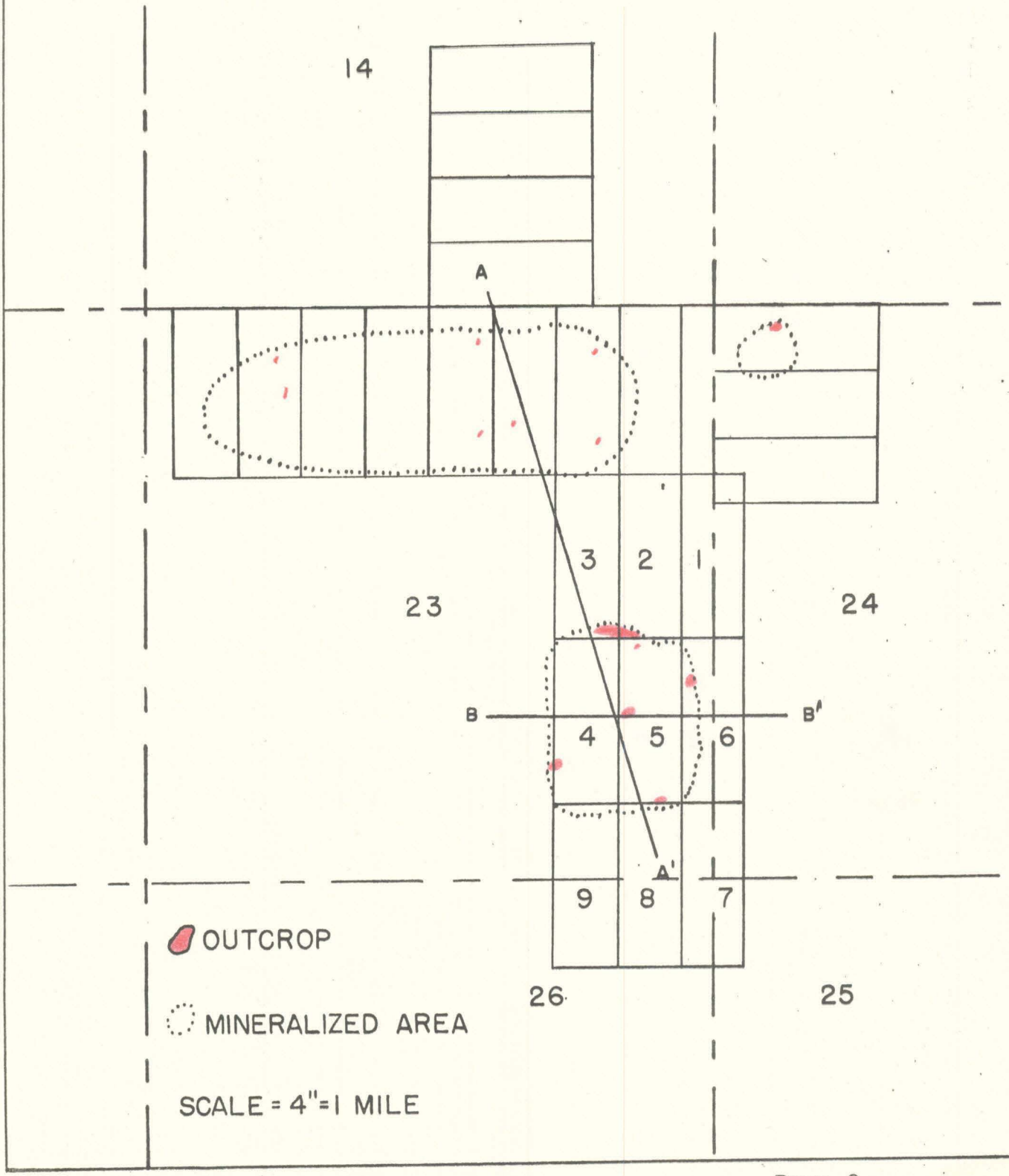
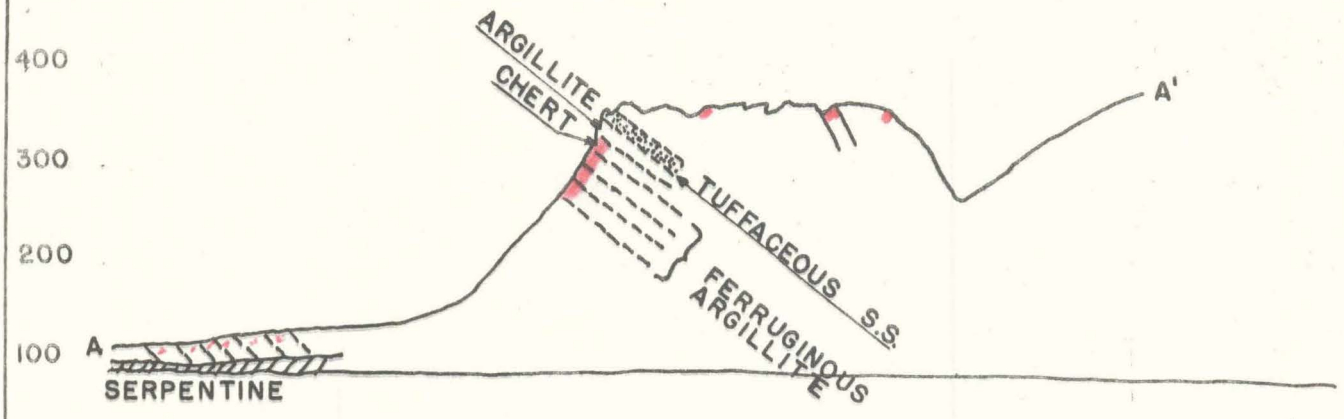
June Group and Extensions. The June Group of 25 unpatented claims in Section 23, Township 40 South, Range 7 West is the best example of the sedimentary and metamorphoric deposits. The deposit consists of two closely related blocks or sedimentary remnants. The South and North blocks are similar in the character of their material, being composed of ferruginous cherts and argillites. The two blocks are separated by a barren area which may be due to faulting or slumping. (See sketch, page 10)

