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UNION ASSAY OFFICE INC.
Salt Lake City Utah

Hand Sample Serial 77396-7

Oct. 24, 1939

Mine J. Fred Johnson S.E.Z.
Squaw Butte, Ore.

No.	Gold	Silver	Sn	Sul- phur	Iron %	Lime %
A 44	Trace	0.2	0.22	= 4.4 lbs. per ton		

A. C. Selby

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THE COLORADO ASSAYING COMPANY
2013 WELTON STREET
Denver, Colorado

Sept. 9, 1939

To Mr. Earl Hagey, Burns, Oregon

Squaw Butte Group	Claims	Tin	.6%
No. 7-8			

Tin 12 pounds

A. H. Holland
by Edmund Phillips

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PACIFIC RE-TINNING WORKS

2809 S Street
Sacramento,
Calif.

April 8, 1940

Mr. O. F. Selle
236 E O St.
Colton, Calif.

Dear Sir:

Received your letter of April 3, 1940 regarding the Tin
you can produce.

Please submit the metal to us and then we can make arrange-
ments of some kind for a contract.

We thank you for your kind consideration in remembering us on
this matter.

Very truly yours,

PACIFIC RE-TINNING WORKS

By J. J. Kazanjian

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PACIFIC RE-TINNING WORKS
2809 S Street

Sacramento, California

April 10, 1940

Mr. O. F. Selle
2234 - 8th Street
Baker, Oregon

Dear Sir:

We are glad to inform you that, from the actual application of the Tin metal you furnished us to examine and try in application in the process of Re-tinning other metals, that the metal you furnished us appears to be in all respects a fine grade of Tin.

Yours very truly,

Pacific Re-tinning Works

By J. C. GIBBY

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Quotations:

Gold \$35.00 oz.

ROBERT J. HARRIS
Assayer

Assay made for - Mr. W. F. Hayden Consulting Mining Engineer

April 8, 1940

			Total \$ Value
Test of 5 pounds of material from Claim #4	Gold recovered	26.5 milligrams	\$11.925
Test of 26.123 pounds of material	Gold recovered	58.8 milligrams	5.062

#1 Bottle Contains gold recovered from 5 pounds of ore
#2 Bottle Contains gold recovered from 26.123 pounds of Ore

Bottle delivered to Mr. W. F. Hayden.

The results on this assay are low due to accident during parting. Bumping caused crucible to turn on side.

231 - 23rd St.
San Bernardino, Calif.

Robert J. Harris, Assayer

C
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R. J. HARRIS
Assayer

San Bernardino, Calif.

April 8, 1940

Report of Robert J. Harris
TO WHOM IT MAY CONCERN

Mr. W. F. Hayden and Mr. O. F. Selle submitted to me 52.246 pounds of material to be split and sampled previous to a test run to be made by Mr. J. W. Harris of 236 East "O" St., Colton, California. This 52.246 pounds was crushed mixed and sampled by me, 26.123 pounds selected for the run. This 26.123 pounds was submitted to Mr. J. W. Harris for the test run.

The material delivered to Mr. J. W. Harris was described by Mr. Hayden and Mr. Selle as a composite sample from the Squaw Butte Group of Mining Claims, Harney Co., Oregon. The equipment used by Mr. J. W. Harris for making this test run was inspected by me. Each part that comes in contact with the material was thoroughly cleaned and free from values.

The mercury used in the test was assayed for gold previous to this run and found to be free from gold. After the run of several hours the mercury was retorted by Mr. Harris and the material recovered delivered to me. The complete run was under my observation at all times. Assay results from retorted material. Recovery 58.8 milligrams of gold. Material run 26.123 pounds. Recovery of \$5.0625 per ton.

***The result of this test is low due to accident in parting the gold from silver, Lack of material prevented a check on this run.

Test made on 5 pounds of material submitted by Mr. O. F. Selle to Mr. J. W. Harris of Colton, California for Mr. W. F. Hayden. This material was taken from claim #4 of the Squaw Butte Group of Mining Claims as to the description of Mr. O. F. Selle. Assay results from retorted material. Recovery 26.5 milligrams of gold. Material run 5 pounds. Recovery of \$11.925 per ton. The gold recovered by assay was placed in bottles and marked #1 and #2. These bottles plus contents was delivered to Mr. W. F. Hayden, Consulting Mining Engineer, of St. Louis, Mo.

(signed) Robert J. Harris
231 - 23rd. St.

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I personally gave Mr. A. G. Malin, Metallurgist of Montebello, Calif. The samples referred to in the copy of his letter which is enclosed. The samples were personally taken by me from the Squaw Butte mining claim deposits, Harney County, Oregon

I have in my possession here the 5.12 oz. of oxide recovered. It apparently is a very fine product, the color being cream white.

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Montebello, Cal.
April 26, 1940

William F. Hayden
364 Gray Ave.
Webster Groves
St. Louis, Missouri

Dear Sir:

I have mailed, under separate cover, the extraction of SnO_2 from the sample of ore you left with me.

Chemical treatment of this ore presents some difficulties and the extraction is not as pure as I would like. I estimate it to be least 60% pure and on this basis I submit the following report:

Weight of sample	7 lbs.	
" " first extraction (submitted)	5.12 oz SnO_2	
" " second "	.75 "	
" " third "	.12 "	
Total extraction	<u>5.99 "</u>	
Estimated purity	60%	3.59 "
Metallic Tin		2.79 "

percentage of Metallic Tin 2.49% or 49.8# per ton

May I suggest that the high silica content and the extreme volatility of this ore indicate fuming as the most practical method of recovery.

Respectfully submitted

A. G. Malin

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THE COLORADO ASSAYING COMPANY
Incorporated

Assayers and Chemists
2013 Welton Street

Denver, Colorado
August 25, 1939

REPORT on determination made for
Mr. Earl Hagey, Burns, Oregon

Sample Marks	Metals	Amt. per gon
Remarks: Your remittance over- paid our charges 50¢ which you will find enclosed in coupons	Gold Tin (fire)	trace 1.2%

THE COLORADO ASSAYING COMPANY

By A. H. Holland
Edmund Phillips

STATE OF OREGON)
)
COUNTY OF HARNEY) SS

I, Rob't M. Duncan, a Notary Public in and for the above named county and State, DO HEREBY CERTIFY That I have prepared the foregoing copy of report from the original thereof and that the said copy is a full, true and correct copy of such original (Omitting names and motto of Company appearing at head) report.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my seal this 29th day of August, 1939.

/s/ R. M. Duncan
Notary Public for Oregon
My comm. expires 7/19/40

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APPLIED RESEARCH LABORATORIES

1208 San Julian Street
Los Angeles, Calif.

April 9, 1940

Report on qualitative spectrographic analysis of sample as submitted
by:

Wm. H. Hayden, Los Angeles, Calif.

Elements Present

Estimated Quantities

Tin

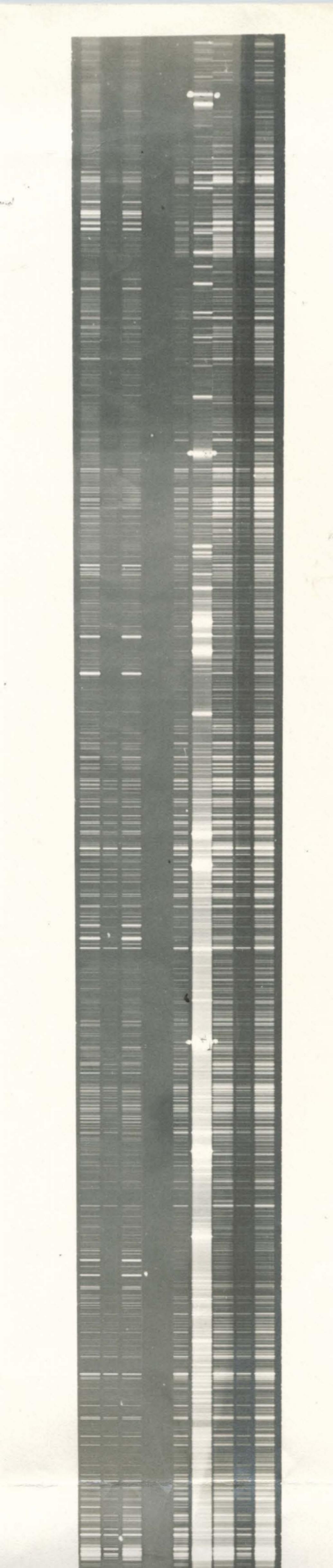
Principal Constituent

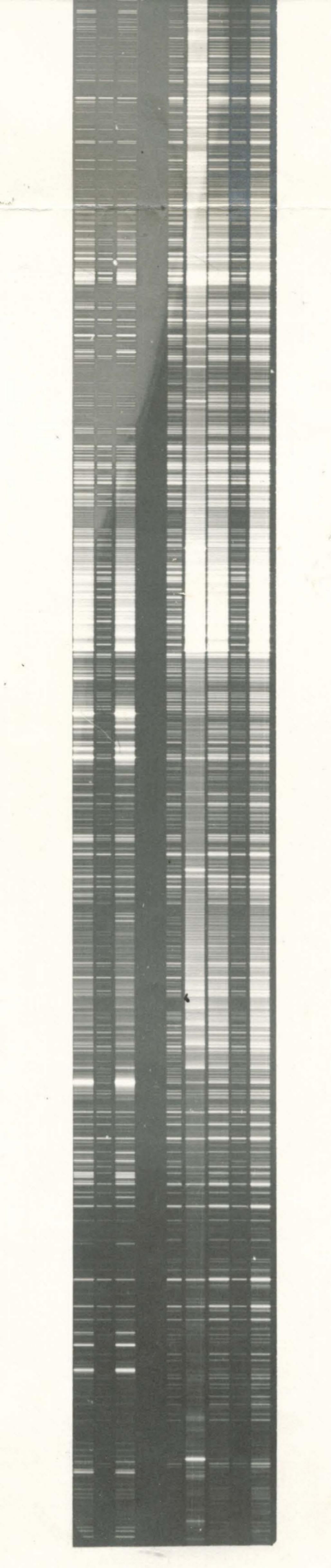
Estimated Tin content: between 70% and 95%

Respectfully submitted

APPLIED RESEARCH LABS.

C. E. Harvey





Received Dec. 15, 1939

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Mines

Reno, Nevada

December 13, 1939

Mr. Earl K. Nixon
Director of State Dept. of Geology
329 S. W. Oak Street
Portland, Oregon

Dear Mr. Nixon:

The two samples submitted with your letter of December 6 have been received.

Both of these samples were examined chemically and by the spectrograph but no tin was detected.

Very truly yours,

(signed) Edmund S. Leaver
Supervising Engineer

Copy

1. Name of property: SQUAW MOUNTAIN TIN PROPERTY. Lake Co. (N.E. corner).
Operating company or individual: A Los Angeles group. G. Earl Hagey seems to be the local agent; address, Burns, Oregon.
Location of property: Sec. 1, T. 23 S., R. 23 E. Visited Claims #25 and #7.
Acreage of holdings: Between 90 and 100 claims, staked the summer of 1939.
2. History of property, past and recent: We understand that a prospector has been gathering "ore" and fussing with the metallurgy for two or three years. He has convinced a group that tin is present, and work is now going on in Los Angeles toward developing a method to reduce the tin from the "ore". Hagey claims that some geologist reported tin during a former visit to the area.
3. History of production: No production.
4. Development: Cinch work has been done on all of the claims (allegedly) and a few shallow pits and cuts have been made to expose the "ore" at the surface.
5. Equipment: None. Topography: Rolling, characteristic of the Wagontire Mountain region. Country rocks: Those seen are tuffs with capping of indefinite thickness of granular tuff composed almost entirely of fractured obsidian and acid flows. Soil covering is only a foot thick lying on this wide-spread obsidian blanket. Ant hills bring up the black obsidian sand. Soil covering on hill slopes may be many feet deep. Elevation: 5000 feet, plus. Timber: None. Water: could be developed in erosional basins. Snow fall and Climate: Correspond to that of high plateau country. Power: None.
6. Geology -- general and local: Country is covered by a series of acid volcanic tuffs, presumably of local origin covered by the obsidian blanket representing nearby flows from Squaw Butte or other vent. The "ore" body is the fractured obsidian. Origin of this obsidian is suggested as follows: Showers of acid tuff or Nuée Ardente clouds were deposited in a highly heated condition and the residual heat of the tuff particles and the weight of over-lying material caused the tuff to be re-fused to form obsidian and more cellular glass. This relationship is rather clearly shown in exposures in a gulch to the north. Subsequent movements fractured the obsidian into grains of about 1/8 to 1/4 inches in diameter. It is uncommon to find tin minerals associated with other than pegmatites or acid granitoid rocks and occurring in veins. It might be probable that, if the molten magma had contained tin vapors and had been extruded and consolidated with sufficient rapidity to entrap the tin vapors, it is conceivable that finely disseminated tin might occur in this obsidian. In such case they would doubtless be intermolecular.
7. Metallurgy: The "ore" is a highly fractured obsidian and would crush to quarter inch size very easily. It is reported that tin assays can be obtained only when the material is ground exceedingly fine. If this is the case, provision for extremely fine grinding would be necessary. The "ore" could be mined by open pit methods.

8. Remarks: Conclusive evidence has not been offered to prove the presence of tin. It has been stated that the tine can be obtained only by a special type of assay or, as stated above, by exceedingly fine grinding. It is recommended that spectroscopic analysis be made to indicate the absolute presence or absence of tin. If the presence of tin is proven, then some special metallurgical process will undoubtedly be developed. From what is known of the occurrence of tin and the general set-up, it is doubtful if this material will prove to be a tin "ore" body. The uniqueness of its occurrence may justify a suspended decision pending adequate proof.

Earl K. Nixon
Ray C. Treasher

STATE OF OREGON
OFFICE OF THE STATE LAND BOARD
SALEM

IN REPLY
REFER TO FILE NO.

March 14, 1941.

Marvin Klemme,
Burns, Oregon.

Dear Mr. Klemme:

Answering your letter of March 6, 1941, transmittine request of Earl Hagey for permission to sink test holes for prospecting for tin on S $\frac{1}{2}$ and NW $\frac{1}{4}$ of Section 36, T.23 S. R.25 E. and Section 36, T.25 S. R.24 E., I wish to advise you that such permission is hereby granted, provided Mr. Hagey will allow the Land Board to take samples from the pits for use of this department, and that after the samples are taken Mr. Hagey will sufficiently refill the test holes so they will not be a menace to livestock running on the range.

Also, please advise Mr. Hagey that this permission in no wise grants him exclusive privilege to lease these lands without further arrangement being made with this department.

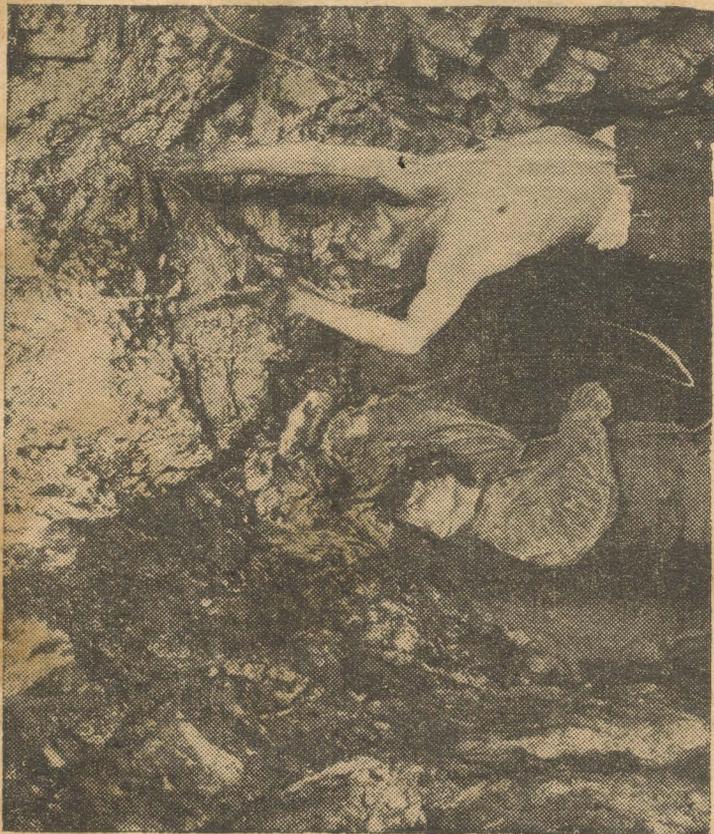
Very truly yours,

Clerk of State Land Board.

