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1) No 3 X-Cut. Sunnyside claim 550'

1 Sunflower
2 Robbins
3 L. & N.
4 Bowman
5 Ord check the x-cuts

Payson

6 Red Bird 200' x-cut
7 ~~Pine Mtn~~ Northern Light
8 Rattlesnake
9 Pine Mtn Park stn. and diss?
10 Mercuria diss?

U.S. GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

TOPO

111° 30' R.8 E. R.9 E. 20' R.10 E.

34° 00'

T.7 N.

T.6 N.

50'

Pine Mtn
Cold Creek
Canyon
Reynolds Creek
Red Rock
Mazatzal
Creek
Mt. Ord
Moore's Ranch
Sunflower Ranch
Reno Pass
Moore Ranch
Howell's Ranch
Tonto
Clanton's Ranch
Hosefelt Ranch
Edwards Park
Crabtree Butte
Pine Ridge
Haysta
Edwar

BM X 4724
BM X 2870
BM X 2355
BM X 2901
BM X 2421
BM X 2236
BM X 2192
BM X 3781
BM X 3435
BM X 5901
BM X 3270
BM X 6283
BM X 5100
BM X 2488

7153

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
PAYSON QUADRANGLE

Topography by W.R.Chenoweth, F.H.Purdy, J.G.Ransom, G.A.Fischer, N.I.Campbell, G.A.Green, F.G.Somner, V.E.Wicks, W.E.Anderson, and D.V.Birdseye
Surveyed in 1935-1936

SCALE 1:62500

1 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1936

Polyconic projection. 1927 North American datum
10,000-foot grids based on Arizona (Central) and Arizona (East) rectangular coordinate systems
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

ROAD CLASSIFICATION
Medium-duty — Light-duty —
Unimproved dirt - - - -

INTERIOR—GEOLOGICAL SURVEY
WASHINGTON, D. C.—1965

PAYSON, ARIZ.
N 3400—W 11115/15
1936

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 17, 1966

FILE MEMORANDUM

Baker Mountain Property
Red Bird Group
Mazatzal Mountains
Gila County, Arizona

Mr. Tom Bolich, part owner of the National Mine (Sunflower Group) suggested examining the Baker Mountain prospect which appeared to him to have a potential for a large tonnage of low grade mercury. This property is located immediately east of the Ord Mine (6 miles east of the National Mine) and is accessable by turning south from U. S. 87 (Beeline Highway) on the Tonto Basin Road. Approximately 1/4 mile beyond the turn a fairly well maintained dirt road, on the right hand side, leads to the area.

Conclusion

Lausen (Quicksilver Resources of Arizona, Bur. of Mines) believed that most of the ore on this group occurs in veins and that much of it was too low grade (1927) to be economic.

Samples taken by Mr. D. P. McCarthy (a recent geological consultant) showed a different picture. He thought there was disseminated to low grade ore present. The present sampling does not indicate this. Additional samplings, however, may show more occurrences of cinnabar but I conclude that the chance of finding low grade mercury and large tonnages appear to be very slim.

Description

Mr. C. O. (Carl) Carlson now owns this group formerly held by the Arizona Cinnabar Company. These claims are known as the Red Bird #2-11, Native Metal #1-6 and Hard Rock #1-4. Their relative position and their general location are shown on the attached claim map (Att. A.), which is a reduction of an original given to me by Mr. Carlson.

Three days were spent in mapping and sampling. The sample location map together with the assay values (Att. B) shows the major access roads and bulldozer cuts all of which have recently been made. Because of the scarcity of outcrops, contineous chip samples were collected wherever the roadcuts exposed bedrock. Samples were collected at 25' intervals where possible, and at right angles to the schistosity. Assays by Hawley and Hawley of these surface samples indicate a sporadic distribution of mercury values from nil to 0.133% (2.6 lb. Hg/ton). The better grade samples showed visible cinnabar. The ore occurs principally as veinlets of quartz and carbonate, mottled in places by limonite. Cinnabar has also been reported as impregnations in the schist, but this I observed only in several float specimens.

As at the National Mine, the rocks on the surface comprise a variety of pre-Cambrian quartz-sericite and chlorite schists and vary from quartzites to phyllites and slates. The strike of the schistosity is N80°E to practically due E-W. The dip of the sequence is steeply N.W. or vertical.

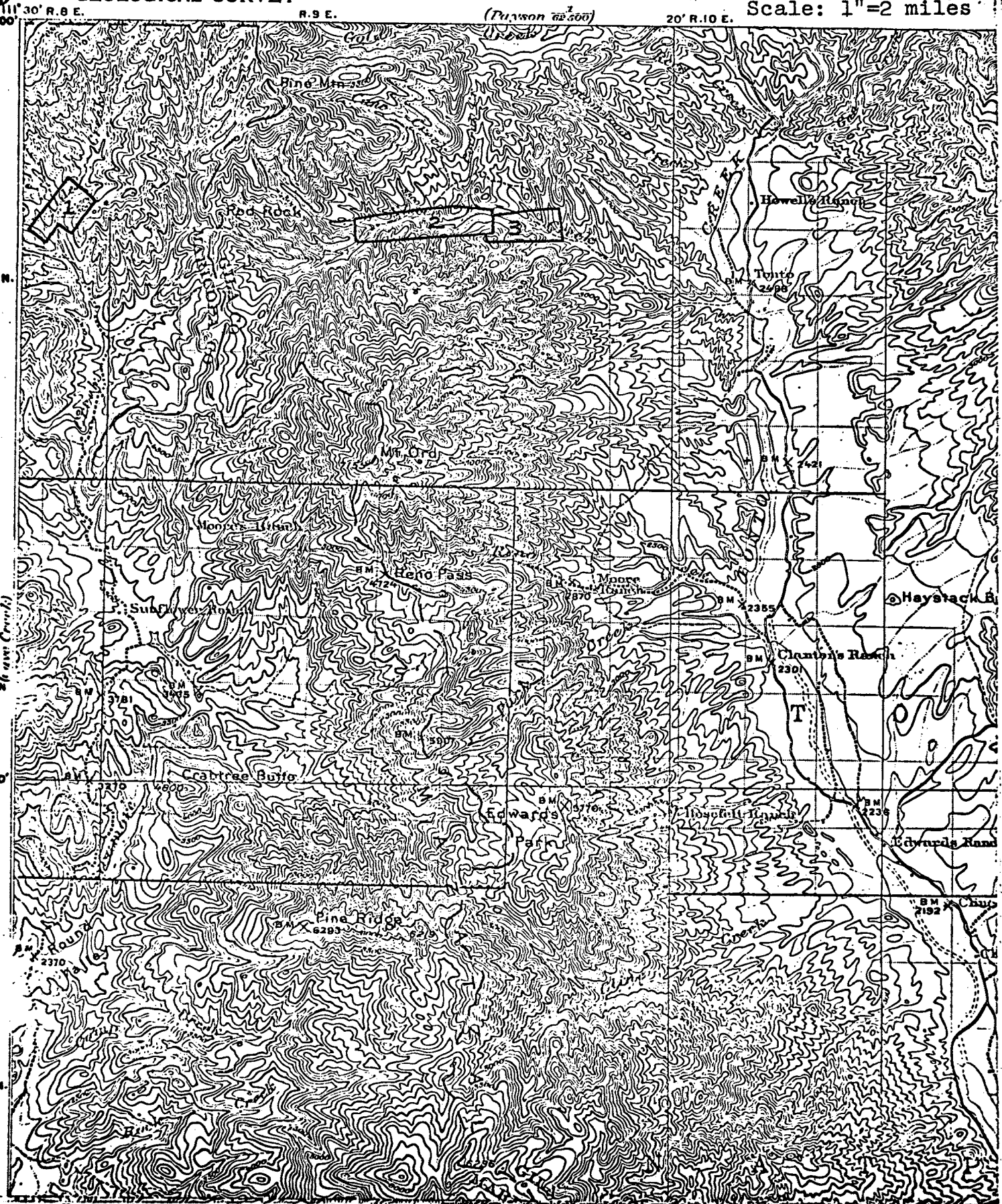
Because of the general absence of rock exposures, and also because of a report written by Donald P. McCarthy, who states "assay samples indicate a rather uniform although low-grade distribution of mercury throughout very wide zones," I took contineous chip samples in some of the adits on the property. Survey of these was measured by Brunton and tape. The underground samples were taken at 25' lengths and at waist elevation (Att.C). Assays by Hawley and Hawley showed a complete absence of mercury, except for two which assayed less than 0.003% Hg.

