CONTACT INFORMATION
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Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
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The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 09-05-2012

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: SULLIVAN MINE GROUP

ALTERNATE NAMES:
CROSBY GROUP
BLUE BELL
COPPEROPOLIS
DULUTH & CHIRICAHUA DEV CO
SULLIVAN COPPER DEVELOPMENT
HORACE MOUNTAIN GROUP

COCHISE COUNTY MILS NUMBER: 27

LOCATION: TOWNSHIP 17 S RANGE 30 E SECTION 2 QUARTER C
LATITUDE: N 31DEG 58MIN 36SEC LONGITUDE: W 109DEG 15MIN 06SEC
TOPO MAP NAME: CHIRICAHUA PEAK - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER OXIDE
COPPER SULFIDE
LEAD
ZINC
SILVER
GOLD LODE

BIBLIOGRAPHY:
KEITH, S.B.,1973, INDEX TO MINING PROPERTIES IN COCHISE COUNTY, AZ, AZ BUR. MINES BULL. 187, P. 54
US BUR MINES, 1943, MINERALS YEARBOOK, P 252
US BUR MINES, 1944, MINERALS YEARBOOK, P 242
US BUR MINES, 1945, MINERALS YEARBOOK, P 246
KUMKE, C.A.,1947, SULLIVAN COPPER MINE, COCHISE CTY, AZ, US BUR MINES RI 4015
STEVENS, H.J., 1908, THE COPPER HANDBOOK, P 641, 1278-1279
WEED, H.W., 1916, THE MINES HANDBOOK, P 450, 1071
US GEOL SUR, 1915, MINERAL RESOURCES OF THE UNITED STATES, PART 1 (METALS), P 496
ADMMR SULLIVAN MINE GROUP FILE

SULLIVAN GROUP COCHISE COUNTY

CJH WR 8/28/81: To Mr. Charles Ebner, P.O. Box699, Douglas, AX 85607, Tel: 364-4965 in response to a letter received in Phoenix DMR and referred to Tucson DMR. The letter requested a mine map of the Hilltop mine, California District, Cochise County. Told him that I couldn't find a map, but we do have a good mine file on the property containing some KMR engineers' reports and descriptions of workings. He and his geologist will visit the Tucson office. Mr. Ebner is working with the claimants of the Hilltop #1 thru #7 group and the Sullivan Group of Patented claims, a Mr. and Mrs. Miller and a Ralph W. Morrow. Mr. Ebner is trying to map some of the workings which are in bad shape with poor air and many caves.

RECEIVED
DEPT. MINERAL RESOURCES
PHOENIX, ARIZONA

SULLIVAN COPPER DEVELOPMENT COMPANY
2029 EAST SUPERIOR STREET
DULUTH 12, MINNESOTA

December 23, 1958

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

Gentlemen:

Returned herewith please find letter dated August 7, 1958, and accompanying Mine Owner's Report form. This report has not been completed because the property is inactive and has been for many years. There is really no current information to send to you and doubtless your files include all past information which is available.

Very truly yours,

SULLIVAN COPPER DEVELOPMENT COMPANY

By Geo H. Crosby
President

encls.

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

August 7, 1958

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

Sullivan Group or Crosby Mine (Cochise County) gold, silver
(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

Home Builders B

Phoenix

DEPT. MINERAL RESOURCES
RECEIVED
JUN 25 1946
PHO... ARIZONA

DEPARTMENT OF MINERAL RESOURCES
State of Arizona
MINE OWNER'S REPORT

Date.....

1. Mine: Sullivan Group
2. Location: Sec..... Twp..... Range..... Nearest Town.....
   Distance..... Direction..... Road Condition.....
3. Mining District & County:.....
4. Former Name of Mine:.....
5. Owner:.....
   Address:.....
6. Operator:.....
   Address:.....
7. Principal Minerals:.....
8. Number of Claims:..... Lode..... Placer.....
   Patented..... Unpatented.....
9. Type of Surrounding Terrain:.....
10. Geology & Mineralization:.....
11. Dimension & Value or Ore Body:.....

Operations on This Property abandoned about a year ago

J. H. Byrd
6-24-46

12. Ore "Blocked Out" or "In Sight": .....

.....

.....

.....

.....

Ore Probable: .....

.....

.....

13. Mine Workings—Amount and Condition: .....

	No.	Feet	Condition
Shafts			
Raises			
Tunnels			
Crosscuts			
Stopes			

.....

14. Water Supply: .....

.....

.....

15. Brief History: .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

16. Signature: .....

.....

17. If Property for Sale, List Approximate Price and Terms: .....

.....

Date of Report July 18, 1944

From R.F.C. file

As suspected, the shoot of ore had been mined from the adit level to the surface, leaving a glory hole 75 feet long, 16 feet wide and 8 feet through. This hole shows that the ore body was a small lense in the limestone, with a rake of N25°W and a dip of 65°. Apparently there is little value in the copper-stained walls as the borrower did not drift or prospect along the strike of the vein.

Progress of the contract work entered into by the borrower with Mr. Burney has been slow. Mapping the advances from the last visit show only seven feet on the drift and ten feet crosscutting to the hanging wall. This work has not indicated any extension of the ore zone, although Mr. Byrd has written to this office stating that the two men working on the drift contract broke into a beautiful body of ore.