South Block. This block covers approximately 60 acres, being 1,500 feet by 1,500 feet and has an apparent vertical thickness of 200 feet. These dimensions have been determined by outcroppings and bulldozer cuts. On the north side of the South Block, the outcroppings consist of a 200 foot long section of ferruginous cherts containing bands of magnetite, and the outcrop stands in relief 30 feet high. The cherts appear to be overlying a series of beds of ferruginous argillite that are exposed by bulldozer cuts to the west of the chert for a distance of 400 feet. The beds appear to be at least 75 feet thick. The attitude of the argillites is North 35° East (dip) 40° S. E. This attitude is similar to the regional trend of most of the metasediments on the west limb of the syncline. Overlying the cherts are greenish colored silty argillites (non ferruginous) and above the greenish argillites are tuffaceous sandstone. It has been noted that the above stratigraphic sequence or column occurs on all but one of the iron prospects, the exception being

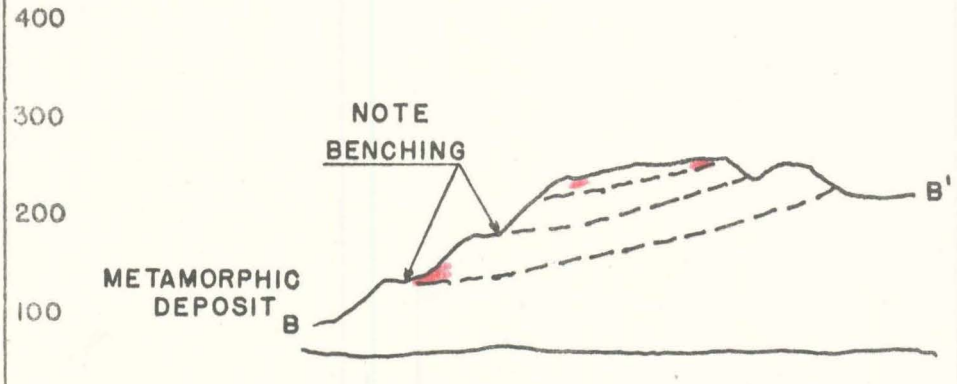
CLAIM MAP OF JUNE GROUP AND EXTENSIONS

SEC. 23, T. 40 S., R. 7 W. W.M.





SKETCH A-A' SHOWING GENERAL FEATURES OF THE IRON DEPOSIT ON THE JUNE GROUP. SEC. 23, T40S R7W, WM, (SEE CLAIM MAP)



SKETCH B-B' (SEE CLAIM MAP)

OREGON STEEL MILLS

December 8, 1960

Analyses of Samples from Iron and June Groups of Claims taken October 27-28, 1959:

Sample No.	Fe	Mn	P	S	Cu	Ni	TiO_2
2808	18.8	N.A	.140	.003	Nil	N.A.	.35
2809	4.9	.13	N.A.	N.A.	N.A.	N.A.	N.A.
2810	10.4	.17	.416	.006	Nil	N.A.	3.76
2811	9.6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2812	14.4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2813	13.3	N.A.	.030	.010	N.A.	N.A.	N.A.
2814	51.4	N.A.	.056	.005	N.A.	N.A.	N.A.
2815	9.6	N.A.	N.A.	N.A.	NA	N.A.	N.A.
2816	53.9	N.A.	.136	.005	Nil	Nil	N.A.

Samples furnished by Mr. Christy October 18, 1959: Metamorphic Deposit. Page 10

#1 Deep Red Non Magnetic	53.0	N.A.	.528	.004	N.A.	N.A.	.48
#2 Light Red with Some Gray Strongly Magnetic	50.4	N.A.	.124	.004	N.A.	N.A.	.70
#3 Light with Some Red Weakly Magnetic	56.9	N.A.	.096	.064	N.A.	N.A.	.31
#4 Gray Non Magnetic	12.9	N.A.	.380	.005	N.A.	N.A.	3.46

N.A. - Not analyzed for.

the manganiferous magnetite deposits.

The outcroppings on the 1,500 foot by 1,500 foot block are not continuous. (See claim map for location of outcropping) On the west side of the block 1,500 feet southwestward and 200 feet vertically below the upper ferruginous chert beds is an outcropping of a metamorphoric phase of the ferruginous sediments. This material occurs along side a fine grained granitic textured rock. The iron bearing formation is highly folded, dense and resembles a hornfel. Many of the fracture planes in this material are rich in Fe_2O_3. Selected samples of this material assayed 54 percent iron. (See assay sheet, Page 11) However, in general, the material in this exposure does not appear to be of much higher grade than that seen in the north part of the block, this being approximately 20 percent (Fe). This exposure is the only one found to date where the ferruginous sediments are near a contact with an intrusive body. It seems probable that other such areas exist, as the area has been invaded by numerous igneous intrusions. It is to be noted that enriched areas apparently result within the contact aureoles.

