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Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 01/31/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: MAGMA CHIEF WEST

ALTERNATE NAMES:
AMT INTERNATIONAL MINING

PINAL COUNTY MILS NUMBER: 556F

LOCATION: TOWNSHIP 8 S RANGE 18 E SECTION 23 QUARTER NW
LATITUDE: N 32DEG 43MIN 40SEC LONGITUDE: W 110DEG 28MIN 50SEC
TOPO MAP NAME: RHODES PEAK - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:
UNKNOWN

BIBLIOGRAPHY:
ADMMR MAGMA CHIEF WEST MINE FILE
ADMMR U FILE CU-33

05/12/1999

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: MAGMA CHIEF WEST

ALTERNATE NAMES:
AMT INTERNATIONAL MINING

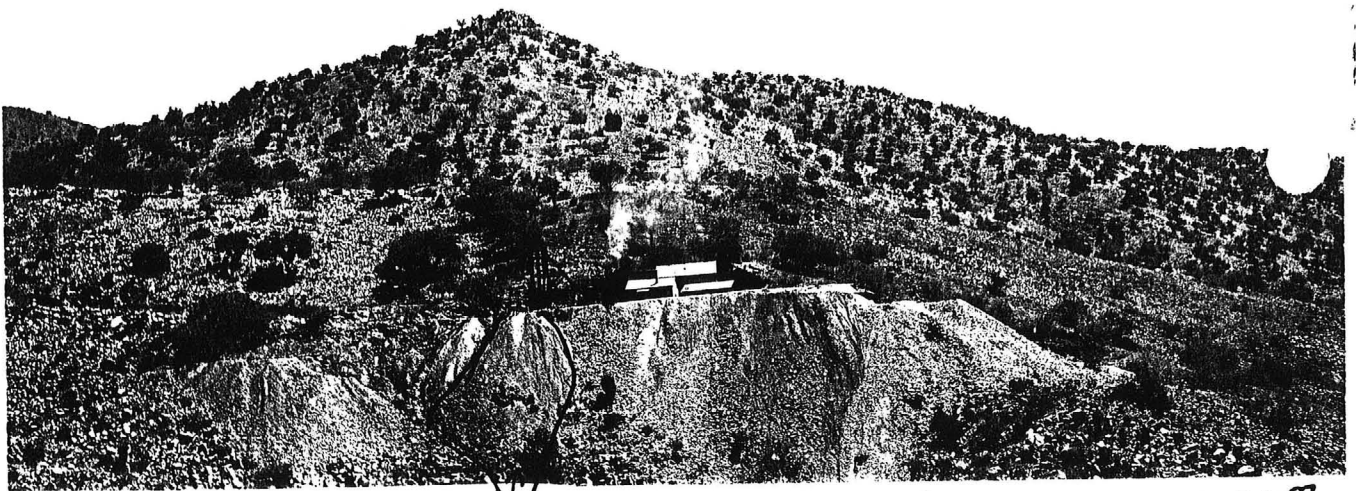
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COMMODITY:
UNKNOWN

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ADMMR U FILE CU-33



Waste: Remainder ore: 2.52% Cu.

MAGMA CHIEF

Cu

Pinal

11 - 4

S

23
T 8 S R 18 E

✓ O. W. Blevins, Rt. 5, Box 22, Tucson

'43

NAME OF MINE: MAGMA CHIEF

COUNTY: PINAL

OWNER: Kimball Pomeroy, 42 S. Center, Mesa

DISTRICT:

METALS: CU

OPERATOR AND ADDRESS:

LINE STATUS

DATE:

DATE:

5/1/44

O.W.Blevins, Sombrero Butte

5/1/44

Investigate

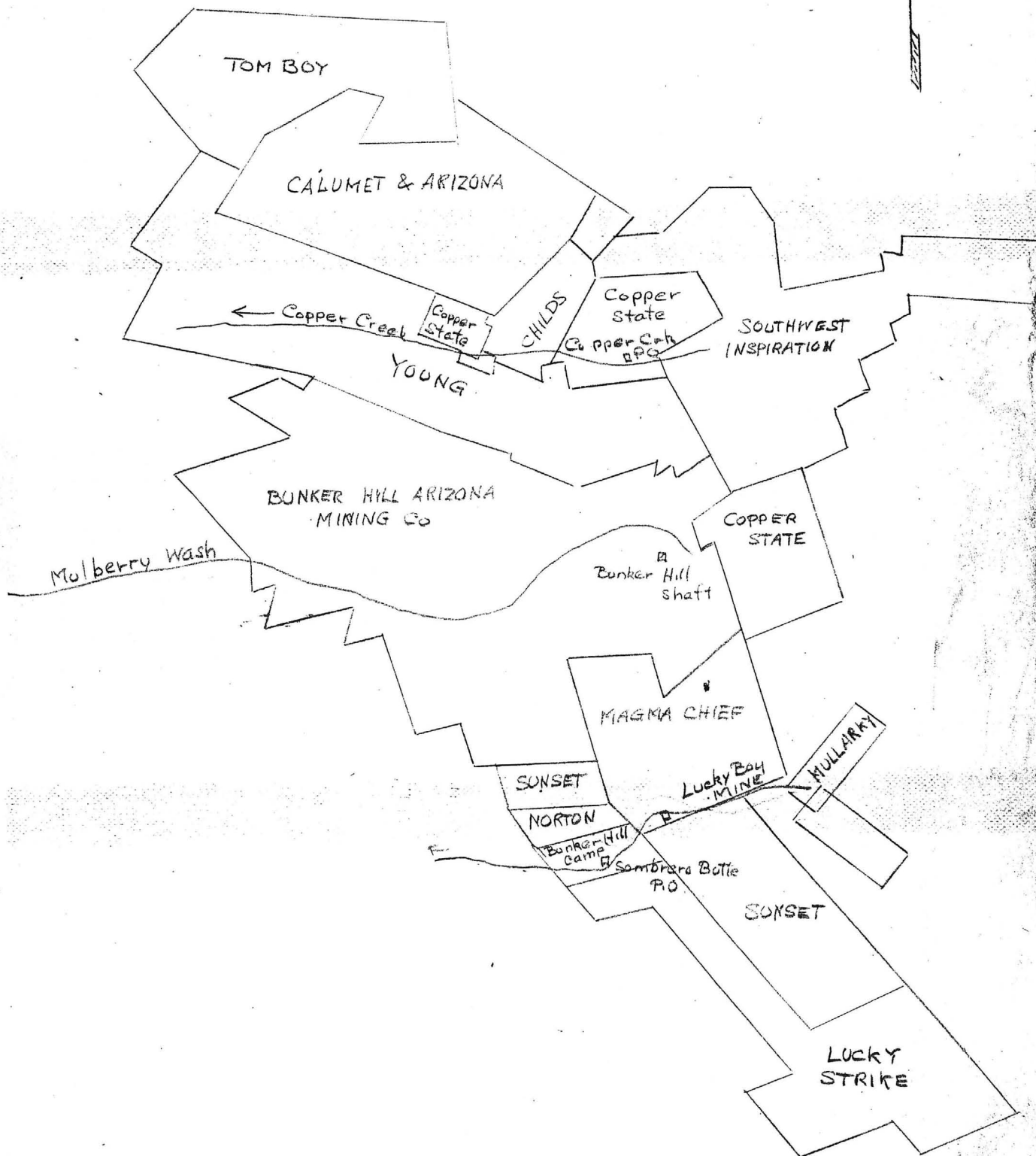
6/44

Shipping

11/45

Idle

Access road approved.



MAGMA CHIEF MINE

PINAL COUNTY

Mine visit to the Magma Chief Mine in Galiuro Mts. - no one around some drilling reported. GWI WR 6-30-68

DR

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

April 30, 1958

To the Owner or Operator of the Arizona Mining Property named below:

MAGMA CHIEF MINE (Pinal County) COPPER
(Property) (ore)

We have an old listing of the above property which we would like to have brought up to date.

Please fill out the enclosed Mine Owner's Report form with as complete detail as possible and attach copies of reports, maps, assay returns, shipment returns or other data which you have not sent us before and which might interest a prospective buyer in looking at the property.

Frank P. Knight

FRANK P. KNIGHT,
Director.



Enc: Mine Owner's Report

**No Such Post Office
in Arizona B**

MR. O. W. BLEVINS

SOMBRERO BUTTE, ARIZONA

Magma Chief West (+)
Pinal

AMT INTERNATIONAL MINING CORPORATION

TSE:AAI

NEWS RELEASE

AMT Announces Results of Recent Drill Program

(Toronto, Ontario, November 24, 1999) AMT International Mining Corporation is pleased to announce the results of its recently completed drilling program at its Copper Creek property located in Pinal County in southern Arizona, USA. The program commenced on June 1, 1999 and was completed on October 29, 1999. A total of 26,886 feet of core drilling was completed in 12 holes that explored two of the Company's primary targets. The two targets are known as the Mammoth-Keel Zone and the American Eagle Breccia.

Mammoth-Keel Zone

The Mammoth-Keel Zone target lies sub-vertically below the Mammoth Breccia deposit, which is part of AMT's current ore reserves. The Mammoth-Keel Zone is interpreted to be a high grade copper-molybdenum feeder zone within a larger shell of lower grade, porphyry-related copper (\pm molybdenum) mineralization. The high grade mineralization is localized within brecciated hangingwall contacts between granodiorite and southeasterly-plunging, tongue-shaped porphyry dikes.

The results from the eight drill holes for 19,539 feet (LM-1 through LM-8) at the Mammoth-Keel Zone are as follows:

Mammoth/Keel Zone Drilling Program

Drill Intercepts				
Drill Hole	Interval (footage)	Length (feet)	Avg. Cu%	Avg. Mo%
LM-1	1,730 to 2,360	630'	1.00%	0.031%
	includes 1,760 to 1,890	130'	1.81%	0.021%
	Also includes 2,160 to 2,250	90'	1.12%	0.133%
LM-2	1,800 to 2,600	800'	0.95%	0.029%
	includes 1,800 to 1,940	140'	1.01%	0.011%
	also includes 2,250 to 2,400	150'	2.02%	0.111%
LM-3	1,860 to 1,920	60'	1.02%	0.008%
	includes 2,240 to 2,340	100'	1.20%	0.036%
	includes 2,240 to 2,280	40'	1.93%	0.080%
LM-4	1,990 to 2,060	70'	1.30%	0.021%
LM-5	No significant interval		No assays	No assays
LM-6	2,070 to 2,140	70'	1.02%	0.014%
LM-7	No significant interval		No assays	No assays
LM-8	1,790 to 2,980	1,190'	0.77%	0.018%
	includes 2,390 to 2,550	160'	1.67%	0.053%
	includes 2,510 to 2,550	100'	2.25%	0.069%

Also, as anticipated, the recent drilling intersected high grade copper mineralization within the Mammoth Breccia in all eight holes. The results from these intercepts will be used to update the grade model when all assays have been received.

