CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the John E. Kinnison mining collection

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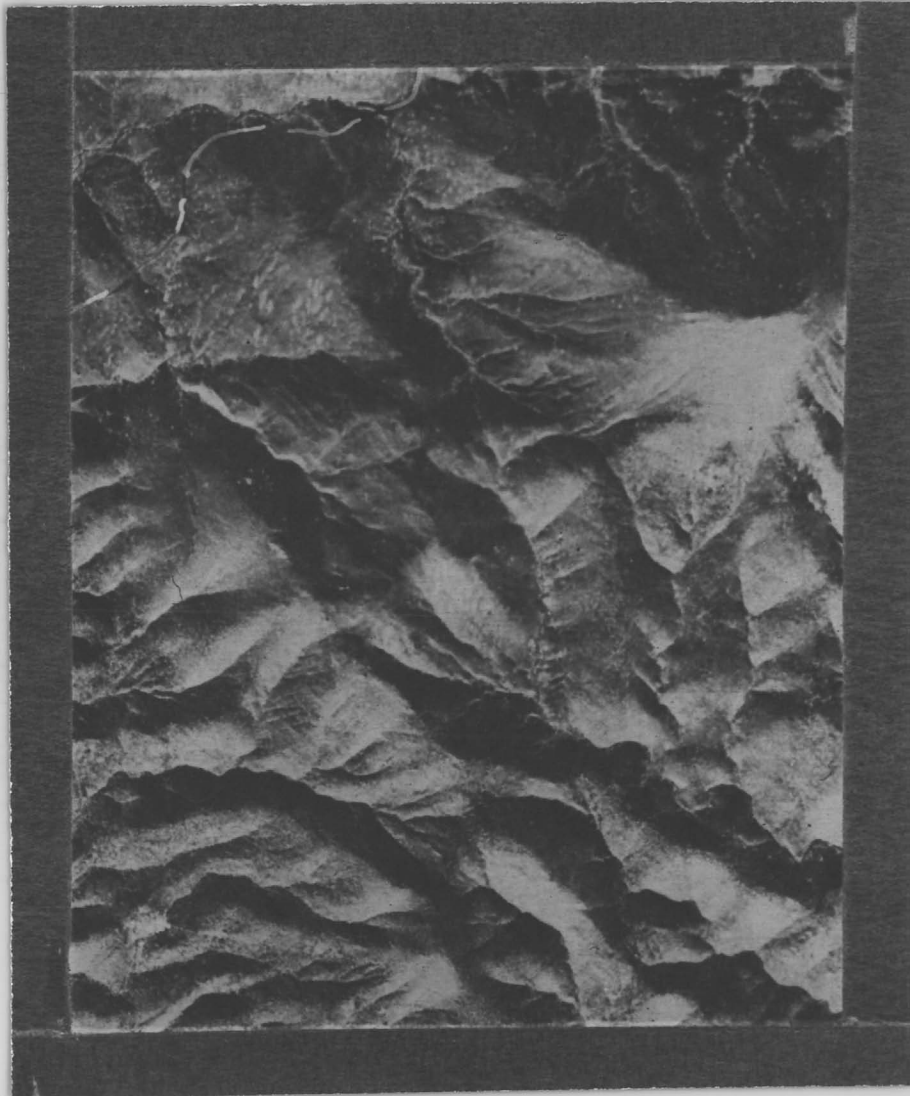
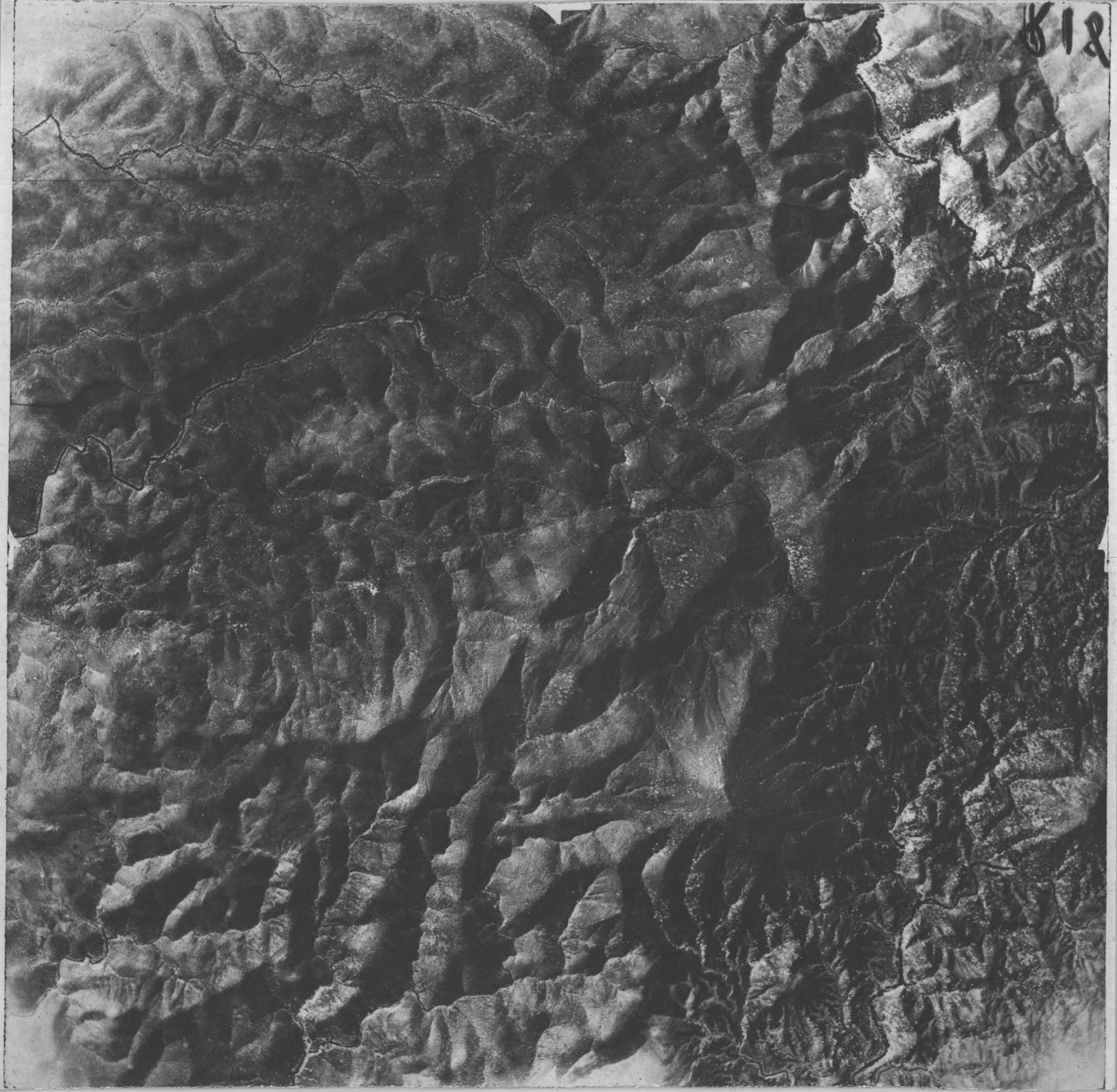




UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION III

SOUTHWEST
EXPERIMENT STATION

P. O. BOX 4097
UNIVERSITY STATION
TUCSON, ARIZONA
Aug. 21, 1957

Mr. John E. Kinnison
Box 11, Ruby Star Route
Tucson, Ariz.

Dear Sir:

In the near future the Bureau of Mines expects to publish an Information Circular or Report of Investigations on "Tungsten Deposits of Southeastern Arizona." The attached sheets give a brief description of your tungsten deposit which we would like to publish in our circular.

If the attached report has your approval, you need not return it as we will assume that we have your consent for publication. However, if you wish to make any changes please return the attached description with your comments and suggested alterations.

Sincerely yours,

Walter R. Storms

Walter R. Storms
Superintendent
Southwest Experiment Station

Pima County
Santa Catalina Mts.

Big Bug Claims

The Big Bug group of 4 unpatented claims, located on the eastern slope of Piety Hill at the southeastern corner of the Santa Catalina mountains, are in sec. 15, T. 12 S., R. 18 E. The altitude is approximately 4,000 feet. The claims lie on state land about 1 mile east of the Coronado National Forest boundary. To reach the claims by road follow the Redington road northeasterly 27.6 miles from the corner of Speedway and Wilmot Road in Tucson to a narrow bulldozer road striking northwest. Follow this road 0.1 mile to the location shaft on Big Bug No. 1 claim. 10.6 miles of this road is paved, and the remainder is a graded, mountain road.

This property was located in 1944 by J. E. and H. A. Kinnison. There has been no production from the property. Workings on the claims consist of a few shallow pits and opencuts.

Scheelite occurs near a garnetized area close to a contact between limestone and gneiss. The Tucson Geologic Quanrangle map [1] shows that the limestone is the Cambrian Abrigo formation and that the gneiss is Catalina gneiss. There is a small exposure of Precambrian Oracle gneissic granite along the contact. The limestone has been marbleized to a great extent.

The ore occurs sporadically in a discontinuous zone with a maximum width of 2 feet. The zone strikes northwest and dips steeply northeast, and can be traced along the strile for about 1,000 feet.

---

[1] Moore, B. N., Tolman, C. F., and others, Geology of the Tucson Quadrangle: U. S. G. S. open file report, Arizona Bureau of Mines (undated).

Associated with the scheelite are epidote, garnet, wollastonite, quartz and a very small amount of copper carbonates.

Big Bug
Pima County
Santa C talina Mts.

Very little work has been done on the property. There is a shaft about 15 feet deep and a few shallow prospect holes. An adit about 10 feet long has been driven beside a local garnetized zone. Most of the area is covered with alluvium, and only float can be seen along the contact.

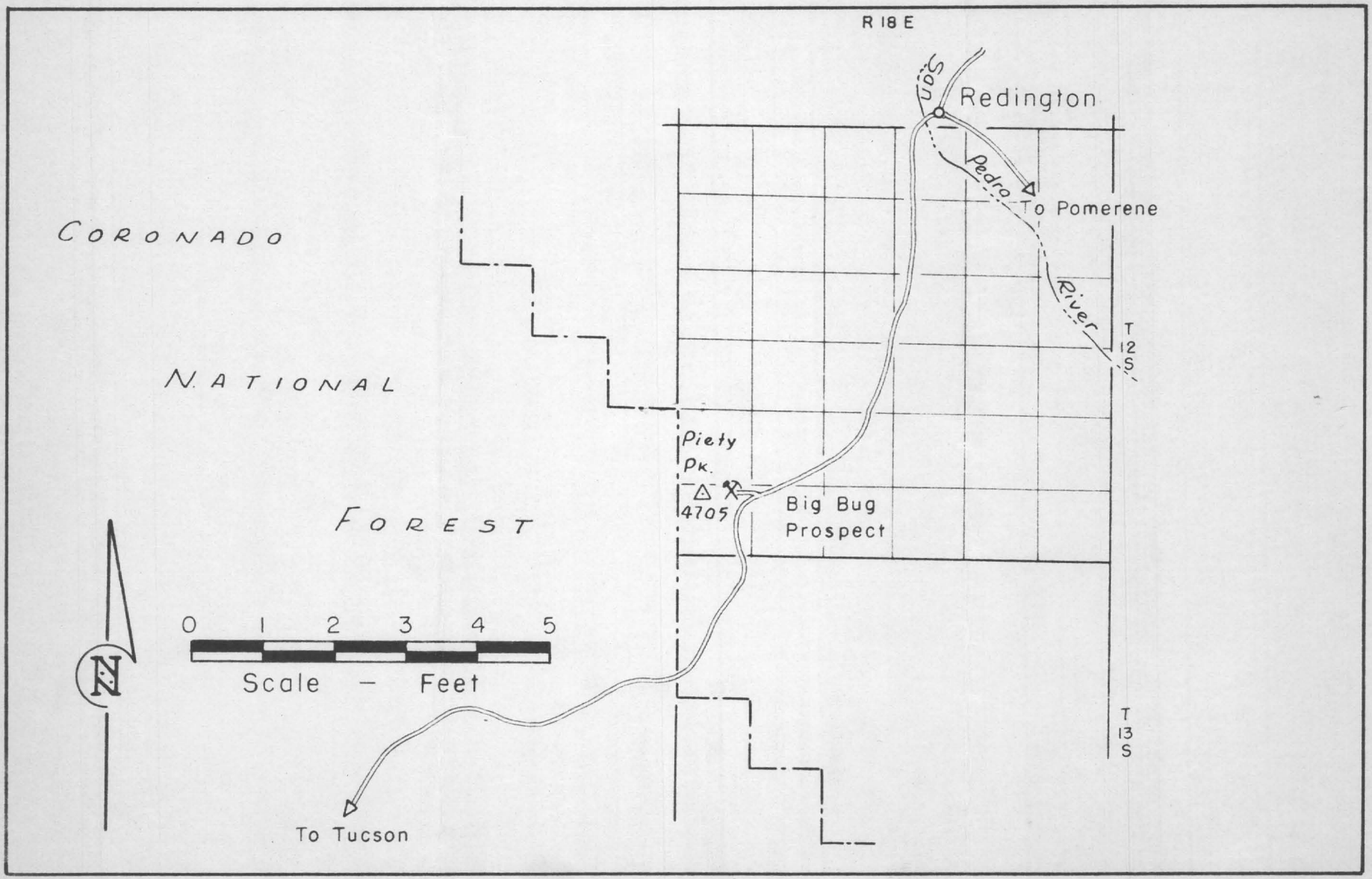


Fig. 46 Location Map of Big Bug Prospect, Santa Catalina Mts. Pima County, Ariz.