LDG:W

RECEIVED
MAR 15 1941
STATE DEPT. OF GEOLOGY
& MINERAL INDS.

SCIENCE ANSWERS THE TIN PROBLEM



Discovery of a simple test for cassiterite makes it possible for a prospector to pan streams for tin or follow veins in caverns of granitic rocks, as illustrated above.

OREGON'S interest in the nation's "tin situation," as presented in the accompanying article, is heightened by recent demonstration operation of a \$10,000 pilot plant, near Burns, for recovery of tin oxide through what is believed to be an entirely new process.

Those interested in the development assert that their process may revolutionize the tin industry and make the United States self-sufficient in the metal it chiefly lacks.

The ore, which the developers say had previously not yielded any type of metal, lies on Juniper Ridge, on the edge of the Squaw Butte federal range experiment station, 37 miles west of Burns. Recovery at the pilot



The test for tin ore: Place zinc on watch glass, ore on the zinc, and



E ANSWERS THE TIN Problem



rite makes it possible tin or follow veins in illustrated above.



The test for tin ore: Place zinc on watch glass, ore on the zinc, and pour on few drops of hydrochloric acid; if tin is present in the ore, a coating will form.

is placed on the watch glass. The grain of suspected tin mineral to be



of the deposit, ranging over 2000 acres of federal range, will be treated for the purpose of demonstrating commercial probabilities of large scale development.

Governor Sprague, Secretary of State Snell and F. W. Libbey of the state department of geology and mineral industries were among invited guests who witnessed the test run at the pilot plant in October.

NOT the least of the problems confronting the men who are plotting the huge defense program of the United States is this riddle:

What if the importation of tin were suddenly cut off or drastically curtailed?

Tin, one of the chief strategic metals of the United States, is also one metal of which the United States produces very little. For tin this country is almost totally dependent on the rest of the world.

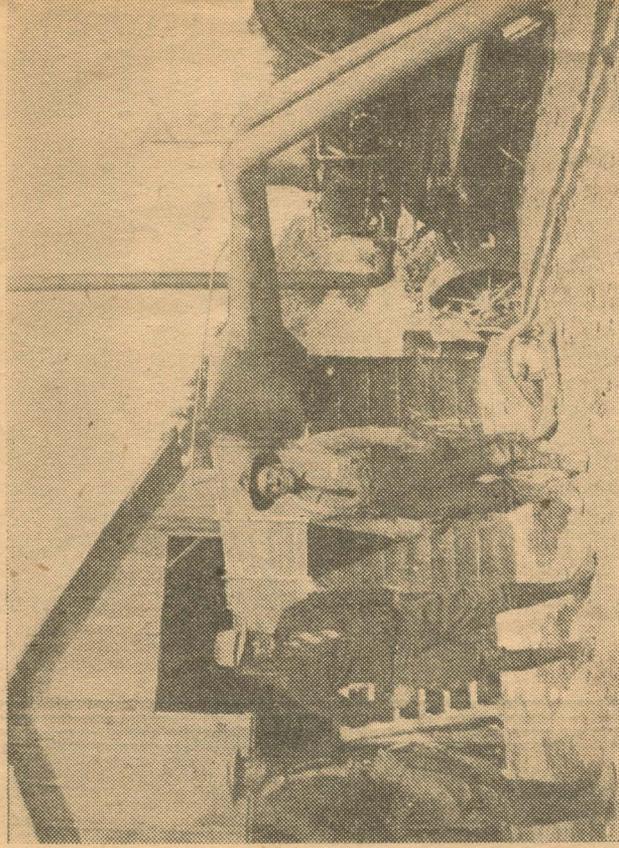
The seriousness of Uncle Sam's tin problem is not underestimated, and especially not in the ranks of our scientists, on whose shoulders the burden of solution naturally has fallen. And for this problem, as in the case of many other serious dilemmas in which the United States has found itself, such as the discovery of a synthetic for rubber, science has found an answer.

Briefly, science's answer is a method by which the United States can produce more tin and become less dependent on other countries.

As in primitive times, when the caveman threw stones at his adversary, wars are still fought with rocks; although now rocks give up their valuable ores for the construction of highly-mechanized war machines, powerful guns and death-dealing projectiles. And the one rock that warring countries rate as valuable as any other is a black, sometimes brown, mineral called cassiterite. In common language cassiterite is tin dioxide, the mineral from which man obtains the important metal—tin.

Like tin, other strategic metals are imported into the United States in large quantities; for example, the minerals from which tungsten and manganese, so important in making steel armor and guns, are obtained. But in an emergency the United States could obtain manganese and tungsten from its own ores at a price. With tin the situation is different. The United States, even in normal times, uses about 100,000 tons of tin a year. However, less than 2½ tons are produced from the available sources. For a strategic metal this

Panning the sands of streams for tin in the manner of gold placer mining is being urged.



Ore from which tin is recovered lies in a 2000-acre tract near Burns. Above is part of the pilot unit for smelting of ore. From left—O. F. Sellel, Baker mining engineer; Earl Hagey, Burns, and Albert L. Kobell of Sandpoint, Idaho, owner of patent rights on a new smelting process to be used.

Tin is even necessary in making women's stockings; a pair of silk hose contains more of the metal than a small tin can.

What seems paradoxical regarding Uncle Sam's problem of tin is that there is tin in the United States, considerably more than is now produced, although perhaps not enough to make the country independent of outside sources. It might even be true that enough tin could be found in the United States to meet the country's needs.

If this be true, and many mineralogists verify it, why hasn't Uncle Sam gone after it? Why doesn't he strive for self-sufficiency in this precious metal as he has in other strategic metals?

The answer to this is that very few people can tell cassiterite, or tin ore, when they see it; and there has been no simple test for the ore.

Cassiterite does not look like tin, and formerly it was only possible to test it with elaborate laboratory equipment. Many of the thousands of panning streams for gold have passed up tin ore that would have been more valuable than gold.

does not contain tin.

Thousands of years ago the Phoenicians sailed to the end of the then-known world, to the "Cassiterides"—the British Isles, particularly to Cornwall—for the tin found there. They needed tin to make bronze, by mixing it with copper, and bronze was the principal metal of the day. Now man goes to the other side of the world for his tin, to British Malaya, the Dutch East Indies and Thailand for tin, and man is ready to fight for this metal. About a quarter of the earth's supply of tin comes from the high Andes of Bolivia, supplemented by sizable production from Nigeria and the Belgian Congo.

In the United States tin has come chiefly from placers in the Black Hills of South Dakota and Wyoming, and an old mine at Gaffney, S. C. Alaska has produced 145 tons. These finds were made because the miners working there were trained men knowing laboratory tests.

But just where should the prospector look for tin?

According to Mr. Gordon, deposits of tin are limited to veins in granitic rocks or their neighborhoods, or to placer concentrations in streams that have drained such areas.

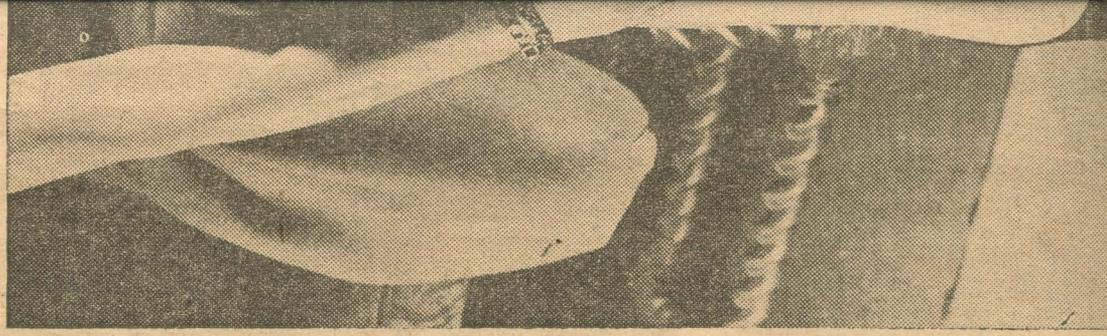
"In the United States," he says, "granites are the backbone of the Rocky mountains and the Southern Appalachians. Granites occur in most of the states, excepting those of the Mississippi valley—and there are even exceptions there since granites are found in Arkansas and Texas. Granites are common in the Eastern states beyond the margin of the coastal plain. Alaska is most promising, as is the vast area known as the Canadian shield about Hudson Bay, especially in the Far North.

"Granite is a common rock, and it may be worthwhile to look for tin wherever there is granite. Mineralizing solutions effected concentrations of metals during the cooling of the molten rock of which our granite of today was the cooled product. Such concentration is most frequent about the margin of granite areas, and those localities, and the streams draining them, are the best places to begin to look for tin ore."

The best systematic prospecting of granitic areas for tin would seem to be panning the sands of streams at their margins, using a gold miner's pan, according to Gordon.

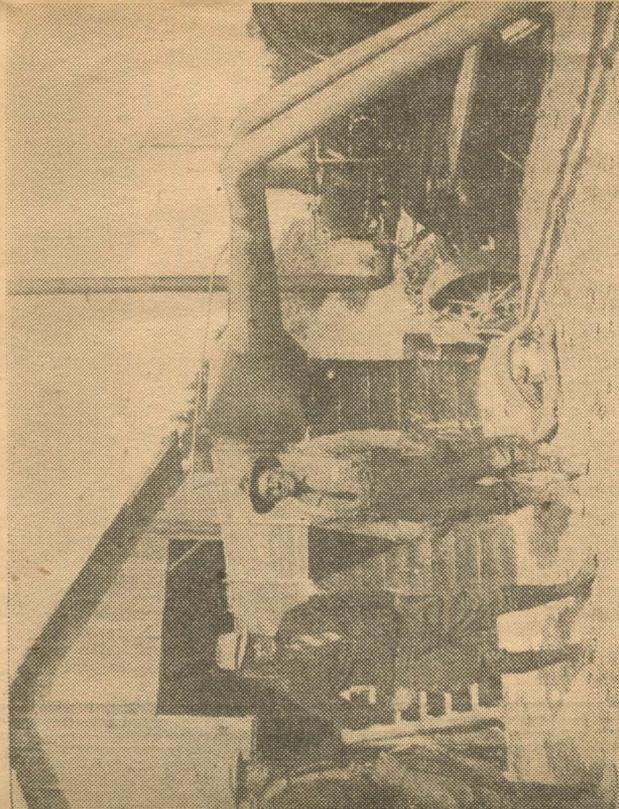
Take his word for it, tin is well worthwhile looking for.

"If the prospector finds tin, he will be well paid for his trouble. The little over two tons found in the Black



The largest and finest cassiterite in the world. The prospector may not find it, but he probably will.

Panning the sands of streams for tin in the manner of gold placer mining is being urged.



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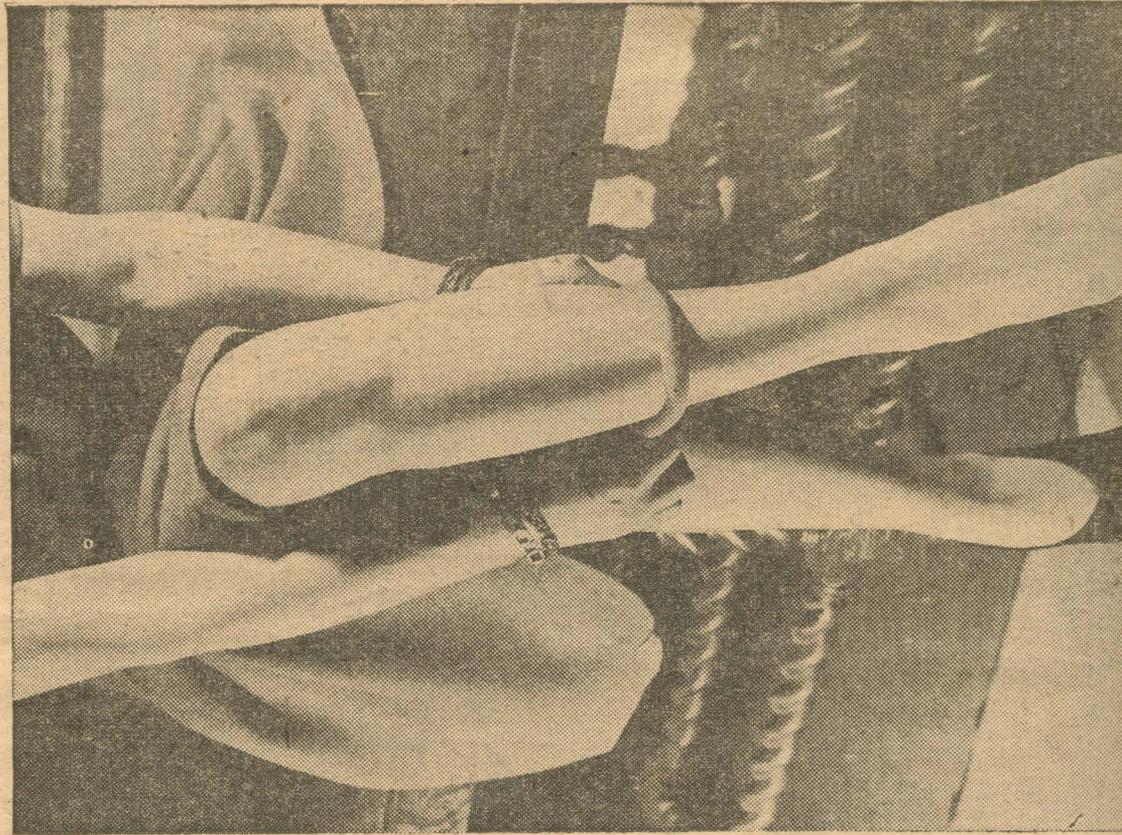
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The largest and finest crystal of cassiterite, or tin ore, ever found. The prospector may not find a crystal this large in the United States, but he probably will find smaller ones of the same shape.



LIBRARY ASSOCIATION OF PORTLAND
PORTLAND, OREGON

NELL AVERY UNGER, LIBRARIAN

May 10, 1941

RECEIVED
MAY 11 1941

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon, Director
Oregon State Department of Geology
and Mineral Industries
Woodlark Bldg.
813 S.W. Alder
Portland, Oregon

Dear Mr. Nixon:

We are enclosing a copy of the list on tin which you said that you would like to have. It includes only a few of hundreds of references on the metal which we have in our library.

Miss Anderson, Head of the Reference Department said that she would see that you received the other information that you wanted.

