STATE OF OREGON

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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Bulletin No. 14-C

Vol. I—Coos, Curry, and Douglas Counties

Oregon Metal Mines Handbook

By the Staff

Bulletin No. 14-A Northeastern Oregon—East Half
No. 14-B Northeastern Oregon—West Half
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Vol. I—Coos, Curry, and Douglas Counties
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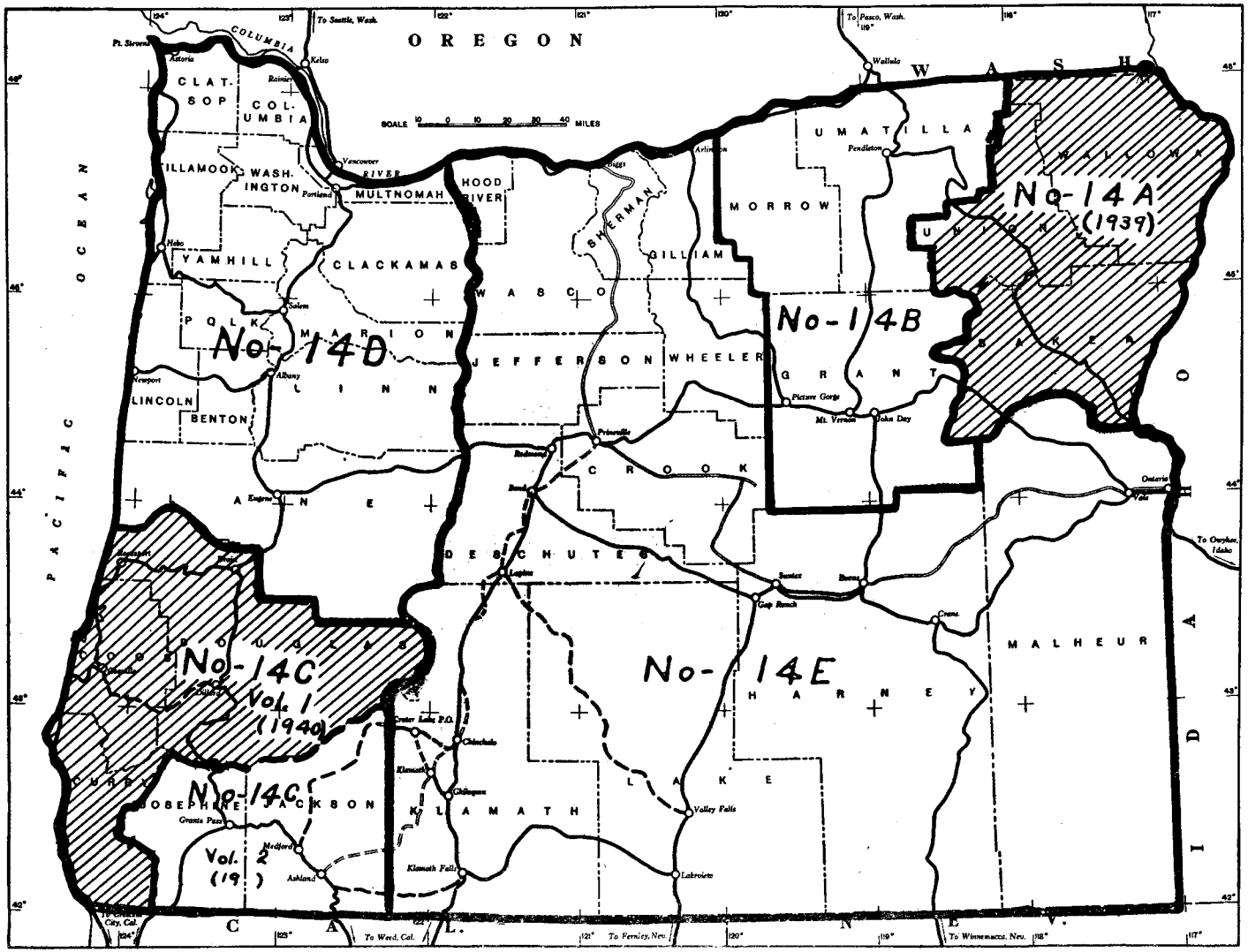

INDEX MAP SHOWING AREAS COVERED BY VARIOUS BULLETINS.

FOREWORD.

The only handbook or catalog of Oregon mines ever published was issued in 1916 -- more than twenty years ago. It has been out of print for many years.

Ever-increasing demand -- both from Oregon and from out-of-state -- for information on mining properties has shown the present need for such a handbook.

It is in line with the policy of the Department to release at the earliest reasonable time information that is of value to the mining industry, and it is deemed best to issue this new handbook now rather than wait two or three years until the information is truly complete so that the job would be done to our entire satisfaction.

Although Department engineers and geologists, in the past three years, have reported on a large number of properties in the counties covered by this bulletin, both errors and omissions will be found in the present bulletin.

For the sake of economy the Handbook is divided into five separate parts, each covering a different portion of the state. Thus one may obtain a bulletin giving description of all metal mines in one part of the state without having to pay for (and without the Department having to furnish and pay postage on) the entire Mines Handbook. Furthermore, this arrangement will facilitate and economize the task of bringing the data up-to-date as mines are developed and new ones found.

Most of the field work and preparation of individual reports for this bulletin was done by Jewel E. Morrison, field engineer, formerly of this Department, but recently called for Army service.

Each of the five bulletins making up the present Metal Mines Handbook will contain: an alphabetical name and location list of all mines in the district, a general introductory statement covering the general geology of the state, an index map showing the mining divisions of the state as covered by the several bulletins, and a larger-scaled map of the area covered by the bulletin, in addition to the individual descriptions of the mines.

At some future time, the Department will prepare a handbook of the non-metallic properties, which, with the present Metal Mines Handbook, will complete the listing and description of all known mineral producers -- past and present -- in Oregon.

Earl K. Nixon, Director.

Portland, Oregon,
December, 1940.

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INTRODUCTION

Deposits of many useful minerals are present in Oregon. But, because of its large area - (over 95,000 square miles) - parts of which are not readily accessible, adequate or satisfactory knowledge of the location and extent of mineral deposits is often incomplete or lacking. It is very difficult to prospect certain areas. Rugged mountains with a dense timber growth in some sections, and great arid stretches of country in others, have handicapped both discovery and development. Nevertheless, Oregon has produced in excess of $250,000,000 worth of mineral products since 1850.

Ores of the precious metals have been mined in the various mountainous sections of eastern Oregon since 1861, and in the southwestern counties of the state for the past eighty-seven years. Many of the streams in these sections have furnished from year to year a varying production of placer gold. Gold has been taken from the beach sands along the coast for years and a small amount of platinum together with its associates of the rarer metals is produced annually. Although copper was a by-product of gold and silver production before that date, Oregon began its regular shipments of this metal in 1905. Quicksilver is in regular production, and there are many deposits of chromite.

Oregon has abundant resources of building and monumental stone, common and refractory clays, as well as raw materials for making high calcium lime and Portland cement. In normal times the manufacture of clay products and Portland cement is among the important industries of the state. Oregon has inexhaustible supplies of sand and gravel which are suitable and are being used for many purposes. Coal has been mined for years in the vicinity of Coos Bay, Coos county, and lignites and sub-bituminous coals are known to exist in various other parts of the state.

GEOGRAPHY

Oregon is similar in many ways to its sister coast states. Cutting across it from north to south are two main ranges of mountains, - the Cascades and the Coast range, - both of which continue into Washington on the north and California on the south. The Cascade Mountains form the "backbone" of the state, dividing it into two parts commonly referred to as Eastern or Central Oregon and Western Oregon. The portion east of the Cascades is about twice as large as that to the west. The Coast range of mountains parallels the coast line very closely for its entire length.

In Eastern Oregon, besides the main area of the Blue Mountains, which consist of several ranges and which occupy most of the northeastern counties of the state, there are a number of scattered, lesser mountain ranges rising from a more or less level, elevated plain. It is in these rugged mountains of Eastern Oregon that the greatest number of active mining operations are being carried on at the present time, and where opportunities for discovery and development are as good as the state affords.

Along Oregon's northern border the picturesque Columbia river runs for 300 miles, itself a transportation highway, the value of which the people of Oregon are just beginning to appreciate. Between the Cascade and the

Coast range and extending from the Columbia southward for nearly 200 miles is the celebrated Willamette Valley, traversed for its entire length by the Willamette river. In places the floor of this valley is 25 miles wide and, with the contiguous foothills, comprises over three million acres of productive farm lands.

The Willamette valley is separated from the Umpqua river valley to the south by a cross range of mountains that connects the Cascades and the Coast range. A similar range lies between the Umpqua and the great Rogue river country still farther to the south. These two rivers drain westward into the Pacific, and within their broad valleys are thousands of acres of the most productive farm lands in the state. Lying against the California border is the great Siskiyou (Klamath) uplift, which, again, connects the Cascades and the Coast range, and separates Oregon territory from the Shasta region in California.

Outside of mountainous areas, much of northeastern Oregon consists of rolling uplands suitable for wheat growing and the raising of live stock. It will be noted thus that Oregon possesses a great diversity of land surface, and a corresponding variety of industries besides that of mining.

TRANSPORTATION

Main trunk lines of railroads now reach practically all parts of the state except certain southeastern areas and a coastal strip in southwest Oregon, as will be seen by a glance at a map. The Southern Pacific railroad, with its many feeders, traverses the western portion of the state from north to south, passing through the most productive portions of western Oregon and California, and connects with both water and rail lines at Portland on the north border of the state. The Oregon Electric Railway operates (freight service only) from Portland to Eugene. Coast points are reached by rail and highways through passes in the Coast range, and by means of coastwise boats between San Francisco, Portland, and Seattle. Practically throughout its 300 mile course as the north boundary of the state, the Columbia river is paralleled by two transcontinental railway lines, the Spokane, Portland & Seattle Railway, or "North Bank", on the Washington side, and the Union Pacific railroad on the Oregon side of the river, both of which enter the city of Portland. The main Portland-Ogden line of the Union Pacific cuts across and taps the most important mining, farming, and stock-raising sections of eastern and northeastern Oregon, while branch lines from both of these roads reach far south into the interior and central districts of eastern Oregon. In addition, the Great Northern Railroad traverses the state from noth to south, part of the way over tracks of other roads, and enters California by way of Klamath Falls.

The Oregon State system of state highways today consists of 4,738 miles of which 3,467 are paved or oil surfaced, and only 167 are unimproved, the total of which has cost $250,000,000 since 1919. In addition to the state system a network of county and forest roads extends into mining districts, making most properties readily or reasonably accessible.

GEOLOGIC FEATURES

Examination of the different sections into which the state is divided by its geomorphic (natural physical) features shows that the Cascade range is composed almost entirely of volcanic lavas of varying character that have been violently ejected or have flowed from a large number of volcanic vents. The position of these vents or openings is represented today by the many craters and sharp peaks built on top of the lava plateau and scattered throughout the entire length of the Cascade range across the state. Mt.Hood, the highest of these, rises to an altitude of over 11,000 feet, while Mt.Jefferson, North, Middle and South Sisters, Mt. Thielsen and Mt. McLoughlin, reach upwards of 9,000 feet above sea level. From these old volcanic openings molten lavas flowed, and showers of dust and ash were scattered over wide areas of surrounding country. Older rocks were thus broken through by the intrusive force of the molten rock from below, and then largely covered up.

The Coast range of mountains is composed largely of shales, sandstones and conglomerates. These beds are tipped up and folded; in many localities they have been intruded by dikes and sills of basaltic lava, and may be covered or interbedded with these more recent lava flows. The Klamath mountains in southwestern Oregon are composed of sedimentary, metamorphic, and igneous rocks principally of Mesozoic or later age. In these mountains are the chief placer and quartz mines of Jackson, Josephine, Curry, Coos, and Douglas counties, and from which has come a large production of precious metals. Because of dense vegetation the Coast range has not been thoroughly prospected, but coal, iron ore, stone, and an abundance of useful clays have been found. In addition there are the scattered gold and platinum-bearing sands located along the beaches and on some of the coast streams.

Along the west slopes of the Cascades are a variety of rocks, including Neocene lavas, volcanic tuffs and conglomerates, shales, sandstones, etc. These overlying rocks have been intruded by masses of partly or wholly crystalline rocks in places. It is in association with the latter type that most of the ore deposits are found. The east slopes of the Cascades and the adjacent country are more generally covered with lava flows. Only here and there have streams cut sufficiently deep to expose earlier rocks.

Many of the mountain ranges of eastern Oregon are largely made up of igneous rocks of both recent volcanic and ancient deep-seated origin. Some of the prominent peaks have cappings of lava resting upon deeply eroded portions of old granitoid masses that have apparently been pushed up from below. Others show extensive outcroppings of sedimentary beds, sandstones, slates, and marbles that have been folded or broken, and tilted at various angles, greatly modifying their original condition. There are also other evidences of greater movement and disturbance of the rocks here than in most other sections of the state. Some entire ranges seem to have been produced by uplift and movement along vast breaks that often extend for many miles. Such faulting has assisted in the upbuilding of the Blue Mountains proper, of the Wallowa range, Steen mountains, and others in eastern Oregon. When disturbances of the kind mentioned involve rocks of igneous types that originate at or extend to great depths in the earth, they frequently give rise to conditions that are favorable to mineralization and the formation of ore

bodies. That such conditions formerly existed in eastern Oregon mountain regions to a pronounced degree is evidenced by the occurrence of extensive and rich bodies of metallic ores.

HISTORICAL GEOLOGY

While this publication is primarily devoted to the metallic minerals of Oregon it might be of interest to many to include a table showing the major and minor divisions of geologic time, together with some events in this history in Eastern Oregon and in Western Oregon.

There is also a rough guess as to the age of the earth and the percentage of the total time that elapsed during each major division with some application to events in Oregon.

The earth is thought to be anywhere from 500,000,000 to 2,600,000,000 years old. If we take an estimate about midway between these extremes, we find that by applying the above percentages, which refer to the percent of the total lapse of time since the formation of the earth, we are able to give some rough actual ages to the different time divisions. Remember that these are very rough guesses. After all, what are a few million years to us now? On this basis the gold veins were formed a hundred million years ago; the old gold channels were laid down 50 million years ago; the basalt flooded Eastern Oregon 30 to 40 million years ago; the glaciers carved out the deep valleys of the Wallowas $\frac{1}{2}$ to 1 million years ago (or even more recently).

TIME DIVISIONS OF THE GEOLOGIC PAST
(Read from bottom up)

Major Divisions	Minor Divisions	Some Events in Eastern Oregon	Some Events in Western Oregon
	Recent	Lowest gold placers	Lowest gold placers and gravels
		Volcanic ash and tuff	Cascade volcanoes
Quaternary 1%		Glaciers	Conglomerates and gravels around Portland
Man			
	Pleistocene	Diatomite	
		Later gold placers	Quicksilver deposits
	Pliocene	Later rimrock lavas	Cascade lavas & granodiorite with some copper, lead and zinc
Tertiary 3%	Miocene	Beginning of building of Cascade volcanoes	
Mammals		Columbia river basalt flood	Columbia river basalt floods
	Oligocene	Fossil beds of John Day river	Fossil beds of Willamette Valley
			Limestone as at Markham and Dallas
	Eocene	Old gold channels	Old gold channels of southern Oregon and commercial coals as of Coos Bay
	5% Cretaceous		
		Intrusion of granites and formation of gold veins, molybdenum and tungsten	Fossil beds of the Rogue River area
Mesozoic 11%	3-3/4% Jurassic		Intrusion of granite and formation of gold & other metalliferous veins
Reptiles		Limestones and argillites of Wallowas and elsewhere	Chromite and serpentines
	2-1/4% Triassic	Greenstones of copper belt	
	3% Permian		Limestones, argillites & greenstones
	6% Carboniferous	Elkhorn Ridge argillites	Older schists and slates
Paleozoic 30%			
Amphibians	4% Devonian		
		Burnt River schist?	
Fishes	3% Silurian		
			Older schists?
Shellfish	7-1/2% Ordovician		
	6% Cambrian		
Pre-Cambrian 55%			
Almost no life			
- Formation of the Earth -			

Mineral Production

Workable deposits of the metal-bearing ores are associated quite generally with igneous rocks; that is, either with rocks of volcanic origin or the crystalline granitoid rocks that have pushed their way towards the surface and cooled from the molten or liquid condition. On the other hand, the common building stones, clays, and other non-metallic materials are obtained mostly from sedimentary beds, - rocks that have been deposited in water and later more or less consolidated.

Actual year by year statistics of Oregon mineral production dating from the discovery of gold were not recorded for many years. Even now, a segregation of the production of some of the non-metallics is not reported by the United States Bureau of Mines. As compiled from available official sources, Oregon has produced 132 million dollars' worth of metals and 118 millions of non-metals, giving a total mineral production of 250 million dollars. These are minimum figures. How much greater the total production actually has been cannot be stated definitely.

Statistics of production are now compiled by the United States Bureau of Mines, but complete figures from all producers are difficult to get promptly. This is especially true for non-metallics, reports of some of which are never secured.

To give an idea of recent production the following table is given.

MINERAL PRODUCTION - 1934-1939, inclusive.

Year	Metals	Non-Metals	Total
1934	$1,476,049	$2,735,348	$4,211,397
1935	2,262,904	3,333,580	5,596,484
1936	2,590,261	(4,400,000 ((est.in part)	6,990,261
1937	2,392,133	5,234,000	7,626,000
1938	3,284,000	Estimated (5,500,000	8,784,000
1939	3,831,000	(5,500,000	9,331,000

Metals are gold, quicksilver, silver, copper, lead, zinc, and platinum in order of value.

The most important non-metals are stone, sand and gravel, cement, and clay products in the order of their value. Coal, diatomite, lime, pumice, and mineral waters, etc., are included in the production figures.

The non-metallic properties of Oregon are to be described in a later publication, and are, therefore, not described here.

THE METALS

Western Oregon

The state of Oregon contains several metal-bearing areas, widely scattered in different regions. More than half of its coast is bordered by beaches and coastal plains which in places contain beds of auriferous sands. These may also contain concentrations of magnetite, chromite and ilmenite. A second mining field, - the chief producing one of western Oregon - is situated in the southwestern part of the state and includes Jackson, Josephine, Douglas, Coos and Curry counties. It may be considered as the northern extension of the gold-copper belt of California. A third region in western Oregon is that on the western slope of the great Cascade range including Bohemia, Blue River, Quartzville, North Santiam and Ogle creek districts, extending from the Klamath mountains on the south almost to the base of Mount Hood near the Columbia river on the north.

Although gold was reportedly found in Oregon (on the headwaters of the John Day river) as early as 1845, the earliest mining of gold in Oregon was in Jackson and Josephine counties, in 1851 and 1852. In 1852 Jacksonville district was organized, following the discovery of placer gold on a tributary of Jackson creek. In the fall of 1852 gold was found on Josephine creek and in the spring of 1853 a great rush followed to Althouse creek, where the bed of the stream was found to be uniformly rich. From Sailor Diggings, a famous placer region on the upper Illinois, a 15-mile ditch was paid for out of one year's production. In the two or three following years practically every part of southern Oregon was prospected for gold and many productive districts were organized. After the most accessible gravel deposits were taken up and largely exhausted, placer miners turned to benches wherever such deposits could be worked by water under considerable pressure. Hydraulic mining was done in southern Oregon as early as 1856 and has been carried on almost continuously ever since.

Soon after the discovery of gold-bearing gravels, quartz veins were located. In 1859 quartz was found at Gold Hill so rich that $400,000 is said to have been taken out the next year. A similar rich deposit at Steamboat, found at about the same date, yielded $350,000 in a short time. The quick exhaustion of the many rich strikes gave the region a reputation of being a "pocket" country, and this caused prospectors to search for near-surface pockets rather than to do underground development work. It is a region where many bonanzas have been found, but developments now indicate that it also contains bodies of lower grade ores of gold and copper.

Early in the '60's an 8-stamp mill was installed near Grants Pass; and many plants of similar nature have been erected since that date, the largest of which, the Greenback mill, had 40 stamps.

Eastern Oregon

The most important mining region in eastern Oregon, as well as the entire state, is that of the Blue Mountains, situated in the northeastern part of the state and extending westward for 130 miles from the Idaho line. This important region comprises many mining districts. Its total gold production to date is at least three-fourths of the entire state.

Placer Deposits

The first gold mining in eastern Oregon was at Griffin gulch, a few miles southeast of Baker, in the fall of 1861. In 1862 the large placer deposits of Auburn gulch were discovered, and the following year Auburn camp had a population of 5,000. By 1864 nearly all of the mining districts of eastern Oregon were known. Supplies were brought in from The Dalles, 300 miles away, so, because of the difficulty of access and cost of transportation, gravels which did not yield $8 per day for each man were not considered workable.

In 1863 the Auburn canal was completed; the next year the Rye valley ditch was constructed; and 9 years later Sparta ditch was completed. The Eldorado ditch, with its total length of over 100 miles, to supply water to the Malheur diggings, was also completed in this period. But by this time the principal hydraulic placer deposits were largely exhausted and a gradual decline in production began. Recently, the introduction of standard and dragline gold dredges has caused an increase in placer production. There were twelve dredges operating in eastern Oregon in the fall of 1938.

Lode Deposits

The Virtue quartz mine was discovered soon after the discovery of placer gold. Quartz mines were worked at Susanville and at Mormon Basin as early as 1865 and 1868. One of the first mills was built at Susanville in 1869. Connor Creek and Cable Cove mines were worked, but the necessity of shipping ore on horseback for several hundred miles hindered development. Real activity in quartz mining followed the construction of a transcontinental railroad in 1885, and the development of the many camps was thereafter placed on a more permanent and productive basis.

Speculation was rife from 1899 to 1903, and much money was unwisely spent. Eastern Oregon has in large part now recovered from the injurious effects of this "boom", and since the greater number of producing properties are in good hands, there is a steady production from them. This production is being increased by recent additions to the list.

Production previous to 1904 was for some years above the million-dollar mark, but, beginning with that year, there was a decreasing annual production to 1911, the low-water mark, when $463,439 was produced. Since 1911 there has been a marked increase, so that in 1939, the last year for which complete figures are available, the production from the six counties, for all metals, was $2,774,286.

East of the Cascades, in addition to the productive Blue Mountain region, are several widely scattered mining districts: Pueblo Mountain district in southern Harney county; the Harney district in the north part of the same county; the High Grade district in southern Lake county, 80 miles west of Pueblo Mountain, near the California line; the Howard district in northeastern Crook county; and the Ashwood district in Jefferson county. Spanish Gulch is in southeastern Wheeler county. The above scattered districts have had only a small production.

Copper

In Oregon copper usually occurs associated with gold and silver. Copper-gold ores are found in the Homestead district on the Snake River occurring as chalcocite and chalcopyrite along shear zones in greenstones. Another area is the copper belt of the lower Powder river valley where chalcopyrite, chalcocite, and cuprite are found in bunches and disseminated through the shattered and sheared greenstone.

Some copper prospects are found in the Wallowa district, where mineralization consists mainly of chalcopyrite with other sulphides in contact deposits between granodiorite and limestone.

Another important district is near Takilma and the old town of Waldo, some 40 miles southwest of Grants Pass. Here copper occurs as chalcopyrite in greenstone. The production from this district to date has amounted to about three million pounds, in spite of the long haul to market.

Other districts where copper ores are found are the Imnaha and Quartzburg in eastern Oregon, the North and South Umpqua in Douglas county, and the Coast range mountains in Curry and Josephine counties.

The total production of copper in Oregon to December 31, 1939, as given by the United States Bureau of Mines, is 24,104,000 lbs. The mine production for 1939 is reported to be 96,000 pounds.

Lead

There are no mines in Oregon at the present time which are operated primarily for the production of lead. It is a common constituent of the base ores of gold and silver, and, in greater or less quantities, occurs in several districts in both western and eastern Oregon, especially in Lane and Baker counties.

The production of lead in 1939 was 30,000 pounds. This production came from three counties of the state with Baker county producing the greatest amount.

Platinum

The mountains of southwestern Oregon and northern California have long been known as the principal source of platinum in the United States. Although the output of platinum from Oregon is small (42 ounces in 1937) the scarcity of the metal in the United States makes the occurrence important.

Basic rocks such as peridotite and serpentine derived from it are generally considered to be the source rocks of platinum; and the abundance of serpentine in southwestern Oregon may account for the occurrence of platinum, although it has not been found in place.

The production comes chiefly from beach placer mines which are worked primarily for gold. Both metals are associated with the so-called "black sands".

Quicksilver

Since 1882 Oregon has produced about 50,000 flasks of quicksilver,with a total value of about $4,450,000. It was second in production in the United States in 1939, with an output of 4,610 flasks.

Deposits occur in the western, central and southeastern parts of the state, with an especially productive area in the Ochoco mountains. A great deal of producing territory remains to be prospected, however, and with intelligent development several partially developed properties could be added to the fourteen producers now operating. See Department Bulletin no.4 (172 pages) for details.

Chromium

Chromite is ordinarily found in serpentine rocks, and there are extensive areas of this rock in the southwestern counties, in Wheeler, Grant and Baker counties. In all of these localities chromite was mined during the World War. The places of greatest importance are those near Canyon City, in Grant county, and in the Waldo district in Josephine county. There are over 100 properties in Oregon with a total past production of 36,500 long tons, and known reserves of 62,000 long tons, not including prospective ore. In 1918, 18,000 long tons were shipped, two-thirds from eastern Oregon and one-third from the western part of the state. See Department Bulletin no.9 (70 pages) for details.

Nickel

A deposit of nickel in peridotite (saxonite), in places altered to serpentine, in which the metal is present as the green silicate, genthite, occurs on Nickel Mountain, a few miles northwest of Riddle in Douglas county. The character of the occurrence suggests the possibility of an economic deposit if a sufficient tonnage could be developed. The area was prospected by means of tunnels and shafts early in the present century, but there has never been any commercial production.

Molybdenum

Molybdenum has been found in a few localities in the state, the most important of which probably are in the Wallowa area, occurring as contact deposits, previously referred to under copper. The metal occurs as molybdenite, associated with pyrite, magnetite, quartz, calcite, garnet, epidote, and scheelite.

Antimony

Antimony is found in numerous sections of the state, usually in the form of stibnite, the sulphide. Promising prospects are found in the Upper Applegate district, Jackson county, near Watkins, and on Forest creek, in the same district. These ores are said to contain good values in gold and silver. A wide vein is reported to exist in Jackson county, 12 miles west of the Pacific Highway, at the Siskiyou Mountain summit.

Stibnite is also found on Big Boulder creek four miles east of Susanville in Grant county. The most important property in the state, however, is the Koehler mine, near Baker, which see for details.

COAL

There are several localities in Oregon which contain coal. The most important of these is the Coos Bay field, which surrounds Coos Bay in Coos county. This field has had a continuous production since its discovery, producing more or less actively for the past 73 years. It has a recorded production of about two and one-half million tons, reaching a maximum in 1904, when it amounted to 111,540 tons.

The coal in this section is sub-bituminous and the typical analysis of coal mined is about as follows:

Moisture	11-20%
Volatile matter	30-40%
Fixed carbon	35-45%
Ash	8-12%
Sulphur	1.3-1.6%
B.t.u.	9,000-10,000

The production in this region has been materially reduced in the past several years because of the competition of other fuels, particularly fuel oil from California. In 1937, 9,300 tons were sold.

Another locality which gives promise is the Eden Ridge field in the southeastern part of Coos county. This field has been sufficiently prospected to demonstrate the existence of two veins of coal, one 7 feet and one 10 feet thick, having perhaps the highest grade yet found in the state. A railroad has been surveyed into the district and is already constructed to a point 10 miles from the deposits.

Other coal fields have been prospected in different parts of the state. The chief localities are the Upper Nehalem in Columbia county, the Lower Nehalem in Clatsop and Tillamook counties, the Yaquina field in Lincoln county, the Eckley and Shasta fields in Curry county, the Rogue River valley field in Jackson county, and the John Day field in Wheeler, Gilliam, Morrow, and Grant counties.

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MINING AREAS IN SOUTHWESTERN OREGON.

It has been the custom to refer any mining property to a so-called mining "district" for its legal location. No absolute boundaries have ever been outlined for these districts, with the result that any miner who had a property located somewhere between two more or less adjacent districts could not determine with assurance in which one his property lay.

In order to provide definite limits to the various regions in which mining and prospecting are conducted, while at the same time retaining as many of the old terms as possible by which the districts have been known, the term "area" is used in this volume to define and include various known "districts". These "areas" adjoin and are laid out so that no unclassified land lies between them. The term "district" is thus restricted to certain portions of the area where custom has established usage. Each area is named after the most familiar district included within it.

PART C VOLUME I

Coos, Curry, and Douglas Counties

GENERAL STATEMENT:

This volume lists mining properties in three southwestern counties of the State. They border the Pacific Ocean and include half of the State's coastline. Back from the coast a few miles, the country is very rough and, for the most part, heavily timbered. Much of it, particularly in Curry County, is inaccessible except by forest trails. Areas are shown in the following tabulation:

County	Acres	Sq. Miles
Coos	1,041,920	1,628
Curry	1,031,680	1,612
Douglas	3,194,240	4,991
Totals	5,267,840	8,231

The following table compiled from the preprint of U.S. Bureau of Mines Minerals Yearbook for 1940 gives the 1939 production of gold and silver:

County	Mines Producing		Gold		Total	Silver	Total
	Lode:	Placer	Lode :	Placer			Value
Coos	-	5	-	$4,095	$4,095	$ 11	$4,106
Curry	3	7	$1,995	6,895	8,890	25	8,915
Douglas	2	11	1,400	10,500	11,900	33	11,933
Totals	5	23	$3,395	$21,490	$24,885	$ 69	$24,954

By far the greatest metallic production was that of quicksilver, all produced by one mine - The Bonanza. According to the U.S. Bureau of Mines Minerals Yearbook for 1939, the output for 1938 was 1,183 flasks from 14,914 tons of ore. Using the average market price at New York, this production would have a value of a little under $107,000. Figures for 1939 production of the Bonanza are not available, but it was much more than in 1938.

Of the other commercial metallic minerals, 43 ounces of platinum were produced in 1938, mainly from the ocean beach near Cape Blanco, Curry County. There was no recorded production of chromite, nor of lead and copper. Many prospects were active in small-scale development work.

Of the non-metallics, production was nearly all from coal, crushed rock, sand and gravel. Figures for neither 1938nor 1939 are available. In 1937 the value of crushed rock, sand and gravel was approximately $160,000; of coal, $34,000.

Total mineral production of the three counties in 1938 was in the neighborhood of $325,000.

COOS COUNTY

Geography:

Coos County has an area of 1628 square miles (1,041,920 acres), a coast line of about 50 miles on the Pacific Ocean, a maximum length (N-S) of 67 miles and maximum width (E-W) of 36 miles. Coos Bay is one of the few good harbors on the coast between the Columbia River and San Francisco Bay. The lands along the coast are low-lying as are the valleys along the Coquille River. Most of the rest of the county is an area of heavily-forested hills and rough mountainous slopes reaching a maximum elevation of 4000 feet on Iron Mountain. Total annual rainfall is about 65 inches, with little snowfall except in the higher altitudes. The average daily maximum temperature in July is about 69 degrees F.; the average minimum about 51 degrees F.

Transportation:

A branch line of the Southern Pacific Railroad traverses the county from north to south through Marshfield, and the Smith-Powers Logging Railroad extends southward to Powers and beyond. Ocean-going vessels enter Coos Bay and small river boats navigate many of the streams to tide-water limits.

U.S.Highway 101 crosses the county from north to south, and State Highway 42 extends east from Coquille to meet with the Pacific Highway (U.S.99) near Roseburg. Improved county and forest roads extend throughout the valleys and into the hills. Certain sections are accessible only by trails.

Geology:

The geology of a large part of Coos County has been mapped by Diller (01, 03). The younger deposits are marine sands and alluvium in the valleys, with some stream terraces. The marine sands cover about 60 square miles, extending north along the coast from the south county line for about 22 miles, with widths varying from one to four miles. These sands are exposed at elevations varying from sea level up to 1500 feet as a result of an uplift of the coastal land area. The eastern limits of the sands are rather plainly marked by terraces which show the position of the ancient shorelines. The bottoms of these marine sands are in places still below sea level. Known depths are up to 100 feet and more. The present beach and the elevated marine sands are of especial interest because of their gold content together with other minerals which are referred to later.

Next in age to these beach deposits is the Empire formation of the Miocene age, consisting of sandstones and shales, exposed on South Slough. The Empire rests unconformably on Eocene sandstones and shales which Diller subdivided into the Coaledo and the older Pulaski. The Coaledo contains extensive beds of subbituminous coal. Eocene sediments are exposed over the greater part of the country and the Pulaski particularly is associated with masses of basalt exposed most extensively at points in Range 12. Conglomerates, sandstones and shales of the Myrtle formation, classed as Cretaceous, occur in the southern and eastern parts where also are found exposures of Pre-Cretaceous cherts and amphibolite schist of relatively small areal extent.

Intrusives are serpentine, gabbro, and dacite porphyry. Exposures of serpentine cover about 12 square miles, gabbro 10-12 square miles, and dacite porphyry probably not more than 2 square miles. The sources of mineralization are related to one or more of these intrusive types.

There is a limited area of greenstone in the extreme eastern part of the county with Mount Bolivar the most prominent landmark. This greenstone is thought to be of late Jurassic age; many veins there are copper bearing.

Using these geologic classifications, the county may be divided into four economic areas: (1) the Marine sands; (2) the coal beds of Cocs Bay, Eden Ridge, and Squaw Basin; (3) gold quartz in the vicinity of intrusions; and (4) the gas wells near Coquille and Bandon.

BEACH AREA

Geography:

The Beach area, in which the high placers and beach sand deposits are found, includes all of Coos County lying west of R.13 W.

The beach placers in Coos County extend from the south county line north to the north side of Township 26 S. and from the Pacific Ocean inland for as much as five miles.

[1] "The generally mountainous Oregon coast is bordered in places by coastal plains that range from a quarter of a mile to 4 miles or more in width and are mostly less than 100 feet high. The plains are of two different geomorphic types. One consists of lowlands composed of baymouth bars of barrier beaches and the filled embayments behind them; the other is a group of slightly elevated marine terraces.

"In addition to these terraces a remarkable series of marine benches, the result of a Pleistocene submergence described by Diller, appears at intervals between sea level and an altitude of 1,500 feet. . . . .

"The different terraces are capped with Pleistocene marine sediments, the largest area of which is between Port Orford and Cape Arago and is related to an ancient shore line at an altitude of 170 feet. Beds formed offshore compose a terrace plain about South Slough that is somewhat lower, and there are remnants of beaches in some of the other terraces.

"The placer deposits are wave-concentrated layers in the beaches and offshore beds and are generally called black sands for the reason that they are composed largely of magnetite, chromite, and other heavy minerals, most of which are dark-colored. Commonly these layers contain small particles of gold and platinum, and in places the metallic particles are abundant enough to be extracted profitably. In the beaches that are retreating under wave attack the deposits are variable and inconstant, but certain beaches are likely to be richer or more often workable than others. The

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[1] Pardee - 34; 4-6 (quoted)

backshore of the present beach and the ancient beach at an altitude of about 170 feet have been the most productive. The pay streak generally ranges from a few feet to 200 or 300 feet in width, is 3 or 4 feet thick in the middle, and tapers toward the edges. It consists largely of alternating layers of black and gray sand with more or less cobbles, boulders, and drift wood and in the ancient beach is mostly covered with a barren sand "overburden" 20 to 60 feet thick.

"The immediate sources of the beach minerals, including gold and platinum, are the shores that are being cut back by the waves. Most of the gold-bearing beaches are south of Coos Bay, along the coast opposite the Klamath Mountain region, described by Diller, which contains several areas of gold-bearing lodes. The lodes of the interior were the ultimate sources of the gold from which it has been carried seaward at intervals since middle Tertiary times. As a result of stream sorting only the finer particles reached the coast. No definite sources of the platinum has been found, but its distribution and its association with chromite suggest the abundant serpentinous and other basic intrusives of the region. However, no relation of the platinum and chromite of the beaches to any particular rock mass could be made out.