Tcg = Catalina granite

Ksl = Cretaceous limestones, qtzites, shales

Ca = Abrigo Fm - Cambrian limestone and sandstone

PcOg = Pre-Cambrian Oracle granite

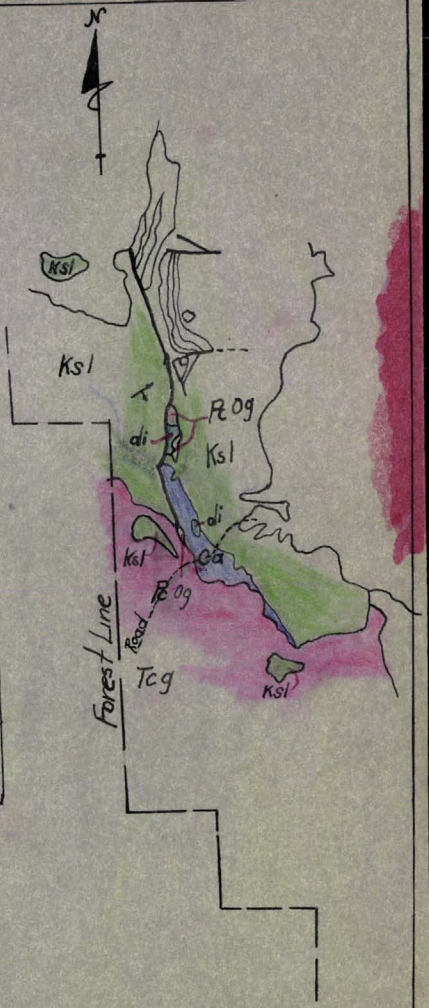
di = Diabase

Fault

Geology Near Sierra Peloń

From Geol. Map done for U.S.G.S.

(Note: Map not Acceptabel to U.S.G.S.)



Scale: 1" = 2 mi

0 1 2

MILES

TO John Kinneen

DATE Feb 22 TIME 10:30 am

while you were out

M Rick Sundin

OF

PHONE 297-3287
Area Code Number Extension

TELEPHONED	✓	RETURNED YOUR CALL	○
WILL CALL AGAIN	○	URGENT	○
PLEASE CALL	✓	WANTS TO SEE YOU	○

MESSAGE Looking for info on Redding to Paso Area "Big Bug"

PER. Tim

EXPERT No. 22485

Draft of letter to Storms for comment
See letter

Mr W.R. Storms
Superintendent
Southwestern Experiment Station
U.S. Bureau of Mines

Dear Mr. Storms:

Re your letter and attached draft dated Aug 21, concerning the Big Bug claims. I have discussed this matter with Mr. J.E. Kinnison and we offer some comments which you may wish to consider in your final report.

1. Very generally described, the deposit occurs within a northwesterly trending band of schist about ½ mile wide which is bounded on the southwest by gneiss and on the northeast by a series of quartzites and limestones. This statement is in partial disagreement with Moore's open file map, but may be verified by a quick field inspection.

2. The scheelite occurs in a lensoidal alteration zone consisting almost entirely of massive actinolite – tremolite (identified by Ariz. Bur. of Mines). Epidote, garnet, and quartz occur locally in some quantity. I had not noted the wollastonite but it may be present. Copper stain (malachite) occurs in two isolated small areas associated with scheelite. The scheelite "vein" within this altered zone is generally thin, and you are correct in noting a maximum width of about two feet. I suggest that this statement be modified, however, in view of the heavy talus cover, to read "... a maximum exposed width". Locally there also occurs disseminated ~~tungsten~~ stringers over wider widths.

3. The "vein" can be traced for about 1500 feet.

4. On the last page, the last word is "contact". I presume you are referring to the "vein" or mineralized zone, which is not the same as the contact mentioned earlier in your report.

I wish to have a copy of the R.I. when it is published. Could I be notified or given a probable date of publication.

Very truly yours,

O.E. Brew.

5- [illegible]

Have not paid the state license - and wonder if it is worth while.

(5) Claims - Consists of 2 claims on the [illegible] the length of 3000 feet along fault zone ??

6. Vein material consists of [illegible] in [illegible] and [illegible] [illegible] of [illegible] [illegible]

7. Vein [illegible] follows an old intrusive dike ??

KINNISON SCHEELITE

#5
#4
#2
#1
#3

5 EL 308
S EL 242
CUT EL 217
EL 141
4 EL 161
3 EL 110
EL 119
2 EL 75
1 EL 100
EL 73
EL 16

QT
QT
SCHIST
LIME
LIME

VS 1

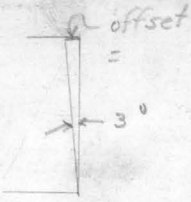
1/4 COR
1/4 COR

30 29
31 32
T 12 S
R 18 E

N-0°-40'-E


Qt
Qt
Sch
Gn
Gr
Qt
Gr
l.s.

True N
N 3° W from Right
Corner Bottom
Scale: 8" = 1 mile
1" = 660 ft



LAW OFFICES

TOGNONI, PARSONS & GOODING

721 FIRST NATIONAL BANK BUILDING
411 NORTH CENTRAL AVENUE
PHOENIX, ARIZONA

HALE C. TOGNONI
ARTHUR B. PARSONS, JR.
WILLIAM H. GOODING

TELEPHONE
ALPINE 4-2147

May 5, 1958

Mr. John E. Kinnison
1202 Knox Drive
Tucson, Arizona

Dear Mr. Kinnison:

Since I last spoke to you, I have contacted Mr. Dudley Davis of Bay Shore Mining Company concerning your tungsten property, which is near Redington. Mr. Davis says that he knows your son very well and has considerable confidence in him as a geologist.