Very truly yours,

Nellie Mignon Fisher

Nellie Mignon Fisher

Head of the Business-Technical Department

NMF:ar

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- Hallett, R.L. Volumetric Determination of Tin.
(Society of Chemical Industry. Journal v.35, p.1087-1089. 1916.)
- Green, G.U. Sources of Error in Assaying Tin Ores by
the Pearce-Low Method.
(Engineering and Mining Journal. v.122, p.616-618. 1924.)
- Gardner, E.D. Tin Deposits of the Black Hills, South Dakota.
(U.S. Mines, Bureau of Information Circ. 7069, p.1-78. 1939.)
This very fine account of geology and metallurgy
of South Dakota deposits (Cassiterite) may be obtained as
a gift from the U.S. Mines Bureau.
- Gaudin, A.M. Pyrosynthesis, Identification and Study of Tin
Sulphides and of Compounds of Tin Sulphides
with Antimony and Lead Sulphides. Bibliography.
(Econ. Geology. v.33, p.868-88. Dec. 1938.)
Not cassiterite, but may be of interest.
- Fries, C. Jr. Deposits of the Black Range, Catron and Sierra
Counties (New Mexico).
(U.S. Geol. Survey Bulletin 922-M, p.355-70. 1940.)
Cassiterite.
- Wing-Easton, N. Tin Ores of Banca, Billiton, and Singkep, Malay
Archipelago. Bibliography.
(Econ. Geol. v.32, p.1-30, p.154-82, Jan-Mar. 1937; Discussion
v.32, p.1019-41, Dec. 1937.)
- Jones, W.R. Origin of Topaz and Cassiterite in Malaya.
(Geol. Magazine, p.255-260. 1916.)
Not in Portland Library. This author also wrote
"Tinfields of the World."
- Loo, W.W. Reduction of Roasted Cassiterite Concentrates.
(American Institute of Mining & Metallurgical Eng. v.76, p.494-
526. 1928.)
- Klaerding, J. Die Wissenschaftlichen Grundlagen der Zinnverhütung.
(Metall und Erz v.33, p.487-489. September 1936.)
Not in Portland Library. Apparently a valuable article
on tin smelting.
- International Tin Research and Development Council, Batelle Memorial
Institute. 505 King Ave., Columbus, Ohio
This council has some good economic material on tin.

TIN IN OREGON

- Raymond, R.W. Geographical Distribution of Mining Districts in
 the United States.
 (Amer. Inst. of Mining Eng. Trans. v.1, p.33-39. 1871.)
 p.3 (i.e. 33) quotes Clarence King as follows:
 "The Pacific Coast ranges upon the west carry quicksilver, tin,
 and chromic iron."
- U.S. Mines Bureau Legendary White Metal and its "Ore" 1925.
 (Information circular 6000.)
- Post Mortem on Oregon's Famous "White Metal" mystery.
 (Engineering and Mining Journal. v.125, p.1061-1062, June 30,
 1928.)
 Refers to the tin excitement of the 1920's.
- Possibility of Tin Deposits Arouses Attention of Mining World.
 (Oregonian, April 17, 1927. Sec. 1, p.20.)
- Oregon Tin Mine Bubble Blows Up.
 (Journal, August 10, 1927. p.30.)
- Tin Found in Imnaha.
 (Oregonian, July 16, 1933. Sec. 4, p.2.)
- Possible Oregon Tin Field Discovered in Lava Flow.
 (Oregonian, October 12, 1940. p.1.)
- Tin "Finds" Hit (by Oregon Section of the American Institute of Mining
 and Metallurgical Engineers.)
 (Oregonian, December 22, 1940. Sec. 1, p.14.)

January 2, 1941

Mr. A. C. Oberg, Mining Engineer
503 Court House
Duluth, Minnesota

Dear Mr. Oberg:

Your inquiry of December 24th, directed to our Secretary of State, has been referred to me for reply.

The tin matter, which received so much publicity sometime ago, is still a very controversial matter. This Department has investigated it to a certain extent but is not prepared as yet to say that it has especial merit, although there are angles which are still confused in our mind. Suffice it to say that the proprietors have in no way demonstrated satisfactorily that tin exists in commercial quantity. I do not think that it would fulfill the requirement of an investment or speculation as outlined in your letter. If the result of scientific investigations to be carried out very shortly indicate that we have here something of real merit, you will doubtless see it in the newspapers all the way across the country.

Very truly yours,

Director

EKN:vm

RECEIVED
 JAN 2 1941
 STATE DEPT OF GEOLOGY
 & MINERAL INDS.

A. C. OBERG
 MINING ENGINEER
 DULUTH, MINN.

503 Court House

December 24th, 1940

Mr. Earl Snell, Sec'y of State,
 State of Oregon,
 Astoria, Oregon.

Dear Mr. Snell:-

I would to get a little more information on the tin deposit which is supposed to be in the process of being developed at Burns, Oregon. I understand you and Gov. Sprague have been there and know something about it.

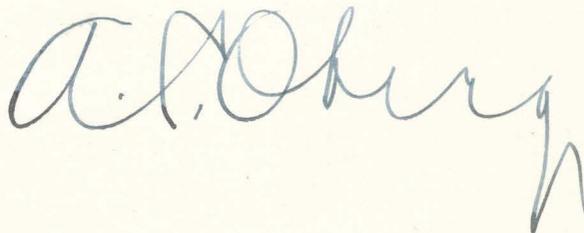
If there is a chance to develop an area in some other part of the formation, I would like to secure the necessary maps and copies of reports to bring the matter to the attention of parties here who are looking for something of this kind.

We do not care for anything which has not the earmarks of making good, but if there is something worth while which can be developed or tested, we are willing and ready to go ahead after satisfying ourselves as to the merits of the case.

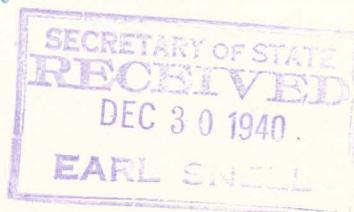
Will appreciate anything in the way of reports which you may have, obliging,

Very truly yours,

feh-o



12-30-40 Respectfully referred to State Board of Department



of Geology and Mineral
 Industries, 702 Woodlark Bldg.
 Portland.

Earl Snell
 Secretary of State

UNIVERSITY OF OREGON
DEPARTMENT OF GEOLOGY
EUGENE, OREGON

January 7th, 1941

RECEIVED
JAN 8 1941

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon
702 Woodlark Building
Portland, Oregon

Dear Mr. Nixon:

I thought you would be interested in a couple of refer-
ences concerning tin. In Lindgren's "Mineral Deposits", page
743, Third Edition, there is a paragraph or two about cassi-
terite in rhyolite flows in Bolivia. Evidently this is not
a deposit of any economic ~~deposit~~, but it is interesting in
connection with what we find in eastern Oregon. Also, in
"Economic Geology", Vol. 7, 1912, page 218 and 219, there is
a discussion of tin deposits in Mexico, also associated with
Tertiary rhyolites. This is an article by Ferguson and
Bateman.

In talking with the physicists, they think that if
there is any tin present in those rocks it would show up
with the spectroscope, no matter what the temperature.

Sincerely yours,

W. D. S.

Warren D. Smith

WDS mw

W

January 17, 1941

Mr. Burton Harrison
136 East 74th Street
Los Angeles, California

Dear Sir:

Replying to your inquiry of January 14th--no one yet knows how the tin occurs, nor how it can be recovered, nor for certain that it occurs in commercial quantities. As a matter of fact, there has been much controversy over the question of whether or not it is tin ore. I think the question will be settled within the next few weeks. So far as I know, there are no recovery furnaces in the United States. Naturally, the size of the deposit, about which you ask, would depend on how much tin, if any, the material contained. Some samples are favorable; some are unfavorable. It is a most confusing situation. However, if it should develop into a tin enterprise of importance, you will no doubt hear all about it in the press one of these days.

Respectfully yours,

EKN:vm

, Director

RECEIVED
JAN 17 1941

136 East 74th St.,
Los Angeles, Calif.
Jan. 14, 1941.

STATE DEPT OF GEOLOGY
Department of Geology, & MINERAL INDS.
Portland, Ore.

Gentlemen:

Have heard of the recent discovery of tin near Burns, Oregon.
How large is the deposit, and how does it occur? How is tin recovered?
Are there any recovery furnaces for tin in the U. S.?

Any information you send me will be greatly appreciated.

Thanking you, I am

Sincerely yours,

Burton Harrison.

BA

7

February 13, 1941

Mr. D. C. McAlpine
Price, Utah

Dear Mr. McAlpine:

Your letter dated January 28th addressed to the University of Oregon, Department of Mining and Metallurgy, Eugene, has been referred to this Department for reply. Incidentally, the University of Oregon does not now have a Mining Department, and this may account for the delay in our receipt of your letter.

Commenting upon the assays for tin, particularly the one you describe as obtained from the small electric furnace in which a tin button weighing two ounces was obtained from ore weighing 6 ozs and in which the tin button assayed 94.18%, I can not quite conceive of an ore assaying 28% tin as indicated by the results from the electric furnace and yet reliable laboratories being unable to detect any tin in the rock.

In the case of the reported tin discoveries of southwestern Oregon in the 1920's, it is my information that a thorough investigation was made by the United States Bureau of Mines, and such reported discoveries of tin could not in any case be verified; in fact, I have been informed that in one case at least, fraud was indicated. I was not in the State at that time, and so my information concerning the tin excitement is second-handed, but is obtained from people who were rather close to the investigation made. So far as my information goes and from the records available to me in this Department, Mr. Derwent did not do any work for the old Bureau of Mines and Geology nor for the present State Department of Geology and Mineral Industries. I have no information concerning Mr. Irach.

I should say that the statement that American capitalists have a large interest in Bolivian and other foreign tin deposits is incorrect. The Bolivian deposits are controlled and largely owned by a well-known Bolivian family. The deposits in Malaya are largely owned by English and Dutch capitalists. I feel rather positive that any commercial deposits of tin in the United States would be welcomed enthusiastically by those responsible for our Government's policies.

If I can give you any further information, I shall be glad to give it.

Yours very truly,

F. W. Libbey
Mining Engineer

FWL:ac

Price, Utah,
January 28, 1941.

University of Oregon,
Dept. of Mining and Metallurgy,
Eugene, Oregon.

Gentlemen:

For some months past, there has been some excitement in this section regarding the supposed finding of tin and other metals greatly in demand by our Government. A man named A. G. Riach brought in some ore which he proclaimed to be tin. He found it difficult to get anyone to take much interest in what he said as he is quite noisy and insulting, especially when he is drinking, and he is in this condition quite often. He finally told those who gave him attention that a man named Ernest Derwent, who owned a laboratory and who was then located at Montrose, Colorado, would come here and run the samples of tin ore, etc. Money was raised and Mr. Derwent was brought here. In due time, his laboratory was ready for operation. Also, a small brick furnace was built, which Mr. Derwent called an English furnace, of the type used (many years ago, I presume) in Cornwall, England.

Mr. Derwent's first assay of the ore showed - Tin Oxide 2.18 o/o; a second analysis, 8.50 o/o.

A small electric furnace was also installed and a test made in this gave a metal button exactly 2 ozs. in weight from an ore content weighing 6 ozs. Analysis of this button showed -

Iron	4.86 o/o	
Tin	94.18 o/o	28%

When the result of these analyses was made known, many people made small investments with promise of being placed on tin claims.

The Government was notified by A. G. Riach who claimed this to be the greatest find in American history.

Now, this same ore has been submitted to several assayists in Salt Lake City and other places, also to the Bureau of Mines in Salt Lake City and all analyses made by them show there is no tin

As Mr. Derwent has told of tin ore being found near Grant's Pass, Oregon in 1928, I, also many other here would like to know just what there is to this reported find and why the deposit was never developed. Mr. Derwent states that a block of tin weighing several pounds was smelted from this ore and submitted to the Government.

The story told by A. G. Riach is that on account of large holdings of American capitalists in Bolivia and other foreign countries, especially by Herbest Hoover, the whole thing was smothered. This, of course, seems far fetched and is not believed.

1-28-1941

I have much faith in Mr. Derwent's word and ability; and, as I have heard him say he has done much work for the State of Oregon and still has a home in Grant's Pass, I, also, many others, would like a word from you as to these men and the work done by Mr. Derwent. A. G. Riach is now discounted by everyone here and many have also lost faith in Mr. Derwent.

An analysis of scheelite, made by Mr. Derwent, showed it to be high in tungsten, but the same ore was sent to an assayist in Nevada, to an assayist in San Francisco and to three others in Salt Lake City, all of whom said the samples contained no tungsten. This, of course, has caused much doubt in the minds of those who had faith in Mr. Derwent.

I enclose self addressed, stamped envelope for reply.

Very truly yours,

D. C. McAlpine



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SALT LAKE CITY • LOS ANGELES

Main Office and Plant

2700 SIXTEENTH AVENUE SOUTHWEST
SEATTLE, WASHINGTON

February 11, 1941

RECEIVED
FEB 13 1941

STATE DEPT. OF GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon, Director
State Dept. of Geology & Mineral Industries
702 Woodlark Building
Portland, Oregon

Dear Mr. Nixon:

Your letter of February 6th gave me a very good idea of what Mr. Koble is attempting to do in reducing tin directly from the ore.

I have had quite a bit of experience with the so-called "fuming furnaces" wherein an attempt is made to make a selective settling of the fumed material. To my knowledge there has never been a practical furnace of this type built.

I wish to thank you for your courtesy in answering my questions, and hope that if in the future any success is attained in the recovery of tin by this or any other new process you will be kind enough to call my attention to it.

Very truly yours,

NORTHWEST LEAD COMPANY

H. P. Lawrence
H. P. Lawrence,
Superintendent

HPL/B

February 6, 1941

Mr. H. P. Lawrence, Superintendent
Northwest Lead Company
2700 Sixteenth Avenue Southwest
Seattle, Washington

Dear Mr. Lawrence:

Referring to your letter of January 20th--it is quite plain that I did misread your letter of inquiry, addressed to Governor Sprague and asking for information on the process employed at the pilot plant on the deposit of alleged tin ore near Burns, Oregon.

The pilot plant is a so-called Koble or Kobel furnace. Kobel's initials are A. K., and I believe his address is Sandpoint, Idaho. The furnace itself is a narrow chamber about one-foot wide, slot-shaped with an oil burner introduced in an opening at each end at the bottom. Pulverized and dried ore is fed in with the air jet. Volatile constituents of the ore are supposed to go into a gaseous state almost instantaneously, and they are conveyed through a cooling train to a bag-house some distance away from the furnace. Slag forms and is tapped out of the bottom of the furnace.

This is the so-called fuming furnace about which you may have heard. I have no comment to make as to the possibilities of the furnace in practical operation on sulphide ores to which it is supposed to be adapted. The little furnace was installed as a pilot plant on the tin property and, in my opinion, did not give a satisfactory solution of the problem attacked.

You can doubtless learn more about this so-called Kobel fuming furnace by making further inquiry in Sandpoint.

Very truly yours,

EKN:vm

Director

NORTHWEST LEAD COMPANY

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MANUFACTURERS

SALES OFFICES: SAN FRANCISCO



SALT LAKE CITY • LOS ANGELES

RECEIVED
JAN 31 1941

Main Office and Plant

2700 SIXTEENTH AVENUE SOUTHWEST
SEATTLE, WASHINGTON

STATE DEPT. OF GEOLOGY
& MINERAL INDS.

January 30, 1941

Mr. Earl K. Nixon, Director
State Dept. of Geology & Mineral Industries
702 Woodlark Building
Portland, Oregon

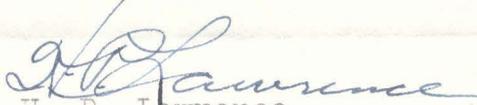
Dear Mr. Nixon:

You have quite evidently misread my letter to Governor Sprague, in that I am not interested in tin ore deposits, but rather in a tin recovery process as was reported in a news item in a recent issue of the Northwest Mining News.

I am enclosing for your convenience a copy of my letter to Governor Sprague, and any information that you may give me regarding this process or the names of the parties who could inform me regarding it will be greatly appreciated.

Very truly yours,

NORTHWEST LEAD COMPANY


H. P. Lawrence
Superintendent

HPL/B
Enco.1

COPY

January 23, 1941

The Honorable Charles A. Sprague
Governor of Oregon
Salem, Oregon

Dear Sir:

Mr. Frank Lilly, Editor of the Northwest Mining News, Spokane, Washington, has informed me that you were present at a demonstration of a new process for tin recovery at Burns, Oregon, and that you would be able to furnish me information concerning this process.

