

DAILY ANALYSIS REPORT

(Baker, Oregon)

Manganese (Calder-Prescott Deposit, located near Durkee, Oregon)

	<u>Manganese</u>
1-A.	1.62
2-A.	1.39
3-A.	1.86
4-A.	9.30
1-B.72
2-B.	1.16
3-B.	1.96
4-B.	1.62
1-C.42
2-C.	5.33
3-C.	5.10
4-C.	5.33
1-D.47
2-D.	1.20
3-D.	7.34
4-D.	2.28
3-E.30
4-E.	5.08
3-F.	4.05
2-S.	3.68
3-S.	2.30
4-S.	7.60
7-S.75

Baker, Oregon

DAILY ANALYSIS REPORT

Manganese

MINE

M. C. Lake

ANALYSIS OF IRON ORE FOR

Lab. No.	REMARKS	Iron	Phos.	Mang.	Silica	Sul.	Moist
1-A	<i>Calci Present</i>			1.62			
2-A				1.39			
3-A				1.86			
4-A				9.30			
1-B				.72			
2-B				1.16			
3-B				1.96			
4-B				1.63			
1-C				.42			
2-C				5.33			
3-C				5.10			
4-C				5.33			
1-D				.47			
2-D				1.20			
3-D				7.34			
4-D				2.28			
3-E				.30			

DAILY ANALYSIS REPORT

MINE

ANALYSIS OF IRON ORE FOR

Lab. No.	REMARKS	Iron	Phos.	Mang.	Silica	Sul.	Moist
4 E				5.08			
3-F				4.05			
2-S				3.68			
3-S				2.30			
4-S				7.60			
7-S				.75			
	Mailing under separate cover, the piece notes on above.						
	e. e.						
	A. V. QUINE, State Geologist 2107 Canal Street Baker, Oregon.						

OREGON WHITE PINE TIMBER CO.

BAKER, OREGON
W. C. CALDER, MANAGER

210 SHOEMAKER BLDG.
TELEPHONE 427

copy
January 24, 1938.

RECEIVED
JAN 25 1938

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. M. C. Lake,
910 Fidelity Bldg.,
Duluth, Minn.

Dear Sir:

Replying to yours of the 19th, re. manganese near Durkee, I can only say that the sampling of this property during 1918 was intended to arrive at the average grade of the vein and of the deposit, looking forward to the use of this ore by the U.S. Government. We hope that further examination will show this property to be worthy of sale and operation.

I think that it is Mr. Nixon's intention to furnish you with a copy of the report. I can send you any quantity of ore that you may wish for test purposes. It is seldom that snow interferes with the examination of the surface and contact of surface samples.

Yours truly,

WCC:B

W. C. Calder
Manager.

CC to Mr. Nixon.

W

copy

Duluth, Minnesota.

Jan. 11, 1938.

RECEIVED
JAN 17 1938

Mr. W. C. Calder,
Oregon White Pine Tbr. Co.,
210 Shoemaker Bldg.,
Baker, Oregon.

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Dear Mr. Calder:

Your letter of Jan. 3rd, with maps and photographs attached regarding the manganese property near Durkee, Oregon, is acknowledged. The samples of ore have been received and examined.

It would appear from your letter that there is no large tonnage of manganese ore of high grade on your property, and offhand it does not sound as though it could be worked commercially in that section of the country, because of its average low grade and distance from market.

I have been interested in investigating manganese properties for many years and have been convinced it is difficult to find a property that might be worked at profit. However, I am still hoping and for this reason, even though the property does not appear attractive from the information furnished, I hope that I will have the opportunity sometime next summer to make an examination of the prospect and determine first hand if there are any possibilities of finding sufficient high grade ore to make it possible to mine the ore profitably.

Thanking you for your kindness in submitting the detailed information regarding the manganese occurrence, I am

Very truly yours,

MCL:EB

(Signed) M. C. Lake.

17

OREGON WHITE PINE TIMBER CO.

BAKER, OREGON
W. C. CALDER, MANAGER

210 SHOEMAKER BLDG.
TELEPHONE 427

January 15, 1938.

RECEIVED
JAN 17 1938

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. M. C. Lake,
910 Fidelity Bldg.,
Duluth, Minn.

Dear Sir:

This is in acknowledgment of yours of the 11th.

Mr. Lake, you have taken all the wind out of our sails.

We thought that a vein 8 or 9 ft. wide, of a probable length of 1500 ft., to a height of about 1,000 ft. filled with 40% ore, was a lot of high grade ore; and we thought that an additional 12 to 15 ft. lying along beside the vein of 12 to 15% ore, and that an area of possibly 10 to 15 acres on top of the hill of 12 to 15% ore, - was a lot of medium grade.

A member of Mr. Nixon's staff is making an examination and his report will give more definite information than I can give you at this time.

As manganese goes in this locality, this property has impressed me as having the largest amount of high grade ore, and the largest amount of lower grade, and as having the most advantages for mining, transportation, etc., of any other property here.

Yours truly,

W. C. Calder,
Manager.

WCC:B

Calder

RECEIVED
JAN 20 1938

STATE DEPT OF GEOLOGY
& MINERAL INDS.

January 19, 1938

Mr. M. C. Lake, Geologist
Fidelity Building
Duluth, Minnesota

Dear Mr. Lake:

I am shipping by express, today, twenty-three (23) samples of ore representing Mr. Calder's manganese property near Durkee, Oregon. This is in accordance with your request in the postscript of a copy of letter to Mr. Nixon dated December twenty-eighth.

These samples were crushed in this office and represent a quarter of the full sample, taken through a Jones splitter. We did not pulverize them for the reason that Mr. Markert may have his own ideas in that respect.

I am mailing them direct to Mr. Markert in order to obviate the necessity of re-handling them in your office. However, as I did not send any explanation with them, may I suggest that you contact Mr. Markert as to their disposal.

We would greatly appreciate having a copy of Mr. Markert's results sent to this office in order that we may check them against our own analyses.

Mr. Nixon will write you concerning my report on the property which I will forward to him within three or four days.

With a hope that the data to be furnished will be entirely satisfactory to you, I am

Respectfully yours

Albert V. Quine, Mining Geol.

cc: Earl K. Nixon

A

RECEIVED
DEC 30 1937

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Duluth, Minnesota
December 28, 1937

Mr. W. C. Calder
210 Shoemaker Building
Baker, Oregon

Dear Mr. Calder:

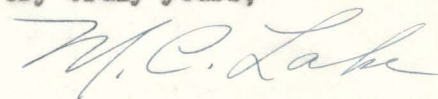
Mr. Nixon has written me relating to your manganese ore deposit near Baker, Oregon.

I suggest that you send me a map which will outline the location of the ore deposit, and also show the openings from which samples were taken for analysis. If you have analyses of samples from these various openings it would be very helpful to be furnished with that information, so that the possibilities of your property could be more thoroughly understood.

In addition, I suggest that you also write me the basis upon which you would be willing to dispose of this property.

Awaiting further word from you with interest,
I am

Very truly yours,



Geologist

MCL:EB
c.c. Mr. E.K. Nixon

Dear Earl: I will be very much interested to have more complete information on this property, and it would certainly be fine if you could send a mining engineer to the property to take samples for analysis. I will be glad to have the analytical work done at our Iron River laboratory and furnish you with duplicate copies of the results.

M.C.L.



March 15th, 1938

Mr. A. V. Quine, Mining Geologist,
State Assay Laboratory
Baker, Oregon.

Dear Al:

Replying to your letter of March 14th, I saw Mr. Lake in San Francisco recently and he informed me that he sent you a copy of the manganese assays as determined by Mr. Markert at the W.A.Hanna Laboratories in Iron River, Michigan. Evidently the data did not reach you, so I am sending a copy herewith.

I am under the impression I wrote Mr. Calder that Mr. Lake would not be interested in the property owing to the low assays, and I believe Mr. Lake wrote Mr. Calder.

Remembering now the five minutes I spent on the property with you, when I saw you last, I am inclined to think, judging from the tenor of the assays, that I spent too much time on the property.

Yours very truly,

Earl K. Nixon, Director

EKN:fas

Encl: 1

GOVERNING BOARD
W. H. STRAYER, CHAIRMAN . . . BAKER
ALBERT BURCH MEDFORD
E. B. MACNAUGHTON . . . PORTLAND



STATE DEPARTMENT OF GEOLOGY AND
MINERAL INDUSTRIES

STATE ASSAY LABORATORY
2102 COURT STREET
BAKER, OREGON

March 14, 1938

RECEIVED
MAR 15 1938

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Mr. Earl K. Nixon, Director
Dep't of Geology & Mineral Industries
704 Lewis Building
Portland, Oregon

Dear Mr. Nixon:

Mr. W. C. Calder was in to see me today concerning the manganese property near Durkee. I told him the physical result of my examination but did not give him any more than a general idea of what the samples would run. Leslie has run the manganese percentages of the twenty-three samples that I sent to Mr. Lake; however, they are very, very disappointing in regard to their manganese content, the highest running 6% and the majority of them running a trace or a few hundredths of a percent. I would be very much interested in learning what you found out from your talk with Mr. Lake in San Francisco last month; and if perchance you have a copy of the results of his assays, I would be pleased to receive them to compare with ours. As I said, I am quite disappointed in the results, as I felt sure that a few of them were rather high grade; however, it may be that it just goes to prove the uncertainty of any manganese property. The complete analysis has not been run on the samples as yet in this office, but I am enclosing a list of the manganese percentages with their various assay numbers. When the rest of the analysis is made, I will give a complete description of the samples and send in my formal report on the property.