"Owing to the transitory character of the foreshores of the present beach no definite estimate of reserves can be made, but it is concluded that deposits suitable for small-scale operators will continue to form here and there along certain parts of the coast. Ordinarily these deposits may be expected, under the working conditions possible, to yield from a few cents to $2 a day per man (with gold reckoned at $20 an ounce). In places the backshore contains noteworthy amounts of gold and platinum, but in the decade immediately preceding 1932 attempts to mine the deposits apparently met with no success, and no basis for an estimate of their value exists. . . .

"Parts of the ancient beach at 170 feet above sea level remaining between stream valleys aggregate 8 or 10 miles in length and contain pay streaks 50 to 300 feet wide and a few inches to several feet thick. Those pay streaks are generally covered with 20 to 60 feet of barren sand, and in most places their richer parts have been mined. How much of the remainder can be worked profitably under given conditions remains to be determined by prospecting. Black sand layers occur also in ancient offshore beds and in places, at least, contain a little gold and platinum. The "black sand" beds may be regarded as a possible future reserve of chromite and other minerals in case of emergency.

"Along the Oregon coast gold and platinum-bearing deposits were discovered on the present beaches in 1852 and on the ancient elevated beaches 18 or 20 years later. In places the deposits were rich, and for a time they were mined extensively. According to popular report a production of several million dollars, chiefly in gold but with a minor content of platinum, was obtained. After the more profitable stretches had been worked over mining activity decreased, but no season has passed without some production. In 1930 and 1931 renewed interest in the deposits was stimulated by the fact that the value of gold had become relatively enhanced as the result of disturbed economic conditions throughout the country". [1]

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1 Pardee - 34: 4-6 (quoted)

Beach Area Properties

CHICKAMIN MINE Beach Area

Owner: W. H. Wann, Coquille, Oregon.
Location: SE¼ sec.25, T.26 S., R.14 W, in the South Slough.

"An open cut of the Chickamin mine, at an altitude of 60 feet on the east side of Brown Slough, exposes chiefly gray sand, with streaks of black sand and at the bottom a pebbly layer. The black-sand streaks range from 1 to 8 inches in thickness and aggregate perhaps 3 or 4 feet. The whole mass is rather compact and partly cemented by iron oxides and is regarded as offshore sediments. At the open cut a plant, which was idle at the time of visit, includes a steam shovel, sluices, shaking tables, and other equipment. The results of its operation were not learned.

"A sample of the black sand contains about 85 percent of heavy minerals, of which 20 percent is magnetite and 65 percent chiefly chromite, with ilmenite and garnet. The remainder is quartz, undecomposed rock grains, and rusty-brown limonitic cement. This deposit is probably the same as one sampled by Hornor in July 1917 and described as on the land of M. J. Mathews. Assays of Hornor's samples indicate from $1 to $1.55 a ton in gold and platinum. Samples are also reported by Hornor representing 12 other exposures around South Slough, of black sand beds which range from 3 to 8 feet in thickness. The assays indicated that 8 of the samples were barren and that 4 contained gold and platinum worth 20 to 60 cents a ton. The samples, however, do not represent definite quantities of the deposits, and the results, as explained above, are merely qualitative". (Ref: Pardee, 34:39 - quoted).

EAGLE MINE (Beach Placer) Beach Area

Owner: Mrs. Della C. Ridle
Temporary address is Scio, Oregon. Generally lives in vicinity of Bandon, Oregon. This property is being purchased by the Western Consolidated Mining Corporation, E. McKenzie, President, Leo S. Ross, Secretary & General Manager, Yakima, Washington.
Location: 4 miles north of Bullards, Oregon, on the Seven Devils Road.
Area: 120 acres more or less of patented ground in secs.28 and 33, T.27 S., R.14 W.

"The deposit was discovered about the middle 60's and actively worked until 1873. Of late years the mine has been worked with indifferent success from time to time.

"All the mining has been done on the smaller tract. The 80-acre tract is said to contain deposits of black sand, but their value and extent have not been proven.

"The old beach sands that were successfully worked in the early days outcrop a few feet above the bed of the creek and have a cover of 50 to 60 feet of fine gray sand. A short distance up the creek they reach water level and soon disappear beneath the creek bed.

"The gold is not uniformly distributed, but appears to be in well-defined streaks or shoots, the richest part of the bed being the east or

landward side. The gold content of the material mined in the early days must have been fairly high, but the unworked part of the deposit will probably not average more than a few cents a ton, although claims of $1 to $5 a ton in gold are made by those most interested. Platinum and its associate minerals, osmium and iridium, occur in a ratio of 5 to 10 percent of the gold content.

"At first the creek channel was worked for the gold that had concentrated from the erosion of the black sand beds. Later tunnels were driven into the outcrops above water level, and drifts were run in either direction following defined pay shoots. As the workings were extended to the east, water was encountered, which stopped mining in that direction. To the west the shoots were worked until the limit of the pay dirt was reached. Finally pumps were installed and an attempt made to carry the workings below water level, but this proved too expensive, and the mine was closed down; probably, however, not before the richest part of the deposit had been worked out.

"The material mined was trammed in cars to sluice boxes, fitted with riffles and having the bottom covered with burlap, where it was washed to obtain a black sand concentrate containing gold and platinum. The concentrate was treated by amalgamation for the gold, little attention being given in the early days to the platinum.

"In recent years a number of attempts have been made to open and work this mine, but all efforts have invariably met with failure.

Recent Developments.

"About four years ago the property was acquired by some San Francisco parties and, under the direction of G. W. Bradford, was extensively prospected by drilling with an Empire hand drill. In all, about 50 holes were drilled, all of which are reported to have shown the presence of gold and platinum.

"Seemingly, the drilling was not done in a systematic manner, and the results, which were not available to the writer, are likely to be unreliable and misleading. The drill holes indicated an overburden of 60 to 75 feet with an average of perhaps 65 feet." (Ref: Hornor 18).

"The Eagle mine, on Cut Creek north of the Pioneer mine, was idle at the time of visit. As described by Hornor it contains a bed of black sand 200 to 250 feet wide and several hundred feet long that is lenticular in cross section and 6 to 8 feet thick in the middle. This bed is composed of chromite, magnetite, ilmenite, and other heavy minerals, with a little gold and platinum. Except along Cut Creek, there is an overburden of 50 to 60 feet of fine-grained gray sand. Part of the deposit that has been worked, mainly by drifting, is said to have made a relatively large production, of which 5 to 10 percent of the value was in platinum and the remainder in gold.

"According to a report made in 1927 by J. D. Mereen for the owners of the property, a layer averaging 5¼ feet thick yields 50 percent of concentrate composed as follows:

	Percent
Chromite, containing 50 percent of Cr_2O_3	44.20
Magnetite	18.90
Ilmenite, containing 50 percent of TiO_2	15.00
Zirconium (Zircon?) containing 95 percent of $ZrSiO_4$	13.70
	91.80

"In addition, the material is said to yield $3.50 in gold and $1.00 in platinum (reckoned at $100 an ounce) to the ton.

"Owing to the depth of the overburden it is estimated that 17 tons of crude sand would have to handled to obtain 1 ton of concentrate." (Ref: Pardee, 34:39 - quoted; Hornor, 18:18,19 - quoted).

FLETCHER MYERS PROPERTY (see U. S. Mining Co.) Beach Area

"This property is situated in the SW¼ of sec.16, T.27 S., R.14 W., and adjoins the Rose mine on the north.

"So far as determined the black sand outcrops on the property at two points, one on the main branch of Twomile Creek and the other on a small branch flowing into the creek from the east.

"On the east side of Twomile Creek near an old logging camp, about 50 feet above the level of the creek and at an elevation of 140 feet, a tunnel 95 feet long having a direction of N.55°E. was driven on a bed of soft, loosely consolidated black sands more than 7 feet thick. This tunnel is reported to have been driven nearly 50 years ago, and, so far as known, no work has been done in recent years.

"On the east and west branch of Twomile Creek, about one-quarter of a mile north of the tunnel opening, black sands outcrop in the bottom of a ravine. The sands were worked to some extent in the early days. Considerable ground sluicing of the bed of the stream was done, also a tunnel was driven to the northeast under a ridge between this ravine and another one. The old tunnel is now caved. The cover at this point is probably 50 feet thick and is sand and fine gravel. The surface is thickly covered with brush, timber, and fallen logs.

"A sample was taken from each of these deposits. One of the samples was collected in the 95-foot tunnel at a point 40 feet from the portal and represents a thickness of 6 feet. The bed consists of alternate bands of iron-stained gray and black sand. Near the bottom is a band about 6 to 8 inches wide of coarse sand and gravel. The sample assayed 0.01 ounce of gold and platinum per ton. The other sample was from the bed exposed in the bottom of the ravine and represents 4 feet of black sand. The assays showed a gold and platinum content of 0.04 ounce a ton." (Ref: Hornor, 18:24 - quoted).

GEIGER CREEK MINES, INC. Beach Area

Owner: Oregon corporation; capitalization $5,000; C.B.Gresham, San Francisco, California, President; Stuart C. McLean, Pistol River, Oregon, Sec.-Treas.; office, c/o Herbert R. Dewart, Bandon, Oregon; no production (1937 report).

The Geiger or Little mine (90 acres) is situated on the south branch of Fairy Creek, in the SE¼ of SE¼ of sec.32, T.28 S., R.14 W.

"This property was opened in the early days by John Geiger, who worked it by ground sluicing. Some two acres of ground were worked over, and it is reported that considerable gold and platinum were recovered.

"As the workings were advanced toward the hillsides the overburden became heavier and the gold and platinum content less, until the sluicing was no longer profitable. Also, the pay sands were gradually getting below water level.

"These difficulties all contributed to the closing of the mine. In recent years several attempts have been made to work the mine, and the wrecks of numerous gold-saving devices of which much was expected may be seen on the property.

"A sample was taken from an exposure in the south end of the old workings at the foot of a 35 to 40 foot bluff. At this point the deposit is just above the water level. The sample represents 2 feet of black sand. It assayed 0.01 ounce of gold and platinum a ton". (Ref: Hornor, 18:25-quoted).

INDEPENDENCE MINE (Placer) Beach Area

Owner: Della C. Ridle, temporary address Scio, Oregon. Generally lives in the vicinity of Bandon, Oregon.
Location: Located about 4 miles north of Bullards, Ore., on the Seven Devils Road, in the NE¼ of sec.33, T.27 S., R.14 W.
Area: See Pioneer Mine report. Approximately 20 acres of patented land, of complicated pattern.
General Information: This property does not have any workings, and its value lies mainly in that it is on three sides of the Pioneer mine. (Informant: J. E. Morrison, March 30, 1939).

IOWA MINE (Placer) Beach Area

Owner: J. I. Sidwell, Bandon, Oregon.
Area: 160 acres patented land three miles east of Bandon, legally described as the S½ of the N½ of sec.33, T.28 S., R.14 W. All of the above ground does not have mining possibilities. The mine is located approximately in the center of the holdings. Nothing has been done with the property since publication of Circular 8. (Pardee 34:40) (Informant: J.E.Morrison, March 27, 1939.).

"Black sand layers in offshore beds related to the Pioneer (170 feet) beach are explored by workings on the north branch of Fairy Creek, 2 miles east of Bandon and 1¼ miles south of the main highway. The stratigraphic section at this point includes a layer about 50 feet thick of sand and pebbles, above which is 50 feet more of gray to buff sand, which in turn is overlain by 30 or 40 feet of loose-textured windblown sand. Two streaks of very fine grained black sand 6 and 12 inches thick occur in the lower part of the gray marine sand at an altitude of about 120 feet. According to W. M. Briner, who was prospecting on the property, very fine particles of gold and platinum alloys occur in the black-sand layers, and the platinum alloy is commonly the more abundant of the two. A sample of the black

sand collected by Mr. Briner contained about 23 percent of magnetite and 64 percent of ilmenite and chromite together." (Ref.Pardee 34:40 - quoted).

LANE EXTENSION MINE (Beach Placer) Beach Area

Owner: Chas. W. Smith Estate. George P. Topping, Executor, Bandon, Oregon. Leased to Western Consolidated Mining Corporation, E. McKenzie, President; Leo S. Ross, Secretary & General Manager, Yakima, Washington.

Location: 3 miles north of Bullards, Oregon, on Seven Devils Road.

Area: 60 acres of patented land in sec.33, T.27 S., R.14 W. described as follows: $SW\frac{1}{4}$ of $SW\frac{1}{4}$ of $NE\frac{1}{4}$; the $W\frac{1}{2}$ of the $NW\frac{1}{4}$ of $SE\frac{1}{4}$, $NW\frac{1}{4}$ of $SW\frac{1}{4}$ of the $SE\frac{1}{4}$ and $E\frac{1}{2}$ of $SE\frac{1}{4}$ of $SW\frac{1}{4}$.

Miscellaneous Information: This property adjoins the Pioneer Mine on the south. There are no workings. A number of tests indicate that the quality of sands is the same as at the Pioneer. (Informant: J. E. Morrison, March 25, 1939).

MATHEWS (M. J.) PROPERTY (Part of Chickamin Mine) Beach Area

West Bluff, Head of Brown Slough

"The most promising of these deposits is situated on the M.J.Mathews property in the $SE\frac{1}{4}$ of $SW\frac{1}{4}$ of sec.26, T.26 S., R.14 W. The bed outcrops on the west face of a bluff near the head of Brown Slough, about 60 feet above sea level. It is opened by a tunnel 30 feet long having a direction of S.60°W. At this opening the bed is exposed for a length of about 40 feet and is nearly 10 feet thick.

"The upper part of the bed is brownish-black consolidated material nearly 5 feet thick, with light-colored and dark sands in alternating bands in the bottom 18 inches. The lower part, approximately 4 feet 6 inches thick, has three partings 3 to 4 inches thick and 6 to 8 inches apart. Thes consist of alternating layers of black and white sand about 1/2 to 3/4 inc thick.

"The bed rests on a rather coarse-grained, iron-stained beach sand of undetermined thickness. The overburden is 25 to 50 feet of fine sand, clay, and soil covered with vegetation, timber, and fallen logs.

"The exposure was sampled in two sections at the portal of the tunnel, and the samples were assayed with the following results:

	Au and Pt, ounces per ton
Sample H-122, over upper 4 feet 10 inches	0.00
Sample H-122A, over lower 4 feet 4 inches	0.02

"An approximate analysis of a composite of the two samples gave for the base metals present the following results: Fe_2O_3 (calculated from Fe), 30 to 33 percent; TiO_2, 10 to 15 percent, SiO_2, 30 to 35 percent. The balance consisted of CaO, MgO, Al_2O_3, and probably some zirconium.

"A sample (H-123) taken at a point 130 feet north of the tunnel, representing a thickness of 8 feet 2 inches, showed no gold and no platinum.

"This bed can be traced for probably 200 feet north of the tunnel and some 300 feet to the south. In the southerly direction the exposures are not so prominent as to the north. The bed, where exposed in a ravine that cuts it some 300 feet south of the tunnel, thins out to 3 to 4 feet thick.

"The breadth of this deposit could not be definitely determined, but probably does not exceed 200 feet. The outcrop could not be traced continuously for more than 400 to 500 feet, as it is concealed by vegetation and no systematic attempt has been made to expose the bed along its strike. The continuity of the outcrop is frequently broken by ravines, and evidently a large part of the bed has been eroded.

"No accurate estimate can be made of the quantity of material available, but from the nature of the deposit no large tonnage may be expected. The sand has little value for the precious metal it contains and is not promising in either quantity or quality as a source of iron ore or the associated metals - chromium and titanium.

East Bluff, Head of Brown Slough

"Situated in the SW¼ of SE¼ of sec.25 on the land of M. J. Mathews, and about one-quarter of a mile east of the outcrop mentioned in the previous paragraph is a small isolated bed of black sand mixed with fine and coarse gravel. This deposit is at the top of the bluff on the east side of Brown Slough at an elevation of about 120 feet. It appears to cover an area of less than one acre and where opened is 3 feet 4 inches thick with a covering of 6 feet of soil and gray sand.

"The workings consisted chiefly of an open cut, a pit 60 feet long, 10 feet deep, and 15 to 20 feet wide, and short tunnels.

"The valuable material removed from the tunnels and pit was carried by a surface tram about 200 feet long to a ravine, where it was washed in crude sluice boxes containing riffles and burlap.

"When visited the workings were idle, but judging from the small quantity of material removed and treated work had not been profitable.

"Two samples were taken at this place and assayed as follows:

	Sample H-121	Sample H-131A
Gold and platinum, ozs.per ton	0.06	0.23
Gold "	--	0.14
Platinum "	--	0.09

"The first assay (H-121) represents a sample of 38 pounds, taken over a width of 3 feet 4 inches, from which was sorted 6 pounds of coarse gravel. The remainder was quartered down and assayed. The second assay (H-121A) represents a concentrate of one-half pound from panning down 8 pounds of the original sample after the gravel was removed." (Ref: Hornor, 18:14-16 quoted).

PACIFIC COAST MINING AND REFINING CO. Beach Area

(See Cape Blanco Mine, Sixes District)

Oregon corporation; capitalization 100 shares common, no par value, and 1000 shares preferred, $100 par value; officers, E. R. Marshall, 504 Rowan Bldg., Los Angeles, Calif., president; Joseph McKeown, American Bldg., Marshfield, Oregon, secretary-treasurer.

Property: Lease and option on 159.77 acres known as the George Seik Donation Land Claim, 5 miles north of Bandon, and lease on surveyed land known as the Pacific Placer Claims of 155 acres located two miles north of Bandon. Only experimental and sampling work is being done (1937 report to Corporation Commissioner).

PACIFIC PETROLEUM CORPORATION (Gas and Oil) Beach Area

John Ewell, Bandon, Oregon.

General Information: Two wells have been drilled in the $NW\frac{1}{4}SE\frac{1}{4}$ sec.28, T.28 S., R.14 W. The first hole has been abandoned; the second one was down 1600 ft. of $12\frac{1}{2}$" hole in March, 1939. Last drilling was done in January, 1939. They are said to have struck five oil bearing sands. Some of these sands are making gas, but as yet no commercial oil. They have a Union tool No.5 Rotary. 800 acres are under lease to the Company. It is reported in March 1940 that the depth of hole is 2110 feet, that operations are suspended, and that it is planned to set 8 5/8 inch pipe. (Informant: J. E. Morrison, March 26, 1939).

PIONEER MINE (Beach Placer Gold) Beach Area

Owner: Alex H. Smith, c/o Blindcraft, 7th & Howard, San Francisco, Calif. Leased to Western Consolidated Mining Corporation, E. McKenzie, president; Leo S. Ross, secretary-treasurer, Yakima, Washington.

Location: Located about 4 miles north of Bullards, Oregon, on the Seven Devils Road.

Area: 1 patented mining claim 19.51 acres in the $W\frac{1}{2}$ of the $W\frac{1}{2}$ of the $NE\frac{1}{4}$ of sec.33, T.27 S., R.14 W.

General Information: The Western Consolidated spent about $17,000 on this property from July 15 to October 15, 1938. They set up a plant and according to Mr. J. E. Babington, the watchman, only about 30 yards was run through the plant, and they were unable to make a satisfactory recovery. The property has been idle since October 15th of last year. The black sands occur on the average of about 52 feet below the surface; the whole claim has been mined, and only small areas of virgin ground can be found that the old timers have not worked. There are 3 long tunnels on this property which are caved, the longest of which is 1,340 feet.

Equipment: One 30"x72" Trommel Screen.
Two 30" Titan Hydraulic Jigs.
One Titan Rotary Amalgamator.
One 45 hp. Fairbanks Morse Diesel
One 48 amp. 220 volt A.C.Generator
Four pumps.
One 2/5 yd. Erie Steam Shovel
Two 3-ton Pierce Arrow trucks
One Fordson tractor
One 7 hp. D.C.Diesel Generator Set

Informant: J. E. Morrison, March 25, 1939.

"This property adjoins the Eagle to the south, and is reported to have been patented in 1872. The claim was located in 1866 by A. H. Hinch and John Dame, and later sold to Simon Lane, who worked the mine actively until the middle 70's, when it was closed. Some years later the claim was sold to Capt. Smith and son, of San Francisco, the present owners, but no attempt has been made to work it. At the time of the author's visit, C. W. Smith, one of the owners, was on the ground for the purpose of interesting men in the property.

"The workings are in the same deposit as the Eagle Mine, and the methods of mining and treatment were similar to those used at the Eagle." (Ref: Hornor, 18:21, quoted).

"At the time of examination the mine was being operated with sluice boxes suitable for the small head of water then available, and a dragline scraper was being used to remove 15 or 20 feet of overburden consisting of gray sand.

"The pay streak is a layer of black sand 3 feet or more thick, the richer part of which was mined through drifts said to have been made more than 60 years ago. Some of the mining timbers as well as an occasional huge log of drift wood are exposed by the present workings. Samples of the black sand remaining averaged about 3 percent of magnetite and 55 percent of chromite and ilmenite together. Gold and platinum alloy were being recovered by sluicing. A sample of the platinum alloy as determined by a spectrographic examination by George Steiger in the laboratory of the United States Geological Survey is composed of a relatively very large amount of platinum and smaller amounts of iridium and ruthenium. It contains in addition a possible trace of rhodium but no osmium or palladium.

"Most of the black-sand tailings resulting from former operations at the Pioneer Mine were washed down Cut Creek until they reached a ponded area near the sea known as the Lagoons, where they have formed a deposit several acres in extent. A sample from a hole 3 feet deep at one place contained 4 percent of magnetite and 60 percent of chromite and ilmenite. It is said that the tailings in the Lagoons contained unrecovered gold and platinum, and in July 1931 a machine designed to test the deposit for these metals was being installed. The result was not learned." (Ref: Pardee 34:38 quoted).

ROSE MINE Beach Area

Owners: C. D. Walker, J. L. Berghamer, J. H. Fackler, Edith Covert, Leng Dafoe.

"An old placer mine, the Rose, is on the south branch of Twomile Creek, at an altitude of 150 feet, 150 acres in the NE$\frac{1}{4}$ sec.21, T.27 S., R.14 W., about 7 miles north of Bandon, Ore.

"This mine was located and worked for a number of years by Abraham Rose, who is reported to have recovered considerable gold and platinum from the black sands and gravel by ground sluicing. The property in recent years passed into the hands of a Detroit, Mich., company, headed by Dr. Ewell and George De Foe, and they equipped it with a gasoline-driven centrifugal pump to operate a hose and nozzle. The sand and gravel were washed from a 20 to 25 foot bank and carried by a bedrock flume to a mechanically driven rocker, which removed the light material and part of the black sands.

The concentrates from the rocker were passed over a pinder circular table, mercury and soda being added. The gold and platinum were collected as an amalgam and the black sand went to waste.

"The plant ran about four months, when it was closed down, having proved a failure."

"A sample (H-131) was taken from a bed of massive black sand 4 feet thick, exposed in an old ditch near the foot of the 25-foot bank. The bed at this point rests on a shale bedrock. The sample was barren". (Ref: Hornor, 18:24 quoted).

SENGSTACKEN MINE (Placer) Beach Area

Owner: Henry Sengstacken Co., Marshfield, Oregon.
Location: 180 acres in the E½ of sec.25. The mine is located in the SE¼ of the NE¼ of sec.25. The property has not been operated for a number of years.
Informant: J. E. Morrison, March 24, 1939.

"Sample H-120 was taken from the face of an old cut showing 4feet 10 inches of black, heavy, consolidated sand with probably 5 to 6 feet of sand and soil covering. Beneath the bed of black sand is fine iron-stained beach sand.

"The deposit outcrops at an elevation of 60 feet near the top of a heavily wooded bluff near the head of Talbott Slough on land owned by H. Sengstacken in the SE¼ of NE¼ of sec.25, T.26 S., R.14 W. The deposit has been opened by a number of prospect cuts and shallow pits and appears to be of small extent. No work has been done in recent years.

"The sample showed a gold and platinum content of 0.01 ounce a ton." (Ref: Hornor, 18:16 quoted).

U. S. MINING CO. Beach Area

Oregon corporation; capitalization $50,000; Chester A. Sheppard, 1208 Public Service Bldg., Portland, Oregon, president; Emery Olmstead, 2619 Cornell Road, Portland, Oregon, secretary-treasurer.
Property: SW¼ and NE¼ sec.16, T.27 S., R.14 W., containing 320 acres; the SW¼ is the Fletcher-Myers property (which see) and the NE¼ was secured from D. A. Long; situated about 3 miles NE of Bandon in marine sands about 100 feet above sea level. No activity in 1938.

WESTERN CONSOLIDATED MINING CORPORATION Beach Area

E. McKenzie, president; Leo S. Ross, secretary and general manager, Yakima, Washington.
Purchasing under contract the following properties which are described elsewhere:

Eagle Mine
Lane Extension Mine
Pioneer Mine

COOS BAY AREA

COOS BAY

Geography:

The Coos Bay area includes that portion of Coos County lying east of the Beach area (R.14 W.) and west of R.11 W., being bounded on the south by the north edge of T.31 S.

The Coquille River which meanders through the southern part of the field drains to the Pacific Ocean at Bandon, located about 18 miles south of the mouth of Coos Bay. The important cities of the area are Marshfield, North Bend, and Coquille. The first two adjoin on the west side of Coos Bay and are important lumber centers, both in manufacturing and coastwise shipping; Coquille, on the Coquille River, in the southeastern part of the district, is the county seat and is a lumbering and dairying center. The major part of the area is occupied by the Coos Bay coal field.

Coos Bay Coal Field.

"The field is roughly elliptical in outline and is about 30 miles long north and south by about 12 miles wide east and west, giving an area of approximately 230 square miles.

"In 1898 the area was studied by J. S. Diller of the U.S.Geological Survey and results were published in the Coos Bay folio (no.73) of the Geologic Atlas of the United States. Later work by Diller and Max A. Pishel was published in U.S.Geological Survey bulletins #341 and #431. Much of the information relating to geology and structure in this report has been obtained from these publications.

"U.S. Highway 101 crosses the field from North Bend and Marshfield to Coquille and Bandon, thence continues south along the coast. A branch of the Southern Pacific system serves the district from the coast on the north end to Coquille and Myrtle Point on the south.

"Generally the locality is one of low hills, rising in places to broad summits with altitudes ranging up to 700 or 800 feet above sea level. There are many streams and creeks draining to tidewater sloughs which are a peculiar geographical feature of the district. Most of the commercial timber was cut off many years ago and a large part of the surface is now covered by a dense vegetation of second-growth trees and thick underbrush.

"The climate is generally mild, with no extremes of temperature. There is a high annual precipitation occurring mostly in winter months.

"The sandstones and shales which make up the great mass of the rocks of the region are grouped in the Arago formation of Eocene age, and have a probable thickness of at least 10,000 feet. According to Diller, the coal occurs in four zones distributed through about 8,000 feet of strata, in the upper half of which occurs the so-called Newport coal. Most important economically is this upper zone.

"Structurally, the coal field is an eroded anticline. Subordinate folds divide the area into basins, with the principal fold, the Westport Arch, the

axis of which trends N.35°E., separating the two largest basins - the South Slough on the west and the Beaver Slough basin on the east. Minor folding and faulting has formed smaller basins in the northern part of the field.

"The Beaver Slough basin is the most extensive in area and most important economically. It occupies most of the eastern and southern parts of the coal field. The Newport basin, southwest of Marshfield, has been practically exhausted. The North Bend, Flanagan and Empire basins, north and west of Marshfield, are small. In the South Slough basin the formation is much disturbed and prospecting is difficult because of the heavy vegetation.

"Three of the mines are opened through adits which handle a large amount of surface water. The fourth, mining at a depth of 500 feet slope distance on a 15° incline, is below the zone of heavy surface drainage and has to pump only a small quantity.

"Underground air circulation appears to be good and in only one property is forced ventilation necessary. Naturally, in operating on such a small scale, without the use of explosives, a large volume of new air is not essential. For the same reasons no coal gas is noticeable and open lights are used.

"Although such small operations usually tend to increase unit costs, at these mines the owners share in the manual labor and the overhead expense is at a minimum. Most of the mining is done on contract and probably the total unit cost is under $2.00 a ton at the tipple. Washing, trucking, handling and profit would account for the difference between this cost and the retail price. Lump coal retails at Marshfield for $7.00; at the bunkers it sells for $4.50. Nut coal and pea coal retail in Marshfield for $5.50 and $4.50 respectively; at the bunkers these grades sell for $2.00 a ton less.

"Quality of the Coal: The Coos Bay coal is classed by the U.S. Geological Survey as high-grade sub-bituminous. It is non-coking and carries a rather high percentage of ash. It slacks on exposure and would have a tendency to ignite spontaneously if stored in large amounts. The color is black, the luster subvitreous to dull and the fracture irregular to subconchoidal. The texture is generally rather soft and brittle, pieces shattering easily. Jointing or cleat commonly separates the coal, as mined into blocks.

"Typical analyses of coal mined in the past give values as follows:

	%
Moisture	11 - 20
Volatile Matter	30 - 40
Fixed Carbon	35 - 45
Ash	8 - 12
Sulphur	1.3 - 1.6
Caloric value B.t.u.	9000 - 10,000

"Production: Production records from 1882 to 1918 give the total output of the field as a little in excess of 2,300,000 tons. In 1905 the largest annual amount, 110,000 tons, was produced. In 1917, the output was 28,327 tons, and, from this, the production has fallen to a small amount, probably under 8,000 tons a year to supply local domestic heating demands. The loss of market has been caused by the competition of California fuel

oils and wood produced largely as a waste product from local mills. Coos Bay coal has had to compete with higher grade coal from Utah and Wyoming, which is mined on a large scale and which can be stored in any desired quantity. This foreign coal has been coming into the state and is being merchandized by modern methods. Washington coal is also being brought in and marketed, especially in the Portland area. All of these factors have combined to reduce the demand for Coos Bay coal to the present low point.

"Reserves: The field has undoubtedly a large coal reserve. In the U.S.G.S. Coos Bay Folio (no.73) J. S. Diller gives an estimate, made by M. R. Campbell, of 1,000,000,000 tons of possible coal in the whole field. In the absence of development, exact figures are impossible, but measures which include the so-called Newport coal are quite persistent and the seams show little variation in the quality of coal or thickness of the mineable benches. There is some minor faulting but rarely in sufficient extent to affect the mining materially.

"In the Beaver Slough basin competent authorities have estimated the Newport coal beds above a depth of 2,000 feet at a little over 7,000 tons per acre, assuming an average thickness of 4½ feet and an average dip of 26 degrees. Assuming an average extraction of 60%, the recoverable coal would be 4,000 tons per acre. According to Diller's mapping of outcrops, there would be something in excess of 25,000 acres in the Beaver Slough basin underlain by coal above 2,000 feet in depth.

"It is not the intention here to describe the area as an entirety with ownerships or to give a history of past operations. Only the mines operating at present are described below." (Ref: Libbey, 38:1-2,8-10 quoted).

ALPINE COAL COMPANY — Coos Bay Area

"The Alpine mine, operated by the Alpine Coal Co., is situated in the Coos Bay field of Coos County, 1/2 mile west of Riverton in NW¼ sec.17, T.28 S., R.13 W., and adjacent to the Coquille River, which is navigable at this point.

"The Riverton bed, in which the mine operates, is a member of the Arago formation and at this point strikes N.23° W. and dips 11° E. The bed was measured and sampled at two points by M. R. Geer and J. E. Morrison, May 4 and 5, 1939, as described below.

Sections of Riverton Bed in Alpine Mine

Section	A		B	
Laboratory No.	A-40029		B-40030	
Roof, soft to firm sandstone, underlain by	Ft.	in.	Ft.	in.
1 to 20 inches of shale and bone				
Shale, brown [b]	[a] 1		[a] 1	3
Bone, coal streaks [c]	. . . .			[a] 5
Coal, bone streaks		4-1/2	. . .	
Coal		7		7
Bone		[a] 2		[a] 2
Coal		3		7
Bone		[a] 1	. . .	
Shale, firm	. . . .			[a] 1
Coal	2	1	1	6
Floor, 10 inches of smooth shale underlain by sandstone.				
Thickness of bed	3	7-1/2	4	7
Thickness in sample	3	3-1/2	2	8

[a] Not included in sample; [b] Immediate roof in Section A; [c] Immediate roof in Section B.

"Section A was taken in the crosscut connecting the slope and aircourse between the 4th and 5th south entries, 650 feet from the portal. Section B was taken at the face of the slope, 750 feet from the portal. Cover at these points was about 140 feet. The ultimate analysis of a composite sample made by combining samples B-40029 (section A) and B-40030 (Section B) is given under laboratory No. B-40031.

"The mine is opened by a slope started from an elevation of 100 feet and driven, at the time of sampling, 750 feet on the full dip of the bed. Entries driven both north and south from the slope and aggregating 4,000 feet in length have developed the property. From the entries rooms 25 to 40 feet wide on 65-foot centers are driven up the pitch to a depth of 200 feet. A small electric hoist on the entry, from which a rope is carried around a sheave at the room face, provides power for pulling empty cars up the rooms. Cars holding 1,500 pounds of coal are gathered on the entry by mules, hauled to the slope, and hoisted in two-car trips. Pillar recovery is limited to about 50 percent by the nature of the roof, which is a massive but somewhat loosely consolidated sandstone that caves badly during pillar extraction. The seam is mined by cutting out by hand the center 7-inch bench of coal with its enclosing bone bands; the upper and lower benches of coal can then be picked out without shooting.

"At the tipple the coal is sprayed with water as it is passed over improvised vibrating screens having 3-inch round-hole, 1-inch square-hole, and 1/8-inch square-hole openings to produce lump (which is hand-picked on the screen) nut, pea, and buckwheat sizes. The mine averaged 20 tons per day in 1938.

Proximate Analyses (as received basis)

	B-40029	B-40030
Moisture	19.3	19.6
Volatile matter	32.8	32.6
Fixed carbon	40.3	40.9
Ash	7.6	6.9
Sulfur	0.7	0.6

(Ref:Yancey and Geer 40:10,20 quoted)

BEAVER HILL MINE Coos Bay Area

Owner: Beaver Hill Coal Co. (subsidiary of the Southern Pacific Company)
Location: sec.17, T.27 S., R.13 W., about 12 miles south of Marshfield.
History: For many years, early in the present century, the Beaver Hill mine had the greatest rate of output and produced most consistently of any mine in the area. When Southern Pacific locomotives began to use fuel oil, production from the mine became very small; the mine soon closed down entirely. There has been no activity at the property for many years. The plant had a capacity of about 150 tons a day and included screens, sorting table and washing plant. The mine was worked to over 3000 feet on the dip. An analysis of mine sample is given as follows: 1/ Moisture 16.10%; volatile matter 31.10%; fixed carbon 39.63%; ash 13.17%; sulfur 0.81%; air drying loss 8.10%; heating value 9031 B.t.u.

1/ Reference Parks and Swartley 16:25.

GILBERT MINE Coos Bay Area

"The Gilbert mine is in the Coos Bay field, Coos County, 3 miles west of Coquille in the NW¼SW¼ sec.3, T.28 S., R.13 W., at an elevation of 150 feet.

"The mine is developing the upper portion of an unnamed bed, which strikes N.65° E. and dips 25° SE. The exposed portion of the bed was measured and sampled in the 1st entry, 40 feet south of the slope, by M.R. Geer and J. E. Morrison, May 6, 1939, as described below.

Section of upper bench of unnamed bed in Gilbert Mine

Laboratory No.	B-40026	
Roof, smooth sandstone	Ft.	in.
Bone, coal streaks		[a] 4
Shale, firm		[a] 2
Coal, friable		4½
Shale, gray, hard		[a] 1
Coal, hard	2	10
Floor, immediate, soft carbonaceous shale, underlain by 10 feet of bone, shale and coal, interstratified		
Thickness of bench	3	9½
Thickness in sample	3	2

[a] Not included in sample.

"The bed, although nowhere completely exposed, is thought to be about 14 feet thick, but only the upper 4 feet is being worked. At the time of sampling the mine was under development, and some 50 feet of slope and 60 feet of entry had been driven. The production was being sold as run-of-mine coal."

Proximate Analysis (as received basis)

	B-40026
Moisture	16.4
Volatile matter	35.0
Fixed carbon	36.9
Ash	11.7
Sulfur	0.6

(Ref: Yancey and Geer, 40:12-20, quoted).

