



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

The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 01/17/2003

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: COPPER MTN.

ALTERNATE NAMES:

COPPER KING
COX AND ROSS CLAIM

MOHAVE COUNTY MILS NUMBER: 230A

LOCATION: TOWNSHIP 32 N RANGE 10 W SECTION 14 QUARTER SW
LATITUDE: N 36DEG 10MIN 11SEC LONGITUDE: W 113DEG 20MIN 09SEC
TOPO MAP NAME: WHITMORE POINT - 7.5 MIN

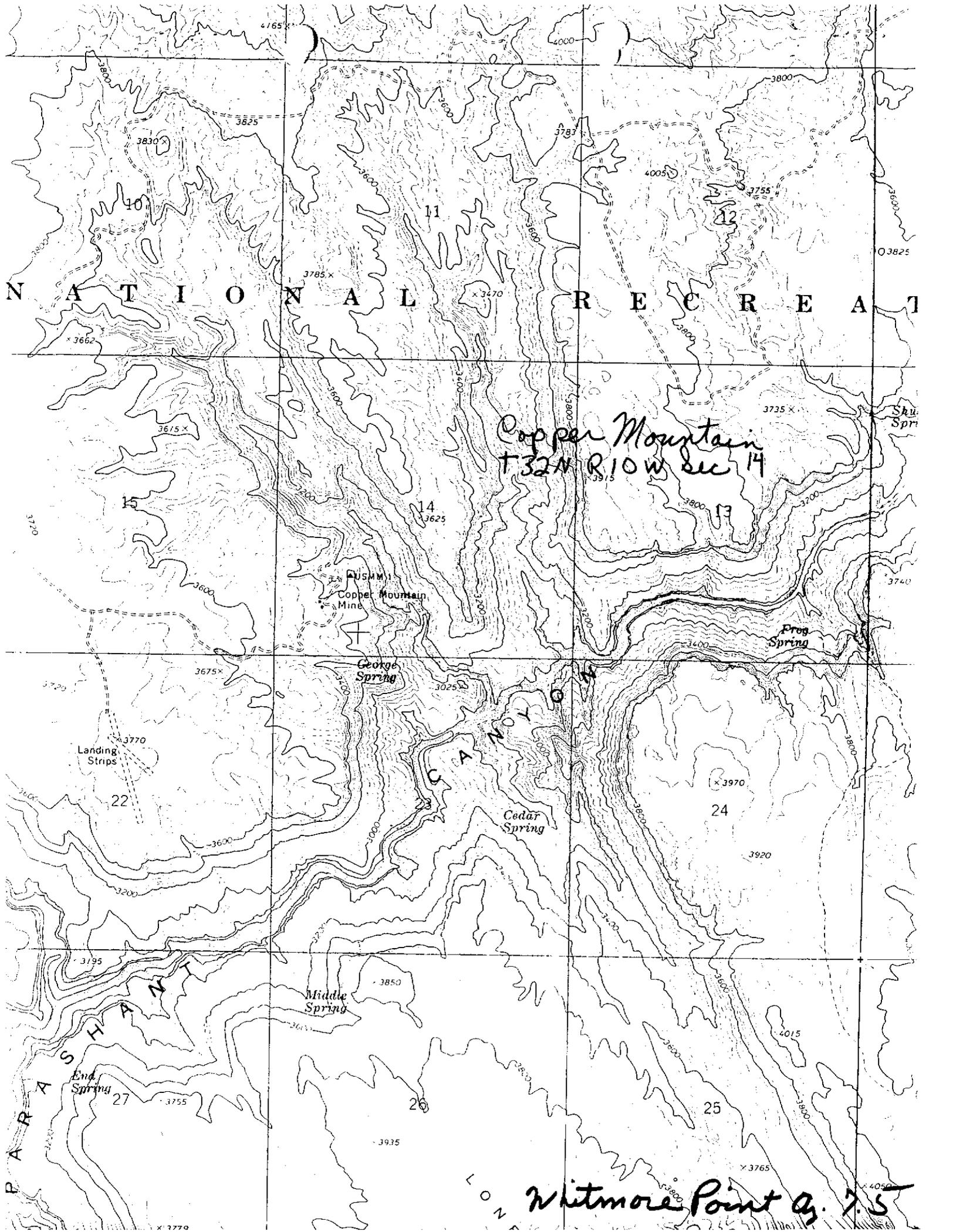
CURRENT STATUS: PAST PRODUCER

COMMODITY:

COPPER OXIDE
LEAD
ZINC
URANIUM
GOLD
SILVER

BIBLIOGRAPHY:

"MINERAL & WTR. RES. OF AZ" AZBM BULL 180, P
287-8, 1969
ADMMR "U" FILE CU 11
MALACH, R "THE AZ. STRIP", 1975
"ADJACENT LAND STUDY", GRAND CANYON, AZ MARCH
1981
ADMMR COPPER MOUNTAIN FILE
ECONOMIC GEOLOGY, VOL. 80, 1985, PP 1722-1735



NATIONAL RECREATION

Copper Mountain
T32N R10W Sec 14

Whitmore Point 9.75

COPPER MOUNTAIN
Copper Mountain Mine

George Spring

Cedar Spring

Middle Spring

Frog Spring

Landing Strips

End Spring

Skull Spring

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

1. Information from: Bill Houston

Company: Uranerz USA Inc. (c)

Address: 165 S. Union Blvd., #280

Denver, CO 80228

2. Phone: (303) 985-1511

3. Mine: COPPER MOUNTAIN

4. ADMMR Mine File: Same

5. County: Mohave

6. Summary of information received, comments, etc.:

He reports that during their exploration of the property they discovered a geologic resource of 5-15,000 oz Au that is surface mineable. The resource was too small for them and their deal with the owners. He believes the material would be amenable to heap leaching. The property is within Lake Mead National Recreation Area so permission would have to be obtained to mine it. About 5 miles away is a possible heap leach site with water.

Date: September 12, 1988

Nyal J. Niemuth, Mining Engineer

COPPER MOUNTAIN

MOHAVE COUNTY

Rockhound Record Mineralogical Society of Arizona, Oct 1980-

"The road to the Copper Mountain Mine starts at Mule Point Pond and goes down Parashant Canyon. For several hours we drove on one very rough road but finally reached our destination. At the Copper Mountain Mine there are several buildings, including two cabins plus many piles of discarded equipment. There is no mountain -- it is on the side of the Grand Canyon. The mine itself is a deep shaft with ladders part way down; several tunnels at different levels down the mountain side; and the usual small pits over the surface. I was hoping there would be some interesting minerals like at the Grandview Mine. I found some malachite, azurite, and one lighter blude mineral which I haven't identified as yet. But a good search of all the workings did not reveal any worthwhile specimens, and my dreams of giant cyanotrichite needles soon vanished...."

njn wr 6/18/82: Nick Scratish, a National Park Service Historical Researcher visted. He was investigativng Golden Mile, Golden Gate and Copper Mountain Mines, Mohave County, to see if they are of sufficient value to place on the register of Historic Sites. Following his research this week, he will visit them next week with a Park Service.