An additional hole (UM-1) was drilled to test the possible upward continuity of the mineralization. This hole was terminated at 743.5 feet. The hole did not encounter breccia and was barren of mineralization.

American Eagle Breccia

The American Eagle Breccia area is located approximately 2,500 feet south-east of the Mammoth Breccia deposit. The current target is situated above the American Eagle porphyry copper deposit which is carried in AMT's resource inventory.

The results from the three drill holes aggregating 5,603.5 feet (AE-1 through AE-3) at the American Eagle Breccia are as follows:

American Eagle Breccia Drilling Program

Drill Intercepts				
Drill Hole	Interval (footage)	Length (feet)	Avg. Cu%	Avg. Mo%
AE-1	670 to 720	50'	0.94%	0.022%
	880 to 970	90'	0.84%	0.015%
AE-2	900 to 980	80'	0.63%	0.199%
	No significant interval		No assays	No assays
AE-3				

Drill holes AE-1 and AE-2 intersected mineralized breccia containing copper and molybdenum. This program demonstrated that breccia mineralization in the American Eagle Breccia target has depth continuity of at least one thousand feet.

Major Environmental Permit Granted

AMT has been advised by the Arizona Department of Environmental Quality (ADEQ) that it has ended the statutory 30 day public comment period for the Aquifer Protection Permit (APP) which is necessary prior to the construction of AMT's Ryland decline. The ADEQ received no public comments and advised AMT that they intend to sign and issue the APP during the next few weeks.

This permit is the essential permit required prior to starting construction and AMT is pleased that ADEQ is in agreement that AMT's proposed plan is protective of the environment.

New Appointments

AMT International's Board of Directors is pleased to announce the following new appointments:

Peter A. Crossgrove	- Chairman and CEO
John W. W. Hick	- President
Richard Neal	- Director

For further information, contact:

Mani Verma
Executive Vice President
Telephone: (520)544-8815, Ext. 28
(520)544-8507

Copper Prince
Old Reliable
Copper Creek

file -
Copper Creek
Old Reliable
Childsoldw.
Magma Chief

AMT INTERNATIONAL
MINING CORPORATION

TSE:AAI

NEWS RELEASE

AMT ANNOUNCES EXPANSION/UPGRADE OF COPPER
RESOURCES AT COPPER CREEK

(September 8, 1998 - Toronto, Canada) AMT International Mining Corporation is pleased to announce that the extensive program of geological fieldwork and drilling carried out during the last twelve months at its Copper Creek (Arizona) project has enabled the Company to increase its estimate of the shallow sulfide (breccia) copper resources. The potential for expansion of the porphyry resource has also increased significantly. This drilling has also upgraded some of the breccia pipes from the inferred resource category to measured and drill indicated resources. The expanded resources have enabled AMT to increase its estimates of annual copper production and mine life from the breccia deposits by about 50%.

Total resources and reserves in the shallow breccia systems have now been increased from 40 to 43 million tons, of which:

- 10 million tons grading 1.73 % copper equivalent are now classified as proven and probable reserves;
- 5 million tons grading 2.00% copper equivalent are now classified as measured and indicated resources; and
- 28 million tons grading +2.00% copper equivalent are now classified as inferred resources.

In addition, five porphyry targets have now been identified by magnetic and geochemical data as well as by diamond drilling. One of these porphyry systems, the American Eagle-Lower Creek zone, hosts a total of 300 million tons of measured and inferred resources grading 0.80% copper equivalent grade.

The fieldwork that resulted in this increase/upgrade included ground magnetic, radiometric, geochemistry, orthophotos and detailed geological mapping, with particular emphasis on geochemical factor analyses. The first phase evaluation has produced over one dozen additional breccia pipes for expansion of the resource and reserve base. The most significant conclusions drawn from this program are:

1. To date, approximately 500 breccia pipes have been identified on land controlled by AMT within the Copper Creek district.

NOTE: Copper equivalent grades are expressed on the basis of a copper price of US\$0.75 per pound and a molybdenum price of US\$4 per pound. No credit has yet been given for contained gold or silver.

2. Drilling has so far identified twelve of the 500 breccia pipes as significant mineral resource targets.
3. Additional mineralized breccia pipes have been identified near the infrastructure planned for the initial stage production scheme.
4. The 1998 drilling program just completed has confirmed the effectiveness of AMT's geological analytical techniques using geochemical, radiometric and magnetic, together with detailed geological mapping.

AMT has to date developed six high priority targets (shown on the attached map) that have ore grade mineralization, confirmed by drilling. The Company will begin an expanded drilling program this fall with the objective of converting an additional 10 million tons of resources at these targets to the proven and probable reserve category within the next six to nine months.

Listed below are the results of the recent drilling program at the six highest priority targets:

KEEL

The Keel Zone is about 600 feet below the Mammoth (formerly Creek) breccia and has been intersected by seven diamond drill holes. The significant mineralized intercepts are 2.28 % copper equivalent over 160 feet in Hole NE-6 and 1.79 % copper equivalent over a 190 foot interval in Hole VIX28-2. A drill indicated resource estimate of 5 million tons grading 2.00% copper has been established for this deposit.

AMERICAN EAGLE BRECCIA COMPLEX

Copper mineralization has been intercepted in two holes; the significant intercept is Hole CU-2, which has an interval of 180 feet grading 2.58% copper equivalent. An inferred mineral resource estimate of approximately 3 million tons of 1.60 % copper equivalent has been established for this deposit.

MARSHA

This is an open pit resource tested by 4 drill holes completed in 1998. The significant intercepts were: 180 feet of 1.18 % copper equivalent in Hole MB-2, 170 feet of 1.10% copper equivalent in Hole MB-2a and 190 feet grading 0.83 % copper equivalent in Hole MB-1. A resource of 1.5 to 2 million tons grading +1.00% copper equivalent has been estimated for this deposit.

COPPER PRINCE, GIANT AND GLOBE

These breccias have been drilled by AMT during 1997 and 1998. The significant mineral intercepts are 320 feet of 2.60 % copper equivalent in Hole CP-3 (Copper Prince), 130 feet of 2.50 % copper equivalent in CP-1 (Copper Prince), 122 feet of 0.96% copper in Hole DH-11 (Giant) and 130 feet of 1.80 % copper equivalent in Hole G4 (Globe). An inferred mineralized resource of 2 to 4 million tons grading +1.50% copper equivalent has been estimated for these breccia pipes. The top of these three breccia pipes will be amenable to open pit mining.

OTHER TARGETS

Other important targets identified by factor analyses (geochemical, radiometric, magnetic and detailed mapping) and tested by drill holes are: North Childs (Drill hole CA-2R) intersected 60 feet grading 1.53% copper only, Rum (Drill hole Rum-1) intersected 90 feet grading 1.65% copper equivalent and West Mammoth target tested by two drill holes and a geophysical survey. Of importance, the Un Named breccia (Drill hole UB-4R) intersected 210 feet grading 1.01% copper equivalent, including 80 feet containing high gold values of 1.5 grams per ton (0.044 oz/ton). Other breccia pipes identified to date are Buzzard, HN-2 (one drill hole intercepted 60 feet grading 2.22 % copper equivalent), Fred, Charles, and Michael.

MERCER RANCH PURCHASE

AMT also announces the purchase of the approximately 37,000 acre Mercer Ranch property in August 1998. The property is strategically located adjacent to land already owned or controlled by AMT for its Copper Creek Project in Pinal County, Arizona, 45 miles north east of Tucson. This acquisition will expedite the development of AMT's Copper Creek Project by providing alternative road and power line accessibility, additional water rights, new mineralized areas, and the potential future opportunity to trade certain portions of the ranch property for other mineralized areas owned by federal agencies.

COPPER CREEK PRODUCTION PLANS

AMT is focussed on becoming one of the lowest cost copper producers in North America. From the expanded resource and reserve of the shallow breccia pipes, the production plans and mine life are now being revised upward to between 75 and 80 million pounds of copper annually at (all-in) cash costs below 50 cents per pound over ten years of mine life.

For further information, contact:

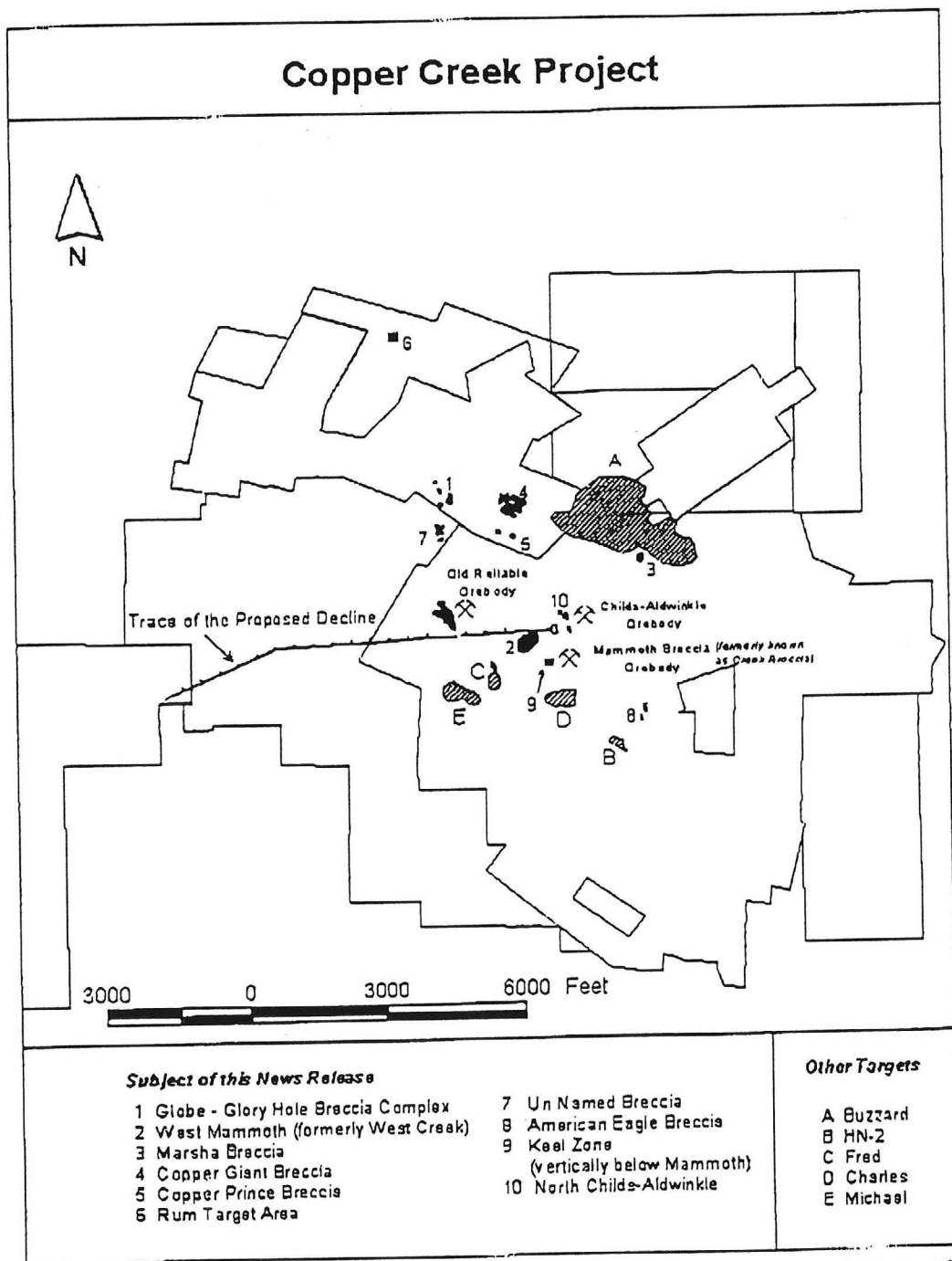
Dr. Kushal Singh, President (ext. 1)
or W. Glen Zinn, Chief Operating Officer (ext. 2)