MORGAN (W. C.) LIMESTONE Coos Bay Area

Owner: W. C. Morgan, Marshfield, Oregon.

Location: NE¼ sec.35, T.25 S., R.12 W. The deposit is on the hillside west of the south fork of Coos River, 250 feet above the highway.

History: A report by Hodge, 40 (Section III, Northwest Limestones) states that "the limestone is dull gray and amorphous, with many veins and pockets of calcite, and has a top soil overburden 5 to 20 feet thick . . . general grab sample over an area of 20 square feet of outcrop follows:

SiO_2	10.57%	CaO	42.97%
Al_2O_3	4.27	CO_2	33.47
Fe_2O_3	2.96		
MgO	1.35	Total	95.59%

"Estimated reserves are 80,000 tons".

Topography: The hillside has a steep slope of about 35 degrees. Two narrow benches occur just above the road and a third, about 100 yards wide, is about 250 feet up the slope. The surface has a heavy growth of hardwoods. Surface soil exists to a depth of 25 feet or more.

Geology: Rocks of the locality are of the Pulaski formation, the lower member of the Eocene series according to Diller, 01. As exposed in two trenches surface rock is a gray, coarse sandstone that exfoliates on weathering. The sandstone is underlain by a pebble conglomerate in which the cementing material is more or less calcareous. Under the conglomerate is the limestone, thickness of which has not been determined. Surface soil contains limestone boulders up to 4 feet in diameter. No good evidence of the dip and strike of the limestone bed could be obtained.

An analysis of the stone made by the chemist of the Coos Bay Pulp Corporation is as follows:

Insolutle (boiling dilute HCl)	10.58%
R_2O_3 (iron and aluminum oxide)	5.28
$CaCO_3$ (calcium carbonate)	79.25
$MgCO_3$ (magnesium carbonate)	3.75

Development: Many years ago an area about 25 feet by 25 feet was sluiced off, but this was later covered by natural causes. At this place the surface has been partially cleaned and some 200 feet north a trench 35 feet long has been dug.

Conclusions: No dependable estimate of reserves may be made. The indicated grade would be satisfactory for agricultural limestone, but would not be satisfactory for paper mill rock.

Informant: Treasher, 40.

OVERLAND COAL COMPANY Coos Bay Area

"The Overland mine, operated by the Overland Coal Co., is situated in the Coos Bay field, Coos County, 10 miles south of Marshfield. It is 1½ miles from possible rail and water transportation on the Southern Pacific R.R. and Isthmus Slough respectively, and a like distance from the highway.

"The Beaver Hill bed, in which the mine operates, is a member of the Arago formation and at this point strikes N.20° E. and dips 30° SE. The bed was measured and sampled at two points by M. R. Geer and J. E. Morrison on May 8, 1939, as described below.

Sections of Beaver Hill Bed in Overland Mine

Section	A		B	
Laboratory No.	B-40064		B-40065	
Roof, soft shale, underlain by	Ft.	in.	Ft.	in.
8 inches of bone				
Bone (immediate roof)		[a] 8		[a] 8
Clay parting, firm		[a] 6-1/2		[a] 6
Bone		[a] 2		[a] 2
Clay parting, firm		[a] 1-3/4		[a] 2
Coal, hard, bright	2	5-1/2		10-1/2
Nigger head				[a] 2-1/2
Coal, hard, bright			1	5
Bone, soft		[a] 2		
Clay mining, firm		[a] 9		[a] 10
Bone, soft		[a] 1		
Coal, some bony	1	3		
Coal, dull				9
Bone				[a] 8
Bone (immediate floor)		10		[a] 10
Floor, shale, overlain by 10 inches of bone				
Thickness of bed	7	3/4	7	1
Thickness in sample	3	8-1/2	3	1/2

[a] Not included in sample.

"Section A was taken at the face of No.1 room, 100 feet above the 1st south entry and 95 feet south of the slope; cover at this point was 150 feet. Section B was taken in No.4 room neck, 1st south entry, 250 feet south of the slope; cover here was 225 feet. The analysis of a composite sample made by combining samples B-40064 (section A) and B-40065 (section B) is given under laboratory No. B-40066.

"Two earlier mines on this property, which are now abandoned, were drift mines. The present mine is a slope operation. From the portal at an elevation of 175 feet the slope is driven on the full dip of the bed (which averages 30° but is locally as high as 46°) for a distance of 400 feet. From the slope bottom the 1st south entry has been turned off and at the time of sampling had been driven a distance of 250 feet. Room-and-pillar mining is followed, with rooms 30 feet wide on 50-foot centers turned up the pitch from the entry. Sheet-iron-lined chutes carry the coal from the room faces to the gangway, where it is loaded into cars, trammed by hand to the slope bottom, and hoisted to the surface in two-car trips.

"In mining, about 8 inches of material ranging from bone to bony coal is left up to protect the soft shale roof; and 10 inches of bone, which provides a smooth mining floor, is left down. The remainder of the bed is extracted by first cutting out by hand the center band of clay and bone, which is gobbed, and then breaking out the upper and lower benches of coal by picking. Only a little powder is required. Some 16 inches of bone and clay lying directly under the roof must be taken down and gobbed.

"On the surface the coal is dropped by rope down an incline to the tipple, where it is sprayed with water as it is passed over 1-3/4 inch bar, 1-1/4 inch square-hole, and 7/8-inch square-hole stationary screens

to produce lump, nut, pea, and slack sizes for the market. The production of the mine averaged 15 tons per day in 1938.

Proximate Analyses (as received basis)

	B-40064	B-40065
Moisture	16.7	18.5
Volatile matter	35.7	33.4
Fixed Carbon	42.2	41.2
Ash	5.4	6.9
Sulfur	0.7	0.7

(Ref: Yancey and Geer, 40:9,20 quoted)

SOUTHPORT COAL COMPANY Coos Bay Area

"This company, controlled by James H. Flanagan, is mining in the NE¼ of sec.22, T.26 S., R.13 W., and is reached by traveling five miles south from Marshfield city limits on U.S.Highway 101 and then 0.5 mile west over a plank road. The property, consisting of about 600 acres in secs.8,14,15, 22 and 23 of the above township, is leased from the Southport Land and Commercial Co. which owns approximately 2700 acres in the township.

"Southport Mine: The mine was opened first in 1875 on a bed believed by Diller to be at a higher horizon than the Newport bed, and operations were not very successful. Later, the Newport bed was opened and the then-named New Southport Mine for several years maintained a fairly large production, much of which was shipped to San Francisco by water. In recent years it has been reopened by Mr. Flanagan, and a small output has been sold for local domestic heating.

"The present opening to the mine is through an old slope inclined above horizontal at about 7 or 8 percent and running a little east of north along the bed. Coal is being mined in a room about 3,000 feet from the portal from two benches of coal separated by a clay parting 8-10 inches thick. A section of the bed being mined is as follows: hard sandstone footwall, 28 inches of coal, 9 inches of clay, 24 inches of coal, hard sandstone hanging wall.

"Rooms are opened about 35 feet wide with pillars between about 20 feet wide, with a wider stump on the gangway. Stulls are used in the rooms, but the roof is strong and relatively few are necessary in the section seen. No explosives are used in mining the coal. Cars are hauled to the face of the rooms from a gathering place at the main entry by one mule. Trains of two one-ton cars each are taken out through the main entry by two mules, the driver using brakes for most of the out-going trip. One driver handles the gathering as well as the trips to the bunker so that only seven or eight such trips can be made in eight hours. Production is at the rate of about 10 to 15 tons a day depending on weather conditions which govern the demand. Five men are employed, including a truck driver.

"The coal is washed with a hose on screens at the bunker, and three sizes are made, namely, lump, nut and pea. Most of this coal is hauled to Marshfield and retailed through the Reynolds Development Co.

"Reserves of coal in this leased property are probably large - in hundreds of thousands of tons. By driving an entry 250 feet long from

U.S.Highway 101 on Isthmus Slough Mr. Flanagan estimates he could make available over 200,000 tons of coal from above the entry level, in addition to the reserve available in the area being mined at present, estimated by Mr. Flanagan at 600,000 tons.

An analysis of a sample of this coal is given below:

C O P Y

Department of Commerce - Bureau of Mines

Coal Analysis Report

Lab. No. A90058
Can. No. D896

Operator: Jas. H. Flanagan
Sample of sub-bituminous coal
State: Oregon County: Coos Bed: Southport
Town: Marshfield
Location in Mine: Upper works - in counter or Morrisoul room 2300' from portal (old entry)
Method of Sampling: Standard
Date of sampling: 5/27/33 Date of analysis: 6/5/33
B. of M. Section Collector: S. H. Ash
Air-dry loss 3.3

	Coal (air-dried)	Coal (as received)	Coal (Moisture free)	Coal (Moisture and ash free)
Moisture	14.4	17.2		
Vol.matter	34.8	33.6	40.6	45.2
Fixed Carbon	42.1	40.8	49.2	54.8
Ash	8.7	8.4	10.2	
	100.0	100.0	100.0	100.0
Hydrogen	6.0	6.2	5.1	5.7
Carbon	58.0	56.1	67.8	75.4
Nitrogen	1.3	1.2	1.5	1.6
Oxygen	25.3	27.5	14.6	16.5
Sulphur	0.7	0.6	0.8	0.8
Ash	8.7	8.4	10.2	
	100.0	100.0	100.0	100.0
Calorific value Cal.	5678.	5489.	6633.	7383.
Btu	10220.	9880.	11940.	13290.

Softening temperature of ash 2080 F.
Date 6/9/33 (signed) H. M. Cooper, Chemist

(Ref: Libbey, 38:2-4 quoted)

"The Southport bed, in which the mine operates, is a member of the Arago formation and at this point strikes N.20° E. and dips 8° E. The bed was measured and sampled May 27, 1933, by S. H. Ash and May 3, 1939, by M. R. Geer and J. E. Morrison, as described below:

Sections of Southport Bed in Southport Mine.

Section	A		B	
Laboratory No.	A-90058		B-40027	
Roof, hard, smooth sandstone	Ft.	in.	Ft.	in.
Bony		[a] 2-1/2		. . . .
Coal, sulphur streaks		[a] 2		. . . .
Coal, firm	1	5	1	3
Bony		[a] 1		. . . .
Shale parting, sandy, soft		[a] 8		[a] 8
Coal, firm	2	6	1	4
Coal, sulphur streaks	. . . .			1-1/4
Coal	. . . .			8-1/4
Coal, bony, hard	. . . .			3-1/2
Floor, sandstone, overlain by soft shale or bone				
Thickness of bed	5	1/2	4	4
Thickness in sample	3	11	3	8

[a] Not included in sample.

"Section A was taken in the Morrisoul room, 2,300 feet from the portal. Section B was taken in 9 room pillar, 1st north entry above the counter, 2,400 feet northwest of the portal. Cover at these points is 60 to 80 feet.

Proximate Analyses (as received basis)

	A-90058	B-40027
Moisture	17.2	16.7
Volatile matter	33.6	33.4
Fixed carbon	40.8	40.4
Ash	8.4	4.5
Sulfur	0.6	0.5

(Ref: Yancey and Geer 40:7,20 quoted)

THOMAS MINE Coos Bay Area

"The Thomas mine, operated by the Thomas Coal Co., is situated 10 miles south of Marshfield in the Coos Bay field of Coos County, in SE¼ sec.9, T.27 S., R.13 W., at an elevation of 200 feet. It is 1 mile from a possible rail connection with the Southern Pacific R.R., and a similar distance from the highway.

"The Beaver Hill bed in which the mine operates is a member of the Arago formation and at this point strikes N.40° E. and dips 30° E. The bed was measured and sampled at the face of 13 room, 60 feet above the gangway and 600 feet north of the portal, by M. R. Geer and J. E. Morrison, May 5, 1939. Cover at this point was 100 feet. The section of the bed is shown below:

Section of Beaver Hill Bed in Thomas Mine

Laboratory No.	B-40028	
Roof, soft shale	Ft.	in.
Coal (immediate roof)	[a] 1	
Clay, firm		[a] 4
Coal, bony		[a] 1-1/2
Clay		[a] 1-1/4
Coal	2	10
Bone, soft		[a] 2
Clay, firm		[a] 8
Bone, soft		[a] 2
Coal, some bony	1	6
Bone (immediate floor)		[a] 8
Floor, shale		
Thickness of bed	7	6-3/4
Thickness in sample	4	4

[a] Not included in sample

"Room-and-pillar mining is practiced, with rooms turned up the pitch from a drift 650 feet in length driven northeasterly along the strike of the bed. The dip of the bed, 30°, is adequate to allow the use of chutes lined with sheet iron to convey coal from the room face to the gangway. The soft shale roof of the bed must be protected by leaving up about 1 foot of roof coal; and, similarly, bony coal is left as the immediate floor. The remainder of the bed is mined by cutting out by hand and gobbing the center mining seam of bone and clay and then removing the upper and lower benches of coal by pick. Only a little stumping powder is used. From 6 to 10 inches of bony coal and clay underlying the roof coal is taken down with the upper bench and gobbed.

"At the tipple the production of the mine, which averaged 10 tons per day in 1936, is passed over 3-inch bar, 1-1/2 inch round-hole, and 3/8-inch round-hole stationary screens to produce lump, nut, pea, and slack sizes for the market.

Analyses Sample B-40028 (as received basis)

Moisture	16.9%
Volatile Matter	34.6
Fixed Carbon	42.8
Ash	5.7
Sulfur	0.5

(Ref: Yancey and Geer 40:8,20 quoted)

POWERS AREA

The Powers Area includes the southern extension of Coos County, lying south of T.30 S. It includes the Iron Mountain and Salmon Mountain, Mt. Bolivar and Eden Ridge districts.

General: This area, east of the northern part of Curry County, is confined to three townships: 31, 32 and 33 S., Rs. 10, 11 and 12 W., and adjoins the common boundary between Coos and Curry Counties. It is entirely within the western drainage of the South Fork of the Coquille River. In this locality, the Coos-Curry boundary marks the approximate watershed between the South Fork of the Coquille River with its swift-flowing tributaries, Rock, Sucker, Granite, Johnson and Salmon Creeks, and the Rogue River drainage to the south. The area is mountainous with rough, timbered slopes. Marking the summit of the watershed are, from south to north, the long ridge of Iron Mountain with an elevation of 4000 feet; Barklow Mountain, elevation 3559 feet; Granite Peak, elevation 3300 feet; and Salmon Mountain, elevation 3234 feet.

Geology: The southern part of the area is marked by the mass of serpentine which makes up Iron Mountain, on the eastern side of which are large exposures of gabbro surrounded by rocks of the Myrtle formation (Cretaceous). North of Iron Mountain are masses of gabbro and serpentine surrounded by Myrtle sedimentaries which predominate in areal extent in this part of the district. North and east of Salmon Mountain is a large area of sediments of the Arago and Coaledo formations (Eocene). Dacite porphyry, mainly as dikes, is exposed on the east flank of Iron Mountain and at points on and near Salmon Mountain. Basalt flows of small areal extent are found at various points.

Coal, gold quartz veins, placer gravels, and chromite lenses are the deposits of chief economic interest. The district is rather inaccessible, and lack of transportation facilities has been a great handicap.

ANCHOR, DAISY AND PLACER CLAIMS (Placer) Powers Area

Owners: Mr. and Mrs. R. M. Harrison, Myrtle Point, Oregon.

Location: On the north side of Poverty Gulch about one-half mile above junction with Johnson Creek, and legally described as the NE¼ of the SE¼ of sec.29, T.32 S., R.12 W., 40 acres held by location.

General Information: These claims were located in 1938, and as yet very little has been done on them in the way of development.

Informant: J. E. Morrison, March 26, 1939.

COARSE GOLD (Gold Lode and Placer claims) Powers Area

formerly known as the Divelbiss Mine.

Owner: Joe Sankavich, Bandon, Oregon.

Location: On Poverty Gulch about one-half mile above its junction with Johnson Creek, and in sec.28, T.32 S., R.12 W.

Area: 2 full sized lode claims, and one placer claim.

History: The old stamp mill mentioned in the Port Orford folio (Diller 03) is still on the property, but it is no longer usable. Mr. Divelbiss stated that no work has been done on the property since described by Diller. This property has been relocated a number of times, but no one has been able to make it pay because of the difficulty of amalgamating the gold.

There is a 200 ft. tunnel running in a southeasterly direction together with a 32 ft. shaft. The above information was furnished by Mr. Ernest Divelbiss and Bob Harrison.

"A good 5-stamp mill was early erected in connection with Divelbiss Mine in Poverty Gulch. It is generally idle, so that its output is very small. The ore is obtained half a mile southeast and 500 feet above the quartz mill, with which it is connected by tramway and cabled slope. The mine is an open cut in a steep slope, exposing a very ferruginous seamy quartz mass, containing also much oxide of manganese, on the contact of a form of dacite-porphyry and slates mingled with other igneous rocks which the dacite-porphyry intersects. The black oxide of iron and manganese interferes mechanically to a considerable degree with the amalgamation of the gold. Ira Buzan and several associates operated the mill for a short time in the summer of 1900." (Ref: Diller, 03:5 quoted).

Informant: J. E. Morrison, March 26, 1939.

COPPER KING CLAIMS (Copper, Gold) Powers Area

Owner: John R. Smith and associates, Floras Lake, Oregon.

Location: sec.33, T.33 S., R.12 W.

Area: 3 full size lode mining claims held by location, and known as Copper King Nos.1, 2, and 3. Mr. Smith states that he has made a large number of open cuts tracing the vein for the full length of the three claims.

COPPER KING NO. 1 (Copper-gold)

"One-fourth of a mile west of Mr. John R. Smith's placer ground on Rock Creek in the south central part of T.33 S., R.12 W., is a thick lens of quartz included within serpentine, and which itself enclosed small quantities of the latter. It contains considerable chalcopyrite and the upper portion is seamed with veinlets of malachite and some azurite. A mass of this material measuring about 30 feet long and 20 feet thick is exposed by open cuts. Several prospectors who have examined this deposit consider it as boulder or a large chunk of float which has rolled down from some higher point. There is no doubt, however, that it is in place in the serpentine and represents a "boulder copper deposit" allied to those found farther south in Curry County, but differing notably therefrom in the large quantity of quartz present. This deposit lies about 100 feet east of a big outcrop of dacite-porphyry and may be genetically connected therewith. A general sample taken from all the exposures proved to contain 2.23 percent copper, .05 oz. gold, and .08 oz. silver. Concentration would doubtless produce a fairly high grade product." (Ref: Parks and Swartley, 16:72 quoted).

Informant: J. E. Morrison, March 26, 1939.

EDEN RIDGE COAL FIELD Powers Area

In the southernmost part of the county, about 35 miles south of Myrtle Point, is the structure called Eden Ridge, long known to be underlain by coal. It is mainly in T.32 S., R.11 W. So far as known, this field contains the only bituminous coal in the State.

The field is roughly elliptical in outline with the long axis lying in a northeasterly-southwesterly direction. There are three known beds called, beginning at the bottom horizon, Anderson, Carter, and Lockhart. The Carter is 400 feet stratigraphically above the Anderson, and the Lockhart is 50 feet above the Carter. A possible fourth and lower bed, the Meyers, has been found outcropping only south of the ridge. Lesher states

that it may be coextensive with the Anderson bed. The strata in the field dip toward a central point, thus forming an elliptical basin.

The rocks containing the coal beds belong to the Coaledo formation of the Eocene, as at Coos Bay, and consist of sandstones and shales. A prominent horizon marker in the region is the blue conglomerate which underlies the known coal-bearing strata. It is about 40 feet thick and composed of small pebbles of altered volcanics, chiefly andesitic in character.

The coal has been determined as bituminous in grade, does not slack on exposure to the air, and when fairly clean has a heating value of over 11,000 B.t.u. Some of it is believed to possess coking qualities. Lesher (14:399) states that the coal beds contain material of all grades from clean bituminous coal, with ash as low as 10%, to bone, with 60% ash and carbonaceous shale. "The lenses of coal, bony coal, and bone are from a fraction of an inch to several inches in thickness and grade into one another both vertically and horizontally. The gradation from coal through bony coal and bone to carbonaceous shale is in most places almost imperceptible."

From the incomplete evidence at hand it appears that the high ash content of the coal as mined, due to the presence of bone and bony coal, would probably prohibit its commercial use unless the mined material could be cleaned to make a more acceptable product. Inaccessibility is an additional drawback. However, considering that there has been a very small amount of development work and that the clean coal possesses some excellent qualities, further investigations should be made in order to determine the commercial possibilities of the field. (Ref: Lesher 14:399-418).

INDEPENDENCE MINE (Chromite, gold). Powers Area

Owner: Independence Mining Co.; directors, Frank J. Fish, J.D.Rankin, Clyde Gage, all of Coquille, Oregon; Dr. A. B. Peacock and Claude Giles of Marshfield, Oregon. Mr. Fish acts for the company.

Location: On the east side of Iron Mountain, 20 miles south of Powers by road, secs.19 and 30, T.33 S., R.11 W., and secs. 23 and 24, T.33 S., R.12 W. 45 lode claims held by location. The road from the mine connects with the forest road at Rock Creek.

History: In 1916, Fish Bros and Clyde Gage discovered chromite on ground now known as the Independence Mine. 150 to 200 tons was mined during the war, but due to lack of transportation none of it was shipped, and they received some $3,200 compensation for operation. During the mining of the chrome some high-grade gold float was found, and after the war their attention was turned from chrome to gold. The property has been worked in a small way without any production almost continuously since the war. In the fall of 1938 Mr. Fish secured an order for 600 tons of chrome. An amount estimated at about 75 tons has been piled up at the mine.

Geology: The country rock is gabbro and serpentine. Quartz veins have formed along contacts of these rocks and in places contain rich specimen rock. Chromite occurs as small kidneys in the serpentine.

Miscellaneous Information: Elevation 2,000 to 2,500 feet. Plenty of timber suitable for mining purposes. In December 1938 application

was made for 30 c.f.s. out of Rock Creek. Maximum 12 ft. of snow. $3.80 freight rate on chromite from Powers to Portland. No equipment.

Development work: The property is developed by two tunnels, the lower one of which meanders in a southerly direction for a total length of about 425 ft. including one cross cut. The upper tunnel, which is approximately 25 ft. above the lower one, is about 50 ft. in length. In the fall of 1938, a bulldozer was secured to mine the chromite, and also a number of cuts were made with the bulldozer to show up formation in place above the tunnels. Part of the above information was from personal observation, and the remainder was furnished by Mr. Fish.

Informant: J. E. Morrison, March 24, 1939.

IRON MOUNTAIN MANGANESE — Powers Area

Operators: Lou Royer, Coquille, Ore.; E. W. Spencer, Grants Pass, Ore.; and W. H. Peters, Portland, Oregon.

Location: secs.13, 14, 23, and 24, T.33 S., R.12 W., 21 miles from Powers.

Area: Ten claims, approximately 150 acres

History: Some work was done in 1918 in prospecting for gold. The property has been idle ever since.

Development: 1 tunnel 50 ft., caved about half way in.

Description: No equipment. Elevation 3500 ft. Steep mountain sides. Can be worked all year. Requires 3 miles of road to connect with forest road at Rock Creek at an estimated cost of $3000. Adequate timber and water on property. Maximum snowfall, 5 ft.

Geology: Very near the east boundary of the deposit, there is a contact between manganese rocks and serpentine. The exact location of this contact is not visible due to debris covering it. To the west the manganese rocks gradually give way to diabasic rocks. No outcroppings were seen. There are occasional pieces of float. The tunnel is near the edge of the deposit. Manganese oxides fill the joints and crevices, and pieces of float near the center of the deposit without manganese minerals on the freshly broken surfaces indicate concentration in a superficial zone. The deposit as shown by the float occurs more or less in an oval shape 1000 ft. wide and 2000 ft. long. The manganese minerals are all oxides. No rhodonite was seen.

Informant: J. E. Morrison, 1937.

JUPITER GROUP (Gold) — Powers Area

Owners: Harry B. Hughes, Bandon, Oregon, and W. W. Coy, Powers, Oregon.

Location: This property is located 17 miles southwest of Powers on Sucker Creek in sec.3 or 10, T.32 S., R.13 W.

Area: Five full size lode mining claims held by location.

Miscellaneous Information: The ore is said to be white quartz containing pyrite, galena, chalcopyrite, and free gold. Ore bodies are lenticular; maximum width 1 ft. Country rock is greenstone, probably gabbroic. A number of years ago a shipment of two tons of this ore was made to Selby and gave good returns but was not commercial at that time because of the narrowness of the vein and the long distance which the ore had to be packed to the railroad. There are two tunnels, one 80 ft. in length; the other 45 ft. The above information was supplied by Mr. W. W. Coy, one of the owners.

Informant: J. E. Morrison, March 27, 1939.

NICOLI GROUP (Gold) Powers Area

Owners: Hal Baxter, Coquille, Ore.; E. L. Coy, Powers, Ore.; and W. A. Doak, Powers, Ore.; G. E. Smith, Coquille, Ore.

Location: 21 miles by road south of Powers, Oregon, the last half mile by trail. It is in the E½ of sec.23, T.33 S., R.12 W.

Area: Eight full size lode mining claims held by location.

Development: The development work has been confined to the No.1 Claim which has three tunnels, two of which are caved, and the third, about 250 ft. in length, runs in a westerly direction. One of the caved tunnels is said to run in a northerly direction about 150 ft. The other also runs in a northerly direction and is only about 25 ft. long. Above the 250 ft. tunnel is an open cut about 50 ft. deep.

Geology: Most of the work has been confined to two veins; one runs south 65° west, and the other north 20° west. The intersection of these two veins has produced some high-grade ore. Country rock is gabbro having a great number of small fractures. The ore is said to be about 50% free milling. Minerals present are quartz, calcite, pyrite, and free gold.

Sampling: Eight samples were taken as follows: No.1 shallow open cut exposing a vein 5 ft. wide about 1000 ft. northeast of the main workings, gave the following results: Au .04 oz.; Ag tr. No.2 sample about 600 ft. northeast of main workings, two feet of quartz exposed, gave Au .06 oz.; Ag. 24 oz. Sample 3, surface exposure, approximately 50 ft. northeast of long tunnel 12 ft. wide ran a blank. No.4, 5 ft. wide, .04 oz. gold; no.5, 3 ft. wide, .12 oz. gold; no.6, 1 ft. wide, .72 oz.gold; no.7, 3 ft. wide, .08 oz. gold. A sample was taken from a shallow open cut approximately one-quarter of a mile southeast of the main workings, 5 ft. of quartz and vein matter ran Au .06 and Ag .04.

General Information: There are a small engine, crusher, mill building and log cabin on the property. Elevation 3000 ft. Mountainous topography. Plenty of water for mining operations, and an ample supply of timber. Maximum snowfall 12 ft.

Informant: J. E. Morrison, October 1937.

OLD GOLD LODE CLAIM (Gold) Powers Area

Owner: Robert M. Harrison, Myrtle Point, Oregon

Location: On Poverty Gulch just above the Anchor and Daisy placer, in the SE¼ sec.29, T.32 S., R.12 W.

General Information: This claim was located September 7, 1938, and as yet very little work has been done upon it.

Informant: J. E. Morrison, March 26, 1939.

ROBERTS GROUP Powers Area

Owners: Stanley Fitzgerald, Coquille, Ore.; Lou Royer and Charles Roberts, Powers, Ore.

Location: On south side of Iron Mountain about 2 miles southwest of the Fish Mine, sec.26 T.33 S., R.12 W.

Area: Five full quartz lode claims held by location. Total of 100 acres.

Development: Discovery work only.

Geology: There are exposures of serpentine, peridotite and gabbro. Veins occur along the contacts. None of the present workings has shown any vein wider than a foot. General strike of formation is north 10° west with nearly a vertical dip.

General Information: Elevation is 2500 to 3000 ft. Plenty of timber. Water in Rock Creek for milling and water power. Maximum snowfall 12 feet.
Informant: J. E. Morrison, 38.

ROCK CREEK CLAIMS (Placer) Powers Area
Owner: John R. Smith and associates, Floras Lake, Oregon.
Location: This property is reached by taking the new Powers-Agness CCC road to the top of the divide about 25 miles south of Powers, and from there by means of a trail approximately 3 miles in length along the ridge southwest to Smith's cabin. Legal description is as follows: S½ sec.33; S½ NE¼ sec.33; SW¼ sec.34; and S½ NW¼ sec.34; all in T.33 S., R.12 W., Coos County; also N½ NE¼ sec.4, T.34 S., R.12 W., Curry County.
Area: The ground consists principally of four association placer claims with a total area of 640 acres. Mr. Smith has applied for patent on the four claims; the U.S.Forest Service has protested, and the matter is now awaiting the decision of the Secretary of the Interior.
General Information: These properties haye been worked in a small way and have produced during every season since 1915. All the work has been done by hand. No equipment. The above information was furnished by John R. Smith.
Informant: J. E. Morrison, March 26, 1939.

SALMON MOUNTAIN MINE (Gold, chromite) Powers Area
Operators: U.S.Chrome, Inc., formerly Oregon Chrome & Gold Synd., Powers, Ore.; or 5 S.Wabash, Room 1713, Chicago, Ill.
Location: Secs. 19, 20, 21, and 22, T.32 S., R.12 W.; 10 miles SW of Powers.
Area: 67 located claims.
History: Beginning 1885, the property was operated for 13 winters as a hydraulic placer. The reason for closing was due to insufficient water and short seasons of rainfall. From 1898 to 1936 the property was worked intermittently but without any appreciable production. The present company acquired the property in 1936. Production is thought to be between $75,000 and $100,000.
Development: One hydraulic cut and 4 tunnels, the latter being caved; 3 of the tunnels are short, being less than 100 ft. each; the west tunnel, said to be 870 ft. long, bears N.35° E.
Equipment: 1 truck, 2 caterpillar tractors, 1 Gibson #7 crusher, 1 Telsmith #6 crusher, 1 36" Trommel screen; 1 Gibson rod mill, capacity 100 tons, 2 amalgamating plates, 3 #11 Wilfley tables, blacksmith shop equipment, track, cars, mill buildings, and bunk house. Mill power: 100 hp. Diesel engine, electric generator 5 motors.
Description: Steep mountain sides; country rock is gabbro; elevation 2100 ft.; plenty of timber, and water said to be sufficient to operate mill all year; maximum snowfall 4 feet.
Geology: Diller (03) gave the following geological description of the property in the Port Orford Folio:

"The Salmon Mountain Mine, on the north slope of Salmon Mountain, at an elevation of 2100 feet, is hydraulic, using water with nearly 200 feet head, brought across the divide from the upper part of Johnson Creek. The cut is about 50 feet deep, the same width, and 500 feet long, with a range of 200 feet in height. It is in rather fragmental material of igneous origin,

except at the lower end, where Eocene shales and sandstone occur. Although closed at the present time, it has been worked during the rainy season at intervals for a number of years. When running under good head the mine paid $75 to $100 per day, and the gold is said to be rather uniformly distributed through the whole mass. This fragmental material of volcanic origin forms a bench with small depressions on the steep slope of Salmon Mountain, and appears to be due to a slide.

"The rock is dark, often purplish or greenish, sometimes brecciated, much fractured, and easily goes to pieces. Although much altered, it retains traces of its ophitic structure which connects it with the basalts. Near the upper limit of its exposure, above the bulkhead, it is more solid and is associated with a rock rich in glaucophane, with sandstones and indurated shales bounding it on both sides.

"The gold of the mine appears to be derived from small quartz veins, such as have been prospected in the immediate vicinity. Its intimate association with this igneous rock is exceptional and unlike anything else seen in the region. The branch of Salmon Creek which heads near the mine contains much of the same sort of debris in its bed and yields a small amount of gold annually to several miners."

Diller was there at a time when the hydraulic cut and the tunnels were open for inspection. The only addition to the development work is that the west tunnel has been extended from about 100 ft. to 870 ft. This tunnel is said to have cut a number of quartz stringers, some of them probably of millable ore. About a quarter of a mile east of the open cut there is a bird's-eye porphyry dyke having a north and south strike. Continuing east there are small bodies of serpentine in the gabbro. Some small kidneys of chromite have been found in the serpentine.

Metallurgy: The ore is softer than average, and the flow sheet indicates that it is intended to plate the free gold and develop a high enough grade concentrate to ship to a smelter. Pannings show some free gold. It is expected that the ore will plate about $1 per ton. The mill is to be 100 ton capacity.

Remarks: The property is not a developed mine, but a prospect. W. G. Collins of the Denver Equipment Company has been secured to construct the mill, and it has been so designed that changes in the flow sheet can readily be made. The present plant is powered by gasoline truck engines. Second-hand equipment has been used wherever possible, but plans include the installation of a Diesel electric plant. At the present time, there is no road to the property. Their engineer, Robert Morrison, is surveying a right of way to China Flat on the Coquille River where they will connect with the Forestry road to Powers. After the road is completed, the ore should be mined and milled very economically. Mining is to be done with a gasoline shovel, which is yet to be purchased. The gold is fairly coarse. (Note: Apr.1939 equipment included one 100 hp. Diesel, electric generator and 5 motors).

The U.S.Chrome owns the White Rock Chrome Claims as a part of the 67 claims. Diller (21:35) makes the following statement:

"The White Rock chrome deposit, on Johnson Mountain, about 25 miles south of Myrtle Point, has been operated by the Krome Co. of Portland, Oregon. There are several bodies reported by S. H. Dolbear, and the ore is

said to run as high as 50 percent of chromic oxide and 5 to 6 percent of silica. Several hundred tons were mined, and a part of it packed 9 miles to the end of the railroad at Powers. The Johnson Mountain deposits are near the north end of Iron Mountain, in Curry County, where the peridotite is rich in grains of chromite." These were last operated in January, 1939.

Informant: J. E. Morrison, 37.

SCHILLER PLACER (Gold) Powers Area

Owner: Schiller B. Hermann, 2619 SE Stephens St., Portland, Oregon.
Location: sec.20, 21, 28, and 29, T.32 S., R.12 W. On Johnson Creek about three miles above its mouth.
Area: Seventeen full sized unpatented placer mining claims, 340 acres.
General Information: These claims were located in 1931 and were surveyed by E. L. Vinton, Civil Engineer, of Coquille, Oregon. Only the annual assessment work has been done. Bob Harrison supplied the above information; so far as known, there has been no production.
Informant: J. E. Morrison, March 27, 1939.

THOMPSON MINE Powers Area
Mt.Bolivar District

"The most important copper prospect noted in this region is on the west fork of Cow Creek at the locality known as the Thompson Mine. It has been exploited by several tunnels and inclines and yielded at least 50 tons of ore, chiefly chalcopyrite and bornite. The works were closed at the time of my examination, but the occurrences of so much ore on the dumps apparently shows the existence of ore bodies of considerable size. Numerous prospects have been opened in this mineralized belt between Mount Bolivar and Rogue River, but none of greater promise than that already noted has yet been found". (Ref: Parks and Swartley, 16:221 quoted).

CURRY COUNTY

Curry County lies in the extreme southwestern part of Oregon, is bounded on the south by California, on the west by the Pacific Ocean, on the north by Coos County, and on the east by Josephine County. Its length north and south is 66 miles, its greatest width 36 miles. The area is 1,612 square miles (1,031,680 acres).

Topography: Curry County is generally mountainous, with mountain ridges and peaks of rugged contour forming a part of Klamath Mountain Province. Although the altitude of the higher peaks seldom exceeds 3500 feet, the bases of the mountains are often but a few hundred feet above sea level, making a relief frequently greater than 2000 feet.

Generally the river valleys are narrow with precipitous slopes and, where the rocks are resistant, the streams flow through picturesque canyons, such as those of the Rogue, Illinois, and Elk Rivers.

With the exception of the Rogue River and its tributary, the Illinois, and the North Fork of Smith River which flows southward into California, all streams rise within Curry County and all discharge directly into the Pacific Ocean on the Curry County coast.

The coastal plain and the adjacent marine terraces vary from narrow widths up to four miles wide and usually lie at 100 feet or more above sea level. The chief terrace area is from Port Orford to the Coos County line but narrower coastal plains are found south of Port Orford, especially south of Gold Beach. These plains rarely slope uniformly but are in terraces which represent old seacliffs with remnants of ancient beaches sometimes at their bases. Such wave-cut terraces are found at 500, 1000, and up to 1500 feet above sea level, although the latter are less distinct than those at lower elevations. These elevated ancient sea beaches are of economic interest in that they sometimes contain metallic gold as do portions of the present beach.