MG WR 8/16/85: Learned that Uranerz U.S.A. Inc, is rehabilitating the shaft and adit at the Copper Mountain mine in Parashant Canyon (Mohave County). The company plans to sample the workings for uranium.

HANM



STATE MINE INSPECTOR

Office of State Mine Inspector

OCT 21 1985

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 Uranerz U.S.A., Inc.

CHIEF OFFICER Paul Adamek, Vice President, Exploration

COMPANY ADDRESS 445 Union Blvd., Suite 230, Denver, CO. 80228

COMPANY TELEPHONE NUMBER (303) 985-1511

MINE OR PLANT NAME Copper Mountain (P) Mohave Co.

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

SW $\frac{1}{4}$ of Section 14; Township 32N; Range 10W; Mohave County, Arizona.

The site is north of the Colorado River on the Arizona Strip accessible by unimproved roads from St. George, Utah 90 miles to the north - maps previously provided

TYPE OF OPERATION Mineral Exploration PRINCIPAL PRODUCT U, Cu

STARTING DATE _____ CLOSING DATE Oct. 25, 1985

DURATION OF OPERATION Underground work completed 10-4-85, demobilization to be completed 10-25-85 - NO ACTIVITY PLANNED UNTIL JULY 1986

PERSON SENDING THIS NOTICE W.G. Houston

TITLE OF PERSON SENDING THIS NOTICE Operation Manager

DATE NOTICE SENT TO STATE MINE INSPECTOR Oct. 17, 1985

RECEIVED
NOV 20 1985
DEPT. OF MINES & GENERAL RESOURCES

*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.

COPPER MOUNTAIN

MOHAVE COUNTY

production

BG&MT 1913-1974, 1700 tons

Copper 633,800 lbs; Silver 7200 oz; Gold 184 pz;

Lead 6,00 lb; Zinc 16,500 lb.

Production occurred from 1913 - 1974 with the bulk of that coming during 1913-1918. Some uranium was also produced.

Name of Mine or Prospect: Copper Mountain M. (Breccia Pipe - 216)	Township: 32. } p	Range: 10W	Section: 14 cca	Priority: A
Principal Minerals: Malachite, azurite, unidentified uranium mineralization	1:250,000 Quad Grand Canyon		7.5' - 15' Quad Whitmore Point	
Associated Minerals: Quartz, calcite, hematite, limonite, silver	District Colorado Plateau		Principal Product Copper	
Type of Operation: Underground; shaft, drifts	County Mohave	State Ar.	Type of Deposit Breccia Pipe	

Ownership or Controlling Interest:
 Arizona-American Copper Company (1914) USBLM mining claim record

Access: From Mt. Trumbull, proceed south into Trail Canyon, turn left and continue south into Parashant Canyon. Mine is approximately 25 miles south of Mt. Trumbull and is shown on topographic quadrangle.

Structural Control or Geological Association:

"Breccia pipe structure contained within the Pennsylvanian/Permian Supai Formation. The structure is composed of medium to large, angular to subangular clasts of medium to fine-grained sandstones. The clasts appear to be altered and bleached equivalents of the Supai Esplanade Sandstone within a matrix of fine-grained hematite and limonite. Malachite and azurite mineralization occurs in vugs within the matrix and in irregular veinlets along fractures and bedding planes. The alteration halo is roughly elliptical in plan and is approximately 600 feet in diameter." ¹

Age of Mineralization: Unknown

Production History	Geochemical Analyses
Protection Lode T32N-R10W Section 14 Winona Claims T32N-R10W Section 15	Radioactivity ¹ Background: 15-25 cps High: 100 cps
(1953) 210 foot shaft, with stopes; total production 250 tons.	<u>Geochemical Assay</u> U ₃ O ₈ : 0.022%
(1913) Known as Copper King Mine: ½ carload per month carrying 23 to 26% copper and from \$3 to \$4 a ton silver.	Ag: 15.31 oz/ton Au: 0.011 oz/ton Cu: 10.31% Mo: 0.0145% Pb: 0.084% Zn: 1.06% Co: 0.07% Ni: 0.081% Cr: 0.003%
SEA Photography, Inc. Peach Springs Survey - 225 PS Photos 03-08, 03-09	Assay ⁴ 3953 "Grab" ZU₂O₃ 14.1% 3954 "Hanging Wall" 2.75% 3955 0.54% 3956 0.13%

References

- 1) Exploration Research Associates, Inc. (1980) August, field reconnaissance.
- 2) Hill (1913) USGS Bull. 580, p. 56.
- 3) Humtoon and Billingsley (1978) Map 15.
- 4) AEC (1970) p. 79.
- 5) ABM (1969) Bull. 180, p. 183-205.
- 6) Billingsley, in Breed and Roat (1974) p.172.
- 7) Exploration Research Associates Inc. (1980) 29 Sept., memo to W.H. Crutchfield, Jr.

Name of Mine or Prospect Copper Mountain Mine	Range 32N 10W	Section 14 cdb	Other A
Principal Minerals: Chalcocite, Malachite	1:250,000 Quad Grand Canyon	7.5' - 15' Quad Whitmore Pt.	
Associated Minerals: "Unidentified Uranium Minerals"	District Lake Mead Rec	Principal Product Copper, Uranium	
Type of Operation: Underground	County Mohave	State Ar.	Type of Deposit Sedimentary Host

Ownership or Controlling Interest:
James Wulfenstein, 172 E. 3rd South, St. George, Ut. (1955)¹

Access: From St. George, Ut., proceed south on Highway 64, turn right at fork and travel 15 miles; continue on this road through Box Canyon about 30 miles. Mine is shown on topographic quadrangle.

Structural Control or Geological Association:
"Gently sloping valley floor cut by a deep wash (600 feet, vertical), faulting, fracturing and leaching; brecciated zones in gently dipping Supai Sandstone. Radioactive minerals at the bottom of the mine, 210 feet level."¹

Age of Mineralization:

Production History	Geochemical Analyses
(1953) 210 foot shaft, with stopes total production 250 tons	<u>Radioactivity</u> Background: 30 cps High (at water table): 4750 cps %U ₃ O ₈ 3953 "Grab" 14.1% 3954 "Hanging Wall" 2.75% 3955 0.54% 3956 0.13%

References

- 1) AEC (1970) p. 79.
- 2) ABM (1969) Bull. 180, p. 183-205.