The following structural features of this South Block are worth noting: (1) That this is a remnant block of sediments. According to the regional geology of the Grants Pass Quadrangle, the area consists mainly of metavolcanics; (2) The block itself appears faulted with step or shingle faults, as indicated by the many narrow v-shaped gulches that form on the west side of the block. This faulting, or

erosional feature, makes it difficult to determine the stratigraphic sequence of the ferruginous beds; and (3) There is a terraced or benched effect to be noted on the west side of the block. (See sketch, Page 10) This benching may be due to the bedding and differential erosion, or on the other hand, it may merely indicate slumping.

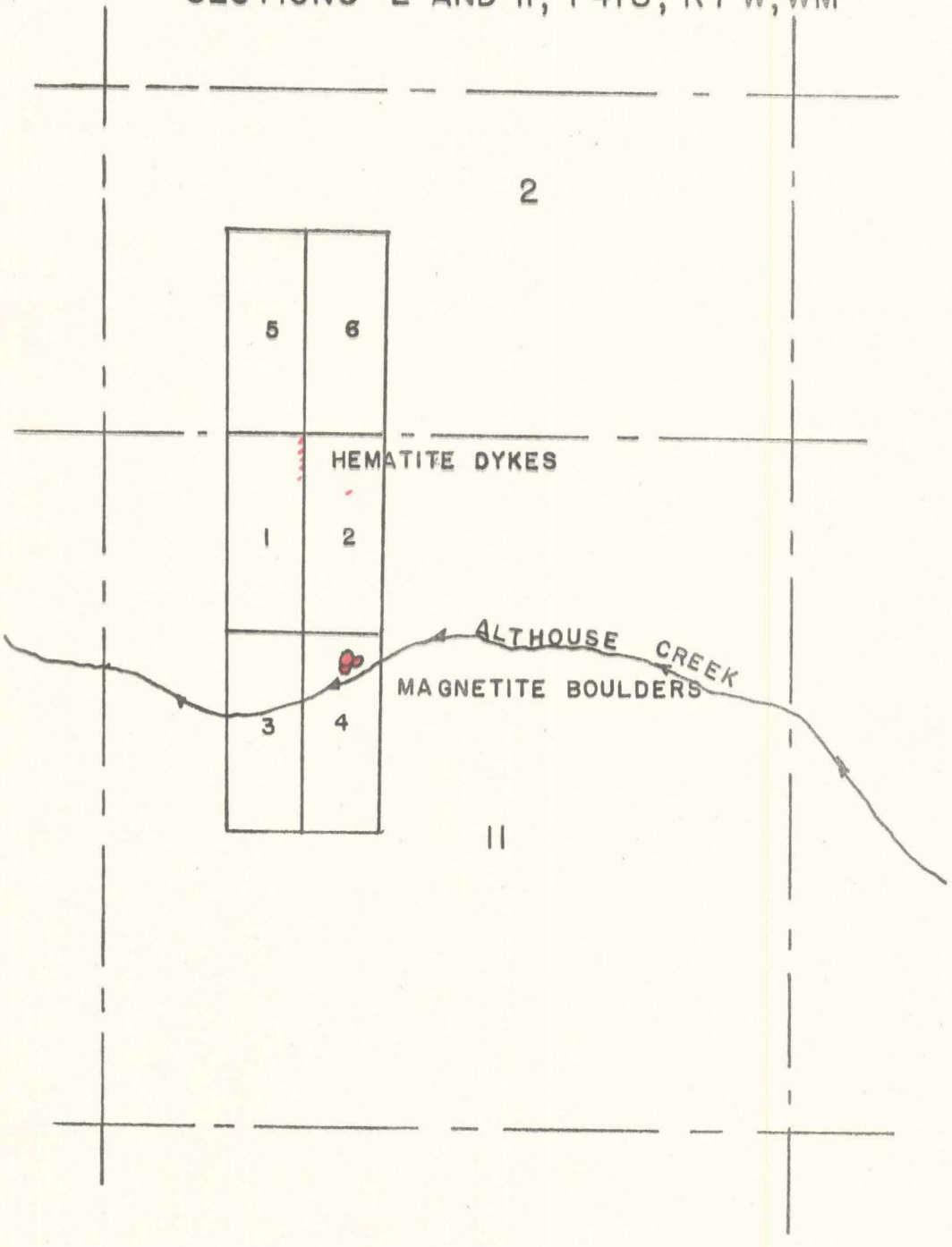
Except for the scattered outcroppings and bulldozing cuts, the area is covered by conifers and brush. Because of the lack of exposures, and the absence of drilling, it makes it difficult to estimate tonnage in this block. For the present, the block appears to be 1,500 feet by 1,500 feet by 200 feet thick, or containing approximately 45 million tons of low grade ferruginous cherts and argillites which have enriched areas of banded magnetite and high grade hematite. These enriched areas may be due to the processes of metamorphorphism and alteration.

The North Block is an extension of the above described south block. The north block is approximately 300 feet lower in elevation and consists of an area 3,000 feet long by 1,000 feet wide, containing float and outcroppings of material similar in character to the ferruginous cherts and argillites in the south block. No bulldozing or drilling has been done on this block. The two blocks are separated by a barren area of approximately 1,000 feet wide.

Ferruginous chert float has been found one mile north of the north block. This showing marks the most northerly occurrence of the sedimentary deposits found to date.

