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Arizona Geological Survey
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Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM	X	SERIAL	
DAY LETTER		NIGHT LETTER	

WESTERN UNION

1206

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE

Check the class of service desired; otherwise this message will be sent at the full rate

FULL RATE		DEFERRED	
CODE		NIGHT LETTER	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			Climax Molybdenum Co. Denver,Colo.	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

DENVER COLORADO - OCTOBER 26, 1950
STRIGHT TELEGRAM

MR. E. N. PENNEBAKER
MINING ENGINEER
GLOBE, ARIZONA

HAVE DECIDED TO DO NOTHING FURTHER ON WESTLAKE PROPOSITION AS TOO SMALL A TARGET TO SHOOT AT. LETTER FOLLOWS. REGARDS.

F. S. MCNICHOLAS

RECEIVED
OCT 2 0 1950
E. N. PENNEBAKER

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

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LA17
L.DVA225 PD=DENVER COLO 26 235P= 1950 OCT 26 PM 3 0L
=E N PENNEBAKER=
:MINING ENGINEER GLOBE ARIZ=

HAVE DECIDED TO DO NOTHING FURTHER ON WESTLAKE PROPOSITION AS TOO SMALL A TARGET TO SHOOT AT LETTER FOLLOWS. REGARDS=
:F S MCNICHOLAS=

RECEIVED
OCT 2 6 1950
E. N. PENNEBAKER

924 J1 dlv 305
306 P

WESTERN UNION

NIGHT LETTER

OCTOBER 22, 1950

MR. F. S. McNICHOLAS
CLIMAX MOLYBDENUM COMPANY
MIDLAND SAVINGS BUILDING
DENVER 2, COLORADO

DECISION YOU REQUIRE IS A DIFFICULT ONE TO MAKE BECAUSE MY FORMER EXAMINATION WAS VERY BRIEF AND AREA IS NOT WELL EXPOSED STOP POSSIBILITIES ARE ADMITTEDLY VERY SPECULATIVE AND BEST REASONABLE EXPECTATIONS WOULD BE FOR HIGH COST PRODUCER OF MODEST TONNAGE STOP VIEWED MOST FAVORABLY PROPERTY WOULD NOW ONLY WARRANT A MORE THOROUGH EXAMINATION AND THIS LARGELY BECAUSE OF ENHANCED DEMAND FOR TUNGSTEN AND SUCH COULD ONLY BE DONE UNDER REASONABLE PRICE AND LENIENT TERMS FROM OWNER STOP ON REVIEWING THE PROBLEM BELIEVE MAPPING OF VEINS BY YOUNG SURVEYOR AND GEOLOGIST AND REVIEW BY MORE EXPERIENCED MAN COULD BE HELD DOWN TO AROUND SIX THOUSAND DOLLARS AND THIS STUDY MIGHT BE SUFFICIENT TO INDICATE WHETHER THE PROJECT SHOULD BE CONTINUED STOP IF OWNER WILL GIVE ONE YEARS FREE RIDE AND TOTAL PURCHASE PRICE OF SAY THIRTY THOUSAND DOLLARS THEN I THINK YOU COULD AFFORD TO RISK THE COST OF THIS MORE DETAILED EXAMINATION STOP IF SUCH POSSIBLE ARRANGEMENT APPEALS TO YOU THEN YOU MIGHT COME DOWN AND LOOK OVER THE SITUATION STOP OR IF YOU SHOULD PREFER THAT I SPEND A WEEK ON THE PROPERTY BEFORE WE REACH A DECISION THAT COULD BE ARRANGED BUT I REALLY BELIEVE DETAILED MAPPING OF VEINS WOULD BE NEXT PROPER STEP

REGARDS

E. N. PENNEBAKER

E. N. PENNEBAKER
GLOBE, ARIZONA

COPY

June 6, 1950

Mr. F. S. McNicholas
Climax Molybdenum Company
Midland Savings Building
Denver 2, Colorado

Dear Mr. McNicholas:

In accordance with your instructions of May 12, 1950, I have made a preliminary examination of the Westlake property near Globe and am enclosing two copies of my report.

Mrs. Westlake seems most anxious to dispose of her ground. She intimated that she would appreciate your advising her of Climax' decision as soon as possible so that she can attempt a sale elsewhere if your reaction is unfavorable.

Mrs. Westlake is a lady of 76 that led me over the hills at a pace that made me wish I was 20 years younger. She also swings a mean double jack.

My statement for the examination is attached.

Yours very truly,

CLIMAX MOLYBDENUM COMPANY
MIDLAND SAVINGS BUILDING
DENVER 2, COLORADO

NEW YORK OFFICE: 500 FIFTH AVENUE
MINE AND MILL: CLIMAX, COLORADO

October 31, 1950

Mr. E. N. Pennebaker
Mining Engineer
Globe, Arizona

Dear Penney:

This will confirm my telegram of October 26 stating that we have decided to do nothing further on the Westlake proposition.

After further study of your report, as well as your telegram, we decided that the target seemed too small to interest us at this time.

We are stepping up production at Climax, and do not have available any excess talent that could be placed on a job such as you describe.

We are still interested in acquiring properties of merit, but we only wish to consider properties where substantial tonnage and long life is indicated. Perhaps such an animal is not available, but we shall continue to hope. However, our attitude may change in the future, depending upon conditions. We would, therefore, like you to keep us informed regarding anything promising that comes to your attention.

We would like you to keep us informed of your activities, particularly the times you will be out of the United States, and therefore unavailable.

If you are ever up in this neck of the woods, please call in and see us.

Enclosed is a copy of a letter to Mrs. Westlake.

With kindest regards,

Sincerely yours

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSMcN/jhn
Enc. 1

CLIMAX MOLYBDENUM COMPANY
DENVER, COLORADO

COPY

October 31, 1950

Mrs. Brice H. Westlake
Box 1831
Globe, Arizona

Dear Mrs. Westlake:

This is in reply to your letter of October 16. After further study of reports on your property, we have reached a decision that we do not care to interest ourselves further in this venture at this time.

Yours very truly

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSMcN/jhn

cc: New York
Mr. Pennebaker
File

Moonshine Tunnels

1 Vein - 35' ± wide
Silic Ps, crushed
Strike N30 E

1 ft heading, highly pyritized, moderate
Dip ± N-

Mineral vein
±N30E ±10' silic Ps

Stg. vuggy -
Tungsten & pyrite
wolframite

Sylvia - N5E
± 6' wide

Black Wolf vein on
Iron Horse claim

± 4' wide
Porph dike
Cpy bulk & relief limonite

Molyb boxwork?

Minor wolframite present
in places?

Porphyry Mtn Vein

Looks like mostly porph dike - scattered qtz. lenses - some Cpy leak

Some qtz lenses come in with scattered Wolframite

N 30 E

Unnamed lead vein

In Ps
qtz - cemented breccia

N 30 E

Anglesite - cerussite - galena

Silver low

7 oz to 49 oz. Pb

Apex Vein - didn't see mine

Big Boulder Vein

abt Cpy bunk
wolframite?
N10E-60E
±6'

Centipede Vein

±5' - abt sulph. bunk
in qtz.
Minor patches wolframite
Very abt py sponge
abt Cpy bunk

Centipede well to So. in
gulch
N15E - ±70

Qtz streak 12" - 36" with
wolframite (very fine
grained.

Cause No. 9779-B
B. H. Westlake vs.
G. W. Sebastian, et al

9-20-49, cause was submitted to Boyce Scott, Judge of Greenlee County for decision and review.

Attorneys for Sebastian are Barry DeRose and Harold A. Beelar.

There is a conflict as to title and judgement is not yet issued but decision due any day.

DOMESTIC SERVICE

Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM		SERIAL	
DAY LETTER		NIGHT LETTER	

WESTERN UNION

1206

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE

Check the class of service desired; otherwise this message will be sent at the full rate

FULL RATE		DEFERRED	
CODE		NIGHT LETTER	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

GLOBE ARIZ OCT 10 1950

F S MCNICHOLAS
CLIMAX MOLYBDENUM CO
MIDLAND SAVINGS BLDG
DENVER COLO.