COPPER MOUNTAIN

MOHAVE C
T32N R10W Sec 14 SE

AKA: Cox and Ross, Copper King

MILS Index # 230A

The Arizona Strip, Malach, 1975

"Radioactive Occurrences and Uranium Production in Arizona"

Az. BM Bull 180, Mineral and Water Resources of Arizona, p. 287
1969

USBM "U" file

USGS Whitmore Point 7.5 (Included in file)

Adjacent Lands Study, Grand Canyon, Az. March 1981

MINERAL PROPERTY FILE

463.1/27

COUNTY Mohave STATE Arizona

Present file No. DMEA-3075
New file No. 21.52 21.52

TOWNSHIP 32 N RANGE 10 W SECS. 14 SW

Main Commodity Copper
Others Uranium

PROPERTY NAME Copper Mt. Mine

OTHER NAMES Cox & Ross claims

OWNER Mary Etta Cox et al ADDRESS St. George, UT

LESSEE James & McMurrin Wulfenstein ADDRESS St. George, UT

LOCATION 96 Miles south of St. George, UT. Located on Andrus Spring Wash,

ACCESS _____

TYPE OF DEPOSIT:

Disseminated Bedded _____ Contact _____ Placer _____
Vein _____ Lenses or pods _____ Residual _____ Other _____

WORKINGS:

Underground ACCESSIBLE: Yes _____ No _____ Unknown

Drift, X-cut Shaft _____

Total Length: Less than 200' _____ 200' to 1,000' More than 1,000' _____

Surface _____

Open pit _____ Small _____ Large _____ Trenches _____ Test pits _____

Drill holes _____

Undeveloped _____

PLUS 500 TON PRODUCTION: Yes No _____ Unknown _____

DATE OF INFORMATION 1/28/54

TYPE OF REPORT:

Standard Examination OMEA or OME _____ WMR _____ Correspondence _____
Summary Report Access Road _____ MRB _____ Other _____
Map _____ Non Bureau _____

FURTHER WORK RECOMMENDED Exploration NOT RECOMMENDED _____

RHP

6-803
(March 1949)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

MINING DIVISION
SUMMARY REPORT OF MINERALS EXAMINATION

State Arizona County Mohave Mineral Products Copper-Uranium

Name of property or deposit Copper Mt. Mine (Cox and Ross claims) DMEA 3075

Date examined 12/1/53 Engineer W. E. Young Date of this report 1/28/54

Engineer accompanied by C. G. Tillman Address U.S.G.S., Salt Lake City, Utah
~~James Wulfenstein~~ St. George, Utah

Extent of property 2 lode claims

Owner Mary Etta Cox, et al. Address St. George, Utah
James Wulfenstein

Leased or optioned to McMurrin Wulfenstein Address St. George

Location of property (be specific) T. 32 N., R. 10 W., Mohave County, Arizona, 96
miles south of St. George, Utah. Located on Andrus Spring Wash, a tributary of the
Colorado River.

Type of deposit and mineralogy (brief description) Copper-uranium mineralization
in sandstone. Principal copper minerals are malachite and azurite with cuprite and
bornite. The chief uranium mineral is scudnerite.

Known dimensions of the deposit Length 30' Width 5' Depth 210 feet

Attitude of the deposit (strike, dip, etc.) Pipelike body dipping steeply to the
southeast.

Possible extensions; correlation of known showings _____

Mine workings (brief description or attach map or sketch) (indicate whether access-
ible) Steeply inclined shaft 210 feet deep. Several drifts and stopes along the
dip of the main ore shoot.

(over)

original and one copy to Washington office.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Report Nos. _____

REVIEW OF EXAMINATION REPORT

State Arizona County Mohave Mineral products Copper-Uranium

Name of property Copper Mountain Mine (Cox and Ross claims)

Owner Mary Etta Cox, et al. Address St. George, Utah

Lessee or Operator James Wulfenstein McMurrin Wulfenstein St. George, Utah

Location T. 32 N., R. 10 W., Mohave County, Arizona, 96 miles south of St. George, Utah. Located on Andrus Spring Wash, a tributary of the Colorado River.

Examined by W. E. Young December 1, 1954

Apparent quality of examination and Adequate

Discussion and review: The Copper Mountain Mine was examined by the Bureau of Mines and Geological Survey as a result of a request for DREA loan assistance. The property has produced a small tonnage of high-grade copper ores during intermittent periods of operation. Recent discovery of uranium in the ores has increased the interest in exploration. The ores occur in a pipelike mass in sandstone and in some way appear to be related to a prominent zone of alteration noted at the surface. An inclined shaft 210 feet deep roughly follows the dip of the ore shoot. Ores have been mined from levels near the shaft. Further exploratory work is recommended to determine the continuity of mineralization below the 210-foot level. Proposed exploration will consist of rehabilitation of the shaft, sinking the shaft 100 feet, and drifting on the 310-foot level.

(DREA-3075)

DATE	ACTION	BY

Jan. 23, 1954

Reviewed by Stephen H. Wilson
Stephen H. Wilson, Chief
Minerals Development Branch
Date Mining Division, Region IV

Mining and milling equipment on property Equipment for small mining operation
is on property. No milling equipment.

Past production (if any) A few thousand tons of relatively high-grade copper
ore is reported.

Present rate of production (if any) None.

Sampling (describe briefly, or attach sketch) None. Sampling and scintillometer
investigation made by ABC.

Tentative Estimate of Reserves
(Subject to revision when assays are received or after engineering calculations)

Measurable	<u> </u>	tons	<u> </u>	Grade	<u> </u>
Indicated	<u> </u>	tons	<u> </u>	Grade	<u> </u>
Inferred	<u> </u>	tons	<u> </u>	Grade	<u> </u>

Mining method (actual or suggested) Open stops.

Milling or processing method (actual or suggested)

Processing tests suggested

Tentative conclusion and decision Additional shaft sinking and drifting will
probably disclose continuation of ore shoot mined to an inclined depth of 210
feet. Exploration recommended.

To be accompanied by brief letter giving examining engineer's general impression of the deposit, his impression of the owner, and any other confidential information he may care to submit. May be executed in pencil. Should be mailed within 24 hours after examination is completed.

Send original and one copy to Washington office.