The United States Bureau of Mines have finished a project on this property, the purpose being to determine the extensions of the ore zone. Three or more trenches were blasted across the ore zone east of the inclined shaft. Only one trench showed a trace of mineralization. This trench is 30 feet east of the shaft and exposed the mineralization two inches wide on west side of trench. East side of trench showed nothing. In the vertical shaft, Mr. Charles A. Kumke, Mining Engineer with Bureau of Mines and in charge of the project, stated that they blasted a few rounds in a crosscut where there was an exposure of bornite. This work revealed that the small body of bornite was just a plum. It did not extend upward or downward. Prospects for continuation of the ore with depth or laterally by drifting are notencouraging, and I look for a closing-down of this project.

The borrower obtained a loan of $4950, and has been successful in producing some copper. A total of 731 tons of crude ore has been sent to the smelter, yielding 50,390 pounds of copper and 1906 ounces of silver. Although the shipments show a loss to the smelter of $788.35, this has been offset by premiums amounting to $6904.64. Royalty to the lessor has amounted to $527.33.

~~NAME OF~~ MINE: ~~CROSBY~~ Sullivan
(SULLIVAN)

COUNTY: COCHISE
DISTRICT: California
METALS: AU,AG

OWNER: George H. Crosby, 2029 E.Superior St., Duluth, Minn.

OPERATOR AND ADDRESS:		MINE STATUS	
DATE:		DATE:	
5/1/44	J.M. ~~A.R.~~ Byrd, Tucson	5/1/44	Working
8/44	M.J. says A.R. Byrd Box 5266	7/44	Shipping

OPERATOR AND ADDRESS		MINE STATUS	
Date:		Date:	
11/44	A.R. Byrd, Jr., Box 5226, Tucson	11/44	Shipping
		1/46	Idle

SULLIVAN GROUP

See: Dept. of Interior, Bureau of Mines, War Minerals Report, #337, (Nov. 1942), 8 pages, 5/3/77 a.p.

MAPS - Upstairs in the flat storage file in the third drawer.

R. I. 4015 FEBRUARY 1947

UNITED STATES
DEPARTMENT OF THE INTERIOR
J. A. KRUG, SECRETARY

BUREAU OF MINES
R. R. SAYERS, DIRECTOR

REPORT OF INVESTIGATIONS

SULLIVAN COPPER MINE, COCHISE COUNTY, ARIZ.

Under S. in Mine file

BY

CHARLES A. KUMKE

R.I. 4015,
February 1947.

REPORT OF INVESTIGATIONS

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

SULLIVAN COPPER MINE, COCHISE COUNTY, ARIZONA[1]

By Charles A. Kumke[2]

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2. Geologic map	2
3. Geologic sections at trenches	4

INTRODUCTION

The Sullivan Mine was examined by Thomas L. Chapman, an engineer of the Bureau of Mines, in March 1943. Samples taken from the few mineralized exposures justified further investigation of the property. To determine whether extensive exploration of the property would be warranted, the Bureau did a small amount of trenching and underground work during April 1943[3] under Bureau project 1462.

ACKNOWLEDGMENTS

In its program of exploration of mineral deposits, the Bureau of Mines has as its primary objective the more effective utilization of our mineral resources to the end that they make the greatest possible contribution to national security and economy. It is the policy of the Bureau to publish the

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2/ Mining engineer, Bureau of Mines.

3/ Charles A. Kumke, project engineer.

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The investigations of the Mining and Metallurgical Branches of the Bureau, as reported in this paper, were supervised by J. H. Hedges, district engineer for Arizona, and S. R. Zimmerly, regional engineer for the Western Region, respectively.

Special acknowledgment is made to the Arizona Bureau of Mines for cooperation on the survey and geological mapping of the property.

HISTORY

From 1879, when the mine was first located, until 1899, when George H. Crosby purchased the property for $35,000, only a few open cuts were dug and a short tunnel was run. Crosby sank a 60-foot vertical shaft and from its bottom drove a 120-foot crosscut. No further work was done until 1943, when the property was leased to J. H. Byrd, who began mining ore exposed in one of the old open cuts. Production as of May 1943 had amounted to approximately 500 tons of sorted ore, which averaged about 4 percent copper. The ore had been shipped to the International Smelter at Miami, Ariz.

PROPERTY OWNERSHIP

The property, owned by George H. Crosby of Duluth, Minn., consists of 14 patented lode-mining claims. Patent surveys of five of the claims are recorded as mineral survey 3125 in the land office at Phoenix, Ariz.

LOCATION AND ACCESSIBILITY

The mine is in the Chiricahua Mountains, Cochise County, Arizona, adjoining the Hilltop mine on the southeast (fig. 1). It is reached by 26 miles of graded desert road running southward from San Simon, Ariz., a town on the Southern Pacific Railroad, and paved Arizona State Highway 86.

PHYSICAL FEATURES AND CLIMATE

Outcrops and workings on the property are in rugged topography at an altitude of about 6,000 feet. They follow this contour along an eastward trending hillside, which has a slope of approximately 30 degrees. The entire area is covered by a dense growth of brush, mainly scrub oak, cacti, and small pines and junipers.

