauded another group who remain unnamed, by selling them the property when he is not even the owner. Mr. Boroughs is now being sued by both groups.

KAP WR 9/23/83: Mr. Sandsted reported the Mammoth Mine, Goldfield District, Pinal County, is being developed under his and his father's (Sandy Sandsted) direction. They are milling about 20 tons of development daily in a gravity plant. The plant crushes, grinds and uses a modern version of a gold screw for concentration.

NJN WR 12/2/83: It was reported that Apache Mining and Development Co., an Arizona corporation, is taking over the Goldfield, Pinal, Maricopa Counties, having won a lawsuit for control of the property. Apache Mining and Development's statutory agent is Ron Junck, Atty. 2020 E. Osborne, P.O. Box 10569, Phoenix, 85064, according to the Arizona Corporation Commission.

NJN WR 1/27/84: Jack Quay, Box 2919, Globe, AZ 85501, Ph: 425-2894 (c) W/Apache Mining and Development, Box 1445, Apache Jct., AZ 85220 visited. He reported they are mining gold on the Wasp patented claims (Goldfield Mine) Maricopa Co. and unpatented claims southwest of it. They are operating a gravity mill which consists of a crusher, ball mill and tables.

GOLDFIELD MINE

MARICOPA AND PINAL COUNTIES

ABM Bull. 137 p. 167

~~"Mills" Central District (file)~~
~~Geology files~~

Loredi Resources, Inc. (file)

Gold Cup Resources (file)

BLM Plat 3886

MILS Sheet sequence number 0040130177

Mineral Investigation of the Superstition Wilderness and Contiguous Rare II
further planning areas, Gil, Maricopa and Pinal Counties = Jimmie E. Jinks
1982 - Geology File page 3

MAPS - Upstairs in the alphabetical rolled file - 4 groups of maps

Mammoth



STATE OF ARIZONA

DEPARTMENT OF MINES AND MINERAL RESOURCES

Mineral Building • State Fairgrounds • Phoenix, Arizona 85007

(602) 255-3791

June 18, 1990

Mr. Arnold King
1208 Michigan Avenue
Alma, MI 48801-1334

Dear Mr. King:

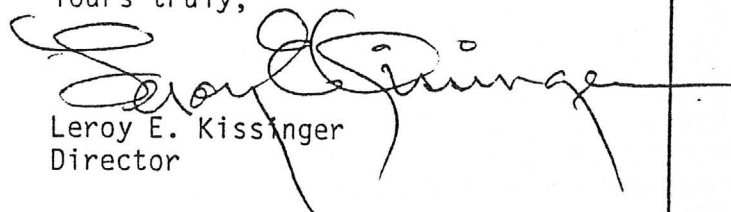
Governor Mofford's office has forwarded your letter of 5/14/90 to me for response.

The Arizona Department of Mines and Mineral Resources maintains current files on approximately 8,000 mineral prospects in the State of Arizona. In addition we keep up to date information on the mining activity in the State.

A thorough search has not revealed any reference to a gold mining effort by Western Labs and Engineering in Arizona. If you have additional identifying information about the company, the mine property name or the location of the operation, we would be able to respond in some positive way about the charge that obstacles are being put in "the way of a successful project". Both the Department of Commerce and the Department of Revenue would have to be involved in any consideration for tax relief. It is immediately certain that unless there is production, there would be no taxes.

We will be able to respond with more conclusions when you have supplied additional information.

Yours truly,


Leroy E. Kissinger
Director

LEK:at

cc: Governor Mofford

ENDS UP BEING NAME OF ONE OF MARSHAL OTT'S COMPANIES
IN CALIFORNIA, N3N

DFCF.WL

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

DATA FOR CARD FILE

Not to include property specific data for mine files

1. Information from: **Numerous sources**
Address:
2. Phone:
3. Name of/for Card: **Western Labs and Engineering**
4. County: **Pinal**
5. Summary of information received, comments, etc. to be put on card:

Headquarters: P. O. Box 2177
Costa Mesa, CA 92628
Phone: (714) 548-5922

Plant: 1385 E. 17th Ave.
Apache Junction, AZ 85219
Phone: (602) 983-0930

Company name believed to be used by Marshall Ott in his operations at the Mammoth Mine (Goldfield Mine file)

Date: July 27. 1990

Ken A. Phillips

(Signature) AZDMMR

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Old Wasp (Goldfield - file)

Date 3/19/86

District Goldfield

Engineer Nyal Niemuth

Subject: Mine Visit

County: Pinal

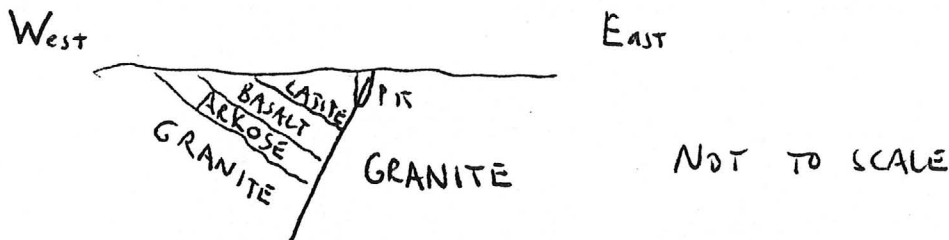
Location: T1N R8E Sec 1 W2

Owner: Old Wasp Mining Co.
5289-A East Apache Trail
Apache Junction, Az 85220

Information from: Mr. Clay Worst and Professor M. Sheridan (ASU)

Mr. Worst reported that Old Wasp Mining Co. has been operating at the Old Wasp mine and the nearby millsite for 8 months. During that time they have produced about \$1 million of dore containing mostly gold.

The ore has been produced from a vein in a north trending fault zone that averages 10' wide. Open pit mining on this zone has resulted in a 150' long by 50' deep (dangerously high walled) pit with a ramp at the south end. An estimated 5,000 to 6,000 tons of ore has been mined. This geologic cross section below shows the foot and hangingwall relationships. Vein material is mostly quartz, iron oxides and clay. Ore mineralogy is mostly free gold, with minor copper oxides and galena.



Once mined, the ore is transported about $\frac{1}{2}$ mile to the west to the company's mill. The milling circuit consists of crusher, ball mill, recovery plates, followed by gravity tables and a sluice. Recovery is reported to be 50%.

I was shown a 500 gr amalgam which was 30% gold of 870 fineness. This amount was recovered from about 5 tons of ore and is about average for 1 or 2 days production. The amalgam is retorted on site and a dore product is sold.

Signature: _____

Nyal Niemuth

(ADMMR)



STATE MINE INSPECTOR

SEP 05 1985

Office of State Mine Inspector

705 West Wing, Capitol Building
Phoenix, Arizona 85007
602-255-5971

NOTICE TO ARIZONA STATE MINE INSPECTOR

In compliance with Arizona Revised Statute Section 27-303*, we are submitting this written notice to the Arizona State Mine Inspector (705 West Wing, Capitol Building, Phoenix, Arizona 85007) of our intent to start/stop (please circle one) a mining operation.

COMPANY NAME OLD WASP MINING COMPANY

CHIEF OFFICER Kelend Manning, President

COMPANY ADDRESS 5289 A E. Apache Trail, Hwy 88 Apache Jct, AZ 85220

COMPANY TELEPHONE NUMBER 984-3459 - Fred WELKER, VICE PRESIDENT
982-2671 - Clay Worst, TREASURER — P.H. me

MINE OR PLANT NAME OLD WASP site & WINTER Gold Site

MINE OR PLANT LOCATION (including county and nearest town, as well as directions for locating by vehicle)

OLD WASP patented CLAIM; WINTER Gold & Summer Gold Lode Claim

GYSRBH TOWNSHIP 1 N. Range 8 E. Sec. 2 & 1

Milling facility approximately at mile Post 199.8, Hwy 88 - dirt road to left
open pit mine at 5289-A Hwy 88 - left hand side of Hwy.
E. Apache Trail

TYPE OF OPERATION MINING & MILLING PRINCIPAL PRODUCT Gold & Silver
Open Pit Mining

STARTING DATE 9-2-85 CLOSING DATE _____

DURATION OF OPERATION perpetual

PERSON SENDING THIS NOTICE FRED G. WELKER

TITLE OF PERSON SENDING THIS NOTICE VICE-PRESIDENT

DATE NOTICE SENT TO STATE MINE INSPECTOR 9-2-85

*A.R.S. Section 27-303 NOTIFICATION TO INSPECTOR OF BEGINNING OR SUSPENDING OPERATIONS: When mining operations are commenced in any mine or when operations therein are permanently suspended, the operator shall give written notice to the inspector at his office prior to commencement or suspension of operations.

DEPARTMENT OF MINERAL RESOURCES
News Items

Date January 15, 1953

Mine Goldfield Mine

Location Maricopa County, North of Apache Jct.

Owner Goldfields Mines Inc.

Address P.O. Box 37, Apache Jct., Ariz.

Operating Co. Lessees: K.W. Hebner, Box 784, Mesa.

Address W.E. Landis, Apache Jct.

Pres. K.W. Hebner

Genl. Mgr. K. W. Hebner

Mine Supt. "

Mill Supt. "

Principal Metals Gold

Men Employed 8

Production Rate 50-75 tons daily, 2 shifts

Mill, Type & Capacity Ball mill, amalgamation
plates, flotation.

Power, Amt. & Type Electric

Signed A. L. FLAGG

LANDIS, W. E. et al, Lessees
Apache Jct., Arizona

1-15-53

(home address) 342 Hinkel Lane - Mesa
RFD 3 - Box 619B

MINE - GOLDFIELD MINE, Maricopa County, North of Apache Jct.

OWNER- GOLDFIELDS MINES, INC., P. O. Box 37, Apache Jct., Ariz.

GOLDFIELDS MINES, INC. (OWNER)
P. O. Box 37,
Apache Jct., Arizona

1-15-53

MINE - GOLDFIELD MINE, Maricopa County, North of Apache Jct.

Operating Co. - Lessees: K. W. Hebner, Box 784, Mesa, Ariz.
W. E. Landis, Apache Jct.