6-983

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Report Nos. }
 }
 }
 }

EXAMINATION REPORT

426 Federal Building, San Francisco, California

(address)

*answered
L. R. Brooks*

Dear Sir:

The provision of access road (s) to a source of raw materials in

MoHAVE County, Arizona is considered to
(State)

of importance to the war effort. The raw materials source is known as

Copper - 35% Assay
Antley Mining District and is situated SW 1/4 Sec. 14, T32N, R10W.

Copper Mountain Mine
Information can be obtained locally from V. Lorraine Cox

St. George, Utah, Co-owner
(Name) (Title)

Investigation by *Division in east-resident*
(Bureau of Mines - Geological Survey)

*shows report - insufficient to make arrangement
for road trip at this time.*

(information as to ore, content, extent, etc.)

Study by Grazing Service, Dept. of Interior shows that 27
(Service - Office)

Miles of Bulldozer-Grader type 2 type road between Section 14, T32N

R. 10 W. and Sec. 10, T34 N, R. 12 W.

will be required, estimated to cost \$ 35,000.00.

Upon completion of the access road(s), the property will be

developed by H. W. Patterson, General Manager, Buffalo, New York

(Name, title, address)

Request is made for cooperative 15 mi. Construction, 8 miles maint. and 4 miles
(construction, maintenance, improvement) Imprv.

by the Grazing Service, Dept. of Interior.
(Service or office)

By *J. R. Brooks* Name
L. R. Brooks, Regional Grazier Title
503 Heard Building, Phoenix, A. Address

The (Bureau of Mines - Geological Survey) considers the proposed

work to be justified by the potential production from this source of raw material.

By _____, _____
Name Title

Address

27

PERMANENT INDIVIDUAL MINE RECORD

Copper Mountain or Co - Ross
Virginia Mountain
Widow's Valley

CLAIM: *Copper Mountain*

CHARACTER OF DEPOSIT:

SEC. TWP. RANGE: *100 N. S. of St. George* B. M. #47101

YEAR	OWNER (Name and address)	OPERATOR (Name and address)	DAYS OPER- ATED	DEVELOPMENT AND OTHER DATA
<i>1934</i>	<i>B. S. J. Moore, St. Petersburg, Fla.</i>	<i>F. L. Cox, St. George, Utah</i>		
<i>1937</i>	<i>Frank Cox, St. George, Utah</i>			
<i>1949</i>		<i>Richard C. Whitmore, Overton, Nev.</i>		
<i>1950</i>	<i>W. H. Cox</i>	<i>W. H. Cox, Lewis, Box 14, St. George, Utah</i>		
<i>1951</i>		<i>W. H. Cox, & J. C. Williamson</i>		
<i>1952</i>	<i>L. H. Cox</i>	<i>J. C. Williamson</i>		
<i>1953</i>	<i>L. Lorane Cox</i>	<i>J. C. Williamson</i>		

Copper Mountain or Cop. - Ross page 1

PRODUCTION

16-72200-1 U. S. GOVERNMENT PRINTING OFFICE

YEAR	OBJECTION TO PUBLICATION	CRUDE ORE PRODUCED								CONCENTRATES PRODUCED					RECOVERED IN BULLION				
		DRY TONS		CLASS	TREATMENT	GROSS METAL CONTENT					DRY TONS	CLASS	GROSS METAL CONTENT					Gold (Ounces)	Silver (Ounces)
		Ore	Old Tailings, etc.			Gold (Ounces)	Silver (Ounces)	Copper (Pounds)	Lead (Pounds)	Zinc (Pounds)			Gold (Ounces)	Silver (Ounces)	Copper (Pounds)	Lead (Pounds)	Zinc (Pounds)		
1934		16		Sw	Sw	48	81	5,779	-	-									
1937		6		Sw	Sw	-	20	1,750	-	-									
1949		26		D.G	Sw	18	79	2,227	156	3,733									
		63		CU	"	28	1,041	10,953	5,457	11,500									
		106		ZN	"	117	608	1,448	2,774	2,286									
1950		151		CU	Sw	2	476	94,000	-	-									
1951		23		CU	"	-	47	4,936	-	-									
1952		21		CU	"	-	31	4,774	-	-									
1953		133		CU	"	-	28	3,814	-	-									

MINERAL PROPERTY FILE

463.1/27

COUNTY Mohave STATE Arizona

Present file No. DMEA-3075
New file No. 21.52 21.52

IP 32 N RANGE 10 W SECS. ---

Main Commodity Copper
Others Uranium

PROPERTY NAME Copper Mt. Mine

OTHER NAMES Cox & Ross claims

OWNER Mary Etta Cox et al ADDRESS St. George, UT

LESSEE James & McMurrin Wulfenstein ADDRESS St. George, UT

LOCATION 96 Miles south of St. George, UT. Located on Andrus Spring Wash,

ACCESS _____

TYPE OF DEPOSIT:

Disseminated Bedded _____ Contact _____ Placer _____
Vein _____ Lenses or pods _____ Residual _____ Other _____

WORKINGS:

Underground ACCESSIBLE: Yes _____ No _____ Unknown

Drift, X-cut Shaft _____

Total Length: Less than 200' _____ 200' to 1,000' More than 1,000' _____

Surface _____

Open pit _____ Small _____ Large _____ Trenches _____ Test pits _____

Drill holes _____

Undeveloped _____

PLUS 500 TON PRODUCTION: Yes No _____ Unknown _____

DATE OF INFORMATION 1/28/54

TYPE OF REPORT:

Standard Examination DMEA or OME _____ WMR _____ Correspondence _____
Summary Report Access Road _____ MRB _____ Other _____
Map _____ Non Bureau _____

FURTHER WORK RECOMMENDED Exploration NOT RECOMMENDED _____

100-100000
100-100000

224 New Casper
Denver 11, Colorado

February 10, 1958

Memorandum

To: Paul Zinner, Chief, Minerals Division
Through: J. H. East, Jr.
Regional Director, Reg. IV

From: Chief, Mining Division, Region IV

Subject: Summary Report of Examination and Review of Examination Report

Enclosed please find the original and one copy each of the Summary Report of Examination and Review of Examination Report prepared in connection with the examination of Copper Mountain Mine (Cox and Boss Claims), Mohave County, Arizona, DMEA 3079.