WROTE YOU YESTERDAY THAT I AM LEAVING TOMORROW FOR BUSINESS TRIP TO NEVADA RETURNING GLOBE ABOUT OCTOBER 20TH. WOULD MUCH APPRECIATE YOUR POSTPONING TRIP UNTIL LATE OCTOBER OR EARLY NOVEMBER. KIND REGARDS.

E N PENNEBAKER

CLASS OF SERVICE DESIRED			
DOMESTIC		CABLE	
TELEGRAM		ORDINARY	
DAY LETTER	X	URGENT RATE	
SERIAL		DEFERRED	
NIGHT LETTER		NIGHT LETTER	

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1213

JOSEPH L. EGAN
PRESIDENT

CHECK

ACCOUNTING INFORMATION

TIME FILED

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

To F. S. McNicholas Oct. 20 19 5

Street and No. Climax Molybdenum Company

Place Midland Savings Building
Denver, Colorado -

Just returned to Globe Can't be available for your visit between October 29 and November 5 Have another commitment beginning November 6 Stop Please advise if this arrangement is satisfactory Regards

Sender's address for reference E. N. Pennebaker *Sender's telephone number*

CLASS OF SERVICE

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WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

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NLT = Cable Night Letter
Ship Radiogram

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LA 19

L.DVA175 PD=DENVER COLO 10 1154A= 1950 OCT 10 PM 1 22

:E N PENNEBAKER=

GLOBE ARIZ=

=WILL POSTPONE TRIP AS SUGGESTED PLEASE ADVISE UPON YOUR RETURN FROM NEVADA WHEN YOU WILL BE AVAILABLE AFTER OCTOBER 29 REGARDS=

=F S MCNICHOLAS=

RECEIVED
OCT 10 1950
E. N. PENNEBAKER

924 J1 dlr 127p

:29=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

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WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS

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NL = Night Letter

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

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LA33

1950 OCT 10 AM 8 01

L.DVA375 NL PD=DENVER COLO 9=

:E N PENNEBAKER=

CONSULTING MINING ENGINEER GLOBE ARIZ=

:CAN YOU ARRANGE TO INSPECT WESTLAKE PROPERTIES WITH ME ON OCTOBER 18 AND FOR THE NECESSARY TIME THEREAFTER STOP IF YOU CAN NOT BE AVAILABLE AT THAT TIME I CAN PROBABLY COME THERE AFTER OCTOBER 30 PLEASE ADVISE BY WIRE=

CLIMAX MOLYBDENUM CO F S MCNICHOLAS=..

RECEIVED
OCT 10 1950
E. N. PENNEBAKER

$ 924 8 1 9/5a

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1220

SYMBOLS
DL=Day Letter
NT=Overnight Telegram
LC=Deferred Cable
NLT=Cable Night Letter
Ship Radiogram

A. N. WILLIAMS, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA02 SPF048

L. DVA434 NL PD=DENVER COLO 20= 1950 OCT 21 AM 8 1L

E N PENNEBAKER=

=MINING ENGINEER GLOBE ARIZ=

FURTHER STUDY OF YOUR REPORT INDICATES TO ME THAT THIS IS A LONG SHOT IN WHICH THE PROFITABLE PRODUCTION TARGET IS NOT OF SUFFICIENT MAGNITUDE TO JUSTIFY PRELIMINARY EXPENDITURE SUGGESTED IN YOUR CONCLUSION IF YOU AGREE BELIEVE IT BEST TO FORGET IT HOWEVER IF IN YOUR OPINION THE PROPERTY MERITS THE EXPENSE OF FURTHER EXAMINATION AND YOU SO RECOMMEND I WILL ARRANGE TO MEET YOU IN GLOBE BETWEEN THE DATES IN YOUR WIRE WILL LEAVE IT UP TO YOU WHETHER OR NOT I COME DOWN REGARDS=

F S MCNICHOLAS=

924 J 1 Bus

RECEIVED
OCT 21 1950
E. N. PENNEBAKER

By
Time

September 18, 1950

Mr. F. S. McNicholas
Climax Molybdenum Company
Midland Savings Building
Denver 2, Colorado

Dear Mr. McNicholas:

This acknowledges receipt of your letter under date of September 12, 1950, concerning the Westlake property near Globe. My reply has been delayed a few days due to my being away from Globe during most of last week.

I note from the enclosure with your letter that Mrs. Westlake solicits a cash offer for her 45 tungsten claims. Apparently she does not include the 8 claims in the so-called "lead group" that she describes in her letter of May 5, 1950. At that time she also mentioned 50 claims in the tungsten group, so we should need to know why 5 of these are now excluded and which ones they are.

In her letter of May 5, 1950, Mrs. Westlake offered to sell the 58 claims making up the tungsten and lead groups for $50,000 cash, or for $110,000 on a bond and lease basis. Judging from her recent letter of September 7, 1950, it now appears that she will entertain a cash offer for a lesser sum.

In view of the geological relations of the ground and the improvement in the position of tungsten, the following are my reactions to Mrs. Westlake's letter:

I do not think that a conservative mining company contemplating a quick cash purchase of this property without further investigation would be warranted in offering more than a few thousand dollars for it, and I doubt if Mrs. Westlake would be interested in such a small sum.

On the other hand, in my opinion, the following would be a reasonable basis for negotiations:

1. An option on the property for 9 or 12 months for $25,000 or $30,000 with no down-payment.

2. Map the veins by plane table or transit survey and plot their geological and mineralogical character in detail.

3. Do a fair amount of trenching and sampling.

4. Probably follow up with a number of short diamond drill holes with a light-weight portable rig.

5. If the property shows up favorably as a result of this examination, then the purchase can be closed.

Normally, the above examination should be completed within 6 months, but this high country may be covered by snow for 3 or 4 months with the work delayed accordingly. I think $25,000 is a fair price for this property, and the lead claims and all of the tungsten claims should be included.

Concerning the mapping of the veins, if you have a young engineer available to run the transit or plane table and a young geologist for the rod they could make a satisfactory map. If you wished, I could start them out on what features of the veins to record and then add to and review the geology when the map was completed and ready for use. I think the expense of a claim survey might be deferred until it is determined whether or not the ground has any real value. One of these young men could stay on to supervise the trenching, sampling, and drilling.

If you do not have such men available, the survey and trenching could be contracted to a capable engineer who maintains an independent office in Globe. This would probably require more supervision on my part than if your own men took over. If desired, diamond drilling can be contracted to a local representative of the McClintock outfit.

For Climax to conduct business in Arizona as a corporation, it would be necessary to qualify before the State Corporation Commission. Due to recent changes in the law, this now can be done rather quickly at a cost of $400 or $500. Otherwise it would be necessary to sign papers and conduct business in the name of some individual in your employ. Attorneys (naturally) do not recommend this latter course, and I believe it makes the matter of State Industrial Insurance for employees more cumbersome. If surveying and drilling were contracted, then it could be arranged for these independent contractors to carry the insurance.

I believe that the arrangement proposed above for option and examination over a period not shorter than 9 months is sound. As pointed out in my report of June 6, 1950, the area has certain very speculative possibilities. With the present war outlook and the improved position of tungsten, these possibilities are now more

attractive. Even though a sizable project does not develop, at the worst you should be able to recoup some of your examination expenditure through leasing the shoots that the work does reveal. With the examination conducted in the various stages as proposed, the project and the option can be dropped at any time that information accrues that might dictate an adverse decision.

I am enclosing Mrs. Westlake's letter, as you requested.

With kindest personal regards.

Yours sincerely,

October 9, 1950

Mr. F. S. McNicholas
Climax Molybdenum Company
Midland Savings Building
Denver 2, Colorado

Dear Mr. McNicholas:

This is to advise you that I shall be away from Globe between October 11th and 20th, on a trip up to Nevada.

I note that Mrs. Westlake has made several offers, all of which I think are a little too high. However, there seems to be room for negotiating and you should be able to make a deal.