R. H. Luning

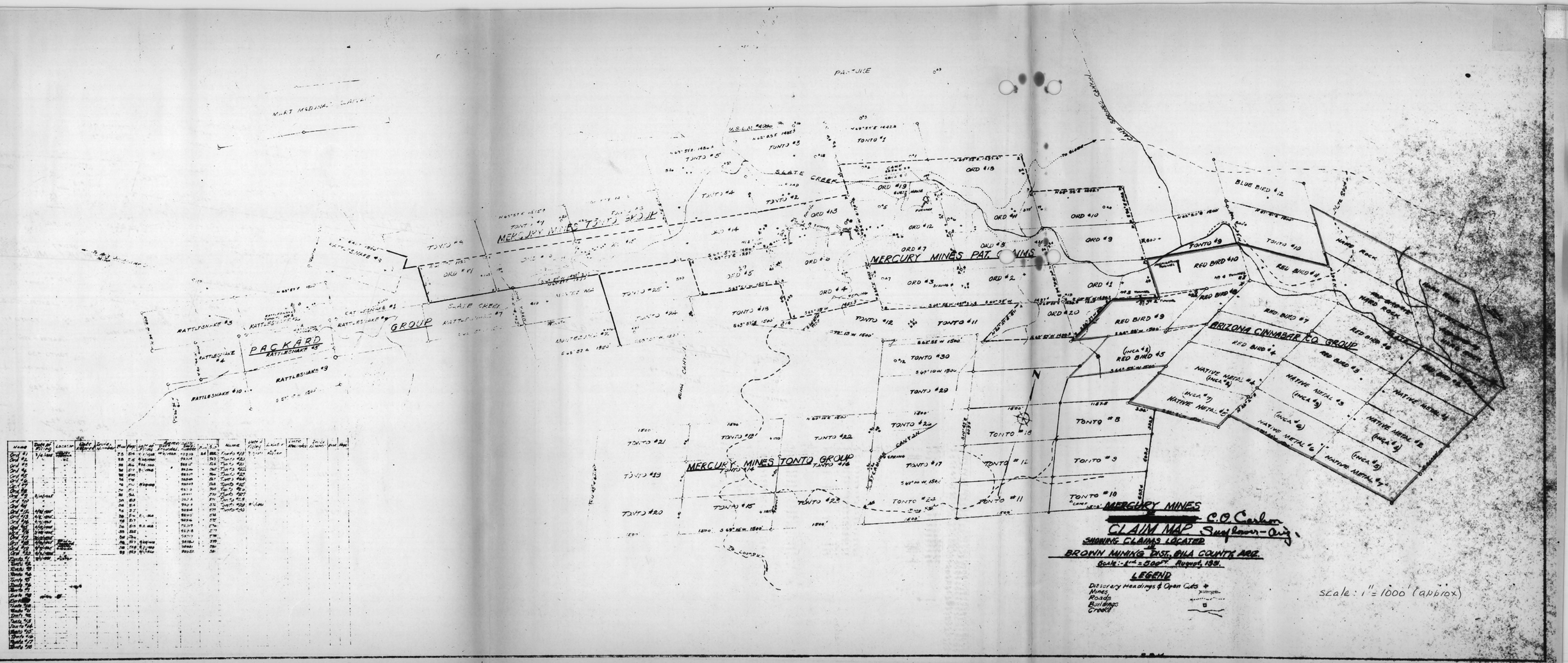
R. H. LUNING

RHL/mcg
Attachments

1. Sunflower (National Mine)
2. Ord
3. Red Bird



Location of the Red Bird Group with respect to Ord and Sunflower


MERCURY MINES PAT. CLAIMS
MERCURY MINES TONTO GROUP
PACKARD
RATTLESNAKE #5
GROUP
ARIZONA CINNABAR CO. GROUP
SLATE CREEK
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BLUE BIRD #12
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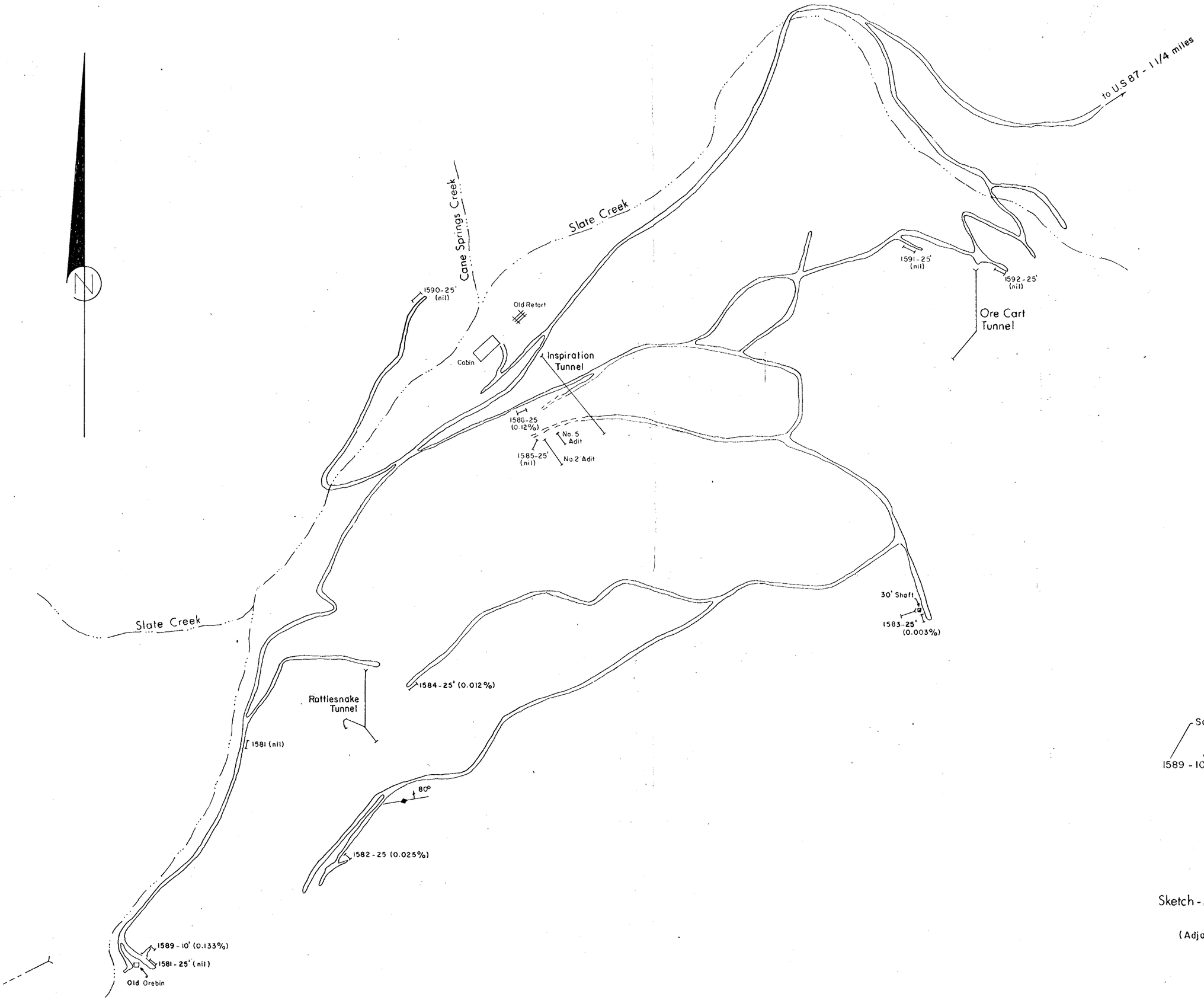
MERCURY MINES
C.O. Carlson
CLAIM MAP Surveyor-Atty.
SHOWING CLAIMS LOCATED
IN
BROWN MINING DIST., GILA COUNTY, ARIZ.
Scale: 1 inch = 800 ft. August, 1931.
LEGEND
Discovery Headings & Open Cuts
Mines
Roads
Buildings
Creeks
scale: 1" = 1000' (approx)
N

B



Sketch-Map of Sample Locations

Baker Mtn. Prospect

(Adjacent to Ord Mercury Mine)

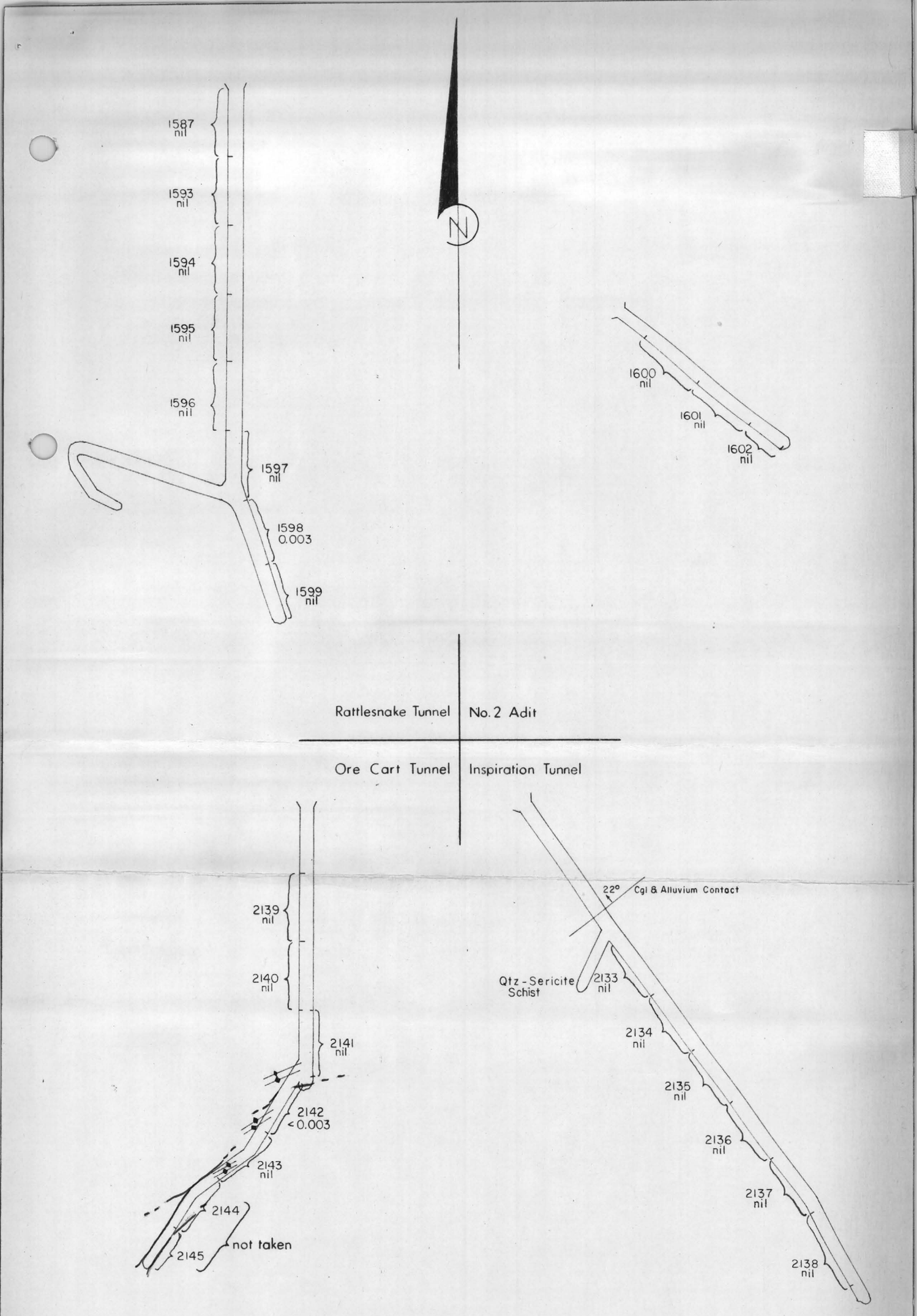
Mazatzal Mtns.

Gila County, Ariz.

Scale 1" = 200'

R.H.L. May 1966

1877



2133 nil Sample No. and Assay

Fault (near vertical)

Strike of Vertical Schistosity

Baker Mtn. Property

Scale 1" = 40'

R.H.L May '66

1879

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

June 23, 1966

FILE MEMORANDUM

Saddle Mtn. Mercury Prospect
Mazatzal Mountains
Maricopa County, Arizona

Following my examination of the Baker Mountain Property, a brief visit was made to the Saddle Mountain Prospect. This prospect is located immediately southwest of the Sunflower Group (National Mine) and it may be reached from U. S. 87 by turning west from the National Mine Road on the Mazatzal Wilderness Boundary Road. Approximately 2 1/2 miles beyond this turn a corral is reached on the right hand side. Past this point the road is no longer maintained and a four wheel drive becomes necessary. After 1/4 mile, a steep descending road on the right hand side leads to the property.

Conclusion

As a mercury prospect, I conclude that the property warrants no further investigation.

Description

Twelve continuous chip samples were collected along recently made roadcuts. All were of 25' sample lengths. The attached sketch-map shows there location and assay values, which range from nil to 0.12% (2.4lbs Hg/ton) and averaging less than 1/2lb Hg/ton. Several quartz veins ranging from 3" to 1' in width were noted in the sampled area, most of which showed spotty cinnabar. Apart from the roadcuts there has been no other recent development on the property.

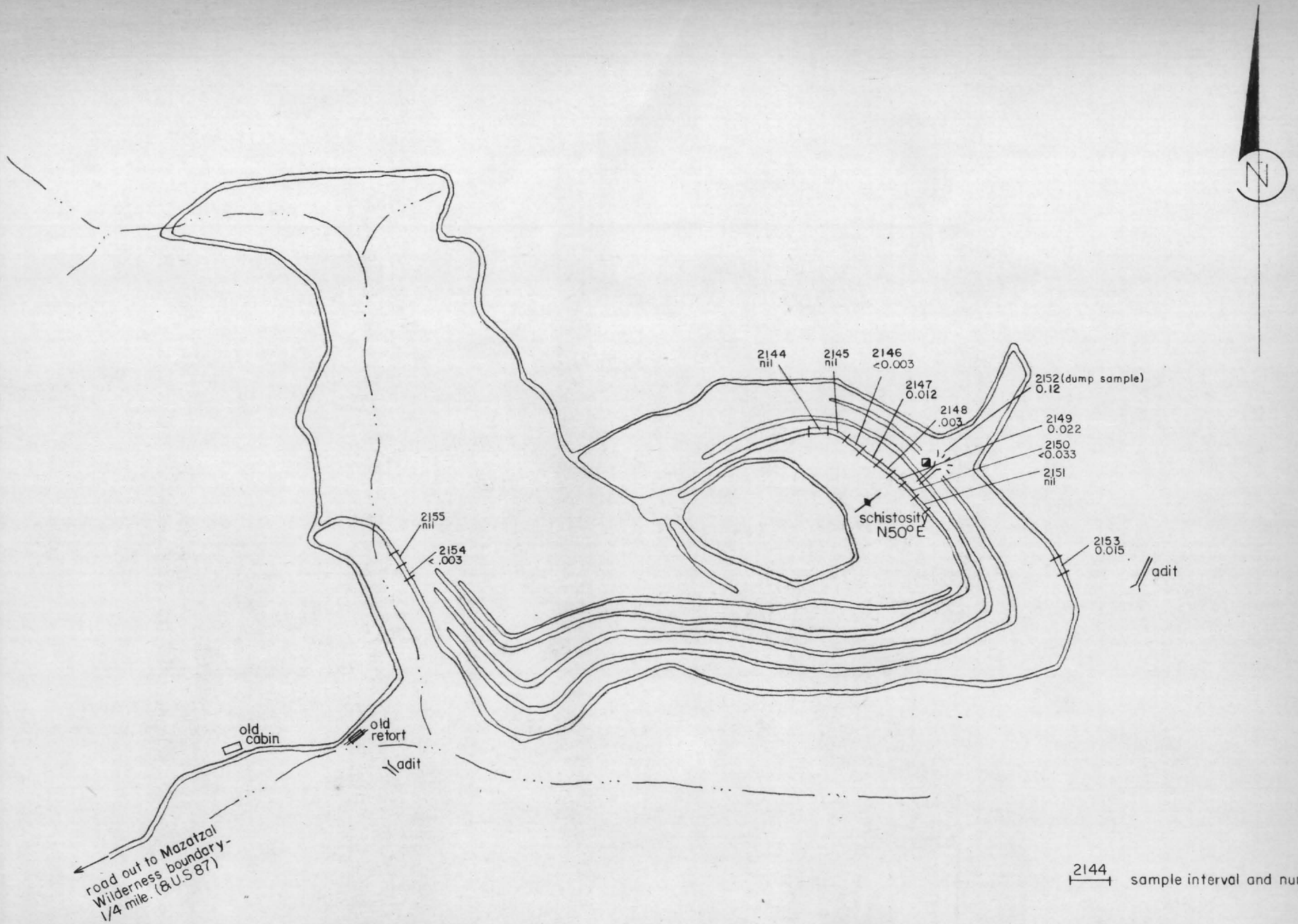
Approximately 1/4 mile S. W., the schist sequence passes beneath the volcanic rocks of Saddle Mtn. The volcanics are fine grained, pink to brown colour containing in places numerous schist fragments.

R. H. Luning

R. H. LUNING

RHL/mcg

Attachment



SADDLE MTN. PROPERTY

SW. Ext. of Sunflower

Scale 1"=200'

R.H.L

May 1966

1878

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 10, 1966

TO: J. H. COURTRIGHT

FROM: R. H. LUNING

BIG SAM (NATIONAL MINE)
SUNFLOWER MERCURY GROUP
MAZATZAL MOUNTAINS
MARICOPA COUNTY, ARIZONA

Introduction

Following the request of Mr. J. E. Kinnison, I revisited the Big Sam Mine during January and March, 1966, to continue the sampling program. The more complete samples established the trend and locations of vein material, and outlined the "ore" zone at the present pit.

Development at the property has continued intermittantly since my last visit in August, 1965 (File Memorandum, December 20, 1965). Considerable work has been done along the strike of the main cinnabar lode, toward the north - east of the present main pit, and some of the old workings have been cleaned out and re-timbered. Several new access roads have been built.