Any information that you may have for me regarding the process, together with the names of the parties whom I would have to contact for details, would be greatly appreciated.

Very truly yours,

NORTHWEST LEAD COMPANY

ORIGINAL SIGNED BY

H. P. LAWRENCE

H. P. Lawrence

Superintendent

January 28, 1941

Northwest Lead Company
2700 Sixteenth Avenue Southwest
Seattle, Washington

Attention: H. P. Lawrence, Superintendent.

Gentlemen:

Your inquiry of January 23rd, directed to Governor Sprague, has been referred to me for reply.

As to the reported discovery of tin near Burns, Oregon,—that is a subject of controversy and the matter has not been settled. I cannot report to you as yet that the "ore" does or does not contain tin in commercial quantities. I have gone into the matter personally and have come to the conclusion that the assayers have some tall explaining to do to me. The assay results are contradictory, and the assay techniques are now under investigation.

I am led to believe that I shall be asked some time next week to outline a series of research type investigations intended to demonstrate the commercial aspects, if any, of the property. When these investigations shall have been finished, the result will be publicized. If you see no note of this in the newspapers, I suggest that you write us again.

Respectfully yours,

EKN:vm

Director

cc: Governor Sprague

STATE OF OREGON
EXECUTIVE DEPARTMENT
SALEM

CHARLES A. SPRAGUE
GOVERNOR

RECEIVED
JAN 28 1941
STATE DEPARTMENT OF GEOLOGY
& MINERAL INDS.

COPY

January 27, 1941

Mr. H. P. Lawrence, Superintendent
Northwest Lead Company
2700 Sixteenth Avenue S. W.
Seattle, Washington

Dear Mr. Lawrence:

Thank you for your letter of January 23.

I was present at a demonstration of a process for tin recovery at Burns, but am unable to furnish you technical information as I am not a professional mining engineer.

I am forwarding your letter to Mr. Earl K. Nixon, Director of the State Department of Geology and Mineral Industries, with the request that he give you detailed information.

Sincerely yours,

Governor

CAS:uw

cc Mr. Nixon

Will you please follow this up?



Sigfrid Unander
Executive Assistant
to the Governor

*This is the inquiry of which I spoke to you
today. S.*

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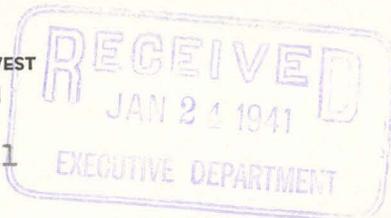


SALT LAKE CITY • LOS ANGELES

Main Office and Plant

2700 SIXTEENTH AVENUE SOUTHWEST
SEATTLE, WASHINGTON

January 23, 1941



The Honorable Charles A. Sprague
Governor of Oregon
Salem, Oregon

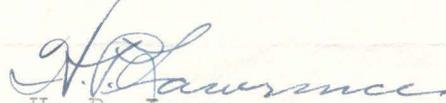
Dear Sir:

Mr. Frank Lilly, Editor of the Northwest Mining News, Spokane, Washington, has informed me that you were present at a demonstration of a new process for tin recovery at Burns, Oregon, and that you would be able to furnish me information concerning this process.

Any information that you may have for me regarding the process, together with the names of the parties whom I would have to contact for details, would be greatly appreciated.

Very truly yours,

NORTHWEST LEAD COMPANY


H. P. Lawrence,
Superintendent

HPL/B



March 20, 1941

Mr. J. C. Aycock
Box 217
Prineville, Oregon

Dear Mr. Aycock:

Your letter dated March 16 addressed to the Bureau of Mines, Salem, has been referred to this office.

Concerning the quotations for tin as given in the newspaper clipping which you enclosed, prices are in cents per pound. "Spot" tin is for immediate delivery or for delivery in the near future. "Forward" tin is for future delivery.

The market price for tin is determined each day on the London Metal Exchange, and quotations are transmitted to various market centers of the world. Quoting from "Marketing of Metals and Minerals" by Spurr and Wormser, "The value of the tin is usually determined by taking the average of the prices ruling on the London Metal Exchange for "spot" and "three months standard" tin as quoted during the second calendar month after shipment is made. This means that, if a shipment is made on January 14, then liquidation would be made as per the average of the quotations for the month of March."

Hoping that the above will clear the matter up, I am

Very truly yours,

F. W. Libbey
Mining Engineer

FWL: jr

METAL MARKET

NEW YORK, March 15 (AP)—Copper steady. Electrolytic spot, 12c; export, 10.50@12c.

Tin firm. Spot and nearby, 52.25c; forward, 51.25c.

Lead steady. Spot, New York, 5.75@5.80c; East St. Louis, 5.60c.

Zinc steady. East St. Louis, spot and forward, 7.25c.

Pig iron, aluminum, antimony, quicksilver, platinum, Chinese wolframite and domestic scheelite unchanged.

Princetonville, Ore. Mar. 16, 41

Bureau of Mines Salem Ore.

Dear Sirs: Will you please explain the price listed of tin in this market report. does it mean for what amt. and what spot mean also forward.

RECEIVED
MAR 18 1941
STATE DEPT OF GEOLOGY
& MINERAL INDS.

Thank you.

J. C. Aycock
Princetonville Ore

MARVIN METALS INC.

1001 SEVENTEENTH STREET
SAN FRANCISCO, CALIF.

March 25, 1941

State Department of Geology and Mineral Industries,
702 Woodlark Building,
Portland, Oregon.

Attention: Mr. Earl K. Nixon, Director

Dear Mr. Nixon:

We wish to thank you for your very complete story regarding the alleged tin discovery near Burns, Oregon.

Your story and findings coincide almost exactly with our own; we have had several contacts with Mr. William F. Hayden who insists that we should find tin in the various samples that he has submitted to us. While it is true we have been able to find a trace of tin in an occasional sample, it certainly did not exist in commercial quantities.

Furthermore, we have had various outside tests made, and no one seems to find any tin. Of course, there is only one sure method of determining whether or not it does exist, and that method, as you know, is a quantitative analysis; and this of course, would cost considerable money, and then would really mean nothing unless it were checked and double-checked from various other lots of the same property.

I believe we all are of the same opinion that we would be very happy if it were true that they did have tin in southern Oregon.

We wish to thank you for your kind letter, and we would of course be interested to find out how they discovered the tin and the rest of us cannot. Assuring you of our appreciation of your letter, we are,

Very truly yours,

MARVIN METALS INC.

BY



CLD/k



March 14, 1941

Mr. D. B. Duncan
Marvin Metals, Inc.
1001 Seventeenth Street
San Francisco, California

CONFIDENTIAL

Dear Mr. Duncan:

The following is in reply to your letter of March 11th in which you give us certain information about the alleged tin discovery near Burns, Oregon.

This whole matter has been a hot potato for us, as you can imagine. We have been reluctant to tie into it and spend the State's funds for a solution of the problem on account of an understanding that the man, who has been putting up most of the money--a St. Louis manufacturer, would finance a course of tests that we would outline and thus save us the expense.

First, we do not have much faith in William F. Hayden. As to the presence or absence of tin--the story is as follows:

I visited this property with two of the men interested the last week in November or 1939 and carefully took two channel samples at points where I was assured that samples formerly taken had shown tin in commercial quantities. I sent these samples to the United States Bureau of Mines' laboratory in Reno, Nevada, for both spectrographic and ordinary assay determinations, and neither sample showed any tin. I advised the people to forget it, and I put the matter out of my mind for nearly a year when suddenly I learned that Mr. Hayden had been employed to "engineer" the program and that a small pilot "smelter" had been installed for test purposes. Meantime, the Department of Interior, Division of Public Lands, became interested on account of a controversy and threatened to vacate the mining claims in favor of land use for grazing. The engineer of the Department of the Interior, a Mr. Kinsley, spent about a month on the ground and watched the local chemist making assays and getting tin buttons and reproduced the work himself. He then took some twenty samples from various parts of the property, brought them to Portland, and took them to a laboratory that I suggested. The samples were run in the ordinary manner, using sodium peroxide fusion, followed by titration, and none of the samples showed any tin with the exception of one that showed a trace. Kinsley had the laboratory analyst, a man whom I have considered quite competent, take the rejects and run the same samples for tin, using the old-fashioned Cornish potassium cyanide fusion method, and he got buttons which proved to be tin that represented from 1 to 5½ percent of tin per ton calculated against the original ore. Kinsley of the Public Land Department seemed to have been convinced that tin was present in some of the samples in commercial quantities. At least, the Department of the Interior withdrew its objections.

I have gone no further with the matter, anticipating the arrival of the man from St. Louis, but I understand he has suffered a nervous break-down and been shipped off to Florida. I might say that a spectrographic test or two on samples taken by Kinsley have shown some tin lines, but I am not sure as to the capacity of those who made the tests.

I think the matter of presence or absence of tin in commercial quantities will be settled in the reasonably near future, if we have to get in with both feet and do the job up properly. May I suggest that you write us further if you care to follow up the matter. I might say that my personal feeling is that there is a very outside chance that some rare tin minerals are present that have a very low fusion point and which might possibly be completely volatilized at a point below the fusion temperature with sodium peroxide so that there would be no tin present at the titration stage. By the same token it might be that, when tested with the spectrograph, these same low volatile compounds, if present, might volatilize in the first thousandth of a second under the electric arc and thus be missed if the spectroscopist were not right on the job or were looking for an orthodox acting element. In other words, I do not think that we can disregard entirely all the smoke that has arisen from this entire tin maneuver. I am open to conviction, but I have my fingers strictly and painfully crossed.

I have gone into considerable detail in this letter because some very fine people are connected with this tin enterprise as well as, of course, some shady ones and we just cannot make a mistake in arriving at the final answer.

Cordially yours,

EKN:vm

Earl K. Nixon, Director

MARVIN METALS INC.

1001 SEVENTEENTH STREET
SAN FRANCISCO, CALIF.

March 11, 1941

Bureau of Mines,
State of Oregon,
Salem, Oregon.

Gentlemen:

We would appreciate it very much if you would send us any information that you may have regarding the so-called tin deposit near Burns, Oregon.

As you no doubt know, this deposit has been getting quite a bit of publicity lately, both favorable and unfavorable.

If it is at all possible, we should like to get at the bottom of this situation, as we have done some work for these people, and have been contacted personally by a Mr. William F. Hayden, Consulting Mining Engineer of St. Louis, Missouri.

He showed us samples of tin from this deposit, and asked if our process would recover the tin economically and easily. We assured him that it would, if there was any tin present, and he shipped us about 500 pounds of the ore, so that we could make our test. However, as you no doubt know, we were unable to find any tin in commercial quantities, and we even sent a sample to John Herman in Los Angeles for spectrographic analysis, which also bore out our assertion that there was no tin in the ore.

We still receive correspondence from Mr. Hayden, and he also sent us a small sample of what he called stannic oxide, which we tested with the same negative results. It is true that there are traces of tin, but as we mentioned previously, by no means in commercial quantities.

You can no doubt see our position in this matter, and any information you can give us will be greatly appreciated.

Yours very truly,

MARVIN METALS INC.

BY *D. B. Duncan.*

DBD/k

CC - Mr. O. F. Marvin



Telephone: LExington 2-2387
2-2388

Factory:
Danville, Penna.

Cable Address: Jekengine

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

2 PARK AVENUE, NEW YORK

Manufacturers of
CRUSHING, MINING AND CEMENT MACHINERY
PNEUMATIC TRANSPORT SYSTEMS
PULVERIZED COAL EQUIPMENT AND STEAM GENERATORS
Screening, Elevating, Conveying, Transmission Machinery

April 7, 1941.

Mr. Earl K. Nixon, Director
State Department of Geology &
Mineral Industries
702 Woodlark Building
Portland, Oregon

Dear Mr. Nixon:

This is to acknowledge receipt of your
letter of April 2nd. Your prompt reply is greatly appreciated.

As per your suggestion, we will communi-
cate with Judge Robert M. Duncan of Burns, Oregon.

Respectfully yours,

KENNEDY VAN SAUN MFG. & ENG. CORPORATION

W. L. Epperson

W. L. Epperson

WLE:at

RECEIVED
APR 11 1941

STATE DEPT OF GEOLOGY
& MINERAL INDS.

M

April 2, 1941

Mr. W. L. Epperxon,
Kennedy-Van Saun Mfg. & Eng. Corp.,
2 Park Avenue,
New York City.

Dear Mr. Epperson:

The following is in reply to your letter of March 27th. I have just returned from a trip to central Oregon and have learned in regard to the tin development that the principals are to arrive from the East within the next week or ten days. In the meantime I understand that a California metallurgist is working on a flow-sheet, and one of the equipment companies is also doing some work along the same line. It is not clear to me yet what can be accomplished in this regard because no one seems to have discovered definitely how the tin occurs in the rock, if it occurs. The situation is still very confusing to me.

I still feel that some rather detailed research work will be required before a yes-or-no answer can be arrived at.

Am inclined to think that you should communicate directly with Judge Robert M. Duncan, Burns, Oregon, who although not a participant in the "development" is more or less playing Godfather to the idea.

Very truly yours,

Director

EKN:ac

Telephone: LExington 2-2387
2-2388

Cable Address: Jekengine

Factory:
Danville, Penna.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

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RECEIVED
MAR 31 1941

March 27, 1941.

STATE DEPT OF GEOLOGY
& MINERAL INDS.

State Department of Geology &
Mineral Industries
702 Woodlark Building
Portland, Oregon

Attention: Mr. Earl K. Nixon, Director

Gentlemen:

If you will recall we had some correspondence with you in January concerning the Juniper property west of Burns, Oregon. At that time it was still in the formative stage.

May we inquire as to whether the research work on this property has progressed to the point where the interested parties might care to discuss their equipment requirements with one of our Engineers.

Due to the increasing interest in the mining industry, and the rising need for modern milling operations, we are sending you under separate cover our Bulletin #35, Second Edition, which we trust will be of interest to you, and a worthwhile reference for your files.

We appreciate your courtesy and await your further commands.

Respectfully yours,

KENNEDY VAN SAUN MFG. & ENG. CORP.

W. L. Epperson

W. L. Epperson

WLE:at

7

Telephone: LExington 2-2387
2-2388

Cable Address: Jekengine

Factory:
Danville, Penna.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION
2 PARK AVENUE, NEW YORK

RECEIVED
JAN 27 1941

Manufacturers of
CRUSHING, MINING AND CEMENT MACHINERY
PNEUMATIC TRANSPORT SYSTEMS
PULVERIZED COAL EQUIPMENT AND STEAM GENERATORS
Screening, Elevating, Conveying, Transmission Machinery

STATE DEPT OF GEOLOGY
& MINERAL INDS.

January 23, 1941.

tin

State Department of Geology & Mineral Industries
702 Woodlark Building
Portland, Oregon

Att: Mr. Earl K. Nixon, Director

Gentlemen:

We want to thank you for your letter of
January 18th concerning our inquiry of the Juniper property
west of Burns, Oregon.

The writer is taking advantage of your
kind offer, and is keeping your name in our files for future
reference.

Very truly yours,

KENNEDY VAN SAUN MFG. & ENG. CORPORATION

W. L. Epperson

W. L. Epperson

WLE:at

(Red scribble)

January 18, 1941

Kennedy-Van Saun Mfg. and Eng. Corporation
2 Park Avenue
New York, New York

Gentlemen:

Thank you for your inquiry of January 14th.