Telephone: (520) 544-8815
Fax: (520) 544-8507
e-mail: amt1@primenet.com

Forbes West, Investor Relations
Telephone: (416) 413-4608

AMT website: www.primenet.com/~amt1/

pr98-5



September 1998

**AMT INTERNATIONAL
MINING CORPORATION**

TSE:AAI

*Magma Chief West (file)
Pinal Co.*

NEWS RELEASE

AMT INITIATES 1999 DRILLING PROGRAM

Monday, June 21, 1999 - Toronto, Canada AMT International Mining Corporation has initiated a drilling program of 25,000 feet at its Copper Creek Project for the purpose of advancing resources to the reserve status. This program commenced on June 1, 1999, and is expected to be completed by the end of 1999.

The first breccia complex to be drilled is the Mammoth, with targets both in the Upper Mammoth Breccia and the Lower Keel Zone. To date the first hole, M-1, has intersected 160 feet, from 130 ft. to 290 ft., of 2.23% copper within the Mammoth breccia. This drill hole will continue to a depth of 2,300 feet to intersect the high grade Mammoth-Keel Zone and to gather additional information from the porphyry system surrounding the Keel Zone.

W. Glen Zinn, Chief Operating Officer of AMT, said: "I am extremely pleased that the intersection has confirmed and enhanced the Mammoth Breccia, and we are looking forward to the continuing development of our reserves from this drilling program".

AMT is engaged in advanced stage mineral exploration and is focussing its activity on acquiring and exploring developed or semi-developed reserves of copper and precious metals located on the Copper Creek Property.

For more information, contact:

Glen Zinn, Chief Operating Officer
Phone: (520)544-8815, Ext. 23
Fax: (520)544-8507

E-mail: amt1@primenet.com
Website: www.primenet.com/~amt1/

pr99-4

*Magma Chief West (E)
Pinal Co.*

AMT INTERNATIONAL MINING CORPORATION

TSE:AAI

NEWS RELEASE

AMT ANNOUNCES RESULTS OF ITS 1999 DRILLING PROGRAM

(Monday, August 9, 1999 - Toronto, Canada) AMT International Mining Corporation reports that its LM-1 and LM-2 diamond drill holes are completed and that, in addition to the upper Mammoth breccia interval reported in its June 21, 1999, press release, LM-1 has intercepted a 630 foot interval (1,730 feet to 2,360 feet) of 1% copper. The Mammoth-Keel Zone, which is located within this intercept, grades 1.77% copper in a 110 foot interval (1,730 feet to 1,840 feet). LM-2 has intercepted 810 feet (1,790 feet to 2,600 feet) of 0.95% copper, including 150 feet (2,250 feet to 2,400 feet) of 2.02% copper in the Mammoth-Keel Zone. Substantial molybdenum credits, along with gold and silver credits, have been found within the mineralized copper zones for both LM-1 and LM-2, although assays for these minerals have not yet been completed. Copper mineralization in both LM-1 and LM-2 holes substantiates a larger breccia porphyry zone at depth in the Mammoth area. Drilling will be ongoing in this area, and it is anticipated that diamond drill hole LM-3 will be completed during the week of August 9. At least two or three additional holes are planned for the Mammoth area. AMT will add a second drilling rig and intends to initiate drilling in the American Eagle breccia on August 9 to better define a previously drilled high grade intercept of 1.16% copper and 0.316% molybdenum over an interval of 170 feet.

APPOINTMENT OF TWO NEW DIRECTORS

AMT is pleased to announce the appointment of George Hanna and Michel Gaucher to its Board of Directors. They replace Gordon Slade and Steve Vaughan who resigned as directors. Mr. Hanna and Mr. Gaucher are nominees of Norshield Investments and their election as directors fulfills one of the terms of the financing agreement reached by AMT and Norshield.

Mr. George Hanna is currently president of Intrafina Ltd. and Managing Director of Sopamy Inc. He is also a director of a number of companies, including Canficorp Inc and Palos Capital Corporation. In addition, Mr. Hanna is a member of the Board of Directors of several organizations, including Concordia University and the Sacred Heart School Foundation.

Mr. Michel Gaucher has extensive senior level experience with major Canadian and international corporations, and is Chairman and Chief Executive Officer of Dynamis Group, Inc. and Chairman of the Board of Sofati Ltd. Mr. Gaucher is also a member of the Quebec Bar Association, the Canadian Bar Association, and is President of Stanislas College.

Both Mr. Hanna and Mr. Gaucher will contribute a wealth of business and management experience to AMT and will assist the corporation in the advancement of its future financing and strategic growth programs.

For further information, contact:

W. Glen Zinn
Chief Operating Officer
Telephone: (520) 544-8815, Ext. 23
Fax: (520) 544-8507

Magna Chief West

For Immediate Release: Monday April 26, 1999

AMT INTERNATIONAL MINING CORPORATION

NEWS RELEASE

TSE: AAI

(April 26, 1999 - Toronto, Ontario) AMT International Mining Corporation is pleased to announce that, subject to all applicable regulatory approvals and certain other conditions, it has entered into an agreement with Norshield Capital Management Corporation of Montreal ("Norshield") pursuant to which Norshield has agreed to purchase 6,666,666 special warrants to acquire senior convertible voting preferred shares (the "Preferred Share Special Warrants") at a price of Cdn. \$0.30 per Preferred Share Special Warrant and 8,571,430 special warrants to acquire common shares (the "Common Share Special Warrants") at a price of Cdn. \$0.175 per Common Share Special Warrant, for total aggregate proceeds of Cdn. \$3.5 million.

Each Preferred Share Special Warrant will entitle the holder to receive, for no additional consideration, one senior convertible voting preferred share of the Corporation. Each preferred share carries a 10% dividend and is payable quarterly in common shares of the Corporation based on a 20-day weighted average daily closing price of the common shares on The Toronto Stock Exchange or, at the option of Norshield and once the Corporation's Copper Creek property is in production, an annual dividend equal to 5% of certain defined income, payable in cash. The preferred shares are also convertible at Norshield's option into common shares at any time, at an attributed value of \$0.30 per preferred share, at a price equal to the lesser of Cdn. \$0.30 per common share and the 20-day weighted average closing price of the common shares on The Toronto Stock Exchange. Norshield is required to convert all preferred shares, if any, at the end of five years on the foregoing basis. On the first anniversary of the issuance of the preferred shares, the conversion price may be reset to a lower price if the 20-day weighted average closing price of the common shares is below \$0.30. Norshield also has the option to require redemption of the preferred shares at the higher of market value and a value equal to Cdn. \$0.30 plus an aggregate 25% annual return (inclusive of interest which has been paid) for each year that the preferred shares have been outstanding under certain circumstances, such as change of control of the Corporation or a change of two-thirds of the members of the Board of Directors of the Corporation without Norshield's consent.

Each Common Share Special Warrant will entitle the holder to receive, for no additional consideration, one common share of the Corporation. The Corporation is required to file a prospectus qualifying the issuance of the securities underlying the special warrants within 90 days following the closing of the transaction. The offering of the special warrants is scheduled to close on or about June 23, 1999 and may be subject to shareholder approval.

Net proceeds from this issue will be used to complete exploration necessary for completion of exploration and the feasibility study in respect of the Corporation's Copper Creek Project located in Pinal County Arizona.

The Corporation also announced today that it has recently learned that 39 unpatented claims, covering 511 acres on its Copper Creek Project, located in the Copper Creek district in Pinal County, Arizona, may have been deficiently staked by a predecessor in title to the Corporation. These particular claims do not materially affect the Corporation's present resource base, have no effect on its present reserve base and have no impact on its planned 1999 drilling plans. With assistance from Arizona counsel, the Corporation is in the process of investigating this matter and evaluating possible remedies available to it. The Corporation does not anticipate any significant disruption of its long term plans to develop the Copper Creek Project into an economically viable copper project, nor does the Corporation anticipate that the ultimate resolution of this matter will have a materially adverse effect on the Corporation's financial position.

The Board of Directors of AMT International Mining Corporation also announced today that it has terminated the position of Dr. Kushal Singh as the President and Chief Executive Officer of the Corporation and his employment as Chairman and Chief Executive Officer of AMT (USA) Inc., the Corporation's wholly owned operating subsidiary, effective immediately. Peter Crossgrove has been appointed the new President and Chief Executive Officer of the Corporation.

In the course of seeking alternative financing arrangements for the Corporation, Dr. Singh entered into a series of transactions and, without the knowledge of the Board, expended a total of approximately (Can.) \$1.4 million of the Corporation's funds. While there is no evidence that he was a personal beneficiary or instigator of the fraud on the Corporation, having regard to his actions and the amount of funds expended, together with the results of the forensic audit report prepared on behalf of the Board, the Board has decided to terminate his employment and position, as mentioned above. Dr. Singh has also filed a lawsuit in connection with his termination. The Board is of the view that these funds are unlikely to be recovered. As a result, these funds have been written off in their entirety as a loss. As at April 26, 1999, the Corporation's cash position was approximately (Can.) \$770,000.

The Corporation is engaged in advance stage mineral exploration and is focussing its activity on acquiring and exploring developed or semi-developed reserves of copper and precious metals located on the Copper Creek Property.

For further information, contact:

W. Glen Zinn
Chief Operating Officer

Telephone: (520) 544-8815, Ext. 23
Fax: (520) 544-8507

December 4, 1944

Mr. O. W. Blevins
Sombrero Butte, Arizona

Dear Mr. Blevins:

In the event there is a possibility of reopening your application for Magma access road, Bill Broadgate would like to have a copy of your notification of disapproval of this project. Please mail it to this office for transmittal.