With best regards, I am

Very truly yours

Albert V. Quine
Mining Geologist

AVQ/bh
Enc.

A



STATE DEPARTMENT OF GEOLOGY AND
 MINERAL INDUSTRIES

STATE ASSAY LABORATORY
 2102 COURT STREET
 BAKER, OREGON

March 14, 1938

RECEIVED
 MAR 15 1938

STATE DEPT OF GEOLOGY
 & MINERAL INDS.

Prescott's Mining Property Near Durkee

1a	Nil	1.62
1b	Nil	.72
1c	Nil	.42
1d	Nil	.47
2a	Tr.	1.39
2b	Nil	1.16
2c	5.24	5.33
2d	Tr.	1.20
3a	Tr.	1.86
3b	.07	1.96
3c	4.42	5.10
3d ✓	.74	7.34
3e	.10	.30
3f ✓	1.02	4.05
4a ✓	.42	9.30
4b	Tr.	1.68
4c ✓	.08	5.33
4d ✓	.06	2.28
4e ✓	Tr.	5.08
S1	Nil	
S2 ✓	.09	- 3.68
S3 ✓	Tr.	2.30
S4 ✓	6.26	7.60

Handwritten notes and corrections:
 A large handwritten 'K' is written above the first column of values.
 Wavy lines are drawn under the values 7.34 and 9.30.
 A minus sign is written before the value - 3.68.

December 31, 1937

Mr. A. V. Quine, Mining Geologist
State Assay Laboratory
Baker, Oregon

Dear Al:

Attached is a copy of a letter from the geologist of an eastern steel corporation. It refers to a manganese deposit described to me by Mr. Calder. Would you please call on him and check up on this at your convenience and give me a report? I don't know whether you can visit the property at this time of year.

Note that Mr. Lake states that you can send your samples East for assay at his expense. I would suggest that, if you take any samples, you have the samples crushed and pulverized at the laboratory and send pulps only to Mr. Lake. Better yet, mail the pulps to the following address: Mr. W. A. Markert, Chemist, The M. A. Hanna Company, Iron River, Michigan. Direct your letter, which merely states that you are mailing the pulps direct to Mr. Markert to save re-mailing, to Mr. M. C. Lake, Geologist, Fidelity Building, Duluth, Minnesota. State in your letter to Mr. Lake that the samples represent Mr. Calder's property and that the pulps are being sent in compliance with the postscript of his letter of December twenty-eighth.

Send the report of the property to me, as I ^{may} wish to comment ^{on} it when I write to Mr. Lake. In your letter to Lake ask for Mr. Markert's results on the manganese determinations. You can check these against your own assays.

With best wishes, I am

Very truly yours,

EKN:vm
Encl.

Director

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

ASSAY REPORT

Grants Pass, Oregon
Baker, Oregon

October 20 19 41

Sample submitted by E. W. Rowland, c/o Ralph King, 2334 N.E. 24th St., Portland

Sample description: BB858 Manganiferous sandstone

The assay results recorded below are made without charge as provided by Chapter 176, Section 10, Oregon Laws 1937, the sender having complied with the provisions thereof.

NOTICE: The assay results recorded below are from a sample furnished by the above named person. This Department had no part in the taking of the sample and assumes no responsibility, other than the accuracy of the assay of the material as furnished it by the sender.

Sample Number	GOLD		SILVER		Manganese		Percent	Value	Total Value
	Ounces per ton	Value	Ounces per ton	Value	Percent	Value			
BB859					14.2				

Market Quotations:

Gold \$\$\$ per oz.
Silver \$\$\$ per oz.
 \$\$\$ per lb.
 \$\$\$ per lb.

STATE ASSAY LABORATORY

L. C. Richards
Assayer

mm. File

State of Oregon
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
702 Woodlark Building
Portland, Oregon

Subject:

From:

To:

Re: Roberts manganese, Curry County

Mr. L. J. Roberts, address, Langlois, Oregon (now working in shipyards in Portland) was in the office and asked that we give him some information on his manganese on Forest Creek. It has been reported on briefly by Randall Brown.

I agreed when convenient, to visit this exposure and am asked to hunt up Lawrence Suckaw who can show me the property. Suckaw lives 12 miles up Forest Creek but can be reached through Langlois.

E.K.N.

Manganese
Anderson's conclusions (Rosenberg's Rep)

SHEEP MOUNTAIN GROUP

Surface indications do not suggest the presence of larger lenses of ore in the bedrock immediately beneath the surface subsoil other than those now exposed by existing tunnels and open cuts. Evidence is completely lacking to substantiate the hypothesis that softer bodies of ore that do not outcrop are located between the hard siliceous lenses cropping on the surface.

A sample taken from the dump of the upper tunnel from representative ore ran 20.10% manganese. A series of samples taken on June 4, 1941 by H. Lancaster, field engineer for the State Department of Geology, from the workings range from 11.4% manganese to 36.5% manganese. The property definitely does not have shipping ore in sight at present. The past development work exposing the small irregular lenses of ore gives very little encouragement to the hope that further development will disclose large bodies of low grade ore.

PRESCOTT PROPERTY - Durkee

This property shows very little promise as a future producer of either high grade or low grade manganese ores. Significantly, the development work done on the claims was not for manganese but for gold and silver. No ore has been shipped from the property.

MORTON GROUP - Pleasant Valley

Past development work on this group of claims appears to have exhausted ore possibilities. Pardee (2) states that when he visited the claims in the fall of 1917 active work on the claims had been discontinued, and that no work was done in 1918. This would seem to indicate strongly that the operation during the first part of 1918 when ore was shipped was not profitable.

The ore indications as shown by existing development work on the claims are weak, and do not justify more extensive examination of the property.

SHILLER CLAIM- Pleasant Valley

However, the rather low grade of the ore and lack of evidence to indicate any decided horizontal continuity of the ore on the surface warrants little further consideration of the claim.

BLACK MULE CLAIM - Sumpter

According to Mr. Estes, no continuation of the lense exposed has been found.

ANDERSON PROPERTY - Pleasant Valley

No evidence indicative of the subsurface occurrence of higher grade ores was present, and the property merits no further consideration.

BLACK SWAN GROUP - Virtue District

Surface indications are such as not to warrant additional work of any kind on these claims.

BLACK BEAUTY GROUP - Durkee District

This property deserves very little consideration as a prospect for manganese ore.

CONCLUSION:

The eight manganese prospects in the Baker region examined by the writer all exhibit common characteristics with reference to the grade and quantity of ore in sight. The ores are preponderately low grade and high in silica. It is probable that much of the silica is combined with the manganese in the form of the mineral braunite. With respect to quantity the ore bodies all occur in the form of small lenses that rarely show connecting ore seams. The number of these lenses exposed by development on any one prospect are few in number, and the aggregate tonnage to be obtained from the lenses on one property is small. No geologic evidence exists to indicate that deep development on the surface lenses will disclose larger ore bodies. On the contrary, the writer's hypothesis that the ores are of sedimentary origin would indicate that development in a vertical horizon may disclose the same haphazard and irregular distribution of small lenses as is now shown by surficial development.

The following conclusions have been reached after careful evaluation of all geologic factual and inferential evidence, analyses of sample and assay data, and study of the history of each individual property.

1. The prospects do not either individually or cumulatively have now in sight assured ore of a quantity and quality to meet the mineral contract specifications of the Metals Reserve Company.
2. None of the prospects show sufficient favorable geologic indications of probable ore of such quantity and quality to justify more extensive examination and possible preliminary development work.
3. The prospects do not either individually or cumulatively show a large enough tonnage of assured low grade ore to justify experimental testing of the ores by known methods of beneficiation with the end in mind of erecting a centrally located treatment plant to concentrate the ores to a shipping grade ore as set forth in the specifications of the Metals Reserve Company.

The writer having a due appreciation of possible changes in the economic status of the ores, caused by price fluctuations and possible improvements in known methods of beneficiation of low grade manganese ores, is of the opinion that any changes reasonably foreseeable at present will not alter materially the conclusions reached above.

SUMMARY OF OCCURRENCE OF MANGANESE IN OREGON

Manganese occurs in three types of deposits in Oregon: (1) as the result of leaching of basic and intermediate volcanic rocks, (2) as a product from the leaching of chert lenses, and (3) as the manganese silicate, rhodonite, in vein-type deposits. Some production has been achieved from the first two types of occurrences but silicate bodies larger than a few tons have not been found.

The manganese deposits formed in the volcanics are usually the result of differential solution and precipitation of manganese oxides at or near ground-water level. When found the ore is of fair grade (35-50 percent) but tonnages are not very large. The Tyrrell manganese deposit of Jackson County is one of the larger of these deposits. During World War I several carloads of manganese ore were shipped. Deposits of volcanics containing small disseminations of manganese occur in eastern Oregon (Baker and Union counties). Some ore has been shipped from these deposits but there is very little ore in sight. These deposits have been investigated by our Department, the U.S. Geological Survey, and the U.S. Bureau of Mines. All have agreed that these ore bodies are extremely limited in size.