The successive uplifts of the land indicated along the coast by the series of raised ocean terraces is reflected inland by the broken erosional cross-sectional profiles of the streams tributary to the Rogue and Illinois Rivers. These valleys usually show a series of two or more high benches or "prairies" above steep canyon gorges developed after the last uplift.

Cultural features: With the exception of coastal regions and along some of the streams, Curry County has extremely few inhabitants. Its population probably does not exceed 4,000. There are no railroads in the county, but the paved Coast Highway extends from north to south, with county and forest roads branching inland for varying distances. A summer road extends from Powers to Illahe and Agness on the Rogue River and south of Agness up the Illinois for about four miles. One from Glendale lies along the north county line, with a branch to the mouth of Mule Creek on the Rogue River. On the south the old Oregon Mountain road now replaced by the Redwoods Highway crosses the southeast corner with short branch roads entering the county from the south. Agness is reached by power launches on the Rogue River, but except for those roads and the river, the rest of the country is accessible only by trails.

Many of the mountain slopes are heavily timbered with various conifers, including pine, Douglas fir, Port Orford cedar and occasional redwoods; much of the area is very brushy. The rough country and heavy brush have retarded prospecting and other development. There is plenty of game, and fishing is excellent.

Geology: The oldest rocks of the region are the Colebrooke schists, classed by Diller (03) as pre-Cretaceous and possibly pre-Devonian. These highly metamorphosed schistose sediments cover large areas in the county, especially north of the Rogue River. Next oldest is the Dothan formation, occurring largely in the eastern and southern parts and consisting of shales, sandstones and cherts. Stratigraphically above the Dothan, but in some localities at least closely associated with it is the Myrtle formation, classed as Cretaceous, and made up of conglomerate whichstands up in prominent bluffs, sandstone, and shale. The Myrtle is more widely distributed in the county than any other formation. Eocene sediments consisting of shales and sandstones as described under Coos County overlie the Myrtle east of Agness, and in places are distinguished from it with difficulty. Coal is found in them on Shasta Costa Creek.

Miocene sediments are represented by small strips of the Empire formation along the coast. Also, as in Coos County, Pleistocene alluvium and marine sands occur in stream valleys and near the coast. Ancient beach sands are found at points several miles back from the present coast line.

Igneous rocks as dikes and flows are represented by four general classes, namely: dacite porphyry, basalt, gabbro, and serpentine. The serpentine has been derived from peridotite and occurs in various stages of alteration. Extensive serpentine areas occur in the Iron Mountain region, around Signal Buttes, along Lawson Creek to Snow Camp Mountain, and from Red Mountain and Chetco Peak south to the State line.

Gold is found in lodes and in stream gravels, as well as in the ancient and present beaches. Native copper and copper sulphides occur chiefly associated with serpentine. Some of the placer gravels contain platinum, presumably derived from serpentinous rocks. Chromite is found in pods and lens-shaped bodies in serpentine; also as one of the components of the black sands in placer deposits. Magnetite occurs as boulder deposits in serpentine and as bedded deposits in Colebrooke schist; one deposit, outcropping between two greenstone dikes east of Horse Sign Butte, has been described (Butler and Mitchel 14) as an impregnation in Myrtle sandstone. Bedded deposits of magnetitie on Wake-up-Riley ridge are reported to be manganiferous.

AGNESS AREA

Geography: The Agness area includes that portion of eastern Curry County which lies east of R.13 W., composed of the drainage on both sides of the Rogue River from the mouth of Bill Moore Creek to Paradise Bar, together with the drainage area west of the Illinois as far south as, and including Colliers Creek. This area includes the Colliers Creek mining district, and is in the east central part of Curry County; it is named after the principal community located on the Rogue River. It is bounded on the west by the Gold Beach area south of the Rogue River, and north of this river by the Lobster Creek district; the northern boundary is the Coos-Curry County line and the Mule Creek area; on the east the boundary is Curry-Josephine County line; and on the south the boundary is the Chetco district.

"The elevation within the area varies from about 120 feet at Agness to more than 4600 feet on the Big Craggies. The climate ismild, the usual summer temperatures being between 60 and 70 degrees. The temperatures in the winter are usually above freezing, but in the higher altitudes are sometimes below zero. The annual rainfall is above 65 inches. In the lower altitudes the snow rarely stays on the ground long, but in the higher elevations it may accumulate for a few weeks.

"The district is forested in part, being within the Siskiyou National Forest. Forest maps showing trails, the general drainage, and other useful information can be had by applying to the Forest Supervisor, Grants Pass, Oregon, or to the United States Forest Service, Portland". (Ref: Parks & Swartley, 16:263).

Transportation: Transportation is afforded by power launch on the Rogue River to Agness and by summer road to Agness from Powers on the north; and by summer road from the mouth of Pistol River on the coast to Wildhorse Lookout on the district's western border. The remainder and greater part of the district is reached only by poor trails.

AGNESS GROUP (Chromite) Agness Area

"Nine claims south of Agness and north of Lawson Creek were visited. Four of these lie in a line trending almost south from Agness and continuing into the Game Lake group. Four others make up a similar line four miles long, lying about two and a half miles to the west of the first. These lie in T.35 and 36 S., and R.11 and 12 W.

"All the deposits appear in zones of sheared green talcose serpentine. Irregular areas of dark brown serpentine with a pitchy lustre, and thin lenses of white siliceous magnesite are frequently found near the deposits. In five of the localities the contact of the serpentine with greenstone, schist, sandstone, or dacite porphyry was within 200 yards of the deposits. At two localities the chromite, besides occurring in small high-grade bodies was found in narrow seams in the zone, as well as disseminated through more massive porcellaneous serpentine nearby". (Ref: Allen, 38:40).

BERRY PROSPECT (Iron) Agness (Collier Creek) Area

Located near the SW corner T.36 S., R.11 W.

Apparently abandoned. Magnetite impregnates sandstone between two greenstone dikes; sandstone-greenstone contacts obscured; ore widths 50-100 ft.; extends down both sides of ridge; large tonnage probable; strike N.20°E.;

dip 50° NW; average sample 51.45% iron; phosphorus, sulphur, titanium, arsenic, and copper absent; water power sites near; transportation difficult.
Informant: J. E. Morrison.
References: Parks and Swartley, 16:32.
Butler and Mitchell 16.

BONANZA KING PROSPECT (Copper) Agness (Collier Creek) Area
Located near Collier Creek, sec.1, T.37 S., R.12 W.
Apparently abandoned. Development, 8 open cuts and shafts; two tunnels 48 ft. and 60 ft. in length - all caved; country rock serpentine: vein minerals, chalcocite, cuprite, native copper, malachite, azurite, a little erythrite (arsenate of cobalt), magnetite; reported that a general dump sample assayed 20% copper, .06 oz. gold, 6.12 silver.
Informant: J. E. Morrison, 38.
References: Parks and Swartley 16:39.
Butler and Mitchell 16:99.

BUNKER HILL GROUP (Copper-cobalt) Agness (Collier Creek) Area
Located one mile west of Collier Butte in sec.20 (?) T.37 S., R.12 W.
Frank Berry, owner, died 1918. Property abandoned.
Country rock serpentine; dacite porphyry dikes; developed by a few small pits. Metallic minerals are magnetite, pyrrhotite, various copper minerals, erythrite (arsenate of cobalt). Deposits are "boulder" and shear zone types in serpentine.
Informant: J. E. Morrison, 38.
References: Parks and Swartley 16:47.

COLLIER CREEK COPPER COMPANY Agness (Collier Creek) Area
(dissolved 1912)
Located about sec.30, T.36 S., R.11 W., south of Horse Sign Butte; apparently abandoned. Frank Berry, chief owner, died 1918. Collier vein strike N.25° E., and two branch veins, Mohawk and Eagle, strike N.10° E., average width 4 ft.; developed by open cuts and one shaft. Country rock serpentine with dacite porphyry dikes. Metallic minerals are magnetite, cuprite, malachite, native copper, and traces of gold and silver.
Informant: J. E. Morrison, 38.
References: Parks and Swartley, 16:57-58.
Butler and Mitchell 16:97.

GAME LAKE GROUP (Chromite) Agness Area

"In this area of about 10 square miles, mostly in T.36 S., R.12 W., 24 claims were visited and studied. One line of claims is a continuation of the north trending line in the Agness group, and two other lines with several deposits in each cross Horsesign and the north fork of Colliers Creek. Many claims in this area were located by following these north trending lines.

"The country rock in the southern half of this area is "buckskin" peridotite-porphyry, and the orebodies lie in jointed but relatively unaltered rock. In the north part of the area the deposits are in highly altered serpentine similar to that in the Agness group. Only a few lie near contacts with other rocks. At one locality a string of small orebodies lies parallel to a dike of diallagite, which averages 2 feet wide and 30 feet long, with crystals over 1/2 inch in diameter.

"The extent of the orebodies cannot be determined, as only location work

has been done on the claims, but they appear to be rather small, although of fair grade." (Ref: Allen, 38:36 quoted).

GOLD BAR MINE (Placer) Agness Area

"This property is located at the old postoffice of Illahe, three-quarters of a mile below the present postoffice of the same name. It is on the northwestern side of the Rogue and is owned by T. W. Billings.

"Mr. Billings states that the first work on the property was done in 1856, and that the present ditch was started 11 years ago by H. J. Russell, who began to mine 7 years ago. The present owner bought the property from Russell's heirs on October 6, 1911, and it has been worked every winter since then. He says he took out $156 in one month the first year, and that during the second year he cleaned up $300 in gold dust, and stored 7½ tons of sand averaging $272 per ton, which was subsequently washed away. During the third winter Post and G. P. Murch tried to use a Sweet gold machine on the property, but the result was unsatisfactory, as there was so much clay in the gravel that the machine became badly clogged.

"That portion of the gravel which has been most extensively mined averages 9 feet thick and is covered with about 4 feet of overburden. It is an old high terrace, and the owner claims that at least 2 other such terraces or channels exist on the property. Several engineers have examined the property, and one named Post claimed that the gravel averages 40 cents per yard in gold. Another named G. P. Murch claimed that it ran only 25 cents per yard. Most of the gold is fairly coarse, and of a flaky nature. The larger pieces are found near bedrock and some of these are worth as much as 25 cents. No attempt to save platinum was made until the winter of 1914-15. During an 80 hours' run made then, a quarter of an ounce of this metal was secured. The bedrock is black Eocene shale, together with some sandstone".

"A thousand miner's inches of water is brought to the property in a ditch. This gives 180 feet to 200 feet fall where Mr. Billings has done most of his work, and 100 feet fall to the higher bars". (Ref: Parks and Swartley, 16:101 quoted).

No additional information.

ILLAHE GROUP (Chromite) Agness Area

"Eleven claims were visited in this area. They lie within the north-trending narrow bands of serpentine mapped by Diller to the west and northwest of Illahe, extending from Two-Mile Creek northwards into Coos County in the headwaters of Rock Creek.

"The country rock is either a sheared green serpentine in the narrow mapped areas, or yellow weathering 'buckskin' peridotite-porphyry in the wider areas, such as the one north of Red Mountain.

"On claims where ore was found in place, it lay in north-trending zones of soft talcose serpentine, in the form of small lentil-shaped bodies, not over 2 feet thick and 8 feet long. One exception consisted of a soft friable ore in a band 15 feet long and 2 feet thick. Most of the claims showed only float of high-grade ore, but in a few places there was also low-grade banded ore. An assay of ore from one property gave 48 percent chromic oxide." (Ref: Allen 38:40 quoted).

IRON HILL GROUP (Iron) Agness Area

"The Iron Hill group includes all the claims on Wake-Up-Riley Ridge, about 4 miles southwest of Agness. The deposits exposed are in schist and are so similar in appearance that only 2 were sampled. Each is developed by an open cut, one being about 600 feet south of the other. One deposit is a typical small lens of manganiferous magnetite, which analyzes 28.43 percent iron, 12.50 percent manganese, 0.72 percent phosphorus, and no titanium, arsenic, copper or sulphur. The other was the best-looking deposit examined. An open cut 5 feet wide, 8 feet long and 5 feet deep at the face was entirely in ore, although the manganiferous magnetite is traversed by numerous quartz seams. A sample from this prospect analyzed 22.87 percent iron, 7.30 percent manganese and 0.56 percent phosphorus, and no titanium, arsenic, copper or sulphur". (Ref: Parks and Swartley, 16:132, quoted).

INDIGO CLAIMS (Chromite) Agness Area

"One of these claims lies on the point between Indigo Creek and the Illinois River, and the other lies directly south on the west bank of the river, in T.36 S., R.11 W. Both are within a few hundred feet of the contact of the serpentine with sandstone and gabbro to the east. A small high-grade body was mined from the north deposit, which lay in a sheared green serpentine. A narrow quartz dike lies above it on the top of the ridge. The southern deposit consists of a small kidney 5 feet thick and at least 5 feet long, striking east and dipping 50° S. Lenses of white siliceous rock also appear above and can be traced for 500 feet south. The ore from these properties assayed 35 and 39 percent chromic oxide". (Ref: Allen, 38:40 quoted).

KESSLER AND FRY'S PROPERTY (Copper) Agness Area

Located about in sec.22, T.36 S., R.12 W.

Apparently abandoned. Country rock serpentine cut by a dacite porphyry dike about 100 feet wide. There is a 50-foot tunnel which strikes S.34° W.; no ore is exposed but some copper-stained material was seen in wash near the tunnel and big chunks of good ore lie on flats below. Wm. Kessler died years ago.

Informant: J. E. Morrison, 38.

Ref.: Butler and Mitchell, 16:98.

MANGANESE PROSPECT (Manganese) Agness Area

Location at Copper Canyon or Painted Rocks three miles of trail down the Rogue River from Agness. A manganese ledge which strikes N.50° E. crosses the river at this point.

Near the water level a tunnel now caved was driven on the deposit many years ago. A big boulder outcropping near the portal was sampled and yielded 9.6% manganese. This ledge can be traced up the mountain a distance of one-fourth of a mile; and seven or eight hundred feet above the river near the top of the ridge another sample of the ledge representing about a two-foot width was taken which contained 9.4% manganese. Walter Fry says that this manganese ledge can be traced for long distances, especially in the northeast direction. It has an average width of not more than five feet.

Informant: J. E. Morrison, 38.

NIGHT HAWK PROSPECT (Gold) Agness Area

"This prospect, which is owned by Frank Fry and C. W. Sinninger, occurs at an elevation of about 1750 feet as determined by the barometer, about 4 miles southeast of Agness on the ridge between the Illinois River and Indigo Creek.

"The deposit is a sheared and brecciated zone in a very basic greenstone which is partially altered to serpentine at some points. The ore consists principally of pyrite which occurs in kidneys or nodules irregularly distributed throughout the zone. These rounded masses are very hard and solid, and some of them are a foot or more in diameter. Attention was first attracted to the deposit by a bluish-green efflorescence which appears on the surface of the rock in wet weather. No free gold has been found in this prospect, and an assay of one of the nodules of solid pyrite yielded not a trace of that metal." (Ref: Parks and Swartley, 16:162 quoted).

PINE FLAT MINE (Copper) Agness Area

"The Pine Flat mine is located in the N½ of sec.26, T.35 S., R.12 W., in the Pine Flat copper district, which is situated about 4 miles southwesterly from Agness on the ridge which farther to the south is known as Wake-Up-Riley ridge, and is of Colebrooke schist, serpentine and conglomerate.

"The copper occurs as thin seams and stains of malachite in jointed and sheared serpentine, near and below the dacite-porphyry. The latter strikes N.80° E. and dips 32° SE. Two short tunnels have been driven along the serpentine-dacite-porphyry contact, and several open cuts have also been made along the same horizon.

"The whole occurrence bears a strong resemblance to the shear-zone deposits in the Collier Creek district. Whether any high grade ore was found is unknown. A general sample of the ore on various dumps yielded 9.87 percent of copper and traces of gold and silver". (Ref: Parks and Swartley 16:180 quoted).

STEPHENS AND STEAR PROPERTY (Gold) Agness Area

"This property, which is owned by Mr. Stephens and Charles Stear, is situated about 3000 feet north of the Night Hawk about 4 miles southeast of Agness. It has been developed by means of a tunnel which is said to be over 300 feet long, but was locked at the time the examination was made. The dump is of such size as to indicate that considerable development work has been done. From material on the dump, it seems probable that the deposit consists of relatively narrow white quartz stringers through a sheared or brecciated zone, which is said to be more than 20 feet wide in some places. The country rock is mostly greenstone, but there is some serpentine on the dump, and it is evident that both rocks are penetrated by the workings. There is so much wash on the surface that the relationship of these could not be determined. Some calcite and a little pectolite and red hematite are present on the dump, but it is evident that these are not common. The quartz is said to occasionally show free gold, and it is also claimed that gold can be panned from it at many points. It is reported that this property was last worked in the spring of 1915." (Ref: Parks and Swartley, 16:213, quoted).

WINDY VALLEY GROUP (Chromite) Agness Area

These claims lie mostly within the Agness Area, on the east side of the ridge bounding Windy Valley on the east. Two claims lie on the west side of the valley, in the Gold Beach Area.

"Seven claims east of Windy Valley in T.37 S., R.12 W., lie in two north-trending lines, about half a mile apart. Little work has been done, but the ore-bodies that appear are of fairly high grade, although probably small. Most of them lie in sheared zones in serpentine; four of them lie within a few hundred feet or less of chert and quartzite inclusions in the serpentine, or acidic intrusions". (Ref: Allen, 38:36 quoted; Parks and Swartley, 16:54).

CHETCO AREA

Geography:

The Chetco area includes all of southern Curry County drained by the Chetco, Winchuck and Smith Rivers and their tributaries, and the coastal streams as far north as Colgrove Butte and Seal Point (two miles south of Carpenterville). This area includes the China Diggings, Gold Basin, Mount Emily, Smith River, and Tincup Creek mining districts.

Brookings and Harbor on the coast are the only towns. The district is heavily forested. The climate is mild, usual summer temperatures being 60° to 80°. Temperatures in winter are above freezing on the coast and fairly severe inland. Annual rainfall is 60 to 70 inches. In the lower altitudes, snow rarely stays on the ground long, but in higher elevations, it may accumulate to considerable depths and stay on for several months.

Transportation:

The paved Coast Highway passes through the district from north to south and a forest road with two branches extends into the district from Brookings; short roads extend from California into the district from the south. The rest of this large area is accessible only by rough trails.

Geology:

Sedimentary rocks are predominantly shales, slates, and fine-grained sandstones into which, in the neighborhood of Mt. Emily, rhyolites have been intruded. There are several varieties of greenstone and a great deal of serpentine and related rocks, which extend in wide north-south bands. A small granitic intrusion appears in the extreme southeastern corner on Diamond Creek.

Gold and platinum are found in placers, and gold ores are usually found in greenstone near or along serpentine contacts. Chromite occurs in serpentine. Occurrences of molybdenite, together with cobalt and nickel minerals have been noted.

BALD FACE MINE (Chromite) Chetco Area

Owner: Rustless Mining Co., Sacramento, California.

"Located in SW¼ sec.36, T.40 S., R.11 W., at end of spur from Wimer road, 2 miles north of Sourdough guard station on Baldface Creek, Curry County.

"The country rock is a dunite, tending to be massive near the zone in which the orebodies lie. There is no green talcy serpentine present (as in other Curry County deposits), and the ore lies in solid and rather coarsely jointed rather than in finely-broken rock. The deposits are banded rather than kidney-like, the bodies being very long and narrow, and are offset several times, lying en echelon in the zone. The zone appears to be bounded on the west by an especially resistant ridge of peridotite-dunite which stands up in cliffs and pinnacles.

"The ore-bearing zone has been developed by pits, cuts and adits along a horizontal distance of about 1300 feet, and extends another 700 feet southeast to the bed of Baldface Creek and may go farther. The ends of the observed

zone are 2000 feet apart, and the difference in their elevation is 800 feet. The zone and the rock structures strike northwest (on an average) and dip 45-50° to the northeast.

"The orebodies vary in width from narrow seams up to over 8 feet, the average width as disclosed in the larger cuts being 5 feet. Of this width, perhaps 3 feet is of medium-grade ore and 2 feet of higher-grade ore, the latter occurring in bands up to 1 foot wide within the former.

"Figures supplied on tonnage shipped in 1918 give 700 tons of unsorted (40-42 percent chromic oxide) ore; and a small amount of hand-picked (49 percent chromic oxide) ore. Ore-piles at present total 75-100 tons of unsorted ore.

"The Sourdough forest road from the old Wimer Road extends to the deposit. If the bridge over the north fork of Smith River is completed, ore could be trucked to the town of Smith River over a forest road (32 miles) and to Brookings (45 miles). At present the ore can be trucked 33 miles to the Redwood Highway at Waldo Junction, and 40 miles to Grants Pass". (Ref: Allen, 38:35 quoted).

BLACK BEAR (Manganese) Chetco Area

Owner: Thomas Cronin, Crescent City, California.
Location: N½ sec.14, T.41 S., R.11 W., about one mile S. of Sourdough Camp.
Area: Three claims, held by location, recorded at Gold Beach, Oregon.
History: Known as the Black Beauty during the World War, at which time some ore was shipped from this property.
Development: 20 feet of adit and numerous cuts, done during the 1918 activity. Assessment work only since then; there is a road to the property.
Geology: Dothan slates. Ore is reported to assay from 20%-70% manganese oxide. The operators plan to install a mill during the summer of 1940.
Informant: Thomas Cronin, March 27, 1940.

"This is located on the east side of the north fork of Smith River, at an elevation of 1400 feet; it lies in southeastern Curry County about one mile north of the State line. It was located in 1918 by John Taggart, James Keaton, and Reeves Costello and relocated in 1924. Its present ownership is in doubt. The deposit appears to be a replacement body along a brecciated zone in Dothan chert and jasper.

"The surface outcrop on the slope of the hill is 65-70 feet in width and runs 150 feet or more in a direction N. 35° W. The ore minerals are pyrolusite and manganite. The oxidized zone extending to the depth of exploration (15 feet) has considerable wad. The gangue consists of suspended chert fragments and porous silica. The ore is reported to be of high grade, namely 72% manganese dioxide, but so far as may be seen from the exploration such high-grade ore occurs only in small masses; with depth, however, the chances for high-grade ore appear good. The development is small and consists of a cut and tunnel extending 30 feet to the east from the face of the hill; one short cross-cut extends to the north of the open cut. Observation indicates that the orebody dips about 60° southwest. A cabin has been built south of the workings."

Note: This brief report was written many years ago by John H. Maxson, geologist, at California Institute of Technology, Pasadena. The present owners are G.T.Lewis, 5935 NE 16th Ave., Portland, Oregon, and associates.

CHETCO CLAIM (Chromite) Chetco Area

"This deposit lies 1½ miles by trail north of the Chetco River crossing at Tolman's ranch near the center of sec.10, T.38 S., R.12 W.

"The deposit occurs near the center of the south end of a serpentine band 1000 feet wide, which extends about half a mile north up the ridge. The workings are less than 500 feet from the contact in any direction but north.

"The ore appears in four localities lying in a north-trending line. A chromite boulder 2 feet square lies 10 feet from the southern contact of the serpentine with a thin-bedded sandstone. To the north 300 feet eight trenches and open cuts expose two ore bands which seem to trend northeast. One of them is at least 4 feet wide and 30 feet long, and the other is not so wide or regular, but is possibly 50 feet in length. Near one of these cuts a large boulder of chromite contains crystals of partly resorbed diallage as large as 1½ inches in diameter, completely surrounded by the ore. Two small cuts 50 feet north of here show chromite on their dumps, and 200 feet north the main workings, which consist of eleven cuts of various sizes, expose an ore zone 150 feet long.

"The zone trends southeast, and at that end the ore is 15 feet wide and dips 55° N. To the northwest 75 feet, the ore is 8 feet thick, but from here on the main body breaks up into a number of bands and finally splays out in small stringers. Some small float was found 400 feet still farther north". (Ref: Allen, 38:35-36, quoted).

CHETCO COPPER COMPANY (Copper) Chetco (China Diggings) Area

"This company's property is located 8 miles west and a little north of Kerby, close to the Josephine County line. It was not visited, but Diller refers to the property as follows:

'The same serpentine belt with which the copper deposits are associated on Fall and Rancherie creeks extends southwest by the head of Canyon Creek to Chetco River, where a number of similar deposits occur and have been prospected by the Chetco Copper Company and others, by tunnels aggregating more than 250 feet. The ore appears to be mainly chalcopyrite, but Dixon's prospect has furnished some native copper, and some remarkably beautiful specimens of the bright red oxide of copper, cuprite, in minute cubic crystals. A small amount of ore is said to have been shipped from the locality'.

"The company was dissolved January 7, 1911." (Ref: Parks and Swartley, 16:53 quoted).

EMPIRE PROSPECT (Gold) Chetco (China Diggings) Area

"This property lies about a quarter of a mile south of the Golden Dream claim, which is at the head of Slide Creek. It is owned by W. G. Cooley and Ben Miller, of Harbor. It was not visited, but the deposit is said to consist of quartz stringers in porphyry (greenstone?). It is said to have been worked for at least 14 years, and was being actively developed during the summer of 1915. It is claimed that at least 2 feet of free milling gold ore averaging $12 a ton is exposed." (Ref: Parks and Swartley, 16:91 quoted).

FLORENCE PROSPECT (Zinc) Chetco Area

"The Florence prospect was located March 4, 1914, and is owned by Charles M. Warren. It is situated just below the crest on the northern slope of Mount Emily. The deposit is along the contact between the metamorphosed Dothan sediments and rhyolite. The hornfels resulting from the metamorphosis of the Dothan shale has been crushed, sheared, and silicified at this point, and in the crevices thus formed sphalerite and pyrrhotite have been deposited. The total width of the mineralized zone is about 8 feet; the strike is N.35° E., and the dip 75° SW. A sample taken across this mineralized zone proved to contain 3.57 percent zinc and a trace of gold, while a sample consisting largely of pyrrhotite yielded but a trace of gold. It is certain that this ore would yield a high-grade zinc concentrate, but the only opening on the vein consists of an open cut, and it is decidedly uncertain how extensive the deposit will prove to be. It seems likely, however, that the sulphides will be confined to points along the contact where an unusually great degree of crushing has occurred, and this will tend to give the deposit a 'pockety' nature.

"An eighth of a mile west of Florence prospect, across a small gulch, is a cliff the face of which is heavily iron-stained and covered with pot-holes. It proved on examination to consist of a brecciated mass of rhyolite containing rounded cavities and seams filled with pyrite and quartz. A sample of the sulphide yielded not a trace of gold, however". (Ref: Parks and Swartley, 16:94 quoted).

FRAZIER PROPERTY (Gold) Chetco (China Diggings)Area

No name - referred to as the Frazier property. Lucky Girl and Big Joe owned by J. M. Frazier of Selma, Oregon. Perseverance and Patience owned by J. H. McClung of Grants Pass, and J. M. Frazier.

Location: One mile south of Robert E. mine and twenty-two miles from Selma, in sec.26, T.38 S., R.10 W., on south side of Babyfoot Creek at an elevation of 3,000 feet.

History: A pocket was discovered by Messrs. McClung and Sanford in 1935 which produced $12,000 to $14,000. Sanford sold to Frazier August 1936. The production for 1936 was $500; for 1937, $150; and very little in 1938.

Equipment: Braun Assay Crusher, Gibson prospecting mill, Roehl Concentrating table, and two 1½ hp. gas engines.

General Information: Twelve feet of snow, steep mountain topography, plenty of timber and water. 2½¢ per pound packing charge from McCaleb ranch.

Geology: All four claims lie along the serpentine contact. However, this contact has not produced all the gold on these claims. On the Lucky Girl there is talc and crushed material produced by a slide. This material yields some gold; above this slide there is no trace.

Development: Two short tunnels and seven open cuts, which show up the contact.

Informant: J. E. Morrison, 38.

GOLD BASIN PLACERS Chetco (China Diggings) Area

Diller describes the deposits here as follows:

"About the head of Tin Cup Creek, fifteen miles northwest of Kerby there is a V-shaped remnant of the Klamath peneplain known as Gold Basin on a large

mass of granodiorite. The apex of the V points east, and across its southern arm is a broad, shallow valley filled by an old stream bed running approximately N. 20° W. The surface plain of the stream bed is more than 1000 feet in width and 2000 feet in length, and is limited at both ends by deep, rugged canyons. The gravel has a thickness of 110 feet where best exposed on the steep southern slope. Near the bottom the gravel, though somewhat decomposed, is more or less firmly cemented, and this condition exists throughout the mass. It has been tunneled on bedrock for thirty feet. The material is generally coarse, mostly cobblestones up to boulders 4½ feet in diameter mixed with pebbles and sand. There are no layers of sand to afford definite evidence of stratification. The pebbles are well rounded and are for the most part composed of basic eruptive rocks, greenstone, gabbro, peridotite and pyroxenite, with some of granite. Though generally greenish, they are in places colored reddish by a surface deposit of oxide of iron. The top portion of the deposit is finer, with some fine gravel, capped by a reddish soil. Wherever I saw the pebbles in place the course of the stream was not clearly indicated by their position, though they appeared to be inclined southward, and it is believed that the stream came from that direction. The gravel was tested in 1875 or 1876 by sinking a shaft (now filled with water within twenty feet of the surface) and found to contain very little gold. Most that was found is said to have been in the fine material of the surface.

"The only available water is snow water, which is obtainable only in small amounts during a short season. It is gathered by a mile or more of ditch, but reaches the mine with scarcely 15 feet of head, and only a small amount of gravel was mined before work was suspended". (Ref: Parks and Swartley, 16:101-102 quoted).

GOLDEN DREAM (Placer) Chetco (China Diggings) Area

Listed in Parks and Swartley:16 as the Higgins Mine. This is not the mine known locally as the Higgins Mine, although Mr. Higgins once owned it.

Owner: Ed Barlocher and Ed Cox of Grants Pass, Oregon.

Location: 17 miles west of Selma. 12 miles of forest road down the Illinois River to McCaleb Ranch, thence five miles by trail to the head of Slide Creek (north side), shown on foresty map to be in sec.12, T.38 S., R.10 W. One claim of 40 acres.

General Information: Elevation 3300 ft.; mountainside topography; no timber on property but plenty nearby; packing cost from McCaleb Ranch 1½¢ per pound. Maximum snowfall is 12 feet; short mining season of probably two months in fall and one in spring; during January to March water in ditch freezes. A ditch 1½ miles long collects water from the hillside and from one of the gulch's tributaries to Rancherie Creek to provide water for one giant. No water right.

Equipment: About 1000 feet of six-inch pipe and a giant.

Geology: Gold occurs in talcose minerals along a serpentine-greenstone contact.

Informant: J. E. Morrison, 38.

Reference: Parks and Swartley 16:120 quoted.

GOLDEN EAGLE CLAIM (Gold) Chetco (China Diggings) Area

Owner: Mrs. F. O. McClanahan, Selma, Oregon.

Location: sec.24, T.38 S., R.10 W., one-quarter mile north of Web Foot Group, five and one-half miles from McCaleb Ranch, which is 12 miles west of Selma, Oregon.

General Information: One claim held by location. Elevation 3500 ft.; maximum snow 12 ft.; plenty of timber and water for mining purposes. At present stripping along the contact is being done with a fire hose under about 80 ft. head.

History: Located July 1936, and worked continuously in a small way to date.

Geology: Country rock is altered greenstone to a depth of about 40 feet. At this horizon, a flat-lying gouge separates this upper altered greenstone from a lower, harder material, possibly dacite. Quartz stringers cut the altered greenstone and values are found in the quartz as well as the gouge below.

Mining and Development: Present method of mining is to remove the upper material and then run the gouge material. The quartz stringers are also mined separately. During the last season a pit, about 150 ft. by 200 ft. and 40 ft. deep, was made. This spring the upper side of the pit caved in and at present it covers the larger part of the bottom of the excavation.

Equipment: About 1500 ft. of 2-inch galvanized pipe (drain pipe),100 ft. of 4-inch firehose, and miscellaneous hand equipment.

Informant: J. E. Morrison, 38.

HAMAKER (Paul) GROUPS (Gold, manganese, chrome) Chetco Area

Owner: Paul Hamaker, Oregon Hotel, Grants Pass, Oregon.

Location: On the headwaters of Babyfoot Creek, a branch of the Chetco River, in sec.31, T.38 S., R.9 W.

Deposits of rhodonite containing manganese oxides are reported. It is stated that a crosscut has cut these oxides for 85 feet without reaching a wall. Disseminated chromite with bunches of shipping grade is said to be exposed.

Informant: Paul Hamaker.

HILL TOP GROUP (Gold) Chetco Area

Owners: Paul and Lloyd Hamaker, Kerby, Oregon.

Location: On ridge between Babyfoot and Carter Creeks about one-half mile west of Babyfoot Lake, in sec.36, T.38 S., R.10 W. Estimated to be 5 miles to road on Josephine Creek and about 12 miles west of Kerby.

Area: Three claims held by location, 60 acres.

History: Paul Hamaker located Hilltop claim April 10, 1934. Hilltop No.2 was located August 6, 1937 (grubstake claim). No record of No.3 claim in recorder's office.

Geology: Greenstone country rock. No veins were seen at time of visit. Two samples have been submitted by Mr. Hamaker. It is impossible to determine where these samples came from.

Samples: Hilltop No.2 - 12 ft. - Au. .06 - $2.10 Ag. trace
Hilltop No.2 - 30 in. - Au. .11 - $3.85 Ag. .04 $.03

Informant: J. E. Morrison, 38.

LUCKY WARREN PROSPECT (Molybdenum) Chetco (Mount Emily) Area

"This deposit is owned by Mr. Charles M. Warren, and is situated a short distance south of the crest of Mount Emily. The deposit is similar in nature to that on the Florence claim, but the mineralized streak is narrower, and the interstices between the fragments of hornfels contain molybdenite. A sample across the whole ore body yielded on analysis 3.10 percent molybdenum.

"Another peculiarity of this deposit is the presence of considerable hornblende, which was not seen in the Florence prospect. The mineralized streak is said to yield high gold values when panned, but a sample proved, when assayed, to contain not a trace of gold". (Ref: Parks and Swartley, 16:145 quoted).

PECK MINE (Gold) (Old Name: Bacon Mine) Chetco (China Diggings) Area

"These groups were not visited, but Diller describes them together as follows:

'Recent strikes of the Higgins mine have greatly invigorated prospecting in that region, and numerous claims have been located near the same horizon to the south on Miller Creek and Babyfoot Creek, tributaries of the Chetco.

'The Miller and Bacon prospects are on the ridge between Miller Creek and Babyfoot. At the northern foot of this spur, along Miller Creek, a mass of serpentine strikes nearly east and west and cuts the volcanic greenstones which form the body of the ridge. The greenstones are well exposed in the great bluffs overlooking Babyfoot, and are intruded by smaller masses of serpentine, off-shoots of the larger masses which lie at some distances on both sides.

'Considerable quartz occurs in irregular veins or bunches in the greenstone, especially near the contact with serpentine, where it is impregnated with chalcopyrite and pyrrhotite. The veins strike in general about N.60° E. and dip SE. Their gold content is not evident, though it is said that assays show a considerable amount. The gold at present remains in the decomposed and rotten rock ready to be released by sluicing.

'In the Miller Group of ten claims a portion of the contact has been sluiced. A ditch is being opened from Miller Creek to the crest of the divide at an elevation of about 2,760 feet, for the purpose of sluicing available auriferous residual material clinging to the slopes on both sides of the spur.'

"Although Diller does not mention the fact, it is evident from his map that the Bacon group is on the Miller Creek side of the divide, while the Miller group is on the Babyfoot slope, about a mile southwest of the Bacon claims". (Ref: Bacon and Miller Groups, Parks and Swartley, 16:19 quoted).

ROBERT E. MINE (Gold) Chetco Area

Owner: U.S.Government. Property is for sale. Interested parties should communicate with the Collector of Internal Revenue, Portland, Oregon, or Medford, Oregon.