With kind regards,

Yours sincerely,

September 25, 1950

Mr. F. S. McNicholas
Climax Molybdenum Company
Midland Savings Building
Denver 2, Colorado

Dear Mr. McNicholas:

This acknowledges receipt of your letter under date of September 22, 1950, regarding the Westlake property near Globe.

For your information, the coming month looks like a very busy one for me with considerable traveling in Arizona as well as a trip up north to Nevada. If the Westlake negotiations work out so that you make a trip to Globe, I shall appreciate your letting me know as far in advance as possible so that I can try and arrange to be here.

With kindest regards,

Yours sincerely,

May 27, 1950

Mrs. Brice H. Westlake
P. O. Box 1831
Globe, Arizona

Dear Mrs. Westlake:

Climax Molybdenum Company of Denver, Colorado, has asked me to make a brief examination of your mining claims near Globe, and I enclose their letter authorizing me to make such an inspection in their behalf.

If agreeable with you, I should like to visit your property on Thursday, June 1st. I believe the ground you refer to lies near the road to Pinal and Madera Peaks, near the head of Russell Canyon.

If these arrangements are suitable, you can write me at the above address, or if you are in town phone me at 921-R7. My office is in Ice House Canyon on the old H. J. Hagen place.

Yours very truly,

cc: Mr. F. S. McNicholas

CLIMAX MOLYBDENUM COMPANY
DENVER, COLORADO

COPY

June 15, 1950

Mrs. Brice H. Westlake
P.O. Box 1831
Globe, Arizona

Dear Mrs. Westlake:

We regret to inform you that although your property has some merit, we do not wish to make any commitments regarding same.

Sincerely,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSMcN MLM

c.c. New York
Mr. Pennebaker
File

CLIMAX MOLYBDENUM COMPANY
~~CONTINENTAL OIL BUILDING~~
DENVER 2, COLORADO
MIDLAND SAVINGS BUILDING
NEW YORK OFFICE: 500 FIFTH AVENUE
MINE AND MILL: CLIMAX, COLORADO

May 12, 1950

Mr. E. N. Pennebaker
P.O. Box 2996
Globe, Arizona

Dear Mr. Pennebaker:

Enclosed is a letter from Brice H. Westlake regarding some mining claims which he owns near Globe. From his description of the claims it appears they may warrant a preliminary examination. Since they are in your back yard we thought you might be able to sneak a day or two to make a preliminary examination and report whether we should go further into the matter or not.

You may know enough about this area to inform us regarding it without even an examination.

Enclosed is a letter to Mr. Westlake which will show him you are representing us in this matter.

We note that you have not billed us for expenses incurred in making the trip to Denver for our interview. Please include this in your statement for work don on this assignment.

With kindest regards, I am

Sincerely,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSMcN MLM

Enclosures - 2

Need:

3 mo. time to examine title

6 " good weather to examine claims

Claim survey, when?

Deal- $35,000 purchase price

1 yr exam. period

Pay $200 per mo. during exam. period.

? Owner to pay ½ cost of clearing title, survey amendment, etc

Troublesome points:

1- Fuss with Forest Service
2- Lost lawsuit- This may be costly to us.
3- Checking title
4- Amending claims
5- Expensive claim survey to protect against adverse locations

Hence property does not warrant a steep price-

CLIMAX MOLYBDENUM COMPANY
DENVER, COLORADO

COPY

September 29, 1950

Mrs. Brice H. Westlake
P.O. Box 1831
Globe, Arizona

Dear Mrs. Westlake:

Thank you for your letter of September 26 regarding your properties.

We will not be in a position to let you know about my proposed visit to your properties until the latter part of October. You may expect a letter from me at that time.

In the interim, please do not allow a possible deal with Climax to interfere with any deals that may be presented to you.

Sincerely,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSMcN MLM

c.c. New York
Mr. Pennebaker
File

CLIMAX MOLYBDENUM COMPANY
DENVER, COLORADO

COPY

Globe, Arizona
September 26, 1950

Climax Molybdenum Company
Midland Savings Building
Denver, 2, Colorado

Attn. Mr. F. S. McNicholas.

Dear Mr. McNicholas :-

Answering yours of 22nd Inst:

Believing that if you will visit the property, it will be possible for us to come to quick deal, I will make you the following offer:

The tungsten group and the lead group--58 claims and the five acre water right at the cash price of $45,000;

or the above groups at $25,000 cash and five per cent royalty on production until an additional $35,000 shall have been paid;

or $35,000 cash and a 1 per cent royalty on production this to be a perpetual royalty.

or a very limited down payment, with monthly payment of $300 per month guaranteed, on very liberal lease as to time at the price of $100,000.

With the above as a basis, I believe that we can surely work out a deal satisfactory to both sides.

If this seems to you to be a fair basis for working out a satisfactory deal, please write me just how soon you could arrive, so that we can come to an agreement as to how long the above offering stands.

Yours very truly,

Signed

Brice H. Westlake

Globe, Arizona
Box 1831

9-29-50 c.c. New York
Mr. Pennebaker

RECEIVED
OCT 2 - 1950
E. N. PENNEBAKER

CLIMAX MOLYBDENUM COMPANY
MIDLAND SAVINGS BUILDING
DENVER 2, COLORADO

NEW YORK OFFICE: 500 FIFTH AVENUE
MINE AND MILL: CLIMAX, COLORADO

Denver, Colorado
September 22, 1950

Mr. E. N. Pennebaker
P. O. Box 2996,
Globe, Arizona.

Dear Penny:

Thanks for your letter of September 18, 1950, regarding the Westlake properties:

Your recommendations are outlined in a very concise and logical manner and it is possible that we shall follow up these recommendations.

As you will note from the enclosed copy of a letter to Mrs. Westlake, we are asking her for a definite price on the entire group of 58 claims and, if her proposal sounds reasonable, I will come down there to have a look at the properties and I hope that you will be available to accompany me. If our conclusions are favorable we can try to work out a satisfactory deal with Mrs. Westlake.

Will keep you informed regarding developments.

Sincerely yours,

CLIMAX MOLYBDENUM COMPANY

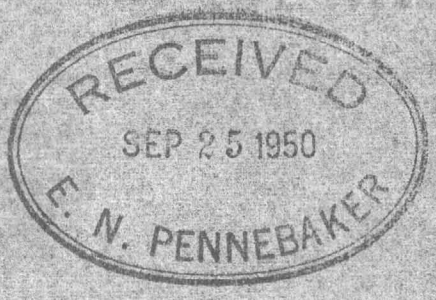
F. S. McNicholas

FSM:S
Enc. - 1

cc - New York

CLIMAX MOLYBDENUM COMPANY
DENVER, COLORADO

COPY



Denver, Colorado
September 22, 1950

Mrs. Brice H. Westlake
Box 1831
Globe, Arizona

Dear Mrs. Westlake:

This is in reply to your letter of September 7, 1950 regarding the sale of your 45 Tungsten claims.

In previous correspondence you offered 58 claims covering the Tungsten group and the Lead group. Does your present offer cover these 58 claims?

We note that you have decided to sell this property at a reasonable figure and we may be interested in considering a reasonable figure. If you care to give us a price on the entire group of 58 claims and should we consider this price to be reasonable I will arrange to visit your properties and we could perhaps work out some suitable deal.

Yours very truly,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSM:S

cc - Mr. E. N. Pennebaker

cc - New York

CLIMAX MOLYBDENUM COMPANY
MIDLAND SAVINGS BUILDING
DENVER 2, COLORADO

NEW YORK OFFICE: 500 FIFTH AVENUE
MINE AND MILL: CLIMAX, COLORADO

Denver, Colorado
September 12, 1950

Mr. E. N. Pennabaker
Globe, Arizona.

Dear Penny:

Attached is a letter from Mrs. Brice H. Westlake which is self-explanatory.

Since you examined this property and reported adversely conditions have changed somewhat and the position of tungsten is stronger than it was at that time.

Will you please give us your reactions to the enclosed letter and give us your recommendations as to whether or not we should proceed further in this matter and if so on what basis.

Please return the enclosed letter with your reply.

With kindest regards.

Sincerely yours,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

FSM:S

Globe, Arizona,
May 5th, 1950.