Manganese oxides formed from the leaching of chert bodies have been found mainly in Curry County. Other deposits are known in Douglas, Josephine and Coos counties. Manganese is a common associate of cherts. The chert lenses are fairly resistant and tend to stand out above the adjoining country. Being exposed in this manner, they are acted upon by surface waters and the silica is leached. Manganese oxides remain.

This is a very slow process and, except under unusual circumstances, soon reaches a point where there is no more leaching of silica. This limits the amount of manganese that can form. Several chert lenses in Curry County have produced a few carloads of ore and there is one recently-discovered deposit in Douglas County which may produce a minor amount.

The U. S. Bureau of Mines and this Department have spent considerable time in the past few years investigating the manganese silicate (rhodonite) deposits of southwestern Oregon. These are found mainly in Josephine and Jackson counties. The Bureau of Mines has done some diamond drill work. The number of deposits found and the quantity indicated by the diamond drilling does not warrant their exploitation.

Manganese has been mined in Oregon in the past but the production has been small. It is unlikely that occurrences will be found to change this. Experience indicates that in the oxide-type ores a good grade of manganese does occur but the quantity is severely limited. Beneficiation of volcanics for extraction of the manganese does not appear to be practicable as the manganese occurs disseminated in very minor amounts throughout large areas, the total assay of which would not allow for economical mining and processing.

MEMORANDUM TO GOVERNING BOARD
ON MANGANESE RECONNAISSANCE IN COOS AND CURRY COUNTIES
October 8-13 inclusive, 1950

October 8

Hollis Dole and I left Portland about 9:30 and drove to Coos Bay where we stayed that night.

October 9

I called on Red Hornish, Editor of the COOS BAY TIMES whom I know and told him the object of our trip. He was very much interested and gave us a little publicity. We drove to a known deposit located about 5 miles east of Myrtle Point and owned by a Mr. Guerin. Our report had indicated that there might be a large tonnage of low-grade material. The deposit consists of manganese-stained chert in a landslide area (characteristic of the chert deposits) and is therefore somewhat difficult to judge - that is, the landslide blocks indicate something of the areal extent on the surface but the depth of thickness of the blocks could be very deceiving. The deposit appears to me to be more limited in areal extent than our report in the manganese bulletin would indicate. I told Mr. Guerin that if he was willing to spend some money to do some crosscut bulldozing which would show something about the thickness of the deposit, we would be glad to make a further examination. I told him also that the surface indications did not look too encouraging. While we were at the Guerin house, a man named Barkley called and told us that he had manganese on his farm located south of Broadbent on the Powers road. He offered to guide us to the property and we made an examination. Mr. Barkley could show us very little because almost no work had been done. The deposit was the same type of manganese-stained chert that is common in the coastal area. The chert deposit is probably rather persistent but how extensive the manganese in it is could not be determined. Most of the chert is covered by brushy overburden. I told Mr. Barkley that if he would open up the surface of the deposit with trenching, we would be glad to make a further examination.

October 10

We drove out east of Langlois to examine the McAdams deposit which had some production both in World War I and World War II. Our report indicated that there could be a rather large areal extent to the deposit. However, the manganese ore so far as could be observed all occurs in alluvial deposits. The separate nodules of manganese oxide appear to be fairly good grade but the percent of manganese in the alluvial material would be very low, possibly not much more than 1 percent. In this, as in the Guerin deposit, I would estimate that the areal extent is more limited than our report had led me to believe. I do not feel that this deposit warrants very much in the way of exploration work unless the country gets into extreme straits for manganese.

After leaving the McAdams deposit we attempted to find the owners of the Statesman deposit, a report of which we have in our bulletin. We were unable to find them and decided to make a reconnaissance of the Floras Creek Road which according to Diller's geologic map would show us some chert areas. Although we found some chert, the manganese in it was extremely low. We found one rock quarry in a sandstone which contained some manganese stain. Probably the material was too low-grade to be of any interest but we sampled it.

October 11

We drove out the Pistol River Road to attempt to find a deposit which had been reported to Wolfe, who had the location written as a certain distance from the Pistol River post office, but after going over the area at this distance we could find nothing and returned to Highway 101 and drove south to Carpenterville where we had been given the location of an asbestos deposit. We were unable to locate this exact deposit but did find a very small amount of low-grade asbestos of no economic interest.

In Carpenterville we drove to the Colegrove property in order to check on the Colegrove manganese deposit, a report of which we have in our bulletin. This deposit is between Highway 101 and the ocean in a rather inaccessible place. Instead of one deposit, there are two and our report does not contain any description of the deposit nearest the ocean. Mr. Colegrove took us to the deposit in his jeep fortunately or it would have been at least a day's trip. We found the deposits were in chert but although the average may be less than shipping grade, the quantity present impressed me as being worthy of exploration. There probably is some of the material which could be sorted out as shipping ore. The bulk of it will be material that should be concentrated if possible. After we get the assay results of our sampling, I think we should make a further examination of the deposits, both because we were limited as to time and also because further reconnaissance should be made to attempt to find out extensions of the present exposures.

October 12

We attempted to find out in Gold Beach something about the accessibility of an area near Signal Butte which is supposed to contain both a manganese deposit and an asbestos deposit. The information we could obtain was unsatisfactory and we decided to spend the remainder of the day in going to something which we had knowledge of. We therefore drove out the Sixes River Road intending to examine the Divelbiss copper property which we had heard of on our previous trip into the South Fork of the Sixes River. Mr. Divelbiss had told us that we could drive within a mile of the copper property. We found him but also found the Sixes River Road between his place and the general locality of the copper deposit was all torn up as the Coos Bay Lumber Company is rebuilding the old road which extends from Powers across the divide down into the Sixes River drainage. We were therefore unable to make the examination and returned to Highway 101 and decided to check on a laterite area which I had found a couple of years ago on a trip I had made from Coquille to Coos Bay

by way of Sumner. We had no difficulty in finding the laterite but it was very thin and has no economic importance. Erosion has proceeded much faster than the laterization, leaving only a thin section on top of the volcanics. Even the section that is left would be high silica, I am sure. However, we sampled it.

October 13

We returned to Portland by way of the Seven Devils Road from Bandon and called at the old Pioneer mine where an operation had been working at this old black sand property. I have previously reported to the Board that some Los Angeles people had set up some tables at this property and had done some stripping of overburden. We could find nobody at the property and the signs were that very little had been done in the way of concentrating the sands.

October 17, 1950

June 28, 1949

TO: Niel R. Allen
H. E. Hendryx
Mason L. Bingham

FROM: F. W. Libbey

SUBJECT: Trip to Grants Pass and nearby areas, June 23-25 inclusive

On June 23 I left Portland by air at 8:45 and arrived in Medford at 10:45. During the afternoon I conferred with Wolfe and then with Mr. Allen. During the evening I discussed various matters with Francis Wells in connection with our cooperative survey work.

Friday, accompanied by Wolfe, I met Ralph Mason at Cave Junction where he is staying and we drove along the Wyser Road and out on Cooke's road to the Chetko Divide narrow gauge road. The purpose of this reconnaissance was to determine if any of the areas along these roads appeared to have laterite in sufficient quantity to warrant exploration. We sampled with an auger at two locations but in general I believe that practically all laterite in the areas seen has been stripped away. In one of the auger holes at the junction of Bald Mountain and Chetko Divide roads some manganese showed up in the soil but seemingly it was confined to a very small area. We returned to Cave Junction the latter part of the afternoon and discussed the work which Mason would do for the rest of his time in Josephine County. He has a helper in the person of Lorne Turville, a junior in geology at the University of Oregon. Mason will help Wolfe move for a couple of days this week and after that he will spend as much time as is necessary in reconnaissance and sampling of some old underground mines in which nickel and cobalt assays have been reported as a result of work in the past. We shall try to verify these old assay results.

Saturday morning I again conferred with Mr. Allen, and then with Wolfe drove to Gold Hill to inspect the work under way there near the old Gold Hill "pocket". Charles Stearns, who formerly operated the dredge in the Applegate, is in charge of the work but nothing was being done at the time of my visit. A large amount of bulldozer work, principally in three cuts, has been done. Probably the work represents large scale pocket hunting and my impression is that this type of work is not really applicable to pocket hunting - that is, too much ground is moved in each "bite" and it is too easy to cover up something. However, the bulldozing shows up two strong shear zones approximately at right angles. One of these zones, which trends northeasterly and is just west of the old Gold Hill

"pocket" appears to be pointing toward the old Sylvania mine probably about a mile away. Also in this zone there is a rather strong showing of flake graphite which shows up in at least one of the fractures and specimens show a fairly good percentage. This type of excavation, however, does not help to show up possibilities of mineral in the fractures because of the large scale excavation and the large amount of waste material which is mixed with the graphite and pushed over the dump. Wolfe does not know whether or not systematic sampling is being done. He says that they are panning at various places in looking for a pocket or pockets. Mr. Stearns told Wolfe that they plan to do some diamond drilling later on. This may indicate a more systematic exploration than the one being carried on at present. It would appear that a mining engineer from the State of Washington is directing exploration. Wolfe does not know his name.