Mr. Davis suggests that you have your son write a report on the property and submit it to him for his consideration.

Sincerely yours,

Hale C. Tognoni

Hale C. Tognoni

HCT/h

cc: Dudley L. Davis
1528 Michigan Ave.
Salt Lake City, Utah

John - Guess that about all that can be said is that it is close to a major fault zone & that there is no development or mineable ore in sight -
Would suggest that you send him data and an aerial photo of the area - it shows the faults - with the claims outlined on the photo.

Ernest G.

October 4, 1955

Memorandum to: Roger Ernst
State Land Commissioner

From: Hale C. Tognoni
Geologist and Mining Engineer

COPY

On August 11th, 1955 at your request I visited Thornburg mining property under Mineral Lease 42428-N, which is on Grazing Lease G-1110, belonging to Josephine Thomas Reeve.

Mr. Jack O'Conner and Mr. Richard Reeve met me on the ground and we discussed the problem of the damage that the mining operation was doing to the surface lease.

The damage by mining operation to the surface on this property is probably as extensive as any that I have seen in the State. Mr. Thornburg holds State mining claims that are on the edge of the Rincon Mountains near Tucson. It appears that in order to do location work he built a "cat" road into a place on each claim where he did his location work by "bulldozer".

The location work on each claim consists of a portion of the surface, which in most cases is 50' in diameter, that has been rooted up by the "bulldozer".

The road on each of these claims is at least 660' long and 12' wide. Thus, 6,920 sq. ft. of ground is denuded by each such road. Approximately 2,500 sq. ft. is destroyed by location work. This is just a little under 10,000 sq. ft., or approximately one quarter of an acre for each mineral claim.

Mr. Reeve says, (and Robert Francy, State Appraiser agrees) that these sections are worth $3,300 a section, or approximately $5.00 an acre. This means then that each mineral claim has a minimum surface destruction of $1.25.

A normal single lane bulldozed road takes about 12' of width. 12' x 5,280 = 63,300 square feet of surface. This amounts to 1½ acres of range land destruction per mile of road.

Up until now in this "memo" only actual minimum surface damages have been considered. The more extensive surface damages such as those around the mine workings of the Thornburg property, destroy a good 10 acres of range land. Any normal mining claim that is developed beyond the location hole and road stage, must necessarily destroy more than an acre of additional surface use.

The intangible damages to this property could be listed as follows:

1. Blocking cattle trails into range on the upper Rincons. It is maintained by Mr. Reeve that cattle will over-graze a lowland area rather than have to pass a mining operation to get from water to range.

It is maintained by Mr. Reeve that cattle will not graze in the immediate vicinity of a mining operation and thus a much larger area than that occupied physically by the mine plant is precluded from the surface lessee's use.

3. Use of ranchers water supply often causes inconvenience and perhaps the loss of normal use by cattle.

4. The opening up of access routes that allow other "opportunity travelers" to enter onto range land results in more policing of gates and improvements by the cattlemen.

After we had discussed the problems of the two parties, Mr. O'Conner stated his position to be as follows:

The Thornburg men had moved off temporarily to do some geological analysis of the core drilling that had been done, and had not made any plans to return in the near future. Mr. O'Conner agreed to contact Mr. Reeve if he intended any future operation and at that time perhaps make up some agreement for future damage to the surface. No agreement was reached about damage done up to this time.

Respectfully submitted,

Hale C. Tognoni

Hale C. Tognoni
Geologist & Mining Engineer

HCT:dt

cc: Mr. Thornburg
Mr. Reeve

Mr. Clarence Via
Via Development Corporation
Santa Fe, New Mexico

16 Jan., 1956

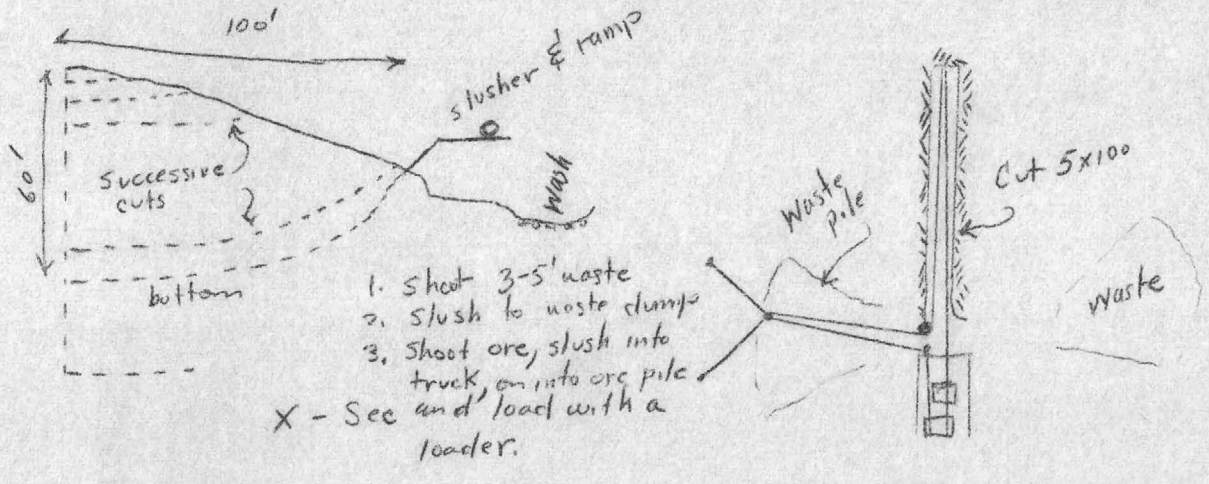
Dear Clarence:

I am writing to inform you of two developments.

(1). As you recall, my proposed first step on the Keystone property was a mapping and examination program. The first step in such would naturally be a quick examination of all the workings, in somewhat more detail than my original inspection. This was performed last Saturday, the 14. There is a crosscut from the surface at the Pranty wash level not mentioned in my report, although I believe we briefly discussed it. Mr. Pettengill had led me to believe that it only went in a short distance, and did not cut the vein. It does, however, go in about 400 feet, with two crosscuts and a short drift on the the vein. The vein here is about 30 feet wide, but is barren of ore, although it does contain some pyrite. This discovery may not completely negate my assumptions in the report, but it makes the whole thing a much larger gamble, // and I don't recommend pushing the matter any further at this time. There are severl factors which I will take up with you when you are here.