The extreme range of temperature recorded at San Simon4/ (altitude 3,609 feet) is from minus 5 degrees to 111 degrees.

4/ Smith, H. V., The Climate of Arizona: University of Arizona Agricultural Exp. Sta. Bull. 130, p. 356.

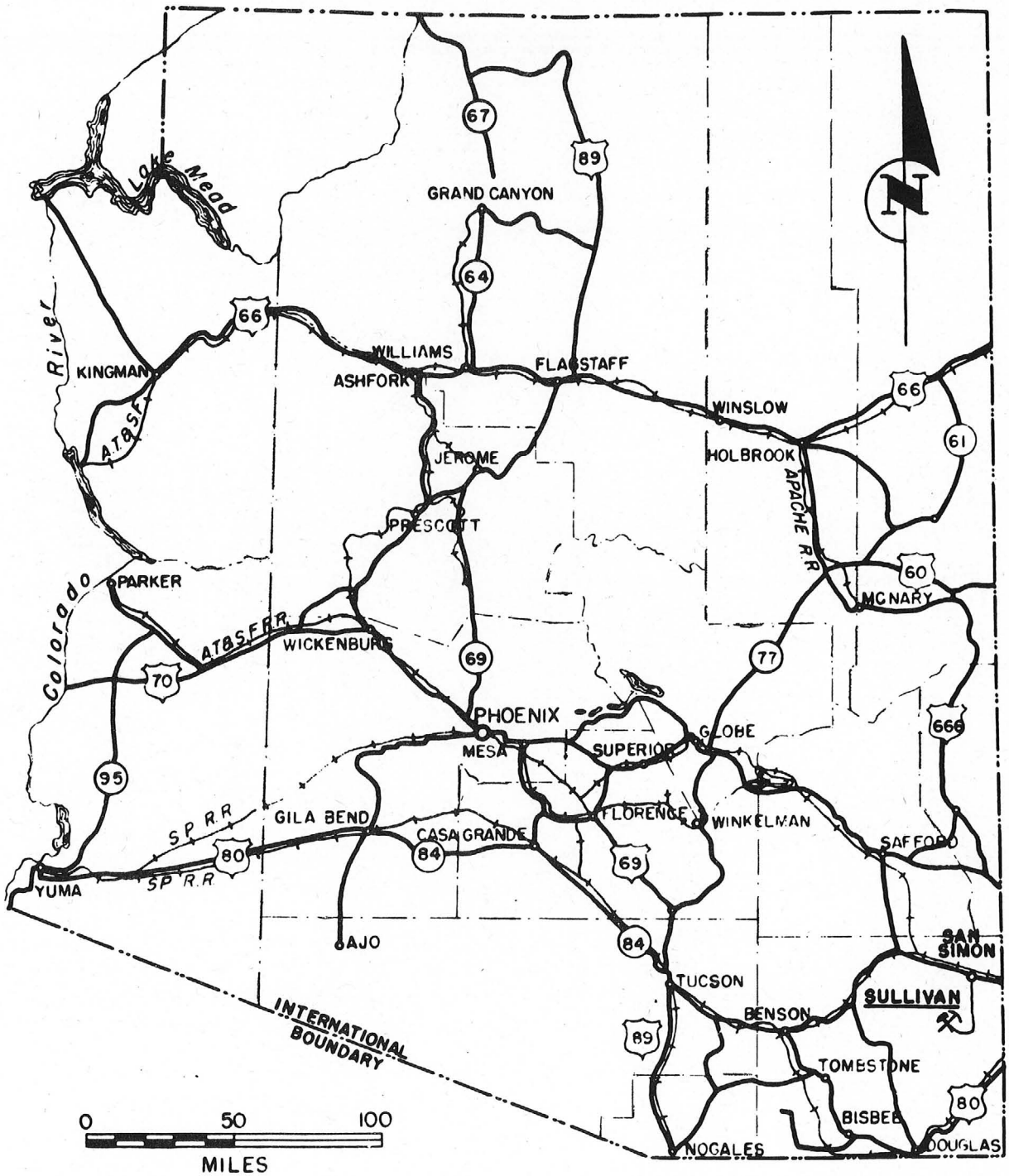


FIG.1-GENERAL LOCATION MAP, SULLIVAN MINE, COCHISE CO., ARIZONA

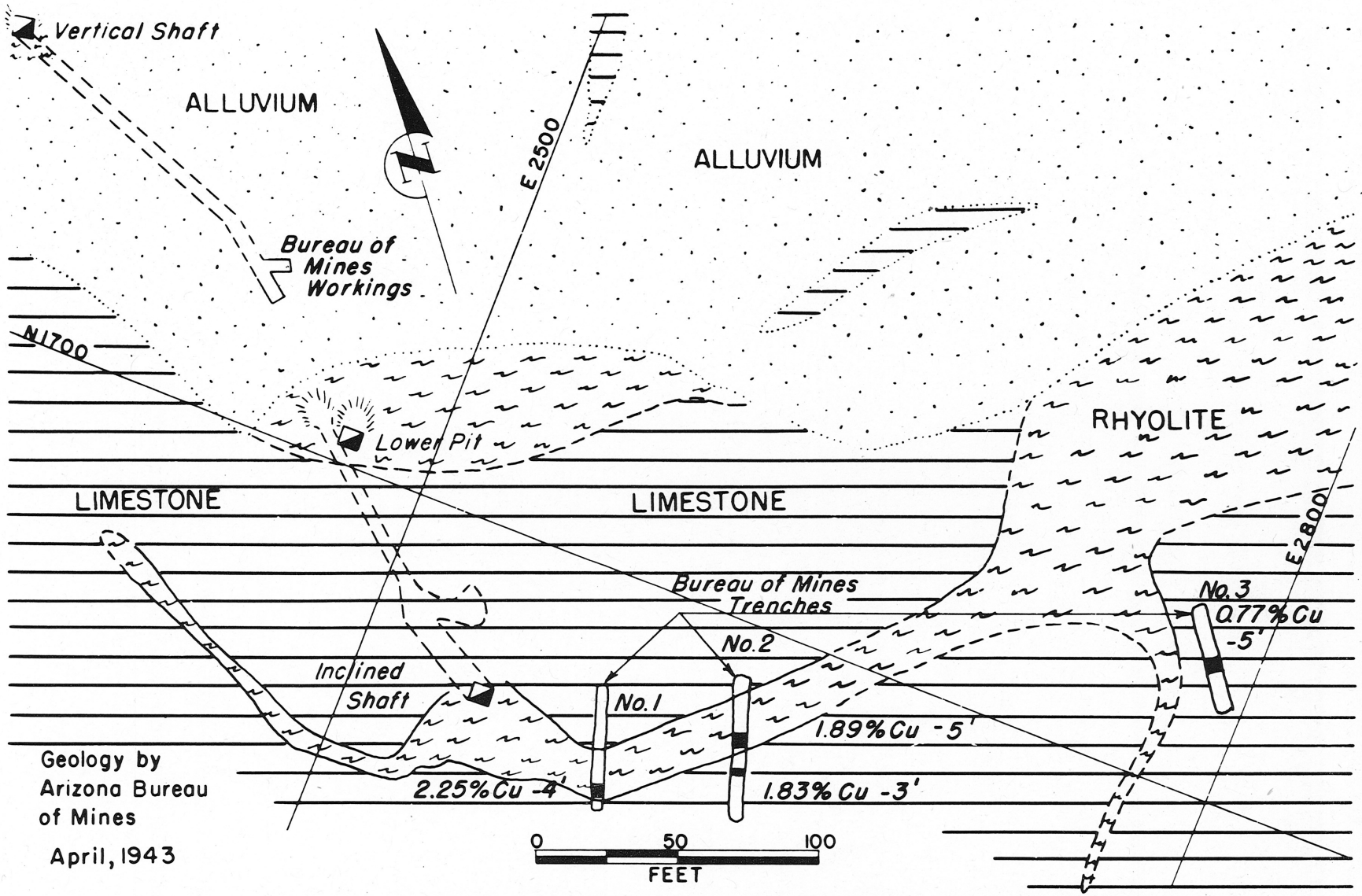


FIG. 2-GEOLOGIC MAP OF SULLIVAN PROPERTY, PROJ. 1462, COCHISE CO., ARIZ.

The average annual rainfall at San Simon is 7.27 inches. The heaviest precipitation occurs during July and August.

GEOLOGY AND ORE OCCURRENCE

The predominant rock in the vicinity of the workings is limestone, which has been marbleized in places (fig. 2). It strikes northwest and dips northeast at angles of 50 degrees or steeper. It is intruded by rhyolite, which outcrops as elongated, irregular masses (fig. 2). The contact on the south of the rhyolite with limestone is exposed in several places, but at the north it is covered with overburden. It trends westward and dips north at angles of 50 degrees or steeper.

Mineralization, with one minor exception, is confined to shear zones in the rhyolite. The strike and dip of the shearings tend to conform with the trend of the long axes and dip of the rhyolite masses.

In addition to copper mineralization, which predominates, some gold and silver are present. Copper minerals present at the surface are chalcocite, malachite, azurite, chrysocolla, chalcopyrite, and bornite. The presence of sulfide minerals at the surface indicates that oxidation in the ore zone is shallow.

MINE WORKINGS

When the property was first examined, development consisted of 10 shallow surface cuts, an 80-foot adit, a 60-foot vertical shaft, from the bottom of which a crosscut extended 120-feet southeast, and a 35-foot inclined shaft. The inclined shaft had been sunk on the main ore streak exposed in the most prominent surface cut. The 80-foot adit is east of the project area.

Later, the lessee began mining ore exposed in the main surface cut. After shipping two carloads of ore from this operation, he drove an adit that cut the ore zone about 80 feet below its outcrop. A stope, started from this adit, connected with the inclined shaft and continued to the surface. This working then resembled a glory hole 18 feet in diameter and 60 feet deep.

WORK DONE BY THE BUREAU OF MINES

When the Bureau's engineer first visited the Sullivan property, the lessee was enlarging the main open-cut. The south, east, and west sides of the cut presented faces of ore. Owing to the talus and thick brush covering the bedrock, it was impossible to estimate how far the ore might extend to the east or west along the contact of the rhyolite with the limestone. Copper mineralization similar to that in the main cut was exposed at several places on this contact. As the mineralization along the contact might be more or less continuous and, in places, strong enough to form sizable ore shoots that could be mined at a profit, a nominal amount of surface trenching was undertaken.