W. H. KING
W. H. King

Enclosures
cc: S. R. Wilson
H. M. Connors
Sub ✓
Chron
WHK:bh

6-803
(March 1949)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

MINING DIVISION
SUMMARY REPORT OF MINERALS EXAMINATION

State Arizona County Mohave Mineral Products Copper-Uranium

Name of property or deposit Copper Mt. Mine (Cox and Ross claims) DMSA 8079

Date examined 12/1/53 Engineer W. E. Young Date of this report 1/28/54

Engineer accompanied by C. G. Tillman Address U.S.G.S., Salt Lake City, Utah
James Wulfenstein St. George, Utah

Extent of property 2 lode claims

Owner Mary Etta Cox, et al. Address St. George, Utah
James Wulfenstein

Leased or optioned to McMurrin Wulfenstein Address St. George

Location of property (be specific) T. 32 N., R. 10 W., Mohave County, Arizona, 96
miles south of St. George, Utah. Located on Andrus Spring Wash, a tributary of the
Colorado River.

Type of deposit and mineralogy (brief description) Copper-uranium mineralization
in sandstone. Principal copper minerals are malachite and azurite with cuprite and
bornite. The chief uranium mineral is xenotime.

Known dimensions of the deposit
Length 30' Width 5' Depth 210 feet

Attitude of the deposit (strike, dip, etc.) Fipslike body dipping steeply to the
southeast.

Possible extensions; correlation of known showings _____

Mine workings (brief description or attach map or sketch) (indicate whether access-
ible) Steeply inclined shaft 210 feet deep. Several drifts and stopes along the
dip of the main ore shoot.

(over)

Mining and milling equipment on property Equipment for small mining operation
is on property. No milling equipment.

Past production (if any) A few thousand tons of relatively high-grade copper
ore is reported.

Present rate of production (if any) None.

Sampling (describe briefly, or attach sketch) None. Sampling and scintillometer
investigation made by AEC.

Tentative Estimate of Reserves

(Subject to revision when assays are received or after engineering calculations)

Measurable --- tons --- Grade ---

Indicated --- tons --- Grade ---

Inferred --- tons --- Grade ---

Mining method (actual or suggested) Open stops.

Milling or processing method (actual or suggested) ---

Processing tests suggested ---

Tentative conclusion and decision Additional shaft sinking and drifting will
probably disclose continuation of ore shoot mined to an inclined depth of 210
feet. Exploration recommended.

To be accompanied by brief letter giving examining engineer's general impression of the deposit, his impression of the owner, and any other confidential information he may care to submit. May be executed in pencil. Should be mailed within 24 hours after examination is completed.

Send original and one copy to Washington office.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Report Nos. _____

REVIEW OF EXAMINATION REPORT

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Name of property Copper Mountain Mine (Cox and Ross claims)

Owner Mary Etta Cox, et al. Address St. George, Utah

Lessee or Operator James Wulfenstein
Morrin Wulfenstein St. George, Utah

Location T. 32 N., R. 10 W., Mohave County, Arizona, 96 miles south of St. George, Utah. Located on Andrus Spring Wash, a tributary of the Colorado River.

Examined by W. E. Young December 1, 1954

Apparent quality of examination and Adequate

Discussion and review: The Copper Mountain Mine was examined by the Bureau of Mines and Geological Survey as a result of a request for DREA loan assistance. The property has produced a small tonnage of high-grade copper ores during intermittent periods of operation. Recent discovery of uranium in the ores has increased the interest in exploration. The ores occur in a pipe-like mass in sandstone and in some way appear to be related to a prominent zone of alteration noted at the surface. An inclined shaft 210 feet deep roughly follows the dip of the ore shoot. Ores have been mined from levels near the shaft. Further exploratory work is recommended to determine the continuity of mineralization below the 210-foot level. Proposed exploration will consist of rehabilitation of the shaft, sinking the shaft 100 feet, and drifting on the 310-foot level.

(DREA-3075)

DATE	ACTION	BY

Jan. 23, 1954

Reviewed by Stephen R. Wilson
Stephen R. Wilson, Chief
Minerals Development Branch
Date MINING DIVISION, REGION IV

Western Region
XXXXXXXXXXXX

DISPOSED

NOV 28 1942

November 24, 1942

#27

bjl

Mr. L. R. Brooks
Regional Crazier
903 Leard Bldg.
Phoenix, Arizona

Dear Mr. Brooks:

We are returning to you the PR-DA-1 forms for an access road to the Copper Mountain Mine, Bentley Mining District, Mohave County, Arizona.

This road cannot be approved at this time. According to our District Engineer, Mr. J. H. Hedges, an examination by the Bureau of Mines shows that no work has been started at the mine and that no plans have been made for future work.

Very truly yours,

S. R. ZIMMERLEY,
Regional Engineer

cc S. L.
W. R.
Mr. Hedges

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Tucson, Arizona
November 18, 1942

ACCESS ROAD APPLICATION RECOMMENDATION

Our Application No. 27

Identification: Through Grazing Service, their application No. 10, dated August 24, 1942. Metal - copper; property - Copper Mountain mine, in SW 1/4, Sec. 14, T. 32 N., R. 10 W., Mohave County, Arizona; owners - V. Lorraine Cox, St. George, Utah, and others. A purchase option on the mine is held by H. W. Patterson of Buffalo, New York.

Proposal: 27 miles (15 miles construction, 4 miles improvement, and 8 miles maintenance) of bulldozer-grader, type 2 road from Sec. 10, T. 34 N., R. 12 W., to the mine. Estimated cost \$35,000.

Comment: The option has run for six months and no work has been started at the mine. ~~The mine is on a terrace on the north rim of the Grand Canyon, 1600 feet or more below the rim of the plateau.~~ A Bureau of Mines engineer was examining mines in the area north of the Grand Canyon for a week in late October. Mr. Cox reported that it is 5 miles by trail down the canyon rim from the end of the road to the mine. The trip from St. George to the mine requires three days and the use of saddle horses. Mr. Cox was working and did not wish to contribute the time and expense necessary to accompany the engineer to the mine.

Type of Deposit and Production: Some high grade copper ore was sorted and shipped during the last war. That was carried out on pack animals. The deposit is said to be similar to the Grand Gulch mine, but of smaller extent. The ore at the Grand Gulch mine is secondary copper carbonate and chalcocite in brecciated sandstone. Some high grade ore is produced there by selective mining and sorting.

Conclusion: The expenditure of \$35,000 on a road to this mine while no effort is being made to produce ore there is not justified. If an appreciable tonnage of good ore is later developed, then other means of transportation up the canyon rim, such as an aerial tramway, should be considered.

Recommendation: Approval of the application is not recommended at this time.

J. H. HEDGES

J. H. Hedges,
District Engineer.

Examined by Price, Oct. 23, 1942.

26, 27, 4, 24

OCT 26 1942

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

TUCSON, ARIZONA

Frederica Berg
Sep 23 -

1000 ft. x 1000 ft.
1000 ft. x 1000 ft.
1000 ft. x 1000 ft.