Climax Molybdenum Company,
Denver 2, Colorado.

Att. Mr. F. S. McNichols

Dear Mr. McNichols:

Answering your letter of May 1st: the Westlake Mining Property is situated 12 miles south west of Globe, Arizona; and consists of 50 unpatented, unsurveyed lode claims in what is known as the tungsten group; and 8 claims in the lead group, both groups contiguous.

The country rock is shist, diorite and granite. The mineral on the tungsten group--tungsten, copper, molybdenum, silver, gold is contained in 9 wide fissure veins running the length of the block of claims; the Moonshine vein shows on the surface for distance of 6,500 ft.; the Millvale vein for distance of 3,800 ft., the Black Wolf vein, 4,500 ft., the Centipede vein, 3,000 ft. etc. The lead group consists of 7 claims containing the five lead veins, and one claim situated on water course for mill site in the event the group should be sold seperate from the tungsten group.

The property is entirely undeveloped; but about 50 tons of tungsten ore, taken out in prospecting and assessment work, gave returns as follows: 30 tons of tungsten ore milled at the O'Brien mill in Globe (since removed) gave mill return of 3.8% tungsten; 6 tons milled at little gold mill just north of Globe, gave return of 4% tungsten; 7520 pounds of ore to Furnstrom's mill in Tucson, assayed 3.½% tungsten--gave return of $219.64; 8 tons sent to Metals Reserve at Phoenix, second grade ore thrown back from the above shipments, gave return of 1.74% tungsten, net return $268.63. The above ore was disposed of for the tungsten content alone: for the most part it came in an unshattered quartz containing very little sulphides; hence very little leached.

The veins generally contain very heavy sulphides, and the climate here--rain, snow, freezing, thawing and the heavy coverage of forest debris to hold the moisture, has shattered the rock and released the sulphides, thereby leaching very greatly the minerals at the immediate sur-

face. Various samples taken over this group show silver, and gold--2 tons of the ore sent to Tucson (from the Millvale vein) assayed $7.73 gold; one sample from the old Moonshine tunnel, assayed little over $5 gold and one from the same tunnel gave ~~$4.25~~ 4 oz. silver; one sample taken from Sunrise claim (vein showing sulphides, galena, and wulfenite) assayed $25.55 gold.

On the lead group, six tons from shallow openings assayed 78% lead; 1,000 pounds sent to Hawley & Hawley at Douglas for test (galena, carbonates and chrystalized lead) gave 49% lead, gave gold $5.49 and silver 4.8 oz. 5 or 6 tons now on the ground, carbonates and chrystalized lead (directly from the surface) assys about 10% lead.

Good county road crosses the property from north to south, Gov. road crosses it from east to west.

There is no question of water for extensive operations. The water course parallells the county road, mill site, camp site and dam site are all situated at one point on the county road.

A heavy stand of timber covers the property--pine, Douglas fir, juniper, white oak, walnut, cherry, etc. an abundance of timber for all purposes. In fact, the whole 1,160 acres are covered with timber, and mineralized throughout its length and width.

I own the property individually.

Up to the present time, the property has been held at the price of $155,000 for the tungsten group alone: now the situation is such that I have deffinitely decided that I can not possibly develope the property, and to turn it as quickly as possible under the urgent circumstances, am offering it--the tungsten group and the lead group for $50,000 cash, or on bond and lease, $110,000.

The only engineers report I have is a very limited one, covering the Moonshine group of claims--could possibly send you that in few days.

Your engineer could stop at hotel in Globe, and drive the 12 miles back and forth, or if willing to rough it we could manage cabin for him.

This is very much the layman description of the property, but you will find the statements true and conservative. Will be pleased to answer any further question you may desire to ask. Will forward a plat of the claims.

Yours very truly,

(Mrs.) Brice H. Westlake

Box 1831,
Globe, Arizona.

Brice H. Westlake,

The above is subject to prior sale, but if you write or wire me that your

(over)

CLIMAX MOLYBDENUM COMPANY
MIDLAND SAVINGS BUILDING
DENVER 2, COLORADO

NEW YORK OFFICE: 500 FIFTH AVENUE
MINE AND MILL: CLIMAX, COLORADO

June 15, 1950

Mr. E. N. Pennebaker
Globe, Arizona

Dear Mr. Pennebaker:

We have received two copies of your report on the Westlake properties near Globe. We are very pleased with the reports but regret that your recommendation is negative. We are therefore advising Mrs. Westlake that we are no longer interested in her property.

Your statement has been passed on to Climax, Colorado for payment.

With kindest regards, I am

Sincerely,

CLIMAX MOLYBDENUM COMPANY

F. S. McNicholas

F. S. McNicholas

FSMcN MLM

RECEIVED
JUN 18 1950
E. N. PENNEBAKER

REPORT ON
WESTLAKE PROPERTY
GLOBE, ARIZONA

By E. N. PENNEBAKER

JUNE 6, 1950

E. N. PENNEBAKER

[redacted]

MINERAL POSSIBILITIES
ON THE
WESTLAKE MINING PROPERTY
NEAR
GLOBE, ARIZONA

BY

E. N. PENNEBAKER

JUNE 6, 1950

TABLE OF CONTENTS

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The Westlake property near Globe, Arizona, contains at least eight veins, most of which are persistent for several thousand feet. Portions of these veins carry lenses of quartz, and associated with the quartz are shoots of pyrite-wolframite ore. As a result of the preliminary examination it is believed that these more favorable stretches comprise only a subordinate fraction of the various vein structures.

Exploration of the veins has been very scanty, and they are not sufficiently exposed to permit a close determination of their worth. However, a few small shipments of tungsten ore have been made, and there are sections with known substantial mineralization.

A zone with lead showings is found on the northwest. These were visited very briefly and were found to be poorly

exposed. The lead mineralization is thought to be lenticular and spotty, but the inspection was not sufficient to permit a close appraisal.

As a result of the preliminary examination, it is submitted that the property is most suitable for a group of aggressive leasers during times of high tungsten and lead prices, but that its exploration by a big company would entail more expense than the possible reward promises to justify. Consequently it is not recommended that the property be acquired as a result of this preliminary examination.

It is pointed out, however, that the Westlake tungsten veins do possess certain favorable indications. In the event that the foregoing conclusions appear to be based on too hasty an examination, it is suggested that a further inspection be made of certain features of the veins.

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ON THE

WESTLAKE MINING PROPERTY

NEAR

GLOBE, ARIZONA.

INTRODUCTION

The following report gives the results of a two-day examination of the mining property owned by Mrs. Brice H. Westlake near Globe, Arizona. This examination was preliminary and brief and only gave a quick view of the considerable area involved. It did serve to resolve the problem of mining exploration into several elements and bring some of the critical points into focus. Although its acquisition is not here recommended, the property does have some merit. Hence this rather long report is submitted in order to properly present the subject to the reader.

No samples were taken during the examination. With such a short time available, it was felt that a few samples would have little weight in solving the larger problems now presented by the property. On a more detailed investigation, considerable sampling could be done to advantage.

GENERAL INFORMATION

The Westlake mining property in the Pinal Mountains consists of about 58 unpatented and unsurveyed mining claims near the head of Russell Canyon about 12 miles south of Globe, Gila

County, Arizona. This prominent gulch serves as the topographic division separating the mountain block dominated by Pinal Peak on the east from the block surmounted by Mt. Madera on the northwest. The area is one showing smooth but very steep slopes with an average elevation of about 6,000 feet. The irregular north-facing side drains toward Pinal Creek and its tributaries; to the south and west the slopes drop off abruptly toward Mineral Creek, which passes through Ray.

The area is entered by a good but steep Forest Service road that leads up from Globe and swings around through the property toward Mt. Madera. Away from this single road, however, the claims are difficult of access over a few poorly repaired trails. Due to its elevation, a fair amount of snow falls during the winter; however, throughout most of the year the climate is very agreeable.