From Gold Hill we drove to Ashland and inspected the Bratcher scheelite deposit located high up above the old Ashland mine. The road is narrow and steep but is not too difficult in dry weather. Mr. Bratcher was not at the property but one of his men who was working on a cabin where Bratcher is carrying on some exploration told us that Bratcher had shipped 100 tons of the ore to a concentrating mill in Tulare County and that returns had been much lower than expected. I do not think that this result means too much as Bratcher is gophering around and probably does not know anything about the genesis of the deposit. The scheelite occurs in a tectite or contact zone and, as would be expected, is high in epidote with a less amount of garnet. Just how extensive this zone is, or whether or not other similar zones could be found if intelligent prospecting were carried on, is difficult to tell.

We returned to the airport and I left at 6:20, arriving in Portland at 8:25.

June 28, 1949

MEMORANDUM ON TRIP TO BEND-PRINEVILLE-MT. VERNON-BAKER

June 8-12, inclusive, 1949

The principal object of this trip was to check on a reported manganese ore deposit in the Crooked River country south of Prineville. The secondary reason was to deliver one of our panel trucks to Wagner for a field car since we had previously sold his car.

Left Portland at about 10:30 a.m. Wednesday. Drove to Bend and looked up Phil Brogan. I had had previous correspondence with him regarding some building stone that I had heard was used in a store front in a new building in Bend. He guided me to the quarry a little south of Bend, where the owner, Mr. Garred, has set up a small saw for cutting out the stone blocks. The material is a volcanic tuff. Its peculiarity is that it occurs in different colored beds in the same quarry. He produces black, whitish, tan, and pink stones. The store front mentioned was a pink stone and it is rather attractive at present. I do not know how it will weather. Mr. Garred has called his company the Perma Building Stone Company. He was absent from Bend so I did not get to talk to him. I shall make a report concerning this stone to a building materials company here in Portland with whom I have been discussing building stone from time to time. I took some samples for display purposes. Drove to Prineville Wednesday evening.

Thursday morning with Walt Lidstrom, who had brought the samples of manganese ore to us, I drove to the reported deposit near a place called Carey's Ranch. Mr. Carey, who is an agate collector and reportedly makes a good living out of it, had found the so-called manganese deposit. It was fairly evident that the small manganese nodules did not occur in sufficient concentration to make a deposit but I took a large sample which will be panned down to give an idea of the proportion of nodules in the material. Stayed at Prineville that night and had a conference with former County Judge A. R. Bowman.

Friday I drove to Mt. Vernon and inspected the new dredging operation which is known as the Buffalo Gold Dredging Company, San Francisco, the successor to the Western Gold Dredging Company which was shut down because of L-208. As the Board will remember, the county officials would not allow the Western dredge to resume - that is, the dredge had to cut through a county road in order to reach new ground. This was denied by the county officials. Why the county changed its mind I do not know. The ground being excavated is probably poor land because the top soil is quite thin. However, it appears that some grass has previously been grown on this land.

From Mt. Vernon I drove directly to Baker. Saturday morning, after conferring with Wagner and Mr. Hendryx, all three of us drove to the Granite area in search of the meteorite which Wagner and I had attempted

to find in my previous visit to Baker. We were unsuccessful and returned to Baker.

I returned to Portland on the Portland Rose Saturday night.

June 14, 1949

Preliminary Report
on
MANGANESE PROSPECTS
IN DURKEE, PLEASANT VALLEY
AND SUMPTER DISTRICTS
BAKER COUNTY, OREGON

MADE FOR ANTHONY BRANDENTHALER

BY
H. F. ANDERSON

FRED J. ROSENBERG
Consulting Mining Engineer
Portland, Oregon

PRELIMINARY REPORT
ON
MANGANESE PROSPECTS
IN DURKEE, PLEASANT VALLEY AND SUMPTER
DISTRICTS, BAKER COUNTY, OREGON.

This report contains twenty-eight (28) pages.

BAKER MANGANESE PROSPECTS
BAKER COUNTY OREGON

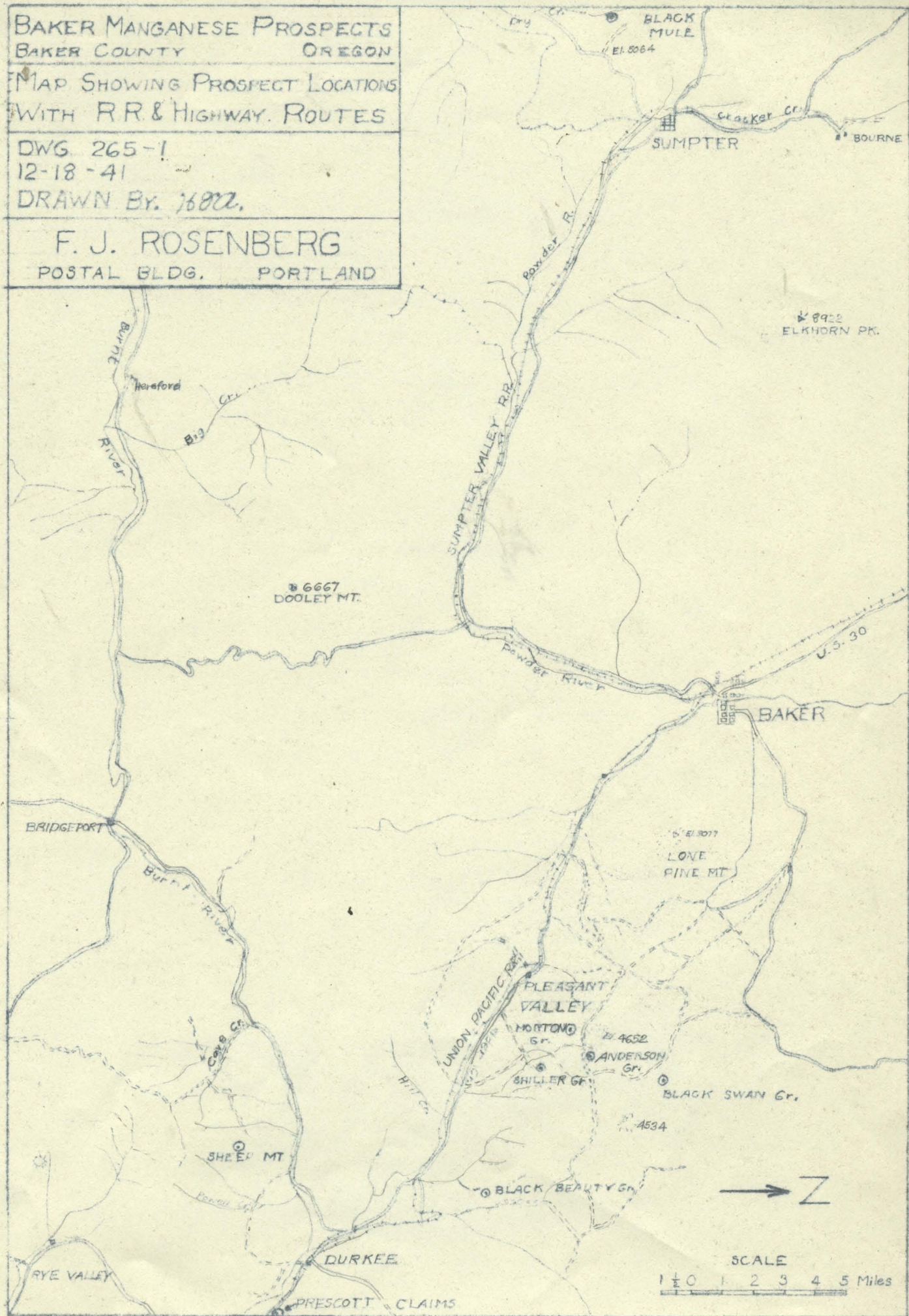
MAP SHOWING PROSPECT LOCATIONS
WITH R.R. & HIGHWAY ROUTES

DWG. 265-1

12-18-41

DRAWN BY 76822.

F. J. ROSENBERG
POSTAL BLDG. PORTLAND



INTRODUCTION:

War conditions have caused a renewal of interest in domestic manganese deposits hitherto considered unworkable during normal conditions of peace time economy. An urgent demand for domestic manganese ores is created by two factors:- (1) Increased steel production, and (2) Reduction in imports of cheap foreign ores. During peace time only about ten percent of our consumption of manganese ore is supplied by the domestic producer; the remainder being supplied from deposits in Russia, Brazil, India, and Africa. Stimulation of the domestic manganese industry by increases in price and lowering of grade requirements for manganese ores during the last war resulted in a marked increase in domestic production. 38 percent of the manganese ore consumption in the war year 1918 was supplied by domestic producers.

The manganese deposits of Baker County were the scenes of considerable local activity in the last war. The Metals Reserve Company has recently lowered the grade requirements for domestic manganese ores. This report covers the examination of eight manganese prospects in Baker County upon which some work was done during the previous war period.

A discussion of various factors that must be considered in evaluating the economic possibilities of a domestic manganese deposit is relevant, and may facilitate the comprehension of subsequent conclusions reached in the body of this report.