Yours very truly,

George A. Ballam
Assistant to the Director

GAB:LP

November 15, 1944

MEMORANDUM

TO: W. C. Broadgate

FROM: Chas. H. Dunning

Mr. O. W. Blevins of Sombrero Butte was in today in regard to an access road he applied for for his Magma Chief Mine in that district.

He says both the Bureau of Public Roads and the Bureau of Mines say they approved this but he has heard nothing in over two months.

Will you please get us the latest on this?

CHD:LP

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine "MAGMA CHIEF - Cu.

Date February 10, 1943

District Bunker Hill

Engineer Earl F. Hastings

Subject: Reconstruction Finance Corporation
Preliminary Development Loan

Docket No.

Date Application Received

Date of Report

C-ND-Phoenix 132

February 5, 1943

February 10, 1943

1. Name and address of applicant (correspondent):
O. W. Blevins, Sombrero Butte, Arizona.
2. Character of project and estimated cost thereof:
'Cu. Reopen 320 ft. shaft and lateral workings therefrom. \$4,000.00.
3. Location of property:
Bunker Hill Mining District, near Sombrero Butte, Pinal County, Arizona.
4. Applicant's interest in or ownership of property:
Applicant purchased the property April 21, 1941. Whether or not purchase has been completed and title cleared is not stated.
5. Loan requested:
\$4,000.00.
6. Loan recommended:
None.
7. Comments:
 - (A) Notations in red pencil on map and exhibits are by the applicant.
 - (B) Shipments, settlement sheets enclosed, represent pillars only. Sample #1, assaying 6.68%, which is the only evidence of a shipping grade of ore, likewise represents a small pillar.
 - (C) Downward continuation of the ore, Samples #2 and #3, is apparently of a lower grade than that previously mined. A "known" ore body between the 220 and 320 foot levels, of which the above samples represent the top is not described nor width and value given on the 320 foot level.
 - (D) Lateral extent of the shoot is limited, apparently to the present stoped area. Acknowledgement of this is found in Exhibit A-4, paragraph 4, as marked in red.
 - (E) There therefore appears a possible small and lowgrade ore body to be made accessible by this loan, the value of which does not justify the expenditure.

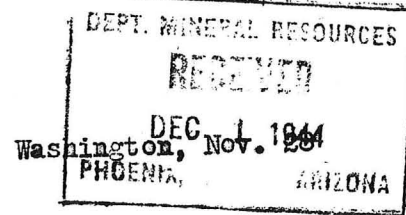
MAGMA CHIEF - Cu.

2/10/43

(F) Personal familiarity with the district in past years tends to substantiate the nature of the deposition as deducted from the data submitted by the applicant. The writer concluded from scattered development at that time, that only "spotty" high grade ore existed in the district and that the ratio of cost of development to production was unprofitable.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Earl F. Hastings
Projects Engineer



SUBJECT: Magma Chief Access Road.

As you probably know, this case was turned down Nov. 15, (and I was unable to prevent it) because of certain assumptions then current about the supply and demand situation on copper. I wonder if you can get me a copy of the letter written to Blevins conveying the turndown. It may be that I can use it to good purpose or advise Blevins how to refile, but don't promise anything.

Bill Broadgate

*because I did not get your
news until the 12th.*

Dr. Blevins, Phoenix, Arizona

Arizona Mining Camp Operations

IN BUNKER HILL DISTRICT

The editor of the Journal visited the Bunker Hill mining district, sometimes known as the Copper Creek district, about April 1st. There are several properties working in this section just now, most notably among which is the Magma Chief Copper company, and the Bunker Hill Copper Mining company. These properties adjoin, and are located about twelve miles east of Mammoth. About the first of January, the Magma Chief company took over the property known as the Sombrero Butte, and since that time surface improvements and underground development has been carried on in a systematic and business-like manner. At the time of our visit, a new shaft had been sunk to a depth of 118 feet, and a 300-foot service tunnel connecting the bottom of the shaft with an adjacent gulch had been completed. The ores appear in a brecciated formation, and carries some copper glance running as high as 60 per cent. This high grade ore appears in kidneys throughout the entire body so far exposed. Before the Magma Chief took over this property, the same was worked by leasers, and ten cars of ore shipped from the same netted about \$11,000. The property is in charge of Superintendent Charles Kumpke, and, while the camp so far is a small one, yet it presents a model appearance.

Adjoining the Magma Chief property on the south is that of the Sunset company, which is inoperative at the present time. This latter property is chiefly owned by residents of Hayden, and if present plans are put into effect, work on the same will begin at an early date.

Adjoining the Magma Chief on the west is the Bunker Hill property, chiefly owned by the Norton Brothers, and under the general management of Mr. Ben. C. Norton. The property is being developed and made to pay from the grass roots. It is reported that this company has succeeded in financing for a much bigger development program than the present undertaking.

Those interested in this district should watch for a detailed description of same, which is due to appear in the June annual number.

MINERAL HILL TO ERECT MILL

As a direct result of striking a large body of sulphide copper ores of commercial grade on the 600-foot level during April, the Mineral Hill Consolidated Copper company, it is stated, will erect a large concentrating mill to cost \$100,000 at their property at Mineral Hill, in the San Xavier district.

The company had previously developed a large body of ore at the 340-foot level from which large shipments of five and six per cent ore had been made, but wanted to explore the mine at greater depth before determining to erect a reduction plant.

The explorations were therefore continued and at the 600-foot level a body of ore much larger and richer than the ore

on the 340-foot level was encountered. This body on the 600-foot level has now been developed to such an extent that the company is assured of sufficient ore to run the proposed concentrating plant for five years.

It will probably be the first of the year before the new plant can be erected and put in operation but the Mineral Hill will then take its place as one of the large producers of copper ores in the district and with its own concentrating plant will be in a position to operate its property economically.

The Mineral Hill property is owned largely by Pittsburg capitalists. U. A. Fritschie is general manager of the company. He has been pushing development work without saying much about it and has demonstrated that the mine is good one.

The Mineral Hill mine is located in the San Xavier district twenty miles south of Tucson, and about a mile from the San Xavier mine. There are a number of other operating properties in the district including the Reiniger-Freeman on the south side of the same range.

SAN XAVIER EXTENSION WILL RESUME

As was expected, with the announcement that the governmental restrictions had been removed from silver by the federal reserve board, many good silver-producing mines will resume operation. Edward G. Bush states that the working of the San Xavier Extension Copper company's mine, located south of Tucson, will be resumed at once. This is a comparatively new producing mine, and former shipments were profitable. It is also of interest that Mr. Bush is still shipping two cars of high grade ore each week from Twin Buttes. The ore is chalcocite of high percentages.

STARGO COMPANY REPORTED SOLD

First payment on the purchase price of twenty-six claims, owned by the Stargo Silver Belt Mining company, located within one mile of the town of Morenci, has been deposited with the Gila Valley Bank & Trust company of Clifton, subject to the approval of the title. This property, familiarly known as the "Stargo", is a gold and silver property, which has been worked intermittently over a period of several years by the original owners and Mexican leasers, no less than eleven hundred railroad cars having been shipped to the smelters when silver was quoted at fifty and sixty cents per ounce. Silver is now quoted at \$1.01 per ounce, practically double the price received when the ore was shipped in years past. The property is being taken over by a syndicate or association of Arizona men headed by Mike J. Hannon, formerly with the Copper Queen company of Bisbee.

THE GIBSON INSTALLING MILL

The Editor of the JOURNAL recently visited the property of the Gibson Copper company, located some ten miles south of

Miami, which we did with the view of inspecting the work now in progress of installing a 200-ton mill to treat the ores of the Gibson mine. This property is one of the old famous mines of that section, and years ago was a large producer of high grade sulphide ores, which were mined at comparatively shallow depth. At the present time, there are several thousand tons of ore on the dumps, including old tailings, which average around 4 per cent copper. The mill, which shows every indication of being a modern one, is about 50 per cent completed at this time. It is planned to give a more comprehensive report on this property in the June Annual.

NEW RECORD ON SAC. HILL

Sacramento Hill is gradually being disavoured by the steady pressure of men and steam shovels. Last month a record was set in removing the mountain. Arthur Notman, superintendent of the Phelps Dodge mines, announces that during the month of April 175,000 square yards were removed from the hill, which thus far exceeds all previous marks.

NEW RAY SHAFT READY

It is announced that the Ray Consolidated Copper company's No. 4 main hoist will be in operation early in the month. This shaft, as previously announced, embodies the last word in up-to-the-minute hoist construction.

ASBESTOS CO. TO BUILD

The New York syndicate which is interested in the asbestos mine at Asbestos, Arizona, a few miles distant from Richardson Station on the A. E. R. R., has made arrangements for the construction of a two-story cement building at that place. The lower floor will be used as a storage room or warehouse. The upper floor will be used for boarding and lodgings for the men. Several single story cement buildings are also to be erected at Asbestos.

NEW SILVER COMPANY

The Silver Virgin Mining company has been organized in Douglas by a number of local men and active work on the company's properties will begin at once. The properties consist of three claims situated between Ajo and Tucson in the Queen of the Pecos district. As the name of the company indicates, the mine is a silver mine. The ore is of the surface. A mill will be installed at the mine. The officers of the company are A. B. Murchison, president; James F. Deitrich, vice president; F. E. Cadwell, treasurer; S. W. White, secretary. These with H. D. Maynard, J. Shaw and J. J. Adair constitute the board of directors. Mr. Adair will be in charge of the work at the mine.

Ed Richardson, who has considerable mining interest in the Mayer district, states that the Liberty Copper Mining company is now fully financed, and its development work has already started and will be continued indefinitely.

Review of the Mining Conditions in the State

By THE EDITOR.

During the past sixty days the editor of the ARIZONA MINING JOURNAL has traversed the greater portion of the mining sections of the state and visited hundreds of properties, mostly those that are operating and developing, but also many prospects. This general visit was made for the purpose of getting a first-hand view of the real situation as it prevails in Arizona at this time.

Our first main stop was at Globe and Miami, and here we found the developing mining business on a better basis than at any time for the past year or so. With the operating mines of that section production was still on a curtailed basis, but all the properties were putting on practically all the skilled miners they could obtain. We found, however, the same complaint that was in evidence all around the state—that experienced miners were not available to fill the need. But going on the idea that as the soldiers returned home more and more men would be at hand, the mines generally were planning for bigger operations, and there was a universal spirit of optimism.