1-29-55

Hugh Nichols (president Goldfield Mines Inc)
Highley Arizona - Route 2

Present Operations Mining in open-pit, which

is being extended to the north

January 15, 1953

Goldfield Mine

Location Maricopa County, North of Apache Jct.

Owner Goldfield Mines Inc.

Address P.O. Box 37, Apache Jct., Ariz.

Operating Lessees: K.W. Hepler, Box 781, Mesa.

Address W.E. Landis, Apache Jct.

Misc. Notes Lessees have been operating

since June 1952.

K.W. Hepler

"

"

Gold

8

50-75 tons daily, 2 shifts

and open a small pit with

station

Electric

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

✓ Black Queen Mine
Mine Goldfield Mine

Date April 6, 1982

District Goldfield, Pinal/Maricopa County

Engineer Nyal J. Niemuth
Mineral Resources Specialist

Subject: Visit to Goldfield Mine

At the Goldfield Mine I met with Jack Sanstead and his brother Jerry. Their father Harlow "Sandy" Sanstead is the principle person of Sanstead Mining, P.O. Box 1404, Apache Junction, Arizona 85220, Ph: 892-8817. Jack Sanstead provided the information contained in this report.

Sanstead Mining currently has a 10% NSR lease with purchase option from Goldfield Mines Inc. on the Goldfield (Mammoth-Black Queen, etc.) property. Sanstead Mining has ALMICO, a California company, as a joint venture partner in the project. ALMICO has supplied a mill called the "Disintegrator" while Sanstead does the mining and milling.

On the Mammoth claim a large concrete pad has been completed and two buildings erected thereon. One is used for storage and the other larger building (40' x 60') houses the mill. The mill, a "disintegrator", which works by a "secret process" crushes the ore to little "balls" from which a gravity concentrate is made on shaker tables. The mill unit, which occupies about $\frac{1}{4}$ the building, is being operated 24 hours per day handling 6 - 12 ton per day. The concentrate is treated to remove quartz and other gangue, melted, and a dore bar poured.

Ore for the mill is coming from the open pit on the Black Queen Claim. The pit is being extended to the southwest. After a blast, the material is loaded selectively to get quartz vein material which contains most of the values. This is especially important given the small capacity of the mill. Equipment present at the open pit includes generator set, compressor, 2 Payloaders, tractor with bucket, 2 trailers, 2 trucks, jaw crusher and a conveyor.

Mr. Sanstead reported that some drilling had been done on the Mammoth claim but did not disclose the amount drilled or results obtained.

cc: Tucson Office

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Goldfield Mine

Date October 4, 1957

District Goldfields, Maricopa County-
Pinal County Line

Engineer Lewis A. Smith

Subject:

Owners: Tom Russell ✓
Hugh Nicols ✓
Fred Slugey ✓
C. C. Waterberry ✓
Mrs. Alfred Lewis ✓

Property: 88 claims, 1680 acres (partly fractions), Sec. 35 - 36, T2N, R8E.

Property Development: Consists of 2000 feet of underground openings, two shafts and a long adit. The ore is low grade, averaging about \$7.50 in gold in quartz a stringer lode in granite. This lode averages 100 feet wide and several thousand feet long. The property had a 110 ton flotation mill on it, but this is being sold. Due to the average grade being so low it hoped that a larger mill (500 tons) can be placed on the property. They plan to eventually patent their claims.

GOLDFIELD MINE

MARICOPA COUNTY
PINAL COUNTY

RRB WR 2/15/85: Visited the Mammoth Mine, Goldfield District. Jerry Sandstead reports that the Black Queen is still tied up in litigation which is delaying development of the property.

NJN WR 7/13/86: Lynn Singley, with Apache Mining and Development (c) 6991 E. Camelback, Suite C240, Scottsdale, Arizona 85251, called and reported they are planning to leach tailings in the area of the Mammoth Mine (Goldfield - file) Pinal County. He also reported he has spent nearly a million dollars upgrading the milling operation there. They also plan to do some drilling south of the Old Wasp but on the same vein.

YOUNG'S DEAL ON MAMMOTH

It Is Still Pending Contrary
To Report

June 25, 1911.

A NEW REDUCTION PLANT

It Is Needed and Will Be
Provided, If Not by This
Deal, Then by Some Other

It was reported yesterday that Territorial Secretary George U. Young had refused an offer of \$50,000 for a one-third interest in the Mammoth mine at Goldfield, which sum if paid was to be used in the construction of a larger reduction plant. It is known that such a deal has been on for a few days and when approached concerning it last night, Mr. Young said he had not considered it a matter for publication thus far, but in view of the fact that some things have been printed that are misleading he would make a general statement concerning the property and the present negotiations. He said the deal in question is not yet "off." It has been a matter of proposition and counter proposition and thus far there is nothing decisive.

In this connection, Mr. Young said he would like to review the history of his connection with the property a little as it is one mine that has made good, one property in which he has been able to verify every claim

ing of a new and deep shaft, but had died before he got back from Denver. Being convinced of the truth of these things, Mr. Young said it was up to him to find out why Mr. Hall wanted a new and deep shaft. He secured the property and went to work in full faith that there was ample reason. Ten days ago he proved the facts to the satisfaction of himself, and all others who have inspected it, and are skilled in mineral formations. He says he knows now why Charlie Hall wanted a new shaft, just as well as though he were talking to him today. The ore is there. Previously Mr. Hall had only worked his rich deposits and had not reached the point of real mining, though he took out a great deal of money.

Mr. Young went to work with a will as soon as he secured the property and has kept a large force of men busy ever since. Ten stamps of the old mill were put in good condition and started to running months ago, though they have not been operated regularly for various reasons, such as getting his water supply arranged for convenient handling, etc. He had for one thing to pump out the reserve in the big shaft to get to the bottom of it, and has spent thousands of dollars in just getting rid of water, of which there will be no scarcity when things are in order. Another ten stamps of the old mill will be ready for use in a very short time and the first ten are now hammering away in 24-hour shifts. The mine is now making money, but not as fast as it ought to, merely from lack of reduction facilities. It needs more stamps and a cyanide plant, and will have them eventually, whether this deal goes through or not. Mr. Young says he has been sweating blood for a year, but feels better right now than he ever did in his life, for he has proved everything and thinks he is in a position to take care of himself.

The property is now well known among mining men and is attracting much attention among the engineers. Last week an eminent engineer representing large eastern interests, the identity of which he does not care to reveal, experted the property and made an offer of \$50,000 for a third interest. The plan was for Mr. Young to retain control, the money to be used in the erection of a new and larger reduction plant. It is this deal that is still pending, efforts be-

PHOENIX WILL SOON COME INTO HER OWN

One of the last messages ever delivered by Abraham Lincoln was addressed to the miners of the west and conveyed to them by Hon. Schuyler Colfax, then speaker of the house of representatives. It ran as follows:

"During the war," said he, "we have been adding a couple of millions every day to our national debt. Now that the war is over, we know pretty nearly the amount of the debt, and the gold and silver we mine make the payment of that debt so much the easier. I am going to encourage that in every possible way. We shall have hundreds of thousands of disbanded soldiers. I will try to attract them to the hidden wealth of our mountain ranges, where there is room for all. I intend to point them to the gold and silver that await them in the west. Tell the miners from me that I shall promote their interests to the utmost of my ability, because their prosperity is the prosperity of the nation, and we shall prove in a very few years that we are indeed the treasury of the world."

The bulk of the national debt, which at the close of the war amounted to over three thousand millions, has been paid, and the western mining states, to which Mr. Lincoln pointed the disbanded soldiers, have produced enough gold, silver and other valuable metals to cover every dollar of it. This despite the fact that for fifteen or twenty years after the discovery of mines, most of the men employed were slowly learning how to mine, and the various mill men in constant search of methods whereby the precious metal could be recovered.

One time is different, and the debt less, but the idea promulgated by Mr.

who have kept continuous development of their different propositions under way during the past two and three years, and through what all informed know to be the most stringent of financial times to secure money for mining development are ex-Secretary of Arizona George U. Young, Ezra W. Thayer, S. J. Tribble, A. J. Jennings and R. N. de Gex.

Mr. Thayer's property is nearer Wickenburg, but he has developed a prospect into a mine of more than local renown, and has a proven property which some claim will make Arizona famous as a silver producer. This property is now an indirect—and sooner or later will become a direct—resource of Phoenix. Mr. Thayer is one of the leading hardware merchants of the city, and too much praise cannot be bestowed on him for his faith, energy and intelligence in opening up such a silver mine as the Monte Cristo is destined to be.

Mr. Tribble is developing and operating a copper property forty-five miles north of Phoenix. He has been industriously engaged in this work, aside from his extensive wholesale and retail meat and butcher business, for over a year past, and has lately contracted for the delivery of one thousand tons of high grade ore for shipment to the El Paso and other smelters, two or three cars on this contract already having been delivered and shipment forwarded by Thayer and Lewis, who have this freighting contract.

Mr. Jennings has been quietly developing a gold and copper property in the Phoenix or Salt River Mountains, twelve or fourteen miles south of the city. Mr. Jennings has been creating no excitement with the result—active development and the installation of a great deal of new machinery has been done and put into place on this property the past eight or nine months.

What bids fair to become one of the largest gold mines ever opened in Arizona in the Goldfield, or Mammoth mine, twenty-five miles east of Phoenix, at the foot of the beautiful Superstition Mountain. This property was owned in the early days by Mr. Charles Hall, who died while the property was in active operation under his management and ownership. This property produced nearly, if not quite, one million in bullion before the death of Mr. Hall. After his death the property reverted to his estate and was owned by his two daughters, who reside some place in the East. This property lay idle many years, until taken over in April, 1910, by the, at that time, Secretary of Arizona Hon. George U. Young. It was a big un-

MATCH
LINE

was able to verify every claim made for it by Mrs. Murphy, the daughter of the late C. L. Hall, of whom he bought it March 25, 1910, after he had worked two years in an effort to secure an option. The sale was consummated largely through the efforts of H. M. Lewis of this city who knew the property well under the Hall management and knew Mr. Hall. Mr. Lewis' representations are what first interested him in it and it took a long time for matters to assume a status in which he could get a hold of it.