The property is described in detail by Shenon, 31:51-55. It has not been operated since about 1930. Production over $100,000 from high grade ore. All workings are inaccessible at present and the mill building is in a very poor state of repair. The rest of the buildings are tent houses. Packing to McCaleb Ranch costs 2¢ per pound.

The Anderson Ranch referred to in the last paragraph on page 51 (Shenon:31) is now known as the McCaleb Ranch.

Equipment: 5 ft. Huntington mill
12 hp. engine
3 hp. engine
1 small crusher
Informant: J. E. Morrison, 38.
Reference: Shenon 31-2:51-5.

STONE FOOT CLAIM — Chetco (China Diggings) Area

Owners: Clarence and Archie Alverson, Selma, Oregon
Location: Adjoins Golden Eagle claim on the west in sec.24, T.38 S. R.10 W., 5½ miles from McCaleb Ranch, which is 12 miles west of Selma.
History: Located in fall of 1936. Development consists of location and assessment work.
General Information: One full claim held by location. Maximum of 12 ft. of snow. Plenty of timber and water.
Deposit: Quartz stringers in andesite porphyry.
Informant: J. E. Morrison, 38.

WEBFOOT GROUP (Gold) — Chetco (China Diggings) Area

Owners: Earl T. and Marian White, Selma, Oregon.
Location: On Eagle Creek, sec.24, T.38 S., R.10 W., 12 miles U.S.F.S. road and six miles of trail west of Selma, Oregon.
History: Webfoot 1 and 2 claims located in 1936 by Alverson Brothers, and were purchased by present owners in 1937. Mrs.White located Webfoot no.3 in 1937. No production. Three full claims held by location.
General Information: 12 ft. of snow maximum, mountainous topography; water will have to be developed; plenty of timber. Aneroid elevation 4,000 ft.
Informant: J. E. Morrison, 38.

YOUNG MINE (Gold) — Chetco (China Diggings) Area

The Young Mine is the most southerly mine in the China Diggings group. It is owned by Mr. R. D. Young of Mill Valley, California. It is reported that he took out a thousand dollar pocket in 1937. This pocket was not found on the contact but in the porphyry. There is no equipment on the property, and there is a very poor trail from the Yellow Jacket Mine to the Young property, a distance of about one and a half miles. The mine is located on top of the ridge at an elevation of about 4200 ft.
Informant: J. E. Morrison, 38.

YELLOW JACKET CLAIM (Gold) — Chetco Area.

Owner: R. D. McCartney, Bandon, Oregon.
Location: One-half mile south of Robert E. mine across Babyfoot Creek. Sec.23, T.38 S., R.10 W. Elevation 2500 ft.
Miscellaneous Information: This ground held for a number of years by location. No production, and no equipment.On serpentine contact. Two shallow open cuts.
Informant: J. E. Morrison, 38.

GOLD BEACH AREA

Geography:

The Gold Beach area includes all the drainage of the Pistol River, Hunters Creek and their tributaries, and the coastal streams as far south as Colgrove Butte and Seal Point (two miles south of Carpenterville); and that portion of Curry County lying south of the 8th standard parallel (south of T.35 S.) and west of R.12 W. This area includes the Signal Buttes and Pistol River mining districts.

Hills and mountains extend almost to the ocean's edge, except for comparatively narrow beach deposits for a few miles north and south of the mouth of the Rogue River, and at the mouth of Hunter Creek and Pistol River. The main interior part of the district is rugged. Maximum elevations are in excess of 3000 feet.

The principal towns are Gold Beach and Wedderburn, one at each side of the Rogue River near its mouth. The paved Coast Highway extends through the district from north to south. There are county roads on both sides of the Rogue River for a few miles from the coast, and a long road branches from the Coast Highway at Pistol River and crosses the district in a northeasterly direction. Only short branch roads are found elsewhere. The rest of the district is served by trails.

Geology:

The rocks of the district are sandstones, shales and conglomerates close to the coast line, while the older rocks farther inland are mostly of the basic igneous type, including serpentine. Mining is confined largely to the placer deposits of the present beach lines and older elevated beaches near the coast. The sands making up these old beach deposits are in many places largely black sands, the black minerals being magnetite, ilmenite and chromite, all of which are very resistant to weathering and which have come from the weathering and erosion of rocks distributed over the wide drainage area of the Rogue River and other rivers. Values in gold and platinum are found in different places in these black sands, which have been mined in a small way with varying success in different parts of the district, as well as at other points on the Coos and Curry coast.

COLLINS MINE (Beach placer) Gold Beach Area

"During the winter of 1914-15, A. M. Collins, of Agness, worked a black sand deposit on ground owned by the Wedderburn Trading Company, about 4 miles north of Wedderburn. He says the deposit is in an old beach about 30 feet above the present water level, and consists of from 12 to 18 inches of nearly pure black sand containing good gold and platinum values, with several feet of lower grade material above, which was separated from the lower streak by 2 to 3 feet of low-grade gray sand. He caught the gold on canvas tables, and in spite of the fact that he had to pay 30 percent royalty to the owners of the ground, he succeeded in making good wages throughout the winter." (Ref: Parks and Swartley, 16:58 quoted).

In October, 1938, E. Kingwell, of 1405 Summer St., Salem, Oregon, was working the mine using a 50-ton amalgamator. This is an experimental operation and at that time had not progressed far enough to determine results.

RED FLAT PLACERS Gold Beach Area

Owners: Carl Smedberg and associates, Gold Beach, Oregon.

Location: The Red Flat Placers are located in secs.18,19, and 30, T.37 S., R.13 W., and secs.13 and 21, T.37 S., R.14 W., about 8 airline miles southeast of Gold Beach. The property can be reached by going south from Gold Beach to Pistol River, then taking Pyramid Rock Lookout road for sixteen miles, with increase of 2000 feet in elevation. Barometer elevation at property is 3500 feet.

Property: There are nine association placer claims of one hundred sixty acres each and known as the Red Gold Assocation Nos.1 to 9 inclusive.

Facilities: There is no timber on the claims, but plenty of timber is available a few miles to the west. There are a number of small springs on the Flat for domestic water, and plenty of water available in Hunter Creek and Pistol River for commercial use.

Geology: The Red Flat Placers are so named because the residual surface material is a bright red color, due to the large iron oxide content. The product of erosion on either side of the deposit is not red, so a fairly distinct boundary line is seen. This adjoining country rock is serpentine and there appears to be no distinctive difference in the rocks to the west or east of the deposit. The Red Flat material is a residual deposit, apparently with no outcrops of material in place. The terrain being fairly level, the products of weathering are nt carried away. The deepest prospect hole, now caved, is said to be thirty-two feet deep and all in loose material.

Sampling and Assaying: Carl Smedberg, one of the owners, stated that "fire assays would not recover the values; that a wet assay is required." Smedberg pointed out a good place to take samples, and one was taken after digging a hole three feet deep into the loose material. The few loose rocks were saved and assayed separately with values of 70¢ gold per ton. The red material taken from top to bottom of the hole assayed no values in gold or silver. Several hand specimens were taken of the serpentine and assayed, but no values in gold or silver were found. It is reported that the operators of Red Flat Placers have their samples assayed by a wet method by Paul Smith Laboratories of 9315 Pico Blvd., Los Angeles, Cal. These assays, dated July 18 and Sept. 9, 1933, claim $20.00 in gold, $6.00 silver, $20.00 nickel, and $20.00 in platinum and allied metals A sample of black sand from this locality submitted by Mr. T. Edwards assayed 40.9 percent chromic oxide and 0.055 percent mercury.

Informant: J. E. Morrison, 37.

SIGNAL BUTTE GROUP (Chromite) Gold Beach Area

Located in secs.25, 30, T.36 S., R.14 W., and secs.28, 29, 30, 31, 32, T.36 S.,R.13 W., and sec.1, T.37 S.,R.14 W., and secs. 5,6, T.37 S., R.13 W.

"Thirty-five claims, scattered over about 5 square miles around Signal Buttes, were visited and several of them studied in detail.

"The Signal Buttes district is one of considerable geologic complexity. The serpentines were intruded into a series of shales, sandstones, banded cherts and quartzites. The dense highly siliceous members such as cherts and quartzites seem to have been left relatively unaltered; sandstones were replaced in all degrees, and shaly sediments seem to have been more or less completely replaced over large areas with only occasional remaining patches , now altered to schist. The "buttes" themselves are later volcanic plugs and

great dikes, which came up along the rectangular lines of weakness which are prominent in the area, and they now stand up as a number of pinnacles and bosses.

"Nearly all the orebodies lie in wide zones of more or less completely altered serpentine, which appears as a soft, finely divided and flaky (or clayey when wet) mass, probably in great part talc, chlorite, and various serpentine minerals. Within these zones are stringers of sandy chromite, which occasionally widen to form the orebodies. Chromite grains also are often scattered through the zones. Magnesite and quartz lenses and stringers of secondary origin are not uncommon.

"These zones may be traced by the strings of small chromite float that weathers out along them. South of Signal Butte, the south-trending ridges are cut by east-west trending soft zones. These soft zones have eroded to form a series of the south-trending ridges. The zones are so wide that the more resistant serpentine often stands as pinnacles. These pinnacles occur in regular lines, parallel to the zones, in several areas. North-south trends of the lines of float are prominent in the area around Signal Butte, as well as farther north. To the northeast the lines run east-west.

"A vertical section through one prospect cut shows bands of harder serpentine (1) in the altered zone. Areas of a light green, flaky serpentine with numerous small soft white pellets of magnesite or chromite occur as narrow stringers and small kidneys (3) in this cut and elsewhere, all lying in the altered zone material.

"In several places banded green chert seems to form the hanging wall of the altered zone, and can be traced for several hundred feet. Its contact with the peridotite grades through a zone of magnesite, and the latter penetrates the serpentine, in a dense network of thin stringers and filaments, for several feet.

"The orebodies south of the Butte are uniformly small, rarely being over 5 feet long and 2 feet wide, and not very closely spaced. The assays show about 50% chromic oxide.

"One deposit had an orebody 20 feet long, 8 feet thick, and 15 feet on the dip. It strikes N.70° W. and dips 30° S. The body is rounded at the edges, and lies near the center of a zone of soft green talcose serpentine, with iron-stained seams and chromite grains scattered through its entire width of 60 feet. A discontinuous 10-foot ledge of quartzite forms the footwall of the zone 30 feet below.

"The ore from eleven of the deposits in the Signal Buttes area averaged over 50 percent chromic oxide; from 14 to 18 percent iron protoxide; and from 3 to 9 percent silica". (Ref: Allen 38:37,40 quoted).

SMEDBERG BEACH PLACERS (Gold) Gold Beach Area

Old Names: Rock claim, also the Idaho.
Owner: Carl Smedberg, Gold Beach, Oregon.
Location: On beach one mile south of Gold Beach in sec.1,T.37 S.,R.15W.
Area: Mr. Smedberg owns 600 feet along the beach and extending from the beach to the Coast Highway.
General Information: An experimental plant has been set up which is powered by a 30 hp. caterpillar engine. The sand is mined with a

6-inch centrifugal dredge pump from which it goes over a grizzly. The plus $\frac{1}{2}$" goes to waste, through a long sluice box, and the minus $\frac{1}{2}$" to a classifier, amalgamator, and Ding magnetic separator (18"). The process has not proved altogether satisfactory. Flow sheet not described because it is frequently changed. Approximately 100 yards of the beach sand has been mined from a pit which is about 25 feet in diameter. There are a few small boulders in the sand, but not enough to interfere much with the operation.

Informant: J. E. Morrison, 38.

STARR GROUP (Copper) (McKinley Mine) Gold Beach Area

"This group is located about 7 miles east from Gold Beach at an elevation of 3950 feet, as determined by the barometer, in SW$\frac{1}{4}$ sec.31, T.36 S., R.13 W. It was originally located as the McKinley group by Col. I. E. Munsey about 1893. He held possession of the property until he died in 1912. The property was relocated in 1915 by Charles Starr, Harriet Starr, R. G. Starr and J. R. Stannard, all of Gold Beach, who now hold 15 claims. It is reported that Col. Munsey was offered $60,000 for the property, but that he considered it worth $6,000,000, and would not consider the lower figure.

"As previously stated, the country rock is serpentine, but at least one lens of Colebrooke schist exists in the vicinity, and some greenstone occurs west of the property. The main mass of Colebrooke schist lies not far to the east.

"On the Starr no.2 claim, above the trail, a cross-cut tunnel 275 feet long has been driven N.60° E. No ore is shown in this opening. It was undoubtedly put in for the purpose of cutting at depth the deposits outcropping above the mouth of the tunnel.

"The first cut above the tunnel measures about 15 by 10 by 6 feet. The deposit is a shear-zone in serpentine and shows considerable copper carbonate or iron-stain in the cracks. A general sample from the dump yielded 8.18 percent copper and no gold.

"North of the last mentioned opening is an open cut 30 or more feet long, 15 feet wide, and 12 feet deep. In this is exposed about 12 feet of sheared serpentine stained in the same way as is the deposit described in the last paragraph. A sample carefully cut from across the whole mass yielded 3.17 percent copper, 1.61 oz. gold, and .27 oz. of silver per ton. A little chalcopyrite (copper-iron sulphide) was present in this ore, and the amount would doubtless increase at greater depth. The high proportion of gold is an unexpected feature which may lead to interesting developments.

"Above the cut just mentioned is the large open cut or pit, 40 feet in diameter. In this occurs a highly iron-stained, porous gossan to a depth of about 5 feet. Then comes massive sulphide ore for a foot or two; while beneath this is limonite-stained serpentine. The sulphide ore consists of chalcopyrite and pyrrhotite (monosulphide of iron), which latter has a peculiar fibrous appearance. A sample of the gossan proved to contain no gold, as was also true in the case of the limonite-stained serpentine below the sulphide. The sulphide ore yielded 5.1 percent copper, but no gold or nickel.

"A tunnel has been driven directly beneath the open pit just described. It runs S. 45° E. for 20 feet, then gradually curves to the southward for 55 feet so as to bring the breast directly below the pit and at a depth of no more than 10 or 15 feet beneath the material there exposed. Near the mouth this tunnel cuts a copper-stained sheared zone from which considerable ore has been taken. A conical pile of this material, 4 feet high and 12 feet in diameter, was sampled and proved to contain 1.04 percent copper and no gold. It is but fair to state, however, that this ore gave evidence of considerable leaching and it is not unlikely that the grade was considerably higher when it was mined. This material as well as one or more copper-stained shear-zones, is exposed in a trench 250 feet long north of the tunnel and open pit.

"The open pit and tunnel described in the preceding paragraph are of especial interest as here we seem to have pretty conclusive proof of the boulder-like nature of the deposit of copper ore. No one can doubt for a moment that the material is in place, and yet, within a depth of a few feet, an ore running better than 5 percent copper gives place to fresh, unstained serpentine.

"About 100 feet east of south of the big pit is an open cut in which some slightly oxidized magnetite is exposed. This material is of the lodestone variety. That is, it is itself a magnet and will pick up small particles of iron or steel. Analysis proves it to be the highest grade iron ore found on the trip, since it contains 60.13 percent iron, .36 percent phosphorus, and no sulphur, arsenic, or titanium.

"Numerous other openings exist on this property, and several others were visited, but they appeared so similar to those already described that they were not sampled. Enough time was spent in examining the deposits to prove their essential similarity to those in the Collier Creek region, both the boulder and shear-zone types being represented. The principal points of difference are the relative scarcity of magnetite, and a substitution of chalcopyrite and pyrrhotite for chalcocite, cuprite and native copper. It may be that the scarcity of magnetite is due to differences in climatic conditions, since the greater rainfall in the vicinity of the McKinley group may have hastened the decomposition of any magnetite that once existed there."
(Ref: Parks and Swartley, 16:211 quoted)

WEDDERBURN TRADING CO. (Beach placers - chromite) Gold Beach Area

This trading company has many sections of land on both sides of the Rogue River and along the coast north and south of Gold Beach. It is reported that certain parts of these holdings may be leased under proper safeguards.

LOBSTER CREEK AREA

The Lobster Creek area includes the drainage of Lobster and Euchre Creeks, lying north of the 8th standard parallel (T. 36 S.), south of T. 33 S., and in the southern half west of R.12 W. It includes all of T. 34 and 35 S., R. 13 and 14 W., and the west half of T. 34 S., R. 12 W. It includes the Ophir Mountain district.

This area is bounded on the north by the Sixes River area, on the east by the Agness area, on the south by the Gold Beach area, and on the west by the Pacific Ocean. It is 12 miles north and south by 15 miles east and west. Its eastern part is drained by Lobster and Siver creeks which drain into the Rogue River, and the western part by Euchre and other creeks which drain into the Pacific Ocean.

The main road is the Coast Highway; short roads extend up the main streams. The southern part can be reached by boat on the Rogue River. The eastern part of the area is accessible only by trails. The rocks are largely schists, shales, sandstones and conglomerates into which have been intruded basic igneous rocks sometimes altered to serpentine. Other intrusives such as basalt and dacite, are present.

There has been much prospecting both in placer and quartz mining.

BONANZA BASIN PLACER — Lobster Creek Area

Owner: Francis ("Pete") Parker, Powers, Oregon; Dan Rowlan, Powers, Oregon; and Carl Smedberg, Gold Beach, Oregon.

Location: Just below the Bonanza Placer mine and includes Bonanza Basin. It consists of two groups, the Grizzly Bear and Big Four. The basin or meadow is about 3000 ft. long by 500 ft. wide maximum, with an average of about 250 ft. and is heavily timbered. It is about 500 ft. lower than the Bonanza; a very steeply sloping gorge separates the two properties. There is a similar gorge at the lower end of the property. The upper one permits high pressure for hydraulic mining and the lower one for tailing disposal. There is a hard reef across the lower end which should be trenched through to get bedrock drainage. It is thought that a maximum depth of 15 feet at the upper end of the trench will drain bedrock. This trench will be about 400 ft. long. There is a high percentage of boulders but not many large ones.

Development: A trench starting at level of the reef has been dug up stream for about 400 ft. in an attempt to get to bedrock. The upper end of this trench is about 14 feet deep but did not reach bedrock. The trench is timbered and lagged but is too flat for sluicing. Several pits and shafts were dug but water prevented reaching bedrock.

But little knowledge is available as to values in the Bonanza Basin because redrock has never been reached. It is thought that because Bonanza and Parker mines above this property were rich and placers on lower Boulder Creek were of good grade that this basin in between is worth systematic exploration.

Informant: A. M. Swartley, 39.

BONANZA PLACER MINE (Gold) Lobster Creek Area

Old name: Curry Mine.
Owner: Mrs. Tom Wallace, Agness, Oregon.
Location: On Boulder Creek, 8 miles northwest of Illahe via trail, in secs.4 and 5, T.34 S., R.12 W.
Area: Four placer claims with a total of 80 acres.
History: Discovered and worked by George Curry and Bill Coy 1874 to 1876. 1876 to 1927 worked intermittently and changed ownership several times. Dan Rowlan owned it in 1927 and sold it to Mr. and Mrs. Wallace. With the exception of two years, it has been worked since 1927. According to Mr. Coy, it has produced $150,000. Two acres have been mined.
Geology: The source of the gold is from pockets along a serpentine and porphyry contact. Gold fairly coarse, with many 25¢ to 50¢ pieces; 7 ounces largest nugget found.
Miscellaneous Information: No water right; plenty of water. One mile is estimated length of ditch to be built to deliver water to property from Boulder Creek and tributaries. No equipment. November to June is the mining season.
Development: Ten cuts. The largest is 75x600x6 ft. deep. Most of the work has been done along Boulder Creek.
Informant: J. E. Morrison, 38.

BOULDER CREEK MINING CO. (Star Mine) Lobster Creek Area

"At the junction of Boulder Creek and the south fork of Lobster Creek in sec.25, T.34 S., R.13 W., is an extensive bar known as Old Diggings, consisting of 80 acres and 160 acres, under the name of Star mining claims. This company intended to work this property extensively with giants during the winter (1915-16), and, with this in view, had ordered 1000 feet of piping to connect with a long ditch constructed by A. W. Wilheit. It is reported they have the following improvements: 4800 feet completed ditch, 1 dam 74x12x8 feet, 1 dam 60x3 feet, sawmill plant with water power, 800 foot pipe giant, blacksmith shop, tools, 3 cabins. $4800 worth of improvements the past year." (Ref: Parks and Swartley, 16:40 quoted)

KALAMAZOO OCEAN BEACH MINE (Placer) Lobster Creek Area

"Diller states that the time he made his last investigation in this region this mine was reported to be the most productive in Curry County. He says that it is located in the Ophir district near Corwin, which is in sec. 20, T.34 S., R.14 W. This 'Ophir district' refers to the territory near Ophir, a town, and not Ophir mining district, near Ophir mountain, in the eastern part of Curry County". (Ref. Parks and Swartley, 16:135 quoted).

PARKER ELECTROMAGNETIC MACHINE PROJECT Lobster Creek Area

Ownership: Parker Methods, Inc., Gold Beach, Oregon, or P.O.Box 1179, Shreveport, Louisiana (lessee).
Location: North end of Ophir Beach at the mouth of Euchre Creek in W½ sec.8, T.35 S., R.15 W. The operation is reached from U.S. Highway by turning west through a gate of a private road just north of the Ophir School. The road is about one-quarter mile long and leads to the beach.
Description of Operation:
The theory upon which the project is based is that in streams

draining auriferous regions, transportation of gold and other valuable minerals is a continuing process, and that where topographical conditions are favorable, methods of excavation and recovery may be used according to a plan devised by Joseph E. Parker.

In the beds of such streams, an excavation would be made to bedrock which would serve as a catch basin for the heavier minerals, the lighter products being conveyed on over the excavation.

At Ophir Beach, at the mouth of Euchre Creek, a Diesel engine scraper hoist set up on the east side of the stream, with a dead man set on the opposite side, operates a rake scraper so that material excavated from the stream is dumped into a sluice on the west side of the stream.

The attempt is being made to reach bedrock at this point. The latest report is that the lowest point of the excavation has now reached a point 24 feet below the surface of the stream, and that probably bedrock is close. Mr. Parker reports (September 14, 1940) that pannings at this depth show greatly increased values in free gold. Below a depth of 18 feet, difficulty has been had with boulders. At times, blasting has been done. It seems likely that the sides of the excavation are now at such an angle that slides will continually occur. Naturally, any freshets in the stream, severe winter storms, or very high tides will probably fill the excavation completely. Mr. Parker stated that this present operation was in the nature of an experiment, and that his main object in doing the work at this point was to prove that bedrock could be reached.

As an adjunct to the plan, Mr. Parker has devised an electromagnetic machine, the operating mechanism of which is water tight, and the machine may be used under water. Thus, in the course of excavating in the bed of the stream, the machine could be dragged through the excavation with the scraper cable, and would pick up material attracted to the electromagnets. A Ford engine and electric generator are enclosed in a watertight steel box set on iron sled runners. At each of the four corners of the sled inside the runners are cylindrical magnets which are energized through cables from the generator. Push buttons on the outside of the box permit outside control of the engine. Vertical pipes are provided for exhaust and intake of the engine at the desired depth under water.

At the present time, the electromagnetic machine is being dragged over the surface of the beach by means of a tractor and is picking up black sand at the rate of something over a ton an hour. A sample of the material picked up assayed 12.4 percent chromic oxide.

Informant: Departmental Investigation.

PARKER PLACER MINE — Lobster Creek Area

This placer mine owned by Francis Parker joins the Bonanza placer mine on the upstream side and includes all of the drainage above it. Most of the ground on Boulder Creek, which is quite small, has been worked out and the source of the gold has been traced to a contact between serpentine and porphyry where rich pockets occasionally are found. Work is being done upon the contact. Coarse gold was produced and the placer here is the same as upon the Bonanza Mine just below.

Informant: J. E. Morrison, 38.

MULE CREEK AREA

Geography:

Mule Creek area is located in the extreme east central portion of Curry County, and occupies the area drained by Mule Creek and its tributaries above Paradise Bar. It lies on both sides of the Rogue River at a point about 40 miles above its mouth. The district is bounded on the north by Coos and Douglas Counties, on the southeast by Josephine County, and on the southwest by the Rogue River.

The elevation varies from a few hundred feet at Rogue River to more than 3500 feet at the highest points. The climate is mild, the daytime temperatures in the summer varying from 60 to 80 degrees, and in the winter from above freezing to 10 degrees above zero. The annual rainfall is about 50 inches. In the lower altitudes snow rarely accumulates to any great depth in the winter; in the higher altitudes it may reach 3 or 4 feet and stay on for a few weeks.

There is only one road into the district, a forest road from Glendale to the mouth of Mule Creek on Rogue River, a distance of about 40 miles. Other transportation is by trails up the river from Agness or down the Rogue River from the Galice district in Josephine County.

Geology:

The principal formations are the Dothan (Jurassic) and Myrtle (Cretaceous) sediments with greenstone effusives and intrusives. The trend of these formations is NE-SW, with the Dothan on the southeast, the greenstone in the middle, and the Myrtle on the northwest side of the district. The largest area is Dothan and the smallest is the Myrtle formation.

Greenstone is a complex formation, is considered to be largely an intrusion, and genetically related to the ore deposits of the district. The ore minerals are gold and silver with some copper.

ALEXANDER BROTHERS' GROUP (Gold) Mule Creek Area.

Owners: W. A. Alexander and M. A. Alexander, Roseburg, Oregon.

Location: West fork of the West fork of Mule Creek, 4½ miles by trail northwest of Marial postoffice, in sec.31, T.32 S., R.10 W. Located on the eastern slope of Rooster Peak.

General Information: Elevation 1100 feet aneroid. This group of claims was not visited by informant. Alexander Brothers filed exemption on the Rainbow, Golden Dream and Golden Lamb claims for 1937. Mr. Damon states that this property is located on the Bert Owen Lode and that the country rock is a porphyry. Plenty of water for mining and milling. Mountainous topography. The property is equipped with two cabins, blacksmith shop, and 10-ton Ellis ball mill run by water power.

Informant: J. E. Morrison, July 19, 1939.

BATTLE BAR PLACER Mule Creek Area.

"Diller describes this property as follows: 'At Battle Bar, on the left bank of the Rogue River a little above the mouth of Ditch Creek a terrace 20

to 25 feet above the river is capped by gravel that has been tested by a small placer and said to yield good values. I saw it only across the river, but the deposit appears to be similar to that of Winkle Bar a mile farther down the river.'

"Informant did not visit this property, but R. E. King of the Forest Service, stationed at Marial, stated that Charles Crougle of Marial has recently acquired control and was preparing to make a set-up for the winter season. The property has been idle for a long time."

In September 1940 the Battle Bar ground is reportedly owned by A. H. Krogel, Camas Valley, Oregon.

Informant: J. E. Morrison, July 21, 1939.

References: Parks and Swartley 16:25 quoted.

BLOSSOM BAR PLACER — Mule Creek Area

Owners: C. M. Carr and A. L. Huggins of Illahe, Oregon.

Location: Three miles below Marial Postoffice at the mouth of Blossom Bar Creek in sec.18, T.33 S., R.10 W.

Area: One unpatented placer claim.

General Information: This bar is composed of gravel which lies about 60 feet vertically above the river. Gravel is mostly coarse and probably there are some good sized boulders. The bar has never been tested, but it is said to have been worked a number of years ago. The present owner plans to bring in water from Blossom Bar Creek.

Informant: J. E. Morrison, July 21, 1939.

DINAWADJA GROUP (Gold) — Mule Creek Area

Owner: C. M. Carr, Illahe, Oregon.
Under lease and bond to R. J. Boone, Marial, Oregon.

Location: On the west fork of Mule Creek. 3½ miles by trail from Marial Postoffice. Located in sec.28, 29, 32 and 33, T.32 S., R.10 W. at an elevation of 950 aneroid.

Area: Two full size quartz claims held by location, and a fraction of approximately 4 acres known as the Dinawadja Extension, located by Mr. Boone. The Potential Mining Co. claims that the Dinawadja Extension conflicts with the Marigold Quartz claim.

General Information: The geology is the same as the Marigold Mine (formerly Tiny H.)

The Dinawadja vein is parallel to the Tiny H and lies 50 feet to the east.

The workings on this vein are approximately 300 feet southwest of the face of the main workings on the Tiny H (Marigold). Tunnel on the vein runsS10° E. 60 Feet. From this point a drift runs S.42° W. 35 feet. The main tunnel continues S.52° W. 60 feet. Quartz shows up in roof for almost complete length of tunnel. As yet no commercial ore has been found. On the Marigold vein a tunnel has been driven S.56° W. 50 feet. The ore minerals are free gold, chalcopyrite, and pyrite. Walls are very much altered and small fractures are numerous; most of them, however, show little evidence of displacement. One of the stronger faults noted strikes S.37°E. and dips 80° S.; it is intersected 22 feet from the portal of the tunnel on Marigold vein.

Prospecting equipment only. Plenty of water for mining and milling purposes. Rough mountainous topography. Mining timber available on the property.

GOLDEN CARGO GROUP (Gold) Mule Creek Area

Owners: M. M. Reber, 227 NW 18th Ave., Portland Oregon.
S. M. Roycroft, 224 N. Olive St., Burbank, Calif.
R. C. Martin, Grants Pass, Oregon.

Location: On west fork of the West Fork of Mule Creek, 6 miles northwest of Marial Postoffice in sec.31, T.32 S., R.10 W.

Area: Four full sized quartz claims held by location, 80 acres.

General Information: Elevation 1400 ft. aneroid; mountainous topography. Plenty of water and timber. Country rock is porphyry, probably andesite, which is cut by many gold bearing quartz stringers. The development work consists of one tunnel trending S.25° E. 27 ft. and a number of shallow open-cuts.

Informant: J. E. Morrison, July 20, 1939.

GOLDEN ECONOMY GROUP (Gold) Mule Creek Area

Owner: C. M. Lewis, Marial, Oregon.

Location: On the west fork of the West Fork of Mule Creek, 4 miles from Marial Postoffice by trail.

Area: Four unpatented quartz lode claims. 80 acres.

Development: Consists of 4 tunnels with total length of 105 feet on the Lucky Strike claim. One 25-foot tunnel on the Golden Economy, together with a 10-foot tunnel and open-cuts on the Golden Cabin.

Geology: The country rock is an altered porphyry, probably andesite, cut by a number of gold bearing stringers.

General Information: Elevation 1100 feet aneroid. Mountainous topography. Plenty of timber and water, with the possibility of developing water power for mining purposes. Equipment consists of cabin, 12-foot water wheel, a 6 foot arrastre, and prospecting tools.

Informant: J. E. Morrison, July 20, 1939.

GOLDEN FRACTION PROSPECT (Gold) Mule Creek Area

Owners: L. A. Damon and Arnold Ezard of Marial, Oregon.

Location: On the east slope of Rooster Peak. $4\frac{1}{2}$ miles NW of Marial Postoffice in sec.31 T.32 S., R.10 W.

Informant did not visit property. Mr. Damon states that the country rock is altered porphyry, and that the claim has been located on what is known as the Bert Owen's ledge.

Development work consists of a tunnel which has been driven in a southwest direction 50 feet. The quartz carries free gold and pyrite.

Informant: J. E. Morrison, July 19, 1939.

GOLDEN OAK PROSPECT (Gold) Mule Creek Area

Owner: J. P. Gordon, Marial, Oregon.

Location: sec.31, T.32 S., R.10 W., 6 miles northwest of Marial Postoffice. Informant did not visit this property. Owner states that his development work consists of three 25-ft. tunnels and a number of open-cuts. The gold occurs in quartz stringers in altered porphyry.

Only enough water for a small operation in the summer. Steep mountainous topography. Plenty of timber.

Equipment consists of a cabin and prospecting tools.

Informant: J. E. Morrison, July 20, 1939.

GOLDEN RATTLER GROUP (Gold) Mule Creek Area

Owner: L. A. Damon, Marial, Oregon.

Location: On west fork of Mule Creek, 4 miles by trail north of Marial Postoffice, in sec.32, T.32 S., R.10 W.

Area: Two full size claims. Located in 1932.
General Information: Location and assessment work consists of six open-cuts. Country rock is an altered porphyry, probably andesite. The gold occurs in quartz stringers. Elevation 1000 feet aneroid. Plenty of timber and water for mining. Equipment consists of cabin and tools for prospecting.
Informant: J. E. Morrison, July 19, 1939.

GOOD LUCK PROSPECT (Gold) Mule Creek Area
Owner: M. J. Carmichael, Marial, Oregon.
When not on the claims he can be reached at Coquille, Oregon.
Location: On the west fork of the west fork of Mule Creek, parallel to and on the east side of the Home Lode. A little less than three miles from Marial Postoffice and in sec.32, T.32 S., R.10 W.
General Information: Development and assessment work consist of a number of shallow open cuts. Mountainous topography. Plenty of water available for mining purposes. Elevation 1000 feet aneroid. The cuts show quartz stringers in an altered porphyry, probably dacite. No equipment.
Informant: J. E. Morrison, July 19, 1939.

HOME LODE CLAIM (Gold) Mule Creek Area
Old Name: Cardwell Claim.
Owner: S. A. Carmichael, Coquille, Oregon.
Location: On the west fork of the west fork of Mule Creek. A little less than 3 miles by trail from Marial Postoffice, in sec.32, T.32 S., R.10 W.
There are a number of properties on the west fork of the west fork of Mule Creek.
As nearly as can be determined from the old description, the property now owned by S. A. Carmichael, and known as the Home Lode Quartz Mine, covers the area worked by W. W. Cardwell.
"W. W. Cardwell, of Roseburg, owns a placer claim on the west fork of the west fork of Mule Creek. It can be operated only when water conditions are favorable, as the gold is being recovered from the gravel in the present creek bed. It is reported that it has been quite profitable." (Ref: Parks & Swartley 16:51 quoted).
The Home Lode was located in 1935 and the development consists of location and assessment work. Except for prospecting, work has been confined to running a tunnel S.40° W. 24 feet. Elevation is 1000 feet aneroid. Mountainous topography. Plenty of water available for mining purposes. The "Lode" consists of quartz stringers in an altered porphyry, probably dacite.
Equipment: Consists of prospecting equipment and a cabin.
Informant: J. E. Morrison, July 19, 1939.

KEYSTONE PROPERTY (Gold) Mule Creek Area
Owner: C. M. Carr, Illahe, Oregon.
Area: One claim, unpatented.
Location: South side of Rogue River, 2 miles southwest of Marial Post-office by trail. S½ sec.17, T.33 S., R. 10 W.
General Information: This property was owned by George W. Billings for a number of years. Either in the fall of 1930 or the spring of 1931, Mrs. M. M. Reber secured the property on bond and lease, and a short time later that year she turned over the property to George Hay DuBarry. Reportedly, no work was done or exemption filed, and

as a result, Mr. Carr and J. V. Horner located the property July 1, 1933. Since then Mr. Carr purchased Mr. Horner's interest in the property.

Carr started a new tunnel about 100 feet above the river on the vein. This tunnel is in about 20 feet. The workings shown in figure 28 of Butler and Mitchell 16:89 have been extended about 20 feet.

No equipment on the property. Mountainous topography. Plenty of timber and water for mining purposes. Elevation 400 feet aneroid.

Informant: J. E. Morrison, July 21, 1939.

Ref: Butler and Mitchell, 16:89.

LANCASTER CLAIM (Gold) Mule Creek Area

Owner: R. L. Venner, Marial, Oregon.

Location: On the west fork of the West Fork of Mule Creek, 5 miles by trail northwest of Marial Postoffice in sec.30, T.32 S., R.10 W.

General Information: Elevation 1400 feet aneroid. 1 full claim located May 7, 1929.

The development work consists of a tunnel S.38° W. 36 feet. Country rock is altered porphyry, probably andesite, which contains quartz stringers carrying pyrite and free gold. Steep mountain topography. Plenty of timber and water, and an excellent site for developing water power.

Informant: J. E. Morrison, July 20, 1939.

LONE WOLF GROUP (Gold) Mule Creek Area

Owners: Hill, H., and Kathryn H. Smith, Gold Beach, Oregon.

Location: On the south slope of Rooster Peak, 4½ miles by trail NW of Marial Postoffice in sec.31, T.32 S., R.10 W. Elevation 1400 feet aneroid.