In April 1944, the Bureau began trenching to the east of the main open-cut. Three trenches were completed (fig. 2). Trench 1 was 50 feet east of

the main open-cut. The trenches were cut across the main contact of the rhyolite with the limestone. Each trench, except for about 1 foot of unconsolidated overburden, was in rock, which had to be drilled and blasted (fig. 3).

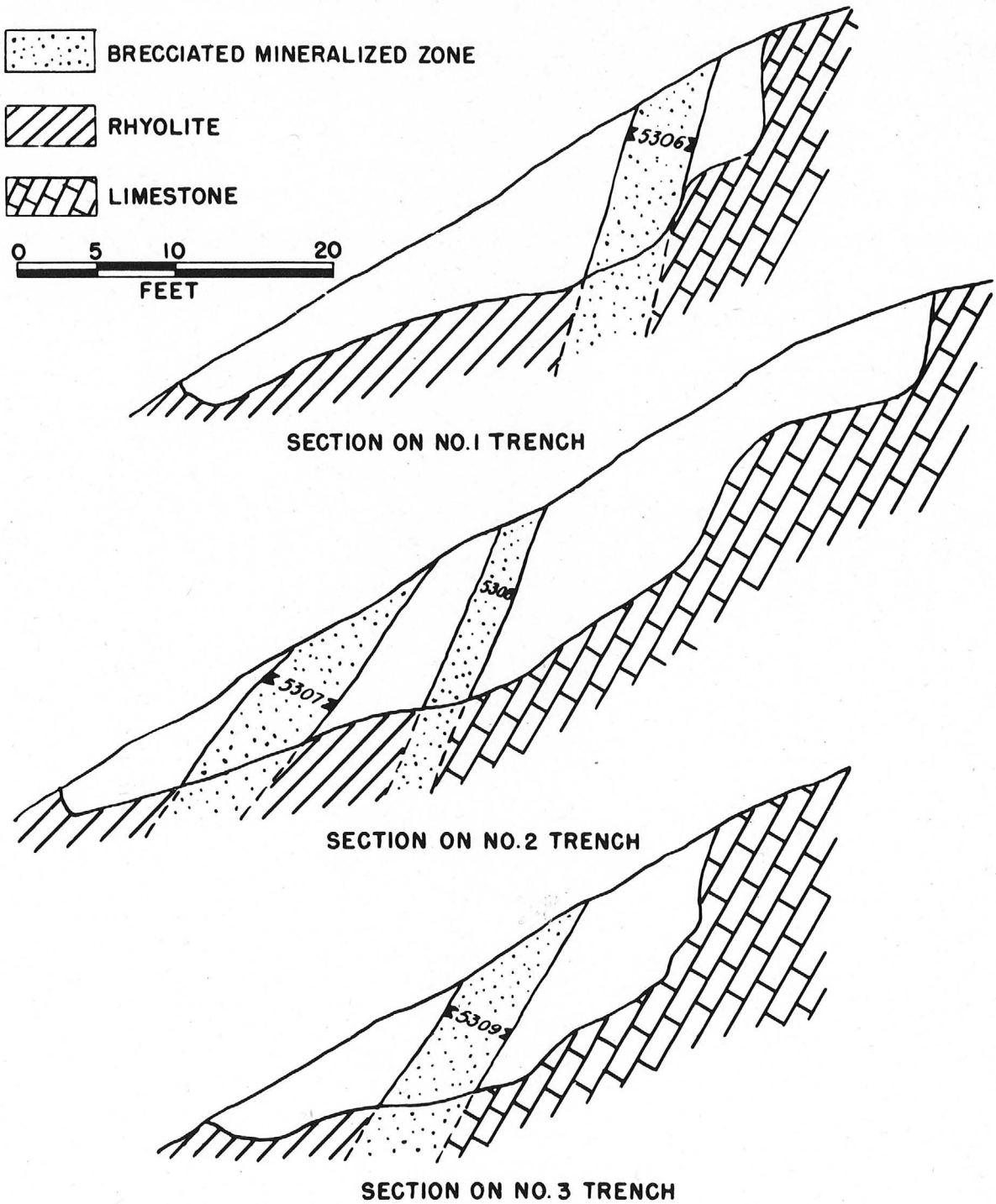
After making the old 60-foot shaft safe and accessible and cleaning out the crosscut, which was half-filled with muck, the crosscut was advanced 12 feet. This advance was all in barren limestone. An east drift was advanced 8 feet on a mineralized streak that had been cut in the main crosscut 2 feet from the face.