CLAIM MAP IRON GROUP OF CLAIMS

SECTIONS 2 AND 11, T41S, R7W, WM



B. The Iron Group of Claims. The Iron Group of Claims consist of six unpatented mining claims in Section 2 and 11, Township 41 South, Range 7 W., W.M., and contain both a magnetite deposit and a series of hydrothermal hematite dyke deposits. The upper section of the stratigraphic column is present in this area, except that the sedimentary beds of ferruginous chert and argillites have not been found. The dyke-like deposits are intruded or emplaced in the tuffaceous sandstones and the green-gray argillite. The dykes appear as tabular bodies of Fe2O3 (See assay certificate, Page 16) that assayed 45 percent iron. The dykes have an attitude of North 40° East/45-80° S.E. The dykes occupy a position at approximately 4,400 feet above sea level. The dykes step upward in elevation going from the most northerly dyke to the southerly most dyke. The change in elevation is approximately 50 feet. The dykes occupy a position on the southwest nose that extends from French Peak to the Alhouse Creek. The dykes appear to form a radial pattern across this nose. A distance of 800 feet separates the west dyke from the most easterly one. These tabular bodies are referred to as dykes because to the writer they appear as discordant structures, however, there are no chilled margins or other criteria indicating that they are dykes. (See geological and geophysical map, page 15)* Utah Construction's Mineral Lab tested the dyke material. The material can be

*Personal correspondence from Paul Reddell, Chief Iron Geologist, Western Division of Utah Construction Company.

upgraded to a 50 percent (plus) concentrate with fine grinding (minus 150 mesh), but the concentrates contain 13 percent insolubles which reduces the value of the concentrates for blast furnace feed.

At an elevation of approximately 4,150 feet or 250 feet below and approximately 1,000 feet southeastward of the west dykes, a deposit of high grade magnetite, which assays 50 percent (plus) and consists of boulders of both magnetite and hematite, has been removed from an older placer workings. The magnetite blocks are angular and many of the blocks contain several tons of high grade Fe_3O_4. A dip needle survey was started in an effort to determine the location of the parent body of magnetite. The indications are that an area of magnetite at least 500 feet by 200 feet wide extends to the north of the boulders. (See geological and geophysical survey map p.15) There appears to be a direct relationship between the magnetite and the hematite as the two occur closely associated in the boulders. However, the dykes of hematite themselves do not contain much magnetite. It may be that throughout a vertical section the hematite-magnetite ratio may change with more magnetite occurring in the lower section. This condition is indicated by the presence of the magnetite 250 feet below the Fe_2O_3 dykes.

The sedimentary portions of the Iron Group of Claims appear to cover an area of at least a million square feet. To the north of this sedimentary block are stocks of both granitic textured rocks and masses of serpentine. To the

south of the sediments is a stock of granitic textured rock, quartz diorite. The above type of environment indicates that the iron bearing minerals found in this deposit are related to the intrusives and possibly could be classified as a contact metamorphic deposit.

C. Other Deposits.

1. Sedimentary deposits. Mainly ferruginous chert with finely disseminated Fe_3O_4 have been found as follows:

a. Southwest quarter of Section 11, Township 41, Range 7 W., W.M. Outcrops of barren cherts grading into ferruginous cherts have been found. This exposure consists of an area 700 feet in length. The ferruginous cherts appear to be approximately 100 feet thick. The cherts have an attitude of North 45° West/dip 45° S.W., which is a reversal in attitude to that of the regional trend. This may indicate that the deposits in this area occur on the limbs of an anticlinal fold. This exposure is at an elevation of 4,400 feet above sea leval, or on the same level as the hematite dykes across on the north side of Althouse Creek. It may be that the two deposits are related, being at an equal elevation on either side of the limbs of the anticline.

b. Approximately two miles south of the above

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MAPS AND ASSAY CERTIFICATES

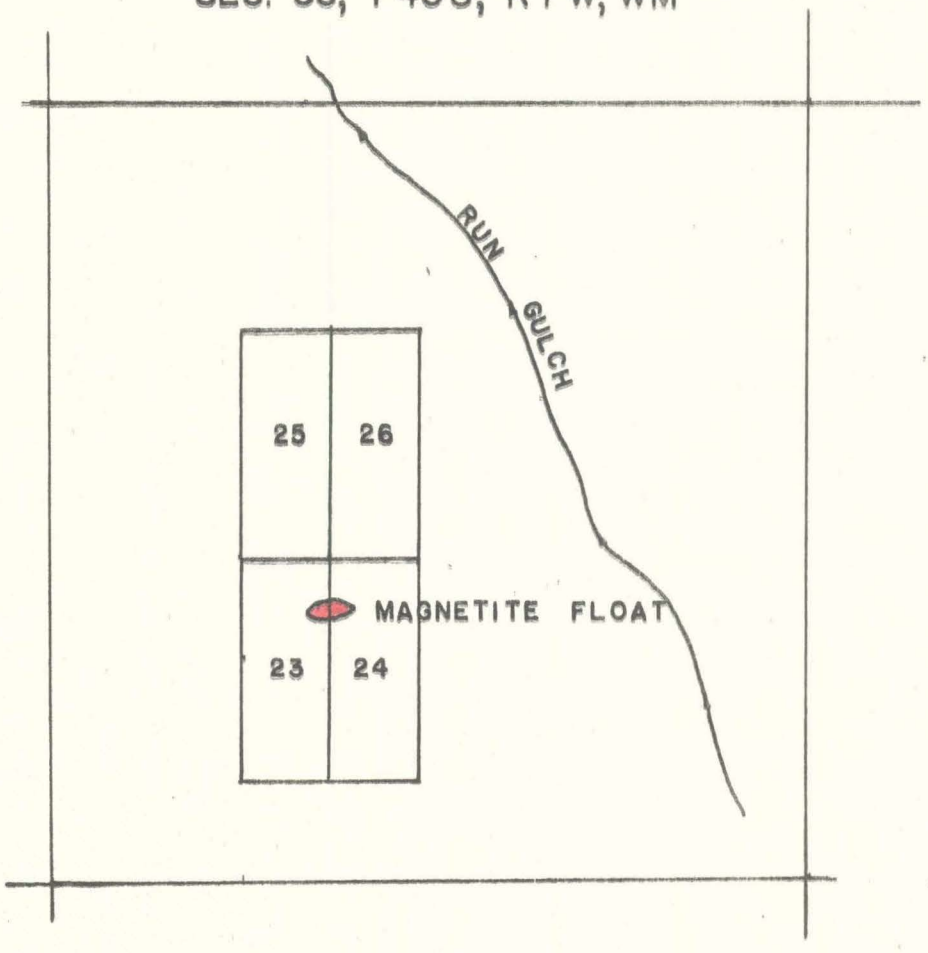
mentioned deposit, just across the Oregon-California border, is a similar deposit of ferruginous cherts and magnetite, known as the Porter Claim. In addition to the sedimentary deposits on this claim, there is a deposit of pyrite (FeS_2). The pyrite consists of large cubes which have been sold for mineral specimens throughout the United States.