This property was not visited by informant but, as reported by Mr. Damon, the development work consists of one tunnel about 15 to 20 feet long, and open cuts.

The country rock is porphyry, probably dacite.

Informant: J. E. Morrison, July 19, 1939.

MAMMOTH GROUP (Gold) Mule Creek Area

In 1935 John M. Price made a report on this property and called it the Rogue River Mine. So far as could be learned this group is not generally known by that name.

Owner: C. M. Tucker, Marial, Oregon.

Location: 2½ miles north of Marial Postoffice by trail in secs. 3 and 4, T.33 S., R.10 W.

Area: 3 quartz claims held by location. 60 acres.

History: This is an old property on which most of the present development work was done before the present owner acquired it. Mr. Tucker located and has held these claims for approximately 25 years. No record of production.

Geology: Country rock is essentially greenstone. In places along faults it has a schistose structure, while in other places it is porphyritic. The vein occurs along a fracture which has been filled with quartz. It strikes N.20° E. and dips about 85° to the west. Outcroppings show for several hundred feet in length. The width varies from nothing to about 5 feet. Quartz will probably average better than 2 feet in width. Ore minerals are gold, pyrite and chalcopyrite.

Mr. Tucker stated that there is another ledge about 100 feet to the east, but no work has been done on it. Informant did not see this vein.

Development: The development consists of a crosscut tunnel which runs S.85° E. 70 feet to the vein. Drifts run in a southerly direction 60 feet to face and in a northerly direction 50 feet, thence easterly 90 feet to face. For most of the length of the drifts quartz shows in the roof. Mr. Tucker states that it is an excellent grade of ore and that 43 assays by engineers show an average of $55 for two feet average width.

Equipment: Consists of a 10 foot water wheel and a 10 foot arrastre located on the West Fork of Mule Creek at an elevation of approximately 700 feet. The portal of the tunnel about 2000 feet to the north has an elevation of 1700 feet. Plenty of timber for mining purposes. Plenty of water for mining and milling, with the possibility of developing water power for both mining and milling. Rough mountainous topography.

Informant: J. E. Morrison, July 20, 1939.

MARGARETTE CLAIM (Gold) Mule Creek Area

Owner: Margarette Brown, Madison, South Dakota. Her brother, J. M. McGrath of Marial, Oregon, is looking after the claim.

Location: On ridge north of West Fork of Mule Creek and 3-3/4 miles by trail north of Marial Postoffice in sec.33, T.32 S., R.10 W.

General Information: This claim was located in 1938. Location and assessment work consist of an opencut tunnel running N.23° E. 21 feet. The country rock is an altered porphyry, probably dacite. 24 inches of quartz and wall rock show in face of tunnel. A fault cuts the quartz off about 5 feet from the face of the tunnel. No equipment. Steep mountainous topography. Elevation 1700 feet by aneroid. No water. Plenty of timber.

Two samples were taken from the face of the tunnel, one representing 24 inches of quartz and wall rock from the floor, and the other from the roof of the tunnel showing 24 inches of quartz and wall rock. Both samples yielded a trace of gold and no silver.

Informant: J. E. Morrison, July 20, 1939.

MARIGOLD MINE (Gold) Mule Creek Area

Old Names: Lucky Boy and Tiny H.

Owner: Potential Mining Company, Inc. Principal stockholders are: S. M. Roycroft, Burbank, Calif.; R. C. Martin, Grants Pass, Ore.; and Mrs. M. M. Reber, Portland, Oregon.

Location: On Tiny H Creek 3 miles north of Marial Postoffice. Land in sec.33, T.32 S., R.10 W. Butler and Mitchell 16:79-82 give a description of this property.

History: Mr. Tucker held the property until the late 20's when he disposed of it to Mrs. M. M. Reber. Mrs. Reber sold it on lease and option to George Hay DuBarry in the fall of 1930. As this deal was not consumated, it was relocated by Mrs. Reber. In the fall of 1937 she interested Messrs. Roycroft and Martin in the property. With the exception of 40 feet of drift, which is 40 feet vertically below the old workings, there has been no development work done in the last 25 years. Practically all of the millable ore has been mined. The Mill mentioned in Butler and Mitchell 16:82 was destroyed by fire seven or eight years ago. The Potential Mining Company was formed either in the fall of 1937 or spring of 1938.

General Information: Three claims held by location. Rough mountainous topography. Aneroid elevation 1000 ft. Tiny H Creek will supply sufficient water for mining and milling. There is a possibility of developing water power for six months of the year.
A 10-ton Straub mill and crusher have been purchased. However, only a part of this equipment is on the ground and none of it is set up. There is also a small concentrating table on the property. Two samples from the face assayed as follows: 41 inches wide across roof in face of tunnel ran Au tr. Near the floor of face, gave Au .02 oz. No commercial ore was found outside of the stopes. About 30 feet above the drifts in the first stope there is 2 inches of high grade ore which ran Au. 22.30 ounces ($780.50), silver 11.07 ($8.19). Successful operation appears to depend upon the location of such high grade pockets sufficiently close together.

Informant: J. E. Morrison, July 18, 1937.

Ref: Butler and Mitchell, 16:79, 80, 82.

MULE MOUNTAIN GROUP (Gold) Mule Creek Area

Owner: Andy L. Huggins, Illahe, Oregon.

Location: On Mule Mountain 5/8 mile SW of Marial by trail, in sec.17, T.33 S., R.10 W.

History: This property (not visited by informant) was owned by George W. Billings until the fall of 1930 or the spring of 1931. It was sold on bond and lease to Mrs. M. M. Reber, who in turn sold her lease to George Hay DuBarry in 1931. Reportedly, no work was done or exemption filed, and on July 1st of 1933 the property was located by Mr. Huggins. The description by Butler and Mitchell 16: 83-90 may be supplemented as follows: While Mr. DuBarry had the property, a tunnel was run in a westerly direction 300 feet to tap the vein at a little lower level and a little to the north of the bottom of the 86-foot shaft mentioned at the top of page 85. A drift was run to the north but no ore was encountered. Mr. Huggins stated that if the drift had been run to the south it would have been in good ore. The present Mule Mountain Group does not cover the area shown in fg.25, page 84 (see reference).
The present group consists of 4 lode mining claims known as Alva, Paywell, Milner, and Milner Ext. If the East Side and Mule Mountain claims shown in fig.25, page 84 (reference footnote) were shifted about 300 feet northwest, they would cover the area covered by the Alva and Paywell. The Milner starts at the river and runs in a NW direction, covering a part of the old Burr Oak placer. The Milner Extension covers the area between the Milner and the Paywell Claims.

Informant: J. E. Morrison, July 21, 1939.

Reference: Butler and Mitchell, 16:83-90.

PARADISE MINE (Gold) Mule Creek Area

Owner: R. E. Paddock, Marial, Oregon.

Location: On west face of the south peak of Saddle Mountain, and is thought to be in sec.27, T.32 S., R.10 W.

Informant did not visit the property but the owner gave the following information: "This property consists of the Paradise claim which was located July 1, 1936. Do not know anything about the prior history of the mine. There are now three tunnels instead of the one described by Butler and Mitchell, 16:78. About 100 feet

vertically above the one described is another tunnel running parallel and about 150 feet long. A third which is about 100 feet vertically above the second tunnel is about 45 feet long. The vein shows in both of these tunnels. No equipment. Very steep mountainous topography. The lower tunnel makes a small amount of water, but not enough for mining or milling. For the last four miles the trail to the property is very steep".

Informant: J. E. Morrison, July 21, 1939.

Reference: Butler and Mitchell, 16:78.

PAUL JUNIOR PLACER — Mule Creek Area

Owners: The north 875 feet is owned by Claud Ward and W. H. Corwin of Marial. The south 625 feet is owned by Tom Billings of Marial.

Location: The Marial Postoffice is located on the south part of this claim and is about 1/3 mile below the mouth of Mule Creek in sec.9, T.33 S., R.10 W.

General Information: Mr. Ward stated that Mr. Corwin operated this property in 1938 with a Fordson tractor dragline, 1/3 yard bucket, and moved about 1500 yards averaging 24¢. The gravel is described by Butler and Mitchell 16:122.

Most of the overburden has been removed by high water. There remains approximately 7 acres of gravel which is thought to be about 12 feet in depth. The bed rock is below the high water of the river and for this reason it is difficult to operate during parts of the winter and spring. The gold is said to be fairly coarse on the side of the bar away from the river.

Informant: J. E. Morrison, July 18, 1939.

Reference: Butler and Mitchell, 16:122.

THE RED DOG PLACER (Gold) — Mule Creek Area

Owner: Charles M. Tucker, Marial, Oregon.

Location: One mile north of Marial postoffice on Mule Creek below the forks and in secs. 9 and 10, T.33 S., R.10 W.

Area: 2 unpatented placer claims known as Red Dog and Red Dog Extension. 35 acres.

General Information: The gravel is said to be 10 to 12 feet thick. Lots of boulders but very few very large ones. Slate and serpentine bedrock. The gold is said to be fairly coarse. Width of the channel is unknown as the ground has never been tested. Mule Creek flows all year through these claims. No water right. Steep mountainous topography. Elevation 600 feet.

Informant: J. E. Morrison, July 20, 1939.

RED RIVER GOLD MINING AND MILLING COMPANY — Mule Creek Area

The property owned by this Company reverted to the Government many years ago; the portion on the southeast side of the Rogue River has been patented by Stanley S. Andrews. As far as can be learned there has not been any placer activity on this side of the river since the Red River Gold Mining Company operated.

On the Mule Creek side, a placer claim named the Paul Junior has been located on the area formerly covered by the Daisy and Rocky Bar placer claims. The rest of the placer claims along the river are now being leased by the U.S.Forest Service under Special Use permit. The claims that are back from the river may be owned by other parties, but it was impossible to get definite information concerning them.

Remnants of the old flumes of the Red River Gold M & M. Co. remain.
Informant: J. E. Morrison, July 18, 1939.
Reference: Parks and Swartley 16:192.

RHYOLITE CLAIM (Quicksilver and gold) Mule Creek Area
Owner: M. J. Carmichael, Marial, Oregon. When not on the claim he can be reached at Coquille, Oregon.
Location: In sec.30, T.32 S., R.10 W., about 5 miles NW of Marial postoffice and 1/2 mile below Hanging Rock.
Informant did not visit the property, but Mr. Carmichael stated that he located this claim in 1936 and that his location and assessment work consist mostly of shallow open cuts.
A sample submitted from this claim by Mr. Carmichael was run by the State Assay Laboratory, but yielded no quicksilver.
Informant: J. E. Morrison, July 19, 1939.

WINKLE BAR PLACER Mule Creek Area

According to the U.S.Forest Service's records, Zane Grey, Inc., patented 32.53 acres of placer ground on Winkle Bar.
This property is now being used as a home site.
Informant: J. E. Morrison, July 21, 1939.
Reference: Parks and Swartley, 16:237.

YELLOW MOON CLAIM (Gold) Mule Creek Area
Owner: C. L. Jones, Marial, Oregon.
Location: 5 miles northwest of Marial Postoffice, 3/4 mile east of Hanging Rock in sec.32, T.32 S., R.10 W.
General Information: Informant did not visit this property, but Mr. Jones stated that the claim was located in May 1939, and that the location work has been done. Three or four gold bearing quartz stringers are known to exist. The country rock is an altered porphyry. Panning shows that there is a large amount of sulphides and that the gold is fairly coarse. No equipment. Steep mountainous topography. Elevation 1800 feet aneroid.
Informant: J. E. Morrison, July 20, 1939.

SIXES RIVER AREA.

Geography:

This area, which includes all of western Curry County which lies north of T.34 S., has been enlarged to include the Port Orford and Elk River districts. It is bounded on the north and east by Coos County, on the south by the Lobster Creek area, and on the west by the Pacific Ocean. The principal streams from north to south are Floras Creek, Sixes River, and Elk River, with many lesser streams, all draining directly into the Pacific Ocean. The climate is mild; the annual rainfall is 65 to 70 inches with three to four feet of snow in the higher elevations, sometimes remaining for a few weeks.

A coastal plain extends along the district north of Port Orford, and back of this is a rough, heavily timbered country of moderate elevation. The highest elevations are on the eastern side of the district, where there is a maximum elevation of 4000 feet on Iron Mountain ridge.

The Coast Highway runs from north to south, and branch roads reach part way up some of the streams. Much of the area is accessible only by trails.

Geology:

The oldest rocks in the area consist of a circular patch of ancient schists about 6 miles in diameter, which Diller (02) named Colebrook schists, located at the headwaters of Willow Creek. The predominant rock type of the area is Myrtle in age, consisting of conglomerate, sandstone and shale; the Arago shale of later age occupies two areas within the upper drainage of Sixes River. Patches of basalt are found near the center, and a 2 to 4 mile strip along the coast consists of elevated beach sands, some at heights of as much as 900 feet above sea level. This has been the most active mining district in the county in the past. Gold, platinum, and copper occur, and have been mined sporadically for about 50 years.

BEAR CAT GROUP (Gold) Sixes River Area

Owners: Ernest and Ed Divelbiss, Bandon, Oregon.

Location: In sec.22, T.32 S., R.13 W., 1 mile SE of Mt.Avery, 1-3/4 miles NE of Mt.Butler, 1/2 mile NW of the mouth of Butcher Creek. The property can be reached either by going up the Sixes River to McFarlin's Guard Station (shown on maps as Avery Ranch) the last eight miles being by trail, or by way of Broadbent, Eckley, and McFarlin road which is open only during the summer. From McFarlin take South Fork Mt. trail to property, a distance of four miles. Property is east of trail about one hundred yards and about 1/2 mile above West Fork of Sixes.

Miscellaneous Information: Two full claims - Bear Cat 1 and 2. Elevation 2000 feet. The claims are located on contact between slate (hanging wall) and porphyry which strikes in a general north-south direction and dips about 45° to the east. Two open cuts have been excavated on ledge showing quartz in place about 12 inches wide carrying pyrite and free gold. One cut 20 feet long by 15 feet deep, the other 12 feet long by 6 feet deep.

Divelbiss submitted one sample representing 12 inches of vein material from Bear Cat no.1. This yielded Au .13 oz.-$4.55; Ag tr.

Informant: J. E. Morrison 38.

BIG SUNSHINE PLACER Sixes River Area

Old name is Bill Johnson Placer.

Owners: L. B. Hatton and Dora I. Hatton, Port Orford, Oregon; W.A., Mary E., W. R., Ruby, Ella E., and Charles Panter, all of Bandon, Oregon.

Location: On Elk River at the mouth of Sunshine Creek, and in sec.13, T.33 S., R.14 W., and sec.18, T.33 S., R.13 W. 6 miles by trail (poor) east of MacGribble Guard Station, and 16 miles southeast of Port Orford.

General Information: The bedrock is composed of slates and sandstones of the Myrtle formation. Gravel and overburden, which are about equal, are from 12 to 14 feet deep. The gravel is said to run 75¢ per yard in gold and platinum. The gold is fairly coarse, and the platinum amounts to about one-half of the gold by weight. There are no boulders. Operation period is from October to May. Elevation 500 ft. Little snow. Sunshine creek furnishes the water for mining through a ditch 500 ft. long. Prospecting equipment only. 18x24 cabin.

Information furnished by J. B. Hatton, June 8, 1939.

CAPE BLANCO MINE (Beach placer) Sixes River Area

Owners: Ed. A., Thomas P., and Frances Hughes, Sixes, Oregon. Property leased to the Pacific Coast Mining & Refining Co., an Oregon corporation, with office at Bandon. E. R. Marshall, president, and Joseph McKeown, secretary-treasurer.

Location: On the beach at Cape Blanco in sec.7, t.32 S., R.15 W., and secs. 1, 2, and 12, T.32 S., R.16 W., 7 miles west of the Sixes' postoffice which is on highway 101.

Area: 397 acres of patented land in a strip approximately 1/4 of a mile wide and running $2\frac{1}{4}$ miles south from Cape Blanco along the ocean.

History: The beach sands just south of Cape Blanco have been worked off and on for almost a century. For five years prior to March 29, 1938, the property had been operated by Carl Hopping. He collected the sands in a truck and hauled them to a sluicing plants which consisted of a large wooden hopper with three openings at the bottom. A small stream of water would wash the sands down and over small riffles and plates. It is said that Hopping was very successful, but most of his records as to production were lost in the Bandon fire. However, he did have records covering the period from January 4 to July 8, 1937, during which time he ran approximately 700 yards of sand. His mint receipts amounted to $1,650.32. Platinum and osmium amounted to $1,133.93. The gold averaged about 860 in fineness. About 1934 a Mr. J. F. T. Kirkup subleased a portion of the beach from Hopping and carried on quite extensive operations. The results of this operation were also burned in the Bandon fire. During the winter of 1938 this plant was wrecked by the waves.

The present company secured control of Hopping's operations in the spring of 1938, and is carrying on test work. Marshall states that approximately $2.00 per yard is being saved. Recovery probably does not exceed 50%.

Informant: J. E. Morrison, June 8, 1939.

CLAPSHAW MANGANESE (Manganese) Sixes River Area

Owner: Mrs. Pearl S. Clapshaw, Route 2, Box 101, Oregon City, Oregon
Location: SW¼ of NW¼ of sec.35, T.31 S., R.15 W., Curry County, Ore. A road reaches to within 300 feet of the deposit.
Miscellaneous Information: 40 acres patented land. This property was opened up in the spring of 1918 and worked in a small way until November of that year.
Informant: Mrs Clapshaw, J. E. Morrison, 38.

CLIFFSIDE LODE (Gold) Sixes River Area (Elk River)

Owner: Ralph W. Curl, Marshfield, Oregon.
Location: On Elk River at the mouth of Bald Mountain Creek, sec.8, T.33 S., R.14 W., 10 miles southeast of Port Orford, Oregon; 4 miles from Coast Highway; one mile of trail to the McGribble Guard station.
History: Located August 1938; location work completed and filed.
Geology: Quartz vein in intrusive gabbro; strikes N.60° W. with a vertical dip and is frozen to both walls. Outcropping is on a very steep cliff, and is opened up in two places. The lower opening is the discovery cut; the upper one, a shallow trench across the vein, is about 75 feet southeast and 50 feet above the discovery cut. The vein has been traced beyond these two points.
General Information: Elevation 200 feet; plenty of timber and water for mining purposes; possibility of developing water power. A mile of road will have to be built. No snow; plenty of rain; tunnel site at bottom of cliff.
Assays: Three samples were taken as follows:
1 - 5 ft. wide, bottom of discovery cut, Au .38 oz $13.30.
2 - 5 ft. wide, 3 ft. above no.1, Au .05 oz. $1.75.
3 - 5 ft. wide, upper cut, Au 1.72 oz. $60.20. All three assayed a trace of silver.
Informant: J. E. Morrison, 38.

CORBIN PROPERTY (Placer) Sixes River Area

"Concerning this property Diller states: 'On the left bank of the Sixes about a mile above the mouth of Dry Creek (2 miles above the mouth of Edson Creek) nearly opposite Mr. N. C. Divelbiss' mine is a placer operated by Mr. W. O. Corbin, who informed the writer that one winter he saved $11.00 worth of platinum from his washings. He sent 44 oz. of sand from the mine, which was sieved and washed; it yielded .176 grams of gold, less than one hundredth part as much iridosmine, and no platinum. The relation of the concentrates to the gravel being unknown, the value of the gravel per ton cannot be given.'"
N. C. Divelbiss worked it and said it produced $5000 per acre from left instead of right bank.

Informant: J. E. Morrison, 38.
Reference: Parks and Swartley 16:73 quoted.

ELKHORN GROUP (Gold placer) Sixes River Area (Elk River)

Owners: Will R. Johnson, Port Orford, Oregon, and Mrs. Tom Wallace, Agness, Oregon.
Location: On Elk River at the mouth of Slate Creek, and thought to be in secs.14 and 23, T.33 S., R.14 W., 4½ miles by trail east of the

McGribble Guard Station, and 15 miles southeast of Port Orford.
Area: Four 20-acre placer claims held by location. Known as the Elkhorn and the Elkhorn 1, 2, and 3.
History: This is an old property and has been worked intermittently for years.
General Information: The bed rock is slate of the Myrtle formation. Average depth of gravel is 12 ft. in which there are some large boulders. Gold is fairly coarse; largest nugget found $5.00. Rough side-hill topography covered with brush and a small amount of timber. No water right. Water is taken out of Slate Creek. Operating season October to May.
Equipment: Small sawmill. 2,000 ft. of 10x18" wooden flume. 150 ft. of 4" hydraulic pipe and hose.
Information furnished by Will R. Johnson, June 8, 1939.

FALL CREEK GROUP (Gold placer) Sixes River Area (Elk River)

Owners: V. E. Boyer and Mrs. Maude Lynch, Port Orford, Oregon.
Location: Lies on the south side of Elk River at the mouth of Cedar Creek, and between the Elkhorn and Big Sunshine placer properties, 15 miles southeast of Port Orford; the last 5 miles is poor trail. It is thought to be in secs.13 and 14, T.33 S. R.14 W.
Area: Six 20-acre placer claims held by location.
Geology: 3 to 10 feet of gravel, probably averaging 5 feet with an average of 8 feet of overburden. Occasional boulders, but not enough to interfere with mining. Bedrock is porphyry and slate. The gold is medium coarse and maximum production by hand work is $250 per season.
Water for mining comes from Fall Creek through a 750' 10x16" flume.
The property is equipped with two cabins and prospecting tools.
Information furnished by V. E. Boyer, June 8, 1939.

GUERIN CLAIM (Placer) Sixes River Area

"The only information obtainable concerning this deposit is the statement of Diller that at the time of his investigation 'the Guerin brothers were ground sluicing just above the mouth of Butcher Gulch, in sec.21, T.32 S., R.13 W. From one of the Guerin brothers, who works a placer along the South Fork of the Sixes, the writer obtained about 5 ounces of concentrates to examine for platinum. Nearly 85% of the concentrates were magnetite, and the remainder was chiefly ilmenite or chromite. Numerous scales of gold were present, but no platinum or iridosmine was found.'"

Guerin Bros. continued up Butcher Gulch for about one mile and ceased operations. Apparently abandoned.

Informant: J. E. Morrison
Reference: Parks and Swartley 16:115 quoted.

HARRISON CLAIMS (Gold) Sixes River Area

"In sec.23, T.32 S., R.13 W., on southern slope of Rusty Butte in slaty rock and greenstone. Small irregular veins carrying gold in pyrite, arsenopyrite and galena. Claims are St. Patrick's, Golden Fleece, and Mountain Daisy, which may not all belong to Harrison Group. Oxidized portion of veins has fine gold and some wire gold."
Reference: Parks and Swartley 16:117 quoted.

HYDRO SIXES MINING CO. (Placer) Sixes River Area

General Information: The Hydro Sixes Mines Co. moved the equipment from the Sixes Mines Co. operations to a point about two miles above the junction of the Sixes. Ditches and flumes were constructed for placering a number of the small benches that exist along the Sixes River. None of their operations proved successful. This company was reorganized into the Inman Mines Co. in 1920.

Informant: J. E. Morrison, June 10, 1939.

Reference: Parks and Swartley 16:126.

INMAN MINE (Placer) Sixes River Area

Owners: Inman Mines Co. C. C. Inman, President and General Manager.

Location: At the forks of the Sixes River, 11 miles east of the Sixes Postoffice, the last mile being by trail. It is located in sec.7 and 18, T.32 S., R.13 W., and 11, 12 and 13, T.32 S., R.14 W.

Area: This company secured control of about $2\frac{1}{2}$ miles along the Sixes River of which 1/2 mile is below the forks and two miles above, together with $1\frac{1}{2}$ miles along the south fork, which included the Hydro Sixes' holdings, the Byers and Hollenbeck's claims (see reference), the Crawford and Fry claims (see reference) and the Elgin Group. All together they had thirty mining claims and 160 acres of patented land. The company constructed dams, camp sites, pipe lines, etc. A number of bars were mined along the river, but the operations were not profitable. The company went into receivership in 1929 and was shut down until October 1932. The Oregon Engineering Co. purchased the property at Sheriff's sale in 1933.

Informant: J. E. Morrison, June 10, 1939.

Reference: Parks and Swartley 16:48, 83, 126, 205.

LITTLE OTTER PLACER Sixes River Area

Owner: Ernest Divelbiss and Mrs. Thelma Stevenson (daughter), Bandon, Oregon.

Location: 9 miles up Sixes River from bridge on highway 101. Last 3 miles via trail. In $NW\frac{1}{4}$ of $NW\frac{1}{4}$ of sec.7, T.32 S., R.13 W., at mouth of Little Otter Creek.

General Information: Said to pan a little. No work done. Has few big boulders. This ground has been located and relocated for years but no one has done any work. Property not visited by informant.

Informant: J. E. Morrison, 38.

MADDEN (Blanco) MINE (Beach placer) Sixes River Area.

Owners: M. C. Landreth, 102 N. Parrett St., Roseburg, Ore.; Mrs. Gates, Coquille, Oregon. Operated in small way since December 1938.

"The Madden mine, also known as the Blanco mine, was discovered July 24, 1871 by Cyrus Madden, the present owner. This placer mine is about 7 miles north of Port Orford, Curry County, Oregon, in the $SE\frac{1}{4}$ of $NE\frac{1}{4}$ of sec.4, T.32 S., R.15 W., on Crystal Creek, a tributary of Sixes River.

"The deposit is a gold and platinum bearing ancient beach, lying at an elevation of about 150 feet above sea level. In downward order a section of the deposit is as follows: 12 to 14 inches of soil and vegetation, 8 to

10 feet of fine to coarse gray sand, frequently containing streaks one-half to 2 inches thick of iron-stained material; 2 to 3 feet of coarse iron-stained cemented sand; 3 to 4 feet thick of coarse grayish sand and gravel containing streaks of black sand one-eighth to one-fourth inch thick; and then a shale bedrock.

"A number of samples taken at different places in the deposit were panned; they all showed 20 to 30 fine colors of gold, but no platinum was observed. Platinum, however, is reported to be present in the proportion of 20% of the gold, but this estimate is probably too high, 5 to 10% being probably nearer the amounts.

"The proportion of black sand present is not large, probably not exceeding 5% of the entire mass of material.

"The mine is worked with a hydraulic giant, the water being brought about 2 miles by ditch from Crystal Creek. The sand and gravel are washed from the bank into about 500 feet of sluice boxes containing riffles, where the coarse gold and platinum are caught. Near the lower end of the sluice boxes the black sand is taken out by an undercurrent, and treated on tables covered with burlap, where most of the fine gold passing over the riffles is recovered.

"In past years the mine was worked six or seven months in the year, during the period of high water, but in recent years work has been more or less intermittent. It has never been a large producer, but has maintained a small output for nearly forty years.

"In all, several acres of ground have been worked to a depth of 20 to 25 feet to a false bedrock composed of cemented coarse sand and gravel. The true bedrock of shale, 6 to 10 feet deeper, is too low for drainage without the use of a hydraulic elevator.

"Three samples taken for assay yielded the following results:

Results of assays of three samples from Madden mine.

	Au and Pt ounces per ton
Sample no. H-135	0.02
Sample no. H-135A	.00
Sample no. H-136	.01

"Sample H-135 was taken from a bed of iron-stained, cemented, and rather coarse sand, and represents a thickness of 3 feet 6 inches. At the point of sampling the bed has a covering of 10 feet of coarse to fine gray sand and 12 to 14 inches of soil and vegetation.

"Sample H-135A is from a bed of iron-stained sand and gravel underlain by coarse grayish sand containing streaks of black sand one-eighth to one-fourth inch thick. The sample was taken over a width of 4 feet and represents a bed lying beneath the one from which sample H-135 was taken.

"Sample H-136 is from a bed of fine to coarse sand with about 6 inches of gravel near the base. The sample represents a thickness of 9 feet 4 inches. The bed has a covering of 3 feet of beach sand and contains bands one-half to two inches thick of hard iron-stained material at irregular intervals over the

entire width."

Ref: Hornor 18:25 quoted
Pardee 34:
Parks and Swartley 16:34
H. F. Byram (private report) 31.

McCORMICK MINING AND MINERAL CO. (Placer) Sixes River Area

Oregon corporation. H. F. McCormick, Pres.; N. B. McCormick, Sec.-Treas., St. Helens, Oregon; capitalization $10,000. 740 acres placer. $5207.51 work done in 1935. No exact location given in report to Corporation Commissioner.

MEEK'S (Eckis) MINE Sixes River Area (Port Orford)

Diller describes this mine as follows:

"On the Meeks mine, near Port Orford, Mr. R. G. Eckis has been running an Eccleston Tension Concentrator 24 hours a day for some time. He is using a giant to wash the sand into a sluice box in the bottom of which he has the screen, thus taking the heavy black sand out in an undercurrent. This product is then run over the concentrator. He reports that he is securing 80 percent of the gold, platinum, and iridosmine, and he says his concentrates run over $8000 a ton total value. One machine handles the undercurrent from 150 cubic yards a day."

MOSS ROSE MINE (Gold-copper) Sixes River Area (Elk River)

Old Name: Axtell Mine.

Owner: Mrs. Myrtle M. McKinzie, Port Orford, Oregon. Mrs. McKinzie is the daughter of George W. Axtell, the locator of this property.

Location: On Elk River 3/4 mile by trail northeast of the McGribble Guard Station, and 10 miles southeast of Port Orford; located in sec.16, T.33 S., R.14 W.

Area: Property consists of three full sized quartz mining claims held by location.

Miscellaneous Information: The development work consists of a number of shallow open cuts and a 50-foot cross cut tunnel. The 50 ft. tunnel was started to cut 5 ledges. Estimated length when completed would be 500 feet. The tunnel was driven in a southeasterly direction. and the veins dip to the northwest. Elevation 230 feet. No snow. Plenty of timber for mining purposes. Rough mountainous topography. Possibility of developing water power. No equipment.

Geology: "A series of quartz veins in greenstone which strike N.60° E. and dip 54° NW as shown in an open cut, where quartz veins up to 1 foot wide form a mineralized zone over 12 feet wide. Chalcopyrite in fair amounts scattered through quartz and pyrite in greenstone near veins." Ref: Parks and Swartley 16:18 quoted. Some bunches of molybdenite crystals occur with marcasite.

Informant: J. E. Morrison, June 7, 1939.

MYRTLE GROUP (Placer) Sixes River Area

Owner: Myrtle M. McKinzie, Port Orford, Oregon.

Location: On Sixes River 1/2 mile from McGribble Guard Station, and 10 miles southeast of Port Orford. Three 600x1500 placer claims following the general course of Elk River. Sec.16 and 17, T.33 S., R.14 W.

General Information: According to G. W. Axtell this property has produced a maximum of $300 in one season by hand work. There are lots of large boulders which make it difficult to work. No equipment and no water rights.
Informant: J. E. Morrison, June 7, 1939.

OREGON ENGINEERING CO. (Inman Mine - placer) Sixes River Area

Owner: Oregon Engineering Co., Gilbert E. Gable, Port Orford, Oregon. Under lease to Frank Kiltoff.
Location: On Sixes River 11 miles east of Sixes postoffice, last mile by trail. Located in secs. 7 and 18, T.32 S., R.13 W., and 11, 12, and 13, T.32 S., R.14 W.
Area: 30 unpatented placer mining claims and 80 acres of patented land.
Miscellaneous Information: Except for a few months in 1933 the company has maintained a policy of working the property on lease. At the present time they are working about ½ mile below the fork of the river on a bar about 40 feet above the river. Six or eight feet of gravel underlying up to fifteen feet of overburden. Water is brought in from Beaver Creek through a 1-3/4 mile ditch which gives about 200 ft. head for placering, but the pipe is old and it is impossible to take advantage of this head. No clay. Little if any snow. Elevation 300 ft. Rough mountainous topography. Plenty of timber and water for mining purposes. A few small boulders. Kiltoff expects to mine this bar out in 1940. The bars are small and each one requires a special set-up. The values are spotted.
Equipment: 12 cabins, a small sawmill, blacksmith shop, and 600 ft. of 15 and 16 hydraulic pipe; two no.2, two no.3, and one no.4 giants; one 8" centrifugal pump; eight small gas engines; an air compressor; a 25 kw. generator; also over 5,000 feet of old hydraulic pipe which is rusted beyond use.
Informant: J. E. Morrison, June 10, 1939.

SISKIYOU GOLD MINING CO. (Placer) Sixes River Area

This company operated on that portion of the old Inman Mine about 1½ miles above the forks on the Sixes River. It is not known whether this company was leasing or if they had an option to purchase from the Oregon Engineering Co. The informant tried to contact Mr. Emmet T. Halst, the secretary, in Grants Pass, but without success.

Frank Kiltoff, who is operating the Inman Mine, stated that a Mr. McConnachie and associates were interested in the Siskiyou Gold Mining Co.

A small suction dredge was built in 1936 and operated in the river for a few days and proved to be unsuccessful. The equipment has since been removed from the boat.

Informant: J. E. Morrison, June 10, 1939.

SIXES BEACH PLACER Sixes River Area

Diller describes this mine as follows: "The Sixes mine is located about 2½ miles south of Denmark, near the line between secs.27 and 34, T.31 S., R.15 W., and is operated by Mr. W. P. Butler of Lakeport, Cal.

Like the Blanco Mine, it lies along the eastern border of the coastal plains, at an altitude of nearly 200 feet above sea level. The mine covers about an acre and has a depth below the surface of about 12 feet, exposing along the eastern border the following sections:

Section of the Sixes Mine, 2½ miles south of Denmark

	Feet
Surface material, wind-blown sand and soil	5
Gray sand with boulders	2
Black sand with boulders	2½

"The whole 9½ feet of material is more or less distinctly stratified and dips gently westward, away from the shore, which is formed of crushed sandstone and shale of Cretaceous age. This bedrock series is well exposed in the eastern portion of the mine and contains rock oyster borings. The decomposed fine sediments yield tough bluish clay, which on the surface for 6 inches or so is stained reddish and becomes more granular, affording a good bedrock for mining. The gravel is washed into pool and raised 15 feet by a hydraulic elevator to get drainage for sluicing and tables. Much of the gold is fine and is associated with platinum metals in sufficient quantities to make the saving of them a matter of some importance.

"The lack of adequate water supply and good drainage renders mining so expensive as to retard the development of hydraulic mining along this promising old beach. It would seem to be an encouraging locality to test by a modern dredge."

Ref: Parks and Swartley, 16:205.

SMITH AND ROBINSON CLAIMS (Placer) Sixes River Area

"M. A. Smith and J. B. Robinson own 3 claims at the mouth of Rusty Creek in sec.27, T.32 S., R.12 W., where it flows into the south fork of Sixes River. These are the Big Nugget, located in 1915, and the Big Foot and Nut Wood, located the previous year. The owners were ground-sluicing in the bed of Rusty Creek, and they claimed to have recovered $14.60 in gold at the date the examination was made."

Ref: Parks and Swartley, 16:206 quoted.

SUNRISE GOLD MINING CO. Sixes River Area

Oregon corporation: A. C. Coburn, White Swan, Washington, pres.; W. W. Carson, Box 306, Grants Pass, Oregon; capitalization $20,000. Lease on 8 placer claims, Hells Hole in Curry County.

TRAIL'S END MINE (Chromite) Sixes River Area

Owner: Myrtle A. Garner, Sixes, Oregon.

Location: On the divide between the Sixes River and Floras Creek, by road 15 miles east of Sixes Postoffice, 19 miles northeast of Port Orford, and 39 miles southwest of Coquille. To reach the property it is necessary to drive up the Sixes on graveled road approximately 12 miles to "the plum tree", thence north 3 miles of fairly steep mountain grades to the property.

Area: 400 acres of patented land described as the $SE\frac{1}{4}$ of $SE\frac{1}{4}$ of sec.26, $N\frac{1}{2}$, the $SW\frac{1}{4}$ of the $SE\frac{1}{4}$, and the $SE\frac{1}{4}$ of sec.35, and the $E\frac{1}{2}$ of the $SW\frac{1}{4}$ of sec.36, T.31 S., R.14 W.