At present, a Mr. V. Bradley is in charge, who resides at 356 South Hobson Street, Mesa, Arizona. The previous superintendant, Mr. C. P. Keegel, left late last year for California. The operators appear to have financial difficulties as the furnace and all other operations had been shut down, except for some men who were engaged in retreating dust from the furnace to recover the contained mercury and the hand-sorting of high-grade cinnabar bearing quartz veins.

Conclusions and Recommendations

On the basis of the assay - results, mercury values appear to be confined primarily to cinnabar bearing quartz - carbonate veins with only traces (0.003 - 0.008%) of cinnabar in the Yavapai schist host rock. The property has, therefore, no potential as a low grade disseminated ore body.

R. H. LUNING

General Geology and Sampling Methods

Although no attempt was made to do any detailed geological mapping, the following brief description applies to the rocks found at the "Big Sam" Mine.

Quartz - sericite schist, chlorite schist, massive red jasper and rhyolite - porphyry predominate. In addition a reddish-brown slate occurs sporadically. Ransome found that the schists of the region could be subdivided into eight zones, striking roughly N45°E, arranged symmetrically on each side of the jasper as a central axis (U. of A. Bulletin 122, 1927, page 63).

The quartz - sericite schist is the most abundant type of metamorphic rock. It varies in composition from a quartzite containing a little mica to a light colored phyllite in which mica predominates.

The brown slate is a very fine grained rock with a well developed parting along which the rock cleaves readily.

Chlorite schist is well exposed in and adjacent to the main workings. It is of a dark green color and is essentially composed of chlorite and quartz, although sericite, limonite and some magnetite are present.

Jasper occurs in the area as conspicuous outcrops on hillsides and tops of ridges. It usually occurs as bands or stringers with associated quartz in a pale, yellow dolomitic limestone.

Rhyolite - porphyry traverses the district as two broad bands in a north - easterly direction and more or less parallels the schistosity. The rock is of a creamy - yellow color and porphyritic texture with numerous quartz and feldspar phenocrysts.

Wherever possible, continuous chip samples were taken and the number of access roads and bulldozer cuts along the steep hillsides facilitated this type of sampling. Many of the continuous chip samples were taken along a distance of 20' and each sample interval was measured by tape. Some random chip samples were taken at outcrops along hillsides and these locations were plotted on the map by triangulation.

Mr. W. E. Saegart visited the property and suggested that additional work be done by taking channel samples and continuous chip samples immediately adjacent and perpendicular to the main cinnabar lode. Samples were collected over a distance of 50' per sample, each sample weighing between 15-20 lbs. In the smaller, western pit, a 25' interval was chosen.

Attachment A shows the topography and locations of the various claims. The main cinnabar lode is located in the Packover, Go-By, and Sunnyside No. 5 claims. The map also shows the location of the mercury occurrences of other adjacent areas. Note that the average trend of the mineral - bearing zones is about N50°E. The Packover Lode is the widest and most extensive. It averages 50' in width at the Packover claim and is about 1300' long. From an assay map, supplied by Mr. Bradley, the following assay values were copied - (values read form NE to SW for a distance of about 500' along its length):

Assay	Width
0.81%Hg	29'
0.036%	160'
0.036%	75'
0.051%	40'
0.087%	34'
0.62%	17'
0.40%	30'
0.21%	20'
0.33%	29'
0.32%	13'
0.43%	12'
0.23%	36'

The ore occurs in veinlets of quartz and carbonate (either as calcite or ankerite) which vary in size from a fraction of an inch to half a foot or more. Lausen, in the U. of A. Bulletin of Quicksilver Resources in Arizona, 1927, page 69, mentioned that some disseminated cinnabar occurs in the body of schist enclosing the veinlets. He also mentioned native mercury and metacinnabar (in composition like cinnabar but of secondary origin) but these are present in only small amounts.

Several hundred feet to the northwest of the Packover Lode is the Native or Jasper Lode and similarly to the southeast is the Ione Lode. Both of these are quite narrow and discontinuous and the main development work has been confined to the Packover Lode.

Further occurrences of mercury have been recorded at the Cornucopia Mine, about 1/4 mile northeasterly along Sycamore Creek and also to the northwest of it. I paid a brief visit to this mine and noted some cinnabar bearing quartz fragments on the dump, but took no samples from the area.

Assay Results

Attachment B shows the principal drainage and access roads at the Big Sam Mine. The original twenty-three samples collected are shown in open circles at and adjacent to the main pit. To the northeast lies Sunnyside ridge, where, in addition to surface samples, two samples were collected in the underground workings. A part of the Ione Lode has been extensively developed at this site.

Attachment C is an enlargement of the original sketch map to a scale of 1" = 100' (approx.) and shows the location of samples collected and the approximate pit outlines. A fault has been shown on the map between the two main pits to show that there has been some displacement of the lode.

The results of the original assays by Hawley and Hawley appeared to be encouraging enough to warrant further sampling. However, check assays of some of these showed wide discrepancies in the percentages reported.

Sample No.	Hg% *	Vapor Test	(Re-run) Hg%
1	0.027	0.025	
2	0.030	0.10	
3	0.010	0.025	0.003
4	0.330	0.43	
5	0.027	0.025	
6	0.027	0.05	
6-A	0.04	0.05	
7	0.055	0.025	
8	0.06	trace	nil
9	0.05	0.025	
10	0.67	0.43	0.21
11	0.08	0.10	
12	0.09	0.05	
8402	0.035	0.025	
8404	0.055	0.10	
8406	0.04	0.05	
8408	0.06	0.15	
8412	0.045	0.025	nil
8414	0.067	nil	nil
			nil
8416	0.07	0.10	0.010
			0.007
8416-A	0.072	0.025	nil
8420	0.045	0.05	0.013
8426	0.05	0.10	0.006
			0.015

* Original samples--assay by Hawley and Hawley, August, 1965. Please note that samples No: 8414, 8416, & 8426 were re-run twice by Hawley and Hawley.

It may be seen from the above list that sample No. 10, which originally assayed 13.4 lbs/ton, only assayed 4.2 lb/ton on a re-run. Lower grade samples, particularly No's 8 and 8414, showed no evidence of mercury. No's 8420 and 8426, which originally assayed to have about 1 lb/ton only showed about .3 lb/ton. It appears that the original assays, although showing evidence of quicksilver, were erroneously assayed. The vapor test, unfortunately, did not show this as this method is at best semi-quantitative.

Better agreements were subsequently obtained by check-assays with Asarco's El Paso Ore Testing Laboratory. The following is a list of assays with a comparison of Hawley & Hawley.

Sample No.	El Paso % Hg	Haw.& Haw. % Hg
L-16	0.27	0.26
C-24	0.037	0.021
C-14	0.16	0.148
C-26	0.033	0.018
L-35	0.001	none
L-28	0.004	0.019
L-29	0.029	0.013
L-12	0.003	0.003
L-36	0.031	0.012

NOTE: Prefix "L" & "C" have been omitted on the sketch-maps.

Averaging each 9 assays results in 0.063 and 0.055% Hg for El Paso and Hawley and Hawley respectively.

Attachment D is a spectrographic analysis of seven samples taken from the higher grade portions of the Packover Lode; Samples No. C-21, 13, 15, 25, 27, and 91, and one small sample derived from a quartz vein showing abundant cinnabar. Of interest is the occurrence of titanium, reported as 0.84%. This presumably is present as ilmenite - $FeTiO_3$.

Attachment E is a description of the method for assaying of mercury together with a photograph of the apparatus.

R. H. Luning

R. H. LUNING

RHL/mcg
Attachments: A-E
cc: WESaegart
JEKinnison
NPWhaley

A P P E N D I X

Sample No's	Interval	Remarks
1	20' chip sample @ adit portal	Quartz-sericite schist containing several small (1/4"-1/2") quartz veinlets abundantly stained by limonite.
2-3	soil samples	Reddish-brown soil containing numerous schist fragments
4-9	20' chip samples	Chlorite and quartz-sericite schist. Quartz-carb. veinlets wk-mod. lim. stain.
10-15	15' chip sample	Chlorite schist, locallysome red jasper and quartz veinlets. Wk. limonite disseminated throughout.
16	grab sample from dump, upper adit	Qtz.-sericite and chorite schist. Visible cinnabar in qtz.
17	8' chip sample	Massive qtz. vein, 8' wide
18	15' chip sample	Qtz-sericite schist moderately stained by limonite.
19-20	soil samples	Brown soil containing several schist fargments
21	grab sample from dump	Quartz-sericite and chlorite schist. Numerous quartz fragments on dump.
22-25	20' chip samples	Chlorite schist
26	10' chip sample	Silicified schist containing numerous jasper inclusions
27	20' chip sample	Quartz-sericite schist containing calomel (?)
28	15' chip sample from extreme end of drift at lower adit	Quartz-sericite schist stained reddish-brown by iron oxides

Sample No's	Interval	Remarks
29	chips taken from pillar in stope at upper adit.	Quartz-sericite schist
30-36	10' channel samples	Chlorite, quartz-sericite schist
37-43	15' channel samples	Chlorite schist
44-47 (incl)	20' chip samples	Quartz-sericite schist; mod. lim. stain. Small (up to 1/2") quartz veins.
48-52 (incl)	20' chip samples	Purplish-red slate
53 & 54	20' chip samples	Chlorite, some sericite schist with weak to moderate iron oxides.
55	20' chip sample	Purplish-red slate
56 & 57	20' chip samples	Chlorite, some sericite schist containing few quartz veinlets. Weak-moderate limonite.
58	grab sample from small pile of crushed ore	
59-62 (incl)	20' chip samples	Chlorite schist. Moderate lim. in places. Occasionally small quartz-carbonate veinlets.
63	20'chip sample	Purplish-red slate.
64-71 (incl)	20' chip samples (except 66--10' and 67--15')	Chlorite, sericite schist. Some diss. hem., mod. lim. Cinnabar in qtz at 66.
72-75 (incl)	20' chip samples	72--purplish-red slate. Other samples principally chlorite schist.
76 & 77	random chip samples at o/c.	Chlorite, some sericite schist.

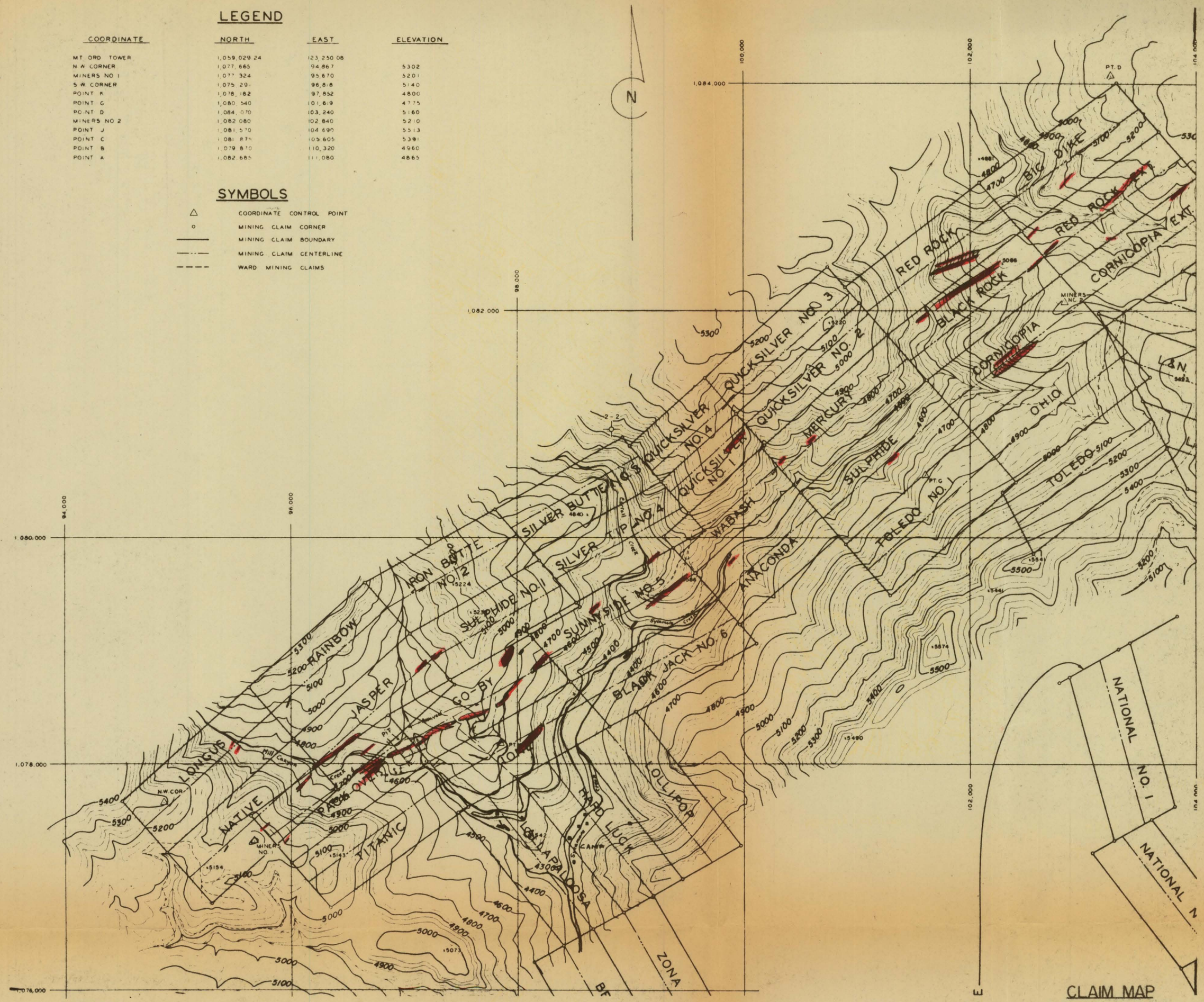
Sample No's	Interval	Remarks
78	10' chip sample	Chlorite schist traversed by quartz lenses and stringers. Few of these contain asbestos like mineral.
79, 80	20' chip samples	Chlorite schist.
81, 82	Random chip samples at o/c.	Quartz-sericite schist.
83-87 (incl)	20' chip samples	Chlorite schist. Occ. bands of jasper, sericite schist.
88-91 (incl)	Random chip samples at o/c.	Quartz-sericite schist. No. 91 contained cinnabar in quartz.
92-95	20' continuous chip samples.	Quartz-sericite schist.
96-107 (incl)	Random chip samples.	Chlorite, quartz-sericite schist, silicified in places locally red jasper occurs.