Grade and Use of Manganese Ores - The following grades of manganiferous ores are recognized in domestic industry.

<u>Name of Ore</u>	<u>Percentage Manganese</u>
Chemical Ores	82 - 87
Manganese Ore	35 or more
Ferruginous Manganese Ore	10 - 35
Manganiferous Iron Ore	5 - 10

The above divisions in percentage may vary a few percent. Manganese ore used in the metallurgical industry should contain over 40 percent manganese. 90 percent or more of the manganese ore consumed is used in steel production. An alloy, ferromanganese, containing 78 - 82% manganese, 8 to 15% iron, 0.5 to 1% silicon, 5 to 7% carbon, some phosphorous, and traces of carbon is made from the ore, and is subsequently used in production of open hearth steel. A lower grade alloy, spiegeleisen, made from the lower grade ferruginous manganese ores, contains 18 - 22% manganese, 70 to 80% iron, and 5 - 6% carbon. This alloy is used in making bessemer steel

having a high carbon content.

A knowledge of the metallurgical products to be made from manganese ores is prerequisite to an understanding of the grade requirements. Manganese ores, besides possessing a minimum manganese content, must not contain over a definite maximum amount of alumina, iron, phosphorus, silica, and zinc. The latest grade specifications applying to the purchase of manganese ores by the Metals Reserve Company are as follows:

Metal or Compound	Classification of Ore		
	High Grade	"Low Grade A"	"Low Grade B"
Manganese - Minimum	48.0%	44.0%	40.0%
Alumina - Maximum	6.0%	10.0%	No Max.
Iron - Maximum	7.0%	10.0%	No Max.
Phosphorus - Maximum	0.18%	0.30%	0.50%
Silica - Maximum	10.0%	15.0%	No. Max.
Zinc - Maximum	1.0%	1.0%	1.0%

Consumption and price trends of manganese ores -

War conditions that greatly augment the production of steel naturally increase the consumption of manganese. This increase in consumption, combined with the falling off of foreign imports, causes a much greater demand for domestic manganese ores during war time. The consequent rise in price causes a production from domestic deposits that are marginal or submarginal in nature, and which cannot compete with the cheap foreign producers of

manganese ore in peace time. During World War I the price of high grade manganese ore rose to \$60.00 per ton. During peace time interim the price fell to \$12.00 per ton. With the recurrence of war conditions the latest price quoted by the Metals Reserve Company is \$36.00 per ton for high grade ore. The inevitable competition which domestic producers must face from foreign sources in the post war era is a dominant factor controlling the amount of capital investment in the development of domestic deposits. Figure I graphically shows the relation between domestic production and foreign imports during and after World War I.

See Fig. I on following
page.

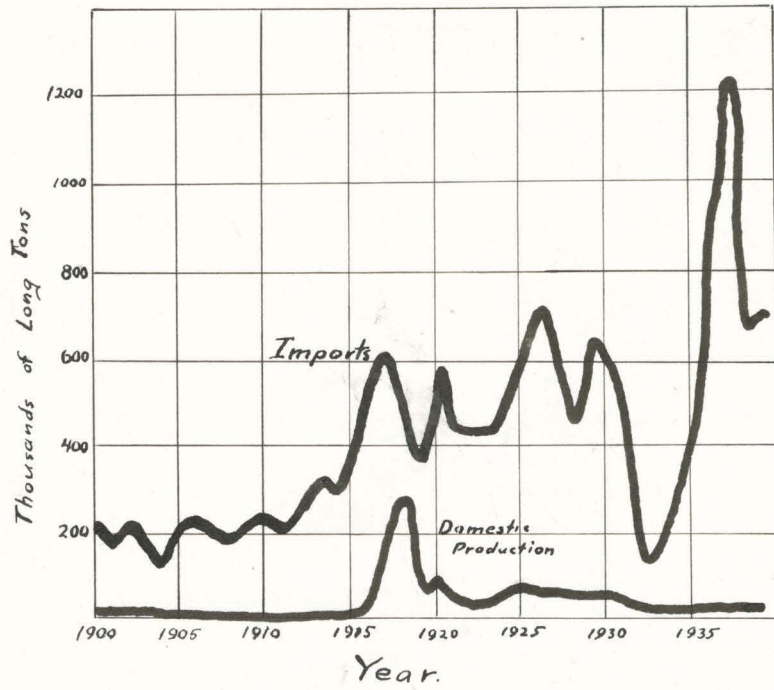


FIGURE I

World Occurrence and Distribution of Manganese Ore -

Although manganese is widely and uniformly distributed throughout the rocks of the earth's crust in small amounts, the ore deposits of manganese are geographically anything but ubiquitous in their distribution. The principal deposits are contained in the Russian Caucasus, India, and Brazil. The foreign deposits far outrank in size and extent domestic deposits. The explanation of this localized geographic distribution of manganese ore deposits lies in their peculiar mode of occurrence. The large foreign deposits of manganese ores are all of secondary origin, while the largest domestic deposits at Phillipsburg and Butte, Montana, are of primary origin. The Montana deposits are apparent exceptions to a rule, and they are not duplicated on a similar scale elsewhere on the earth, as far as is known.

The secondary deposits of high grade manganese ores are of two general types:- sedimentary, and residual. The residual type often merely represents a surficial concentration of pre-existing sedimentary ores or their metamorphic derivatives. The localized distribution of the secondary ores is no doubt due to complex processes of solution and deposition accompanying a cycle of sedimentation. The common association of the sedimentary

ores with marine cherts and limestones gives some clue to the physical-chemical conditions prevailing during the deposition of manganese ores in a given sedimentary series. The formation of large blanket-like ore bodies such as are found in Russia and India is dependent upon a delicate chemical control effected by definite physical conditions interrelated with and likewise dependent upon complex processes of solution and erosion accompanying the degradation of large land areas consisting of rocks high in manganese content. It is noteworthy that the large foreign deposits are in tropical regions or are in a sedimentary series indicative of deposition in tropical marine seas.

The writer has gone into some detail to emphasize the occurrence and distribution of manganese ores to better elucidate later on the factor of geologic probability in the conclusions reached on the economic status of the eastern Oregon ores.

History of Oregon Manganese Production -

Research into all recorded data available discloses that past production of Oregon manganese was confined wholly to the previous war years 1917-1918. Production was limited to two widely separated districts, Baker County, in northeastern Oregon, and Jackson County, in

southwestern Oregon. The U. S. G. S. Mineral Resources of the United States records a production for Oregon of 198 tons of high grade ore for the year 1918. No other production is recorded. Pardee⁽²⁾ estimates a total production of less than 1000 tons, half of which was mined near Pleasant Valley, Baker County, in 1917, and most of the remainder in the Lake Creek district, Jackson County, in 1918. He writes that a total of about 500 tons was shipped to Tacoma, Washington, and the East for making ferroalloys, and the remainder was left in stock at the mines. This estimated production may be much lower as some of the ore shipped from Baker County was low grade and is said by local sources to still be on the docks of the Tacoma Smelter. Mr. Ed. Hendryx, of Baker, Oregon, editor of the Eastern Oregon Mining Review, and an authority on past mineral production in the Baker district, writes, in a personal communication to the writer in regard to World War I manganese production:

"I find what I feared in talking to you Friday evening that there is no record of shipments of manganese from eastern Oregon. In fact it seems there were no shipments.

From John Arthur, who was active at that time (1917-18) in the sampling works in Baker and in touch

with all shipments I learn there was no interest in manganese in this section until a short time before the armistice. About 90 days before the close of the war there were a number of people who secured tentative contracts for shipping and started work but before they got in action the armistice was signed and everything stopped. Arthur says there may have been some trial ore samples shipped, but that he has no knowledge of these.

The story of the Sheep Mt. claims is about the same as above. The property was sold a few months before the end of the war. A man by the name of Quinn was interested in the purchase and did some development work. Was working there at the close of the war.

There was a number of cars of antimony ore, and, of course, large shipments of chromite from Baker during the time and attention was just running toward manganese."

It reasonably may be assumed that the production of high grade manganese ores from Baker County during World War I was very small. Present information available indicates this production was probably derived principally from the Utah claim of the Stephens group in Pleasant Valley. According to Pardee (2) 450 tons of manganiferous material was produced from the Utah claim that after being reassorted yielded 300 tons of 40%

manganese ore. Significantly, no production is reported from the Utah claim for 1918.

SCOPE OF THE EXAMINATION:

The preliminary examination of each of the different prospects was carried out with the purpose of determining from tentative geologic and other factual evidence whether or not the prospect merited more complete and detailed geologic investigation, sampling, and analysis of cost factors. Two alternative objectives were kept in mind as a yardstick to measure the factors which the property would have to show in a more thorough examination. These objectives may be put roughly in the form of two questions:- 1. Does the prospect have sufficient assured, or probable ore as inferred from geologic evidence, in sight to meet the quality and quantity specifications of the Metals Reserve Company for a shipping grade manganese ore? 2. Failing to meet these specifications, does the property show a sufficient tonnage of lower grade assured ore to justify the capital expense for a reduction plant to beneficiate the ore by known metallurgical method and concentrate it to a shipping grade?