(2) There is no mill available in Tucson, and very little mining machinery. There are two possibilities. Western Machinery in phoenix may be able to furnish a mill on a rental basis, or purchase. Denver Equipment Co. of Denver, Colo. makes truck mounted mills of high quality, and I believe they will place them on a rental purchase agreement. While thereis not enough ore to amortized a mill purchase, it might be posible to rent such a mill. Also junction Bit and Tool in Miami will rent milling equipment.

I have worked out(with some helpful suggestions) the following mining method. The possible tonnage available is about 270 tons at 1 percent. If thingsare lucky, there might be twice this at 1.5 per cent. At ten tons a day I dont see how the thing could lose money, and it ought to make a fair stack. The whole thing depends on getting a mill on a leas, royalty, or rental setup, and in getting started as soon as possible and staying in production as long as possible. The capit l investment would be a minimum for any mining venture.



The machinery required would be a gasoline slusher, ordinary slusher blocks, and one special block of the type that lets you slush around a corber; compressor and jackhammer and hose; timber for the ramp and to stull the stope, plus the usual miscellaneous supplies. A cut of this type can be mined with a two man crew. The mill would require two men. Furthermore someone will have to be on the job to see that the mining and especially the milling is done correctly. Either you would have to be there, or hire an extremely capable miner, and mill runner (which probably cant be done) or hire an engineer. It would be better that you were there, although you probably can't afford your time to a specific job. I can probably get my father to come down from ~~Flagstaff~~/ Flagstaff, if the production period is only a month or so as I suspect.

The whole operation depends on the milling situation, and if this can't be solved, there is no use trying it. If a mill can be had, it looks like a good bet.

Sincerely,

John E. Kinnison,
Geologist.

OFFICE OF
State Land Department
STATE OF ARIZONA
Phoenix, Arizona

ROGER ERNST
STATE LAND COMMISSIONER

October 19, 1955

Mr. Jack O'Conner
258 S. Scottsdale Road
Scottsdale, Arizona

Dear Mr. O'Conner:

On October 11, Mr. Roger Ernst, Arizona State Land Commissioner, wrote to you relative to a report submitted by our Mineral Examiner. Mr. Ernst suggested that I advise you concerning the filing of a sublease agreement with this office if such agreement is entered into by interested parties.

It is required by law that any sublease agreement that is to be considered valid and binding upon any State land administered by this Department must be recorded in this office and approved by the State Land Commissioner. We adhere to the following procedure in carrying out this responsibility; the sublease agreement, when prepared, is presented to the State Land Commissioner in triplicate. If acceptable to the Commissioner, it is then approved and two copies are returned to the parties of agreement. If there are more than two parties concerned, then an additional copy should be made up for each person so that all interested parties and the State Land Commissioner can have a copy of the said agreement.

There is no charge for filing such an agreement and we would be happy to consider and act upon any agreement that is submitted.

Yours very truly,

Louis C. Duncan

Louis C. Duncan
Office Manager

LCD:bka

cc Josephine Thomas Reeve
cc J. E. & H. A. Kinnison

OFFICE OF
State Land Department
STATE OF ARIZONA
Phoenix, Arizona

ROGER ERNST
STATE LAND COMMISSIONER

October 11, 1955

Mr. Jack O'Conner
258 S. Scottsdale Road
Scottsdale, Arizona

Dear Mr. O'Conner:

Please find enclosed copy of a memorandum from the Land Department Mineral Examiner to me. As you will note by the last paragraph of the memorandum, we are presently awaiting information concerning the future operation prior to any action on the part of this Department.

One thing that perturbs me is the apparently extensive surface work that is being carried on and the question that arises as to whether all of the stripping of surface and construction of roads may be necessary to the mining or exploration operation. I realize that from a comparative standpoint the total demuding of surface is rather small. However, when we look to the future and take into consideration the erosion and permanent loss of grazing land that may result, I feel that it is reason for concern. Certainly the request should be made by this Department that a prudent pattern should be followed with the stripping and road construction to be limited to only that which is definitely necessary for a businesslike mining operation.

As noted in the last paragraph, after we receive further information this Department will proceed to assist in the development of some agreement.

Please let us know if we may be of service.

Very truly yours,

Roger Ernst
State Land Commissioner

RE:kb
cc Josephine Thomas Reeve
cc J. E. & H. A. Kinnison

Feb 18 1957

Advocates Of Tungsten

Aug 12 1952

Henry H. Bruhn – Some Notes on the Apache Group of the Catalina Mts.
finds no Mescal l.s. in Pepperance Canyon. Finds Mescal in Camp
Grant Wash. In Pepperance Canyon correlates a purple sandstone with
Mescal l.s. of Camp Grant Wash, and concludes that they grade laterally
into each other.

References on the Catalina Mountains

Burgess, J.D.
03
Call {

Recent Discoveries in Ariz.
Eng. Min. Jour., Vol. 76, p. 936 (1903)

Davis, W. M.
31-1

Discussion on the possible sequence of faulting. Nothing definite

The Santa Catalina Mts., Ariz.
Am. Jour. Sci., 5th ser., Vol 22, pp. 289-317 (1931)
Call { 505 A51
ABSTRACT:
Pan-Am. Geol., Vol 55, pp. 372-73 (1931)
Call {
Geol. Soc. Am., Bull., Vol. 43, pp. 235 (1932)

Ransome
16
General discussion covered well by Stoyanow.

Some Paleozoic sections in Ariz. and their Correlation
U.S. Geol. Survey, Prof. Paper 98, pp. 133-66 (1916)
Call { 557.3 G54
ABSTRACT:
Wash. Acaid. Sci., Jour., Vol. 6, pp 681-82 (1916)
Call {

Bruhn H.F.
27
Correlation from a few spots

Some notes on the Apache group of the Santa Catalina Mountains and Other Sections in Southeastern Ariz.
Univ. Ariz., Thesis, 31 pp. Map (1927)
Call { E9791 UNIV. 10)

Blake W.P.
08-1
General observations

Note upon the structure of the Santa Catalina Gneiss, Ariz.
Science, New Ser., Vol 28, pp 379-80, 382 (1908)
Call { 505 S911

Hernon, R.M. Pegmatitic rocks of the Catalina-Rincon Mtns, Ariz.