We have to advise you that the plans of the group in control of the Juniper property located some 37 miles west of Burns, Oregon, are still very much in the formative stage. They have been making some very optimistic statements but have not demonstrated to anyone that tin occurs in commercial quantities in the material that they classify as ore. I think it would be a mistake for you or anyone else to spend any money sending a representative to the property until such time as further research determines the outcome of the situation. This Department is quite fully informed and, if you care to write us at any future time, we shall be glad to hear from you and will make an effort to advise you fairly on the entire situation.

Very truly yours,

Director

EKN:vm

Telephone: LExington 2-2387
2-2388

Factory:
Danville, Penna.

Cable Address: Jekengine

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION
2 PARK AVENUE, NEW YORK

Manufacturers of
CRUSHING, MINING AND CEMENT MACHINERY
PNEUMATIC TRANSPORT SYSTEMS
PULVERIZED COAL EQUIPMENT AND STEAM GENERATORS
Screening, Elevating, Conveying, Transmission Machinery

RECORDED
JAN 18 1941

STATE DEPT. OF GEOLOGY
& MINERAL INDS.

January 14, 1941.

State of Oregon
Bureau of Mines
Portland, Oregon

Gentlemen:

It has come to our attention that you are planning to erect a 250-ton mill at the Juniper property, 37 miles west of Burns, Oregon.

Please be advised that our company manufactures a complete line of mining and milling machinery and we are wondering whether or not you would be interested in having one of our engineers call at this time, with the understanding that you will be under no obligation whatsoever because of his call.

At the present time our factory is busy with several government contracts on munitions but we will be able to make prompt shipments because these contracts do not interfere with our regular production schedule.

We would consider it a great favor if you could give us the name or names of individuals with whom we could make further contact to discuss the matter of machinery for the proposed mill.

We trust we shall have the pleasure of hearing from you in the near future.

Very truly yours,

KENNEDY VAN SAUN MFG. & ENG. CORPORATION

W. L. Epperson

WLE:at

W. L. Epperson



February 5, 1941

Mr. Henry S. Mears,
Box 1105,
Spokane, Wash.

Dear Henry:

The delay in acknowledging receipt of and replying to your letter of January 20th has been due to my absence from the office. The "tin" story is rather a long one, and I can not give you the complete narrative very well at this time. I shall be glad to tell you all I know about it when next you come to Portland. As a matter of fact the whole matter is in a state of flux.

As you know, the United States Land Office contested mineral locations on Juniper Ridge and sent an investigator to the locality in order to determine whether or not the ground should be classified as mineral land. The investigator spent two or three weeks on the property and further time in laboratory work in Portland. Later, so I understand, the Government dropped the contest. One would therefore infer that the investigator determined to his own satisfaction that the ground should be classified as mineral land. Also confidentially it is my understanding that the investigator was able to obtain tin buttons by melting with cyanide flux at a low temperature--this from a pulp sample which failed to show any tin by standard wet methods. Further, the tin lines have been definitely determined in a spectrograph. This, of course, does not indicate quantitative value. We are going to continue the investigation further somehow and try to clear the matter up. By "somehow" I mean it will require some financing which we have not provided for in our budget. I shall be glad to discuss the matter further with you when I see you.

I did not attend the recent MIT meeting since I had another engagement which could not be broken. Previous meetings that I have attended were not very interesting--the main speakers always have things of considerable interest to say, but for champion cold blooded-hard-to-get-acquainted-with people, I nominate and unaminously elect Tech men everytime. Hoping that things are going well with you and with kind regards, I am,

Sincerely,

FWL:ac

F. W. Libbey

HENRY S. MEARS
202 STUDIO BUILDING
PORTLAND, OREGON

Box 1105, Spokane, Wash
January 20, 1941

Mr. F. W. Libbey,
Portland, Oregon,

Dear Fay,

Dont be surprised at hearing from me.
I am still in Spokane. I am still interested
in the Burns "Tin" ore. I only occasionally
get a little information, via the grape vine.
Hence this letter

I understand the Oregon Section, AIME,
unanimously turned the Burns deposit down.
Rather medieval proceedure. Eh! Next we will
have the inquisition. But now I hear the versatile
Mr. Nixon has thrown the AIME members over and
has endorsed the occurance and has asked Holman
to use his influence to get the Survey and Bureau
of Mines to help work out its exploitation.

Sorry I could not be there for the
recent MIT meeting. Have found previous ones
very interesting. Hope you can find time to
give me the low down on the 'Tin'.

Best wishes,

Henry

RECEIVED
JAN 21 1941

STATE DEPARTMENT OF GEOLOGY
& MINERAL INDS.

May 31, 1941

Mr. Walter S. Palmer, Director
State Analytical Mining Laboratory
University of Nevada
Reno, Nevada

Dear Mr. Palmer:

This is in reply to your letter of May 26. The tin situation is a long story and, as you may suspect, a headache to me. Briefly, at least three assayers are getting tin buttons out of this rhyolitic obsidian from the Burns area, using a cyanide fusion. I have seen them do it, although obviously I can not swear that there was not tin in the fluxes or otherwise. None of these men is able to reproduce himself quantitatively on the same sample. He may put in six fusions of a single sample and get one button, or three buttons, or no buttons. There seems to be a certain temperature or condition at which point, or as near as possible, the assayer takes his crucibles out of the furnace. It is not a complete fusion at all, rather a sort of cinter. In any event, the crucible is taken from the furnace just after the flux begins to boil, but I can't describe the technique in detail.

At the request of the Federal Land Department of the Department of the Interior, I suggested that their engineer take the suite of samples on which they intended to base a final decision to the Charlton Laboratories in Portland. Nineteen of the samples showed blanks for tin and one showed a trace when assayed by ordinary methods. I understand that sodium peroxide fusion was used. The rejects were put in a safe and rerun the following day by Dr. Charlton and his research chemist Dr. Bushnell, and some of the samples gave buttons which really were tin and quantitative results showed between $1\frac{1}{2}$ and 5% of tin in the ore. I pinned down both Charlton and Bushnell immediately afterward and they confessed that it was as much a mystery to them as to anyone else. I consider them good technicians and reliable. They use their own reagents and new crucibles.

Since that time Mr. A. C. Kinsley, the engineer of the Department of Investigation, Division of Public Lands, address 401 Federal Office Building, San Francisco, tells me he has been able to get tin buttons about 50% of the time. I suggest that you write to him directly at the address given. I believe Kinsley is honest and I certainly believe he is trying

not to kid himself. It is one of the most baffling things I have come across. Frankly there is some smoke over there, and I must keep my fingers crossed. Have an arrangement now whereby this Department will do the geology and sampling and the research chemist work will be carried out at the laboratories of Oregon State College either by Professor Gleeson or by Dr. H. C. Harrison whom I have employed as spectroscopist for this Department and who will come West in the near future.

A local chemist John Beede has fussed a lot with this material and gets tin buttons from the "ore" much of the time. So far as I know, Beede is honest and o.k. although there are some who will not accept his results. Beede's address is Beede's Assay Laboratory, S. W. Front near Oak, Portland, Oregon.

Very truly yours

Director

EKN:hk

UNIVERSITY OF NEVADA
RENO, NEVADA

STATE ANALYTICAL MINING LABORATORY
WALTER S. PALMER, DIRECTOR

May 26, 1941

RECEIVED
MAY 28 1941

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon,
702 Woodlark Bldg.
Portland, Oregon.

Dear Mr. Nixon;

I have been much interested in the claims that tin has been produced from volcanic glass found near Burns Oregon. The same claims have been made for volcanic glass found in the northern part of Nevada.

Recently there was an editorial in the Arizona Mining Journal that seemed to indicate that there was little question but that tin had been produced from the rocks near Burns Oregon. Since all of our tests have given negative results on both the Nevada and the Oregon material, which we have been able to secure, I wrote Mr. Charles F. Willis and asked him if he could give me the names of any engineers who could give me any information on the subject. He gave me your name and quoted from a letter he stated that he had received from you only that morning.

Can you give me any information as to a procedure that will give positive tests for tin on this material? I have tried cyanide fusions under a variety of procedures from C. P. Potassium Cyanide to covering the fusion with dry ice, which have been given me as being successful methods. We have tried the spectrograph and yet when tin free fluxes are left out of the charges no tin has been produced.

Last week an assayer from California promised me he would show me how to run an assay and secure tin but he has failed to keep his appointment. I was later told this assayer uses tin oxide as a part of his charge. It may perhaps be the reason why he did not keep his appointment.

I have had no trouble in securing tin when assaying tin ores found in two places in Nevada, one in California and just this morning one sample from New Mexico, and yet no test I have been able to run on either Nevada or Oregon, glassy volcanic rock, has given the slightest trace of tin.

Tin seems to have been reported as having been secured from the glassy volcanics in Oregon for many years and yet there seems to be no record of any production of tin. Why is this so?

Have you run tests on the Oregon material and secured tin? If so are you at liberty to tell me your procedure so that I can try it on my samples?

I would greatly appreciate any information you can give me. If the standard methods are not giving correct results I certainly would like to have a correct method to use in my work.

Yours very truly,

Walter S. Palmer

Handwritten red mark or signature.

U. S. NAVY YARD
PEARL HARBOR, T. H.

October 9, 1941.

RECEIVED
OCT 22 1941
STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. F. W. Libbey,
Mining Engineer,
State Dept. of Geology and Mineral Industries,
702 Woodlark Building,
Portland, Oregon.

Reference: Letter to me of July 2, 1941.

Dear Mr. Libbey:

I have delayed acknowledging yours of above date until there might be sufficient intervening time to offer hope that the controversy over the presence or absence of appreciable tin in the Harney County deposits might be settled. Because of my own researches in the field of tin refining, and my long residence in Oregon (Salem, 1910-20), I am definitely interested.

Could you keep me informed?

I am puzzled as to the reason why tin does not show up, if present in the rock. By means of the ultra violet spectrograph in this laboratory, we expect to find tin in a sample without need for preliminary concentration, if above about 0.0001%. If below that figure, but present, we can concentrate it in the ratio 1:100 or 1:1000, and pick the tin up in the concentrate.

I would be interested in analyzing some of the material, preferably field concentrate, to see if I could help solve the problem, except for the fact that as the chief chemist of a Navy Laboratory I would not be allowed to receive an officially unauthorized sample from outside the organization. It occurs to me however, that Senator McNary who also comes from Salem probably could obtain the permission of the Bureau of Ships for me to receive and analyze such a material, prepared by you. If the idea appeals to you, as it does to me, I authorize you to inform Senator McNary that I would be willing and interested to analyze such a sample with the facilities of this laboratory, if authorized by the Navy Department. Of course, there would be no charge. Also I would have time to analyze only one sample, using the spectrograph.

Very truly yours,

W. H. Hammond

W. H. HAMMOND, Senior Chemist,
Industrial Department, U.S.
Navy Yard, Pearl Harbor, T.H.

In reply, please address:
Mr. W. H. Hammond,
3257 Alani Drive,
Honolulu, T. H.

October 28, 1941

Mr. W. H. Hammond
3257 Alani Drive
Honolulu, T. H.

Dear Mr. Hammond:

At the request of Mr. F. W. Libbey I am sending under separate cover sample of the so-called tin ore obtained from Juniper Ridge near Burns, Oregon. When I joined the staff of this Department early in July I was asked to tackle the tin problem. From the chemical angle we have analyzed samples of this ore, using macro, micro, and semi-micro methods of analysis, and I will be glad to describe our tests and results when we are prepared to release this data.

In relation to chemical tests, we have subjected samples of this ore to exhaustive spectrograph analyses. While I was still in the East I analyzed two samples of the ore, using a large Bausch and Lomb quartz spectrograph, employing DC arc excitation. Samples of the ore were sent to Mr. McKenzie of the International Business Machines Corporation, Dr. Petri of the Aluminum Corporation of America, and to Mr. Slavin of the Bureau of Mines. Mr. Orr of Charlton Laboratories tells me that he has taken spectrograms of samples of this ore. For your information, Petri, McKenzie uses the large Bausch and Lomb quartz spectrograph, Mr. Slavin uses a 3 meter Baird grating spectrograph, and Mr. Orr used the Applied Research Laboratory grating spectrograph. One report was "no tin", and the rest of the spectroscopists gave reports varying from 0.001% or less.

As a spectroscopist I can readily understand why you are puzzled by the fact that these spectrographs do not show the presence of tin if it is present in the ore. Naturally I have some ideas regarding this problem and hope to be able to prove why tin might be present yet not show up in the spectrograms.

Our staff will be very glad to help you in any possible way, and I will be glad to have any suggestions or ideas you may care to offer.

Yours very truly

H. C. Harrison
Spectroscopist

HCH:hj

July 2, 1941

Mr. W. H. Hammond, Chemist and Metallurgist
3257 Alani Drive
Honolulu, T. H.

Dear Mr. Hammond:

Mr. Nixon is absent from the office and will not return until next week, therefore I wish to acknowledge receipt of your letter dated June 19th.

It is my understanding that at various times over a period of at least twenty-five years tin has been reported from the general area located west of Burns, in Harney County, Oregon. In 1939, Mr. Nixon visited an area about thirty miles west of Burns at the request of the locators of mining claims in that area, who stated that their rock showed tin. Samples were taken and submitted to the U. S. Bureau of Mines and other laboratories. The reports returned "no tin". Later the owners of the property interested some capitalists who put up the money necessary to erect a small so-called fuming furnace which was so designed that fumes said to contain tin oxide were collected in a bag house. A test run of this furnace was made last year during which time this Department obtained samples of rock in the ground, rock fed to the furnace, and of the bag house product. Reliable laboratories reported "no tin" in the rock samples, but the bag house material, reduced to a metallic button by the operators on the ground, showed fairly pure tin.

A contest arose between the U. S. Land Office and the locators of the mining claims over the mineral character of the ground, and an investigator was sent from the Department of the Interior. He made a thorough investigation, and using a method taught him by the assayer employed by the operators, stated that he was able to obtain tin buttons from the rock. He was convinced that the rock did contain tin. Other Federal investigators have been on the property; although I have not been directly informed of what their investigations consisted, I believe that their results were negative. At least the U. S. Geological Survey has reported that no appreciable amount of tin is present.

In an effort to straighten out the confusion existing, this Department has arranged in conjunction with Oregon State College to make a thorough investigation of the project and attempt to determine why orthodox methods of analysis can not distinguish tin in the rock while the method mentioned above obtains an appreciable amount of tin. Incidentally this method is the old-fashioned cyanide fusion, but I believe it is supposed to operate at a very low temperature. The rock is an obsidian with a perlitic texture. Even if the metal exists in the rock in the form of a solid solution, it is not clear to me why a spectrograph does not show it up definitely. However, I believe that the answer will be found, and we shall be able to say definitely either that the rock does not

contain tin or that it does, and in the latter case why standard methods are not reliable.

Hoping that the above explanation will be of assistance to you, I am,

Yours very truly,

F. W. Libbey
Mining Engineer

FWL:ac

RECEIVED
JUL 2 1941

U. S. NAVY YARD
PEARL HARBOR, T. H.

STATE DEPT OF GEOLOGY
& MINERAL INDS.

June 19, 1941

Mr. Earl Nixon
Director of Geology and Mineral Industries
Woodlark Bldg., 813 S.W. Alder St.
Portland, Oregon

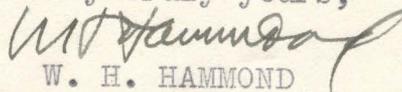
Dear Sir:

My father, Prof. E. S. Hammond of Salem, Oregon, has informed me that Harney County has a workable deposit of tin ore. He also informed me that Mr. Louis Griffiths of the State Land Board suggested your name as that of the man to whom I could go for further information. My interest is based on the fact that I have conducted a research over the past few years to find the most economically feasible method of recovering tin from industrial waste, such as scrap bearing metal, and my results give me an interest in locating American deposits of the ore, which I had supposed were non-existent in paying quantities. For example Mantell in his A.C.S. Monograph entitled "Tin" states (p. 78) "Tinstone has been found in many of the States of the United States but in no locality in paying quantities". It might be more economical to develop my process for recovering tin from Oregon ore in preference to trying to recover industrial scrap, in case of a serious tin shortage.