LEGEND

COORDINATE	NORTH	EAST	ELEVATION
MT ORD TOWER	1,059,029.24	123,250.08	
N.W. CORNER	1,077,665	94,867	5302
MINERS NO 1	1,077,324	95,670	5201
S.W. CORNER	1,075,291	96,818	5140
POINT K	1,078,182	97,852	4800
POINT G	1,080,540	101,619	4775
POINT D	1,084,070	103,240	5160
MINERS NO 2	1,082,080	102,840	5210
POINT J	1,081,570	104,690	5513
POINT C	1,081,875	105,605	5391
POINT B	1,079,870	110,320	4960
POINT A	1,082,685	111,080	4865

SYMBOLS

- △ COORDINATE CONTROL POINT
- o MINING CLAIM CORNER
- ——— MINING CLAIM BOUNDARY
- —·—·— MINING CLAIM CENTERLINE
- – – – – WARD MINING CLAIMS



Mercury Occurrences

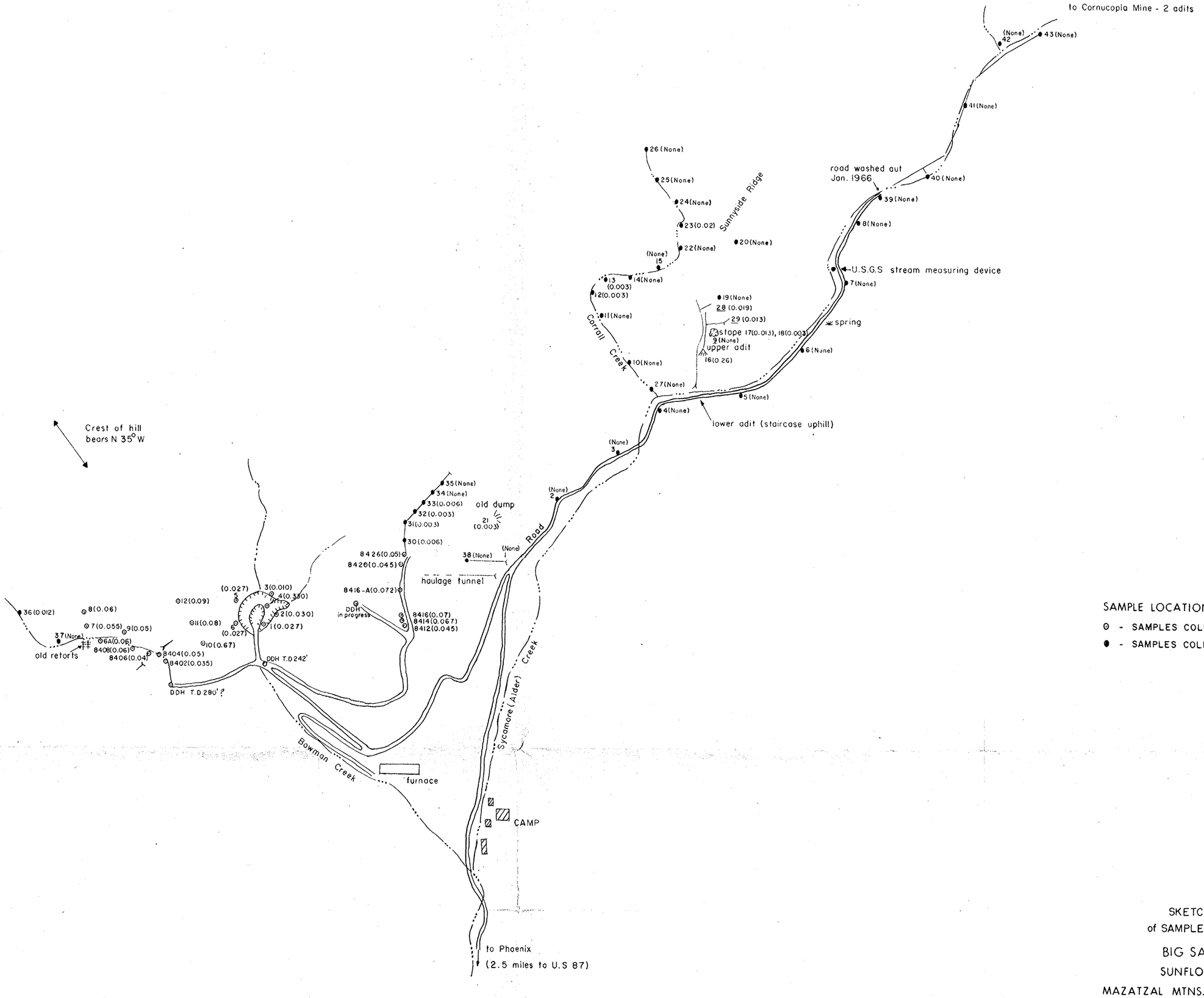
CLAIM MAP

BIG SAM MINE

SCALE: 1" = 800'

April, 1966

Map No. 1872



SAMPLE LOCATIONS

0 - SAMPLES COLLECTED, AUG. 1965

● - SAMPLES COLLECTED, JAN. 1966

SKETCH MAP
of SAMPLE LOCATIONS

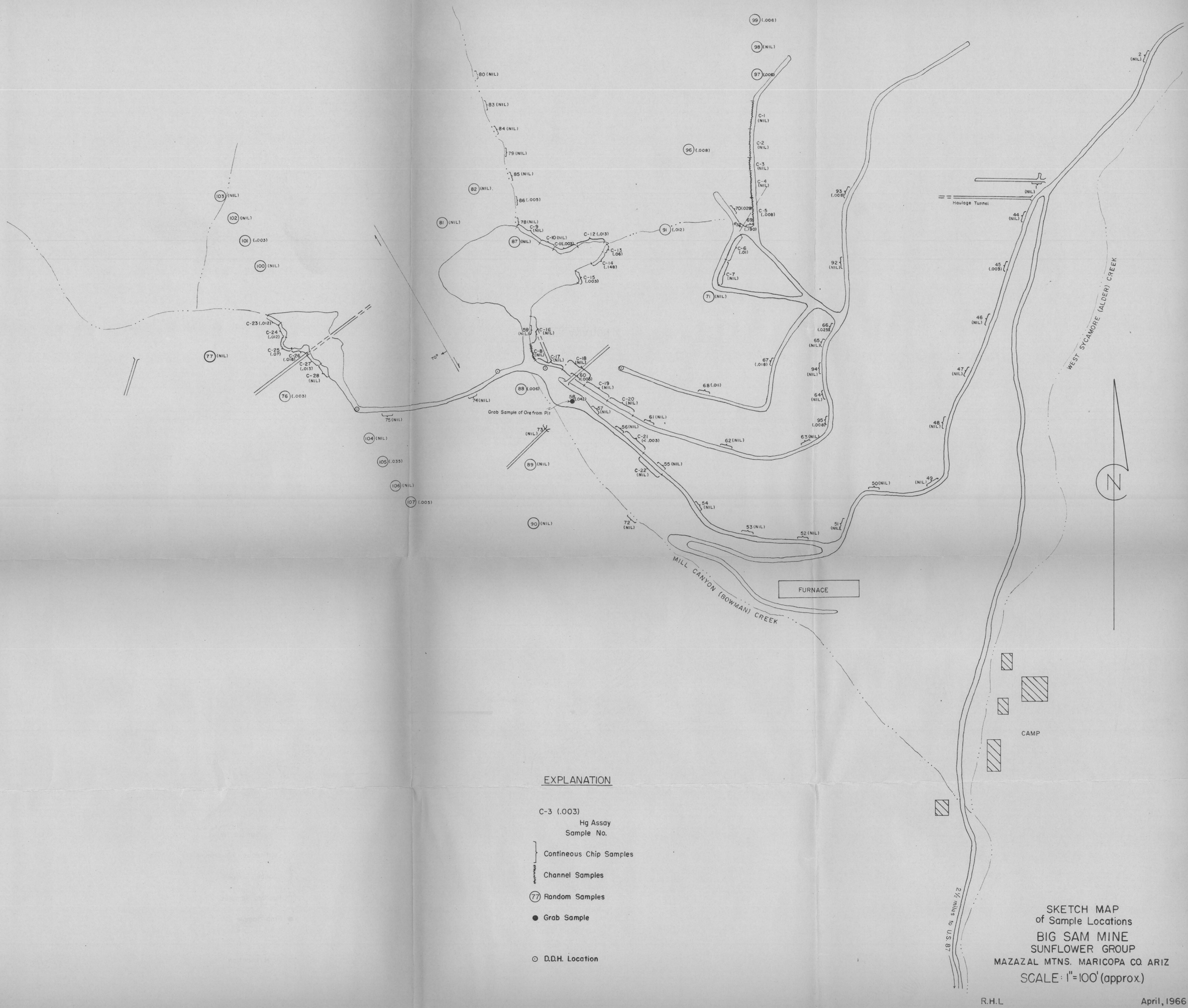
BIG SAM MINE

SUNFLOWER GROUP

MAZATZAL MTNS. MARICOPA CO., ARIZ.

Scale 1" = 300' (approx.) RHL

1844



SKETCH MAP of Sample Locations

BIG SAM MINE

SUNFLOWER GROUP

MAZAZAL MTNS. MARICOPA CO. ARIZ

SCALE: 1"=100' (approx.)

R.H.L

April, 1966

Map No. 1865

Attachment D

939
749

PACIFIC SPECTROCHEMICAL LABORATORY, INC.

CHEMICAL AND SPECTROGRAPHIC ANALYSIS

RESEARCH

2558 Overland Avenue

Los Angeles, California 90064

April 22, 1966

D

Report of semiquantitative spectrographic analysis of sample submitted by

Hawley & Hawley
Assayers and Chemists, Inc.
Tucson, Arizona 85703

330577

Silicon-	15. %
Iron-	6.1
Calcium-	12.
Aluminum-	8.9
Magnesium-	2.3
Titanium-	0.84
Boron-	0.0047
Manganese-	0.059
Gallium-	0.0037
Copper-	0.0067
Chromium-	0.023
Nickel-	0.0071
Vanadium-	0.046
Sodium-	0.54
Cobalt-	0.0072
Potassium-	2.1
Strontium-	0.012
Antimony-	not detected - less than 0.005
Barium-	" " 0.05
Lead-	" " 0.01
Bismuth-	" " 0.001
Molybdenum-	" " 0.002
Zinc-	" " 0.03
Silver-	" " 0.0001
Beryllium-	" " 0.0003
Gold-	" " 0.001
Tungsten-	" " 0.05
Zirconium-	" " 0.003
Rare earths-	nil

Respectfully submitted,

Hal W Johnson

PACIFIC SPECTROCHEMICAL LABORATORY, INC.

Mercury Flux Fe Fillings--400g CaO--60 Na_2CO_3--20

INSTRUCTIONS FOR MAKING ASSAYS FOR MERCURY WITH

W H I T T O N ' S A P P A R A T U S

DESCRIPTION OF THE APPARATUS

The Whitton Mercury Determination Apparatus for assaying mercury in ores possesses novel features which render the assay more accurate and reliable without lengthening the time required, while the manipulation is at the same time easy and simple.

The Apparatus proper consists of a steel retort with a cover of sheet silver. Above these is a cooling dish of brass which clamps tightly over the retort. This provides a tightly closed chamber from which no mercury vapor can escape--a feature which renders close and careful regulation of the heat unnecessary.

E

PRINCIPLE OF OPERATION

Since mercury vapors will condense upon any surface below the boiling point of Mercury (357.82° C), use is made of a steel retort which can be readily kept above that temperature, and a silver cover which is kept below the condensation temperature by means of a cooling dish filled with water directly above it. Thus the vapor must condense upon the silver foil cover, with which it forms an amalgam, and not upon any other portion of the exposed inner surfaces of the retort. On the condensing surface exposed as much as 0.15 grams of mercury may be deposited, though it is preferable that such quantities of ore be used that not over 0.05 grams will be deposited, when the amalgam formed adheres closely to the foil. The silver foil is replaceable at small expense. One piece will last for from 5 to 10 assays.

The time required for an assay is about 30 minutes. By using two sets of apparatus and four pieces of foil and weighing up the first pair while the second pair is collecting the mercury, the assay may be made in 15 minutes. By working with three sets the time can still be further reduced to 12 minutes, for continuous work.