c. Samples of ferruginous chert from Indian Creek, California, a distance of six miles south of the Oregon-California border, was examined in the rock shop at Happy Camp, California. The samples appear to be the same material as the ferruginous cherts observed elsewhere in the Waldo District.

d. Northeast of French Peak is a large flat or remnant block of metasediments made up chiefly of tuffaceous sandstones and green-gray argillites. No ferruginous cherts or argillites have been found in place, but many angular blocks of hematite have been located. The writer thinks that this block of sediments will prove to contain the same beds of iron bearing material as has been found elsewhere, where the same stratigraphic section occurs, namely, tuffaceous

CLAIM MAP OF THE SERPENTINE GROUP

SEC. 35, T 40 S, R 7 W, WM



sandstones and green-gray argillites.

2. Magnetite deposits. A deposit of high grade magnetite has been found in Section 35, Township 40 South, Range 4 W., W.M., half way between the Iron Group and the June Group of Claims. This deposit is 600 feet higher in elevation than the magnetite boulders in the Althouse Creek, and 1,200 feet higher than the ferruginous bed in the June Group. The deposit consists of fine grain blocks of Fe3O4 similar in appearance and composition to that of the magnetite boulders found in Althouse Creek.

3. Manganiferous Magnetite Deposits.

   a. Section 19, Township 17 North, Range 5 E., H.M., Del Norte County, California.

   b. Section 18, Township 41 South, Range 7 W., W.M., Josephine County, Oregon.

   c. Section 5, Township 41, Range 7 W., W.M., Josephine County, Oregon.

   d. Section 35, Township 39 South, Range 6 W., W.M., Josephine County, Oregon. Outcrops scattered over area 2,000 feet by 100 feet.

   e. Two deposits in Section 17, Township 38 South, Range 5 W., W.M., Josephine County, Oregon.

   f. Section 20, Township 38 South, Range 5 W., W. M., Josephine County, Oregon.

It is to be noted that similar deposits have beeen

reported from numerous locations in Curry County, Oregon.

LABORATORY TESTS (Summary)

To date, the only tests completed on the ferruginous material in this district are those which have been conducted by Utah Construction Company and Noranda Exploration Company. Neither of these companies as yet has released its results to the writer. However, the writer has received some information from the Utah geologists which indicates that in his company's opinion, the ferruginous materials do not contain prohibitive amounts of phosphorus and sulphur or titanium. However, he also states that the material will require very fine grinding, less than 150 mesh.

III. RECOMMENDATIONS

The following recommendations are based on information gathered in the field by the writer, as well as from recommendations submitted by geologists and mining personnel who have either examined the properties or have examined and tested the ore from the properties. It has been determined that the Waldo Mining District contains millions of tons of low grade hematite, with smaller deposits of magnetite known to occur closely associated with the hematite. Great areas of a similar geological environment remain to be explored, and, therefore, a great deal remains to be done before the potential of the district can be ascertained accurately.

1. There remains a large job in rechecking and possibly remapping the regional geology. The Kerby, Grants Pass, and Medford quadrangles should be brought

up-to-date, with a special emphasis placed on the regional trends as they affect the iron bearing formations.

2. All the known deposits should be mapped in detail and sampled. Each deposit should be tested so as to determine the amount of material present that is acceptable to the iron industry.
3. Geophysical surveys are warranted over a greater portion of the synclinal trough, especially in areas that indicate a favorable environment for either sedimentary or contact metamorphic deposits.
4. Detailed geophysical surveys should be conducted over the deposits in Section 23, Township 40 South, Range 7 W., W.M., to Section 11, Township 41 South, Range 7 W., W.M.
5. The deposits in Section 23, Township 40 South, Range 7 W., W.M., should be opened so that the tenor and amount of ore present can be ascertained. Sampling and drilling programs should be coordinated with geophysical surveys.
6. Prospecting teams should be employed in the field to examine all contact aureoles and sedimentary deposits. Some very favorable geological environment exists to be checked. (See Kerby, Grants Pass, and Medford quadrangles)
7. As soon as a valuable mineral deposit has been shown to exist on any of the claims, a patent should be

applied for.