One principal feature of the district was the installation of the mill of the Gibson Copper Company at Bellevue, 12 miles south of Miami. This plant is to have a capacity of 200 tons per day, and was about 50% completed on the middle of April. The Porphyry and Barney Copper Companies at Miami were preparing for a consolidation, forming a \$5,000,000 corporation, with plans for extensive development of their properties, which join the Live Oak mine of the Inspiration. The Van Dyke Copper Company was continuing the development of a good body of ore on which they were steadily sinking. Among other properties carrying on active development work were the Castle Dome, the Miami Mining and Milling, the Atlantis and the two Asbestos properties. The Iron Cap Copper Company had just moved into their new office building, and the \$20,000 Mine Rescue Station of the several large companies of the district was nearing completion. Incidentally it may be stated that the work to be carried on in connection with this building (which is covered by a special article in this issue), is a new line of work for the mines of Arizona in respect to their policy of caring for the welfare of the workmen, and a work destined to be far-reaching in its influences.

While at Globe, through the courtesy of Senator Warren Young, the writer had the opportunity of sitting in at a dinner given

to the delegates of the Bankhead Path-finding Commission, who were considering different routes through Arizona for the national highway of the Bankhead name. The outstanding point of interest at this gathering was the determination shown by the Gila County fellows to see the proposition of good roads to a definite conclusion, irrespective of whether they were located on a national highway or not. Gila County has one thing no other section of the state has, and that is, the Roosevelt dam—or at least the main route to the same, and as one speaker said: "Nowhere on the American continent is there grander scenery than that en route via and surrounding the Roosevelt dam." The road already built from Globe to the dam, and on north to Payson is evidence of the good road spirit general in Gila County. And that very night announcement was made of a \$70,000 improvement of the road between Globe and the dam, including the building of a new bridge. Also it was noted that within two years a boulevard road would be finished by way of Miami and Superior to Phoenix.

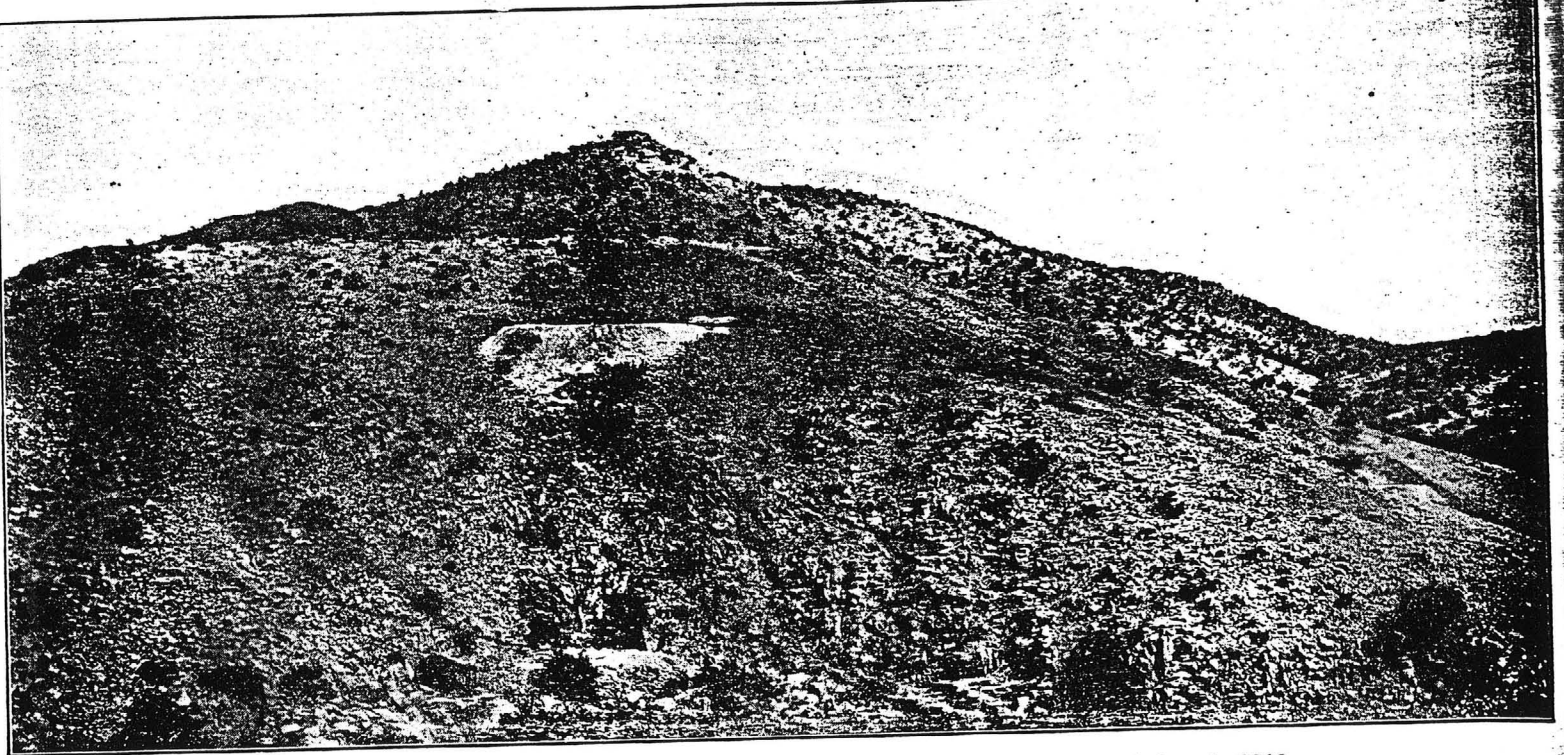
From Globe we went into the Bunker Hill or Copper Creek mining district, located some twelve miles east of the old town of Mammoth, and there saw the work now under way of making a mine of the old Sombrero Butte property by the Magma Chief Copper Company. Also inspected several other properties including the Bunker Hill Copper Company, which is working, and the Sunset property, which was idle. The latter has wonderful showings for a mine, while the former was actually mining \$60 to \$80 silver ore on a 30-inch vein. There were signs of two very essential things at the Magma Chief, namely, an ore body and economical management. For instance we noted that while the hoist equipment was of small caliber yet Chas. Kumke had used a certain amount of genius in supplementing the lifting power of the hoist, by putting on an extension drum to the main shaft of the hoist drum and attached a cable to the same with a heavy folded chain tied onto the cable. This chain had a runway prepared for it on one side of the shaft manway, so that when the load was being lifted the chain unfolded and dropped away toward the bottom of the shaft. This ingenious device evidently added several horsepower to the hoist. When this district is proven up, as there is good reason to expect, the problem will then have to be solved of handling the ore. Talk is now of a new road following along the rim of the hills forming one side of the

gulch up which the present road travels; or, if occasion should warrant, a railroad will naturally be built.

At Hayden the usual ideal camp life was evident. This being a mill and smelter town one very naturally expects the best class of citizenship, and there is no reason for disappointment at Hayden. Several of us stood on the street corner, and one of the local authorities said: "Have you been noting the fellows passing here for the past five minutes—how many of them do you think are School of Mines men?" The writer not being able to make an intelligent guess, our informant said: "At least 25 per cent of them." There is probably no other community in the world other than a first-class mill or smelter camp where so large a portion of the young men are college educated.

In Ray we found L. C. Cates, general manager of the Ray Consolidated Copper Co., back at his desk from an extended visit to New York and Massachusetts (where the old folks live), and with the boss on the job naturally everything was operating as smooth as Standard oil. Of course he wasn't inflated with elation, for just at that time copper was down to 15c, and very little selling, and according to the Ray Con. report—a copy of which was before him as we entered—the Ray is spending around 17 cents to produce every pound of copper taken out of the mine. Like the balance of us human kind, though, he has a streak of optimism, and was hoping to somehow get down his cost—and praying for better prices. The market reports indicate that his prayers have been answered, but there seems little hope for lower costs, insofar as wages and supplies are concerned.

In the Superior district the Magma was breaking ground for a nice new office building, and also getting installed a new Nordberg-Westinghouse hoist equipment at their new shaft. By getting up to his office by eight o'clock we managed to catch Manager Browning before getting underground. One is lucky to do this—for he is one mine manager who seems to find it either a pleasant occupation or a good business policy to spend a good bit of his time down where the red metal grows. Incidentally our attention was called to one very excellent policy of this company. The labor is mostly of the Mexican class, and as is well known the "Mex" are great on having a family—the bigger the better, is their policy. So the company uses the plan of furnishing each employe, so desiring, a plot of ground and assisting him to build a home, or of build-

Arizona Mining Journal

The main workings of the Magma Chief Copper Company at it appeared Jan. 1, 1919

Magma Chief Looks Like Winner

There is a fair chance of another big copper district being developed in what is now known as the Bunker Hill Mining district, formerly known as the Copper Creek district, and lying 12 to 15 miles east of the old camp of Mammoth, in Pinal county. For a great many years this district has been prospected and worked spasmodically, but was generally unknown until the Magma Chief Copper company took over the rights of the Sombrero Butte Development company last fall and about the first of January went to work in earnest to prove up their property.

The Magma Chief spent about two years' time and quite a little money in the Superior district on a property owned there, which they did on geological theories, but when it became apparent that it might take a million to prove these theories the company officials cast about for some likely spot on which to gain and regain their fortunes. Apparently—judging solely by the outlook at this date—the fates smiled kindly upon them, for the old Sombrero Butte property, which had been tied up on litigation up to that time, was offered to them at a fair figure and luckily for the stockholders, the company treasury still contained enough of their money to buy, equip and maybe develop this property to the point of ascertaining if they really have a mine. The word "luckily" is used advisedly, for it is not often a prospecting company has enough money left after one failure to make another try. There may be other reasons not apparent, but the one that appeals to the writer most is the fact that the company had a real manager in Mr. Chas. Kumke, who seems to know the mining business from the right angles.