He finally got a proposition and made a personal inspection. He had only been on the ground forty minutes when he made an offer for it and it then took some time to perfect negotiations. His offer was based largely on his confidence in what Lewis had told him as much of it was under water and the big shaft was 125 feet deep instead of 225 as has been printed. Mr. Young says that he was convinced by his first visit that there was a mine there, and that it had been worked out, and when it was taken out of it was a mine.

The deepest shaft, however, showed that the workings were yet only in a second formation and that they were not entering the primary formation, and having reached water level or the second formation. He was told that Mr. Hall had the same ideas and had put up \$20,000 for the sink-

ment that is still pending, efforts being made to get together on details.

The property is well worth a new and a large plant, providing it is equipped with a cyanide process. Mr. Hall in his operations paid no attention to anything but the high grade ore. There was plenty of that and in those days there was no cheap method available for the working of the medium and lower grade ore, even had Mr. Hall desired to do so.

The project of the Mammoth is a fine illustration of legitimate mining. Mr. Young bought the property himself and has financed it himself thus far. It is capitalized for \$750,000 at \$10 a share, the stock being now valued at \$5, but only three or four thousand shares of it are out and most of that is to personal friends or gift stock, so he has the absolute dictation in matters of management. He has taken the risk himself and has things so situated that in the event of a loss or failure, he is the principal one who will be stung.

Mr. Young's methods of mining are highly commendable, and because he has taken hold so fearlessly and risked his own money and his own credit, he has the good wishes of all and has also made something of a name for himself among the mining men and financiers of the country. He has brought a great deal more money into the country than he has taken out of it thus far, but he has a right to believe that his good day is coming.

In 1907, when the panic was on he kept in operation the only development camp in Yavapai county and carried the burden practically on his own shoulders. Since coming to Phoenix as territorial secretary and since purchasing the Mammoth mine he has pursued the same tactics and has been much complimented by engineers as well as by financiers and the general public in so far as it has been advised of his operations. Whether this deal goes through or not, Mr. Young says the comments of the men he has been dealing with have been most flattering and he feels greatly complimented by their report upon his property.

less, but the idea promulgated by Mr. Lincoln at that time regarding mining is especially pertinent to the best present and future welfare of Phoenix at this time.

Agriculture and mining are the two fountain heads of money production. If the work is legitimate, the money is clean, no matter what corruption of it may afterward occur. The agricultural resources surrounding Phoenix are the pride of Phoenix, and fast becoming the admiration of the continent. The past two years of experiment and development of the mining resources surrounding Phoenix is rapidly calling the attention of thinking men to the fact that Phoenix is not only an agricultural center, but is destined to become one of the—if not the most important mining centers in the Southwest.

Mining methods of today are not the methods of ten, fifteen or twenty years ago. It will always contain, in the first development of the "prospect," some per cent of uncertainty, yet no business has become so systematized that all chance has been wholly eliminated. Mining is being deduced to a business basis in all mining countries, and in no section more so than this one, which is to the great credit of the mining men of Phoenix, who have been and are laboring hard to bring to the industrial resources of Phoenix what belongs to it along mining lines. It must be said these men have spent their own money and used their own credit in the development of these propositions before asking outside interests to invest in their different stocks.

Among the principal men of Phoenix

George U. Young. It was a big undertaking for one man, but Mr. Young has kept up continuous work ever since on this magnificent property, with the result today, with the old mine workings cleaned out and the great amount of new work done, Phoenix can boast of one of the very largest community resources in her immediate eastern front yard. Mr. Young has a fine past record for town building and community development back of him, and the results of this last tremendous responsibility fully proves no determination in his well known intelligence and wonderful nerve. This property is now incorporated and known as the Young Mines Company, Ltd.

The Red Rover Mine, forty miles north of Phoenix, has been quipping through the development stages for the past two or three years. This property is owned by Dr. Craig, Mr. R. N. de Gex and several other prominent men of Phoenix. Active management is solely in the hands of Mr. de Gex, and that understands his business is proof of the fact that the ore shipped from Phoenix to the smelters during the past four or five months has not paid expenses, but netted a big profit. Numerous other mines of smaller scale, all contiguous, and of them very near to Phoenix, are also passing the "prospect" stage. This fact should be more than paying to Phoenix. The startling mines means more pay rolls, more men, women and children will have to live, and that means a larger local market for the far and the local market, in all agricultural sections, is the one man

which pays the farmer the fair profit for his products.

Agricultural conditions of the River Valley as they are, the mining industry as promising as it is, building of the new Southern Pacific shops, now an assured fact, the coming of the El Paso and Southwest Railroad into Phoenix inside the next twenty-four months, the finishing of the Buckeye railroad to Yuma, connection with Globe inside the next two years, making two through-line connections for Phoenix, are subjects sufficient to dispel the "grouch" of the pessimist and make it a continuous fight with the optimist to suppress his joy.

The Gazette, which has always and will continue to stand for the legitimate building of Phoenix, is giving more space to the mining industry surrounding Phoenix, and will

Sept 6-12
Gazette

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view of the fact that some things
 have been printed that are mislead-
 ing he would make a general state-
 ment concerning the property and
 the present negotiations. He said the
 deal in question is not yet "off." It
 has been a matter of proposition and
 counter proposition and thus far
 there is nothing decisive.
 In this connection, Mr. Young said
 he would like to review the history
 of his connection with the property
 a little as it is one mine that has
 made good, one property in which he
 has been able to verify every claim
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Young went to work with a
 will as soon as he secured the prop-
 erty and has kept a large force of
 men busy ever since. Ten stamps
 of the old mill were put in good
 condition and started to running months
 ago, though they have not been op-
 erated regularly for various reasons,
 such as getting his water supply ar-
 ranged for convenient handling, etc.
 He had for one thing to pump out
 the reserve in the big shaft to get
 to the bottom of it, and has spent
 thousands of dollars in just getting
 rid of water, of which there will be
 no scarcity when things are in order.
 Another ten stamps of the old mill
 will be ready for use in a very short
 time and the first ten are now ham-
 mering away in 24-hour shifts. The
 mine is now making money, but not
 as fast as it ought to, merely from
 lack of reduction facilities. It needs
 more stamps and a cyanide plant,
 and will have them eventually.
 Whether this deal goes through or
 not, Mr. Young says he has been
 sweating blood for a year, but feels

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The auction of lots today - Ad-
 vertisement.

THE ARIZONA REPUBLICAN

Twenty-Second Year.

The Arizona Republican, Friday Morning, June 2, 1911.

Vol. XXII. No. 15.

The legitimacy of this mining investment is guaranteed. Ten thousand shares will be placed on sale June 5, 1911, at \$5.00 per share. Make all checks payable to the "Young Mines Company, Ltd.," and address all communications to Geo. U. Young, Phoenix, Arizona.

YOUNG'S DEAL ON MAMMOTH

It Is Still Pending Con- trary To Report

A NEW REDUCTION PLANT

It Is Needed and Will Be Provided,
If Not by This Deal, Then by
Some Other.

It was reported yesterday that Territorial Secretary George U. Young had refused an offer of \$50,000 for a one-third interest in the Mammoth mine at Goldfield, which sum if paid was to be used in the construction of a larger reduction plant. It is known that such a deal has been on for a few days and when approached concerning it last night, Mr. Young said he had not considered it a matter for publication thus far, but in view of the fact that some things have been printed that are misleading he would make a general statement concerning the property and the present negotiations. He said the

assume a status in which he could get a hold of it.

He finally got a proposition and made a personal inspection. He had only been on the ground forty minutes when he made an offer for it and it then took some time to perfect negotiations. His offer was based largely on his confidence in what Lewis had told him as much of it was under water and the big shaft was 425 feet deep instead of 225 as has been printed. Mr. Young says that he was convinced by his first visit that there was a mine there, unless it had been worked out, and what Hall had taken out of it was of record.

The deepest shaft, however, showed that the workings were yet only in a "made" formation and that they were just entering the primary formation, not having reached water level or the secondary enrichment. He was told that Mr. Hall had the same ideas and had put up \$50,000 for the sinking of a new and deep shaft, but had died before he got back from Denver. Being convinced of the truth of these things, Mr. Young said it was up to him to find out why Mr. Hall wanted a new and deep shaft. He secured the property and went to work in full faith that there was ample reason. Ten days ago he proved the facts to the satisfaction of himself and all others who have inspected it, and are skilled in mineral formations. He says he knows now why Charlie Hall wanted a new shaft, just as well as though he were talking to him today. The ore is there. Previously Mr. Hall had only worked his rich deposits and had not reached the point of real mining, though he took out a great deal of money.

Mr. Young went to work with a will as soon as he secured the property and has kept a large force of men busy ever since. Ten stamps of the old mill were put in good condition and started to running months

better right now than he ever did in his life, for he has proved everything and thinks he is in a position to take care of himself.

The property is now well known among mining men and is attracting much attention among the engineers. Last week an eminent engineer representing large eastern interests, the identity of which he does not care to reveal, experted the property and made an offer of \$50,000 for a third interest. The plan was for Mr. Young to retain control, the money to be used in the erection of a new and larger reduction plant. It is this deal that is still pending, efforts being made to get together on details.

This property is well worth a new and a large plant, providing it is equipped with a cyanide process. Mr. Hall in his operations paid no attention to anything but the high grade ore. There was plenty of that and in those days there was no cheap method available for the working of the medium and lower grade ore, even had Mr. Hall desired to do so.

The project of the Mammoth is a fine illustration of legitimate mining. Mr. Young bought the property himself and has financed it himself thus far. It is capitalized for \$750,000 at \$10 a share, the stock being now valued at \$5, but only three or four thousand shares of it are out and most of that is to personal friends or gift stock, so he has the absolute dictation in matters of management. He has taken the risk himself and has things so situated that in the event of a loss or failure, he is the principal one who will be stung.