The mining claims form a compact group about a mile and a half along each side. Concerning a very few there is a conflict in ownership and some confusion in title because of ground withdrawn for recreational purposes within the National Forest. On several others there is also a cloud on their title due to a recent lawsuit concerning trespass initiated by Mrs. Westlake as plaintiff. The Court's decision dealing with this case has just been issued and Mrs. Westlake lost. Just how seriously this affects the property, I have not determined, but it is my impression that neither one of these conflicts would importantly damage the ownership of the veins. However, the matter of extra-lateral rights would need to be looked into.

No check on the chain of titles to these mining claims has been made. Mrs. Brice H. Westlake represents that she personally is their owner. Formerly many of them are said to have been controlled by a corporation now defunct. Any serious interest in the property would necessitate that titles be checked carefully.

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Many of the claims carry a good stand of timber that would be suitable for mining purposes. A few springs of water are found here and there. Russell Canyon runs for only a part of the year, and adequate water supply for a sizable milling operation so near the divide might be quite a problem.

GEOLOGY

The head of Russell Canyon is where a large and irregular spear point of Madera diorite juts irregularly south into Pinal schist. These two formations comprise most of the bedrock in this area, but in addition a few thin and discontinuous dikes of quartz porphyry appear intermittently along the courses of some of the veins.

The Pinal schist is the most ancient formation in the Globe-Miami district and is generally considered to be of older pre-Cambrian age. Although it embraces a considerable variety of metamorphic rocks, the prevailing type is generally a quartz-sericite schist of rather fine grain. Fine-textured quartzites are interbanded here and there and in some localities are fairly prominent. Foliation generally follows the ancient stratification and is made evident by very fine laminations. Near its contact against the Madera diorite, the Pinal schist has been coarsened by recrystallization due to metamorphism caused by igneous intrusion with the consequent development of prominent muscovite plates, feldspar grains, and other minerals. The Pinal schist represents an ancient and thick series of sandy and shaly sediments that has undergone regional metamorphism plus changes superimposed by a later metamorphism related to intrusive activity. The Pinal schist is the host rock that contains the great copper ore bodies nearby at Miami, Inspiration and Ray.

The Madera diorite is a greenish-gray rock of granitic texture made up of plagioclose, quartz and biotite. It is apparently confined to the Pinal Mountains south of Globe where it is irregularly intruded into Pinal schist. The Madera diorite is generally considered to be pre-Cambrian in age, but recent investigation cast some doubt on such antiquity. Mineralization is generally only sparsely developed in this intrusive rock.

Narrow dikes of quartz porphyry with northeast trend are prominently displayed southwest of Mt. Madera and well outside of

the area here being considered. These rocks carry phenocrysts of quartz and orthoclose set in a dense, light-colored groundmass. A similar-appearing rock was noted here and there along some of the northerly-trending veins in the Westlake ground, although in places it was difficult to ascertain whether the rock was really a quartz porphyry or a coarsely recrystallized phase of the Pinal schist. Elsewhere in the district, quartz porphyry dikes and irregular small bodies are associated with disseminated copper ore. Injection of quartz porphyry was the last igneous event just prior to primary copper metallization, and, although rather scantily mineralized itself, quartz porphyry in minor amounts is a persistent associate in many of the copper-bearing zones.

The structure of the Westlake area is not well known because of generally poor exposures. Apparently foliation and bedding in the Pinal schist coincide in attitude and strike northeasterly and dip to the north in conformity with the regional pattern. There is a pronounced system of faults or fractures striking about N 25 E along which numerous veins have formed. The southward-pointing wedge of Madera diorite has already been mentioned.

MINERALIZATION

In a general way, the Globe-Miami district may be described as a great northeasterly zone of copper mineralization about 15 miles long lying north of the Schultze granite, and it is composed of a number of northeasterly elements arranged en echelon.

Both north of Globe near the east end of the district and west of the Castle Dome and Cactus ore bodies on the west are scattered marginal deposits of lead and zinc with here and there a few spots of vanadium. As far as I know, none of these marginal deposits have developed into mines of any importance. South of the Schultze granite (which is only a few miles wide) is a broad band of very light copper mineralization leading southwest of Mt. Madera which contains only a few small deposits of any value. The Westlake ground lies east and south of this zone and shows two types of mineralization, namely: (1) a limited area with lead-silver ore, and (2) a more extended zone of pyrite-wolframite veins which become copper-bearing toward the south. These two types of mineralization are generally found in the Pinal schist near its irregular contact against the wedge of Madera diorite previously noted.

The pyrite-wolframite veins on the Westlake claims are along fractures or faults that strike about N 25 E and for the most part follow a fairly regular course for several thousand feet. Occasionally subsidiary elements diverge along bedding trends or northwesterly fractures, but in general the N 25 E strike is maintained. In a few places the dip was seen to be toward the west at moderate or steep angles, but in many cases the direction and amount of dip could not be determined. Along much of their strike the veins seemed to be from 2 to 10 feet in width with an average of about 5 or 6 feet. As earlier mentioned, dikes of quartz porphyry appear to have been squirted in here and there

along a number of the mineralized fractures.

Mineralization is manifested within these veins in three ways, namely: (1) by the erratic development of stringers and lenses of white quartz intermittently along their courses; (2) by the deposition of sulphides, apparently somewhat more regularly along them; and (3) by the formation of wolframite and lesser amounts of other tungsten minerals in association with the vein quartz.

The amount of quartz developed is of much practical importance because of the wolframite associated with it. It appears to occur as irregular lenses erratically disposed along the veins. Time was not available to determine closely what proportion of the numerous veins was quartz-bearing, but my definite impression was that these more favorable stretches made up only a minor fraction. Not all of the quartz is accompanied by sulphides or tungsten-bearing minerals.

Sulphides were deposited with the quartz in variable amount but generally in fair abundance. They also occur along stretches of the vein where quartz is scanty or lacking. Pyrite is the most abundant sulphide, but toward the south relicts after chalcopyrite and chalcocite are prominent in the vein outcrops. A little sphalerite was noted, and molybdenite is reported from several places.

Wolframite is the most abundant tungsten-bearing mineral. Apparently huebnerite and ferberite are also present, and a little scheelite is an occasional associate. Much of the wolframite is in

small grains from one to a few millimeters in size, but in some specimens it is much finer in texture.

As might be expected in such precipitous terrane, the extent of oxidation is quite shallow, and sulphides are found at little depth and even in the denser portions of the outcrop itself. However, at and close to the surface pyrite has generally been removed, and its former presence is now marked by numerous cleanly washed cavities. None of the usual brightly colored minerals were found betraying the former presence of copper sulphides, but their earlier existence in the vein is clearly reflected by "chalcopyrite boxwork" of textbook perfection and by so-called "relief limonite" after chalcocite. Wolframite is a mineral generally resistant to atmospheric agencies that effect oxidation and leaching, and because of this it commonly remains in the outcrop or may go into placer accumulations. Apparently in the presence of abundant sulphuric acid formed from associated pyrite some of the wolframite is removed, leaving behind a cavity and a light dusting of yellow, powdery tungstite (WO_3). That all of the cavities now seen in vein material from the oxidized zone were formerly occupied by wolframite is, of course, highly improbable. From most of these it is obvious that pyrite, or chalcopyrite, or chalcocite has been removed. In places, however, a subordinate number of the cavities probably represent the former sites of wolframite grains, and here at shallow depth the tungsten content of the sulphide zone should be somewhat richer than that of the outcrop. However, it does not follow that the tenor will improve

everywhere at depth, particularly below the quartz-free stretches of veins where tungsten deposition appears to have been scanty.

There are a considerable number of these pyrite-wolframite veins on the property. I observed 8 of them, and there are said to be others. The various vein structures appear to be persistent for several thousand feet, but this could not be properly checked during the limited time available for their examination. As previously warned, mineralization is not continuous along them but is found as intermittent lenses and shoots.

The better stretches of the veins occur where their walls are composed of Pinal schist. Apparently where they enter Madera diorite they weaken. However, this point could not be determined precisely because of poor exposures in such situations.

On the northwest, 8 claims comprise the so-called "lead group". Time permitted only a brief visit to this area, and not a great deal was learned about this type of mineralization. Apparently there are a number of lead-bearing veins striking about N 25 E and cutting the Pinal schist. One of them exhibited a quartz-cemented breccia with associated anglesite, cerussite and galena, and several ounces of silver are said to be present with the lead.