IV. GEOLOGY

A. Regional Geology. The regional geology of the Waldo Mining District and the entire synclinal trough which consists of Triassic metavolcanics and metasediments of the Applegate formation have been intruded by Jurassic pyroxenite and peridotites, followed by intrusions of late cretaceous granitic textured rock. This area has been mapped by the United States Geological Survey in the Kerby, Grants Pass and Medford Quadrangles by Francis Wells, et al. The writer is in agreement with the mapping of the Kerby Quadrangle; however, the writer thinks the Grants Pass and Medford Quadrangles need to be revised. The writer thinks that in the Grants Pass Quadrangle there exists a much greater area of metasediments than is shown. Also, remapping of the Grants Pass Quadrangle may aid greatly in establishing continuity of the sedimentary iron bearing horizons, which in turn would greatly add to the potential of the district. A major correction was made by Francis Wells on the Medford Quadrangle when he revised his classification of a large contact metamorphic aureole near Ashland, Oregon, from that of a Pre-Cambrian or younger schist to that of a contact metamorphic deposit.

B. Local Geology. The local geology has been covered in the summary, and therefore, factors related to the beneficiation and mining on a local scale will be discussed under this heading. Detailed mapping of all the property on a scale of one inch equals 50 feet is required as an aid to mining. The greatest problem on most of the prospects is the lack of outcropping

due to the dense vegetation. At best, detailed mapping without extensive bulldozing and drilling is going to be inadequate to determine the potential of the deposits. From the information available through the outcrops and bulldozer cuts, it has been possible to roughly establish the stratigraphic sequence and the paragenesis of some of the deposits. However, a great deal remains to be done on the hematite dykes in Section 11, Township 41 South, Range 7 W., W.M., and the metamorphic (Fe_2O_3) deposits, to establish their mode of deposition and to determine if in establishing the paragenesis of these deposits a guide to an economic ore body will be accomplished. Each of the deposits has its own problems as regards its mining methods and beneficiation of the ores. It has been found that the ferruginous cherts containing magnetite require very fine grinding (minus 150 mesh) to liberate the magnetite. The hematite dyke material also requires a fine grind, but a mid 50 percent Fe concentrate can be obtained. On the other hand, the high grade magnetite should be excellent lump feed as is. To date, no word has been received as to the beneficiation of the ferruginous argillites. The ferruginous argillites appear to form a series of beds in the deposit in Section 23, Township 40 South, Range 7 W., W.M., and could possibly be 100 feet thick. This material is soft and should respond to treatment. This portion of the deposit will require little stripping. The potential of the deposits will depend a great deal on the mining methods used, and their costs. The deposit in Section 23, Township 40 South, Range 7 W., W.M., should respond to open

pit methods with a stripping ratio of less than one to one. The method of mining which will be employed on the magnetite and hematite deposits will depend on the relative size and continuity of these ore bodies. These factors will have to be determined before the best method of mining can be established.

V. PHYSIOGRAPHY

A. Topography and Drainage. The topography of the area is rugged with a large portion of the area having a topographic relief between the valley floors and the ridges of 2,000 feet. The Waldo Mining District is part of the Klamath Mountains. Dillar refers to this area as a part of the uplifted and dissected Klamath peneplain. Although many of the valleys are narrow and steep walled, the ridges in the area of the metasediments are broad. It is difficult to tell whether the sedimentary blocks are highly dissected due to erosional forces, or whether the blocks are formed through processes of faulting. The probable explanation is a combination of both faulting and erosion.

The Waldo Mining District is drained to the north and west on the Oregon side, and to the south and west on the California side. The main streams on the Oregon side are Althouse Creek and Sucker Creek which flow into the East Illinois River just west of Holland, Oregon. The Illinois empties into the Rogue River at Agness. The Rogue reaches the Pacific Ocean at Gold Beach, Oregon.

On the California side the area is drained by many small streams that flow into Indian Creek. Indian Creek

flows eastward before emptying into the Klamath River at Happy Camp, California. The Klamath River then horseshoes south and westward and empties into the Pacific Ocean between Crescent City and Eureka, California. There is an adequate and available water supply in the district to support a large industrial operation.