Seven samples were taken by the Bureau's examining engineer, which analyzed as follows:

No.	Description	Width, feet	Analysis: Ounces Au.	Ounces Ag.	Percent Cu
1221	Lower pit on 70-degree shear zone.....	5.0	0.015	2.40	2.53
1222	Inclined shaft on 55-degree shear zone from hanging wall.....	8.0	.015	2.90	3.50
1223	Inclined shaft next to #1222, toward hanging wall.....	4.5	.015	3.50	4.32
1224	Inclined shaft from #1223 to footwall.....	2.5	.02	4.70	3.83
1225	Sorted ore from inclined shaft.....		.03	7.30	7.95
1226	Reject ore from inclined shaft.....		.01	2.50	4.03
1227	Shear zone, 800 feet S.65 degrees E. from #1226.....	7.0	.01	3.25	3.54

The following four samples were cut in the trenches excavated by the Bureau (figs. 2 and 3):

No.	Description	Width, feet	Analysis, percent Cu
5306	No. 1 trench, across mineralized zone.....	4.0	2.25
5307	No. 2 trench, across mineralized zone.....	5.0	1.89
5308	No. 2 trench, across second mineralized zone.....	3.0	1.83
5309	No. 3 trench, across mineralized zone.....	5.0	.77



GEOLOGIC N-S SECTIONS AT TRENCHES

APRIL, 1943

FIG. 3 - SULLIVAN MINE, PROJ. 1462, COCHISE CO., ARIZONA

R. I. 4015 FEBRUARY 1947

UNITED STATES
DEPARTMENT OF THE INTERIOR
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BY

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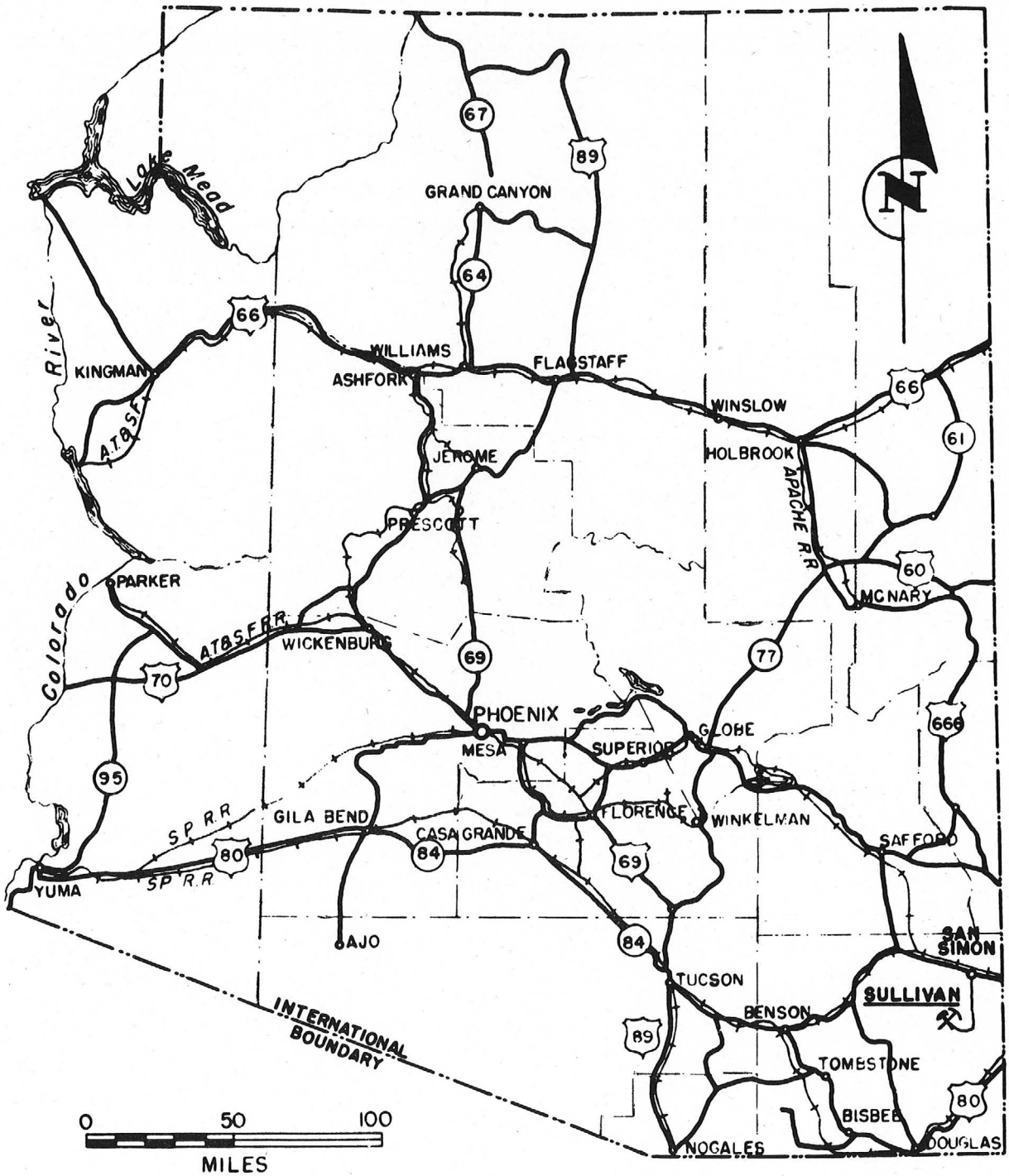