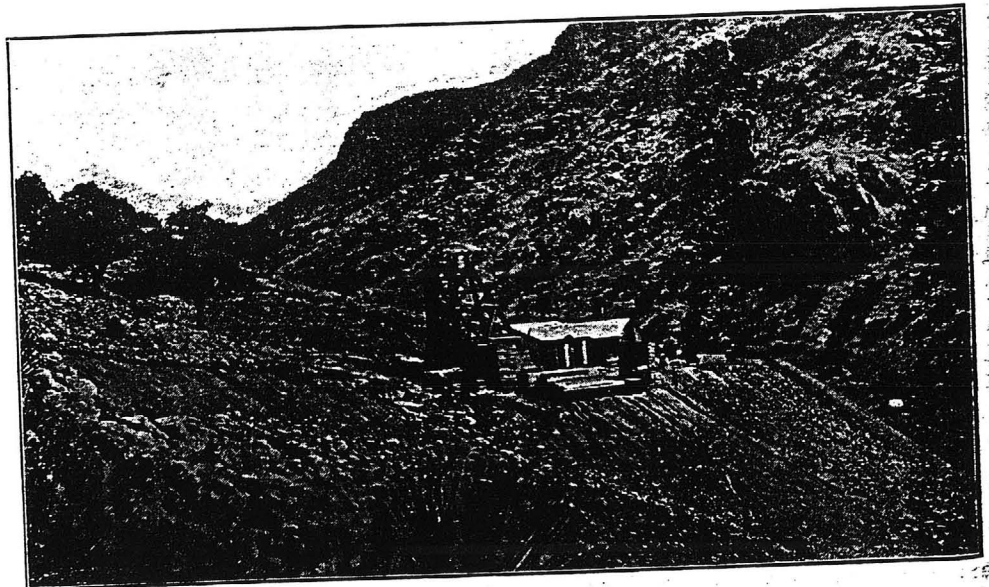
First—He apparently knew when the time came to quit at Superior; secondly, he managed to retain a fair treasury;

thirdly, he has made a marked progress at the new workings in so short a time. By reference to the panoramic picture accompanying this article, it will be noted that on January 1st nothing is apparent here but a hole in the ground. On the first of May, when the writer visited the property a difficult piece of road had been built to the mine shaft and on over the divide to the camp; some half dozen houses were erected; a water system installed; a gallows frame built with necessary adjunct buildings, and a shaft 120 feet sunk with a tunnel connecting at bottom with adjacent gulch 300 feet distant—all in four months' time. The Journal's field engineer sends in the following report on the property under date of May 15th:

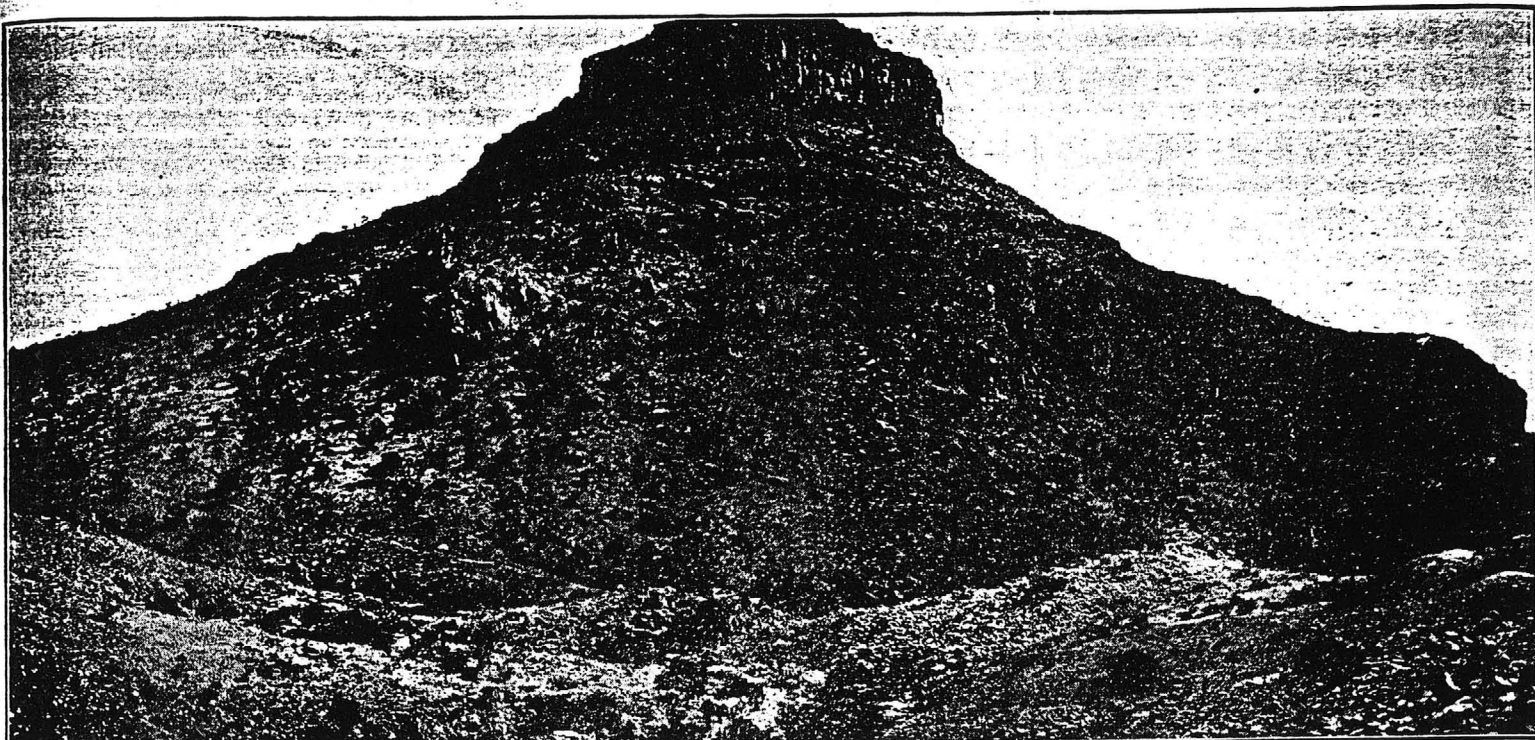
port on the property under date of May 15th:

"The property of the Magma Chief Copper company is located in the Bunker Hill Mining district, Pinal County, Arizona, near the old Copper Creek mine, 12 miles east of the old camp of Mammoth. The property consists of ten claims accessible by means of a wagon road, constructed up what is known as Mulberry Wash, from the main Winkelman-Tucson Highway.

"The country rock appears to be diorite and grano-diorite intersected by younger eruptive rocks. The surface mineralization is largely copper carbonates and copper silicate, forming several prominent



Main Shaft of Magma Chief, May 15th.



Showing "Sombrero Butte." The Sunset property lies partly in the immediate foreground, but mostly to the east.

Sunset Copper Company to Develop

outcrops. The outcrop on the Audacious claims overlies a considerable body of copper glance, cuprite, chalcocite and chalcopryite.

"A 90-foot shaft on this ore body, sunk by leasers in the past, and three small levels and stopes, yielded considerable high grade shipping ores. Shipments after sorting ran over 20 per cent copper, the remaining dump sampled by three different engineers shows between five and six per cent copper. The 88-foot level contains chalcocite and copper oxide. The development, however, is still insufficient to determine the direction or extent of the ore body.

"Active operations began at the camp shortly after January 1, 1919. The wagon road up Mulberry Wash was repaired and then extended to the new shaft site, as well as a short distance beyond into the camp site. Suitable quarters for the crew were constructed consisting of several boarded and floored tents, protected with corrugated iron roofs. A new all-wood boarding house has also been built.

"A contract was then let for a new two-compartment shaft, to be sunk three hundred feet. This shaft is located close to the old 90-foot shaft which was found to be too crooked to be used to advantage. A suitable gallows frame has been erected, also a hoist house, blacksmith shop and timber framing shed. An 8-horsepower hoisting engine has been installed, and the shaft itself was actually underway by February first.

"This new shaft is a short distance from the main ore body, but considerable copper carbonates have been encountered all the way down. The old shaft workings have some shipping ore in sight. When the new shaft has gone down 300 feet, levels will be carried under this ore body and its extent determined. Sufficient supplies and

equipment have been shipped from the old workings at Superior to carry out the above plans.

"At the present date the shaft has reached a depth of about two hundred feet. A station has been cut at the 120-foot level and a tunnel connection completed from this station to the outside. A second drift has been run underneath the old 90-foot shaft for the purpose of raising up to it and draining the old workings which are now partly filled with water. Both the adit tunnel and the Number 2 tunnel have cut through ore. Considerable high grade copper glance was encountered in drift No. 2 and this drift will be swung northerly to get directly under the high grade glance found above.

"Mr. Walter H. Wiley, a mining engineer of high repute and an expert on copper mining, after a close examination of this property as well as thorough sampling and examination of the old smelter returns, says:

"A far better determination of ore values is the list of ore shipments; 136 tons of sorted ore averaging 21.8 per cent copper with 4 ounces of silver.

"The total net receipts from this ore of eleven carloads, were \$11,609.45. The total cost of mining, including sinking the Audacious shaft and driving the three levels, delivery of ore at Hayden, camp expenses and some assessment work on other claims, was \$10,220.43."

"This excellent showing, in connection with the ore now in sight in the mine, fully justifies additional development. The first work should be done on the ore; sinking the present shaft and extending the lower level.

"Development starting on the Audacious ore body, the chances of a profitable mine are excellent.

OTHER PROPERTIES IN DISTRICT

This district has several other companies among which is the Calumet and Arizona Mining company, who own 23 patented claims which have been developed more or less by diamond drill and otherwise. Immediately joining the Magma Chief property on the west is the Bunker Hill Mining company, the principal owners of which are the Norton Brother, H. S. Bailey and F. M. Pool of Winkelman. This is a silver-lead property and as far as developed carries high values. Twelve to fifteen men are at work on the same and extensive development is planned for the near future.

SUNSET COPPER COMPANY

Another property, which joins the Magma Chief on the south, is the Sunset Copper Mining company, owned principally by Hayden people. This property shows the same geological formation as the Magma Chief. The following recent report from the secretary-treasurer of the company is of interest as this company resumed work in May and soon expect to have a large force at work.

"This company was incorporated December 16, 1916, under the laws of Arizona, with a capital stock of \$500,000, with 500,000 shares of stock of the par value of \$1.00.

"At the present time there has been issued about 240,000 shares, leaving 260,000 shares still in the treasury.

"The company own and control eleven claims of over 200 acres of highly mineralized land in the Bunker Hill Mining District (Copper Creek). All of the claims held by the company have been surveyed for patent, definitely establishing the corners and boundaries of each claim. All claims free of litigation and two of the claims, where principal work has been

Arizona Mining Activities

KINGMAN—

The crosscut of the vein 400 feet west of the shaft, on the 150 level of the Twins mine, of the Daisell Mining company, has disclosed 13 feet of high grade mill ore. The company proposes raising from this level to connect with the 90 foot shaft and this shaft will be timbered up and carried down on the ore to a depth of several hundred feet below the present level.

The tunnel that is being driven on the Silver Jack mine is now in 75 feet and good progress is being made. Although this tunnel has not been on the vein, kidneys of good ore are being broken into in the country rock, which appears to indicate a wide mineralization of the property.

The contractors have begun operations on the tunnel of the Gates Ajar, in the Maynard district, east of Kingman, and within a short time the vein will be entered and drifting both ways will be started.

E. C. Bradshaw of the Arizona Molybdenum property, known as the Hamme mines, reports that the mill has been operated continuously the past eight days and has effected a saving of 83 per cent of the molybdenite content of the ore and 66 per cent of the copper, making a 25 per cent molybdenite concentrate and 24 per cent copper. This result was obtained from the low grade tailings that has been run through the mill by the former management. These were reground and put through the new K. & K. machines. Plenty of water has been secured for the mill requirements, the water being brought in from the mines of the Arizona Southwestern Copper company, about 3000 feet up the canyon.

Concrete foundations for the big hoist and compressor have been cast at the Rural and Buckeye mines, at Mineral Park, and this machinery is expected to arrive within the next ten days.