Mr. Young's methods of mining are highly commendable, and because he has taken hold so fearlessly and risked his own money and his own credit, he has the good wishes of all and has also made something of a name for himself among the mining men and financiers of the country. He has brought a great deal more

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GOWLER'S
NEEDLE

GOLDFIELD MINING DISTRICT

TOMAHAWK

GOLD BOON

OLD STATE
HIGHWAY YARD

LAZY DOG

SITE OF THE
PHOTOGRAPH CABIN

INSERT "A"

GALBRATH

GOLDEN
HILLSIDE

BLACK
QUEEN
1893

IRON HORSE
CLAIM

MARICOPA COUNTY
PINAL COUNTY

GOLDFIELD
POND

GOLDFIELD
GHOST TOWN

BULLDOG

LINE RAIL

MAMMOTH
MINE
1893

BLUARD
MINE

SUB STATION

SYMBAD

FAULT

TONTON NATIONAL FOREST

BOULDER BUCKHORN
MINE
(DOC PALMER)
1886

STATION
ER
STAIN
J
S

Goldfield Mine

PROPHESIES MAMMOTH WILL BE A MINE

Justice George S. Irwin made a tour of inspection Sunday extending over a good portion of the Goldfield-mining district partly for the purpose of witnessing the development being done there and to also take a look at some property of his own which is located near the workings being done by George U. Young on the Mammoth.

Mr. Irwin has had considerable experience in the Colorado gold fields and is experienced in the mining business. Yesterday he made the statement that in his opinion the workings of Mr. Young would uncover a mine. The three-compartment shaft on the Mammoth is down to a depth of ninety feet. Drifting will commence at the 100-foot level and will continue at intervals of every hundred feet. The machinery which has been installed is all of a high grade order. The stamp mill is to be one of the latest inventions and will be located near the old mill. The hoist is in operation using buckets to carry the men up and down in the shaft until the arrival of the cages. According to Mr. Irwin the formation is easily worked and little difficulty is encountered in going down.

YOUNG BUYS THE OLD BULL DOG PROPERTY

His Faith in the Goldfield District Gets
Stronger Every Day.

George U. Young, who is engaged in developing and equipping for active operations the old Mammoth mine at Goldfield, yesterday acquired from E. J. Knutson the old Bull Dog mine, only a short distance from the Mammoth mine and almost as historic a

anyway, for he formed the mill under Cha. former owner, and with the last big bar of bit out, valued at \$60,000 of wide experience at son who gave to E. J. notable assayer of 11 lesson in metallurgy.

The mill undergoing have ten stamps. At the present time these regarded as more for forty than anything of the values he expects one and possibly two in which he believes will cheaper and just as equipping the stamp reasons. One is been

THE MAMMOTH MINE PROVING OF WORTH

George U. Young's Mine Shows
Splendid Ore After a Little
Work. Old Producer

The following, taken from the Mesa Free Press, will be good news to Phoenix people:

Most encouraging reports come from Goldfield, and it is evident that there will soon be one of the greatest mines in the territory at Mesa's door. Since Hon. Geo. U. Young took hold of this property it has been worked in a systematic manner. He found everything in disorder. The old workings were caved in, the timbers rotted and the lower levels full of water. It was hopeless at that time to take advantage of any of the old work. Consequently a new working shaft was started. It is a double compartment shaft, with a man-way and has been sunk in solid formation. When the desired depth is reached, levels will be run to cut the ore bodies, when the output of the mine should be such as to make people take notice. In the meantime a hoist was placed upon the black Queen and that shaft is now producing ore that brings a smile to the operators. Two other shafts are now being worked and the mill is making daily runs. The ore is of high enough grade to justify sacking, showing that it is not all a low grade proposition. *WITCH*

Mr. Young is a man who does not believe in boasting of what he intends to do, but keeps the work going in a way that results tell. When asked for news he says that he is "sawing wood," and hopes to have news later on. Enough is known of the work to justify a statement that the old Mammoth has "come back" and is here to stay. Prospectors and mining men realize this and also believe that there are other big mines in the district that need only develop

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PHOENIX.

POLITICIAN A COMING MINER.

STAMP MILL WILL BE PUT IN BY
TERRITORIAL OFFICIAL.

George U. Young to Take Up Work
of Developing the Old Mammoth
Mine at Goldfield, Ariz.—Plans New
Shaft, Mill and Machinery—Devel-
opment Work on Bulldog.

(SPECIAL CORRESPONDENCE OF THE TIME

PHOENIX (Ariz.) June 3.—Territorial Secretary George U. Young states that a ten-stamp mill will be working about July 1 on the old Mammoth mine at Goldfield, twenty miles east of Mesa, across the Pinal county line, on which he has an option.

A new three-compartment shaft has been started apart from the old workings, a new hoist has been set and a large amount of machinery added to the old plant.

It is not expected that any bonanza will be struck, but there is assurance that a large amount of low-grade ore is available, to be worked at a profit in a modern, labor-saving mill.

The old ore body was from three to seven feet wide, within very distinct walls, between which it was generally worked out clean.

Much of the mine has caved, as the vein was on a considerable incline.

The property lies just at the western break of the Superstition Mountains, much of the country rock being granite. It is surrounded by a large number of claims, worked for years by prospectors in a desultory sort of way, though the surface rock generally is remarkable for its value in free gold.

Across the narrow valley lies the Bulldog mine, a property that has had considerable development and on which a small mill once was operated. William Neagle has been placed in charge of the Goldfields mine and James A. Noel of Los Angeles has arrived to erect and superintend the mill.

The present promises are kept. Mr. Young will need no financial help to perfect the Mammoth plant, put it on a basis for paying the purchase price, development and a nice little side.

The Bull Dog property, which he has just acquired, will not be incorporated with the Mammoth, but is a project independent of it, though near by.

END

YOUNG BUYS THE OLD BULL DOG PROPERTY

This Faith in the Goldfield District Gets
Stronger Every Day.

George U. Young who is engaged in developing and equipping for active operations, the old Mammoth mine at Goldfield, yesterday acquired from E. S. Sattuck the old Bull Dog mine, only a short distance from the Mammoth mine and almost as historic a property. Though never worked quite so extensively as the Mammoth it has in other days been a producer and Mr. Young is convinced it still has a future. The terms of the sale were not made public and will not be until later.

Speaking of the Mammoth mine, Mr. Young said yesterday the work of equipping the mill had not progressed quite so rapidly as he had hoped and it will not be possible to start it before the 10th of July, though he had hoped to begin reduction on the 1st. Yesterday he employed two experienced amalgamators to conduct the recovering of the gold from the plates. One of them really belongs to the plant

anyway, for he formed of the mill under the former owner, and with the last big bag of bull out, valued at \$60,000 of wide experience and a son who gave to E. J. notable assayer of 11 lesson in metallurgy.

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Mr. Young is now a corporation of "The Company, Limited," and over and operate the property. The capital stock, 1000, par value of the Young owning practical stock.

The incorporation is the purpose of conducting as is customary in the mines. On the contrary Mr. Young is following out an original idea

was placed upon the track and that shaft is now producing ore that brings a smile to the operators. Two other shafts are now being worked and the mill is making daily runs. The ore is of high enough grade to justify sacking, showing that it is not all a low grade proposition. MATCH

Mr. Young is a man who does not believe in boasting of what he intends to do, but keeps the work going in a way that results tell. When asked for news he says that he is "sawing wood," and hopes to have news later on. Enough is known of the work to justify a statement that the old Mammoth has "come back" and is here to stay. Prospectors and mining men realize this and also believe that there are other big mines in the district that need only development to disclose their treasures. The country for a long distance has been located and the prospectors are now at work.

It will be a good plan for people of this section to keep an eye on the Goldfield country. One or two big mines there will prove a wonderful boost for Mesa, the base of supplies. The fact that Mesa is the nearest town and that there is no better road in the territory, will prove a permanent chain holding together the interests of the two localities.

It is Mr. Young's intention also to handle his enterprises that he will have a further development fund of \$35,000 for the Madzelle group and \$25,000 for the Yankee group, both of which, if he has not been misled by reports of engineers and assays, he should be able to accomplish by the first of October. It is his intention and desire to fully develop all three properties with the least minimum of stock issued, which stock will in the

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The Derby group six miles west process of development of Young has been last four years, the name of the "The capital the stock is all both of Prescott er, is a group of the Yankee Min- Young owns all

yesterday Mr. purpose to prove the Mammoth the mill for the If the mill re- what the assays in, he will then s and a cyanide ore on an ex- leaves the Hunt- much less waste-

more economical- operated on ore of the sort found in the Mammoth district.

On proving the ore by the mill tests and as soon as correct deductions can be made on interest and a sinking fund It is his intention to so finance his operations as to return to the stockholders all the money they have advanced in the development of the Madzelle group leaving their holdings clear and without risk to them as a partial repayment to them for their loyalty and confidence in him.

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PHOENIX.

**BULLDOG MINE
IS TAKEN OVER.**
La. Times July 1910.
WILL BE OPERATED IN CONJUNCTION WITH MAMMOTH.

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(SPECIAL CORRESPONDENCE OF THE TIMES.)

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The mine lies just below Bulldog

the mill until the arrival of the ore. According to Mr. Irwin the formation is easily worked and little difficulty is encountered in going down.

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YOUNG BUYS THE OLD BULL DOG PROPERTY

The Faith in the Goldfield District Gets
Stronger Every Day.

George U. Young, who is engaged in developing and equipping for active operations, the old Mammoth mine at Goldfield, yesterday acquired from E. S. Scattuck the old Bull Dog mine, only a short distance from the Mammoth mine and almost as historic a property. Though never worked quite so extensively as the Mammoth it has in other days been a producer and Mr. Young is convinced it still has a future. The terms of the sale were not made public and will not be until later.