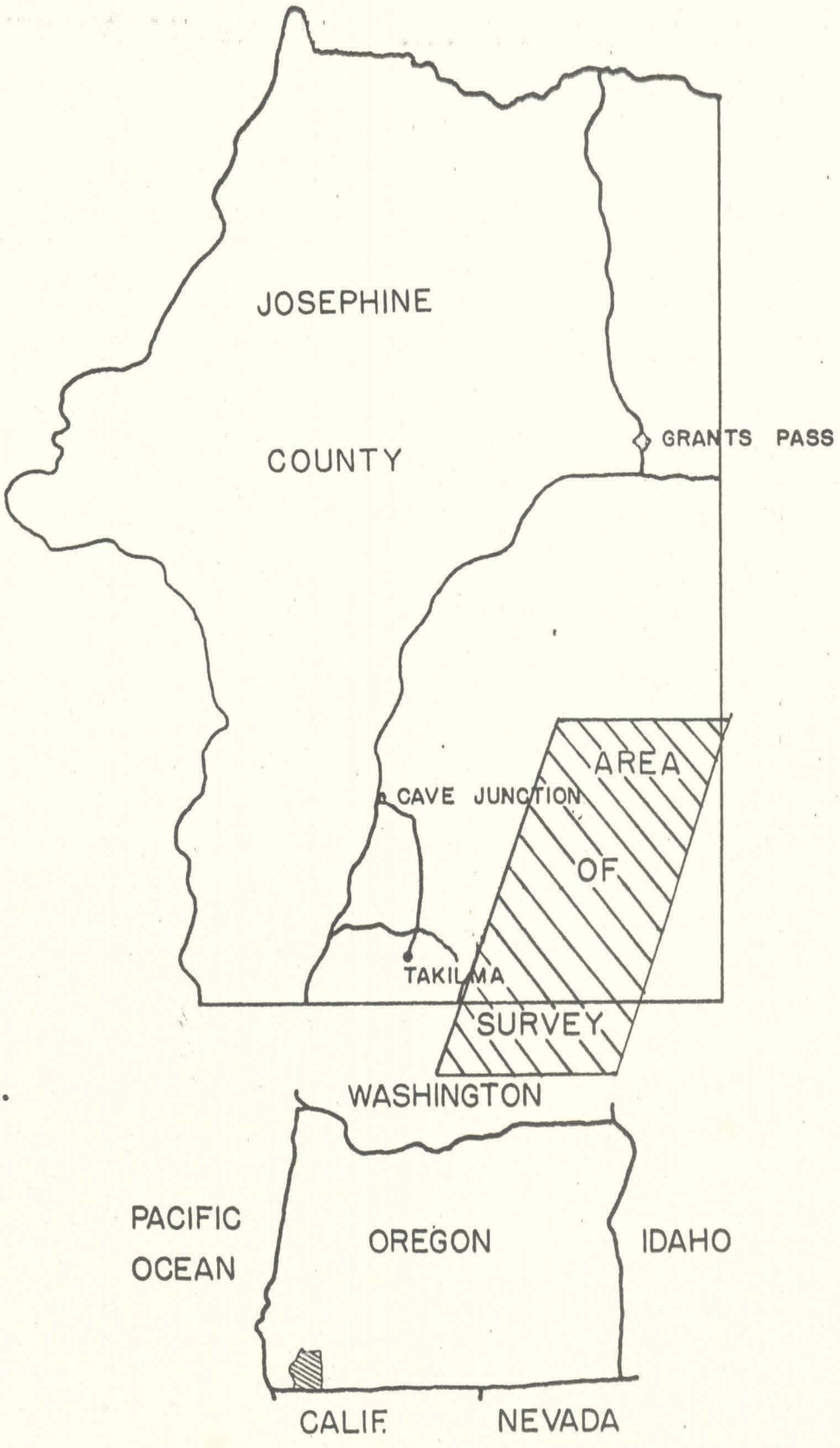
B. Timber and Climate. The Waldo Mining District is in the Siskiyou National Forest. The main industry of the area is lumbering, with excellent stands of Douglas fir and pine located in the area. There is an adequate timber supply for mining purposes. The timber, if obtained, would greatly aid in reducing the stripping costs on the iron prospects. The area has a good climate. The summers are warm and dry. The rainy season is approximately four months long. Snow covers the upper level above 3,500 feet for four months of the year. The average high level snow fall is approximately four feet up to the 5,000 foot level. An all year around operation could be established even at the upper levels, but the workings would have to be properly winterized. Snow plows would be required to keep the roads open to transportation at levels above 3,500 feet.

This report is dated December 9, 1960, in Portland, Oregon, and is respectfully submitted by:

Lloyd E. Frizzell

Lloyd E. Frizzell, B.Sc.

INDEX MAP OF IRON PROSPECTS IN THE WALDO MINING DISTRICT, JOSEPHINE, COUNTY, OREGON



PRELIMINARY EXAMINATION OF THE IRON PROSPECTS OF THE WALDO MINING DISTRICT, JOSEPHINE COUNTY, OREGON

I. INTRODUCTION

A. Purpose and Scope: The purpose of this examination is to determine the potential of the iron prospects of the Waldo Mining District in Josephine County, Oregon. A portion of this evaluation consists of a review of all the known geological literature pertaining to the Waldo District. The regional geology was studied both as to its structural features and rock types in an effort to determine if a regional trend to the iron deposits exists. A tape and brunton compass survey and a geophysical survey were conducted on the most promising deposit. No extensive sampling programs as yet have been formulated; however, various portions of the deposits have been sampled and assayed. In conjunction with the sampling, a few mill tests have been conducted. These tests have been made by Utah Construction Company (Mining Division) and Noranda Exploration Company of Vancouver, Canada. Representative samples of the ore from the various deposits have been presented to the mining industry and export-import firms through the courtesy of the Yukon and British Columbia Chamber of Mines, Vancouver, British Columbia, Canada.

A great deal remains to be done in the form of exploration before the potential of the area can be determined. The writer thinks that the discovery of millions of tons of low grade hematite, with closely associated high grade magnetite deposits distributed over a 300 square mile area,

warrants additional prospecting, exploration and development funds. (See Summary, Page 3-27)

B. Location and Accessibility: The iron prospects of the Waldo Mining District encompasses an area bounded by Township 38 South, Ranges 5 to 7 W., W. M., Josephine County, Oregon, and extends due south for six miles across the Oregon-California border, thus making a rectangular area of approximately 25 miles in length by 12 miles wide, or 300 square miles.