Development Work: Two open cuts near the top of the ridge; one runs north 80° E. about 100 feet long cutting the chromite zone. No chromite was found. Thirty feet to the south of this cut is the second one which runs north 30° W. 30 feet. No chromite was showing here; however, there is a pile of about 25 tons of chromite ore on the dump. A short distance to the east a tunnel was run under this cut, and one boulder of chromite was said to have been found. (The reported weight of this boulder varies from 50 to 500 lbs.)

Geology: The chromite occurs as small grains disseminated in a serpentine zone on a small ridge which runs in a northerly and southerly direction. A representative sample from the 25 tons of ore on dump ran 38.6% Cr_2O_3. A pan concentration of this ore, after grinding to 20 mesh, assayed 53% Cr_2O_3. About 100 yards down the ridge from the workings there is another zone outcropping, and a grab sample from this point ran 14.5% Cr_2O_3. No work done on this lower exposure.

Miscellaneous Information: Elevation 1800 ft. Little snow. Plenty of timber for mining purposes. Mountainous topography.

Informant: J. E. Morrison, June 7, 1939.

WAGNER CLAIMS — Sixes River Area

"Diller says that at the time of his examination the Wagner claim, about a mile below the mouth of Butcher Gulch in sec.20, T.32 S., R.4 W., was being worked by Mr. J. L. Searle and others from the state of Washington.

"The whole stream was dammed to a height of about 5 feet and 2 lines of sluice boxes were suspended on numerous logs felled across the stream. A steam pump and 9 men were employed."

Ref: Parks and Swartley 16:230 quoted.

WALL (P. L.) CLAIM — Sixes River Area

In sec.21, T.32 S., R.13 W., discovered May 1, 1915. In August 1915 a 20-foot open cut exposed a 1 to 4 foot rusty quartz seam.

WALLACE AND HADLEY CLAIMS (Placer) — Sixes River Area

"Tom L. Wallace and Oliver C. Hadley own 2 placer claims on the south fork of Sixes River known as the South Fork Nos.1 and 2, the relocation of which was recorded January 1, 1915. This property was originally called Thompson Flat. They began work in March and had 160 feet of pipe on the claim when the examination was made. The first gravel was washed in May, and it is claimed that $165 worth of gold was taken out during the spring of 1915. It is said that the values are confined to within about one foot of the bedrock, with the greatest proportion of the gold directly on the bedrock, and that no clay is present to interfere with the saving of the gold. Very little platinum is found in this ground, and no attempt to save it has been made.

Ref: Parks and Swartley, 16:231 quoted.

WAY CLAIMS (Placer) Sixes River Area

"At the time of this investigation, Mr. C. W. Way was working 3 placer claims: - The Rainbow, Robert Harrison fraction, and the Nugget Patch, acquired by purchase in 1912. These have been worked by hydraulicking from the time they were purchased. The property is equipped with 800 feet of flume and 600 feet of pipe. It is claimed that $700 worth of gold has been taken out of this ground, and that the values are confined largely to a point in the gravel just above the bedrock.

"Mr. Mitchell gives the location of this property as being just below the Wallace and Hadley claims on the south fork of Sixes River.

Ref: Parks and Swartley 16:233 quoted.

DOUGLAS COUNTY

Geology:

Only part of the county has been systematically studied. Diller, 98, and Diller and Kay, 24, in the Roseburg and Riddle Folios give a complete description of the central and southern parts. In addition to these, some small districts, particularly in the eastern part, have been described by Wells and Waters 34, and Callaghan and Buddington 38. There is little descriptive material available relating to the geology of the western part of the county, with the exception of the extreme southwest corner which was mapped by Diller 14:47. The extreme eastern part of the county is in the High Cascades where the surface is covered by recent glassy, highly vesicular lavas. In the Western Cascades there are older basaltic, andesitic and rhyolitic flows and intrusives, together with small areas of dioritic intrusives.

In the central portion of the county the oldest rocks are pre-Cretaceous radiolarian cherts which occur in relatively small bodies southwest of Roseburg. In the southern part of the Roseburg quandrangle are large areas of the Myrtle Formation (Cretaceous) containing some isolated small bodies of probably older amphibole schist and limestone. The Myrtle, as in Coos and Curry Counties, is made up of conglomerates, sandstones, and shales. The central part of the quadrangle contains large areas of Miocene basaltic lavas. The northern and western parts of the quadrangle are covered by Eocene sandstone and shales, mainly of the Umpqua Formation.

The southern part of the county as described in the Riddle Folio contains extensive areas of Jurassic rocks. Exposures of greatest extent are of so-called greenstones - the general name given to those dark-colored, altered, igneous rocks occurring widely in southwest Oregon. Within the greenstones are extensive bands of rhyolite. Next in order of areal extent are the sediments of the Galice and Dothan formations which consist of slates, shales, sandstones and conglomerates.

Knoxville (Cretaceous) and Umpqua (Eocene) sediments occupy relatively small areas in the northwest part of the quadrangle. Here also is a large serpentine band of interest because it contains a deposit of genthite (nickel silicate) on Nickel Mountain, the only nickel known in Oregon.

Of the various metallic minerals occurring in the county, cinnabar is by far the most important commercially. Several occurrences of cinnabar are known. The only producer is the Bonanza, which at this time (early 1940) is producing at a higher rate than any other quicksilver mine in the country. Wells and Waters 34:40 state that at the Bonanza Mine "the ore occurs in beds of altered tuffaceous sandstone of the Umpqua formation, which are inter-stratified with layers of shale".

Douglas County has been divided into four general areas as follows:

1. The Nonpareil-Bonanza area includes that portion of Douglas County lying within T.23, 24 and 25,S., R.3 and 4 W.

2. The Riddle area includes that portion of southwestern Douglas County, mostly within the drainage of Cow Creek, lying south of T.28 S., and bounded on the east by the west line of R.4 W. and the divide between Upper Cow Creek and the South Umpqua.

3. The Tiller-Drew area includes that part of the southeast portion of Douglas County lying south of T.28 S., west of the Willamette Meridian (R.1 E.) and including the Umpqua drainage east of R.5 W.

4. The Umpqua area, includes all of Douglas County not otherwise classified.

NONPAREIL-BONANZA AREA

This quicksilver district is in the northern part of the county in Ts. 23, 24, and 25 S., Rs.3 and 4 W. Part of its northern boundary borders Lane County, and the district adjoins the Black Butte quicksilver district in that county.

Schuette 38:128-129 describes the district as follows:

"This quicksilver mining district lies in northern Douglas County and the two most important mines, namely, the Nonpareil and the Bonanza, are 8.2 and 7.9 miles east from Sutherlin respectively. Sutherlin is a station on the Southern Pacific Railroad and is on U.S Highway 99. The road from Sutherlin to the mines is good and the mines are accessible the year round.

"The geology of this general area is covered in the U.S.Geological Survey's no.49, or Roseburg Folio. The topography in the vicinity of the mines is fairly old with smooth well-rounded hills rising to elevations of some 2,000 feet above the valley floor which is some 800 feet above sea level in elevation. Relief is due to differential erosion.

"Both mines are in the Umpqua (Eocene) formation which here consists mainly of shales and sandstones with some conglomerate. The general strike of these shales and sandstones in the mines is NE and the dip is SE. The mineralized strata, mostly sandstones, are marked by alteration of the rocks probably caused by the mineralizing solutions. Roughly parallelling the mineralized strata a short distance on the SE the Roseburg Folio shows a large mass of "diabase" supposed to be partly intrusive and partly extrusive in origin. U.S.G.S. Bulletin 850 however maps this "diabase" as basalt flows, beds of palagonite tuff and breccia, and conglomerate, and places these in the Umpqua formation.

"Some three miles northwest of the mines are diabase dikes having a strike parallel to that of the mineralized zone. They are definitely post-Umpqua and stand almost vertically. It is possible that the mineralization was associated with similar dikes deeper down along the zone of rock alteration. This zone of rock alteration extends from the Sutherland Mine in sec.20, T.25 S., R.4 W., northeast into sec.6, T.24 S., R.4 W., for a distance of over seven miles. This latter location is known as the Butte prospects. A little work has been done both on the Sutherland and Butte prospects but

no production has been recorded from either one. Another quicksilver prospect has been reported to be at Glide some eight miles SE of the Nonpareil-Bonanza area".

BONANZA MINE (Quicksilver) Nonpareil-Bonanza Area

Owners: Bonanza Mines, Inc., Sutherlin, Oregon.
Location: 8 miles east of Sutherlin in sec.16, T.25 S., R.4 W., 22 miles NE of Roseburg.

The following quoted from Schuette 38:130-137 describes the history, geology and development:

"This mine lies in sec.16, T.25 S., R.4 W. Bulletin 850 (Wells and Waters 34) shows a contour map of the hill in which it lies and shows the location of the prospect tunnels in existence in 1930.

"Since that time two additional adits, nos.10 and 11, have been driven tc the ore zone.

"In 1928 the Bonanza Mine was held by J. W. Wenzel, F. S. Skiff, and C. Scherer. The existing workings were sampled and disclosed a considerable tonnage of low-grade ore.

"In 1931 the control passed to the Northwestern Quicksilver Company of which Wenzel became the manager. Development work was done but construction of a plant was held in abeyance probably due to the depressed state of the industry.

"In 1934 it was reported that H. W. Gould & Company had optioned the property and were doing development work. No plant was built, however.

"In 1935 J. W. Wenzel sold out his interest to H. C. Wilmot. Early in 1937 H. C. Wilmot bought two Herreshoff furnaces that had been used in experimental work by the Santa Cruz Portland Cement Co. A reduction plant using some of this equipment was designed for the Bonanza Mine by C. N. Schuette of San Francisco. It was erected during the summer and began operation in October, 1937.

"The outcrop of the mine is not prominent. It strikes a little east of north and runs along the east sidehill slope of a ridge having a north and south trend. The dip of the ore zone is about 40° east. The ore is found in a bed of altered tuffaceous sandstone, formerly mistaken for an altered andesite, overlain by shale. In places at least this has the appearance of being a fault contact and a fault gouge forms the hanging wall at these points. At other places shale forms the hanging, and evidence of movement is not so clear. The footwall is not distinct in that it is a commercial footwall that must be determined by assay. From the hanging wall, cross fractures run out approximately at right angles to the strike; running from these to the south are small fractures roughly parallel to the strike of the hanging wall.

"The ore deposition is governed by this fracture pattern, the ore being better close under the hanging and close to the cross fractures and grading off from the hanging to the west and from the cross fractures to the south.

"Development has been by drift and crosscut adits. The early production in the 1870's came from the Glory Hole in the outcrop. No.1 adit develops

over 200 feet of backs and the hanging and foot are just outside of the drifts near the end of the adit. Assays show the full 90-foot width of the ore zone to average 3 lbs. quicksilver per ton. A 17-foot width on the hanging wall ran 6.5 lbs. per ton and a 6-foot width on the footwall averaged 9.3 lbs. per ton according to the assay maps made in 1928. The hanging wall drift averaged 11 lbs. and the footwall drift ran 9.3 lbs. of quicksilver per ton. No. 11 adit has cut the hanging wall but has not yet crosscut the ore zone. No.10 adit has crosscut the ore.

"The South Cut assayed 6.8 lbs. across the west face, but floor samples from 14 to 60 lbs. were taken in this cut which gave the highest samples in the mine.

"The present production is coming from No.7, 8, and 9 workings where stoping is in progress on the sides of the raises. The levels are being extended north, then raises are run up and stoping follows on stulls and headboards. The rock is fairly "tight" so that in general only low-grade ore could form but occasionally rich seams of high-grade ore are found when the mineralizing solutions found open fractures in which to deposit their load.

"In No.7 tunnel, the ore assayed 14 lbs. per ton for four feet under the hanging wall. The next six feet ran 5.5 lbs. per ton.

"The ore is mined with C-P-8 machines using auger bits and some five men in the mine were getting out 40 tons of 5 lb. ore per day. Since the dip of the ore zone is with the hill, the crosscut tunnels and tramming distances are short. The mine is fairly dry, and draft through the raises provides natural ventilation. Compressed air is furnished by a C.P.T. 9-3/8 x 4-1/2 by 5-1/2 cog belt driven compressor. This is run by a 50 hp. motor. Power is furnished by the California-Oregon Power Company over a 11,000 volt line and stepped down to 440 volts at the mine.

"From the mine the ore is trammed to a 1-inch grizzly set over a 240-ton bin. The oversize from the grizzly goes through an 8 by 10 inch roll jaw crusher. No sorting can be done on this ore. From the ore bin a 16-inch by 6 foot belt feeder delivers the ore to a conveyor belt which carries it to, and drops it on the outside edge of, the drying hearth of the furnace. A head sample of the ore is taken from this conveyor belt. Furnace tails are also sampled and cut samples are taken in the mine. The distillation-titration method of assay is used.

"The furnace has five hearths and is 14 feet $2\frac{1}{4}$ inches in outside diameter. It is built on a cast-iron circular girder supported by five 10-foot legs which give ample clearance below the furnace.

"Having an odd number of hearths, it has center feed. The ore is delivered into the top or drying hearth by being dropped there from a conveyor belt and is then raked inwards to the feed hole.

"The speed of the furnace can be controlled by variable speed motor and is usually from 1 r.p.m. to 1 revolution in 40 seconds.

"Firing is done by two low-pressure oil burners on hearths 2 and 3 respectively. An 11 by 11 inch Sirocco Dust Collector is attached directly to the furnace and removes practically all the dust from the gases before they enter the condenser system. The furnace makes only some 200 lbs. of dust per

24 hours and this assays from 1 to 3 lbs. of quicksilver per ton, so the loss from this source is negligible.

"The discharge of the burned rock from the furnace is by means of a balance gate in the lower hearth. This discharges into a hopper from which it is drawn into cars and trammed to the dump. The plant had been in operation only a short time when visited in November, 1937, so that long range average operating figures were not yet available. It was treating some 36 to 40 tons of ore per day having a moisture content of some 14 percent with a fuel consumption of some nine gallons per ton.

"The condenser system is of sheet-iron and tile pipe construction. The gases pass from the dust collector through three strings of U-bends to the exhauster. At the bottom, the U-bends are connected by inclined pipes which are sealed by dipping into a water-filled concrete trough.

"This type of condenser system, which was originated by the author at the Red Elephant Mine in 1930, is easy to erect and easy to clean. It has also been adopted at two plants in Texas and five plants in California and one plant in Nevada.

"Ten-inch glazed tile pipe was used for this condenser system and the stack flue and stack are 12-inch tile pipe. The covers at the top of the vertical and inclined pipes have 1-inch holes in them which are closed with corks. The pipes are washed down daily by hosing them out through these small holes.

"White enameled pans are submerged in the trough under each pipe and after the daily wash-down these pans holding the day's product are lifted out; the water is decanted; and the floured mercury is placed on the soot pan. This is heated by waste heat from the furnace and the dried, clean quicksilver is then drawn off and bottled in the usual manner.

"Draft for the furnace is provided by an American Blower Company No.30 Type E fan. Since this fan works in the acid gases on the cold end of the condenser system it is completely rubber covered on the inside. It operates at 2,200 r.p.m. With the fan at this end the entire condenser system is under suction at all times. Any leaks in the condenser system may let air leak in but will not let hot quicksilver laden gases leak out and thus cause a loss. The clean-up-man is in no danger of breathing quicksilver vapors when washing down.

"The plant has a neat clean appearance and was operating smoothly with a green, but intelligent, crew, who were showing all the earmarks of rapidly becoming seasoned quicksilver operators.

"The property has living quarters for the superintendent, but the crew of 12 to 14 men lives on neighboring ranches or in Sutherlin so that no boarding house is necessary. Wages are $3.20 for roustabouts, $4.00 for muckers and furnace men and $4.50 for miners. Haulage and fuel costs are low and with such generally favorable conditions the Bonanza Mine should become one of the steady producers of Oregon".

During 1939, new ore of good grade was developed and unit value of furnace heads was raised; also the value of indicated ore available was increased materially. In the latter part of the year, a Gould rotary furnace with a

reported capacity of 75 tons of ore per day was installed to supplement the Herreshoff furnace. Reported production in February and March 1940 is at the rate of 500 flasks a month, with the possibility of further increase.

Ref: Schuette, 38:130-137 quoted.
Wells and Waters, 34:40-41.

ELKHEAD MINE (Quicksilver) Nonpareil-Bonanza Area

Owner: A. G. Hovey and associates, care of Blaine Hovey, 722 Lincoln Street, Eugene, Oregon.

Schuette 38:145-147 describes the property as follows:

"This mine is located in the NE¼ of sec.21, T.23 S., R.4 W., about ten miles east of Yoncalla. It was discovered in 1870 and is said to have produced in those early days although there is no record of such production. In 1895 a small Scott furnace was built but again there is no record of any production. U.S.G.S. Bulletin 850 on Plate 12 shows a plan and section of the mine, and Plate 13 shows the geology of the mine area.

"The rock alteration along the ore zone is similar to that at Black Butte forming the typical iron ribs. The formation strikes northwest and the dip is southeast. The lowest formation is an amygdaloidal basalt. On this lies a tuffaceous sandstone and this is overlain by shales. The alteration and mineralization of the rock occurred along the basalt-sandstone contact. Cinnabar is disseminated throughout the altered amygdaloid near the contact. The fractures which permitted mineralization must have been localized along the amygdaloid-sandstone contact by a differential movement on flexing. The sandstone must have been too 'tight' and 'soft' at the time of mineralization to permit of open fractures in it. If it had been a hard open-textured sandstone it would have fractured and let the mineralization concentrate in it under the overlying shale cap rock. As it was, the sandstone itself was a semi-permeable cap rock on the poorly-fractured basalt and only low-grade ore could form.

"This mine also has been the scene of recurrent activity for many years. In 1931 J. W. Wenzel was in charge of development work at the property and considered repairing the old 20-ton Scott furnace on the property. Then C.O. White of Seattle optioned the property in 1931 and installed his patented retort.

"A satisfactory test run was reported in 1934. Despite all this activity the production in all those years is reported as being only 16 flasks."

Ref: Schuette 38:145-147 quoted.
Wells and Waters 34:34.
Informant: J. E. Morrison, 39.

HATFIELD LIMESTONE Nonpareil-Bonanza Area

Hodge 38 gives the following description:

"The deposit lies in the SE½ NE¼ sec.31, T.27 S., R.4 W. The nearest railroad point is Roseburg, distant 10 miles by practically level road, of which 6 miles is paved.

"The exposure in this locality does not show any large amount of limestone except some large blocks that have been quarried and some in place, largely hidden by overburden. The stone has a light fawn color, with calcite-filled fractures, and is similar to that on the nearby but larger Oden-Hatfield deposit. The strike of the lens is N. 75° E.

"There is another outcrop of limestone in the fork of the South Deer Creek, near the Roy Hatfield house, but the amount of stone is small and operating conditions unfavorable."

The Hatfield deposit in SE¼ NE¼ sec.31, T.27 S., R.4 W., represents a small pod, or slump from a larger mass. Apparently, only a small quantity was removed. The large, quarried blocks mentioned in the Hodge report are from the Oden-Hatfield deposit and were brought to the Hatfield locality. A marble saw was operated about 1889-1890 when limestone was quarried at Oden-Hatfield and sawed for use in the Douglas County Courthouse at Roseburg. There is no record of any other work on either of these deposits. Several slabs and small fragments of sawed marble were found. The sawing plant is completely removed except for a few rotten timbers.

The sawed pieces are interesting as an example of weathering. The dark gray limestone has a 1/16 inch outer zone of bleached, weathered rock, very noticeable when the specimen is broken. The rough, unsawed marble is not so weathered. The sawed pieces were picked out of the soil and the weathered zone may be the result of organic acids acting on a relatively smooth surface -- while the unsawed, large blocks are not in contact with the organic acids.

Informant: Treasher 40.
Ref: Hodge, 40 (Section III Northwest Limestones, Vol.1, Part 1, p.277)

NONPAREIL MINE (Quicksilver) Nonpareil-Bonanza Area

Location: The mine is in secs. 3 and 10, T.25 S., R.4 W., about 9 miles by road east of Sutherlin.

History: Wells and Waters 34:38 write as follows:

"The Nonpareil Mine was discovered some time prior to 1870, when the New Idria Co. was formed to work the property. The Oregon Cinnabar & Silver Mining Co. was incorporated in 1882, and the property remained in its hands until acquired by the Nonpareil Quicksilver Co., which started work in the fall of 1928. Nothing concerning production prior to 1928 could be learned, although the old workings and the ruined remains of a Scott furnace indicate that considerable ore was mined and treated."

Concerning later history, Schuette 38:129 states:

"Production from the work in the 1870's was not large. In 1928 the Nonpareil Quicksilver Co. began development work, and in 1929 and 1930 crosscut adits were driven NW into the hill some 2,000 to 3,000 feet north of the old mine. Some of these are reported to have shown good ore but as usual the ore was very irregular. As early as 1928 the claim was made that some 5,000 tons of 5 lb. ore were broken in the old mine and that 25,000 tons more had been exposed on three sides and that 25,000 tons more were exposed on one side, all of this being the old mine.

"In any case development work was reported as being done by the C. M. Everett Company of Seattle in 1929, by the Sutherlin Cinnabar Company in 1930, and in 1931 it was reported that the Nonpareil Quicksilver Corporation was about to build a furnace. At this time it was reported that 20,000 tons of ore were blocked out.

"This plant which was built late in 1931 shipped its first quicksilver to market early in 1932.

"The plant was a 4-hearth 10-foot diameter Herreshoff furnace with cast-iron pipe condensers and practically identical with that erected at Maury Mountain and later moved to the Horse Heaven Mine.

"Apparently the grade of ore developed had been over-estimated and this in addition to the low prices of 1932 and 1933 did not allow of operation at a profit.

"The plant was sold and moved to a southern California mine, and no work has been done on the property since then."

Geology:

Wells and Waters 34:38-40 describe mine working and ore occurrences as follows:

"The old workings are all at the south end of the ridge, but during 1929 and 1930, eight short adits were driven into the east slope of the ridge from 1,800 to 3,200 feet northeast of the old mine and at altitudes of 1,000 to 1,200 feet, thereby extending the prospected area to a belt about 3,600 feet long.

"The old mine comprises about 2,000 feet of workings and consists of three adit levels which have explored the mineralized area to a depth of about 175 feet.

"The deposit occurs in a bed of arkosic sandstone of the Umpqua formation. The sandstone is about 155 feet thick and is overlain and underlain by shale. Within this bed is a tuffaceous variant which was probably originally of andesitic composition but is now too badly altered to permit precise determination. The formation strikes N.35° E., dips about 41° SE, and contains at several places what appear to be bedding-plane faults.

"With the exception of adit 3 north all the adits northeast of the old mine are in altered tuffaceous sandstone. Adit 3 north, however, passes from shale into altered sandstone and back into shale; the sandstone bed is 60 feet wide and dips 41° SE. The shale that formerly covered the sandstone at the other adits has been removed by erosion, and the sandstone crops out in very steep slopes and crags. Evidence of the usual type of alteration is found in all the adits. Bedding-plane faults also occur.

"Rock alteration and mineralization.--The arkosic sandstones have been profoundly altered, and the shales were locally affected. There is no essential difference in the character of the alteration from that shown at Black butte and Elkhead, except that relatively more siderite and less calcite and silica may have been introduced. Veins of siderite almost free from silica or calcite cut the rock in all directions. They are especially conspicuous

in the upper part of the mine, where oxidation has converted them to the characteristic iron ribs. The relatively smaller amount of silica caused the outcrop to be less resistant and the rubble derived from it to be thinner than at Blackbutte. Crags comparable to those at Blackbutte are found only at the outcrop above the Nonpareil mine".

Ref: Wells and Waters, 34:38-40.
Schuette, 38:129.

ODEN-HATFIELD LIMESTONE Nonpareil-Bonanza Area

Hodge 38 described the deposit as follows:

"This lies in the NW¼ sec.33, T.27 S., R.4 W. It is 11 miles by excellent road from Roseburg, or 1 mile east of the Hatfield locality.

"The County Assessor's maps in Roseburg (as of January 1937)show the deposit to be on land belonging to R. V. Hatfield, but the name of Herman Oden, owner of adjoining land, has in some manner become connected with it.

"The limestone is of a good grade, pale fawn in color, with seams of white calcite. It is massive and can be quarried in large blocks for dimension stone of monuments. In past years this stone has been quarried and sawn, but no such work has been done recently and only relics of the operations can be found.

"The lens of limestone strikes N.75° E. and dips almost vertically. It is 25 feet wide and can be followed for 225 feet along the strike. Former work was all done on the western end, where a pit 30 by 30 feet in area with a 25-foot face remains.

"The outcrop is at an elevation of 1045 feet, or only a few feet above the valley floor of the south fork of Deer Creek. The south side of the lens is in contact with fine-grained sandstone while the contact on the north side is a red ferruginous chert. The lens pinches out toward the east end, judging by surface indications."

It is reported that Mr. Roy Hatfield has located other outcrops of limestone northeast of this deposit. (For reference to quarrying of structural marble, see report on Hatfield deposit.)

Informant: Treasher 40.
Ref: Hodge, 38 (Section III Northwest Limestone, Vol.1, Part 1, p.277).

RIDDLE AREA

The Riddle Area is bounded on the north by the north side of T.29 S., on the east by the east side of R.5 W. for 12 miles, and thence southeast on the divide between the drainage of Cow Creek and the South Umpqua River to the Douglas-Jackson County line. On the south, it is bounded by Jackson and Josephine Counties and on the west by Coos County.

Geology:

The eastern half of this district has been mapped by Diller 98, and Diller and Kay 24. The generalized trend of formation exposures is northeast-southwest. Outlining the areal geology from east to west, - there are large masses of intrusive quartz diorite and related rocks in the greenstone areas drained by upper Cow Creek and the South Umpqua River. Also mainly long lenticular serpentinous masses are exposed, particularly in the southern and southeastern parts along the Jackson County line, and in the north central part northeast and southwest of Nickel Mountain. Large areas of greenstone and related basic igneous rocks make up perhaps one-half of the surface exposures. They interfinger with Galice sediments (Jurassic) in the eastern and with Dothan sediments in the western portion of the area. Large bands of rhyolitic rocks occur in the greenstones mainly north of Cow Creek in the Glendale region.

Myrtle sediments (Cretaceous) and Umpqua formation (Tertiary) appear to the north and west.

Gold is found in lodes and placers. The lode deposits are generally associated with sulphides occurring in greenstone or serpentine. Placers are mainly in the gravels of present stream beds. Cow Creek has been the most productive but has had a relatively small output. Copper deposits occur for the most part in the western part of the district. Possibly the most interesting mineral occurrence is that of genthite, a nickel magnesium silicate on Nickel Mountain. The deposit is similar in mineral content and associations to those of New Caledonia. Whether or not the Nickel Mountain deposit is commercial has not been proven.

BEAVER SPRINGS MINE (Copper, gold) Riddle Area

Owner: Beaver Springs Mining Company, care of Arthur March, Medford.

Location: Six miles S. of Riddle, on the N.side of Silver Peak Mt. in secs. 7 and 18, T.31 S., R.5 W.; and secs.15 and 24, T.31 S., R.6 W. There is no road reaching directly to the property, but a road about four miles long with a 7° grade may be constructed easily by following the present trail.

Area: Six full-size lode claims or 120 acres held by location.

History: Following the World War, the Silver Peak Mine was active and the Silver Peak vein was traced in a northeasterly direction by H. L. Shawver with the financial assistance of Arthur March and associates. Shawver and Charles Bergen did about 1,000 feet of development work between the years 1923 and 1928. Since that time the only work done has been annual assessment work.

Development: A tunnel trending S.35° E. was driven over 1,000 feet. The portal is now caved. Ore is reported to have shown pyrite, chalcopyrite, bornite and sphalerite. Some ore is said to have assayed 12% copper, 1 ounce of gold, and 12 ounces of silver to the ton.

Miscellaneous Information: The nearest available water is two to three miles away. There is plenty of timber. Maximum snowfall is 3 feet. It is difficult to get into the property during the winter season.

There is no equipment nor any record of production.

Informant: J. E. Morrison, 38.

Reference: Shenon 33:15.

BYRON LIMESTONE Riddle Area

Owner: Fred Byron, Brockway, Oregon.

Location: In SE¼ sec.5, T.29 S., R. 7 W., about 1½ miles NE of Olalla. To reach the property from the intersection of US Highway 99 and State Highway 42, it is necessary to drive 6.3 miles west on Highway 42 to first signboard reading "Olalla-4 miles" and proceed SW on this road, crossing 2 bridges, 4 miles to Fred Byron place. The limestone outcrop, 200' above creek bottom, is 1/2 mile NW up minor stream valley.

Area: Deeded land, 520 acres.

Development: Limestone is uncovered over an area 10 ft. x 20 ft.

History: The stone was exposed about 40 years ago, but there has been no activity since then. Samples of surface material were sent to the paper mill at Empire by Mr. E. M. Renfro. It is reported that if slightly better grade rock can be found a minimum of $5 per ton f.o.b. Empire would be offered.

Geology: The limestone appears to strike N.75o W. and dip 75° S.15° W. on the basis of a 20' exposure. It is fine-grained and compact and looks somewhat like lithographic limestone. Also, it looks, and shatters, as if it were chert - this similarity is very striking particularly as the country rock contains considerable chert and jasper. The limestone is cut by very narrow, convoluted, suture-like strings of a dark reddish material, into areas 2 inches square. Cutting the limestone and these strings, and being cut by them, are 1/4 inch veins of crystallized, translucent calcite. Some of the limestone is pink to rose color and resembles bleached red shale. There is no topographic expression of the limestone or wall rock.

The country rock was not studied closely, but it appears to be a slightly metamorphosed sandy shale. It contains considerable greenish and reddish chert. This chert and the mildly metamorphosed sediments indicate Cretaceous (Myrtle) formations. Some schistose material like an original calcareous shale was found on the hillsides where the footwall contact should be.

If the limestone continues down the hill to the creek it is estimated that 20,000 tons would be available. Road distance to Empire is about 90 miles; 1/2 mile of easily-built road would need to be constructed to serve a quarry.

Informant: Treasher, 40.

DOUGLAS MINE (Baker Mine)(Gold) Riddle Area

Owner: Estates of Lincoln Smith and Paul Roehl, care of Robert Smith, Portland, Oregon. Property reported leased to E. G. GAbriel, 610 N. Capital St., Salem, Oregon.

Location: Nine miles west of Glendale on the N.side of Cow Creek in NW¼ sec.27, T.32 S., R.7 W.

Area: 20 acres held by location.

Geology: Country rock is metagabbro. Quartz containing gold has been deposited at numerous fracture intersections, which together make up a well-defined fracture-zone. Walls of fractures show slickensides and there is much altered serpentinous material present. About 6 inches of good ore is exposed in the bottom of a winze.

It is reported that the small mill previously used did not make a suitable recovery.

Development: There is a main adit which runs N.75° W. for 150 feet, one winze, and some drifting and stoping.
Equipment; 7 hp. Stover gas engine, Gibson Prospect mill, No.8 Straub concentrating table.
Miscellaneous Information: Elevation is 1600 feet. There is a maximum snowfall of 3 feet. Sufficient timber and water on the property for mining purposes.
Informant: J. E. Morrison, 38.

FISHER PLACER RIddle Area

Owner: H. Fisher, Brockway, Oregon.
Location: Twelve miles south of Brockway by road. S½ SW¼ sec. 22, T.29 S., R.7 W.
Area:Approximately 10 acres.
History: The occurrence of gold in the locality appears to have been known for some time before the property was first operated in January 1936. There has been small seasonal operation each year since that time.
Equipment: One No.1 Giant together with about 80 feet of 12-inch to 5-inch pipe.
General Information: There is no secured water right. One quarter mile of the old Olalla Ditch, which collects water during the winter, is used. About 30 feet head is obtained. Gold is finely divided in alluvial material which contains considerable clay, especially close to the hard conglomerate bedrock. There are many small boulders with a maximum size of about 1 foot. Maximum snowfall is about 30 inches, but snow does not prevent hydraulic operations.
Informant: J. E. Morrison 38.

GOLD RIDGE CLAIM (Gold) Riddle Area

Owners: Claude Russell and Geo. Bollenbaugh, Canyonville, Oregon.
Location: 4½ miles southwest of Canyonville on Copper Creek (east Fork of Ash Creek) in sec.5 and 6, T.31 S., R.5 W. The property is 1¼ mi. from Levins Ledge by trail.
Area: 1 claim held by location.
Miscellaneous Information: Elevation 2000 feet; mountainous topography, no equipment. Country rock schist and greenstone.
Informant: J. E. Morrison, 39.

GOLDEN GATE MINE (Gold-copper) Riddle Area

Shenon, 33:23-24 states:

"Most of the mining on the north side of Silver Peak has been done by N. A. Bradfield on the Golden Gate property. He located seven claims in 1919, and although lessees have since worked the property, he still retains the ownership. According to Mr. Bradfield two cars of ore have been shipped. One car containing 36 tons gave gross smelter returns of $1,000, mostly in gold, and another car shipped by lessees is reported to have returned $1.76.

"In all, about 600 feet of underground development work has been done. Most of the work has been concentrated on the claims near the road in the vicinity of the Bradfield cabin; the remainder on claims about half a mile to the east.

"The production has come chiefly from an open cut and some shallow workings close to the Silver Butte road. The ore occurring here is a dark grayish-green chlorite schist striking N.30°- 60°E. and dipping 50°- 70° SE. A layer in the schist contains pyrite cubes and some stringers of chalcopyrite, and according to Mr. Bradfield free gold can be panned from some of the rock. The pyrite cubes range in size from those that are barely visible to some with faces over half an inch across. The cubes cut across the schistosity of the enclosing rock, thus indicating that they were formed later.

"Two tunnels have been driven on a mineralized bed in foliated schist at a point several hundred feet east of the workings just described. The two tunnels, which differ in altitude by 90 feet, have explored the mineralized bed for a total distance of about 170 feet. The schist is similar to that containing the disseminated ore at the Silver Peak Copper and Umpqua Consolidated Mines and probably was mineralized under similar conditions and at the same time. In contrast, however, very little quartz or barite was noted in the deposit at the Golden Gate Mine."

Reference: Shenon, 33:23-24.

GREEN MOUNTAIN PROSPECT (Copper) Riddle Area

Owner: Frank Jantzer, Azalea, Oregon.

Location: secs.27-28,44-34, T.32 S., R.4 W., 1 mile from road on Starveout Creek. Elevation 3500 feet.

Miscellaneous Information: About 200 feet below the outcrop is a 40-foot incline shaft sunk near the common corners of the section given under location. A tunnel 40 feet long has been driven about 200 feet below the outcrop upon which the incline shaft is sunk. About 300 feet N. of the shaft a tunnel has been driven on the vein a distance of about 150 feet. A third tunnel called the "Biglow" with portal about 200 feet north of the 150-foot tunnel has been driven about 50 feet.

Quoting from Parks and Swartley 16:114:

"The country rock is typical greenstone that has been greatly sheared and altered, but still preserves its original structure and composition sufficiently to show its diabasic character. The greenstone belt, nearly a mile wide over the summit of Green Mountain, lies between belts of slates and other sedimentary rocks, and is cut off a short distance to the south by serpentine, whose intrusion has influenced the mineralization of the region. The ore impregnates the greenstone and forms lenses. It is usually incased in deep-green chloritic material.

"The important copper mineral is chalcopyrite, which is intermingled with a large proportion of pyrrhotite and pyrite. The range of color from bronze to brass-yellow suggests the presence of cubanite, but the ore tested that was free from chalcopyrite gave no trace of copper.

"The outcrop lies in the upper drainage of Starveout Creek, whose placers have been remarkably productive."

Informant: J. E. Morrison, 38.

HAMMERSLEY LIMESTONE — Riddle Area

Owner: E. M. Hammersley, Riddle, Oregon.

Location: sec.20, T.30 S., R.6 W. To reach the property from Riddle station, cross tracks and turn W-SW on N. side of tracks to first road grade crossing with R.R. 2.8 miles from Riddle. At this point go thru gate straight ahead, then along unimproved road, still on N.side of tracks, thru 2 gates 1.75 miles to Hammersley place.

Development: A small pit about 8 ft.square and 3 ft.deep is open about 100 yards north of house.

History: It is reported that a small amount of lime has been burned for local use. Not over 5 cubic yards of stone could have been removed.