Speaking of the Mammoth mine, Mr. Young said yesterday the work of equipping the mill had not progressed so rapidly as he had hoped and that it will not be possible to start it before the fifth or sixth, though he had hoped to begin production on the 1st. Yesterday he employed two experienced men to conduct the recovery of the gold from the plates. One of them will belong to the plant

anyway, for he formerly had charge of the mill under Charles L. Hall, the former owner, and was present when the last big bar of bullion was turned out, valued at \$60,000. He is a man of wide experience and was the person who gave to E. E. Burlingame the notable assayer of Denver, his first lesson in metallurgy.

The mill undergoing completion will have ten stamps. Mr. Young says at the present time these stamps are regarded as more for testing the property than anything else. If he finds the values he expects, to he will add one and possibly two Huntington mills, which he believes will work the ore cheaper and just as effectively. He is equipping the stamp mill first for two reasons. One is because it will handle the ore, no matter how hard it is and secondly because the major part of the mill was already on the ground and its equipping was the quickest way to get results.

Mr. Young is now engaged in the incorporation of "The Young Mines Company, Limited," which will take over and operate the Mammoth property. The capital stock will be \$750,000, par value of the shares \$10. Mr. Young owning practically all of the stock.

The incorporation is not designed for the purpose of conducting a stock sale, as is customary in the exploitation of mines, on the contrary Mr. Young is following out an original idea

in his mining operations, that requires a lot of hard work, and many sacrifices on his own part, his purpose being to see to it that no man who has been associated with him shall lose money by his ventures. If there is any money to be made at all, and if there is to be a loss, he will stand by far the heaviest part of it.

What is known as the Derby group of twenty-five claims six miles west of Prescott now under process of being patented, in the development of which property Mr. Young has been busily engaged for the last four years, is incorporated under the name of the "Madizelle Mining Co." The capital stock is \$500,000 and the stock is all held by three persons.

About seven miles south of Prescott on the Hassayampa river, is a group of ten claims owned by "The Yankee Mining Co.", of which Mr. Young owns all the stock.

Discussing his plans yesterday Mr. Young said it was his purpose to prove the assays secured on the Mammoth ores, by test runs in the mill for the next month or two. If the mill returns 50 per cent of what the assays indicate it should return, he will then install Huntington mills and a cyanide plant for working the ore on an extensive scale. He believes the Huntington mills will be much less wasteful of the values and more economically operated on ore of the sort found in the Mammoth district.

On proving the ore by the mill tests and as soon as correct deductions can be made on interest and a sinking fund it is his intention to so finance his operations as to return to the stockholders all the money they have advanced in the development of the Madizelle group leaving their holdings clear and without risk to them as a partial repayment to them for their loyalty and confidence in him.

It is Mr. Young's intention also to so handle his enterprises that he will have a further development fund of \$35,000 for the Madizelle group and \$25,000 for the Yankee group, both of which, if he has not been misled by reports of engineers and assays, he should be able to accomplish by the first of October. It is his intention and desire to fully develop all three properties with the least minimum of stock issued, which stock will in the

end, be very valuable to the few people who hold it, even if but one of the three properties become good paying mines, and at the present time he thinks they all will be so proved eventually. There will only be 3,000 shares of the Mammoth stock for sale. The first thousand shares will be sold at \$5 and the remainder at par, \$10. This fact is mentioned only in the case of accident or disappointment, for if the present promises are kept Mr. Young will need no financial help to perfect the Mammoth plant, put it on a basis for paying the purchase price, development and a nice little profit beside.

The Bull Dog property, which he has just acquired, will not be incorporated with the Mammoth, but is a project independent of it, though near by.

PHOENIX

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MINING AND ENGINEERING WORLD
OPERATIONS AT MAMMOTH MINE
GOLDFIELDS, ARIZONA
by Charles A. Dinsmore
October 7, 1911

The Mammoth Mine at Goldfields, Pinal County, Arizona, is being operated by George U. Young, Secretary of Arizona.

A ten stamp mill is run twelve hours a day, values being saved until the tails carry about 20 cts. per ton only. The ore is a free-milling gold ore, values running from \$5 to \$50 per ton.

A. C. Mossey is Superintendent, F. W. Smith, Engineer and Assayer, P. C. Kennedy, Consulting Engineer and Mill Superintendent. Work is being done through two shafts, total depth being 405 feet.

This might properly be called a "disseminated gold porphyry," if one may infringe so much on the popular copper expression. Here is a brecciated porphyry or granite porphyry, something more than 300 ft. in width, the full length at least of one claim a depth of 100 ft. of ore, and throughout the ore runs an average above \$5. The country is porphyry, trending practically north and south; and there are many flows of andesite running through it. On the Mammoth there are two andesite flows, between which is the ore body as stated. The andesite is barren. But where the andesite and brecciated materials contact there has been a concentration of values, with a narrow ore zone of from 3 to 30 ft. in width, carrying from \$12 to \$200 per ton in gold. This zone is sharply cut off by the andesite on one side and by the brecciated material of lesser grade on the other; but from it through the low grade there are many stringers of varying length carrying high grade ore. In some instances, by following these stringers, lenses of rich ore have been found but more often this is not the case, the high grade "petering out" to the regular low grade values. The high value on the contact however has its peculiarities. Where the lense is widest the ore is richest, and the lens is extremely variable in the size, widening and narrowing occasionally, and also

the high grade one maintained reliability to the greatest depth attained. On the 100 ft. of 7th a winze has been sunk 45 ft. and here the bottom is in \$60 ore, and the indications are that another of the rich shoots, or probably the continuation of the old ore is coming in.

To the depth of 400 ft. the ore is exactly the same in character and practically so in value as on the surface. It is all oxidized, no sulphides having been found. It was thought that when water was reached the sulphides would come in as usual but it was not the case, so it is altogether probable that this condition will obtain to much greater depth, and Mr. Kennedy states his belief that 1000 ft. of vertical depth will find the ore body identical with that at present being worked. Throughout the porphyry there is more or less quartz in angular fragments giving evidence of considerable movement. During the past few months enough prospecting has been done on the surface and underground with a view of definitely ascertaining the quantities of milling ore. It is the belief of those in charge of the enterprise that this property may be worked on much the same principle as that of porphyry coppers by caving after the "glory hole" method shall have been abandoned, and for this reason it is necessary to know the quantities. A great many open cuts, shallow shafts, etc., were made on the surface. Drifts and cross cuts and winzes were made underground, and everything thoroughly sampled and assayed. Taking one full claim, it was all gone over in this manner and an estimate of the hole made, after which a triangular section was taken. Embracing one half of total area, and estimates made on this the basis of the calculations being the work done, assays made, depth, width and length. There are then as so ascertained over three million tons of ore running better than \$4.00 per ton in gold and in making this estimate all the high grade ore on the contact was eliminated. There are two more claims on this contact or great body of brecciated porphyry which it is reasonable to suppose carry similar values, but as the prospecting and developing of these has been on a much more meager scale, no estimate has ever been made as to quantity, etc. The mill is running now on old dumps and on waste which was used to fill the depleted stopes by the old timers, and on ore extracted in development. But the mill is an old one, the stamps very light and it is the intention to entirely change the milling

practice and operate on a much larger scale treating a 150 or more tons daily. The new practice will be to run the ore through gyratory crushers. Chilean mills thence to cyanide plant, in case however of the higher grade ore the flow from the chileans will be by over plates and thence to cyanide. Test on an elaborate scale have been made by cyaniding this ore, an extraction up to 92% was made without the addition of anything, the ore being almost absolutely neutral and easily handled. In fact, the old dump of tailings from the operation of the mill in the days of the high grade excistment were purchased some years ago by parties who cyanided them and made a good deal of money, this being a complete demonstration of the feasibility of the process here. The cyanide tests were made by K. Kennedy and were extensive and thorough, and he advised the installation of the new style plant as stated, but he strongly advised that the plates be used for high grade, which is certain they will have from time to time and which would be foolish to run through the cyanide direct. In the old milling practice, as nothing but high grade was treated, over plates as now, there was a great loss in values which could have been saved if a final cyanide process had been used.

The Mammoth Mine was discovered in April 1893 and Ci Hall and Dennis Sullivan owned the Black Queen, about half a mile from the Mammoth and they were working in a luke warm sort of way as the ore was high grade. The Mammoth was discovered in the old fashioned (by guess and the elements) way, and the excitement engineered was heart stirring. April 8th of 93 there was a cloud-burst above the Queen and the Gulch carried probably 10 ft. of a raging torrent. The flat below is between the western most end of the Superstition Mountains and low foothills several miles away. There is in the flat not the least indication of minerals. It is being generally covered with from five to fifty feet of Gila conglomerate. The idea of a mine being there was never entertained, and in fact where the mill now stands was the favorite camping place for prospectors and travelers generally not five feet from the famous "Glory Hole."

This torrent of water cleaned the debris from the arroyo or gulch and tore out trees along the edge and washed boulders off. Hill and two more men followed down the gulch to recover some lumber that had been washed away, and they saw the fresh rock apparently a granitic rich with gold. The rock seemed in place, too, and there appeared plenty of it. C. O. Kennedy, the present mill superintendent at the Mammoth, was passing when this discovery was made, and he was asked to sample a bit of rock. He took a small panfull, meagerly crushed it and got a spoonful of gold. The gold was fine, but not floured. The news spread and men came in by hundreds from all directions, and the country was located for miles in either direction, black andesite, in conglomerate in porphyry, in fact, on open ground was worth locating and some work, regardless of conditions of values. Hall and Denny Sullivan put some men at work on the original discovery opening on what was first called the "Glory Hole" and later on the "Mormon Stope." This vein of ore was 30 ft. wide, 200 ft. in length and 100 ft. in depth. In the month of February 1894 operating fifteen of the stamps, bullion to the value of \$105,000 was recovered. Another rich vein on the contract was discovered on the south end of the property, not more than 500 ft. from the first, but this was not so large as the original discovery. Construction work began on a twenty stamp mill in July, and the first day of September it was in full operation, continuing to the winter of 1897, since then it has been practically shut down until Mr. Young took over the property. Hall bought Denny Sullivan out in 1901, after a disagreement. Hall believed that the ore went to great depth, but Denny wanted a sure thing. Hall went to San Francisco to see his partner and get him to assist in the purchase of machinery to sink 1,000 ft. but Sullivan would not do this, hence the disagreement. A few weeks after the last discovery a miners meeting was held and a camp organized. It was called the Superstition District, and the town Gold Fields. The district is named after the mountain range. A better idea of the rich ore and the easy mining may be had by the statement that at no time during Hall's ownership were there more than 50 men on the payroll in all.