GEOGRAPHY:

The manganese prospects examined are all located in the southern half of a 40 mile diameter circle having

Baker, Oregon at its centre (See Dwg. 265-1). With but one exception, the prospects all lie in the southeastern quadrant of this circle. Baker is the county seat of Baker County, and is situated in northeastern Oregon 334 miles from Portland via the Lincoln Highway. The Baker district all drains into the Snake River to the eastward. The elevation varies from 3300 feet in the Baker Valley proper to 6600 feet on Elkhorn ridge just to the west of Baker. The Pleasant Valley, Durkee, and Virtue areas east of Baker consist of low rolling, sagebrush covered hills rarely over 4000 feet in elevation. They are intersected by irregular small streams, often intermittent in the dry season, and draining into the Powder and Burnt Rivers. The Elkhorn Mountains west of Baker are covered with a heavy growth of pine and fir on the lower slopes and have a much more pronounced relief than the lower areas east of Baker.

Accessibility - The Union Pacific R.R. passes through the Pleasant Valley and Durkee districts. With the exception of Sheep Mountain all the prospects visited in these districts are within 5 miles of the railroad. West from Baker the Sumpter Valley R.R. serves the Sumpter district. The one prospect in this district, the Black Mule, is eight miles from the railroad.

Climate - The climate varies from semiarid in Baker and lowlands to the east to one of a fairly heavy precipitation, mainly in the form of snow, in the mountains to the west. The summers are hot and dry, and the winters are frequently cold with subzero temperatures. Precipitation varies from 15 inches in the semiarid regions immediately around Baker to 45 inches or more in the mountains. With the exception of the Sumpter prospect the prospects are all in the semiarid part of the district.

GEOLOGY:

District - The rocks comprising the general geology of the district may conveniently be segregated into two distinct age divisions. These are the pre-Tertiary and Tertiary. A profound unconformity separates the pre-Tertiary from the Tertiary rocks. The Tertiary rocks consist of volcanics, mainly basalts, and unconsolidated lacustrine sediments. With the exception of minor tilting caused by block faulting common to the region, the Tertiary rocks are essentially undeformed. In contrast the underlying rocks consisting of a thick series of Paleozoic sediments with interbedded volcanics show intense deformation, and exhibit the effects of regional dynamothermal metamorphism in varying degree. Locally, these pre-Tertiary metamorphics have been intruded by

minor stocks of granodiorite and serpentine. Lindgren⁽¹⁾ and Gilluly⁽³⁾ have classified these Carboniferous metamorphosed sediments and volcanics as the Elkhorn Ridge argillites. They are adjoined east of Durkee by another metamorphic series known as the Burnt River schists. Gilluly⁽³⁾ believes these may be pre-Carboniferous in age. The stratigraphic relations between the two series have never been worked out. Neither have the stratigraphic relations between individual members of the Elkhorn Ridge argillite series. Intense isoclinal folding and thermal metamorphism have so masked the original structure of the series that not even the relative stratigraphic age of the different members of the formation has been determined by geologic work to date. Gilluly has estimated that the following proportions of rock varieties comprise the Elkhorn Ridge argillite:-

Argillite-not cherty or definitely tuffaceous	-	10%
Tuffaceous argillite		20%
Tuff		15%
Cherty argillite		40%
Chert		10%
Conglomerate		2%
Limestone	Less than	1%
Andesite flows		3%

The pre-Tertiary structure exerts very little control over the topography. The dominant topographic features

of the district are all controlled by the late Tertiary block faulting. Locally in areas underlain by the Elkhorn Ridge argillite the hills show rounded topographic forms ascribed to the protective action of residual chert debris overlying softer formation in the argillite.

Manganese ore deposits - The known deposits of manganese ores all occur in the pre-Tertiary Elkhorn Ridge argillite series. They are commonly associated with a light colored, greenish-yellow, cherty argillite. Two of the deposits occur in a fine-grained schist or quartz phyllite that may be a unit of the argillite subjected to a more intense grade of dynamothermal metamorphism.

The deposits occur in the form of small lenses and bands of distinctly dark cherty material commonly aligned with the cleavage or schistose structure of the argillite. Possibly they occur in bedding planes interlaid with the argillite series proper. Evidence in this respect is incomplete.

The ore is present in the dark cherty bands as irregular veinlets and stringers of a hard black manganese oxide, tentatively identified as braunite. Locally small pods and kidneys of softer, cavernous ore, consisting of wad and pyrolusite, occur in the border bands. No evidence of colloform structure is present in the ores

and the mineral psilomelane has not been identified.

Two alternative hypotheses are advanced to account for the origin of the ore. Pardee (2) believes that the deposits represent primary deposits of hydrothermal origin consisting of rhodonite and rhodochrosite. He states that the cavernous nature of the ore suggests intense leaching and subsequent shrinkage of pre-existing masses of rhodonite and rhodochrosite.

The writer advances the hypothesis that the deposits are entirely of sedimentary origin. Their close association with the cherty elements of the argillite and lack of a dominant controlling structure to localize hydrothermal solutions supports this latter hypothesis. The occurrence of manganese ores of proved sedimentary origin in lithologically similar rocks in Russia and India is substantiating evidence.

The writer believes that the Baker ores were all deposited stratigraphically interlayered with the members of the Elkhorn Ridge argillite, and that subsequently the manganiferous interbedded material was subjected to dynamothermal metamorphism along with the argillite. Possibly the more silicious bands commonly associated with the manganese ores are indicative of some variation in the depositional conditions which affected the

precipitation of the manganese ores, possibly as carbonates and oxides. Subsequently dynamothermal metamorphism may have completely jasperoidized all the carbonate and effected segregation of the oxides in seams and veins. Silicatization of the oxide material by metamorphic processes resulted in the formation of braunite.

SAMPLING AND ASSAYING:

Samples of diagnostic value were taken from all the prospects. Chip samples across ore bodies were taken wherever possible; often, however, caving or sluffing of the old workings prevented actual sampling of the ore in place. When this was the case grab samples were taken from ore piles on the dumps. The aim of all sampling done was to give preliminary information on the probable grade of ore that could be selectively mined.

Tentative information received from a preliminary assay for manganese content indicated that many of the samples were obviously low in grade. A representative suite of samples was assayed for the critical element manganese. The insoluble was reported in the manganese assay, and may safely be inferred as consisting almost wholly of silica. The assay result follows:

<u>No.</u>	<u>Width</u>	<u>Place</u>	<u>Mn %</u>	<u>Insol. %</u>
501	52"	Prescott Claim Upper tunnel	4.32	57.66
503	48"	Prescott Int. Tunnel	3.76	70.32
505	8#Grab	Sheep Mt. Dump Int. Tunnel	20.10	53.87
508)	48"	Shiller Claim crop-	30.00	-----
509)	96"	ping by open cut	23.29	54.69
512	36"	Black Mule Center Open Cut	30.24	35.46
515	48"	Morton Claims Bottom shaft Mn #1	34.38	30.08

Note: All above samples were determined by E. P. W. Harding, Analytical and Consulting Chemist, Portland, Oregon, with the exception of No. 508, which was determined by L. Richards of the State Assay Laboratory, Baker, Oregon.

MINES AND PROSPECT:

Sheep Mountain Group

The group comprising two claims is located on the southwest slope of Sheep Mt. at an elevation of approximately 5000 feet, and about 6 miles southwest from Durkee. A poor dirt road 5 miles in length ends 3/4 miles from the claims and turns off the Burnt River highway at Cave Creek. The total distance to the railroad near Durkee is 15 miles. The claims are owned by Messrs. J. Arthur, Ed. Hendryx, Nadie Strayer and other associates of Baker.

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FIGURE 2

From Top of Sheep Mountain looking North to Cornucopia
Mountains showing Topography immediately north
of Sheep Mt.