The road application to the property has merit and there is an estimate of a thousand tons of shipping ore - however the application estimate is \$20000 per acre in iron ore and unproven grade of iron ore of about \$3000.

Application # 27 - The owner in east. The section is a good one and the estimate is \$10000 per acre.

Application # 4 - The survey planning - development should be done before iron is necessary.

Application - # 24 - Tract has some merit. More development before road is necessary. Estimate below cost of construction. Report of report later.

University
Frederica Berg



Project na--Copper Mountain

Mr. C. H. Sweetser District Engineer, Public Roads Administration

No. 18

426 Federal Building, San Francisco, California
(address)

Dear Sir:

The provision of access road (s) to a source of raw materials in

Mohave County, Arizona is considered to
(State)

be of importance to the war effort. The raw materials source is known as

Copper - 35% Assay
Bentley Mining District and is situated SW 1/4 Sec. 14, T32N, R10W.

Copper Mountain Mine
Information can be obtained locally from V. Lorraine Cox

St. George, Utah, Co-owner
(Name) (Title)

Investigation by Bureau in east - resident
(Bureau of Mines - Geological Survey)
shows no interest to make arrangement
job undertaken at this time.
(information as to ore, content, extent, etc.)

Study by Grazing Service, Dept. of Interior shows that 27
(Service - Office)

1/2 miles of bulldozer-grader type 2 type road between Section 14, T32N
R. 10 W. and Sec. 10, T34 N, R. 12 W.

will be required, estimated to cost \$ 35,000.00.

Upon completion of the access road(s), the property will be
developed by H. W. Patterson, General Manager, Buffalo, New York
(Name, title, address)

Request is made for cooperative 15 mi. Construction, 8 miles maint. and 4 miles
(construction, maintenance, improvement) Imprv.
by the Grazing Service, Dept. of Interior.
(Service or office)

By J. R. Brooks Name
L. R. Brooks, Regional Grazier Title
503 Heard Building, Phoenix, A. Address

The Bureau of Mines - Geological Survey considers the proposed
(Bureau of Mines - Geological Survey)
work to be justified by the potential production from this source of raw material.

By _____, _____
Name Title

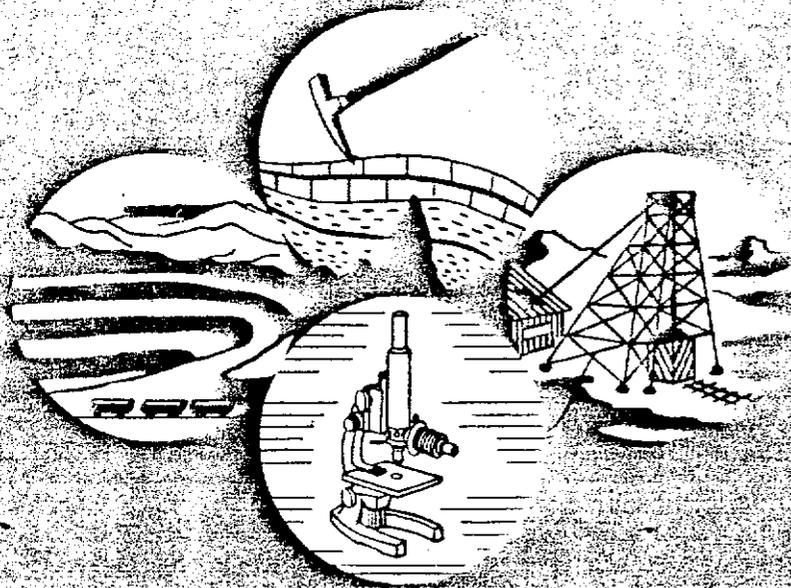
Address

100
24 27

MINERAL AND WATER RESOURCES OF ARIZONA

THE ARIZONA BUREAU OF MINES

Bulletin 180
1969



THE UNIVERSITY OF ARIZONA
TUCSON

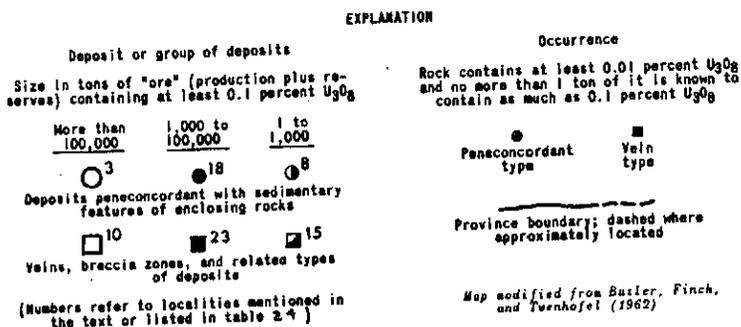
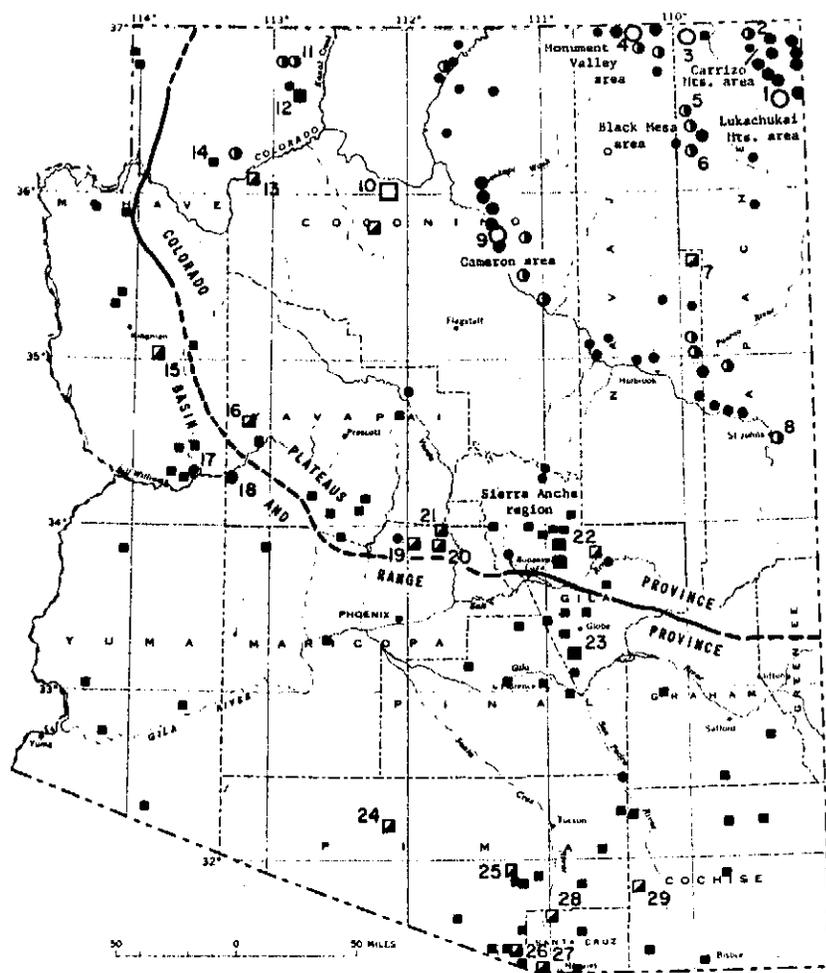


FIGURE 43.—Uranium in Arizona.

graphically, and each averages about 2.5 feet in thickness. Only the upper bed has been productive. The ore is vanadiferous and carnotite is the only identified uranium mineral.