The results obtained with this apparatus have been checked repeatedly against those obtained by other and slower methods, and have been found to be consistently in close agreement.

METHOD OF PERFORMING ASSAY

1: Take from 0.15 to 3 grams of ore, according to richness, place in the retort, and mix very thoroughly with about 6 grams of prepared iron filings, adding 3 grams more as a cover. The preparation of these iron filings, which are used as a desulphuriser or flux, is very important. They should be put through a 50 mesh sieve, washed very thoroughly with alcohol or carbon disulphide to remove grease and heated for an hour or more in the muffle or upon a hot plate. It is not advisable to have them too fine, and all that will go through an 80 mesh sieve should be discarded for best results. A blank test with the prepared filings should not increase the weight of a new foil nor discolor it.

2: Weigh a square of foil, assemble the apparatus and screw clamp down firmly.

3: Fill the cooling dish with water, and heat for 17 minutes. If a bunsen

burner is used, regulate the heat as follows: Have the bottom of the retort about 1½ inches above the top of the burner. The gas flame should be turned quite low, and the blue cone of the flame should just strike the bottom of the retort, while the flame runs up the sides for about ½ inch. The tendency of beginners seems to be to use too much heat. The water in the cooling dish should come to a boil in 6 or 7 minutes, and should be allowed to boil throughout the assay, being replaced only once or twice as it boils away. This keeps the foil above the boiling point of water, while below that of mercury. Thus no water remains upon the foil at the conclusion of the assay so that desiccation of the foil is unnecessary. Cooling is very rapid, and no evidence of overheating has appeared in many assays, so that the close attention of the operator is not necessary during the heating.

3: At the expiration of the 17 minute heating period allow the assay to cool until it can be handled, which takes about 5 minutes. Dismount the apparatus carefully. Convey the foil, under cover to avoid dust, to the balance and weigh.

ESTIMATION OF RESULTS

The increase in the weight of the foil is due to mercury, and the percentage is readily calculated. EXAMPLE: Using 1½ grams of ore, the weight of the silver increase 0.05 gram, the percentage of mercury to ore by weight is 3.33%.

The deposit upon the foil should be white in color. If the heat is too high or has been applied too long the deposit will assume a dark color. This dark deposit is volatile, and is apparently due to oxidation of the mercury. Assays in which the coloring appears are not generally very reliable. They may vary either way from the correct result, but are generally high.

In the case of ores containing much water, on removing the foil it is occasionally found to have filings upon the deposit, and it is also stained a dark color in spots. This due to a drop of water condensing on the foil and falling back on the hot charge in the retort, where it boils violently and throws up the charge on the foil. This may be avoided by heating up the charge slowly; or, if very persistent, by the use of a shield above the charge. Probably asbestos wool would be good to use for this purpose.

* *

REPLACEMENTS

369-96-WHITTON MERCURY DETERMINATION APPARATUS, complete with support, support ring, support ring clamp holder and one foil- - - - - - - - -

369-97-EXTRA SILVER FOIL, 1 3/4 inches square - - - - - - - - - - - - -

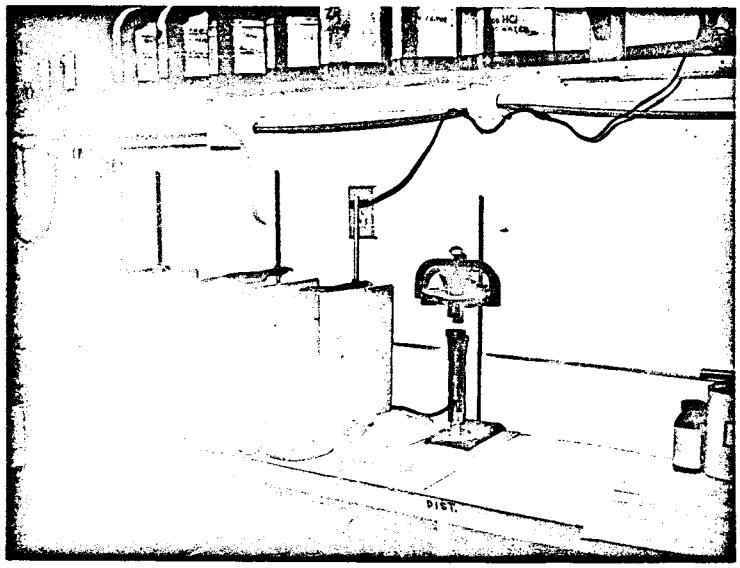
369-98-IRON FILINGS, specially prepared, free from grease, per lb.- -

MANUFACTURED BY

B I C O , I N C .

3116 Valhalla Drive, Burbank, Calif.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



No. 3559

MINE ORD

LOCATION Lim zone

LEVEL Surface

LOCATION OF SAMPLE

WIDTH (Norm.)

DIP STRIKE

REMARKS No 1 sample on
Field sketch

Assay Ag, Hg

Jacobs
0% Hg
.1 oz Hg

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

No 3560

MINE ORO

LOCATION Lim. Zone

LEVEL

LOCATION OF SAMPLE

WIDTH (Norm.)

DIP STRIKE

REMARKS No 2

Assay Hg, Ag

0 % Hg

.2 Oz Hg

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

No 3561

MINE ORD

LOCATION Lim. Zone

LEVEL Surface

LOCATION OF SAMPLE

WIDTH (Norm.)

DIP STRIKE

REMARKS No 3

Assay Hg, Ag

Hg 0%
Ag .1 oz

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

No 3562

MINE ORD

LOCATION New W Kings

LEVEL Newadit (X-cut)

LOCATION OF SAMPLE 100' from mouth

WIDTH (Norm.) 30' along wall

DIP STRIKE

REMARKS No 4 sample on field sheets

Assay Hg, Ag

Hg 0 %
Ag .3 Oz) Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

No 3563

MINE ORD

LOCATION New Kings

LEVEL New adit (X-cut)

LOCATION OF SAMPLE 200' in from mouth (150' from vein)

WIDTH (Norm.)

DIP STRIKE

REMARKS No 5 sample on field sheets.

Assay Hg Ag
0% .2 oz Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

Nº 3564

MINE Sunflower ?

LOCATION

LEVEL Lower X-Cut

LOCATION OF SAMPLE lower adit
N. of camp.

WIDTH (Norm.) 7'

DIP STRIKE

REMARKS No 1 on field sheets
(W vein)

Assay Hg Ag
0% .2 oz Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

Nº 3565

MINE Sunflower ?

LOCATION

LEVEL Lower X-Cut

LOCATION OF SAMPLE between W and E Vein

WIDTH (Norm.) 18'

DIP STRIKE

REMARKS No 2 on field sheets

Assay Hg, Hg
0% .1 oz Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

TM 10-58 Hill—47426

No 3566

MINE Sunflower ?

LOCATION

LEVEL Lower X-Cut

LOCATION OF SAMPLE Main vein

WIDTH (Norm.) 10'

DIP STRIKE

REMARKS No 3 on field sheet.

Assay Hg, Hg
0% .2 oz Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

No 3567

MINE Sunflower ?

LOCATION

LEVEL Lower X-Cut

LOCATION OF SAMPLE grab along X-Cut wall

WIDTH (Norm.) 260'

DIP STRIKE

REMARKS No 4 on field sheet.

Assay Hg, Ag
Trace 0%, .1 oz

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 HIII—47426

No 3568

MINE Sunflower ?

LOCATION Road Cut Below Lower X-Cut N. of Camp.

LEVEL

LOCATION OF SAMPLE

WIDTH (Norm.)

DIP STRIKE

REMARKS No 5 on field sheet.

Assay Ag .2 oz Hg 0% Jacobs

TAKEN BY DATE

Au oz.	Ag oz.	Cu %	Pb %	Zn %

1M 10-58 Hill—47426

office

A. G. Edwards & Sons 252-5565
ESTABLISHED 1887
MEMBERS NEW YORK STOCK EXCHANGE

DANIEL T. KNEALE

Home 933 E. Berridge Lane
AMS-3378

~~3550 NO. CENTRAL AVE.~~
~~PHOENIX, ARIZONA~~
~~PHONE: 264-4411~~

3023 DANIEL T. KNEALE
FRANCIS I. DU PONT & CO.
415 NORTH CENTRAL AVE.
PHOENIX, ARIZ.

10-18-64

Mr. Kennecott.

Made regular Hg. assay
on # 3567 - Results were Nil
Saved all rejects & pulps

B P Jacobs

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

December 20, 1965

FILE MEMORANDUM

Mercury vapor detection
Sunflower Group
Maricopa County, Arizona

At the request of Mr. J. E. Kinnsion, I visited the Sunflower Group on August 12th and 13th for the purpose of collecting samples and to determine their approximate mercury content by the vapor test. The laboratory work had to be delayed because of other work commitments.

The Sunflower Group is located in the Mazatzal Mtns., approximately 45 miles north-east of Mesa long U. S. 87. The property may be reached by turning off on a well maintained dirt road 6 miles north of the village of Sunflower near the Cross - F ranch. This dirt load continues along Alder Creek for a distance of about 5 miles where the Sunflower Camp is leached.

The topography is quite rugged and the area is surrounded by high peaks and ridges. The camp on Alder Creek is at an elevation of slightly greater than 4,000' above sea level.

The Sunflower Group was optioned by (Joe) Wells Cargo, a contractor, whose main office is in Reno, Nevada, at the beginning of this year. Their option expires on July 1, 1966 (oral communication with Mr. T. Bolick, ~~former~~ owner of the Sunflower). It is now known as the National Mine or "Big Sam." The Superintendant is Clyde P. Keegel, residing at 356 South Hobson Street, Mesa and his telephone number is 969-0281. Approximately 12 men are employed. During my visit, one portable drill was in operation and two exploration drillholes had been completed (See sketch map). According to Daniel T. Kneale, a stockbroker from Phoenix, who has interests in the property, 8.8 lbs/ton ore had been blocked out.

Twenty-three samples were collected of approximately one pound each. All were collected and adjacent to the main cinnabar lode which strikes, on the average, N45°E. The country-rock is mainly a green, chlorite schist containing locally red jasper and some pyrite. The planes of schistosity have a nearly vertical dip. In the open cut (See sketch) recent blasting showed small veinlets of cinnabar up to 1" wide with carbonate and quartz as gangue minerals.

The first thirteen samples were chip samples taken in the open cut and the western tributary of Bowman Creek. Some samples were also collected on the ridge just above the open cut. The remaining few were channel samples of about 2' lengths taken at previous locations as sampled by Mr. Keegel.

A brief description of the samples follows:

Sample No.	Sample Length	Remarks
#1	8'	Dark green chloritic schist with 1/8" calcite-quartz veinlet stained by limonite.
#2	20'	Quartz-sericite schist containing sporadic pyrite crystals.
#3	15'	Dark green chloritic schist.
#4	15'	Cinnabar veinlets, averaging 1/2" in width in chlorite schist. A little pyrite in host-rock.
#5	10'	Chlorite schist.
#6	15'	Chlorite schist containing 1" wide quartz vein stained by limonite
#6-A	2'	Chlorite schist containing numerous red jasper stringers.
#7	2'	Numerous quartz veinlets stained by limonite in chlorite schist. Some disseminated reddish crystalline material (cinnabar?)
#8	2'	Same as for #7.
#9	2'	Chlorite schist with several jasper inclusions. A few quartz veinlets.
#10	3'	Quartz-sericite schist containing cinnabar. Much limonite stain.
#11	2'	Quartz-jasper and calcite as inclusions and veinlets in chlorite schist.
#12	2'	Andesite (?) traversed by epidote stringers.

#8402 - #8408 were collected in the Western tributary of Bowman Creek and are chlorite schist.

#8412 - #8426 were collected about 8' below the surface in a recently made bull-dozer cut in a much weathered quartz-sericite chlorite schist.

Mercury vapor test:

The samples were first sent to Hawley and Hawley for preparation. The materials used for the vapor detections were a fluorescent screen, an altraviolet lamp, a propane torch and several porcelein crucibles. All the experiments were carried out in a completely darkened room having adequate ventilation. Pulps of known mercury content (assayed by Hawley & Hawley) were at first checked. By means of a stopwatch, the first appearance of the vapor to the last emittance was timed. For each pulp a series of three time readings were taken and then averaged. The known samples were then diluted with silica flux to represent 4, 3, 2, 1 and 1/2 lb Hg respectively.

The method of timing mercury vapor emission is subject to several errors. First, some samples, particularly those with small mercury content, emitted vapor intermittently and the vapor could not always be clearly seen. Those samples with a higher mercury content emitted vapor steadily and the "smoke" on the fluorescent screen could be clearly seen. Thus the volume of vapor per unit time was not taken into account. Another possible factor in time determinations is that the mercury may be admixed with iron oxides and clay minerals and does not wholly volatilize. Thirdly, the regulation of the flame of the propane torch - by adjusting the control valve the time of vaporization may be varied from several minutes to a few seconds. Therefore, throughout the experiments the flame was kept at 1/2" in length from the nozzle.

Despite the above objections, the method, using pre-determined standards, can give some idea of the mercury content of the rock, and with experience, the operator can visually estimate the percentage of the ore.

Results of tests:

Standard sample weight: 200 mg
Length of flame from nozzle: 1/2"

Standard Sample A - Hg 2.45%	Mean time (for vaporization)	121 sec.
Sample B - Hg 0.43%	Mean time	70 sec.
Sample C - Hg 0.84%	Mean time	102 sec.