EXPLORATION AND EXPLOITATION

From the above description it will be noted that there are substantial mineral showings on the property, and, in view of this, the scarcity of exploration and development workings is very surprising. This is particularly so when we recall the

active search for tungsten made a few years ago during the war by various agencies. It would seem that leasing was not encouraged by the owner, and, as a consequence, the property now suffers by not having been opened up.

There are a few short tunnels driven in at shallow depth on some of the tungsten veins, but their sites were not always selected to expose the veins to advantage. The better quartz lenses commonly form hill tops or ridges, and surface cuts and pits have explored some of these situations to very shallow depth and have produced a few tons of sorted ore. Apparently nowhere has a leached outcrop containing numerous cavities representing former sulphides been followed downward to determine the amount of tungsten carried in the underlying sulphide zone. Neither has enough work been done below the quartz-poor stretches to determine their actual worth at depth.

The owner reports that the following shipments of tungsten ore have been made from the property over a period of years:

30 tons @ 3.8% WO_3
6 tons @ 4.0% " 3
3-3/4 tons @ 3.5% WO_3
8 tons @ 1.74% WO_3

There is little doubt that these were carefully hand-sorted lots and that they do not represent a run-of-mine grade. The 8 tons @ 1.74% WO_3 is said to be a reject from re-sorting. It would thus appear that the grade in place of the better quartz lenses might be around 2½% WO_3.

Some silver and gold are reported from these veins. It can probably be assumed that these precious metals are associated with

Unfavorable features are the following:

1. Most of the wolframite appears to be in the quartz lenses, and these apparently make up only a fraction of the veins.

2. The average vein width is rather narrow.

3. Being situate near an irregular intrusive contact, there is always the hazard of the Madera diorite coming in to make up the vein walls with apparently an accompanying deterioration in the quality of the vein.

4. Ore shoots in tungsten veins are notoriously erratic, and such deposits are commonly limited to shallow or moderate depth. Consequently they must always be approached with caution.

5. Limited accessibility due to precipitous topography will make exploration expensive because either costly roads must be built or long tunnels driven.

Factors of an uncertain nature, the determination of which would have an important bearing on the worth of the property, should be noted, as follows:

1. The amount of tungsten that might be found at added depth below the leached and porous quartz has a bearing on evaluation. In other words, has an important amount of wolframite been leached from the cavities that we now see (because of the ability of the associated pyrite to form acid) and might we expect to find below such outcrops a considerably better grade of tungsten than that now remaining at such places at and near the surface? It is my opinion that an important improvement would not be found, but there is a chance to be fooled on this point. Nevertheless, even if such improvement did appear, we cannot yet demonstrate that it would be worthwhile from a tonnage standpoint.

2. Whether or not wolframite is abundant in stretches of the veins where they carry little or no quartz has an important bearing on evaluating the property. Very little work has been done in these places, and commonly their outcrops are not prominent. Apparently some sulphides are found in this environment, but, from what little I could see, wolframite does not occur in worthwhile amounts. This is an important point, because the bulk of the veins are of this type. The amount of precious metals contained could also be an important factor here.

Exploration possibilities in the lead zone are extremely difficult to forecast. Only a very brief visit was made to this area and little could be seen because of soil cover and scarcity of workings. Certain favorable comparisons can be drawn between the occurrence of these deposits in Pinal schist and the Coeur d' Alene deposits in similar rocks of the Belt series. My impression was that those on the Westlake property were lenticular and spotty, as similar deposits have been found to be elsewhere in the district.

CONCLUSIONS

From the evidence now at hand it appears that the tungsten-bearing veins on the Westlake property will contain scattered and erratic ore shoots of limited size separated by considerable stretches of low-grade vein material. Coupled with the inaccessibility of much of the ground, the cost of development would be high. It would seem that this is an appropriate property for an active and resourceful group of leasers during times of high tungsten prices, but a difficult proposition for a big company to handle economically.

On the other hand, we must admit that the total vein length making up the entire system is attractive, and that it contains good tungsten ore in places. If commercial ore were found to connect the better shoots---with values in tungsten, precious metals, or both---then a worthwhile tonnage might be developed. The exploration cost of determining whether or not such connecting ore exists, along with the necessary expenses to initiate the

the sulphides and vary in tenor considerably along the course of the various veins.

The lead-bearing zones have likewise received very scanty exploration. There is one shaft that has followed a vein to some moderate depth from which a small shipment is reported. I was shown surface trenching that had exposed a narrow lead-bearing vein of quartz-cemented breccia in Pinal schist.

The owner reports the following from this area:

6 tons @ 78% Pb
½ ton @ 49% Pb
$5.49 Au
4.8 oz. Ag.

5 tons @ about 10% Pb.

These are again obviously sorted products prepared for packing out from an inaccessible area.

EXPLORATION POSSIBILITIES

The possibilities of finding worthwhile ore deposits on the Westlake property will be indicated by a proper balancing of favorable, unfavorable, and uncertain features, insofar as these are now evident. Briefly stated, the various factors to be considered are as follows: Those of a favorable nature are:

1. There is a well developed system of veins, most of its members being persistent for several thousand feet. This considerable aggregate strike length adds importantly to the potentialities of the ground.

2. Abundant tungsten has been found in or near portions of the outcrops of most of the veins, and a number of small shipments have been made.

3. Accessary values in other metals will enhance the grade of the ore, provided metallurgical recoveries prove to be satisfactory.

project, would be high. The preliminary phase of this work (legal, surveying, geology, sampling, test-pitting and a few drill holes) would probably cost $25,000, and (if the first phase were encouraging) succeeding exploration to properly test several veins at depth along their strike would be very expensive. Thus viewed, the cost of the gamble appears too high in comparison with the possible reward that might be gained. Consequently, on the basis of present information, I do not recommend that the property be acquired.

However, the ground does have some merit, and past exploration has been very scanty. If there is some doubt that the above conclusions do not rest on a sufficiently sound basis, then I suggest that the property be examined somewhat more carefully by traversing a number of the more important veins throughout their entire strike lengths and determining the ratio of length of quartz lenses to unsilicified stretches as well as the distances exhibiting tungsten mineralization. This information, along with a fair amount of sampling, would be of great assistance in arriving at a sharper evaluation of mining possibilities. At the same time a closer appraisal could also be made of the so-called lead zone.

E. N. Pennebaker

E. N. PENNEBAKER
June 6, 1950

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REPORT ON
WESTLAKE PROPERTY
GLOBE, ARIZONA

By E. N. PENNEBAKER

JUNE 6, 1950

E. N. PENNEBAKER
CONSULTING GEOLOGIST

MINERAL POSSIBILITIES
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The Madera diorite is a greenish-gray rock of granitic texture made up of plagioclose, quartz and biotite. It is apparently confined to the Pinal Mountains south of Globe where it is irregularly intruded into Pinal schist. The Madera diorite is generally considered to be pre-Cambrian in age, but recent investigation cast some doubt on such antiquity. Mineralization is generally only sparsely developed in this intrusive rock.

Narrow dikes of quartz porphyry with northeast trend are prominently displayed southwest of Mt. Madera and well outside of

the area here being considered. These rocks carry phenocrysts of quartz and orthoclose set in a dense, light-colored groundmass. A similar-appearing rock was noted here and there along some of the northerly-trending veins in the Westlake ground, although in places it was difficult to ascertain whether the rock was really a quartz porphyry or a coarsely recrystallized phase of the Pinal schist. Elsewhere in the district, quartz porphyry dikes and irregular small bodies are associated with disseminated copper ore. Injection of quartz porphyry was the last igneous event just prior to primary copper metallization, and, although rather scantily mineralized itself, quartz porphyry in minor amounts is a persistent associate in many of the copper-bearing zones.

The structure of the Westlake area is not well known because of generally poor exposures. Apparently foliation and bedding in the Pinal schist coincide in attitude and strike northeasterly and dip to the north in conformity with the regional pattern. There is a pronounced system of faults or fractures striking about N 25 E along which numerous veins have formed. The southward-pointing wedge of Madera diorite has already been mentioned.