The Masterson group (No. 17, fig. 43) (Reyner and Robison, 1956) and the Lucky Four deposit (No. 17) (Robison, 1956b) are similar to the Uranium Aire but less well explored and probably smaller.

Other mostly minor concentrations of uranium minerals are present in beds of tuff, tuffaceous mudstone, and sandstone at several localities in the Basin and Range province. Their characteristics are summarized by Finch (1967, table 1) and their positions are shown by unnumbered symbols in figure 43.

In addition to the peneconcordant deposits, one vein-type deposit has yielded a large amount of ore, and several others collectively have yielded an appreciable amount. Deposits of this type include fracture fillings, stockworks, mineralized breccias, and mineralized rock adjacent to fractures.

The most productive deposit, the Orphan Lode (No. 10, fig. 43) and a number of other smaller deposits are in the western part of the Colorado Plateaus province. The greatest number of productive deposits is in Gila County in the Sierra Ancha region in adjoining parts of the Colorado Plateaus and Basin and Range provinces. A few small productive deposits and numerous other small deposits are widely scattered elsewhere in the Basin and Range province as shown by symbols on the map (fig. 43).

The Orphan mine ranks among the five most important vein deposits of uranium in the United States. It is on the south rim of the Grand Canyon on a patented claim, originally located for copper. The deposit is in a nearly vertical, generally oval, pipelike body of collapse breccia that transects the Coconino Sandstone and Hermit Shale of Permian age and the Supai Formation of Pennsylvanian and Permian age (Granger and Raup, 1962, p. A8) and extends downward into the Red-wall Limestone of Mississippian age. (C. G. Bowles, oral commun., 1968).

The rocks in the structure are fractured, disoriented, and displaced from their normal stratigraphic position. Blocks of Coconino Sandstone are displaced downward at least 275 feet. Much of the ore is at the stratigraphic position of the upper, cliff-forming part of the Supai Formation. The larger part of the ore is in the arcuate body generally concordant with the north wall of the collapse, where it is partly in fractured rocks of the pipe wall and partly in adjoining pipe filling material. A smaller part of the ore is in more poorly defined bodies in the ring-fracture zone along the southeast wall and in sandstone in the interior of the pipe.

Uraninite is the principal ore mineral. It is accompanied by pyrite and other sulfide and sulfosalt minerals that contain copper, silver, lead, zinc, cobalt, nickel, and molybdenum and have been a source of some copper and silver.

The Hack's Canyon mine (No. 12, fig. 43) (Granger and Raup, 1962) and the Ridenour mine (No. 13, fig. 43) (Miller, 1954) are deposits similar to the Orphan but smaller, and some uranium ore has been mined from them. Other similar deposits that contain uranium but have not been mined for it are the Copper Mountain mine,

which was a source of high-grade copper ore (King and Henderson, 1953; Hill, 1913), and the Copper House prospect (No. 14, fig. 43) (Meehan, R. J., 1953). At the River View deposit in the Cameron area (No. 9, fig. 43) uranium has been mined from brecciated sandstone of the Shinarump Member of the Chinle Formation which collapsed downward to fill a pipelike structure at the stratigraphic position of the underlying Moenkopi Formation (Chenoweth and Blakemore, 1961, p. 112).

Uranium is concentrated locally in rocks which fill some diatremes among the Hopi Buttes in Navajo County (Shoemaker, Roach, and Byers, 1957). At the Morale claim (No. 7, fig. 43), from which some ore has been mined, uranium in unidentified form occurs in laminated siltstone and tuff where they are flexed over slumped blocks of slightly older tuff near the southeast wall of the diatreme. The deposit is thought to be related to hot spring circulation late in the evolution of the diatreme and hence is grouped with the veins.

Vein deposits in the Basin and Range province and marginal areas of the Colorado Plateaus province are in a variety of rocks that range in age from Precambrian to Tertiary. The most abundant and productive of these are in Gila County in the Dripping Spring Quartzite of Precambrian age.

Almost all the deposits in the Dripping Spring Quartzite are in the Sierra Ancha region north of the Salt River (No. 22, fig. 43). A few are in the Mescal Mountains (No. 23). Individual deposits have been the source of a few tons to several thousand tons of ore. Collectively about 25,000 tons of ore have been produced from them. Granger and Raup (1959) have studied the deposits and the following summary is drawn from their descriptions.

All the deposits are in thinly stratified arenaceous siltstone in an interval between 45 and 150 feet above the base of the upper member of the Dripping Spring Quartzite. The Dripping Spring Quartzite and overlying and underlying formations are intruded by sills and dikes of diabase. All the deposits are less than one-half mile from diabase and some are in rock bordering diabase.

Most of the deposits are veinlike zones generally less than 5 feet wide, a few to 15 feet high, and a few tens of feet to a few hundred feet in length. Some are manto shaped, nearly concordant with the bedding and some are combinations of veins and manto shapes. Many deposits follow directions which are defined near the surface by limonite-filled fractures and joints that trend either about N. 70° W. or about N. 20° E. In some deposits the exposed fracture fades out with depth, but the ore body continues along the same trend; in others the fracture diverges from the trend of the ore body.

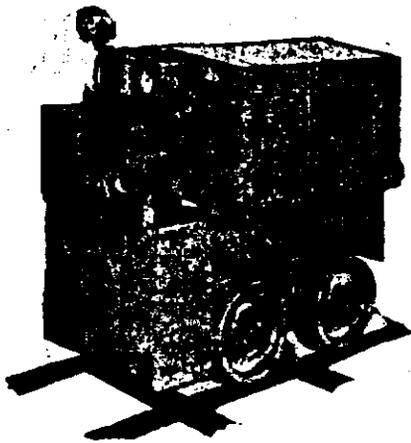
Uraninite has been identified in a few deposits near diabase. In other deposits the uranium minerals are either secondary minerals or are unidentified. Pyrite, marcasite, chalcopyrite, and less abundant galena and sphalerite occur in nearly all deposits. Pyrrhotite and molybdenite are present in a few near diabase.