Thursday last the shareholders of the Rico Exploration company met at the offices of Carl G. Krok in Kingman and voted to increase the capitalization of the company from \$100,000 to \$500,000.

J. H. Townsend and associates have taken over the old Rattlesnake mine, situated southwest of Chloride, and in the neighborhood of the Diana and Tuckahoe mines, and have organized the Wallapai Exploration and Development company to work this and other properties.

The transfer of the Arizona Engineering company to Brooks Dudley and Stewart Thompson was completed recently. A new corporation is being formed, under the name Thompson-Dudley company and the assets of the Arizona Engineering company will be transferred to this new corporation.

G. S. Holmes, who has been in New York the past several months looking after the listing of the shares of the Hackberry Consolidated Mines company, is expected in Kingman daily, and will visit the mines. The development on the 700 level of the Hackberry mine has been carried several hundred feet on the ore body and is said to look as well if not better than any of the other levels. Every level shows splendid ore bodies and the stopes show improvement as the work is carried farther up and into the ore. The mine is fast getting in shape to increase its output to the capacity of the mill, which is said to be 220 tons daily.

James Uncapher has closed a deal with M. B. Dudley and associates for the sale of the Queen Bee group of mines. The deal was made through the agency of E. F. Thompson. Just what was received for the property we are unable to state, but it was a cash consideration.

The Queen Bee mine was discovered in the early eighties and has been an active property ever since, the greater part of the work being done by leasers. Every man who worked on the mine made money, some of them cleaning up quite a stake. A shaft was carried to a considerable depth and ore opened at all levels. Along the outcrop of the vein there was a fine body of ore, the original assay running about 240 ounces silver and \$12 gold. Shoots opened on the 100 and 200 levels had ore that ran close to 1000 ounces silver, at least the smelter returns showed the ore to have that value. The mine is situated on the north side of the Nigger Head and within a short distance of the main Mineral Park road.

It is the intention of Mr. Dudley to patent this group of mines and later on equip it with compressor and other necessary machinery for active development below the present level.

OATMAN PERSONALS

D. P. Mitchell, one of the old timers of this district, is back with the Tom Reed after spending his annual vacation on the coast.

Sam Warmbath and A. J. Keating, of Los Angeles, spent a few days in camp looking after their interests. They have direct charge of the Big Jim Con. and the Ivanhoe in Oatman and the Senate Silver property in Hackberry.

Bert Lunceford and family went to the coast for a couple of weeks. Bert is superintendent of the United American where they are now sinking the main shaft at the rate of five feet a day.

President Wold, of the Tom Reed, came down from Pasadena to look things over and see if it was as hot as reported. He seemed to be fully convinced about the weather in one day, as he departed for the Rose City the next morning.

Captain Palmer, the well known mining engineer, visited Oatman last week. Mr. Palmer is a large stockholder and director in the United Eastern. Since America entered the war he was connected with the army, being stationed at Washington. He is also president of the Sunnyside Mining

company. Now, having been out of the army, he will very likely become active interested again in the Oatman district.

Swansea Mines at Work

WICKENBURG—

The Swansea Mines company formerly called the Clara Consolidated, 22 miles north of Bouse, on the "cut-off", are reported to be working 32 men and planning to put on a hundred more.

Big projects in mining development work are planned by the Critic mining company which is said to have plenty of ore but is short of miners.

The Cuprite mine is an extension of the Little Giant and is owned by D. W. H. Development work with enlarged force will be to drift under the hill from the 100 foot level of the shaft to open up a large body of ore. Over 150 feet of tunnel work has been completed. Four or five cars of high grade ore averaging \$30 gold and 12 per cent copper have already been shipped.

C. L. Wilson, foreman of the Little Giant, was in Wickenburg recently. reports work as temporarily suspended until September 1, when activity will be renewed. This is considered a valuable mining property and is controlled and operated by Alabamans, who are preparing to expend considerable money in opening it up.

Ranier Sinking 1000-Foot Shaft

W. T. Gnash of the Ranier Mines corporation who are operating in Cunningham Pass, was in Wickenburg recently to inspect a carload of lumber purchased from Rosenberg & Co. at Congress Junction.

The Ranier Mines company have a very promising group of mines which are being developed by the sinking of a double-compartment shaft to a depth of 1000 feet. With a force of eight men, the shaft has been sunk about 70 feet and the bottom chows sulphide ore of good value entirely across the shaft in a formation of sand and shale.

The company has just purchased a horsepower commercial engine, a 12x18 M. compressor, several jackhammers, pressure tank, a pump and several 1000-gallon water tanks. The outfit is expected from Los Angeles, whence it was ordered of the well known machinery house of Buttress & McClellan.

Magma Chief in Fine Ore

HAYDEN—

Work is progressing rapidly and satisfactorily on the Sombbrero Butte property of the Magma Chief Copper company. A new shaft is down 240 feet. At the 200 foot level, a tunnel has been driven to connect the shaft with the surface which was made possible by the steep slope of the hill in which the shaft stands. This tunnel encountered a good grade of carbonate ore 40 feet from the shaft. This tunnel was continued from the new shaft a distance of 25 to 30 feet, to a level underneath the old 95-foot shaft, and a raise was put up and connections made with the old workings. The same grade of ore was encountered here as

found in the old workings. A station has been cut at the 220-foot level and that as well as the shaft, is in good mining ore. At the 240-foot level the same high grade of ore was struck, averaging 18 per cent copper, that was encountered in the upper levels, which proves the increasing width of the high grade ore with depth. A contract has been let for transportation of the ore to the smelter at Hayden and two motor trucks installed. The ore shipments are averaging from 16 to 22 per cent copper, with three to four ounces in silver per ton, having a value of from \$75 to \$80 per ton. One car or more per week can be shipped of these grades, if to the best interest of the company, mostly from development work, leaving the lower grade of ore on the dump for future concentration.

Magma's Big Tunnel

SUPERIOR—

The great tunnel leading from the surface plant to the 500-foot levels of the three working shafts at the Magma mine will be completed and ready for use about January 1. In other words the work of driving the tunnel will consume approximately six months.

When completed it will greatly facilitate work at the mine and will wonderfully improve the air as the intake will be 500 feet lower than at present. The tunnel will be provided with a railroad track and all shipping ore will be handled directly from the respective shafts to the cars, which will carry it to the smelter. The buildings at the portal of the tunnel will consist in the main of a change room, a carpenter shop and a blacksmith shop.

All supplies for the mine will be taken through the tunnel, which will be 1,800 feet in length when completed. The tunnel is going in at the rate of 300 feet a month or ten feet a day, which means that six months will be consumed in its construction.

Richmond Basin Country

Advices from Globe say the Richmond Basin again is active, with the rise in silver value. Nearly 40 years ago the basin was even more noted for silver production than was the Silver King. Several hundreds of thousands of dollars' worth of native silver was taken from the surface of the Silver Nugget claims—simply loaded into wagons and hauled away. The Mack Morris was a large producer and rich leads were worked on a number of other mines. Two of the old mines (the Emmaline and Blue Bird), lately have been taken under lease by a Colorado company, represented by George Dunlap, of Denver, who is bringing in new machinery, necessary for development of the long abandoned properties. In the same locality a 20-ton cyanide mill has been started on the Jumbo property by Charles Bessonette for the handling of a large dump of low grade ore.

Big Mining Deal Near Superior

PHOENIX—

One of the largest mining deals completed in Arizona since the war broke out was consummated here yesterday, thirty-two claims of the "Daggs group" about 1 mile from Superior, Arizona, being sold to a syndicate of about forty New York and Philadelphia men, headed by C. C. Steinbrenner of New York. The consideration was announced by Hugh R. Daggs, who, with P. H. Hayes, negotiated the deal, \$450,000. The claims are the prop-

erty of Consolidated Holding company and were sold in 1899 by A. T. Daggs, and Hugh R. Daggs. J. C. I. n, general manager of the Grand Pacific company represented the purchasers in the deal. The claims are adjacent to the Grand Pacific group. Mr. Daggs said the sellers were to receive a stock interest in the company formed by the syndicate.

Shamrock Cuts High Grade

According to General Manager Bernard McEntee, upon a recent visit to Phoenix, a good strike has just been made in the Shamrock Mining company's property in the Polosa district near Vicksburg, Yuma county.

The find occurred at the 160-foot level, where a two-foot vein of high grade copper-silver rock was encountered on the cross-cut, the extent of the deposit being at the present moment undetermined because of the fact that not enough work has been done to expose the dimensions. The ore will run about five per cent copper and probably 20 ounces in silver, according to McEntee.

The Shamrock, while a comparatively new property, has already shipped out about \$12,000 worth of ore, the values being principally in copper. The owners of the group, who are residents of Boston, are planning considerable development in the near future and the recent find will in all probability hasten the work, as the values exposed would seem to indicate that the property can soon be placed in the column of "mines".

PRESCOTT—

From the Blue Bell and De Soto mines a total of 11,400 tons of ore was shipped to the Humboldt reduction plant in July. The concentrator handled 7,150 tons, while the smelter proper treated 7,100 tons of new metal bearing material.

During the month of July there was shipped to the east 650,000 pounds of fine copper in bullion, the majority of which was derived from domestic material.

Big Pine Active

C. H. Dunning, manager of the Big Pine, near Senator, stated yesterday that since resuming, development was centered to driving the main tunnel, and a distance of 700 feet had been negotiated. Before the mill starts this work is to continue until 1000 feet has been accomplished. The ore showing is satisfactory, he says.

New Company Moving

John Slak, manager of the Good Hope Mining company, which has interests in Turkey Creek district, visited the city recently and stated operations would be under headway in a short time, on a basis of permanency. Eastern stockholders are interested who had advised Mr. Slak recently to this effect. The Good Hope is a gold and copper proposition practically determined as desirable.

Mining Man Returns

Captain W. V. DeCamp, well known in mining circles, has returned from New York City and again is with the Consolidated Arizona Smelting company as field engineer with headquarters at Humboldt. Formerly he was superintendent of the Blue Bell, but resigned to enter the army, serving until the armistice. Since resigning his commission he has been taking a post graduate course in mine engineering at the Columbia School of Mines, New York City.

P. D. Co. May Buy Duquesne

IAGC

It has been stated on authority which can not be doubted that the Phelps Dodge interests of Bisbee are making examinations of the properties owned by the Duquesne Mining and Reduction company at Duquesne and Washington Camp.

Some years ago the Copper Queen people made an effort to buy the Duquesne mines and offered a substantial figure for them, which was refused by the owners. After the death of Mr. Westinghouse, Sr., his heirs decided to give up mining, and the property, it is understood, has been offered for sale at a price of \$150,000. The equipment alone is worth this money, to say nothing about the valuable ore bodies which have been developed during the past few years.