There are, of course, a number of peculiarities here. At one place on the seventh level (125 ft. vertical) a kidney of manganese was found, and the associated quartz has a little iron in it, but this is the only occurrence of the kind. The brecciated ore bearing material runs north and south, dipping about 80 degrees. To ascertain some data on the andesite foot wall the management recently caused an open cut to be made, and from the bottom a shallow shaft was sunk. This was outside the line from the regular contact, but this work was in practically the same ore as that of the main body, and there is an andesite contact to the other side of it too. This indicates a faulting previous to the main fault. At the north end of the mill some excavation was done. The rock on the surface (it is ore) is brecciated from very close to the surface. But there is, a flat seam about 20 ins. in width of dirt, brown and barren looking.

_____ was _____ to this, though there was a little speculation to its origin. One day, in the natural course of careful examination, a sample was taken and assayed and it ran \$40. Numerous other assays were made with similar results and now they are careful to save dirt. In working the "Mormon Stope" a foot or two of the ore was left standing against the hanging wall, or the seam, of 1 to 3 ft. in width between the ore and the wall, so there would be no timbering necessary. The present management has had some of the rock broken down and it is big pay. There were several slopes filled with "waste" by the old timers, this has been milled at a profit of more than \$2 a ton. There is a dump of waste near the mill, and this too is being milled to good profit. The work in the mine at this time is strictly prospecting and developing, so the discovery that these old waste dumps and the slope fillings carry good values was interesting, as it permits of the operation of the 10 available stamps without doing any mining. Occasionally the material taken out in development is run through the mill, in order that exact knowledge may be had of values on an operating basis.

There has been great erosion throughout this basin, and much water action is noted. The andesite dikes are prominent and noticeable at intervals for many miles. The ore-bearing material has

always been called granite, but it may better be named granite porphyry. And that is all brecciated shows the movement to have been of great duration. The greatest depth reached is 465 ft. and at this depth the ore is oxidized just as is on the surface. Throughout the area which is about 3 miles wide and 8 long, gold may be panned anywhere. North of it several miles are small properties having some development, the ore being gold. It is the same to the east. Some 8 miles southeast, however, on the other side of the Superstition Mountains, copper comes in quantities, one mine now being worked in a small way carrying copper, gold and silver. It is the general belief that Mr. Young will be successful in his efforts to operate the Mammoth on the basis of large tonnage for profit on low grade ore; and there seems reason for believing that other properties will develop on the same basis. There will be a necessary expenditure of large sums of money to accomplish this. The work so far done has resulted to justify this expense. In sinking the main shaft, which is to be the working shaft when operations begin on a large scale, 45 ft. of conglomerate was passed through, and yet a shallow shaft 50 ft. distant was in ore at 10 ft. of depth. The andesite is always absolutely barren. The work done by Messrs. Massey, Smith and Kennedy has been exceptionally good, because they had the difficulty of reopening an old mine which had been idle for many years; and also there was difficulty in the fact that there might be truth in some of the great tales of rich shoots left to "hold the ground," etc. and these must be investigated. The whole matter is well in hand now. The idea in mining is to leave pillars to hold the ground, using the caving system for material to be milled. There are areas in the large mineralized zone that will run only \$1.50 (this is the least any of it does run), and it is the intention to leave this lowest grade to hold the ground, which is entirely feasible. By adopting the Chilean mills and the cyanide process better extraction may be made with stamps and plates and lower grade ore may be profitably handled, especially if the tonnage is materially increased, which will be the case. The milling results at this time, however, are excellent, considering the antiquated equipment and that the ore is really not properly suited to the stamps.

Mr. George U. Young, Manager
Young Mines Company
410 Fleming Building
Phoenix, Arizona

Dear Sir:

Pursuant to your request I have carefully made a geological examination of your Mammoth Mine at Youngsberg, Pinal County, Arizona, spending 30 days from December 1st to 31st, on the ground, and herewith submit my report thereon:

The scope of my investigation has been confined solely to the geologic conditions within, and contiguous to, the mine. Fortunately the mine development to date facilitates an appraisal of those features so that little is left to inference. The several formations and their physical conditions, contacts, etc., have been carefully checked. Note was taken of all jointing planes, and slips, together with their attitude, but they represent only the tension, and compression fractures as consequent adjustment planes to local stresses, etc., accompanying larger scale displacements. They have slight bearing on considerations relative to solution of problems sought, therefore I have generally omitted them on the maps, and reference to them herein will be made only as necessary. In compiling these data I have eliminated technical terms where their use is not consistent with the clarity of the report. Based on results of my investigation I have arrived at conclusions as under:

GENERAL HISTORIC GEOLOGY

In Archean time the country rock was primarily an undisturbed granitic batholith, and this formation probably constituted the earth's lithosphere for the early part of the period. Pre Cambrian faulting (See Hanging Wall Fault Vein) resulted in a plane of low resistance traversing the batholith. Probably contemporaneous, or as a close sequence thereto, was the injection along this rupture of an intrusive mass crystallizing out as pegmatite. The pegmatite ascended along the fault plane, and nearing the Pre Cambrian surface, the horizontal and lateral resistance of the older wall rocks

was less stable as against the superpressure exerted by the magmatic pegmatite with the consequence that the walls of the primary fault were forced apart by the intruding mass to an extent consistent with the proportionate degree of resistance exerted by the wall rocks. The resultant mass solidifying between the displaced walls formed a pegmatite chonolith. The feeder to, and the bulk of, the chonolith is Southerly from the area under consideration, hence only the extreme North extremity in encountered in your mine development to date. Radiating along fracture planes in the older wall rocks are many injected vein-dikes of pegmatite magma. Reference to Sheet No. 2 (missing at this time) will give you a comprehensive idea of the lateral displacement of the footwall country rock side of the primary fault.

The pegmatite probably extended to the Pre Cambrian surface, but owing to its structure, pegmatite resists weathering and erosion to a lesser degree than the more compact granite serving as its wall rocks. Early Paleozoic (Cambrian) weathering disintegrated the pegmatite and apparently the chonolith was eroded to a depth equal to the 400 level of the main shaft, or perhaps deeper to the East, however movement along the master fault planes resulting in an upthrust of the footwall rocks to the extent that the Cambrian erosion elements became more quiescent; probably due to segmental uplifts in the older rocks, forming barriers that precluded the intense erosive action of previous torrents. With more quiescent conditions the process became one of deposition with silicification where favorable. This deposition in the form of a fluvialite piedmont plain was made up of quartz and other fragments, both transported and local, which when consolidated formed quartzite, or graywacke, conglomerate as the bonding constituents permitted. Following this was a period of slow, long-enduring, disintegration of the conglomerate effecting for the most part the conglomerate predominantly graywacke, as owing to the silicious bond in the quartzite that rock was more stable.

Toward the end of Paleozoic era (Permian) this disintegration ceased, and the process of recementation of the residual products took place in a relatively short period. This is indicated by the fact that the residual recementation is an arkose-graywacke continental conglomerate. The arkose is especially predominant along

the basal contact of the conglomerate against the Pre Cambrian pegmatite. Few quartzite pebbles are noted in the later conglomerate, and on the surface an unconformity is observed between the remnant Cambrian quartzite and the recemented arkose-graywacke.

Since Permian time no great change is evidenced locally with the exception of a very considerable movement having taken place along the fault planes. The hanging wall fault, owing to its great length and depth, is amenable to the reactions of adjustment in the igneous rocks within an extensive area of the earth's lithosphere. Regionally there have been extrusions of volcanic lavas, probably late Cretaceous, such as basalt, phylite, trachyte, and andesite, however none of these have any relation to the problem under consideration. A basaltic flow traverses the property and fragments of the other lavas are to be found in the unconsolidated alluvium overlying the Permian and older conglomerates.

The above gives a general outline of the events in their geologic sequence from earliest time to the present, however, I have not considered accessory conditions in the above; such as fault brecciation and contact metamorphism; having in mind a separate discussion of these subjects, as the conditions have direct bearing on the mineralization of your ore bodies at the time of magmatic injection, and during the long period of weathering since. These same agencies have extensively leached with the aid of circulating ground waters, the soluble minerals and transportation has been back to the groundwater level where reprecipitation is favored.

Fault Brecciation. Fault breccia is the product of the crushing, grinding, and abrasive action of the two component walls of a fault. The material ranges from microscopic in size to that weighing several tons. The mass is termed the fault zone. Locally the fault zone averages twenty feet in width, and owing to intermittent movement along the planes, particularly at the hanging wall fault, since the injection of the pegmatite magma there are found in addition to the fragments of the original wall rocks those of the younger injected rock. Minerals from accession vapors, thermal metamorphism, and chemical replacements from down trending groundwaters, are noted in the ground mass.