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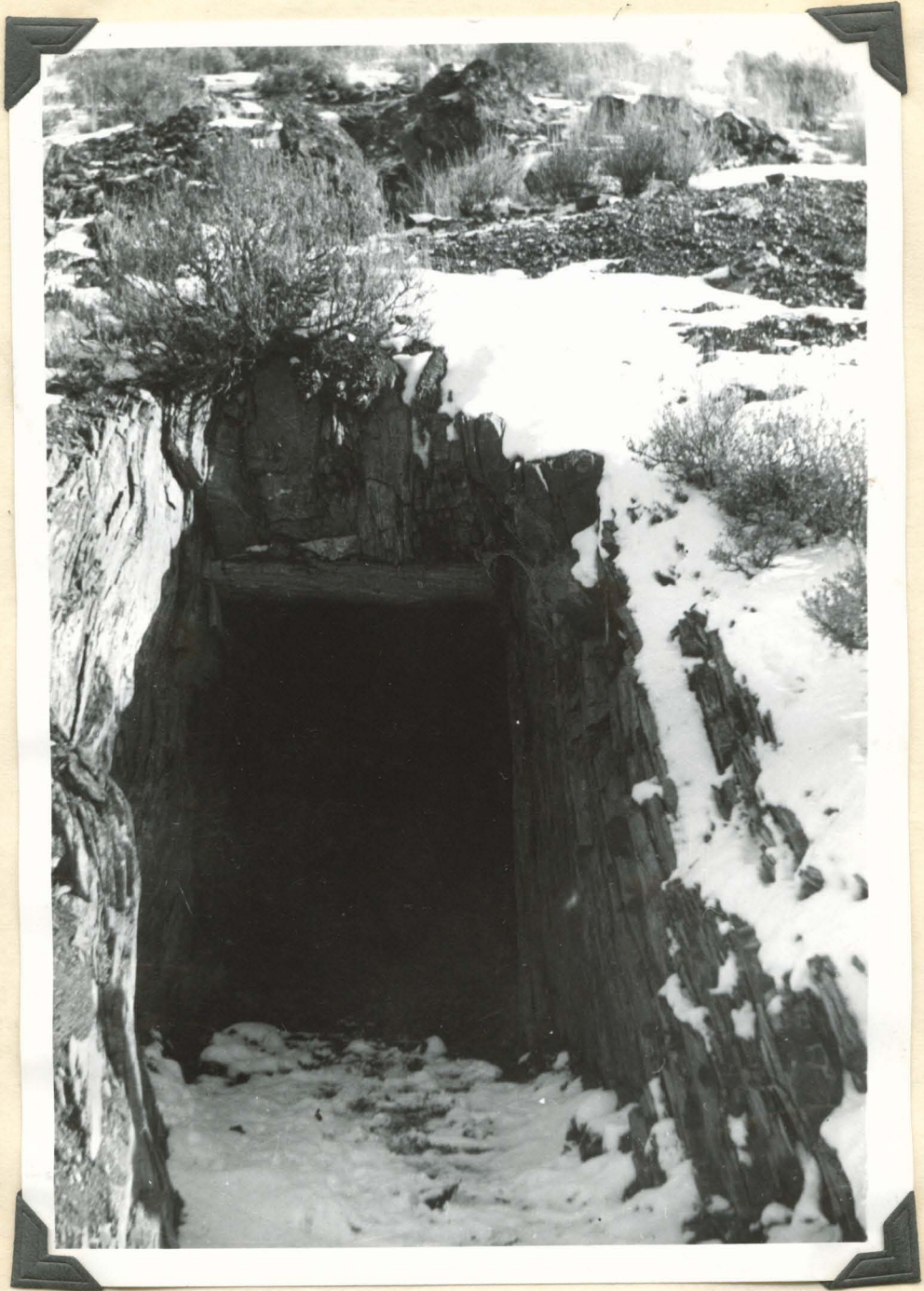


FIGURE 3

Sheep Mountain Prospect - Portal of lower tunnel -
shows ore seam in schist immediately over
portal set on right hand side.

The ore occurs as small lenses and pods of hard, black manganese oxide and intermixed silicious material in a country rock of fine-grained schist or quartz phyllite. The schistosity is planar, and the foliation planes strike N. 50 E and dip about vertical. The ore lenses lie in a broad band that is roughly aligned with the schistose structure. Several of these pods show in the lower drift tunnel, but do not appear to be interconnected. Their maximum width is not over four feet. Fig. 3 shows the portal of the lower tunnel with a narrow ore seam in the schist. Several small pods of vitreous white quartz transect the ore in the lower tunnel, but do not appear to be genetically related to the manganese ore. Possibly they are much later.

The claims have been developed over a horizontal distance of 400 feet by two short drift tunnels and several open cuts. The upper tunnel shows very little ore. The lenses exposed in the open cuts are small, and are not interconnected.

Surface indications do not suggest the presence of larger lenses of ore in the bedrock immediately beneath the surface subsoil other than those now exposed by existing tunnels and open cuts. Evidence is completely lacking to substantiate the hypothesis that softer

bodies of ore that do not outcrop are located between the hard silicious lenses cropping on the surface.

A sample taken from the dump of the upper tunnel from representative ore ran 20.10% manganese. A series of samples taken on June 4, 1941 by H. Lancaster, field engineer for the State Department of Geology, from the workings range from 11.4% manganese to 36.5% manganese. The property definitely does not have shipping ore in sight at present. The past development work exposing the small irregular lenses of ore gives very little encouragement to the hope that further development will disclose large bodies of low grade ore.

Prescott Property - Durkee

This property consists of one claim together with deeded land. It is located four miles southeast of Durkee on U. S. Highway 30 and is within 300 yards of a branch spur off the main Union Pacific R. R. line. The property is held by Mr. J. R. Prescott of Baker.

The ore differs from the other deposits examined in that it lies on the contact of a schistose argillite with a grey crystalline limestone. The formation strikes N 70 E, and dips 60 N. The ore occurs as small pods of wad seamed with pyrolusite occurring in a five to ten foot wide silicified stratum of the schist in

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FIGURE 4

Prescott Property - View from top of ridge looking
east showing manganiferous stratum in schist.
Limestone on right of man in foreground.

contact with the limestone. A large amount of ferruginous material appears to be present in the ore. The ore is higher grade next to the limestone footwall and forms a clean cut boundary. Toward the hanging wall schist it becomes lower in grade and appears to become inter-laminated with the schist as narrow seams and elongated pods sandwiched between thin silicious laminae of the schist.

The property is developed by three adit tunnels over a vertical interval of two hundred feet. Very little manganese ore is exposed in the tunnels. About 100 feet above the uppermost tunnel an open cut has been made on top of the ridge to expose the manganiferous stratum of schist. It is distinctly low grade at this point.

Fig. 4 shows this stratum striking eastward up the ridge.

Two cut samples were taken in the upper and intermediate tunnels. They were both very low grade and contained over 50 percent silica. This property shows very little promise as a future producer of either high grade or low grade manganese ores. Significantly, the development work done on the claims was not for manganese but for gold and silver. No ore has been shipped from the property.

Morton Group - Pleasant Valley -

Three claims comprise this group. They are located in Sec. 18, T. 10 S., R. 42 E, and are two miles northeast of Pleasant Valley. They are reached by a poor dirt road four miles in length from the highway near Pleasant Valley. They are held by Barbara Lee Morton and J. H. Prescott of Baker.

A fairly large amount of development was done on these claims in 1917. At that time they were known as the old Stephens group. The Utah claim in the Stephens group is said to be the only claim in the district that shipped ore during World War I. Pardee⁽²⁾ reports a production of 300 tons of 40 percent manganese ore. The Utah claim was apparently the same claim known now as Manganese No. 1.

Development on Manganese No. 1 has been in the form of a shaft and several large open cuts. The shaft is about 30 feet deep and develops a pipe-like lense of silicious manganese material bounded by walls of the characteristic cherty argillite. A sample taken across a 4 foot lense of soft manganese oxide material on north wall of the shaft ran 34.38% manganese. No great amount of this material is present in the shaft. 200 feet S. 10 E. from the shaft a large surface underhand stope

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FIGURE 5
Shiller Prospect - View looking west showing
manganese cropping -open cut below
on right.

the ranch. The claim is owned by Otto Shiller.

Very little development has been done on the claim. A large blowout-like mass of rather soft, cavernous, black manganese ore (Fig. 5) outcrops on a gently sloping hillside in a formation of the typical, cherty argillite. A small open cut has been made on the lower toe of the cropping. East down the slope a 15 foot long tunnel was driven in 1918 to cut under the ore. Although the tunnel is under a point in the open cut where ore is shown, no ore is exposed in the face of the tunnel. Not enough development work has been done to enable the determination of the size and shape of the ore body. West up the slope about thirty feet another small cropping of similar ore appears. No evidence of further possible surface continuation of the lenses was found.

Two chip samples were taken across the cropping. One over eight feet to the south of the open cut ran 23.29% manganese; the other across four feet in the open cut ran 30.00%.

This prospect in some respects is one of the most promising examined. The blowout-like cropping showed much softer and less silicious material than other ore occurrences on nearby prospects. However, the rather low grade of the ore and lack of evidence to indicate

↓
rest

any decided horizontal continuity of the ore on the surface warrants little further consideration of the claim.

Black Mule Claim - Sumpter -

This claim is located at an elevation of about 5000 feet four miles west of Sumpter. It is owned by C. C. Estes and Pat O'Brien of Baker. The claim is reached via the Sumpter to Whitney road and is eight miles from Sumpter. A branch road one mile off the main Whitney road leads to within 1/2 mile of the claim.

Development consists of three small open cuts on the south bank of Dry Creek. A small lense of dense, hard black manganese oxide ore is exposed in the centre open cut, and is apparently the only ore in place. The country rock is cherty argillite. A sample across 36" ran 30.24% manganese.

The country is heavily forested and a fairly heavy mantle of overburden obscures the bedrock. According to Mr. Estes, no continuation of the lense exposed has been found.

Anderson Property - Pleasant Valley -

This prospect is situated 1.5 miles north of the Shiller ranch house. It may be reached by a dirt road approximately 5 miles in length from Pleasant Valley.

According to Mr. Shiller, no one now holds the claims, but that they are looked after by Mr. Philo Anderson of Baker, who represents government interests.

The claims were developed during the previous World War by open cuts and a shallow shaft. A stratum of massive jasperoid material locally seamed with minute veinlets of manganese oxides are exposed by the cuts and shaft. At the shaft the stratum takes the form of a vertical dike four feet in width, and strikes west. The country rock is cherty argillite.