Should the Copper Queen interests take over this property it is more than likely that the El Paso and Southwestern railway will be extended from Fort Huachuca to Duquesne, giving the company a direct all rail haul from the mines to the smelters at Douglas, thus obviating the handling of ore with teams, the method formerly employed. This road was surveyed several years ago through the Canille mountains and San Rafael valley to Duquesne.

Curry & Pannick, who have a temporary lease on the Duquesne mines, have been shipping about 400 tons of high grade ore monthly through Mexico to the Douglas smelters.

Examining Three R

W. C. Browning, manager of the Magma Copper company at Superior, Arizona, and T. A. Etlinger, mining engineer, arrived in Patagonia recently and made a thorough examination of the Three R mine for the Magma company, and if the report of these gentlemen to the officials of the corporation is satisfactory no doubt the property will be taken over by this concern, one of the strong mining organizations of the state. Mr. Browning and Mr. Etlinger came from Superior, a distance of 200 miles, by auto.

American Boy Working

Work at the American Boy mine, interrupted as a result of the recent heavy rains, is now expected to go forward without further interference. New machinery is being installed at this property. The American Boy is being developed by A. F. Gross of Duluth, Minn., under a bond and lease. Harry Armstrong is superintendent at the mine.

More Men at El Paso

Superintendent W. J. Mitchell of the El Paso mine at Mowry is authority for the statement that a good body of copper ore has been uncovered in the shaft at a depth of 300 feet. A station is being cut on that level and it is stated that next week an additional force of 25 men will be employed at this property.

Activity at Greaterville

Dave David returned recently from the Greaterville district and reports considerable activity in that section.

The Cottrell Engineering company of Los Angeles is erecting a dry concentrating plant near Greaterville, which is nearing completion. This mill will be used to handle the ore from this company's property and will also do custom work.

Interest in the placer fields of this district is being increased, as is evidenced by the recent bonding of 150 acres of placer ground to a Colorado concern by Col. R. R. Richardson.

PHelps DODGE CORPORATION TO ERECT CONCENTRATOR AT CLIFTON

It has been definitely decided by the Phelps Dodge corporation to build a new mill for the treatment of its Morenci ores. The exact location of the mill has not yet been decided but two possible sites are under consideration. It will be a complete, up to date concentrator of 2000 tons capacity for the present, but will be constructed in one thousand ton units and in such a manner that additional units can be added as desired.

A new five-compartment shaft will also be sunk through which to extract the low grade ore bodies. New hoisting engines and underground tramming and electrical equipment will be installed. A vigorous, intensive campaign of underground development will also be entered upon immediately.

It is estimated that it will be necessary for the company to spend from \$2,500,000 to \$3,000,000 in order to place the properties on an economical producing basis.

It has been decided to cease production at the mines September 6th, also to close down the mill and smelter until such time as the new work can be completed. A large number of the men around the mines will be placed on development work.

MAGMA CHIEF COPPER COMPANY

The reports from Sombbrero Butte property of this company continue to be most satisfactory. What is known as the old shaft was sunk in the ore body to a depth of 90 feet, where the ore was proven by crosscutting to be 47 feet in width. Out of these workings 136 tons of ore was shipped to the smelter, mostly from development, assaying 21.8 per cent copper and 4 ounces silver per ton, and leaving over 1,000 tons in the dump, assaying 3.73 per cent copper. As the ledge matter was very soft, the company decided to sink a new two-compartment working shaft about 30 feet from the old shaft, and outside of the known ore body. At a depth of 80 feet, the shaft struck a good grade of carbonate ore, assaying over 4 per cent copper. The shaft continued in the carbonate ore down to 238 feet, when it cut into a body of copper glance, assaying 18 per cent copper. The shaft is now

down 270 feet. Assays taken at different levels below the 238-foot level, as work progressed, gave 18, 19.7, 22 and the last 27 per cent copper. Crosscutting has been started to determine the width of the high grade ore. It is doubtless a continuation of the same ore body of high grade that was found in the 90-foot shaft. A winze is now being sunk in the tunnel at the 120-foot level in the same grade ore. On the 90-foot level the ore is 47 feet in width. On the 120-foot level it was 60 feet wide with only one wall. At 270 feet it is apparently much wider. The surface croppings show from 250 to 300 feet in width.

High grade ore averaging over 20 per cent copper is being shipped by motor trucks to the smelter at Hayden, and an extra force of men have recently been taken on to speed up and increase these shipments. The company still has ample funds in the treasury for development purposes, which will be augmented by the sale of the ore, and having scientific and conservative management, the prospects are extremely bright.

Dawson, New Mexico, is one of the few coal mining camps that have a golf course. Golf courses in mining camps are rare, for the camps are usually situated in the hills where courses cannot be laid out. The Dawson course has nine holes, and is full of natural hazards.

All the large mines of Arizona have elected committees of employes through whom grievances and disputes can be brought to the management direct, and who confer with the management on all matters pertaining to the welfare of the employes.

The New Cornelia Co-Operative Commercial company distributed to its customers fifteen per cent of their gross purchases for each of the past two years. The company reserves merely a nominal interest in the investment.

With the increase in the number of change houses, and the men going to and coming from work in good clothes, there has almost ceased to be a "lunch bucket class". It is particularly noticeable in Bisbee that men come and go from work with their hands free.

ENWAY RETURNS TO PRE-WAR POSITION

It has now been announced that Colonel John C. Greenway has resumed his position as general manager of the Calumet & Arizona and the New Cornelia Mining company. This will be good news for the state of Arizona, for Cochise and Pima counties where the properties of these two mining companies are located and for all the men employed in the operation of the mines and reduction plants of the two companies.

The return of Colonel Greenway to his former position insures that he will continue as a citizen of Arizona and that the state and especially the counties where he will be particularly interested, will have his unselfish assistance in all matters undertaken for their further development and progress.

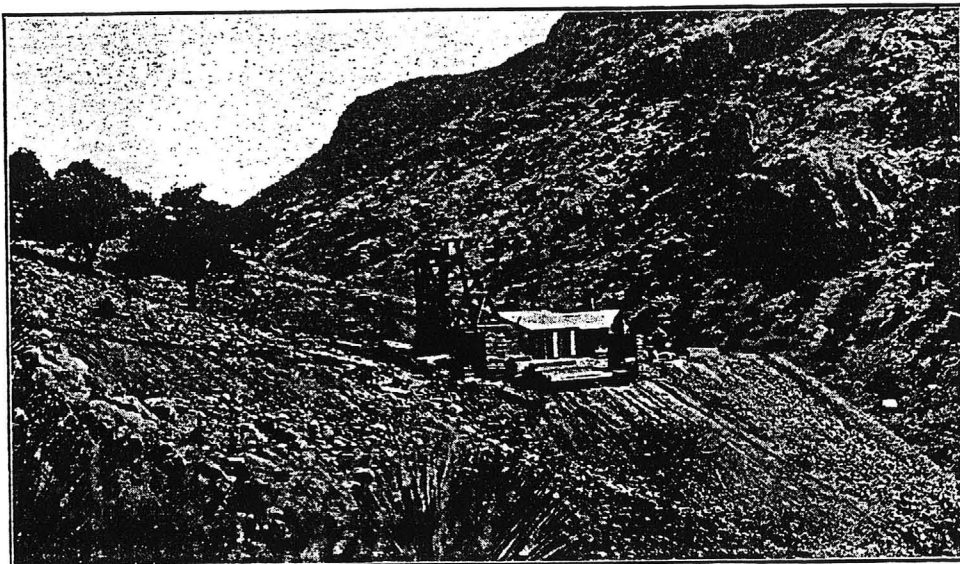
Colonel Greenway has made good in the past for his employers and as a patriotic citizen of Arizona; he came to the Calumet & Arizona when the matter of further development of the copper properties at Ajo was in doubt; some work had been done there, but because of its isolation there had been hesitancy about pushing ahead with what has since proved to be one of the great copper enterprises of Arizona. It was under the strong confidence in Ajo and his persistent energy to develop the ores of that camp that new methods for ore treatment were designed and perfected; this done, a railroad was necessary for hauling in the vast amount of machinery and material required for the plant, and soon we learned that the road from Gila Bend had been arranged for. Now we know New Cornelia as one of the great copper properties of the southwest and recently have been informed that Colonel Greenway has a railroad project under consideration which would send the New Cornelia output and the output of other Arizona mines south from Ajo to a port on the Gulf of Lower California.

When this country declared its purpose of entering the war against Germany, John C. Greenway did not consider either his industrial responsibility or his personal gains by remaining with them, but at once announced that he would offer his service to his country and go to France. He reluctantly was given permission to leave his position in Arizona and in two days after that he was on board of a train headed for Washington. There he was given a commission as major of engineers and without loss of time sailed away to join the American army in the fight with the Huns. After his arrival in France he plead with his superiors to transfer him to a regiment that was fighting on the front and he was made a lieutenant colonel and as such led an infantry regiment into the thick of some of the hardest fighting on the Argonne front.

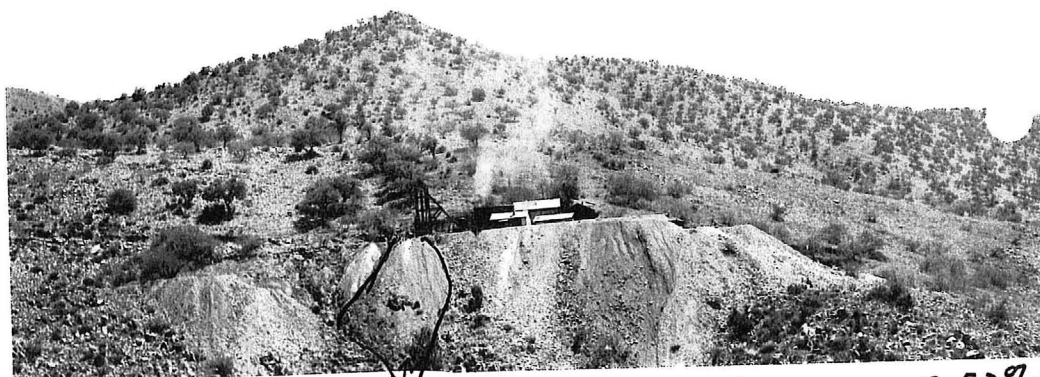
Is it not a favor to Arizona to have such a man as a citizen?

The schools of Bisbee have a school doctor, a school nurse, a school dentist, and a school bacteriologist, thus making one of the most complete health educational programs in the Southwest.

Morenci, a town where level space is at a premium, has a concrete electric lighted tennis court, lighter by 24 large lights, so arranged that there are no shadows. The court is especially popular for night playing.



The Main Shaft of the Magma Chief



Waste: Remainder ore: 2.52% Cu.

Ore Dump
MAGMA CHIEF MINE
SOMBRERO BUTTE, ARIZ.

J. H. Jones