MINERALIZATION

In a general way, the Globe-Miami district may be described as a great northeasterly zone of copper mineralization about 15 miles long lying north of the Schultze granite, and it is composed of a number of northeasterly elements arranged en echelon.

Both north of Globe near the east end of the district and west of the Castle Dome and Cactus ore bodies on the west are scattered marginal deposits of lead and zinc with here and there a few spots of vanadium. As far as I know, none of these marginal deposits have developed into mines of any importance. South of the Schultze granite (which is only a few miles wide) is a broad band of very light copper mineralization leading southwest of Mt. Madera which contains only a few small deposits of any value. The Westlake ground lies east and south of this zone and shows two types of mineralization, namely: (1) a limited area with lead-silver ore, and (2) a more extended zone of pyrite-wolframite veins which become copper-bearing toward the south. These two types of mineralization are generally found in the Pinal schist near its irregular contact against the wedge of Madera diorite previously noted.

The pyrite-wolframite veins on the Westlake claims are along fractures or faults that strike about N 25 E and for the most part follow a fairly regular course for several thousand feet. Occasionally subsidiary elements diverge along bedding trends or northwesterly fractures, but in general the N 25 E strike is maintained. In a few places the dip was seen to be toward the west at moderate or steep angles, but in many cases the direction and amount of dip could not be determined. Along much of their strike the veins seemed to be from 2 to 10 feet in width with an average of about 5 or 6 feet. As earlier mentioned, dikes of quartz porphyry appear to have been squirted in here and there

along a number of the mineralized fractures.

Mineralization is manifested within these veins in three ways, namely: (1) by the erratic development of stringers and lenses of white quartz intermittently along their courses; (2) by the deposition of sulphides, apparently somewhat more regularly along them; and (3) by the formation of wolframite and lesser amounts of other tungsten minerals in association with the vein quartz.

The amount of quartz developed is of much practical importance because of the wolframite associated with it. It appears to occur as irregular lenses erratically disposed along the veins. Time was not available to determine closely what proportion of the numerous veins was quartz-bearing, but my definite impression was that these more favorable stretches made up only a minor fraction. Not all of the quartz is accompanied by sulphides or tungsten-bearing minerals.

Sulphides were deposited with the quartz in variable amount but generally in fair abundance. They also occur along stretches of the vein where quartz is scanty or lacking. Pyrite is the most abundant sulphide, but toward the south relicts after chalcopyrite and chalcocite are prominent in the vein outcrops. A little sphalerite was noted, and molybdenite is reported from several places.

Wolframite is the most abundant tungsten-bearing mineral. Apparently huebnerite and ferberite are also present, and a little scheelite is an occasional associate. Much of the wolframite is in

small grains from one to a few millimeters in size, but in some specimens it is much finer in texture.

As might be expected in such precipitous terrane, the extent of oxidation is quite shallow, and sulphides are found at little depth and even in the denser portions of the outcrop itself. However, at and close to the surface pyrite has generally been removed, and its former presence is now marked by numerous cleanly washed cavities. None of the usual brightly colored minerals were found betraying the former presence of copper sulphides, but their earlier existence in the vein is clearly reflected by "chalcopyrite boxwork" of textbook perfection and by so-called "relief limonite" after chalcocite. Wolframite is a mineral generally resistant to atmospheric agencies that effect oxidation and leaching, and because of this it commonly remains in the outcrop or may go into placer accumulations. Apparently in the presence of abundant sulphuric acid formed from associated pyrite some of the wolframite is removed, leaving behind a cavity and a light dusting of yellow, powdery tungstite (WO_3). That all of the cavities now seen in vein material from the oxidized zone were formerly occupied by wolframite is, of course, highly improbable. From most of these it is obvious that pyrite, or chalcopyrite, or chalcocite has been removed. In places, however, a subordinate number of the cavities probably represent the former sites of wolframite grains, and here at shallow depth the tungsten content of the sulphide zone should be somewhat richer than that of the outcrop. However, it does not follow that the tenor will improve

everywhere at depth, particularly below the quartz-free stretches of veins where tungsten deposition appears to have been scanty.

There are a considerable number of these pyrite-wolframite veins on the property. I observed 8 of them, and there are said to be others. The various vein structures appear to be persistent for several thousand feet, but this could not be properly checked during the limited time available for their examination. As previously warned, mineralization is not continuous along them but is found as intermittent lenses and shoots.

The better stretches of the veins occur where their walls are composed of Pinal schist. Apparently where they enter Madera diorite they weaken. However, this point could not be determined precisely because of poor exposures in such situations.

On the northwest, 8 claims comprise the so-called "lead group". Time permitted only a brief visit to this area, and not a great deal was learned about this type of mineralization. Apparently there are a number of lead-bearing veins striking about N 25 E and cutting the Pinal schist. One of them exhibited a quartz-cemented breccia with associated anglesite, cerussite and galena, and several ounces of silver are said to be present with the lead.

EXPLORATION AND EXPLOITATION

From the above description it will be noted that there are substantial mineral showings on the property, and, in view of this, the scarcity of exploration and development workings is very surprising. This is particularly so when we recall the

active search for tungsten made a few years ago during the war by various agencies. It would seem that leasing was not encouraged by the owner, and, as a consequence, the property now suffers by not having been opened up.

There are a few short tunnels driven in at shallow depth on some of the tungsten veins, but their sites were not always selected to expose the veins to advantage. The better quartz lenses commonly form hill tops or ridges, and surface cuts and pits have explored some of these situations to very shallow depth and have produced a few tons of sorted ore. Apparently nowhere has a leached outcrop containing numerous cavities representing former sulphides been followed downward to determine the amount of tungsten carried in the underlying sulphide zone. Neither has enough work been done below the quartz-poor stretches to determine their actual worth at depth.

The owner reports that the following shipments of tungsten ore have been made from the property over a period of years:

30 tons @ 3.8% WO_3
6 tons @ 4.0% " WO_3
3-3/4 tons @ 3.5% WO_3
8 tons @ 1.74% WO_3

There is little doubt that these were carefully hand-sorted lots and that they do not represent a run-of-mine grade. The 8 tons @ 1.74% WO_3 is said to be a reject from re-sorting. It would thus appear that the grade in place of the better quartz lenses might be around 2½% WO_3.

Some silver and gold are reported from these veins. It can probably be assumed that these precious metals are associated with

the sulphides and vary in tenor considerably along the course of the various veins.

The lead-bearing zones have likewise received very scanty exploration. There is one shaft that has followed a vein to some moderate depth from which a small shipment is reported. I was shown surface trenching that had exposed a narrow lead-bearing vein of quartz-cemented breccia in Pinal schist.

The owner reports the following from this area:

6 tons @ 78% Pb
½ ton @ 49% Pb
$5.49 Au
4.8 oz. Ag.

5 tons @ about 10% Pb.

These are again obviously sorted products prepared for packing out from an inaccessible area.

EXPLORATION POSSIBILITIES

The possibilities of finding worthwhile ore deposits on the Westlake property will be indicated by a proper balancing of favorable, unfavorable, and uncertain features, insofar as these are now evident. Briefly stated, the various factors to be considered are as follows: Those of a favorable nature are:

1. There is a well developed system of veins, most of its members being persistent for several thousand feet. This considerable aggregate strike length adds importantly to the potentialities of the ground.

2. Abundant tungsten has been found in or near portions of the outcrops of most of the veins, and a number of small shipments have been made.

3. Accessary values in other metals will enhance the grade of the ore, provided metallurgical recoveries prove to be satisfactory.

Unfavorable features are the following:

1. Most of the wolframite appears to be in the quartz lenses, and these apparently make up only a fraction of the veins.

2. The average vein width is rather narrow.

3. Being situate near an irregular intrusive contact, there is always the hazard of the Madera diorite coming in to make up the vein walls with apparently an accompanying deterioration in the quality of the vein.