Metamorphism. All rocks are subject to metamorphism if the conditions under which they were formed are changed. Such alterations are termed metamorphism. It may be induced chemically or mechanically. Accession gasses from the magmatic intrusions, circulating groundwaters, heat, stress, and period of time, all act to the end of changing the identity of a rock and its constituents. With the injection of the pegmatite and its ultimate solidification, as previously outlined, the gasses, heat, and stress served to lay the foundation of metamorphism later completed through the ages by the circulation of the groundwaters. Now we have the fault zones and their adjacent wall rocks, more particularly the pegmatite, in various degrees of alteration. Metamorphism being intense at the fault plane diminishes in degree over an average distance of sixty feet to the unaffected rock. On account of different conditions existing at various depths within the lithosphere, different chemical processes assume chief importance in their respective zones. These zones may be termed (1) Belt of Weathering, in which the principal movement of the groundwaters is downward. In the vertical plane of the main shaft I estimate the depth of this belt to approximate 1200 feet, See Sheet No. 2. (Missing at this time.) In this zone fractured by the processes of weathering, oxidation, hydration and carbonation prevail. Complex silicates breakdown and simpler less dense minerals, such as iron oxides, etc., are formed. The dissolved minerals carrying a proportion of the values are carried down to; (2) Belt of cementation. In which the groundwater level is constant and the process is that of cementation effected by the deoxidation, dehydration, and decarbonation of the solutions from the weathering belt. Silicates are built up and great pressure leads to the formation of denser minerals and a compact crystalline structure. It is here that most vein deposits of economic value originate under geologic conditions such as are apparent at your property, therefore I would anticipate the zone below the constant water level to be characterized by massive silicification in the zone of fault brecciation, and also as stringers throughout the contact metamorphic zone adjacent to these faults; accompanied by enrichments of gold values leached out by, or entrained with descending groundwaters from the belt of weathering in addition to the original

primary values in situ within the ores of the anamorphic zone, or belt of cementation.

Economical ore deposits between the 300 level and at, or just below, the constant water level are limited to the fault zones, and then are contingent or pre-existing barrier conditions such as impervious gouges, etc., having retained primary ascending mineralizing agencies, or the descent of the groundwaters in such manner as to have formed local concentrations.

Considerable movement along the master fault planes since their primary shear is evidenced, not only by pegmatite fragments in the breccia, but by vertical displacements of the wall rocks. That these events have been accompanied by ascending vapors is evidenced by the silicification of the Cambrian conglomerates superimposing the Archean fault zones. Along fault planes in the conglomerate silicification was extensive, and enrichments of gold ores deposited forming the surface ores mined by your predecessors. This condition should obtain equally as rich in the conglomerate superimposing the footwall fault, beginning at a point about East of the main shaft at the footwall and extending Southeasterly therefrom.

SUMMARY OF HISTORIC GEOLOGY

The Historic Geology may be summarized thus:

- First: Undisturbed granite batholith.
- Second: Faulting in a North and South plane in the batholith.
- Third: Injection into this fault rupture of pegmatite magma which forced component parts of wall rocks apart. Axis in vertical plane of shaft estimated at from 1000 to 1250 feet. Is progressively deeper to South. Injection of magma accompanied by thermal mineralizing vapors which started alteration in cooling magma.
- Fourth: Continued movement in planes of faulting built up wide fault zones which in turn were heavily mineralized.
- Fifth: Erosion of less stable pegmatite with later faulting of footwall with up thrust.

- Sixth: Arresting of erosion and the gradual building up in Cambrian time of piedmont plains composed of the detrital material from granite and pegmatite. The latter is predominant. Areas of this material consolidated to a quartzite, or graywacke as conditions favored.
- Seventh: A long period of weathering (Cambrian to Permian) disintegrated the conglomerate, particularly the graywacke.
- Eighth: During a short period of time (Permian) products of disintegration consolidated into residual arkose conglomerate.
- Ninth: Weathering and leaching (Permian to and including Quaternary - Recent) has extensively returned solubles to belt of cemetation.

PETROGRAPHY

In the above outline of the geologic history consideration as to their occurrence is taken of all the three great classes of rocks in the earth's lithosphere. An outline of the physical conditions, and the characteristics of these rocks is as under:

1. Igneous. The granites in mass as a batholith. The pegmatites as an injected chonolith along a low resistance plane in the batholith, and also as vein-dikes in fracture planes in the wall rocks contiguous to the chonolith. Basalt as an extrusive lava flow. Minerals of the igneous rocks grouped according to their order of crystallization in solidifying are: (a) Iron. (b) Ferromagnesian silicates. (Olivine, Phroxine, Amphibole and Mica.) (c) Feldspar and Feldspathoids. (Plagioclase, Orthoclase, Nephelite, Leucite and Analcite.) (d) Quartz (In acidic rocks). Pegmatites being the product of magmatic interior of semi-solidifying igneous rock obviously are composed of a preponderence of those minerals which would solidify lastly, such as quartz, feldspars and some of the ferromagnesian silicates. Basalt owing to its more sudden cooling is a fine grained rock. All the constituents cool to a more

homogenous mass, i.e., before they have had opportunity to cool selectively as individual aggregates. The granites normally have their characteristic light color, however locally circulating solutions have added a preponderance of ferromagnesian minerals which unoxidized give these rocks a green color, and if oxidation in any of its stages has taken place the rock is light green to red. The basalt is dark gray to black owing to an excess of dark silicates. (Pyroxene and Olivine) and magnetite.

2. Metamorphic Rocks. The quartzite and graywacke conglomerates while originally a sedimentary are metamorphic by reason of their being bonded by newly deposited silica, or silicates, and if metamorphism is complete the rock is compact and will not retain cleavage along previous aggregates. The contact metamorphic pegmatites are in various stages of alteration from gneiss at the fault contact to that showing various stages of change affected by gaseous accessions and circulating groundwaters. The pegmatite fragments making up, in part, the fault breccia are highly metamorphosed by heat and pressure, also the gasses and solutions traversing the fault planes. Coloring of the quartzites is brown to red owing to oxidation of their component dark silicates. These rocks and those of contact metamorphism have the following mineral constituents. Quartz, Feldspars, Biotite, Muscovite, Hornblende, Epidote and Chlorite. The graywacke has in addition to the above the ferromagnesian silicates.

3. Sedimentary. These rocks are the residual products of former disintegrations. The arkose conglomerate makes up the bulk of this formation. The sedimentaries retain the constituents, less oxidation, hydration, etc., of their former aggregates and in addition feldspar and newly deposited ferromagnesian silicates. Where oxidation and weathering has broken down the ferromagnesian constituents the color is brown to red depending on the degree of oxidation. Where unoxidized the color is green. Phenocrysts of feldspar are predominantly white in the arkose ground mass.

PHYSICAL CONDITION

For area considered see Sheet No. 1 (missing at this time).

The area under consideration being in the foothill wash country contiguous to the Superstition mountains is superficially covered by erosion products from the higher reaches, and the unconsolidated alluvial fill is largely made up of fragments and pebbles that bear no relation to the geologic formations in situ locally. The detrital materials extensively obscure outcrops and other surface expression of the underlying conditions. Basalt as a superficial extrusive mass is noted, but it bears no relation to geologic structures influencing economic mineralization. Conglomerate ranging from arkose to quartzite is predominant being more resistant to erosion this formation now lays in small hillocks upon one of which your camp has been built. In the Northeast quarter pegmatite is noted. Its downward trend correlates with the cross dikes noted in the extreme North drifts of the 300 and 400 levels. Contacting the pegmatite on the West is an outcrop of trachyte porphyry. I have made no inference as to the genesis of this rock. The master fault is traceable partly through outcrops, and otherwise by oxide stain in the conglomerate and unconsolidated alluvium. Faulting North of the North shaft is indicated by the wash and this fact is substantiated by underground conditions of the 300 and 400 levels. (North drifts) This fault has been called the East and West fault. The youngest master fault is the Apache fault South of the South drift. It indicates a lateral displacement to the West affecting all the formations including the basalt flow. It is my opinion that this movement was one of adjustment following the disturbances that extruded, or erupted the lavas of the region. No underground development has encountered the fault as yet. With few exceptions the surface has little expression of the underlying geologic conditions.

GEOLOGIC FEATURES OF THE MINE

Consideration of the geologic features of the several levels in the mine together with those of the vertical cross-section will give you a conception of the ultimate result of the geologic events.

The A, B and C leives, (see Sheet No. 3, which is missing at this time) as indicated were driven in the conglomerate formation. Ores were mined from the silicious zones superimposing the master faults. Arkose breccia is noted in the general plane of the underlying fault zones. Numerous silicifications paralleling the fault zone are noted.

The 300 level, see Sheet No. 4 (missing at this time). Consideration of this level gives conception of the relation between the conglomerate formation and its country rock. A remnant of the pegmatite chonolith is noted paralleling the master fault. Reference to the cross-section will explain this. Brecciation along the fault zones is well developed. The breccia contains fragments of the older wall rocks, also the pegmatite, and occasionally conglomerate. The East and West fault indicates a South boundary of a later pegmatite injection not considered herein. The fault terminates with its intersection with the hanging wall fault. The country is highly crushed and metamorphosed into the conglomerate indicating a younger age of the fault and the adjacent pegmatite to the North. The long crosscut East failed to intersect the footwall fault, however a flat fault near the end of the crosscut has apparently displaced a segment of the wall to the East. I have assumed the condition noted on the map solely on account of the flat fault. Otherwise I would infer that a portion of the wall was eroded by a Cambrian eddy.

The 400 level, see Sheet No. 5 (missing at this time). Development on this level is geologically important in that it determines the depth of erosion of the pegmatite chonolith and indicated the basal contact of the conglomerate as of the vertical plane of the shaft. Contact metamorphism in both formations is well advanced. The depth of the erosion possibly extended farther East, but the uplift of the wall rocks since primary erosion has apparently altered the Cambrian cross-section. Brecciation along all faults is well developed. Fragments of conglomerate are noted in the footwall breccia indicating post Permian movement of the wall.

The 700 Level, see Sheet No. 2 (missing at this time). At a point just above the 700 level the main shaft intersected the footwall fault.

The 800 level, see Sheet No. 6 (missing at this time). The station is in the footwall. The footwall fault was intersected at 75 feet, and the hanging wall at 180 into the hanging wall without intersecting any parallel ore deposits. Occasionally pegmatite vein-dikes are noted. Drift to the North was for the most part maintained in the hanging wall side of the fault. Two additional crosscuts were driven into the hanging wall country at intervals of 400 feet and 500 feet respectively. Two crosscuts were driven across the brecciated zone of the vein to the wall. Footwall fault vein makes its junction with hanging wall fault vein 175 feet North of main crosscut. South drift is now prospecting hanging wall fault vein from which favorable samples are being taken. The brecciation along both faults is well developed, and the pegmatite between walls is in a high state of metamorphism.