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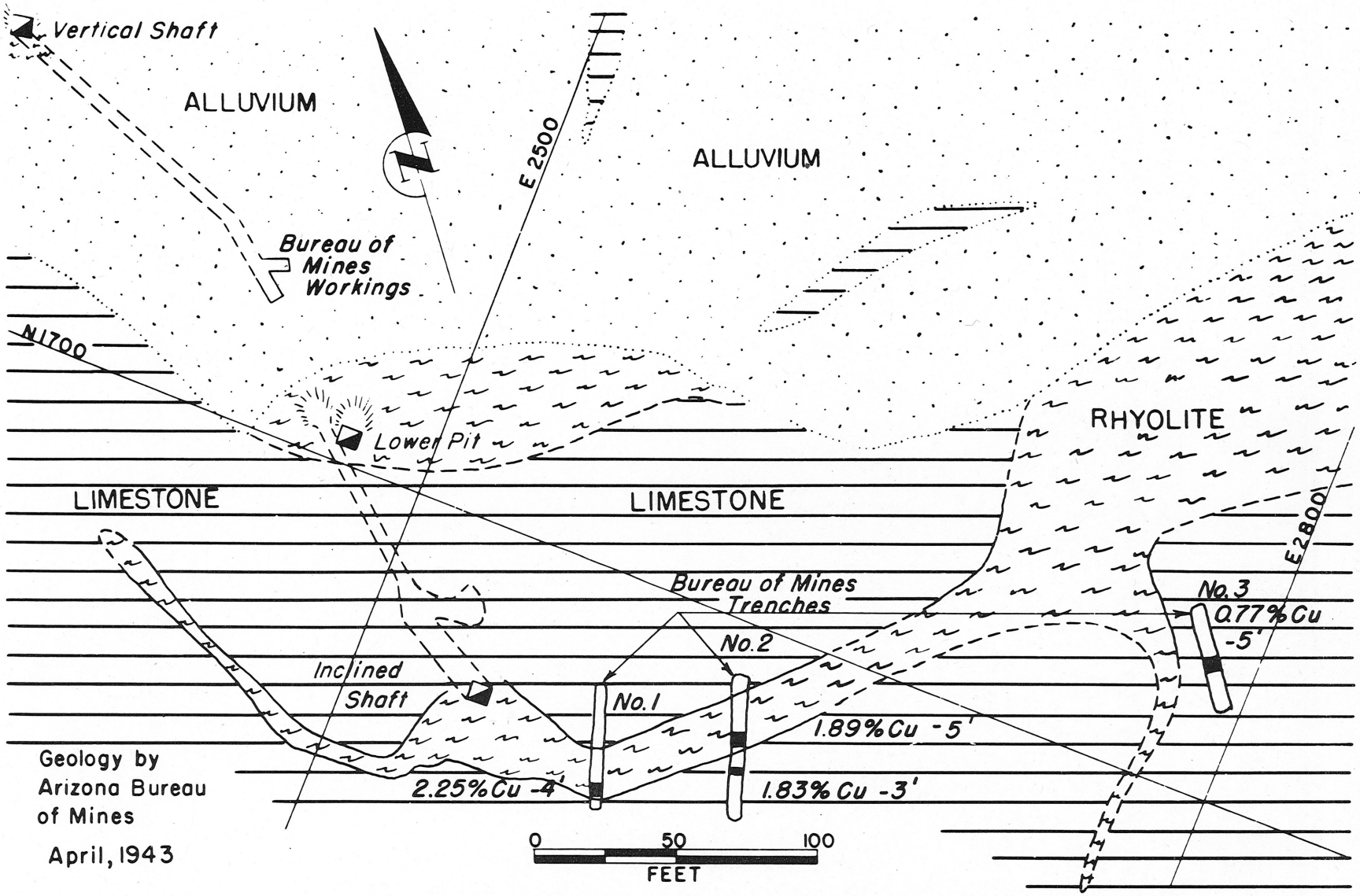