Any details that you can give me of the type of ore, extent, experimental work that has already been accomplished, and the present addresses of electro-chemists or engineers who have been engaged in such work will be greatly appreciated.

I will enclose a piece of pure tin which was cut from a cathode which I recovered on a laboratory scale about a year ago.

Very truly yours,


W. H. HAMMOND

(Member of the American Chemical Society, The Electrochemical Society, The American Association for the Advancement of Science and The American Society for Metals. Chemist and Metallurgist (U.S. Civil Service Senior Chemist, Yard Testin Laboratory U.S. Navy Yard, Pearl Harbor, T. H.)

In reply, please address

W. H. Hammond
Chemist and Metallurgist
3257 Alani Drive
Honolulu, T. H.

WWH/jw

LATEST METHOD OF TIN ANALYSIS

A method for tin analysis reportedly successful in finding tin in Juniper ridge ore was sent to the State Department of Geology by Mr. Ivan M. Duncan, of Burns, Oregon. The method is described by Mr. Duncan as per attached letter.

This method was checked carefully as follows:

Some of the "best" ore which had been obtained by the Department geologist was pulverized and mixed with ingredients as directed by the method. Each crucible was properly covered so as to produce a reducing atmosphere.

A blacksmiths' forge was fitted with an electric blower having a positive draft control. Four tests were run at four different settings on the blower. The lowest temperature was given 15 minutes, and the highest temperature 10 minutes, intermediate temperatures were given 12 and 13 minutes. There was no way of measuring the temperature of each test, but the draft control made it possible to obtain four heats ranging from red to an almost white heat in the four tests made.

After the charges were cooled, they were pulverized and examined. All the charges contained small pellets with a submetallic to metallic lustre which had somewhat the appearance of stream tin. In one of the charges a few particles of material definitely metallic in lustre was found. Upon closer examination however, no metal was found. The particles were brittle and very light in weight, therefore, there was no possibility in their being tin. No other matter panned from the charges indicated the presence of tin, at least as far as visual inspection could determine.

This method provides a very easy method for salting the samples, and one which would be difficult for the lay person to detect. A soluble salt of tin could be very easily incorporated into the sugar solution. The addition of



this clear colorless solution to the charge would hardly rouse the suspicions of the unsuspecting person.

James A. Adams,
Metallurgical Chemist

C
O
P
Y

Burns, Oregon
Sept. 24, 1941

Earl K. Nixon
Department of Geology and Mineral Industries
702 Woodlark Building
Portland, Oregon

This test is conducted in a reducing atmosphere which we have found necessary. Take a large crucible (the twenty or thirty gram size) and place a mixture in it consisting of the following proportions.

- 4 parts of ore (ore should be finely ground 40 to 60 mesh or finer)
- 2 parts charcoal, coke, or coal
- 2 parts sugar syrup (made by dissolving sugar in water almost to point of saturation)

These should be well mixed. Either put a regular crucible cover over the crucible or better yet, invert a smaller crucible over the larger one and force it down until it fits as tightly as possible so as to form an air tight cover.

The charcoal is to be preferred because when coal especially or coke is heated in an air tight container there is an oily residue left that is impossible to get rid of, and which seriously hampers the recovery of the tin. This oily residue acts as a flotation reagent and picks up the particles of tin and carries them off when the material is being panned to recover the tin.

This crucible with the charge in it may be then heated in almost any type of furnace or even by an open burner. It should be heated to above a red heat but not to a white heat for from ten to fifteen minutes. The time being dependant on your type of furnace and heat that is being applied. This time applies to the length of time after the crucible has reached a red heat. Earl has worked this successfully here by heating the crucible in a blacksmiths forge.

After the crucible has been removed from the heat and allowed to cool the charge is reground in a mortar and panned to recover the tin. Use a mortar to regrind the charge as a grinder will smear the tin particles on the plates and you would lose them. Also it flattens the small tin particles so that they will pan much easier. The tin will be in the form of very fine tin shot and as sponge tin. The sponge tin will float off if you are not careful. If you find an oily coating coming to the surface of the pan you will have to skim this off and put it thru a fine mesh cloth and then reduce this to recover part of your tin. For reducing the tin pannings to a button some such agent as palm oil should prove satisfactory. It is used in a major share of the retinning plants to recover their scrap of tin.

(signed) Ivan M. Duncan

STATE GOVERNING BOARD

W. H. STRAYER, CHAIRMAN, BAKER
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DIRECTOR

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MINING ENGINEER

JOHN ELIOT ALLEN
GEOLOGIST

JAMES A. ADAMS
METALLURGICAL CHEMIST



STATE DEPARTMENT OF GEOLOGY AND
MINERAL INDUSTRIES

702 WOODLARK BUILDING
PORTLAND, OREGON

STATE ASSAY LABORATORIES
400 E. 1 ST., GRANTS PASS

RAY C. TREASHER
FIELD GEOLOGIST

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2102 COURT ST., BAKER

HUGH K. LANCASTER
FIELD ENGINEER

LESLIE C. RICHARDS
ASSAYER

PRESS RELEASE NO. 30

BURNS TIN NOT COMMERCIAL

DECEMBER 11, 1941

The Juniper Ridge "tin" deposits near Burns, Oregon, are reported not to be commercial by the Oregon Department of Geology and Mineral Industries.

Investigation of this problem was started in earnest in July, 1941, after some preliminary work with negative results had been done during the preceding months. The Director of the Department first visited the deposit on November 25, 1939, and from then on until July, 1941, intermittent investigations were made in the field and some chemical and petrographic work was done in the Department laboratories. None of these attempts gave positive results. However, from time to time results came in from presumably reliable laboratories that commercial values were being obtained. A representative of the Department of the Interior took samples, did some assaying, and became convinced that although spotty, the deposit contained some interesting amounts of tin at some points.

Dr. Harrison, spectroscopist and chief chemist of the Oregon Department, with facilities offered by Oregon State College, started work in mid-July on samples taken in the field by John Eliot Allen, geologist, from various parts of the Juniper Ridge deposit. Harrison's work was continued during the months of August, September, and October, and in all, more than 1,000 fusions were made, more than 3,700 qualitative chemical tests were tried, some 36 quantitative determinations were made on samples that seemed to offer some promise, and about 700 pannings of the alleged ore material. A total of more than 5,000 individual tests were carried out by Dr. Harrison over a five-month period.

In additions to these, a number of selected samples were sent ^{east} to outstanding spectrographic laboratories for tin determinations. None of the latter reported more than .01% in tin.

Dr. Harrison's stated conclusion is, "No data have been obtained by me to indicate that any of the Juniper Ridge samples, believed by us to be representative, that I have analyzed contain commercial quantities of tin in any form. The tin content of this rock probably varies from .001% to .05%".

Investigation showed that tin in certain forms could not be fully recovered from the samples by using orthodox methods of analyses.

Some 35 different methods of preparing the sample or getting the tin, if any, into proper form for final analysis were used. Out of 14 standard methods of tin analysis, all of which were tried by Harrison on standard samples, 4 were selected as being specific for tin when this element or any of its compounds were present in Juniper Ridge rock. These methods failed to show commercial quantities of tin to be present.

This Department has leaned over backwards throughout the period of investigation in giving all possible credence to representations made and by permitting demonstrations to be made by principals of the enterprise. We felt that delay to permit accumulation of further facts was to the best public interest.

We even went so far as to state that a release by the United States Geological Survey to the effect that no significant amount of tin is present in the deposits was premature. At that time, we had an honest conviction that various bits of evidence pointed toward the presence of some very unorthodox metallurgical and geological conditions. We are now convinced, as a result of the very thorough and detailed analytical work and for other reasons, that the alleged tin deposits are not commercial.

ANNIS, MASS.
SEP 5
6:30 AM
942

RECEIVED
SEP 9 1942
STATE DEPT OF GEOLOGY
& MINERAL INDS.

Editor, The Ore Bin
Department of Geology
702 Woodback Building
Portland, Oregon

????? T I N ?????

- (1) What is the answer to the great international secret about Tin?
- (2) What are the facts about reported Tin deposits in Alabama and the Carolinas?
- (3) The Texas City smelter - why employ Dutch management? Was not our United States smelter industry capable of furnishing such management?
- (4) How can the United Nations meet their Tin requirements, with Far East production now in the hands of the Japanese?
- (5) What U. S. program would most definitely and quickly determine the possibility of the existence or nonexistence of commercial Tin deposits in this country?
- (6) Why expect success in Tin salvage campaigns unless the critical problem of Tin scarcity is given emphasis?

Tin Shortage Puzzle

To the New York Herald Tribune:

Losing one tin collector and naming another is not going to help the tin-salvage campaign. The truth of the argument between Mr. Ohrbach, a successful business man, and Mr. Low, chairman of tin collection, is of little matter beside the actual collection of the tin. Is it to be another aluminum botch?

And just what is the truth of the tin situation in the United States? Are there any other sources of supply besides Bolivia? Is the shipping situation the real reason for the tin shortage? What smelting capacity have we in this country, if any? Is there no tin in this country at all? Just what use is made of tin by the armament authorities? Is there any substitute for tin?

The answers must be available. The people of this country will go to town, as they have always done, if they are told the truth, whether it be aluminum, rubber, fats, scrap of all sorts, even going to the trouble to open the tin cans at both ends, which is not the easiest thing in the world unless one has a special can opener.

M. G. R.

New York, Aug. 17, 1942.

Tin Finds Few Takers

To the New York Herald Tribune:

This is what happened to me in my town when I tried to dispose of some tin articles.

I went to the junkman. He would only accept brass, iron or copper.

Next I tried by grocer, who said he would take my scrap this once, but not again.

Then I went to a drug store, where a clerk suggested that the truck which collected papers and scrap in a near-by township might pick up mine. It would not go out of the township.

I was then advised to go to the rationing board, who sent me to the Mayor's office, which sent me to the town clerk, who referred me back to the junkman.

My experience has, no doubt, been multiplied many times in other small towns.

Is there any one who can give us the thread that will lead us out of the labyrinth of bewilderment and confusion which is spreading over the country and is creating doubt in many minds as to the ability of our government to bring us safely through? **EMMA D. KEMEYS.**

Morristown, N. J., Aug. 10, 1942.

14

Can Collection At Chicago Falls Far Under Quota

CHICAGO, Aug. 24.—During the first month of tin can collections here, since the drive started July 15, quantities are progressively increasing but total only 315 tons. This is only 10 per cent of the established quota of 3500 tons per month.

A large part of the cans have already been delivered to the detinning plant of the Metal & Thermit Corp., East Chicago, Ind., and the balance is ready to be shipped.

Gets Scattered Support

According to William L. McFetridge, Chicago metropolitan area salvage director, this poor showing is caused by only scattered support from housewives, spotty collections and improper preparation of cans. First collections have not yet been made in many suburbs.

The collection organization is being bolstered by co-operation of beer and soft drink distributors, whose 1800 trucks are picking up cans at restaurants, taverns, hotels, and other large food establishments.

Bottle caps are punched from No. 10 cans and the residue of at least 50 per cent of the metal, and all of the smaller cans, are turned over to salvage officials.

City Loses Its Super-Junkman.

Citizens who have admired the tireless energy Clarence H. Low has put into his job as chairman of the New York City Salvage Committee, War Production Board, will regret his resignation.

They will also regret some of the reported reasons therefor, chief among them being the difficulties of a local administrator in coping with the confusing policies, conflicting orders and frequent changes of mind all too characteristic of the WPB and other civilian war directorates at Washington.

The public has seen plenty of this in the constantly shifting announcements as to the kinds of tin, rubber and other salvage scrap wanted.

Giving Mr. Low deserved praise for his "initiative, vision and patience," Mayor La Guardia says that, before appointing his successor, "certain things need to be clarified."

There's got to be a lot of clarifying done, we think, if we hope to get and retain for civilian war jobs men of Mr. Low's ability and unselfishness.

Clarification that must begin in Washington.

Tin

August 18, 1942

Confidential

Dear Bal:

Sorry I missed you recently when I was in southwest Oregon. I went to the coast with my family ostensibly for a two weeks vacation but after three days, Henry Kaiser's engineer caught up with me and I spent more than a week with him looking into chromite reserves for the new cargo planes. On arriving at Grants Pass, you and Treasher had already made your trip to Canyonville.

Now as to the so-called tin ore from your property near Canyonville. Bal, this just isn't tin or in any sense of the word, and you are kidding yourself all to pieces. Harrison has tested the sample taken by Treasher when you were present - has tested it very carefully and it doesn't contain any more tin than any other ordinary igneous rock that you would pick up by the side of the road in Oregon. A large number of such show very faint traces which mean nothing. We have also had a thin section made and your material tested petrographically for cassiterite and stannite, and find none present.

If you personally, without anyone else around, can get pellets of tin or any other metal out of your material, we will be tickled to pieces to make any tests to tell you what they are. Such tests are very simply made.

I have listened to all of the discussions and stories about your tin pellets and am personally convinced in my own mind that somebody is pooling your leg.

There is no conceivable way that I can think of whereby any honest individual can get metal out of a rock when that metal does not exist in the rock. There is no question but that the samples that we tested in this laboratory do not contain tin in commercial quantities or anything like it. That statement applies also to a box of alleged tin rock that was sent in here a few months ago, allegedly from your Canyonville property.

I wish I could sit down and talk to you personally about this entire matter. Meantime let me say merely whatever you may think or whatever you may be told about this situation, I hope you will take my statement for truth, which it is, and put the whole matter out of your mind. I hope to heaven you are not spending any money or subsidizing anybody with the idea that science is wrong.

Senator U. S. Balentine
Suite 12, Melhase Bldg.
Klamath Falls, Oregon

Kindest personal regards,

EKN: jr

Director

U. S. BALENTINE
LAWYER
SUITE 12. MELHASE BLDG.
KLAMATH FALLS, OREGON

August 10, 1942

Mr. Harrison,
Department of Geology and Mineral
Industries
400 E.I. Street
Grants Pass, Oregon

Dear Sir:

At Mr. Nixon's request, I went in company with Mr. Treasher, to our mining property near Canyonville, Oregon, and Mr. Treasher cut samples to send you for the purpose of anyalsis. Mr. Treasher remarked that it would not be amiss, if we would sand pellets to you, and at the time, I thought we probably had some, somewhere. However, on inquiry after returning home, it seems that all of these had been used in one way or another. I brought back some of the ore and if you could care to have any, I will melt out some pellets and forward them to you.

Please let me hear from you, so that I may know your requirments and I will be governed by the same.

Very truly yours,

U. S. Balentine

U.S. BALENTINE

USB.ec

RECEIVED
AUG 13 1942
STATE DEPT OF GEOLOGY
& MINERAL INDS.

August 10, 1942

Mr. Harrison,
Department of Geology and Mineral
Industries
400 E.I. Street
Grants Pass, Oregon

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Very truly yours,

U.S. BALENTINE

USB. eo

U. S. BALENTINE
LAWYER
SUITE 12, MELHASE BLDG.
KLAMATH FALLS, OREGON

RECEIVED
AUG 12 1942

STATE DEPT. OF GEOLOGY
& MINERAL IND.

August 11, 1942

Dr. Harrison
% Department of Geology and Mineral
Industries
Portland, Oregon

Dear Sir:

Please find enclosed a copy of a letter which
inadvertently was addressed to the Grants Pass
office.

Very truly yours,

U.S. Balentine
U.S. BALENTINE

USB/ec

U. S. BALENTINE
LAWYER
SUITE 12. MELHASE BLDG.
KLAMATH FALLS, OREGON

August 8 , 1942

Mr. Earl K. Nixon
Woodlark Building
Portland, Oregon

My Dear Nick:

In compliance with your request of recent date, and immediately upon receipt of your letter, I personally contacted Mr. Treasher in Grants Pass, Oregon, and arranged to take him to the property yesterday. We did.