The Waldo Mining District is 50 miles south of Grants Pass, Oregon, the nearest railhead, and approximately 60 miles northeast of Crescent City, California, the nearest seaport. From Grants Pass to the Waldo Mining District you take Highway 99 South to Cave Junction, a distance of 28 miles; turn east on the Oregon Caves Highway and follow this road approximately 18 miles to the Gray Back Ranger Station; turn right onto the Sucker Creek Road, and follow this road for approximately eight miles to Section 23, Township 40 South, Range 7 W., W. M. This logging road crosses the deposits in Section 23, Township 40 South, Range 7 W., W. M., and connects with a pioneer road from the deposits in Section 35, Township 40 South, Range 7 West, and Sections 2 and 11, Township 41 South, Range 7 W., W. M. The deposit in Section 23 is five miles south of a hard-surfaced road at Holland, Oregon. A road from Holland would be the most favorable way to connect the prospects in Section 23 with the hard-surfaced road. The entire road system in the Waldo District is very good, with numerous first-grade logging roads connecting most

of the iron prospects to the county roads. Other transportation facilities are a 3,000 foot hard-surfaced air strip at Cave Junction which is maintained by the Forestry Service, and the Medford Airport is 80 miles distance by road, but is only a ten minute helicopter flight from the iron prospects of the Waldo Mining District. Helicopters are available for rent at the Medford Airport.

The Waldo Mining District is rugged, with approximately 2,000 feet of relief from the valley floors to the ridges. The highest peaks are 6,000 feet above sea level. The area is cut by steep sided valleys. The ridges for the most part are flat and fairly broad. The iron deposits range through a vertical section of 1,000 feet to 4,000 feet above sea level. The area is accessible most of the year, but at the higher elevations approximately four feet of snow covers the ground from January to April. The entire area is densely covered with conifers and brush typical of Southern Oregon.

II. SUMMARY

The iron prospects of the Waldo Mining District consist of five types of iron deposits extending over an area of 300 square miles, extending from Township 38 South, Range 5 to 7 W., W. M., to six miles south of the Oregon-California border.

The deposits consist of the following types:

1. Sedimentary deposits (most extensive deposits).
   - A. Bedded ferruginous cherts and argillites (Fe_2O_3);
   - B. Ferruginous cherts with bands of fine grained magnetite (Fe_3O_4).

The grade of this sedimentary material varies from 15 percent to 25 percent (Fe). The prospective tonnage is in excess of 50 million tons.

2. Metamorphoric deposits (Fe2O3). The above sediments from (1) above appear to be tightly folded and enriched with hematite, especially on the fracture plains. This deposit occurs adjacent to a fine-grained quartz diorite intrusive. Selected samples assayed 57 percent (Fe). The average for this deposit has not been determined. (No tonnage estimate at present.)

3. Magnetite deposits (Fe_3O_4+Fe_2O_3). This deposit consists of a fine-grained 50%Fe(+), and occurs as approximately 200 tons of large angular boulders. These boulders have been removed by a placer operation. (See Geophysical Survey for possible extensions. Map Page 15
The magnetite is closely associated with hydrothermal hematite and lies approximately 200 feet lower in elevation and 1,000 feet south of five hematite dykes. A second magnetite deposit consisting of high grade float is in Section 35, Township 40 South, Range 7 W., W.M., one mile north of the above mentioned deposit.

4. Hydrothermal hematite dykes. Five ore bodies which resemble dykes in appearance, in that they have definite walls and appear to be discordant

structures, outcrop at an elevation of approximately 4,400 feet above sea level and are 250 feet above the magnetite deposit in the Althouse Creek. (See Geological and Geophysical Map of the Iron No. 1 and 2 Claims) The dykes have an attitude of North 40° East/45-80° S.E. a 30-foot section across one dyke assayed 45% (Fe). (See Assay Certificate, Page 16)

The dikes appear to form a radial pattern, which in part reflects the topography.

5. Manganiferous magnetite deposits. Six of these deposits have been examined. The deposits consist of selective replacement of chert bands, and a thin bedded chloritic sandstone by manganiferous magnetite. The chert is tightly folded. The deposits vary in composition from 40%(Fe)--8%Mn to 22% (Fe)--16%Mn. The silica content is very high. The most southerly deposit is two miles south of the Oregon-California border. The most northerly one is in Section 17, Township 38 South, Range 5 W., W.M., in Josephine County, Oregon. The largest exposure is approximately 2,000 feet by 100 feet. The smallest pod is 25 feet by 25 feet.

Regional Geology (Summary). The five types of deposits found to date are confined to the west limb of a synclinal trough which is made up of metavolcanics (mostly green stone)

and metasediments consisting of cherts, argillites, limestone and tuffaceous sandstones. These metasediments and volcanics are Triassic or older, and belong to the Applegate formation. Intruded into the Applegate formation are large masses of peridotite and pyroxinite of Jurassic age. The peridotite and pyroxinites are now serpentinized. These serpentine masses host the chrome deposits of Southern Oregon. Intruded into the above at a later date, believed to be Late Cretaceous times, are numerous bosses & stocks of granitic textured rocks ranging in composition from diorite to granite in composition. Along the west limb of the syncline the granitic textured bodies are composed of diorite to quartz diorite and occur as stocks, bosses, dykes and sills. The granites, or more acidic phase, appear in the central part of the trough.

It has not been established whether this synclinal trough was there before the intrusions, or was formed as a result of the intrusions. If it is an old structure it may have a bearing on the deposition of the iron ore. Within the basin and on the limbs the beds have been highly folded and faulted. Both the regional and local structural features are complex.

For a more complete regional study see the Kerby, Grants Pass, and Medford quadrangles by Francis Well, et al.

Local Geology (Summary)

A. June Group and Extensions. Section 23, Township 40 South, Range 7 W., W.M.

B. Iron Group. Sections 2 up to 11, Township 41 South, Range 7 W., W.M.

C. Other Prospects.

PRELIMINARY EXAMINATION

OF THE

Iron Prospects Of The

Waldo Mining District,

Josephine County, Oregon

ASSOCIATED GEOLOGISTS