32

Univ. Ariz., Thesis, 65 pp., Map (1932)

Call { E9791
UNIV. 10

Stoyanow, A.A. Lower Cretaceous stratigraphy in Southeastern Ariz

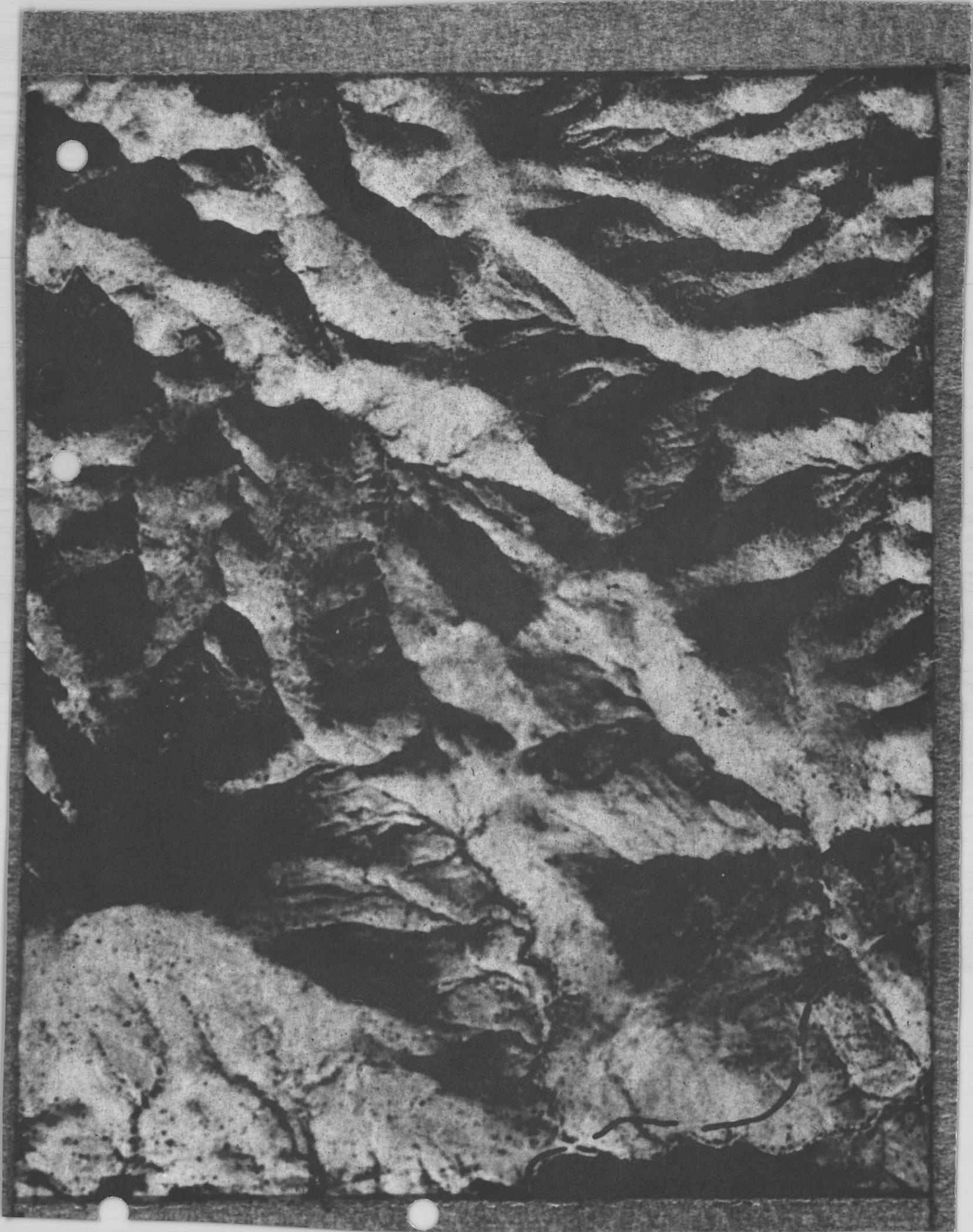
Very short. (abstract) Geol. Soc. Am. Proc., 1937, p117 (1938)