Dilution of sample: - using Sample B

		Mean time
0.20%	4 lbs/ton	44 sec.
0.15%	3 lbs/ton	37 sec.
0.10%	2 lbs/ton	33 sec.
0.05%	1 lb/ton	26 sec.
0.025%	1/2 lb/ton	19 sec.

Unknowns	Mean	Interpreted Hg	H & H
#1	20 sec	0.025%	0.027%
#2	31 sec	<0.10%	0.030%
#3	15 sec	<0.025%	0.010%
#4	62 sec	<0.43%	0.330%
#5	21 sec	0.025%	0.027%
#6	26 sec	0.05%	0.027%
#6-A	27 sec	0.05%	0.04%
#7	20 sec	0.025%	0.055%
#8	8 sec	Trace	0.06%
#9	17 sec	<0.025%	0.05%
#10	72 sec	>0.43%	0.67%
#11	34 sec	0.10%	0.08%
#12	24 sec	<0.05%	0.09%
#8402	23 sec	>0.025%	0.035%
#8404	33 sec	0.10%	0.055%
#8406	24 sec	<0.05%	0.04%
#8408	39 sec	>0.15%	0.06%
#8412	18 sec	0.025%	0.045%
#8414	------	None	0.045%
#8416	32 sec	0.10%	0.07%
#8416-A	14 sec	<0.025%	0.072%
#8420	25 sec	0.05%	0.045%
#8426	33 sec	0.10%	0.05%

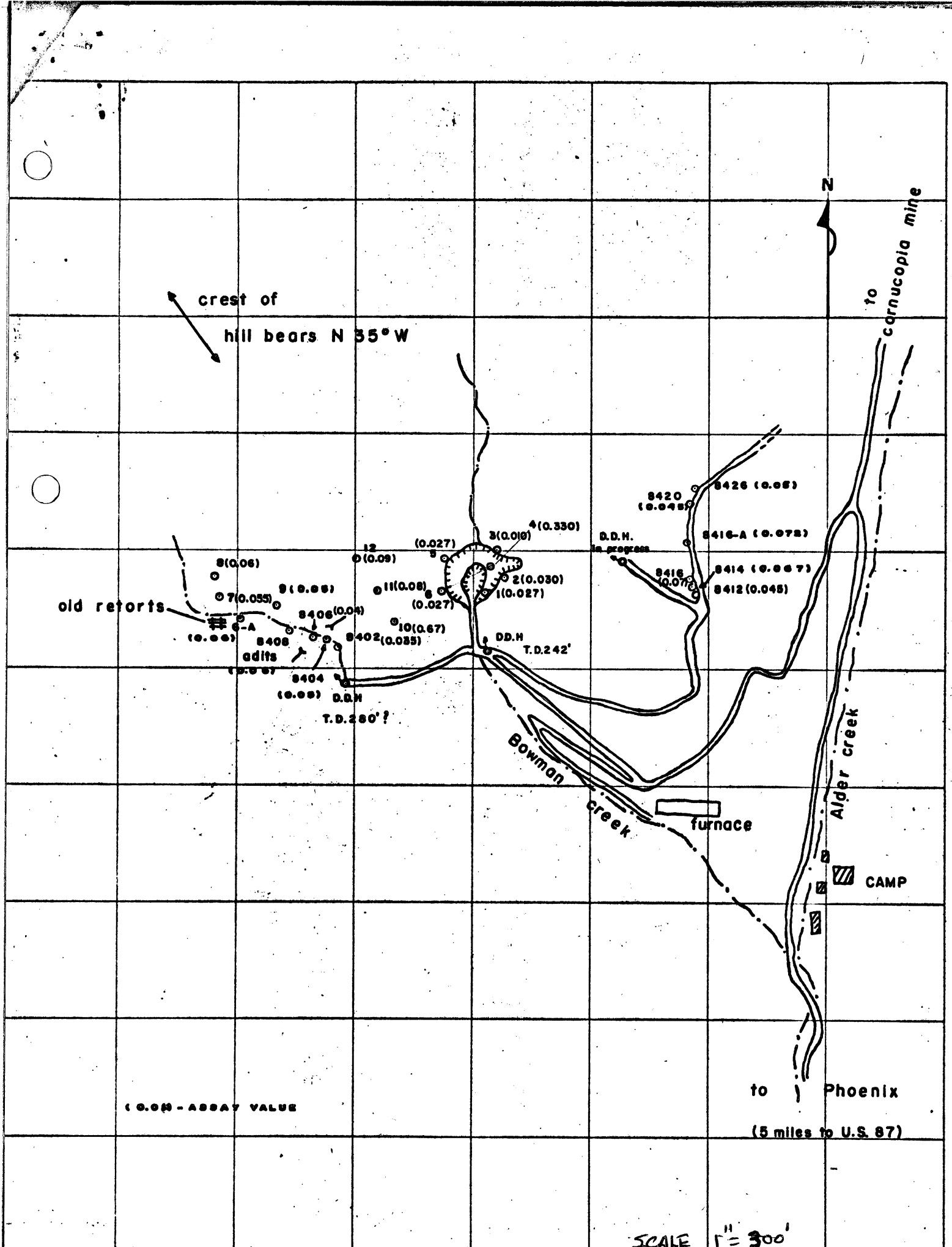
Conclusions

The vapor tests showed that all but one of the samples showed evidence of quicksilver. Only two (#4 and #10) showed appreciable amounts. These samples, however, showed visible cinnabar when collected. A comparison of the results with the assays of Hawley and Hawley shows some agreement, assuming the assays are correct. Strictly speaking, the test is more qualitative rather than quantitative, but as far as a field test is concerned, it can be applied to give some idea of the potentiality of a mercury district.

Robert H. Luning

Robert H. Luning

RHL/cj
cc: JEKinnison



MINE NATIONAL (sunflower) LOCATION MAZATZAL MTNS LEVEL SURFACE

933 East Berridge Lane
Phoenix, Arizona
January 11, 1965

Mr. John Kinnison
American Smelting & Refining Co.
813 Valley National Bldg.
Tucson, Arizona

Dear Mr. Kinnison,

I am enclosing a copy of the map, outlining the quicksilver claims in the Sunflower group, which you requested. If you will let me know in advance, I will arrange to have someone show you over the property.

I am also enclosing a research report on American Smelting and Refining Company which you may enjoy reading.

Cordially yours,

Dan Kneale

Daniel T. Kneale

CLAIM MAP

AMMED SURVEY

OF

QUICKSILVER LODE CLAIMS

perty of

Sunflower Properties Inc.

SUNFLOWER MINING DISTRICT

MARICOPA COUNTY, ARIZONA.

SCALE 500 0 500 1000 1500 FEET

Compiled from maps made during July, 1949.
MILLER & BEEMAN R.E.
Engineers
Yuma, California.

T.7N.R.8E.G.&S.R.M.
T.7N.R.7E.G.&S.R.M.
(UNSURVEYED)

SEC. 12 (UNSURVEYED)
SEC. 14 (UNSURVEYED)
SEC. 13
SEC. 18 (UNSURVEYED)
SEC. 7 (UNSURVEYED)

LONGUS
RAINBOW
NATIVE
JASPER
PACK OVER
TITANIC
IRON BUTTE NO. 2
SILVER BUTTE NO. 3
SULPHIDE NO. 1
GO BY
SILVER TIP NO. 4
IONE
SUNNYSIDE NO. 5
BLACK JACK NO. 6
LALLAPALOOSA
HARD LUCK
LOLLIPOP
BEULAH
ZONA
WHITE HORSE
NATIONAL
NATIONAL NO. 1
NATIONAL NO. 2
NATIONAL NO. 3
NATIONAL NO. 4
Sycamore Creek
QUICKSILVER NO. 4
QUICKSILVER NO. 3
QUICKSILVER NO. 2
QUICKSILVER NO. 1
MERCURY
SULPHIDE
TOLEDO NO. 1
OHIO
TOLEDO
RED ROCK
BLACK ROCK
CORNICOPIA
BIG DIKE
RED ROCK EXT.
CORNICOPIA EXT.
L & N NO. 4
L & N NO. 15
L & N NO. 10
L & N NO. 14
L & N NO. 3
L & N NO. 9
L & N NO. 13
L & N NO. 12
L & N NO. 2
MR WARD'S L. & N. MINE
L & N NO. 8
L & N NO. 1
NASHVILLE
LOUISVILLE
GROUP
L & N NO. 5
L & N NO. 7
L & N NO. 11
L & N NO. 6
REYNOLDS GROUP
East Fork Sycamore Creek
MARICOPA CO.
GILA CO.
Nacimiento Divide

AMERICAN SMELTING AND REFINING COMPANY
GEOPHYSICAL DIVISION
3422 SOUTH 700 WEST
SALT LAKE CITY, UTAH 84119

R. J. LACY
CHIEF GEOPHYSICIST

December 10, 1964

Mr. John E. Kinnison
American Smelting and Refining Co.
813 Valley National Building
Tucson, Arizona 85701

MERCURY VAPOR ANALYSIS

Dear Mr. Kinnison:

Enclosed please find the results of the analysis for mercury vapor content, which was performed upon the samples you sent us. The instrument used for the analysis was the type V Lemaire instrument. Four readings were employed for each sample and an average value is reported. It should be kept in mind that the results reported only approximate the total mercury vapor content as there are many factors of interference which are not eliminated completely in the detection circuit at the present time. We are in the process of refining the system to handle these problems. However, we have reason to believe that at the present time the results we are reporting are as accurate as the results of others working with mercury vapor.

I hope the values below will be of some use to you.

Sample No.	Parts Per Billion Hg Vapor		Sample No.	Parts Per Billion Hg Vapor	
3559	140	Surface-Oval	3564	1063	- Vein zone
3560	176		3565	950	- Near Vein
3561	133		3566	5200	- Vein zone
3562	253	X-Cut road	3567	7525	- Cross Cut 260'
3563	657		3568	968	- Canyon bottom

Anomalous

Yours very truly,

D. H. HART

DHH:ao

cc: R. J. Lacy
J. H. Courtright

30 So. Main St.
P. O. Box 1889

Jacobs Assay Office

Registered Assayers

PHONE Main 2-0813

DUPLICATE

Certifieate No. 56854

Tucson, Arizona, Oct. 18" 1964

Sample Submitted by Mr. American Smelting & Ref Co. Mr J E Kennison

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Per cent Wet Assay	Per cent Wet Assay
		$				QUALITATIVE	
						MERCURY	Hg
# 3559			0.1			Negative	
60			0.2			"	
61			0.1			"	
62			0.3			"	
63			0.2			"	
64			0.2			"	
65			0.1			"	
66			0.2			"	
67			0.1			"	
68			0.2			"	

* Gold Figured $35.00 per oz. Troy

Very respectfully,

Ben P. Jacobs

Charges $ 30.00

30 So. Main St.
P. O. Box 1889

Jacobs Assay Office

Registered Assayers

PHONE Main 2-0813

DUPLICATE

Certifieate No. 56854 Tucson, Arizona, Oct 18" 1964

Sample Submitted by Mr. American Smelting & Ref Co. Mr J E Kinnison

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	..... Per cent Wet Assay	..... Per cent Wet Assay
		$				QUALITATIVE	
						MERCURY Hg.	
# 3559			0.1			NEGATIVE	
60			0.2			"	
61			0.1			"	
62			0.3			"	
63			0.2			"	
64			0.2			"	
65			0.1			"	
66			0.2			"	
67			0.1			"	
68			0.2			"	

* Gold Figured $35.00 per oz. Troy

Charges $ 30.00

Very respectfully,

Ben D Jacobs

AMERICAN SMELTING AND REFINING CO.

EL PASO ORE TESTING AND ASSAY LABORATORY

ASSAY CERTIFICATE

DATE April 15 196 6

MARKED SUNFLOWER MERCURY PROSPECT

See Letter JHCourtright 4/5/66

LOT NO. UNIT	LOT NO. SMELTER	GOLD	SILVER	Cu %	Pb %	Zn %	Cd %	Fe %	Mn %	%	S %	SiO_2 %	CaO Total %	CaO Avail. %	%
					%Hg										
	L-16				0.27										
	C-24				0.037										
	C-14				0.16										
	C-26				0.033										
	L-35				0.001										
	L-28				0.004										
	L-29				0.029										
	L-12				0.003										
	L-36				0.031										

JHCourtright-3x
WESaegart
File

HILL PRINTING CO.—EL PASO

BY _____

H. B. Nicholas CHIEF CHEMIST

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

April 5, 1966

Mr. G. G. Gunther, Laboratory Supt.
American Smelting and Refining Company
El Paso Assay & Ore Dressing Laboratory
P. O. Box 895
El Paso, Texas 79999

SUNFLOWER MERCURY PROSPECT
MAZATAL MTNS., ARIZONA

Dear Mr. Gunther:

Under separate cover we are today sending you the following pulps:

L-16	L-28
C-24	L-29
C-14	L-12
C-26	L-36
L-35	

Please determine the mercury content and report results to me.

These pulps have been run by Hawley & Hawley and their results show values ranging from nil to .26% Hg.