He took samples and no doubt has forwarded them to Dr. Harrison. He made the suggestion that it would be in order to send Dr. Harrison some pellets, and while we have taken out a great number of these in the past, the only ones we have at the present time, are some that Mrs. Balentine had kept, and I contemplate sending these to him; if he would like us to do so, we would be glad to bring down some more pellets for his analysis, but my best thought on this question, is that if there is an electrolysis pilot smelter of Dr. Harrison's or your own choice, we take some official samples to this smelter and make actual smelting tests. This is not any criticism of the spectograph, and after talking to Mr. Treasher and also Mr. Miller, I am confident that the spectograph will give us a favorable report. My purpose of course, is to speed the matter along to the point where your department will be fully convinced of the presence of Commercial Tin in our deposit.

Thanking you, I remain,

Yours faithfully,

U. S. Balentine
U. S. BALENTINE

USB/ec

RECEIVED
AUG 11 1942
STATE DEPT.
& MINERAL

Tin

July 31, 1942

Hon. U. S. Balentine
Suite 12, Melhase Bldg.
Klamath Falls, Oregon

Dear Bal:

This is in reply to your of July 29th. I have been out of the State so much on W.P.B. work that I am a little out of touch with matters that have been happening lately, but I understand that a man by the name of Miller, according to Dr. Harrison's records, has been in a time or two and promised to make a demonstration for us of his method of producing tin from the samples from your property. The last we saw of Miller was several months ago. He made two definite appointments and failed to keep either one. Dr. Harrison has a box of samples that came presumably from your property and has tested them with the spectrograph--they did show traces of tin.

I might say, though, that a considerable number of rocks in the country show traces of tin, but that does not in any sense of the word indicate commercial possibilities. The spectrographic method is so delicate that it shows traces of a large number of the rarer elements in common igneous rocks, and many laymen are confused over the presence of tin in spectrographic analyses.

So far, no one has ever demonstrated substantial inaccuracies in the spectrographic method of analysis when it is carried out with adequate equipment and by qualified individuals. By that I merely mean to convey to you the idea that you may well disbelieve reports that the spectrograph will not work on certain types of metallic materials--for example, tin.

I am not trying to throw cold water on your proposition, Bal, I just want to give you some facts in the case. I might also add that the much-publicized effect of the British tin monopoly is in large part a misapprehension insofar as its alleged effect on the tin deposits of the U. S. is concerned. Nothing could stop us from lending all possible aid to the development of any bonafide tin deposit in the country. The difficulty is finding the deposits with commercial amounts of tin in them.

My time is pegged until the latter part of this month, but I will make an attempt to join you in an investigation of your property if you wish. I would slightly prefer, and you could get quicker action too, that you make a trip to the property with our field geologist stationed at Grants Pass--his name is Ray C Treasher and his headquarters are at the State Assay Laboratory at Grants Pass. He would be quite competent to size up the geology and to take representative samples of the various rock phases for our determination of the content of tin. Please bear in mind that we are perfectly open-minded on the question of the presence of tin in Oregon rocks, but we must be guided by the facts in all cases.

Kindest personal regards.

Sincerely yours,

Director

KN:ac

U. S. BALENTINE
LAWYER
SUITE 12, MELHASE BLDG.
KLAMATH FALLS, OREGON

July 29 - 1942

RECEIVED
JUL 30 1942

STATE GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon
Woodlark Building
Portland, Oregon

My Dear Nick:

You probably recall in the past, Mrs. Balentine mentioned to you, a Tin deposit at Canyonville, Oregon. We have held this deposit for all of these years, and ~~are~~ pending such time as the demand would over come the British Monopoly on Tin. For the past few years, we have spent a good deal of time and considerable money in developing this property. This property would easily supply all the present requirements, both military and civil of the countires need for Tin. We have purposely stayed clear of the contraverseys growing out of Tin activities, with the idea that this question would be worked out timely, which no doubt, they will.

Senator Holman was in my office today and I took the opportunity of discussing our deposit with him. He advised me that upon returning to Portland, he could get in touch with you concerning our activities.

Dr. Harrison, your spectrograph man, by examination of our ore, I understand has admitted the presence of Tin, but it seems to me, the simple and direct plan, would befor you as Government man to visit the

property, take your own samples, and make an actual smelting test. We have devoted much time and considerable money to familiarize ourselves with this deposit and the methods of recovery and we can give you the flux and temperatures with which to make your test successful. This property is situated ideally for operation, open pit mining, on a paved highway within nine miles of a railroad. The deposit is sufficient to supply all the needs as I have heretofore mentioned. The tests should be made on any smelter that has electrolysis process. (Other processes could be used, but the electrolysis is the most satisfactory method.)

I wrote to Stewart R. Zimmerly, at Salt Lake City, and he referred me Mr. Iverson, P.O. 806 Failing Building, Portland, Oregon from whom I received a communication this morning. I am not fully clear on the point as to whom the responsibility of ultimately passing on the values might be, but Senator Holman requested that I communicate with you. Hence this communication.

We have made many tests and are in a position to demonstrate the values to your satisfaction. I feel however, that the situation calls for **actual smelting tests** rather than assays. So if it is possible, after talking with Sen. Holman, for you to find an occasion to inspect this property personally, if you will let me know, I will meet you at the property, at which time we could outline the entire program including the things that we have observed by our experience in testing.

Please advise me as to your position and desires in reference to a proposition of this kind.

Very truly yours,

U.S. Balent
U.S. BALENTINE

USB.ec

The Dalles, Oregon

United States : Involving Squaw Butte and Juniper
vs. : Ridge mining locations, Contests
Ronald B. Crow et al : 2635-36-37-38-40-41-49 and 1 to
6 incl.

By his letters "N" of November 10, 1939 and April 23, 1940, the Commissioner of the General Land Office directed adverse proceedings against the Squaw Butte claims, charging:

1. That the land is non-mineral in character.
2. That no discovery of valuable mineral has been made on the claims.

The claims are as follows:

Contest 2635- Shamrock Nos. 2 and 3 lodes, in sec. 1, T. 24 S., R. 25 E., W. M., located by F. W. Gloster on May 22, 1939.

Contest 2636- Squaw Butte lodes Nos. 49 to 54, and 7 to 12, in sec. 1, T. 24 S., R. 25 E. W. M., located by Earl Hagey, G. E. Hagey, and O. F. Selle on March 25 and June 14, 1939 - held by Ronald B. Crow.

Contest 2637- Squaw Butte lodes Nos. 43 to 48, in sec. 1, T. 24 S., R. 25 E. W. M., located by L. M. Selle, on June 14, 1939 - held by Ronald B. Crow.

Contest 2638- Squaw Butte lodes Nos. 37 to 42, in sec. 1, T. 24 S., R. 25 E., W. M., located by G. E. Hagey and E. R. Hagey on June 14, 1939 - held by Ronald B. Crow.

Contest 2640- Squaw Butte lodes Nos. 1 to 6, and 79 to 101, in secs. 1 and 2, T. 24 S., R. 25 E., W. M. located by Ronald B. Crow on March 24 and August 21, 1939.

Contest 2641- Sunshine No. 5 lode in sec. 1, T. 24 S., R. 25 E., W. M., located by W. H. McKenzie and R. O'Farrell on May 17, 1939.

Contest 2649- Squaw Butte lodes Nos. 21 to 32, 60 to 65, 66 to 71, in secs. 1 and 2, T. 24 S., R. 25 E., W. M., located by O. F. Selle, H. E. Claridge, John Morris, and George Hagey on May 3d and 19th, 1939, and on July 3, 1939- held by Ronald B. Crow.

Notice issued to claimants and all answered denying the charges. Hearings were set but were continued from time to time by the Regional Field Examiner.

On October 16, 1940, upon request of the Regional Field Examiner, commissions to take depositions of certain witnesses issued to notaries public at Los Angeles and San Francisco, California, and at Spokane, Washington. Depositions were returned in each case.

By his letters "N" of June 17, and June 18, 1941, the Commissioner of the

General Land Office directed adverse proceedings against the Juniper Ridge claims, charging:

1. That the land embraced within the claims are non-mineral in character
2. That minerals have not been found within the limits of the claims in sufficient quantities to constitute a valid discovery.

The claims are as follows:

Contest 1- Mining locations 1 to 6, 49 to 54, 82 to 91, and 95 to 99, in sec. 6, T. 24 S., R. 26 E., and secs. 1, 2, 12 T. 24 S., R. 25 E. W. M., located by Ivan Duncan on October 31 and November 22, 1940.

Contest 2- Mining locations 7 to 12, 27 to 32, 60 to 65, and 78 to 81, secs. 1 and 2, T. 24 S., R. 25 E., and sec. 6, T. 24 S., R. 26 E., W. M., located by O. F. Selle on September 20, 23, and 24, 1940.

Contest 3- Mining locations 13 to 26 in secs. 2 and 3, T. 24 S., R. 25 E., and sec. 6, T. 24 S., R. 26 E., W. M., located by Earl Hagey on October 13 and 31, 1940.

Contest 4- Mining locations 37 to 42, 66 to 71, in sec. 1, T. 24 S., R. 25 E., and sec. 6, T. 24 S., R. 26 E., W. M., located by L. N. Selle on October 31, 1940.

Contest 5- Mining locations 43 to 48, 72 to 77 in secs. 1 and 2, T. 24 S., R. 25 E., and sec. 6, T. 24 S., R. 26 E., W. M., located by Z. R. Hagey on October 31, 1940.

Contest 6- Mining locations 100 to 107 in secs. 2 and 3, T. 24 S., R. 25 E., W. M., located by D. B. Goldman on October 31, 1940 and November 22, 1940.

Notices issued in each case and in due time answers were filed denying the charges.

November 12, 1941, pursuant to request and by stipulation of counsel, the Register of this office ordered the consolidation of the Squaw Butte and Juniper Ridge contests, their locations being practically identical. Thereafter, the cases were considered as a whole.

November 17, 1941, upon request of the Regional Field Examiner, Commission issued to a notary public in Washington, D. C. to take the deposition of a witness. Deposition was received. February 23, 1942, upon a similar request by the Regional Field Examiner, commissions issued to notaries public at Albuquerque, New Mexico, Tucson, Arizona, San Francisco, California, Grants Pass and Portland, Oregon and Moscow, Idaho, to take depositions of certain witnesses. Depositions were returned, except from Grants Pass, Oregon.

April 9, 1942, the date to which hearing on the contests had been continued, both parties appeared before the designated officer at Burns, Oregon. The United States was represented by Ira Lantz, Field Examiner, and the defendants by Wm. J. Becker, Attorney. Testimony was submitted. No appearance being made

on the date of final hearing, May 8, 1942, the case stood submitted.

Samuel T. Guthrey, Field Examiner, testified to having first examined the claims in controversy in 1937 when they were called the Hub Group, and again in August 1939, then the Squaw Butte Group. He found the main formation of the land to be a rhyolite lava flow, with obsidian rocks, and where cuts had been made perlite showed. He found neither veins nor lodes and very little development work. Govt. Ex. A, B, C, D.

Cassius C. Smith, Field Examiner, testified to having examined the claims as to the mineral character of the land, in June and July, 1940. His findings are similar to those of Guthrey. Samples of the rock he had assayed showed no tin. Govt. Ex. D, E.

April 1, 1941, Carl Lausen, Regional Field Examiner, Paul F. Cutter, Field Examiner, and Arthur E. Granger, geologist, all arrived at the claims to examine them for their mineral content, especially as to tin. A. J. Kinsley, Field Examiner, who had previously examined the claims and made cyanide fusion tests of the rock, from which he had secured tin "buttons", accompanied them and showed them where he had taken the samples from which he had secured tin. All took samples of the rock from these places. Lausen and Cutter, working together, took sixteen samples. Granger took nineteen which he sent to the Geological Survey, at Washington, D. C. for assaying.

Cutter's testimony, taken by stipulation of counsel, at Portland, Oregon, on March 20, 1942, is considered in conjunction with Lausen's.

Lausen testified that he had found the land to be a thick flow of volcanic glass or rhyolite, with no evidence of veins nor mineralization nor occurrences in which tin is found in rhyolite. Lausen made some thin sections of the glass which he examined with a petrographic microscope. He found the rock contained oligoclase, feldspar, a soda lime feldspar, the most abundant mineral in any of the slides. He also found a few grains of pyroxene and magnetite. Cutter agreed with Lausen's description of the land. Lausen also testified that the instructions from the General Land Office was to ascertain from the defendants their method of making fusion tests, so Cutter secured a detailed statement of the method. Govt. Ex. B, Cutter's testimony.

In Baker, Oregon, at the laboratory of the Oregon Department of Geology and Mineral Industries, Lausen and Cutter made 11 fusions from the samples secured at the claims. Lausen described these in detail, which were largely experimental. No tin was found, nor did they find any in the light metallic lustre of the perlite beads, although they used the cacotheline test for tin.

In Portland, Oregon, Lausen and Cutter gave the Charlton Laboratories a third of the pulp prepared in Baker of their sample #2, with a copy of the instructions of the fusion method secured by Cutter from the defendants. Plf. Ex. B & C. No tin was discovered. They gave a sample of the same pulp to R.D. Carpenter, assayer, at Grants Pass, Oregon, with duplicate instructions same as given to the Charlton Laboratories. No tin found. Plf. Ex. D. Before leaving Portland they went to Vancouver, Washington, and had A. W. Petrey, Chief Chemist, of the Aluminum Corporation of America test a portion of the pulp of sample #2 by the spectrographic method. Plf. Ex. F and Fl. No tin discovered. Plf. G.

From Portland, Lausen and Cutter went to Grants Pass, Oregon, to the Laboratory of the Oregon Department of Geology and Mineral Industries where they made fusions 12 to 45. Out of all these fusions no tin was found excepting where tin in some form had been added to the fusions. Fusions Nos. 42 to 45, inclusive, were experiments made by Lausen to obtain silica jelly to precipitate tin, if any, out of the solution by electric current and plate the tin on a copper wire. He was unsuccessful. Lausen made no further fusions but Cutter testified to continuing up to No. 73.

Before Lausen and Cutter left Grants Pass, Kinsley appeared to the laboratory stating that Rhea was coming, and if they cared to have him, he would help them with the tests. Lausen was absent but Cutter agreed. Before Kinsley and Rhea arrived the next day, Lausen and Cutter prepared four tests for them. Two of these tests were from their samples Nos. 2 and 7, but the third was serpentine and the fourth basalt, Lausen having picked up samples of these minerals on the road between Burns and Portland, many miles from the claims. The Crucible that Kinsley selected to test contained basalt. No tin found. Rhea tested the other three samples and produced a tin button from the serpentine.

Cutter, with the help of Rhea, ran fusion 54 which was sample #3. When the crucible was broken, Cutter was elsewhere but Lausen was with Rhea. No tin found, but a few seconds later Lausen heard Rhea pounding outside. Lausen hurried out. Rhea showed him part of a broken crucible with a tin button lodged in it and stated he had gotten it from the crucible just broken.

Cutter continued with the tests. Nos. 55 and 56 produced no tin. No. 57, which he ran with Rhea's help, produced a tin button. The remainder of the fusions Cutter ran alone. No tin found. Govt. Ex. F. The tin buttons showed almost pure metallic tin. Govt. Ex. E.

Cutter and Kinsley, at the University of California laboratory, worked over their samples by the cyanide fusion test, each making close to 100 fusions. No tin found.