Goes on For North as Pat. Mtns Call { 550.6 G34p }

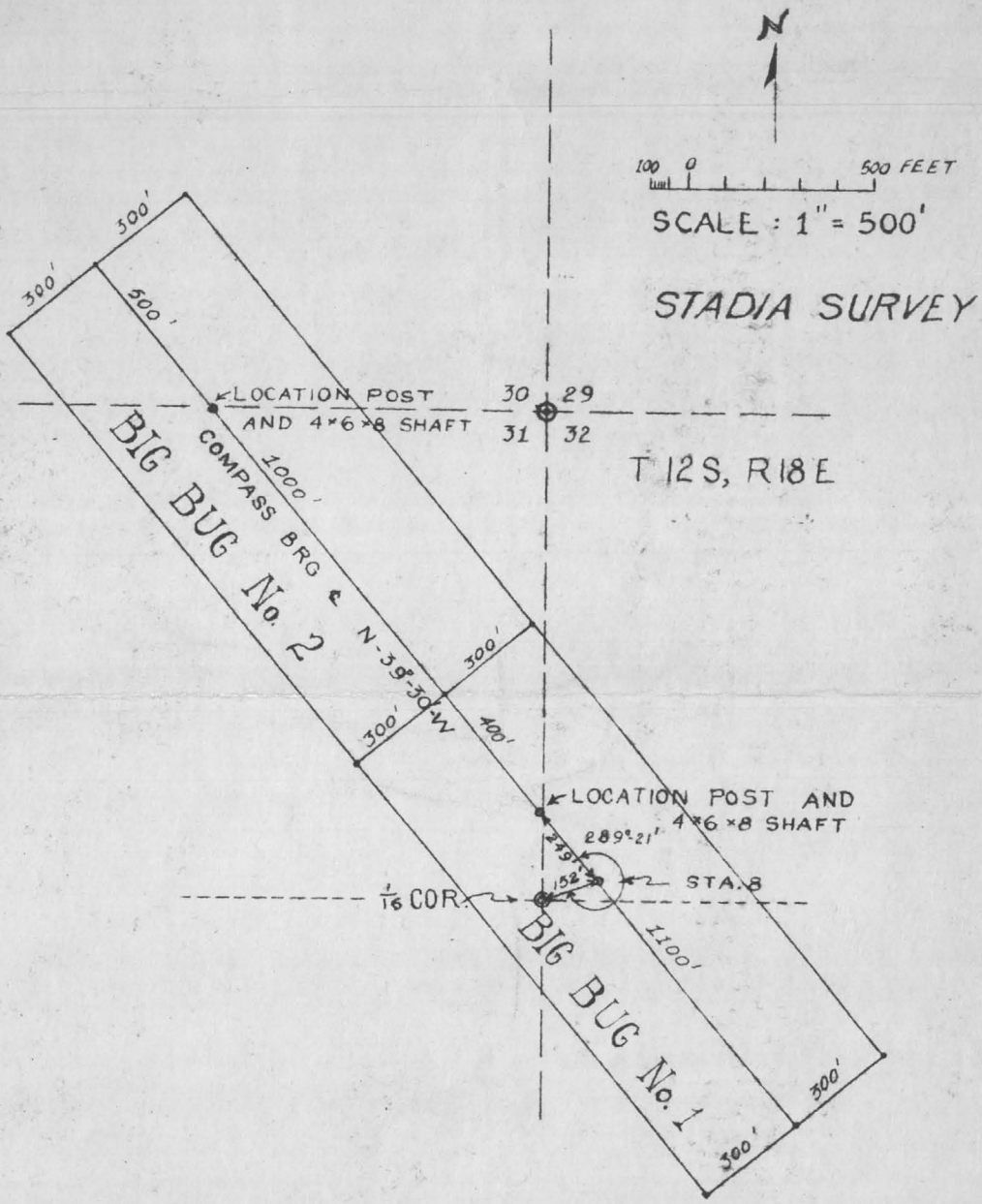
Ettlinger, I.A. (1928) call 622.05 A51t

One deposits supporting hypothesis of a central Ariz batholith. Am Inst. Min. Eng., Tech. Pub. 63

concerns Globe, ray, miami Mesquite, district



J. E. KINNISON
221 NORTH NORRIS AVE.
TUCSON, ARIZONA



AMENDED LOCATION OF THE BIG BUG MINING CLAIMS

OLD HAT DISTRICT, PIMA CO.

LOCATED BY : J.E. KINNISON & H.A. KINNISON

Notice of Mining Location

LODE CLAIM

TO ALL WHOM IT MAY CONCERN:

This Mining Claim, the name of which is the Taffy Mining Claim, situate on lands belonging to the United States of America, and in which there are valuable mineral deposits, was entered upon and located for the purpose of exploration and purchase by Charles L. Fair, Robert L. Trammel, and John E. Kinnison; Citizens of the U.S.A.

(Locator must insert either "a citizen of the United States" or "who has declared his intention of becoming a citizen of the United States.")

the undersigned, on the 30th day of January, 1955.

The length of this claim is 1500 feet, and We claim 750 feet, in a N.W. direction and 750 feet in a S.E. direction from the center of the discovery shaft, at which this notice is posted, lengthwise of the claim, together with 300 feet in width of the surface grounds, on each side of the center of said claim. The general course of the lode deposit and premises is from the NW to the SE

The claim is situated and located in the Old Hat Mining District, in Pima County, in the State of Arizona, about 1300 ft. in a N.W. direction from The Southeast Corner of Sec. 30, T12S, R18E

The surface boundaries of the claim are marked upon the ground as follows: Beginning at SE corner of Section 30, T12S, R18E (Walk 1800 ft. in a N.W. direction, then ~~point~~ to the SE corner monument at a point in a SW NE SE. direction ~~1500~~ 300 750 feet from the discovery shaft (at which this notice is posted), being in the center of the South Stone Mon. end line of said claim; thence ~~1500~~ NE 300 feet to a ~~NE~~ direction ..., being the SE corner of said claim; thence NW 1500 feet to a Stone Mon., being at the NE. corner of said claim; thence SW ~~1500~~ 300 feet to a Stone Mon. at the center of the North end of said claim; thence 3000 feet to a Stone Mon, being at the NW corner of said claim; thence SE 1500 feet to a Stone Mon at the SW corner of said claim; thence 300 feet to the place of beginning.

Dated and posted on the ground this 30 day of JAN., 19 55

Notice of Mining Location

LODE CLAIM

TO ALL WHOM IT MAY CONCERN:

This Mining Claim, the name of which is the JERRY Mining Claim, situate on lands belonging to the United States of America, and in which there are valuable mineral deposits, was entered upon and located for the purpose of exploration and purchase by Charles L. Fair, Robt

(Locator must insert either "a citizen of the United States" or "who has declared his intention of becoming a citizen of the United States.")

the undersigned, on the ..... day of ....., 19.....

The length of this claim is ..... feet, and ..... claim ..... feet, in a ..... direction and ..... feet in a ..... direction from the center of the discovery shaft, at which this notice is posted, lengthwise of the claim, together with ..... feet in width of the surface grounds, on each side of the center of said claim. The general course of the lode deposit and premises is from the ..... to the .....

The claim is situated and located in the ..... Mining District, in ..... County, in the State of Arizona, about ..... in a ..... direction from .....

The surface boundaries of the claim are marked upon the ground as follows: Beginning at Center of Big Buy No. 2 amended

at a point in a ..... direction ..... feet from the discovery shaft (at which this notice is posted), being in the center of the ..... end line of said claim; thence ..... feet to a ....., being the ..... corner of said claim; thence ..... feet to a ....., being at the ..... corner of said claim; thence ..... feet to a ..... at the center of the ..... end of said claim; thence ..... feet to a ....., being at the ..... corner of said claim; thence ..... feet to a ..... at the ..... corner of said claim; thence ..... feet to the place of beginning.

Dated and posted on the ground this ..... day of ....., 19.....

.....

.....

.....

40 EAST PENNINGTON
ACME—5-45—1M
1M—6-45

HOWARD & STOFFT
TUCSON, ARIZONA
FORM 110

TELEPHONE 61

Haught's
(owner by Rose Tungsten)
Downey may know them

Wolframite -

114 **WORK MEMORANDUM** **Nº 250**

To: Date

Rose Tungsten

Hi grade Franciscan Vein

2 7/10 WO_3

North of Moores

Ranch in Sierra Ancha

Mtns.

— Circa 1956 —

115

No. ~~250~~

chip from both sides of ~~x~~ cut between drift on main level.

Rose Tungsten

$1\frac{2}{100}$ WO_3

WORK MEMORANDUM

No. ~~251~~

To: 116

Date

Dump Sample
Rose Tungsten

21/100 WO_3

38464 – Fred

30968 – Leo

3 holes 225

2 holes 165 ₹

75
3 ⟌ 225
150
15
165

LEO
3741 S Clark
~~2 trees~~
Rt hand Side
going N from
Ajo Road.