The ore on the dumps is a low grade, silicious ore. No evidence indicative of the subsurface occurrence of higher grade ores was present, and the property merits no further consideration.

Black Swan Group - Virtue District -

The claims are reached via the Baker to Richland highway, and are 17 miles from Baker. They are approximately five miles northeast from Pleasant Valley and are situated on the north slope of the low ridge of hills separating Pleasant Valley from Virtue Flats. Two claims comprise the group, and are owned by Mr. Clark Allen, of Connor Creek, Oregon.

The development is limited to small test pits made to expose several small narrow lenses of a black

silicious manganese ore occurring in cherty argillite. The small ore lenses lie in a zone trending NW - SE. Surface indications are such as not to warrant additional work of any kind on these claims.

Black Beauty Group - Durkee District -

These claims are situated about 5 miles northwest from Durkee. They are reached by a fair dirt road two miles north from the railroad at Oxnam. The claims are 1/2 mile north up a dry creek from the end of the road. They are owned by Jesse Edwards and a Mr. Hardman of Baker.

The ore zone occurs in cherty argillite and trends east to west. Small lenses and bands of a dark-grey to black chert locally seamed with a hard, black manganese oxide material are exposed by one open cut (Fig. 6) and a shallow test pit.

The ore exposed in the open cut is low grade and high in silica. Surface indications are negative in the general vicinity. This property deserves very little consideration as a prospect for manganese ore.

CONCLUSION:

The eight manganese prospects in the Baker region examined by the writer all exhibit common characteristics with reference to the grade and quantity of ore in sight.

FRED J. ROSENBERG



FIGURE 6

Black Beauty Prospect. View looking east up slope
along line of croppings. Small kidney of dark
jasperoid material containing manganese
oxides shows on right side of open
cut in foreground.

The ores are preponderately low grade and high in silica. It is probable that much of the silica is combined with the manganese in the form of the mineral braunite. With respect to quantity the ore bodies all occur in the form of small lenses that rarely show connecting ore seams. The number of these lenses exposed by development on any one prospect are few in number, and the aggregate tonnage to be obtained from the lenses on one property is small. No geologic evidence exists to indicate that deep development on the surface lenses will disclose larger ore bodies. On the contrary, the writer's hypothesis that the ores are of sedimentary origin would indicate that development in a vertical horizon may disclose the same haphazard and irregular distribution of small lenses as is now shown by surficial development.

The following conclusions have been reached after careful evaluation of all geologic factual and inferential evidence, analyses of sample and assay data, and study of the history of each individual property.

1. The prospects do not either individually or cumulatively have now in sight assured ore of a quantity and quality to meet the minimal contract specifications of the Metals Reserve Company.

all

2. None of the prospects show sufficient favorable geologic indications of probable ore of such quantity and quality to justify more extensive examination and possible preliminary development work.

3. The prospects do not either individually or cumulatively show a large enough tonnage of assured low grade ore to justify experimental testing of the ores by known methods of beneficiation with the end in mind of erecting a centrally located treatment plant to concentrate the ores to a shipping grade ore as set forth in the specifications of The Metals Reserve Company.

The writer having a due appreciation of possible changes in the economic status of the ores, caused by price fluctuations and possible improvements in known methods of beneficiation of low grade manganese ores, is of the opinion that any changes reasonably foreseeable at present will not alter materially the conclusions reached above.

Under the direction of and approved by

Respectfully submitted,

H. F. Anderson

H. F. Anderson
Mining Geologist

F. J. Rosenberg
REGISTERED PROFESSIONAL
ENGINEER
MAY 16, 1936
F. J. ROSENBERG

Portland, Oregon
December 22, 1941.

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MEMORANDUM ON TRIP TO THE SIXES RIVER AREA

May 16-22 inclusive

May 16

Hollis Dole and I left Portland at about 9:00 a.m. I called at the Coos Bay Chamber of Commerce to check in with the Manager but found him out. I also called on Red Horning of the Coos Bay Times but found him gone for the day. We joined Harold Wolfe at Coquille and after storing his car at the State Highway maintenance station we drove to Bandon where we stayed that night.

May 17

We drove up the Sixes River and according to a previous arrangement went 4 miles off the road starting at a place known as the Plum Trees to the Roy Jenkins ranch. Jenkins was one of three or four people in that area who had requested inspections. Jenkins had also offered to provide saddle horses for the planned-for trip to the South Fork of the Sixes. Jenkins has a chrome deposit on his ranch and we inspected it, as well as a supposed manganese deposit, during the afternoon. Although a few tons of chrome had been mined from a pod south of the Jenkins ranch house, it probably has been all mined out and only further exploration work would show whether or not more chrome is in the locality. We sampled across the zone primarily to determine whether or not it contained nickel. The manganese deposit proved to be only manganese-stained cherty shale. We stayed at the Jenkins ranch house that night.

May 18

We drove to the house of Ed Divelbiss located about 7 miles east of the Plum Trees. Mr. Divelbiss was another individual who had requested an inspection of his property on the South Fork of the Sixes. We waited there for Mr. Jenkins and Arlie McLeod, who brought in saddle horses and two pack mules. McLeod owns one of the properties on the South Fork of the Sixes and also acted as guide. It soon developed that McLeod's statements on almost everything were unreliable. We arrived at a log camp near the South Fork of the Sixes at about 7:00 p.m. Mrs. Jenkins was a member of the party and acted as cook. The area between the main Sixes and the South Fork does not contain especially high elevations but the relief is around 1200 feet with very steep narrow poorly constructed trail in places. It was necessary to lead the horses at several places on the trail.

May 19

We inspected on foot a placer property recently located by a Mr. Frank Lawrence who is occupying temporarily a cabin on the South Fork. Lawrence's property was on the way to McLeod's property where we examined two tunnels, one about 50 feet above and close to the South Fork and the other about 1000 feet

east of the first tunnel and about 300 feet in elevation above it. Both tunnels showed openings in a shear zone in argillite. We took several samples. The zone at the second tunnel looked especially promising. It contained pyrite and some galena in a crushed brecciated zone cemented by quartz. The width of the ore zone could not be accurately determined but it appeared to be at least 12 to 15 feet wide. The argillite resembles the Applegate series of southwestern Oregon and also the Elkhorn Ridge argillite of northeastern Oregon. Diller mapped this area, as shown in the Port Orford Folio, as including both gabbro and Myrtle formation. The latter is an indefinite sediment, a sort of a catch-all which needs a lot of further study. It is possible that Diller included this argillite in his Myrtle. This examination occupied the whole day.

May 20

McLeod guided us to the Ed Divelbiss property on Rusty Creek, a tributary of the South Fork. We used horses to go up out of our camp and tethered them above the property which we examined, then had to walk 500 feet ^{down} by good trail. I have not been able to figure why McLeod planned this trip so that we went on foot over the good trail and rode over the poor trail. However, this is only one of McLeod's actions that would be difficult to explain logically. The Divelbiss property contained the same type of shear zone in argillite as the McLeod property. However, there was some evidence that it is higher in grade. The report is that a tunnel driven by Divelbiss produced several thousand dollars in gold. A claim which adjoins the Divelbiss property is owned by a Mr. McDonald of Port Orford and we took some samples in this tunnel which was close to the Divelbiss line and is in the same shear zone. After climbing up to the horses we proceeded along the ridge back to the Sixes River trail where we met Mr. and Mrs. Jenkins by appointment and proceeded down to the Divelbiss cabin. We returned to Bandon late that night.

May 21

We visited the Pioneer black sand mine which reportedly is active, although we saw nobody there. A small concentrating mill is in process of being erected. The foundations of three shaking tables have been put in, a power plant installed, and a lot of grading done. The Pioneer and the adjoining Eagle mine have a black sand bed 4 or 5 feet thick overlain by 50 to 60 feet of gray sand overburden. They have stripped some of this overburden and have a relatively small amount of the black sand area exposed. It would appear to be quite an expensive stripping operation as much of the material has been pushed uphill with bulldozers. The black sand is supposed to contain both gold and platinum besides the usual chromite, magnetite, garnet, and zircon. Black sand from the Pioneer and Eagle mines was treated in the early days to recover gold and platinum. The tailings from these early operations were impounded on Cut Creek a couple of miles west of the mine and formed what is known as The Lagoons. Humphreys Gold Corporation mined these tailings during the last war and made a primary chromite concentrate which was shipped to the government concentrator near Coquille where a higher grade chromite concentrate was made but never marketed. After the inspection at the Pioneer we went to the old pioneer camp

on Whisky Run a few miles north and then drove to the old Krome Corporation mine and plant from which we went to the South Slough coal mine being operated by Leonard Gibbs. He was not at the mine but we went underground and found that he had installed the equipment formerly used by the Coast Fuel Corporation at the Southport mine. This equipment had been sold at a sheriff's sale several months ago. The Southport coal bed is relatively thick, in places 8 to 10 feet. However, there appears to be several partings and it would appear that commercial coal would need to be hand-sorted in the absence of a washing plant. We stayed that night in Bandon.

May 22

Returned to Portland, leaving Wolfe at Coquille. All of us called on County Judge Felsheim as a matter of public relations.

F. L. C.

May 25, 1950