Vernon C. Bushnell, soil surveyor, testified that he was employed by the Charlton Laboratories when the Lausen and Cutter sample was received for testing, with full instructions to use the cyanide fusion method. He and Kinsley tested the sample. No tin found. Govt. Ex. B. Bushnell also made a rock analysis of one of Kinsley's samples, 28-K. He found the rock to be Rhyolitic obsidian, made up of silica, titania, iron oxides, alumina, calcium oxide and magnesium oxide, in so far as his analysis went. No tin found. This analysis of Bushnell's, with added information from A. W. Petrey, of the Aluminum Corporation of America, and his own knowledge of rock, was worked out into percentages by Lausen as given in his testimony. No tin indicated.

Besides selecting samples at the claims, Granger examined the land and made a reconnaissance map of the area. Govt. Ex. A. He described the area as volcanic basalt and rhyolite, with no veins nor segregations of ore material to indicate the presence of tin.

R. C. Wells, chief chemist, U. S. Geological Survey, at Washington, D.C., testified to having received the nineteen samples of rock sent to the Survey of Granger. He described two methods, the gravimetric and the volumetric, used in testing the samples for tin. He explained that the gravimetric method used

by him, while not exactly a standard method, is rather a research method to find very small quantities of tin, making sure that no quantity of tin can be lost and if any tin is in the rock it can be finally obtained. He, and three assistants, tested the samples. Slight traces of tin is shown in some samples, but all under one percent, which are not actual percentages but the maximum possible limit of tin. See Wells deposition. Plf. Ex. 1, 2, 3. (Sample 17 was a tin button set in a crucible and sample 18 a crucible, both given by Kinsley to Granger).

Wells further testified that if the silica in the rock is as high as 70% no tin will be obtained by the cyanide fusion method.

The commission issued for the taking of deposition at Washington, D.C., was modified by Counsel stipulation to add the testimony of four witnesses for the Government and two for the defendants. Accordingly, Victor North and Joseph Axelrod, chemists, testified to having run tests of the samples given them by Dr. Wells, according to the method and results as shown on Plf. Ex. 1 - Wells' Deposition.

Charles Milton, Geo-chemist, testified that Dr. Wells had given him Granger's sample #3 to test, which he did by the gravimetric method, which he believed would show the presence of tin far below the fraction of a percent. He found no tin. Plf. Ex. 1 - Wells' Deposition.

George Steiger, retired chemist, formerly chief chemist of the U. S. Geological Survey, stated that the spectrographic method was used principally to locate traces of mineral. He made spectrographic tests for tin in all of the Granger samples from #4 on, excepting #17. He got no tin, except traces less than 1% from some of the samples. Plf. Ex. 8.

Earl Nixon, Director of the Oregon Department of Geology and Mineral Industries, testified that he first saw the claims in controversy on November 25, 1939; that he took samples where he had been told tin had been found; that he sent these samples to the Bureau of Mines at Reno, Nevada, with instructions to test them by spectrographic method. No tin found. Govt. Ex. A and B.

John Allen, geologist, under Nixon's supervision, testified that Nixon had directed him to examine the claims, which he did on July 10, and October 20, 1941; that he took samples from various localities on the claims; made a geologic survey of the property and surrounding area; noted four different rock types, pumice, perlite, massive and banded andesite, all of volcanic origin, all glassy, with no secondary mineralizations such as would support the presence of tin; that he made two maps, a geologic and a topographic map. Govt. Ex. C and D. He also testified that he gave his samples to H. C. Harrison, chief chemist, of the Oregon State Department of Geology and Mineral Industries, who was with him on the claims in October, 1941.

H. C. Harrison testified that, among other samples, he had received seven samples from John E. Allen; that he took three samples himself; and that out of fourteen different tests he selected four, the cacothelene, the molybdic, the mercuric chloride plus analine, and the diazene test, these tests being for the determination of small amounts of tin, not over 5%. The tests were also selected for their sensitivity, the stability of the reagents, the sharp color changes involved and because they are specific for tin. He applied the tests in duplicate for each sample. He found tin in not more than .05% in any of the samples. He also made spectrographic tests, finding small traces of tin, not over .05%.

March 13, 1942, by stipulation of counsel, the deposition of Arthur C. Kinsley, Field Examiner, a witness for the defendants, was taken at San Francisco, California. Kinsley also testified at the hearing in Burns, Oregon, on April 9, 1942. His testimony shows that the defendants asked the Regional Field Office at San Francisco, California, to send a field man to the Squaw Butte plant, so, in October 1940, Kinsley was sent there to study and watch the operations of the plant, but the plant was not working when he arrived. He examined the land, finding it, as other field men had, to be a rhyolite lava flow. He took samples from spots where he was told tin had been found. He watched Wm. Rhea make cyanide fusions of the rock and secure tin buttons. After waiting two weeks, and the plant still idle, Kinsley, taking his samples with him, and accompanied by Wm. Rhea, went to Portland, Oregon

Very little is brought forth in the testimony to indicate Rhea's educational background, if any, or his experience in working with tin, or even his relation to the defendants. Kinsley testified that when he first met Rhea he understood him to be the chemist for the defendants, and Rhea was so designated by them, but later he was referred to as merely, "an employee of the defendants." To Kinsley, Rhea did not claim to be a chemist but he did claim a "rule of the thumb" or rudimentary training in chemistry, and that he had former experience in working with tin but this was not elaborated upon. However, the defendants appear to have relied upon Rhea's apparent ability to secure tin by his cyanide fusion tests of the rock on their claims, as he appears to have been chosen by them to accompany Kinsley to Portland to teach the latter his method of working these fusion tests. Kinsley testified that he did not ask for Rhea's assistance but when he was approached on the subject by the defendants he concurred.

In Portland, Kinsley rented the John Beede Laboratory where he worked off and on for two months. He had the use of the laboratory at such times as it was free from dangerous fumes and people, except Rhea. John Beede and his brother, Clarence Beede, were also in and out of the laboratory most of the time. However, Kinsley states that they had nothing to do with his samples, and that Rhea had "no hand whatever in . . .

After preparing his samples for analysis, Kinsley sent one-third of the pulp to the Charlton Laboratories for tin test, gave one-third to John Beede for a gold and silver test, and kept the remainder for his own experiments. He spent a month under Rhea's tutelage, making fifty or more fusions and recovering one or two buttons. Results from the Charlton Laboratories, by their wet assay method, showed only a trace of tin in one sample. Def. Ex. 11 A, B, C. The gold and silver test showed only trace. Def. Ex. 12. Kinsley described in detail the furnaces he used. Def. Ex. 13 and 14. Assays of his first tin buttons recovered, of Rhea's fusions and assays. Def. Ex. 15, 16, 17, 18.

On December 16, 1940, Kinsley returned to the Squaw Butte plant and witnessed an unsuccessful test of the furnace. He collected samples from around the furnace. Def. Ex. 19 A, B, C, and 20. While at the claims he secured two more samples at a distance from where he had formerly sampled the rock. Def. Ex. 21, A, B, C, D, and 24, which shows tin in the buttons, but no tin by the Pearce-Low assay. Assays of buttons secured from his 29-K sample, or his "control", which he used to test other fusions, showed almost pure tin. Def. Ex. 26, a and b. For Kinsley's map of claims, see Def. Ex. 33.

In April 1941, Kinsley took still more samples from the claims. Def. Ex. 34. Def. Ex. 35 and 36 are all assays of more buttons he found and of slag found in a furnace he used.

Kinsley testified to having sent three samples to the Colorado School of Mines and three to the University of Arizona. Reports not filed but he testified that the results from each place was nil or trace only as to tin. He also sent five samples to the U. S. Geological Survey at Washington, D. C. the results of which are covered in the deposition of Charles Milton. See Wells deposition.

Def. Ex. 37, 38 and 39 are books on tin.

Kinsley testified that he and Rhea were associated 75% of the time during which Kinsley was making cyanide fusion tests and working on the samples he took at the claims; that he made some two hundred fusions in all and recovered fifteen buttons. He also testified that he and Cutter had worked over their samples at Berkeley, California, Kinsley making fusion tests of all the samples he had worked at Beede's Laboratory, but that at Berkeley he had recovered no tin.

By stipulation of counsel, the depositions of four witnesses for the defense were taken on March 19, 1942, before Cloyd Reuch, a notary public, at Portland, Oregon.

Marvin F. Pullen, testified that his business was retinning old milk cans and utensils; that he first learned of the Squaw Butte claims from O. F. Selle, whom he met at Baker, Oregon; that, due to war conditions, he feared his business would suffer for lack of tin, so he visited the claims several times, took samples, and although he had had no mining experience, knew nothing of chemistry nor smelting, he built himself some three furnaces in an attempt to secure tin from the samples by the same process he used to salvage tin from the dirt and sweeping in his workshop. He used an iron mortar he made himself to crush the rock and then roasted it in the furnace. He also had Clarence Beede crush ore for him, from which he made eleven consecutive runs. He felt sure he got tin but how much he could not tell. No assays were produced. He gave up trying to find tin in the ore as the results were so small and too expensive to be continued.

John F. Beede testified he had been assaying since 1922; that he first assayed Squaw Butte rock in 1929 or 1930 but found only 1% of tin; that he estimated the rock contained 72% or 73% of silica, and he classified the rock as rhyolite obsidian; that he had rented his laboratory to Kinsley with the understanding that the defendant would pay the rental; that he had nothing to do with Kinsley's work; that he accompanied Kinsley to Burns when the latter went to see the furnace work in December 1940; that Kinsley took several samples back with him to Portland; that Kinsley worked over these samples alone, making some sixty or seventy cyanide fusions but secured no tin; that Kinsley had to return to San Francisco before Christmas 1940; that Rhea returned to Portland and that he and Clarence Beede, John Beede's brother, made the fusions of the samples left by Kinsley; that he, John Beede, was to have nothing to do with the work and was to do no assaying. Much of the remainder of Beede's testimony concerns the identification of the defendant's exhibits already testified to by Kinsley.

Chester Beede, son of John Beede, testified that he had worked in his father's laboratory off and on since 1936; that Kinsley gave him a sample to test sometime before Christmas 1940 and that he secured a tin button.

Clarence Beede, a Brother of John Beede, testified that he worked off and on in his brother's laboratory since 1930; that he met Kinsley about Christmas time 1940 and began keeping notes for Kinsley on March 3, 1941 while Kinsley worked fusion tests on his samples. These notes covered the days of March 3 and 4, and April 21, 22, and 24, 1941; that he also kept notes of his own cyanide fusion tests beginning December 11, 1940 and continuing to December 28, 1940 when Rhea appeared to work with him. These notes, kept in a manner similar to Kinsley's "working data", add little or nothing to the testimony already given by Kinsley. However, Rhea's first fusion produced a tin button, as did many of those that followed. Clarence and Rhea worked the fusions alternately, and Clarence obtained his first button after Rhea's appearance.

Oscar F. Selle, one of the defendants, testified that he first heard of the claims in controversy when they were known as the Hub Group; that in 1939, in Los Angeles, California, he met Ronald Crow who was looking for tin; that he had sent Crow samples of rock from the claims and Crow had asked him to locate claims for him. Not being able to do this, Selle asked Earl Hagey to do the locating. Selle testified to having made fusion tests of the rock and securing bits of tin, although he had never had any assaying nor mining experience. No evidence of assays filed. He stated he had met Wm. Rhea in the summer of 1940 at Burns, Oregon, when Rhea was making cyanide fusion tests of the ore and getting tin buttons. He also admitted that he had never seen any one except Rhea make successful cyanide fusions of the ore, and secure tin.

Earl Hagey, one of the defendants, testified that he was in the garage business from 1921 to 1939, when he supervised the staking of the Squaw Butte claims for Ronald Crow, having staked over one hundred claims. He stated he had made cyanide fusion tests of the rock with Rhea, but the results were not brought forth. He also testified to having assays of the rock. Def. Ex. 71, a compilation of assays, but no assay certificates filed. He also testified to having made an attempt to locate Wm. Rhea, presumably to have him appear at the Burns hearing, but no evidence was introduced to show Rhea was actually contacted nor was he subpoenaed to appear at the hearing.

The evidence adduced at the various hearings in these cases reveals careful, painstaking work on the part of the Government's field examiners, geologists, chemists and mineral experts, in their endeavor to prove or disprove the presence of tin in the claims in controversy. Using the latest methods known to the scientific world in detecting minerals in ores and rocks, testing the rock again and again to detect the smallest possible trace of tin, they all, with the exception of one, came to the same conclusion, that no real discovery of mineral, especially tin, had been made on any of the claims.

The evidence brought forth by the defendants, wherein they attempt to stress the cyanide fusion method of recovering tin from the rock, as superior to the latest scientific methods, by their alleged finding of tin buttons in the rock, is not convincing.

I am of the opinion that the Government has amply proven its charges and I so find; that "the lands within the claims are non-mineral in character; that minerals have not been found within the limits of the claims in sufficient quantities to constitute a valid discovery." I recommend that the mining locations heretofore described in the Squaw Butte and in the Juniper Ridge Groups, located in T. 24 S., R. 25 and 26 E., W. M., be declared null and void.

Defendants will be allowed thirty days from receipt of this decision within

which to appeal to the Commissioner of the General Land Office.

W. F. JACKSON

Register

October 31, 1942

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

March 2, 1943

Re: Mr. Fred Miller

Some time during the first part of January, 1942, Mr. Fred Miller and Mr. Robinson, a lawyer representing Mr. Miller, came to the spectrographic laboratory. They left two samples, one was claimed to be pure BeO and the other was a white powder which Mr. Miller's brother had obtained from a rock. This latter powder was thought to be BeO and was to be tested. Spectrograms showed that the pure BeO contained a high percentage of Be and the sample of white powder contained only a trace of Be but was mainly SiO₂.

Mr. Miller returned to the spectrographic laboratory about September 4, 1942, and left some pieces of metal and a piece of rock, later identified as being from the Balentine deposit. The metal samples showed the presence of tin. The rock did not show the presence of tin in more than a slight trace. Mr. Miller (Fred) was accompanied by his brother (Hubert?) who was introduced as a chemist and an expert on obtaining Be from rocks. It was agreed that a larger sample of the Balentine ore was to be sent for further testing. This was done and only a slight trace of tin was found to be present.

Later Mr. Miller came to the office and offered to show Harrison and Allen how to obtain tin from this rock. A definite date was set for the demonstration, but before that date Harrison received a card from Mr. Miller cancelling the appointment.

Mr. Miller came into the office prior to September 15 and interviewed Mr. Libbey relative to a report that some person had commissioned Rosenberg to find heavy material to use as rock ballast in ships. Libbey told him that the firm which had taken up the matter with this office and later with Rosenberg was Robert E. Stevens Company, Title and Trust Building, Portland.

Mr. Miller left Mr. Libbey's office and came to the spectrographic laboratory. He said that he had been out of the State for some time and that is the reason he had not made an attempt to make an arrangement for demonstration of obtaining tin from Mr. Balentine's rock. According to Mr. Miller, the parties interested are still obtaining tin from Mr. Balentine's rock and in as large a quantity as would fill an ordinary paper drinking cup. Upon learning that spectrographic analysis on the samples of Balentine's rock, submitted to this office by Mr. Balentine some time ago, and also samples of rock taken by Mr. Treasher and submitted to this office, had failed to show the presence of more than a very slight trace of tin, probably about .001%, Mr. Miller could offer no explanation for the discrepancy of results. He did, however, mention that the lining of the furnace he used was clay and suggested that possibly this clay might be a source of the tin. It is to be noted that upon questioning regarding this theory, Mr. Miller stated that the amount of tin obtained from the furnace was not dependent upon a length of time the clay lining had been in the furnace. That is, apparently a newly-lined furnace would not give larger yields of tin as might be expected if clay were the source of tin. The procedure used by Mr. Miller was mixing the ore with commercial sal ammoniac, although he had used sulphur and carbon with gratifying results. To his knowledge, the jackrabbit-type furnace has not been used with this rock, although he saw