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

JACOBS ASSAY OFFICE

Phone 2-0813

REGISTERED ASSAYERS

Tucson, Arizona, July 2nd, 1956

Sample Submitted by Mr. John E Kennison Tungsten

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	WO_3 Per Cent Wet Assay	..... Per Cent Wet Assay	..... Per Cent Wet Assay
X						0 54/100		

* Gold Figured $35.00 per oz. Troy

Charges $ 4.50
Samp .50
5.00 Paid

Very respectfully,
Dan P. Jacobs

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

JACOBS ASSAY OFFICE

REGISTERED ASSAYERS

Phone 2-0813

Tucson, Arizona, Oct 21st, 1955

Sample Submitted by Mr. C L Fair

Tungsten

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	WO3 Per cent Wet Assay	Per cent Wet Assay	Per cent Wet Assay
X						1 71/100		

* Gold Figured $35.00 per oz. Troy

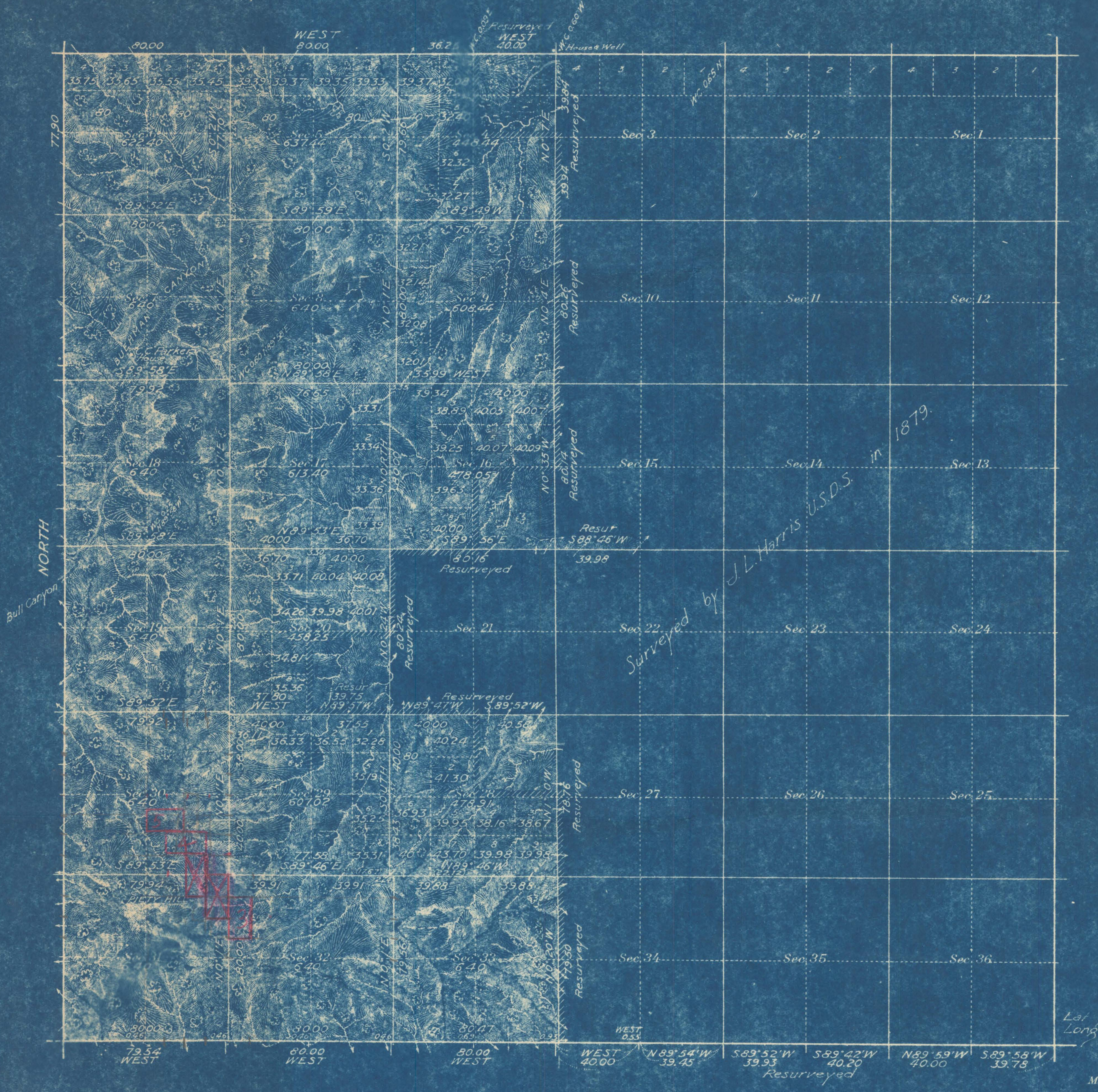
Charges $ 4.00 Paid

Very respectfully,

Ben D. Jacobs

Accepted March 25, 1924.

Township No. 12 South Range No. 18 East, Gila and Salt River Meridian, Arizona



Areas in Acres	
Public Land	10,072.35
Indian Reservation	
Indian Allotments	
Mineral Claims	
Water Surface	
Total Area	

Lat. 32°20'24" N
Long. 110°27'2" W

Scale 40 Chains to an inch

Mean Magnetic Declination 13°55' E

Surveys Designated	By Whom Surveyed	Group No.	Group Date	Amount of Surveys (Mls. chs. lks.)	When Surveyed Begun	When Surveyed Completed
N. Bdy Resur	F. W. Chapin			E ½ of 4/33	Dec 17, 1921	
S. Bdy "	U.S. Surveyor			East half	Oct 8, 1921	Oct. 11, 1921
Subdivisions Resur	and	103	Oct. 9, 1919	9 miles as shown	Nov. 28, 1921	Dec. 22, 1921
N. Bdy Sur	B. J. Kinsey			W. 2½ miles	Dec 17, 1921	Dec. 31, 1921
S. Bdy "	U.S. Transitman			W half	Oct. 11, 1921	Oct. 12, 1921
W Bdy "				Complete	Dec 20, 1921	Dec. 27, 1921
Subdivision[illegible]				23½ miles as shown	Dec. 3, 1921	Dec. 30, 1921

The above map of Township No 12 South Range No 18 East of the Gila and Salt River Meridian Arizona is strictly conformable to the field notes of the survey thereof on file in this office, which have been examined and approved.

U. S. Surveyor General's Office.
Phoenix Arizona, January 5, 1924

Frank P. Trott
Surveyor General.