Yours very truly,

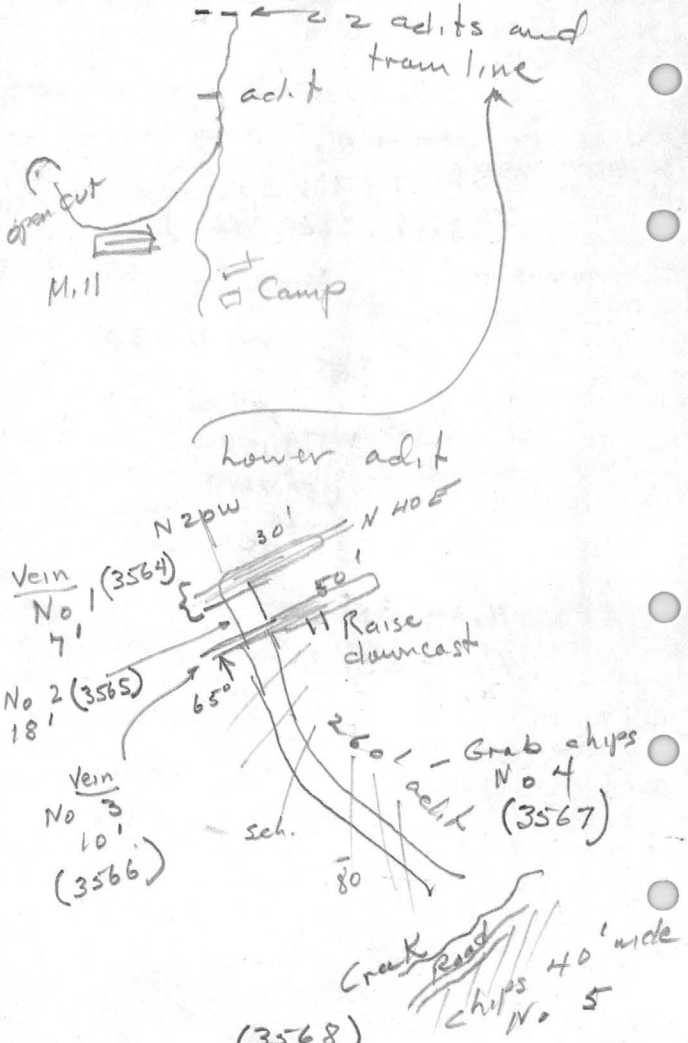
J. H. Courtright

J. H. COURTRIGHT

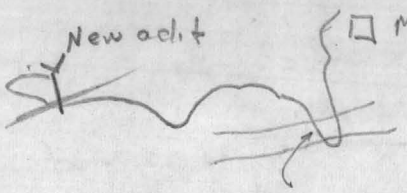
JHC/kw
cc: WESaegart
JEKinnison
RHLuning

Sunflower
Alder creek

Now called Big Sam
or National.



Ord. 1



Samp 150' in 50' intervals on road cut, going north

ORD 1, 2, 3.

(3559, 3560, 3561)

New adit Samples 30' long chip.

No 4 - 3562

No 5 - 3563

Operator of Big Sam
Bolick (sp?).
lives in Mesa. Also 40%
other parkmore.
Brunsons run Pine
Mtn & Mercuria.
Ord owner located
at furnace at Cave
Springs 1 Mile east.

November 19, 1964

Nov 24 Returned by Post office
Sent out again % A.G. Edwards
Stock Brokers -
Dec 14 - Not now with Edwards
who have been taken over by
another Co. (phone call)

Mr. Dan Kneale
Guarantee Bank Building
3550 North Central
Phoenix, Arizona

Dear Sir:

Mr. Courtright has advised that you called regarding the Sunflower group of mercury claims, and I was told that you had available maps and other data pertaining thereto.

I hope to be able to come to Phoenix in the near future, and I would hope to discuss this data with you. Our Mr. James Sell will accompany me and he will most likely conduct any follow-up work. If satisfactory to you I will telephone a day before to clear an appointment, preferably in the morning.

I cannot at this time propose an exact date, except that we will try to make arrangements soon. Thanking you for your interest, I remain

Yours very truly,

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jk
cc: JDSell
JEKinnison ✓

New address

Francis I DuPont
252-5565
415 N. Central Ave.

November 19, 1964

Mr. Dan Kneale
Guarantee Bank Building
3550 North Central
Phoenix, Arizona

Dear Sir:

Mr. Courtright has advised that you called regarding the Sunflower group of mercury claims, and I was told that you had available maps and other data pertaining thereto.

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ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK\jk
cc: JDSell
JEKinnison

Kreale Phone 264 4411 1

Dan ~~Kreal~~ new C & E Edwards

St. Pk. Broker Phoenix

Guarantee Bank 3550 No Central

Big Sam — Sunflower Group —

50 Claims —

125 Ton furnace — strip mining

4 lb ore

$ less than 500,000

Home Amherst 53378

January 15, 1965

Mr. Daniel T. Kneale
933 East Berridge Lane
Phoenix, Arizona

Dear Sir:

I wish to thank you for the claim map of the Sunflower Group which you recently sent me. Although I have not done anything further to date with the district, my general attitude is unchanged since I last talked to you--that is, favorable. In all probability, you will hear from us further in due course. We are, of course, as you know interested in the district in its entirety rather than the Sunflower Group only.

Thanking you again for your efforts, I remain

Yours very truly,

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jak

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 18, 1965

FILE MEMORANDUM

MAZATZAL MERCURY
AIR RECONNAISSANCE

December 15, 1964
Anderson Aviation Service
Phoenix
Plane: Cherokee 180
Pilot: Spencer Jones
Takeoff: 2:05 P.M., Sky Harbor Airport

Flew straight toward Sunflower village. Weather smooth, real smoggy at Phoenix, but clear over mercury district. Mr. Jim Sell accompanied me.

Flew over Sunflower group. No large color zones seen (quite red on the ground). Some red on cliffs at Sunflower mine camp at Sycamore Creek.

Flew over and north of Pine Mtn., then circled back over Ord Mine. Many mountain roads to prospects, appear in good condition, in the Pine Mtn. area.

Returning saw colored zone about one mile in diameter, in granite, about 2 miles east of Sycamore Creek, and sort of near Sunflower village. A large creek comes down from this zone (alteration?) and crosses the highway. Float should be checked. (J. Sell put some notes in his field book).

Return Phoenix, 3:05 P.M.

See Note
file by
R.H.L.
2/16/66

ORIGINAL SIGNED BY
JOHN E. KINNISON

JOHN E. KINNISON

JEK/jak

Caused by breakdown of ferromagnesian.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

October 21, 1964

Mr. D. H. Hart
American Smelting and Refining Company
3422 South 700 West
Salt Lake City, Utah

Dear Mr. Hart:

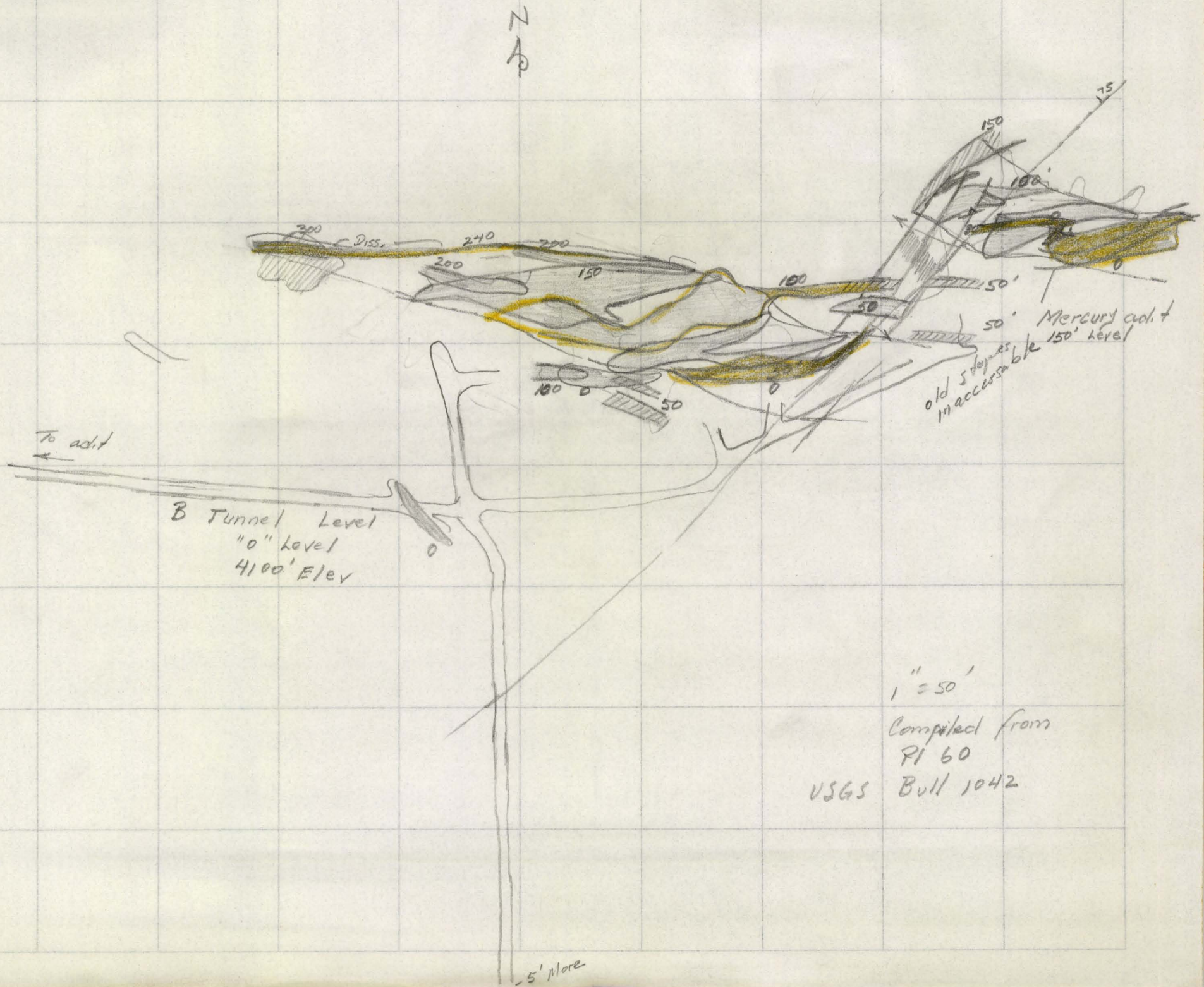
I am sending, under separate cover, samples numbered 3559 through 3568 inclusive, from a mercury district in central Arizona. Our local assayers have yielded negative results in all their assays for mercury, but it seems likely that there must be at least traces present. However, one to two-tenths ounces of silver are present in all samples.

I would appreciate it if you could analyze these pulps in the mercury vapor testing instruments which you have.

Very truly yours,

JOHN E. KINNISON

JEK/jk
cc: JHCourtright



MINE
GEOLOGY BY
LOCATION
SURVEY
LEVEL
SCALE
DATE

MINE_____ LOCATION_____ LEVEL_____

GEOLOGY BY_____ SURVEY_____ SCALE_____ DATE_____

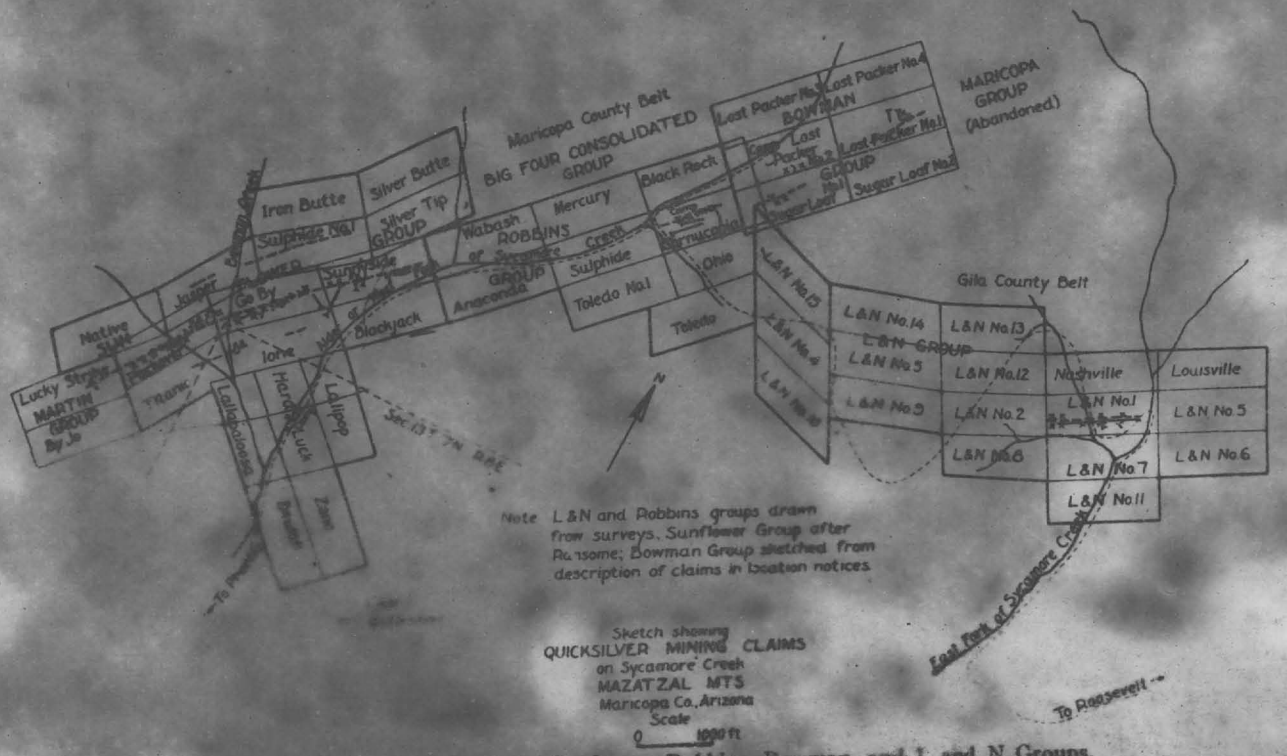


Fig. 13.—Claim map of the Sunflower, Robbins, Bowman, and L. and N. Groups.