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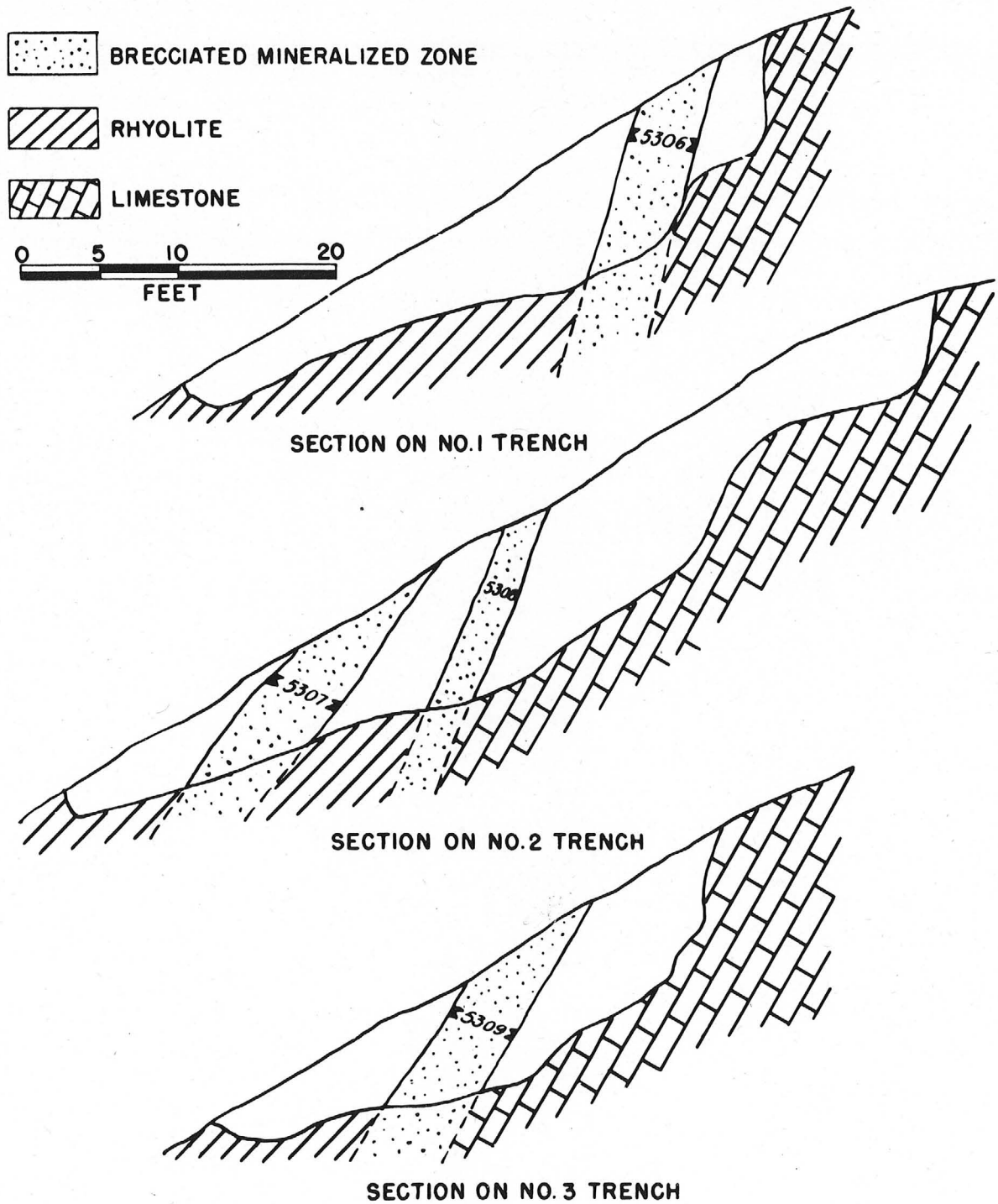

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Byrd Investment Company
P. O. BOX 5226
TUCSON, ARIZONA

TUCSON
JUN 24
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1946
ARIZ.

State of Arizona
Department of Mineral Resources Homebuilders B
PHOENIX, ARIZONA

October 25, 1943

Mr. Dan Lewis
Willcox, Arizona

Dear Dan:

I am enclosing a copy of a letter from the Arizona Bureau of Mines, Bob Heineman, Mineralogist, regarding the fluorescent samples which we obtained from the Crosby Mine of the Sullivan group at Hilltop.

You can see from this that it is necessary to check carefully minerals which fluoresce, particularly where zinc is present.

With best wishes, I am

Yours very truly,

J. S. Coupal, Director

JSC:LP
Enc.

CROSBY

Cu

Cochise 2 - 2 T 16 S, R 30 E

War Minerals Report - 337 (c.3 W. library)

J. H. Byrd, Box 5226, Tucson ✓

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University of Arizona
TUCSON

COLLEGE OF MINES
ARIZONA BUREAU OF MINES

October 21, 1943

DEPT. MINERAL RESOURCES
RECEIVED
OCT 23 1943
PHOENIX, ARIZONA

Mr. J. S. Coupal, Director
State Department of Mineral Resources
413 Home Builders Building
Phoenix, Arizona

Dear Sam:

George Ballam brought in two fluorescent samples from the Sullivan group between San Simon and Hilltop (our file number 21147).

The yellow fluorescent material is powellite. I could not detect any scheelite in the samples. The bluish fluorescence on part of the samples is fluorescent lime. Sometimes a trace of zinc will give such a bluish fluorescence when it is present in the form of hydrozincite, but a spot test for zinc does not show any. I tested the powellitic portion for tungsten, and none is present, so the material is evidently pure powellite, without any scheelite.

With best regards, I am

Yours very truly,

Bob H.

Robert E. Heineman
Mineralogist

REH/cm

10/16/63

Sullivan (or Crosby) Group

1947 RI 14 claims — 26 mi S from Sandstone on graded road. Just out of Nat. Forest. T16S R30E

Crosby, George H.
Portal.

Patented Mines in Calif. Dist.	Acres
Independence and Mountain Key	40.896
Bisbee, Black Prince,	
Black Queen, Eureka, Fillmore	
Hayes, Hobos Dream, Iron Mask	
Lincoln, Ophir, Western Slope	
California, and Crown King	246.727
Saddle	17.751
Cotton Trail	20.243
Angela, Blue Bell, Bornite,	
Calope, Combination, Copperopolis	
Lucky Friday, New Year, and Swift	180.513
	506.130

Patent surveys of 5 of 14 claims of Crosby's held in 1947 are recorded as Min Survey 3125