4. Ore shoots in tungsten veins are notoriously erratic, and such deposits are commonly limited to shallow or moderate depth. Consequently they must always be approached with caution.

5. Limited accessibility due to precipitous topography will make exploration expensive because either costly roads must be built or long tunnels driven.

Factors of an uncertain nature, the determination of which would have an important bearing on the worth of the property, should be noted, as follows:

1. The amount of tungsten that might be found at added depth below the leached and porous quartz has a bearing on evaluation. In other words, has an important amount of wolframite been leached from the cavities that we now see (because of the ability of the associated pyrite to form acid) and might we expect to find below such outcrops a considerably better grade of tungsten than that now remaining at such places at and near the surface? It is my opinion that an important improvement would not be found, but there is a chance to be fooled on this point. Nevertheless, even if such improvement did appear, we cannot yet demonstrate that it would be worthwhile from a tonnage standpoint.

2. Whether or not wolframite is abundant in stretches of the veins where they carry little or no quartz has an important bearing on evaluating the property. Very little work has been done in these places, and commonly their outcrops are not prominent. Apparently some sulphides are found in this environment, but, from what little I could see, wolframite does not occur in worthwhile amounts. This is an important point, because the bulk of the veins are of this type. The amount of precious metals contained could also be an important factor here.

Exploration possibilities in the lead zone are extremely difficult to forecast. Only a very brief visit was made to this area and little could be seen because of soil cover and scarcity of workings. Certain favorable comparisons can be drawn between the occurrence of these deposits in Pinal schist and the Coeur d' Alene deposits in similar rocks of the Belt series. My impression was that those on the Westlake property were lenticular and spotty, as similar deposits have been found to be elsewhere in the district.

CONCLUSIONS

From the evidence now at hand it appears that the tungsten-bearing veins on the Westlake property will contain scattered and erratic ore shoots of limited size separated by considerable stretches of low-grade vein material. Coupled with the inaccessibility of much of the ground, the cost of development would be high. It would seem that this is an appropriate property for an active and resourceful group of leasers during times of high tungsten prices, but a difficult proposition for a big company to handle economically.

On the other hand, we must admit that the total vein length making up the entire system is attractive, and that it contains good tungsten ore in places. If commercial ore were found to connect the better shoots---with values in tungsten, precious metals, or both---then a worthwhile tonnage might be developed. The exploration cost of determining whether or not such connecting ore exists, along with the necessary expenses to initiate the

project, would be high. The preliminary phase of this work (legal, surveying, geology, sampling, test-pitting and a few drill holes) would probably cost $25,000, and (if the first phase were encouraging) succeeding exploration to properly test several veins at depth along their strike would be very expensive. Thus viewed, the cost of the gamble appears too high in comparison with the possible reward that might be gained. Consequently, on the basis of present information, I do not recommend that the property be acquired.

However, the ground does have some merit, and past exploration has been very scanty. If there is some doubt that the above conclusions do not rest on a sufficiently sound basis, then I suggest that the property be examined somewhat more carefully by traversing a number of the more important veins throughout their entire strike lengths and determining the ratio of length of quartz lenses to unsilicified stretches as well as the distances exhibiting tungsten mineralization. This information, along with a fair amount of sampling, would be of great assistance in arriving at a sharper evaluation of mining possibilities. At the same time a closer appraisal could also be made of the so-called lead zone.

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June 6, 1950

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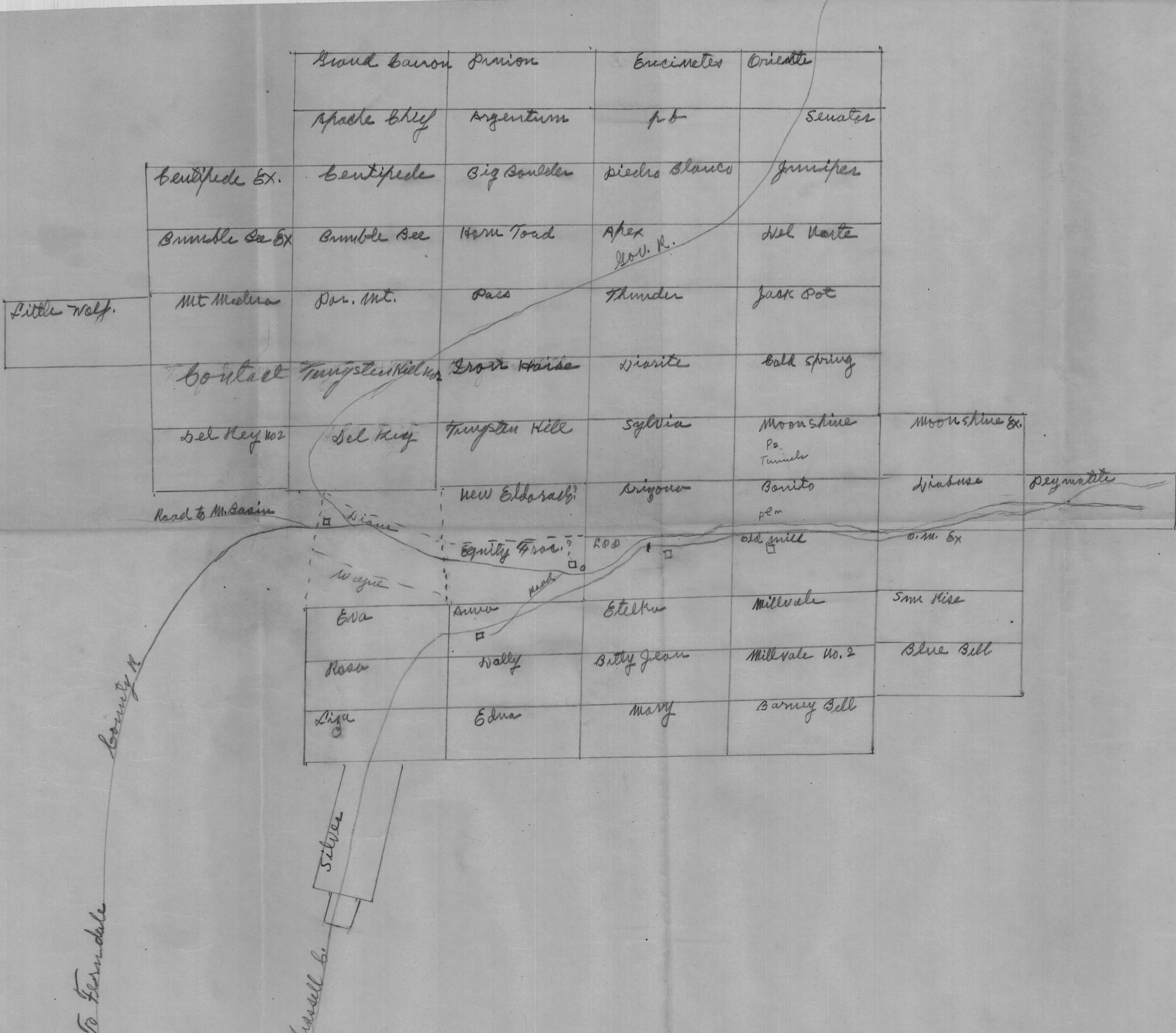

Grand Canyon
Pinion
Apache Chief
Argentum
pb
Senator
Centipede Ex.
Centipede
Big Boulder
Piedra Blanco
Juniper
Bumble Bee Ex
Bumble Bee
Horn Toad
Apex
Gov. R.
Del Norte
Little Wolf
Por. Mt.
Pass
Thunder
Jack Pot
Contact
Tungsten Hill No 2
Diorite
Cold Spring
Del Rey No 2
Del Rey
Tungsten Hill
Sylvia
Moonshine
Moonshine Ex.
Ps. Tunnels
New Eldorado
Arizona
Bonito
Diabase
Pegmatite
Road to M. Basin
Diane
Equity Frac.
Old mill
O.M. Ex
Wayne
Eva
Anna
road
Millvale
Sun Rise
Rosa
Wally
Betty Jean
Millvale No. 2
Blue Bell
Liza
Edna
Mary
Barney Bell
County R
Silver
To Ferndale
Russell C.