Other small vein deposits are widely distributed in and adjoining the Basin and Range province. The ore produced from about a dozen totals less than 1,000 tons. These deposits are identified and their main

TABLE 24.—Miscellaneous uranium veins in the Basin and Range province

Locality No. in fig. 43	County and name of deposit	
	Cochise	
29	Star No. 1	Uranium-bearing mafic diatreme
	Windmill	Gouge zone containing uraninite
	Maricopa	
19	Horseshoe group	Mineralized near-vein granite; identified
21	Lucky Find group	Mafic dike in brecciated intersecting present.
20	Hanley and Sickle group	Mineralized section shears in tuffs containing uranium
	Mohave	
15	Democrat mine	Vein in feldspathic gneiss, age contact bearing minor chalcopyrite and uraninite ore minerals
	Pima	
25	Black Dike claims	Altered zone containing granite, fluorite, and fluorite
24	Linda Lee claims	Steeply dipping contact zone containing hornblende
	Santa Cruz	
28	Duranium claims	Arkosic sandstone displaced, semiconformable, and autogenous quartz
26	Santa Clara mine	Veinlets of metal veins, Cretaceous
27	White Oak property	Steeply dipping rhyolite, age contact secondary, kaolinite
	Yavapai	
16	Hillside mine	Fissure vein of Yavapai Series, pitchblende, carbonates

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The Atlas Car & Mfg. Co.
CLEVELAND, Ohio

integrity in the company's semi-annual report.

For the six month's period ending June the report shows earnings of \$6,469,451.70 on the common stock, or \$10.60 1/2 per share. These earnings are computed after deducting bond interest, depreciation, obsolescence, ore depletion, taxes, and dividends on the preferred stock.

The company's earnings on common stock during the same period of 1927 were at the rate of \$11.08 and in 1926 at the rate of \$11.65.

Net income before dividends was \$8,219,451.70 for the period, in contrast with \$8,507,944.38 for the first six months of 1927.

Surplus income for the period, after deducting dividends on preferred and common stock, was \$4,029,531.70. This compares with \$4,318,024.38 in the corresponding period of 1927.

In connection with the company's earnings on common stock, President Simon Guggenheim points out in his report to stock holders that: "This figure is obtained after charging against earnings \$459,807.50, representing unamortized bond discount and expense applicable to, and the premium on, \$4,250,000. Series 'B' 6 per cent bonds called for payment April 1, 1928. If the bonds had not been retired, the earnings on the common stock for the period would have been \$11.27 per share, or at the rate of \$22.54 per year. The annual interest on the bonds called is equal to an earning of 42 cents per share per year on the outstanding common stock."

Total current and miscellaneous assets amount to \$95,631,076.02, which is more than 4.74 times the total current and miscellaneous liabilities of \$20,169,836.54.

NEW MEXICO PEOPLE TO VOTE ON MINERAL LAND AMENDMENT

New Mexico this November, with the consent of the people, will for the first time in its statehood win legal ownership and the right to sell or lease its vast mineral resources.

The establishment legally of the state's ownership of its mineral lands is the import of constitutional amendment No. 4, which will be submitted to a vote of the people at the general election.

"Leases and other contracts reserving a royalty to the state for the development and production of any and all minerals on lands—may be made under such provisions—as may be provided by an act of the state legislature," the amendment is stated briefly.

Behind the simple statement of the amendment to article XXIV of the state constitution, Charles Barker, attorney for the land office, said, lies the story of a battle since 1917 to gain for the state legal title to its mineral wealth, and ahead lies the opening of the doors of New Mexico to wealth and development.

"Only about one-third of New Mexico's mineral lands," Mr. Barker said, "are now under lease, and a far less quantity of them are actually being worked, because New Mexico has technically never had a legal right to sell or lease them. At the time New Mexico was admitted to statehood, the enabling act of congress failed to make the state's title clear and in providing for a method of sale for the lands created a cumbersome system which has

no legal foundation for a sale made the state. Many of the firms now owning mining properties in New Mexico have refused to develop those properties until the legality of their title has been fully cleared."

The submission of the constitutional amendment this November will be the third step in the state's attempts to own legally its own property.

The constitutional amendment was passed by the last session of the New Mexican legislature. The enabling act provided that no change could be made regarding the sale of these mineral properties without the consent of congress.

The constitutional amendment then was carried to the last congress, where Senator Jones, prior to his death, and Senators Bronson Cutting and Sam Bratton, and Congressman John Morrow, worked together to gain congressional approval of the amendment. The sanction was given and now the amendment goes before the voters.

If the constitutional amendment passes, it will then become the duty of the next state legislature to draw a code of laws governing the sale or lease of these lands.

HISTORY OF MINING IN MOHAVE COUNTY, ARIZONA

[Continued from page 11]

the Cyclopic mine from A. B. Robbins, and equipped it with a mill, using part of the original Elkhart mill at Chloride. Operations were carried on intermittently until the middle of 1920. In 1904, the Eldorado Mine was acquired by the Minnesota and Arizona Mining Company, who completed a 30-ton cyanide plant in Walapai Valley, four miles from the mine. The company also acquired the O.K., Excelsior, Mascot, and Golden Rule mines, and the mill ran on ore from all these mines, but chiefly from the Eldorado until May, 1906, when the mill burned down. Since 1920, the camp has been virtually idle.

North of Gold Basin and south of Gregg's Ferry, is situated the Lost Cabin district in which several promising copper deposits are reported. Some development work has been done on them and a little ore was shipped in 1918.

Grand Gulch

North of the Colorado River, on the slope of the Grand Wash Cliffs, a very considerable production has been made from several copper deposits, the most important of which are the Grand Gulch, Savanic, and Copper Mountain. These deposits were worked by St. George and Salt Lake City capital from 1901 to 1902 and again from 1906 to 1920, inclusive, the ore being carefully hand sorted to over 40 per cent grade and hauled to Moapa, Nevada, from where it was shipped to Salt Lake smelters. The production from 1901 to 1902 was \$100,000, and from 1906 to 1920, \$1,377,500, making a total of nearly one and one-half million dollars in copper and a little silver. These deposits can only be worked during abnormally high copper prices, as they are extremely inaccessible.

[To be Continued]

The Mining Journal
Oct 15, 1928