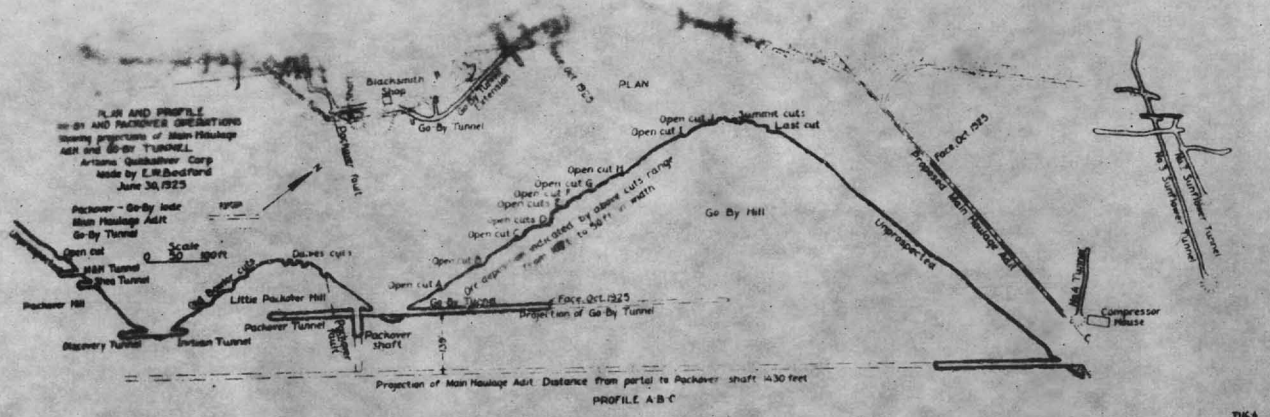


Fig 15.—Section of hill and plan of haulage tunnel, Sunflower group.

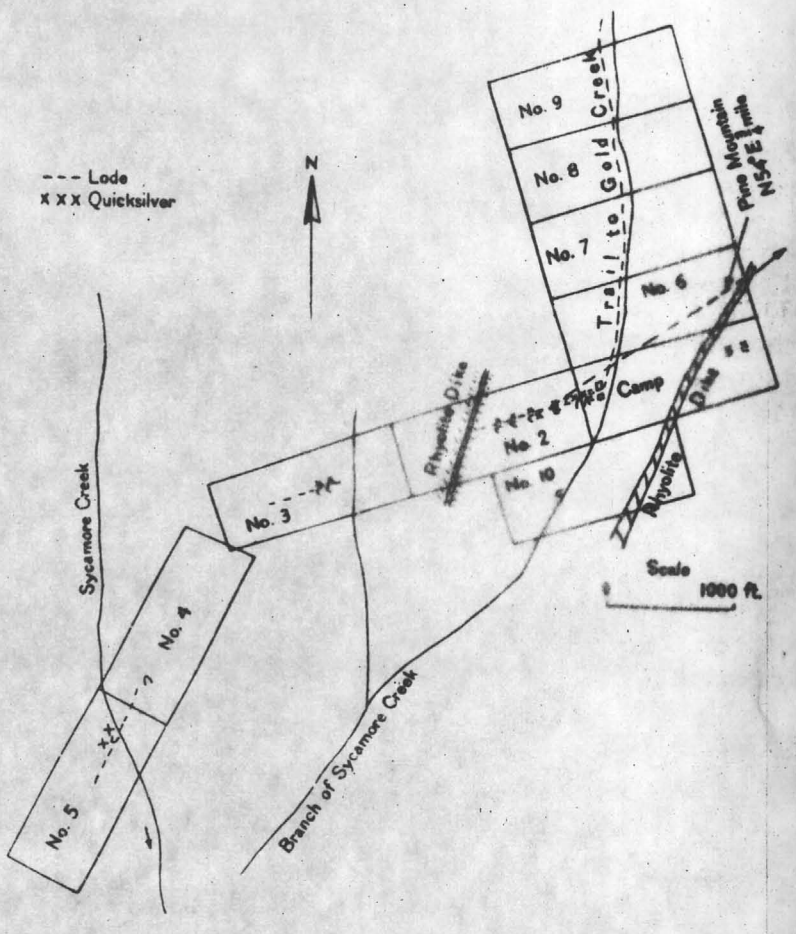


Fig. 17.—Claim map of the Pine Mountain [illegible] more Creek.

are colored pink by the cinnabar. The schist contains a little quartz as narrow seams or flat kidneys at a number of places. The quartz is associated with iron oxide. It appears to be more plentiful in the discovery cut on No. 1 than in any of the other cuts on the group. Pink stains produced by cinnabar are shown in each of a series of cuts on Nos. 1 and 2 and in the outcrops between for a distance of about 1,000 feet. On No. 1 claim No. 2 cut, which is 4 feet wide by 16 feet long with a 10-foot face, has been run near the west end line and cuts across the stratum at an angle of about 45°. Four samples taken along the side and face of this cut for Mr. Reynolds assayed as follows: The first from the edge of the cut to 5 feet in, .04 per cent; the second from 5

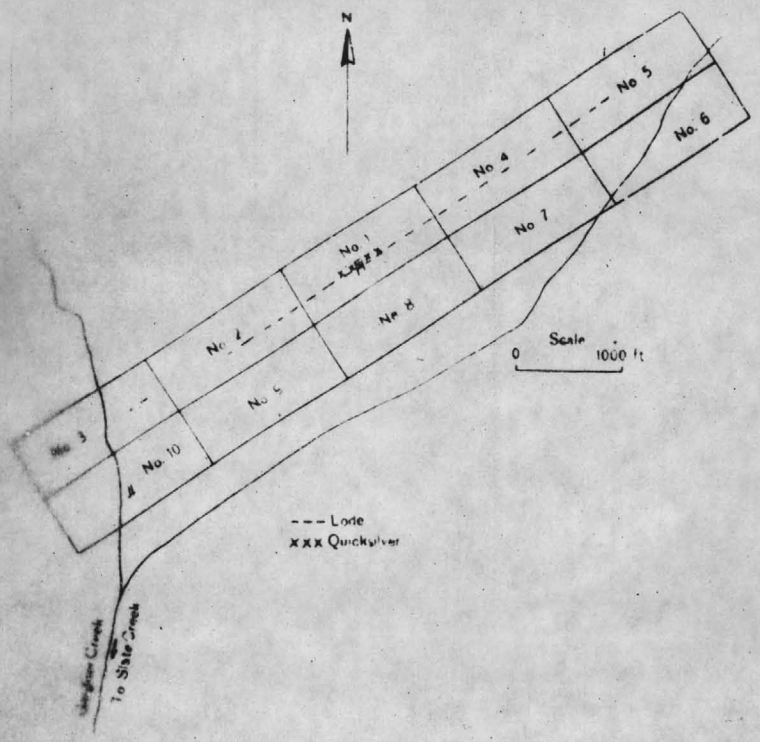


Fig. 19.—Claim map of Mercuria Group, Slate Creek.

the lode could be developed and worked at depths by means of

MERCURIA GROUP

The Mercuria Group consists of 10 claims and is situated at the head of Gardner Creek, a branch of Slate Creek. The group lies about a mile and a half southeasterly from Pine Mountain and about one-half mile from the divide between Maricopa and Gila counties on the Gila County side. Fig. 19 shows the ground covered by the group. A trail has been cut from the Gold Creek trail to within one-half mile of the group. A small spring that runs the year around is located on Mercuria No. 10. The group is covered with a thick growth of brush. The surface is steep. The claims run along the mountainside. The group was inspected on July 8, 1926, at which time Mr. Reynolds was actively engaged in developing the ground.

The upper line of claims is situated along a belt of white sericite schist, which strikes about N. 57° W., averages about 80 feet wide, and dips about 70° to the southeast. This belt has been traced for about 4,000 feet along the strike on the surface.

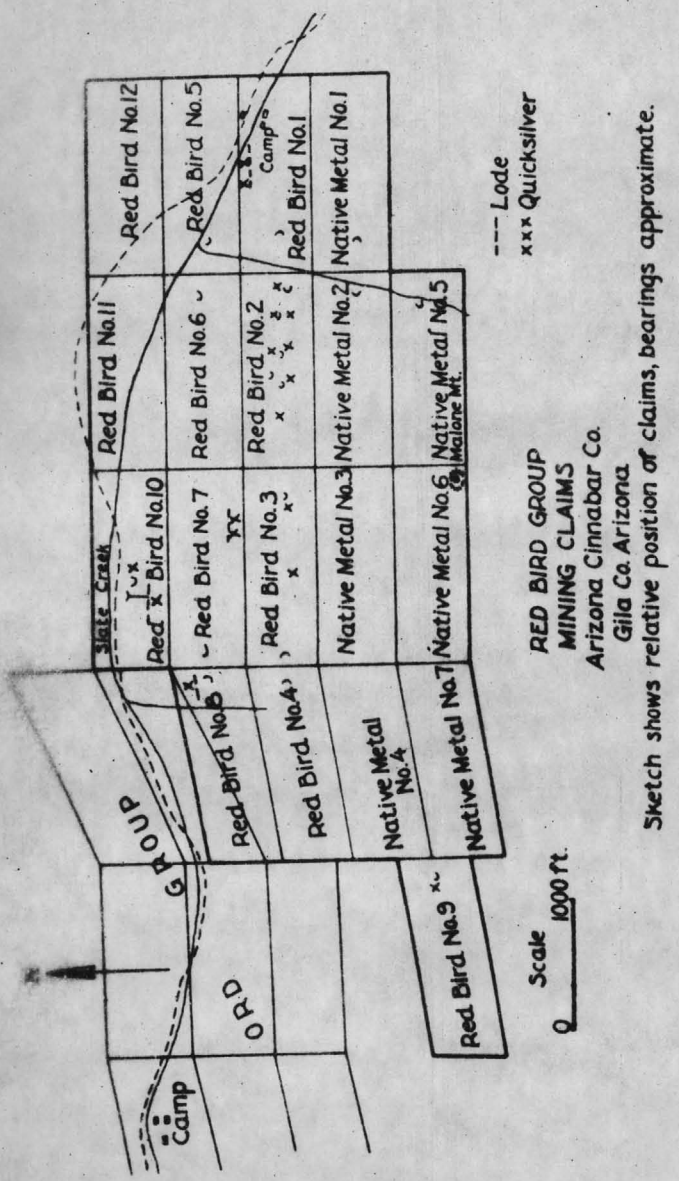


Fig. 20.—Claim map of the Red Bird Group, Slate Creek.

RED BIRD GROUP

The Red Bird group consists of 19 claims, and is situated on Slate Creek about 4 miles above Tonto Creek. The south side of the group extends over Malone Mountain. The Red Bird claims Nos. 1 to 9,

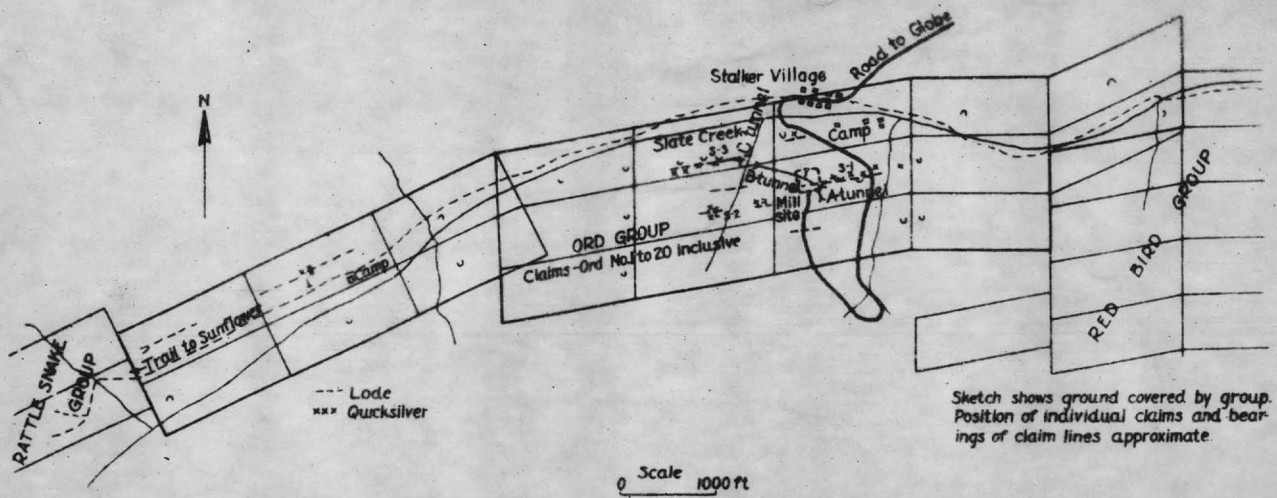


Fig. 22.—Claim map of the Ord Group, Slate Creek.