The 1000 level, see Sheet No. 7 (missing at this time). From the station the crosscut intersects the footwall fault vein at 100 feet, and the hanging wall fault vein at 200 feet. The crosscut extends into the hanging wall country rock an additional 100 feet. A drift North for 100 feet along the brecciated fault zone did not reach the junction of the two faults. The ground is heavy and impossible to hold with timbers. The hanging and footwall veins will join at 150 to 175 feet from the crosscut. Pegmatite between walls is highly crushed in addition to metamorphism. Footwall country rock is also crushed. This is due to the area being local to the axis of the lateral thrust of the footwall country.

RECOMMENDATIONS

Shaft, see Sheet No. 2 (missing at this time). Anticipating that the water level will be constant at about the 1200 level, and that the nature of the mineral deposition will change as outlined under Historical Geology, and that ore deposits of economical importance will be proven to be greater in extent, and better in average values, than those deposits now developed I would strongly advise that your main shaft be sunk an additional 450 feet from its present bottom. This work completed will establish the 1500 level plus an adequate sump. Cut the 1500

stations with an ample pump chamber as water conditions will very materially change when the drift has encountered the fault vein. Crosscut 270 feet East to the primary fault zone. Drifts paralleling the vein in each direction should be driven. Their position can be determined after reaching the locale of the vein. I am of the opinion that the vein matter will be compact and will take a minimum of timbers to mine. In sinking I would advise that only stations be cut intermediate between the 1000 and 1500 levels. It is possible that an intermediate pump station be required. Heavier timbers are necessary in any new shaft development.

1000 level. Drift North and South in the footwall country as outlined on Sheet No 7 (missing at this time). Completion of this work will have prospected the hanging wall fault vein without passing through excessively heavy ground. Possibilities for ore are fair along the vein in both proposed developments. Keep away from the locale of the junction of the two fault veins, as ground is too heavy to hold, being shattered and crushed, also no doubt more or less completely leached. I would recommend abandonment of the crosscut beyond the footwall fault vein.

The 800 level, see Sheet No. 6 (missing at this time). Keep South drift in ground that will stand and crosscut through hanging wall fault vein at say, 50 foot intervals. I would favor the driving of this drift at least 250 feet farther South as I believe that the region South of the Apache fault has possibilities. If fault is intersected turn West along drag to again pick up hanging wall fault vein. It is hardly advisable to drift East long the Apache fault as the fact that this fault is of comparative recent age gives me reason to believe that there will be no ore deposition influenced by it. North drift. From survey station 815 Northerly I advise crosscutting through the fault vein brecciation at least at 75 foot intervals. The drift itself and hanging wall crosscuts do not give a fair idea of your ore possibilities. No particularly adequate crosscuts proved the vein in this drift. There are some very interesting assays on record as coming from this drift, and considering the comparative length of the drift

that had no crosscuts to the wall I would advise giving this your attention. The bulk of the muck could possibly be stored in the hanging wall crosscuts.

400 level. No further work on this level advised at this time.

300 level. No work advised other than that in progress at this time.

A, B and C levels. No work advised other than that in progress at this time.

Surface. I would recommend that any future prospecting in the conglomerate be along the footwall fault vein. This could be accomplished by cutting a station on the East side at the 175 level of the main shaft. Cross cutting S 75° E to the footwall fault vein. Silicious segregations there should prove as renumerate as those of the hanging wall fault vein.

CONCLUSION

In conclusion I have no hesitancy in stating that with the possibilities to be developed under the constant groundwater level at this property your operations should have a favorable outlook. Further I would warn you that while the gold values in your already developed ore body are amendable to reduction by comparatively simple processes, this fact is no criterion as to what the same flowsheet would recover on your ores from depth. I would suggest that you make no plans for a reduction plant until such time as future development at depth demonstrates the type of ore available for reduction. Have absolute demonstrations of any new and untried processes. Flotation is hardly indicated. Cynidation, while its first cost is possibly higher than other processes has proven to be the most efficient, and costs less per ton milled than any other medium of reduction, if the ores are amendable to that treatment.

In making my examination I have been very generously aided by your superintendent, Mr. Broan, as also by your Engineer, Mr. Stanton. Acknowledgement of my appreciation is made.

Very truly yours,

E. W. Bedford

Dated December 31st, 1923.

G O L D F I E L D M I N E S

BLACK QUEEN
MAMMOTH GROUP

Apache Junction
Goldfield Mining District
Arizona

Submitted by:

CHARLES R. WARD
Mining Development & Mineral Recovery
P.O. Box 32274
Phoenix, Arizona 85016

Telephone: (602) 939-6834

JULY 1978

CHARLES R. WARD
Mining Development & Mineral Recovery

NAME OF MINE: Black Queen

LOCATION: Apache Junction (Goldfield Mining District)

OWNER: Contact Charles R. Ward

PRINCIPAL MINERAL: Gold; secondary mineral: Silver

TOTAL AREA/CLAIMS: One Claim

ORE RESERVES: Estimated \$7,000,000.00 minimum gold & silver reserves

ASSAYS: Assay & flow sheet enclosed

GEOLOGY: Brief Geology Enclosed

UTILITIES: Own power -- ample water on property

EQUIPMENT: 150 tpd mill and tables, operable; plus other normal mining equipment

OPERATING HISTORY: Reported upward of \$1,000,000.00 in values removed (\$20.00 per ounce)

ROYALTIES: 10%, probably eliminated by purchase

REASON FOR SALE: Operators need working capital

ORE DUMP:

1,500 averaging one-half ounce gold per ton.

VEIN VALUES:

Vein is 3' -- 50' wide by 600' long (drilled). Traceable on surface for one-half mile. Angles at five degree dip. High grade runs from 43 to 143 ounces per ton. Drilling shows vein to widen with depth.

REMARKS:

The original shaft is reported to have produced in excess of \$1,000,000.00 in values @ \$20.00 per ounce gold in the 1920's - 1930's. The Black Queen is one of many claims held by this group. The entire group of claims numbers 58 which are available.

The entire area has a history of gold production and all indications are that this property is a superior prospect.

There is a considerable amount of geological data available for review at the time of your physical inspection of the property.

Little consideration has been given the silver and copper values in the property which should group into the total value package.

ACTIVITY AT

MAMMOTH MINE

Mesa Merchants Already Feeling Effect of It.

The first real signs of actual work on the Mammoth mine in the Goldfield district, twenty-one miles east of Mesa on the Roosevelt road, became apparent when a large lot of supplies were ordered out to the camp which is being established. Not only have the Mesa merchants already begun to feel the effects of what the opening up of the old mine will do for them, but it is understood that an additional load of supplies was also started out of Phoenix.

It has been pretty well understood in a general way as to the plans in mind by George U. Young, who has the property bonded and is the man behind the present operations, but the first definite information was given out yesterday morning by W. M. Neagle, who is in direct charge of the work.

Mr. Neagle left here during the afternoon with four hollermakers in the Kimball automobile and they will immediately proceed to get the machinery in shape for work. According to Mr. Neagle, no less than ten or twelve men will be put on by the last of this week or the first of next. In other words, men will be put on just as fast as there will be a place for them to work. There are a good many details that have to be arranged before a large force can be put on, but there will unquestionably be a large camp at Goldfield by early summer.

As has been intimated before, the new operators do not propose to use the old shaft at all on account of the fact that it is considered in an unsafe condition and would require the expense of retimbering and constant pumping in order to get out the water. It is a well known fact that the overabundance of water has always been a problem for the operators in the Goldfield district to solve.

The new shaft will be located a short distance from the old one and will be a two-compartment affair, which is in the opinion of all those who have investigated the ground and expressed themselves, the only way by which to proceed. It is the present intention to sink the shaft to a depth of 300 feet with extensive drifting at the 400-foot level, at which time the old workings will probably be encountered.

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TEMPE LACKS CASH
FOR RUNNING CITY

Appearing before the state tax commission to ascertain the necessary steps to obtain permission to increase the tax levy more than 10 per cent over the amount levied a year ago, Dudley Windes, city attorney of Tempe, intimated that the south side city was in need of additional funds to carry on its city government. That Tempe is short of funds because of its heavy overhead expense was information given out by Mr. Windes. The increase in overhead is largely due to city paving, he said.

The commission informed Mr. Windes that under house bill 90, the cities will not be allowed to exceed 10 per cent more than the amount levied a year ago unless an emergency exists. The commission must pass on all increases granted.

The commission yesterday called attention of boards of supervisors of the different counties of the state to the new law. They were asked by the commission whether there is a deficit from the previous year's operation, and if there is, has informed the supervisors they are entitled to "clear it up" under the new law.

ENTERTAIN O. E. S.
AT GOLDFIELD MINE

Queen Esther Chapter No. 22, O. E. S., and their friends were given a party royal Saturday night and Sunday by Mr. and Mrs. Geo. U. Young at their Goldfield mine. A delicious supper was served, after which the guests danced until the " wee wee" hours of the morning. The music was furnished by Pinley's orchestra.

The guests inspected the new buildings and equipment of the mine, which is modern and up-to-date in every respect. Since the recent disastrous fire, the new dining room, kitchen equipment, new furniture and bedding and a new refrigerator plant have been installed and everything is provided for the comfort and convenience of the employees.

After breakfast the party motored back to Phoenix and in their acclaim of the royal hospitality afforded by the Youngs.

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Mr. Neagle after briefly outlining the plans said: "We are going to spend a lot of money and we are going to buy a lot of supplies in this town. The work in hand is no, not at all, impossible and it is going to take money to make a mine out of the Mammoth. This is the point which is of vital interest to Mesa. A mine at Mammoth and Mesa as the base of supplies will mean more to this town than can be easily calculated. It will be in the same line as the benefit to this section by the P. & M. or a main line railroad."

By Shorttuck, who, as it has been stated before, owns fifteen or sixteen acres in the Goldfield district, and who has spent several thousand dollars in the vicinity of the Mammoth mine, the plans for development outlined by Mr. Neagle, gave him the opinion that the two-compartment shaft and the sinking of a new shaft is the only business in the district.

FOR PHOENIX CITY

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