Geology: According to the U.S.G.S. Riddle folio, rocks of the area are Umpqua formation, serpentine and greenstone. Field study indicated a heterogeneous mixture of pebble conglomerate (basal Umpqua?), some serpentine and meta-volcanics with some silicified diorite, in which are masses of large, impure, calcite crystals and more massive calcareous material. It is obvious that the local area is one of landslide, from a steep hillside just SE.
The limestone, as exposed, appears to be a series of irregular masses, many of which contain inclusions of meta-volcanics. Diorite bounds it on the SE. Some of the limestone is well crystallized calcite. It looks like vein calcite rather than depositional limestone.
The nature and position of the limestone, the heterogeneous occurrence of serpentine, conglomerate, meta-volcanics, and diorite, as boulders as well as the landslide topography suggest that pod, or vein of calcite originally occupied some portion of the country rock, probably in the meta-volcanics. Subsequent landslide thoroughly broke the rock which slumped to its present position.
Even if the original calcareous pod was of commercial size, the landslide has so thoroughly mixed it with slump material that it is doubtful if a workable body could be found at this point.

Informant: Treasher, 40.

HIGH BAR PLACER — Riddle Area

Owner; O. A. Ohlsen, Brockway, Oregon.

Location: In a gulch on the E. side of Byron Creek, about 2 miles up the creek from its junction with Thompson Creek, a tributary of Olalla Creek in $SW\frac{1}{4}$ sec.27, T.29 S., R.7 W.

Miscellaneous Information: The claim was located in 1937. Apparently no regular channel of gold deposition has been proved. Reportedly colors have been panned from sands along the gulch. There is no available water close at hand.

Informant: J. E. Morrison, 38.

HOGUM HYDRAULIC MINES (Booth Mine) (Placer) — Riddle Area

Owner: John H. Jantzer, Azalea, Oregon.

Location: On Hogum Creek about 6 miles SE of Azalea in secs.21-28 and 33, T.32 S., R.4 W.

Area: 240 acres consisting of 88 acres patented ground and 152 acres held by location.

History: The ground has been worked in a small way from the time of discovery in 1853 to 1870. During this period about 1/2 mile of the creek was worked. In the '80's W. S. Booth installed hydraulic equipment and used one giant.

The property was worked intermittently up to 1928. Since then the present owner has operated regularly every season.

Geology: The channel is about 100 feet wide and has a uniform grade of about 7%. Gravel varies in thickness from about 12 feet at the lower end to about 7 feet at the upper end and has a variation in color, ranging through blue, green, and red - but apparently values bear no relation to color. There are boulders 2 or 3 feet in diameter. The bedrock is shale and is quite irregular and rough. Values are concentrated near bedrock which often contains coarse gold. A high channel is known to exist on Hogum Creek, but very little is known about it.

Equipment: 3,500 feet of pipe of various sizes. Five No.1 Giants and a gas donkey engine.

Miscellaneous Information: Total water rights held by the company are 20½ c.f.s. divided as follows: White Horse -2 c.f.s.; Fizzelout-5 c.f.s.; Boulder Creek-5½ c.f.s.; Hogum-8 c.f.s. There are 11 ditches with a total length of 6 miles. A maximum head of 500 feet may be obtained, but most of the water is delivered under a head of less than 100 feet.

The operating season is about 200 days from November to June. The maximum snowfall is 18 inches. During some working seasons, freezing of water in the ditches gives trouble.

Informant: J. E. Morrison, 38.

HUCKELBERRY MINE (Gold) Riddle Area

Owners: J.R.Bean, Portland, Oregon; J.L.Shambrook, Canyonville,Oregon; Harvey Shawver, Riddle, Oregon.

Property reported to be leased to Phillip Backus and associates, Medford, Oregon.

Location: On Ash Creek or Mitchell Creek, 5 miles S. of Riddle, in sec. 7, T.31 S., R.5 W. The mine is reached by means of three miles of road and 2 miles of trail.

Area: 7 lode claims or 140 acres held by location.

History: Mineral was reportedly discovered in 1912 by the present owners and work has been carried on sporadically since that time. The record of production is as follows: 1912-1915, $2000; 1931-$400; 1932-1936, $4,000 per year.

Miscellaneous Information: Elevation 1900 feet. Mountainous topography; abundance of timber and water. Maximum snowfall 3 feet.

Informant: J. E. Morrison, 38.

KATE C MINE (Chromite) Riddle Area

Diller 21:34 describes the property as follows:

"On Nickel Mountain, west of Riddle, a large quantity of high-grade chromite occurs irregularly in small bodies scattered through saxonite. An ore of nickel occurs in the same rock and suggests the similar occurrence which is of great importance as a source of chromite and nickel in New Caledonia. In 1917 considerable chromite was mined about 10 miles south of Nickel Mountain. In 1918 some ore was mined, but none shipped from the Kate C Mine."

It was reported that two cars were shipped in 1916 containing 110 tons of chromite which averaged 53% Cr_2O_3.

Informant: J. E. Morrison, 39.

KERNIN MINING CORPORATION (Placer) Riddle Area

Oregon corporation: W. F. Kernin, Pres., G.A.Helbig, Secy.,Roseburg, Oregon; capitalization $20,000; the corporation has a contract to mine Moore and Weaver Bars in South Umpqua River near Myrtle Creek.

LEVENS LEDGE (Gold) Riddle Area

Owner: L. E. Heminzer, Canyonville, Oregon.

Location: Sec.5, T.31 S., R.5 W., about 3½ miles by road southwest of Canyonville.

History: The property had a production in the early days of the order of seventy-five or eighty thousand dollars in gold.

Miscellaneous Information: Two small orebodies are reported to have been outlined above the present level, but grade of ore has not been determined, and sublevels are inaccessible. The vein width averages 3 or 4 feet with swells up to 7 or 8 feet. Apparently values are in enriched bands and streaks along the hanging wall with less definitely outlined streaks on the footwall. In the swells, the vein looks leaner.

LOBICASA COMPANY (Dragline) Riddle Area

Operators: Lobicasa Co., owned by Arthur Lord, ... Bishop Carlson and Sandberg, Sacramento, California.

Location: South Fork Umpqua River in sec.19, T.30 S., R.5 W., and Cow Creek in sec.24, T.30 S., R.6 W.

Area: Not given.

History: The ground was tested by the Atlas Dredging Company and turned over to Lord & Bishop who worked the ground on the South Umpqua River and then took in Carlson and Sandberg as partners, moving to Cow Creek. Carlson & Sandberg dredged Coyote Creek at the Aman placers previously.

Equipment: 1½ yd. Lima 602 dragline with a 1¼ yd.bucket and a 50 ft. boom which can dig to a maximum of 18 feet. The dredge has a capacity of 1500-2000 yd. per 24 hours. The trommel is 4 ft.x 27 ft., of which 16 ft. has 3/8 inch to 1/2 inch openings with 3/4 inch bridge. There are 7 sluices; three are 10 ft. long and four are 8 ft. long; they are lined with expanded metal lath and carpet. The stacker is 45 ft. There are six steel pontoons, 8½ ft. wide, 8 ft. long, and 3½ ft. deep. The plant is powered with a D8800 Caterpillar Diesel 4 cylinder engine. Other equipment includes an A.C.S.O.60 bulldozer.

Development: The dredge worked from May 24th to July 20th on the South Umpqua River, dredging about 90,000 cubic yards of gravel. Operation on Cow Creek began July 24 and will continue for about 3 weeks from this date, or until about October 1st.

Geology: Bedrock is very rough, uneven, and hard. Boulders are scarce, very few of them measuring over 18 inches. The gold is fine in size, and no sizeable nuggets have been recovered. There is very little black sand. Most of the gold is on bedrock, and seems to be concentrated in the present stream channel on Cow Creek.

Informant: Leon Ermatinger, dredge master, and Ray C. Treasher.

Visited: Sept. 12th, 1940.

MILDRED MINE (Gold) Riddle Area

Owner: Mrs. Minnie A. Brown, Box 213, Gresham, Oregon.

Location: 6 miles by road south of Azalea on Starveout Creek. Sec.33, T.32 S., R.4 W.

Area: 19 acres patented.
History: The property was worked in a small way for about twenty years prior to 1936 when it was leased to E. F. Ames and associates of Azalea, Oregon, who built a mill in 1936. It was reported that a pocket valued at $630 was taken out in 1937.
Development: There are five caved tunnels driven on stringers and having a total reported length of 200 feet.
General Information: Elevation is about 2500 feet. Water is available throughout the year, and there is a possibility of developing some water power. Maximum snowfall is about 4 feet. Some mining timber is available on the property. Values are in quartz stringers in andesite porphyry.
Informant: J. E. Morrison, 38.

MISER MINE (Placer) Riddle Area

Owners: Frank Haberlack, John J. Janger.
Location: Southeast of Azalea on Starveout Creek in secs.20, 29, and 32, T.32 S., R.4 W.
Area: 320 acres; 16 claims of which 12 are patented.
Miscellaneous Information: Placer ground in a channel 300 ft. wide is reported to extend for 2 miles along the creek. For the most part, the surface is covered with timber. Gravel is said to be from 6 to 12 feet deep with few large boulders and some clay. Previous operations were reportedly unsuccessful because of clay. Gold is coarse. A nugget valued at $385 (with gold at $20.67 an ounce) is said to have been found. Equipment consists of 2 - No.3 and 1 - No.2 giants; 2000 feet of 12 to 18 inch pipe. Mining season is November to June.
Informant: J. E. Morrison, 39.

MORRISON MINING COMPANY (Placer) Riddle Area

It was reported in 1937 that this company, headed by H. F. Morrison, 1604 SE 38th Ave., Portland, Oregon, had started operations on Cow Creek, about 40 miles W. of Glendale, Oregon. Ground had been leased from Ralph Stark. At that time development work only was being done. It was planned to excavate mechanically and run the gravel through sluice boxes.

NICKEL MOUNTAIN MINE (Nickel) Riddle Area

Location: Secs.16 and 17, T.30 S., R.6 W.
Parks and Swartley 16:173 describe the deposit as follows:
"The property is reached by a good wagon road 5 miles west of Riddle station on the Southern Pacific Railway. There are 816 acres patented, under the management of W. Q. Brown of Riddle.

"The rocks in the neighborhood of Nickel Mountain are mostly of a basic igneous variety called peridotite by Diller. The nickel ore is a silicate of nickel, genthite, and is found in veins or irregular bodies, probably produced by the action of rising hot waters from some deeper seated magma.

"These nickel deposits have been prospected quite extensively and considerable effort has been made to satisfactorily solve the ore treatment problem in order to make the mine commercially successful. No satisfactory solution has yet been reached.

"In certain parts of Nickel Mountain the basic igneous rocks have been altered to serpentine and considerable bodies of chromic iron ore are found similar to its occurrence in other sections of southwest Oregon. Some of these chromite deposits have been developed somewhat, a few cars being shipped during the past summer, by the Oregon Nickel Mining Company to the Illinois Steel Company, which Mr. Brown states averages 55 percent chromic oxide."

Kay 06:120-125 gives the following information:

"The nickel deposits are associated with saxonite or harzburgite, a variety of peridotite, a basic igneous rock consisting chiefly of olivine and enstatite. Olivine constitutes more than two-thirds of the whole rock. Chromite and magnetite are in general present as disseminated grains, though in places within the peridotite area there are segregations of almost pure chromite. The peridotite readily breaks down to a dark-greenish serpentine, a rock that in the Nickel Mountain region is widely distributed as small isolated patches and elongated masses, the trend of which is northeast and southwest. Such an elongated mass of serpentine extends for several miles both to the northeast and to the southwest of Nickel Mountain. In some places the band is narrow; in others it is more than a mile in width. The serpentine has but a thin covering of soil, which is comparatively free from vegetation.

"Practically all the known occurrences of nickel silicate in this region are within an area of $1\frac{1}{2}$ square miles, lying on the slopes to the south, southwest, and southeast of the mountain. The thin soil peculiar to this area is composed almost entirely of iron oxides, which give it a distinctly reddish-brown color. The ores occur chiefly as flat-lying deposits on the surface of the peridotite and subordinately as veinlets in the peridotite or its decomposition product, serpentine. Only one nickel mineral is known to occur in these deposits, namely, genthite, which is a soft hydrous nickel-magnesium silicate. The proportions of the nickel and magnesium vary considerably in the best specimens obtainable, as shown by the subjoined analyses:

Analyses of nickel silicates from Riddle, Oreg.

	1.	2.	3.	4.
Loss at 110° C.	8.87	6.63	7.00	12.29
Loss on ignition	6.99			
Al_2O_3 plus Fe_2O_3	1.18	1.38	1.33	.06
SiO_2	44.73	48.21	40.55	48.82
MgO	10.56	19.90	21.70	18.49
NiO	27.57	23.88	29.66	19.04
	99.90	100.00	100.24	98.70

1. Clarke, F.W., Am.Jour.Sci., 3rd ser., vol.35, 1888, p.484.
2-3 Hood, Dr., Mineral Resources U.S., 1882, U.S.Geol.Survey 1883, p.404
4 Von Foullon, H.B., Jahrbuch K.k.geol.Reichsanstait,vol.42,p.272,1892

"From all the analyses thus far published of the nickel silicates of New Caledonia and of Riddles it appears that the average content of nickel in the New Caledonia minerals is higher than that in the genthite of the Riddles deposits. Perhaps sufficient amounts of the Riddles ores have not been smelted to permit safe estimates to be made of their average nickel content; but the treatment by different methods of about 20 tons of the ore, which constituted the shipments made by the Oregon Nickel Mines Company, gave results varying

from 5 to 8 percent in nickel. Two specimens, taken by the writer as average samples of the ore, were analyzed in the Survey laboratory by George Steiger. The results were 5.35 and 4.94 percent of nickel. Each of the two analyses also showed 0.11 percent of cobalt. The New Caledonia ores now being shipped to the smelters contain between 6 and 7 percent of nickel.

"The gangue consists of quartz, iron oxides, and serpentine. The quartz, the most abundant of these minerals, is in general of a whitish color, but the surface of much of it has a yellowish to brownish-red tint, due to a coating of iron oxide. The quartz appears to be chiefly chalcedonic, but in places it has a weak greenish color, resembling chrysoprase, a mineral that has been shown to be present in these deposits. The iron oxides are of a distinctly yellow to reddish-brown color, and the evidence is clear that these oxides represent one of the final products of decomposition of the serpentine, which is itself produced by the alteration of the peridotite.

"The deposits, which lie flat, occur as brecciated and conglomeratic irregular masses on the surface of the peridotite and consist of silica, nickel silicate, iron oxide, and serpentine, with a very subordinate amount of chromite. The most striking feature of the ore is the green color of the nickel silicate. Where the ores have been exposed to weathering action for a considerable time, these nickel silicates have been dissolved and carried away and a honeycombed quartz skeleton remains.

"The distinctly conglomeratic ore differs from the brecciated ore in that the constituents are rounded rather than angular. This is particularly well shown by the nickel silicate itself, which consists of rounded concretions varying from the size of a pin's head to that of a walnut. When broken open, these are usually found to consist of homogeneous, apple-green amorphous-looking nickel silicate, which on close inspection is seen to be penetrated by minute films of white silica; but in some of the ore the nickel silicate forms only a shell on the outside of the pebble, the inside consisting of decomposed serpentine or of brecciated ore, in which the small fragments of nickel silicate, iron oxide, and serpentine are plainly seen. Many specimens of the ore, both brecciated and conglomeratic, show slickensided surfaces, indicating movement subsequent to the formation of the ores.

"The ore found beneath the flat-lying deposits occurs as small veins and minute veinlets in the peridotite, which contains innumerable fractures. These veins and veinlets run in various directions, forming an irregular network, but in the main they appear to be related to zones of fracture and brecciation that have a general northeast-southwest direction. These zones are of considerable width, but the individual fractures are narrow, the largest vein observed being not more than 6 inches wide and most of them less than 1 inch. The vein filling consists of nickel silicate and silica, but iron oxides are also present, and in some places the material is of the nature of a cemented breccia."

Reference: Kay, 06:120-125.

OLLALA PLACERS (Placer) Riddle Area

Owner: H. E. Bellows, 864 Military St., Roseburg, Oregon. Reported to be option to Alaska and Sunset Mines, Seattle, Washington.

Location: 12 miles south of Brockway, on Thompson Creek in secs.21-28-29-32, T.29 S., R.7 W.

Area: 600 acres patented, of which the owner estimates 200 acres to be possible dredge ground, and 100 acres to be hydraulic ground.
Miscellaneous Information: Estimates of the value of this placer area are based on tests made under the direction of Col. J.D.Day in 1907. It is reported that 5000 lineal feet of test holes showed an average value of 36¢ a yard (with gold at $20.67 an ounce); also according to this testing work, the gravel varied from 10 to 70 feet in depth, averaging about 35 feet. Several tributaries to Thompson Creek have been and are being hydraulicked. This creek has a relatively flat surface, apparently favorable for dredging. Gold is reported to be in flat scales, running about 960 fine.
If the Bellows placer were proved to be workable, other ranches along Thompson Creek might be favorable ground for testing. These are the ranches owned by Mrs. J. M. Ware, Brockway, Oregon, containing 159 acres in secs.18-29; and that owned by Otto Mentzel, Brockway, Oregon, containing 249 acres in secs.20-21-28-29; both being in T.29 S., R.7 W.
Informant: J. E. Morrison, 38.

OREGON MINING AND POWER CO. (Placer) Riddle Area

Parks and Swartley state (16:173) that the property consisting of 320 acres was located 7 miles west of Glendale near Tunnel 7 of the Southern Pacific Railroad. It was reported that ground running 20¢ a yard was hydraulicked.

PUZZLER MINE (Gold) Riddle Area

Owners: Marshall and Herbert Wagner, Grants Pass, Oregon.
Location: About 8 miles from Azalea at the head of Last Chance Creek at the foot of Green Mountain in sec.33, T.32 S., R.4 W. The last mile to the property is by trail.
Area: 2 full-size lode claims held by location.
Miscellaneous Information: Development consists of one 12-ft.shaft, one open cut, and one tunnel 44 feet in length. Ore has been milled in an arrastre driven by a 16-ft.over-shot water wheel. Elevation is 4,000 feet. Topography is mountainous. Maximum snowfall 7 ft.
Informant: J. E Morrison, 38.

QUARTZMILL MINE (Gold) Riddle Area

Owner: Frank Kruse, Azalea, Oregon.
Location: About 7 miles south of Azalea in $S\frac{1}{2}$ $NE\frac{1}{4}$ sec.2, and $W\frac{1}{2}$ $W\frac{1}{2}$ $NW\frac{1}{4}$ sec.1, both in T.33 S., R.5 W.
Area: 102 acres of which 20 acres is patented ground.
Miscellaneous Information: The ground was first located in the 1860's. Values are in quartz stringers in porphyry and occur both as free gold and in pyrite. Country rock is greenstone. A tunnel trending S.55° W. has been driven for about 250 feet on a quartz stringer 3 to 4 inches wide. The property has a 2-stamp mill with 500-lb. stamps and run by a water wheel. There is sufficient water usually from December until June.
Informant: J. E. Morrison, 39 .

SILVER PEAK MINES (Copper, gold, silver, zinc) Riddle Area.

Shenon 33:15-23 gives the following description:
"Location and access: The copper deposits of the Silver Peak district

lie in the southern parts of Douglas County, Oregon, in secs.23 and 26, T.31 S., R.6 W. By airline the mines are about 7 miles directly south of Riddle, a shipping point on the Southern Pacific Railroad, but by road the distance is about 9½ miles. The road is steep and narrow, but except during stormy periods is readily passable.

"Topography: The surface of the Silver Peak district is made up chiefly of the steeply sloping sides of many valleys and intervening narrow ridges with fairly flat tops. Altitudes range from 4,000 feet on Silver Peak to less than 2,000 feet in some of the valleys slightly more than a mile distant. Silver Peak is the highest point in the immediate region, and from it a splendid view can be had of the surrounding country. The valley slopes are generally covered with dense growths of timber and underbrush, and hence most of the trails and roads tend to follow the wider valleys or ridge tops.

"The three principal streams that rise on the slopes of Silver Peak - the West Fork of Canyon Creek, Middle Creek, and Russell Creek - flow respectively eastward, westward, and northward. The radial drainage pattern is of small extent, however, because all three streams join the Umpqua River. The streams have dissected the region to a stage in which the canyon areas prevail over the rather narrow divides, and the topography of the region can therefore be described as mature.

"General Geology: The rocks in the vicinity of Silver Peak belong principally to the Dothan formation, described by Diller, and to a group of highly altered igneous rocks of several types which are termed greenstones because of their prevailing green color. The contact between the Dothan rocks and the greenstones is irregular but in general strikes northeast and, in the vicinity of Silver Peak, dips at steep angles to the southeast. No quartz diorite or related intrusive rocks are known to crop out in the immediate region.

"Dothan Formation: The Dothan formation, of Jurassic age, in the Riddle quadrangle consists predominantly of sandstone but includes also shale, conglomerate, and chert. The strata are usually thin-bedded, yet in places beds about 100 feet thick are found. Some of the rocks have a schistose structure and many of them contain veinlets of quartz parallel to the schistosity. The metamorphosed sandstone breaks with a somewhat rough surface. The shale is usually gray to dark gray and is distinctly slaty. The conglomerate, which occurs in thin beds, contains pebbles that are predominantly siliceous. The chert forms small lentils.

"Near the Silver Peak mines the Dothan formation is composed principally of dark-gray to almost black thin-bedded schist and highly altered fine-grained argillite. Many of the Dothan rocks are so completely altered that it is difficult to differentiate them in the field from the altered greenstones. Near the ore bodies the schist is bleached to light gray or almost white and, because of the abundance of sericite, has a talcose appearance. In addition, the ore-bearing schist commonly contains considerable quartz, barite, and disseminated sulphides. Strike faults are numerous, some of which agree with the dip of the formation and some do not. The schist lies between dark-gray rocks that are shown by the microscope to be very fine grained, highly altered argillites composed largely of small rounded quartz grains in a fibrous groundmass of sericite and chlorite. The quartz grains are small, on an average about 0.135 millimeter across, and many are partly recrystallized. In the argillite near the ore bodies there are numerous grains of disseminated sulphides.

"Greenstones: Irregular bodies of greenstone are widely distributed in the Riddle quadrangle. According to Diller they include altered gabbro, diorite, and diabase and finer-grained altered basaltic rocks, all of which show evidence of crushing and veining.

"The greenstones in the immediate vicinity of the Silver Peak mines are prevailingly fine-grained, although some are porphyritic. All contain abundant epidote, fine-grained quartz, chlorite, zoisite, saussurite, and other alteration products. Some retain a suggestion of igneous texture, but others are entirely changed to rocks composed essentially of epidote and quartz. Ore was not observed in greenstone in the Silver Peak district, although elsewhere in southwestern Oregon ore is generally associated with that rock.

"Ore Deposits - Geographic Distribution: Three mines have been worked in the vicinity of Silver Peak. Two of these, belonging to the Silver Peak Copper Co. and the Umpqua Consolidated Mining Co., lie south of Silver Peak. They include portions of the same ore body and for convenience are described together. The third, the Golden Gate mine, lies about half a mile to the north.

"Deposits south of Silver Peak - History and Development: The mines of the Silver Peak Copper Co. and the Umpqua Consolidated Mining Co. are on a steep slope south and slightly west of Silver Peak, at a mean altitude of about 3,300 feet. The property of the Silver Peak Copper Co. is in sec.26, T.31 S., R.6 W., and that of the Umpqua Consolidated Mining Co. which adjoins it on the north is in sec.23. Ore was first discovered here in 1910 by Robert Thomason, on what is now Silver Peak Copper Co.'s ground. In 1912 J. E. Reeves purchased a patented timber claim which included a large portion of the ore that has since been developed. Little work was done until 1920, when the Oregon Exploration Co. located mineral claims over part of the timber claim. From 1922 to 1929 the property was in litigation, but during this period and in the following year 3,256 tons of ore was shipped from workings now owned by the Silver Peak Copper Co. In 1929 the Oregon Exploration Co. was reorganized as the Umpqua Consolidated Mining Co. This company shipped one car of ore (38 tons) in 1930. Both mines were idle at the time the writer visited them in September, 1930. The gross value of the ore shipped, not including zinc, is estimated at $73,000.

"The ore bodies have been explored on three principal levels. The lowest, the main level of the Umpqua Consolidated Mining Co., is a crosscut adit 600 feet long with two drifts aggregating about 600 feet. The main level of the Silver Peak Copper Co., 55 feet higher than the working mentioned and connected to it by a raise, is another crosscut adit about 480 feet long with 550 feet of drifts. The third level, known as No.1, 195 feet above the Umpqua level, is an adit 170 feet long driven near the dividing line of the properties. There are in addition several shallow workings including a 30-foot shaft at a point 75 feet higher than level 1 and 270 feet above the main level of the Umpqua Consolidated Mining Co. Comfortable camps have been built on both properties, and at the Silver Peak Copper Co.'s mine a No.10 Ingersoll-Rand compressor and a Fairbanks-Morse 120-horsepower engine, both new, were installed in 1930.

"Ore-bodies: The ore minerals occur as massive tabular bodies and disseminated in highly foliated schist. The two principal workings expose a zone of mineralized schist more than 100 feet wide. Across most of this zone sulphide minerals are rather sparsely distributed, but in at least two

places bodies of nearly solid sulphide ore occur. One of these, in the main crosscut of the Silver Peak Copper Co., the "northwest band", is about 15 feet wide and another, the "southeast band", is over 20 feet wide. Both pinch out to the northeast, one within a distance of 200 feet and the other within 60 feet. Two sulphide bodies are exposed also on the main level of the Umpqua Consolidated mine, but there the northwest body is only about 10 inches wide, whereas the southeast body is about 10 feet wide. Normally the massive ore grades into schist with disseminated sulphides, but in some places, especially where the massive ore pinches, one or both walls are slickensided fault surfaces commonly lined with several inches of gouge.

"The massive sulphide ore is distinctly banded, probably in part because the ore minerals have replaced schistose rocks and in part because the minerals were introduced along parallel fractures in the rock. The sulphides include pyrite, sphalerite, chalcopyrite, bornite, galena, tennantite, chalcocite, and covellite, named in the relative order of their abundance. The last four mentioned occur in relatively small amounts. In addition the occurrence of native copper is reported by Mr. Reeves. The gangue minerals are principally quartz, barite, and sericite. Epidote was seen in one thin section of the ore.

"At the surface oxidation is almost complete. Level 1, for example, follows a porous, iron-stained, and greatly leached gossan in which no sulphides are visible. A short distance from the portal sulphides become visible and are abundant near the face. Sulphides were struck also in the 30-foot shaft on the Umpqua Consolidated property. Traces of oxidation extend as deep as the lower levels, as shown by thin films of oxide minerals along fractures.

"Quartz was the first gangue mineral to be deposited. It is everywhere fine grained but tends to be coarser in the fractures along which it was introduced. Barite was introduced next, then fracturing occurred, and pyrite was deposited. After a second fracturing sphalerite, tennantite, chalcopyrite, bornite, galena, and chalcocite were deposited as an overlapping series and probably in the order named, although the relation of galena and chalcocite was not well established.

"The mineral composition differs in the different ore bodies and within the layers of a single ore body, as shown for example by the northwest and southeast ore bodies in the Umpqua Consolidated mine. The sulphides of the northwest ore body are associated with abundant quartz but very little barite, whereas the southeast ore body contains much barite and small amounts of quartz. The southeast ore body contains much barite and smaller amounts of quartz. The southeast body in the stopes above the level consists of nearly solid sulphides with some layers of barite. The barite is lenticular in outline, and any one layer does not persist very far. The sulphides are distinctly banded. One stope shows seven distinct bands with parallel structure. The composition of the northwest ore body resembles that of layers 3 and 6 of the southeast ore body as shown in the illustration. The ore exposed on the Silver Peak Copper level more nearly resembles the ore of the southeast ore body of the Umpqua Consolidated level. However, in some places - for example, near the top of the connecting raise - the copper sulphides are less abundant and the proportion of barite is greater than normal. At the turn in the drift, 30 feet northwest of the raise, the rocks are largely replaced by very fine grained silica that has irregular red jasperlike streaks.

"Four carefully cut samples taken at selected places serve to show the relative proportions of the metals to one another but do not necessarily illustrate the average metal content of the ore, which may be more closely determined from the production figures that follow. Analyses of the samples made in the chemical laboratory of the United States Geological Survey are given below:

Analyses of ores from the Silver Peak district, Oregon
(E. T. Erickson, analyst)

Sample No.	Silver (ounces per ton)	Gold (ounces per ton)	Copper (percent)	Zinc (percent)
8	0.59	0.09	4.05	5.5
9	.30	.01	.90	.9
10	4.58	.03	5.13	7.5
11	.46	.01	.93	.6

"8. Silver Peak Copper tunnel, northwest ore body. Sample taken in stope 33 feet above tunnel level across 5½ feet of massive sulphide ore.

"9. Umpqua Consolidated tunnel, main crosscut immediately northwest of massive sulphide band. Sample taken across 9 feet of schist with disseminated sulphides.

"10. Umpqua Consolidated tunnel. Sample taken across 7 feet of massive sulphide ore in stope along line A-A', plate 4.

"11. Silver Peak Copper tunnel, 30 feet northwest of top of connecting raise. Sample taken across 6 feet of intensely silicified rock containing some visible sulphides.

"The results show that copper and zinc increase and decrease together, but indicate no similar relations between those metals and gold and silver or between the gold and silver themselves.

"The following table is based on the production figures furnished by V. C. Heikes, of the United States Bureau of Mines:

Average metal content of ore from Silver Peak & Umpqua Consolidated mines.

Year	Ore produced (tons)	Gold (ounces per ton)	Silver (ounces per ton)	Copper (percent)
Silver Peak				
1926	389	0.12	7.3	6.0
1928	937	.044	2.7	6.7
1929	1666	.07	3.6	5.6
1930	264	.057	3.0	4.4
Umpqua Consolidated				
1930	38	.24	2.2	3.9

"Origin of the ore: The mineralogy of the ores described above is evidence of their hypogene (deep-seated) origin - that is, the mineral assemblage as shown by the careful observations of many geologists belongs to Lindgren's mesothermal type, deposited at moderate depths by hot solutions. The source of the solutions is not evident from the geology in the immediate vicinity of the deposit, but quartz diorite and related rocks, which are

believed to be the sources of many ore deposits in southwestern Oregon, are exposed a few miles distant and are probably not far below the surface at Silver Peak.

"The ore-bearing solutions, whatever their source, deposited gangue and sulphide minerals as they moved through the schistose rocks. The solutions apparently rose along planes of schistosity and replaced the adjoining material. Certain beds in the schist were apparently either more susceptible to replacement or were more readily penetrated by the solution than others, because solid sulphides occur interbedded with schist in which sulphides are sparsely distributed. The composition of the ore-bearing solutions probably changed during the period of deposition, because minerals of different composition have been deposited in an overlapping succession. Movements occurred within the rocks during the mineralization, once after the gangue minerals were deposited and again after the deposition of the pyrite. The later sulphides were deposited as a continuous series. After the deposition of the sulphides, strains within the rocks were relieved along faults, some of which have displaced the ore. More recently the sulphides near the surface have been oxidized, and much of the metal content of the outcrops has been removed by leaching. Erosion has kept pace fairly well with the oxidation, for at no place in the vicinity are oxide minerals known in abundance very far beneath the surface.

"Economic Aspects: The ore bodies at the Silver Peak Copper and Umpqua Consolidated mines have not been sufficiently developed to permit exact tonnage estimates, nor has the ground in the immediate vicinity been sufficiently explored to indicate the probability of undiscovered ore bodies nearby, but enough work has been done to demonstrate that fairly large bodies of good-grade massive sulphide ore are present. Also sampling shows that there is a possibility, when metal prices recover, of mining and milling lower-grade disseminated ore along with the higher-grade material.

"Only a very small percentage of the sulphides found on the lower levels are supergene (descended from above), and therefore it follows that there is not much likelihood of any material change in the metal content of the ore for some little distance below the present deepest level. However, owing to the fact that the outcrop has been almost entirely oxidized and much of the metallic content removed, more or less sulphide enrichment is to be expected immediately below the zone of oxidation.

"The facts available permit some conclusions as to the probable vertical and horizontal extent of the ore. Foliated schists similar to those containing the ore are exposed at the surface for some distance north and south of the known ore bodies. In places they are mineralized - for example, at the Golden Gate mine, to the north. Some mineralization was also noted in a schist of similar appearance about half a mile to the southwest. Underground the ore has been followed along the strike for a total distance of over 450 feet, and in at least two places it continues beyond the present workings. Both bodies of solid sulphide ore were sheared off in the northeast drifts of the Silver Peak Copper Co.'s main level but continue into the walls to the southwest of the present workings.

"The southeast ore body on the Umpqua Consolidated level appears to turn into the southeast wall of the drift about 50 feet from the face. It appears also to have undergone shearing, and further work may prove that it is displaced.

At the south end of the same drift the ore appears to end against an east-west, southward-dipping fault. Sulphide ore interlayered with barite is exposed on one side of this drift about 20 feet from the face, and it seems likely that the ore body may continue southwestward from this point. Thus the evidence underground does not suggest that the horizontal limits of the ore bodies have been reached. Even where the ore is sheared off by faulting there is no known reason why the segments may not be recovered. Outcrops of partly oxidized sulphide ore occur 140 and 270 feet above the ore bodies found on the two main levels. No raises have been driven through to the surface to prospect the ground between these outcrops, although at one place ore has been stoped above the Silver Peak Copper Co.'s level for a vertical distance of about 90 feet. It seems reasonable, however, to expect the ore to continue to the surface, though not necessarily as one continuous body, because of the possibility of fault displacement. It is generally recognized that there is usually a relationship between the horizontal extent of an ore body and its downward extension, and as the ore bodies under discussion are exposed on the lower levels over a horizontal distance of 450 feet without having ended, they can reasonably be expected to extend for some distance below the present workings."

Reference: Shenon, 33a:15-23.

STARVEOUT CREEK (Chromite) Riddle Area

Owners: L. A. and W. L. Curtis, Azalea, Oregon.

Area: 3 claims held by location.

Allen 38:50 gives the following description:

"Located near the center of W½ of sec.5, T.33 S., R.4 W., on Quartz-mill Peak.

"The country rock is a dark greenish black serpentine, highly sheared and broken, and shot through with veins of magnesite and light-colored pyroxene. The largest diggings lie at the southern end of an indistinct ore bearing zone perhaps 2000 feet long, extending N.20° E. This zone is covered by the first two claims, Black Boy and June Bug. At the southernmost end, two large open cuts are found fifty feet apart, on the crest of a steep ridge. Only a small amount of ore appears in place in these cuts, which are about 100 feet long, 20 feet wide, and 30 feet or more deep in the black ends. What ore does appear lies in irregular much-sheared patches. The highly disturbed nature of the rock indicates that the ore deposit must be much adulterated by rock material and irregular in outline.

"Smaller cuts show some ore cropping for 200 feet to the north; and 2000 feet still farther north several ditches cutting across the top of an east-west ridge expose low-grade (10-20 percent chromic oxide) disseminations and fine streaks of ore, also running N.10° E.

"On the third claim, Grey Boy, which lies a half mile to the east and 500 feet lower down the hill, another large open cut exposes ore in place in its face at least 3 feet wide, the other dimensions not being discernible. A rather large ore pile also lies at this cut. Other conditions are similar to those above, the kidney here apparently striking N and S, and dipping 45° E.

"The large amount of development work (including old chutes, tracks, dump piles, etc.) suggest that considerable tonnage of ore was mined from this deposit, perhaps as much as several thousand tons. Some ore was

shipped in the fall of 1937.

"Ore still appears in the cut face on the lower claim, and 50 to 75 tons of ore lie mined and piled.

"The ore is almost entirely of a medium grade which may not run much over 40 percent chromic oxide on the upper claims (where it is of the soft chocolatey fine-grained variety), or 35 percent on the lower claim.

"A steep, third-class road about 2½ miles long leads down the mountain 2000 feet to Starveout Creek. From there it is six miles by logging road to the Pacific Highway at Azalea, and thence 12 miles to the railroad at Glendale, a total of about 21 miles from mine to railroad."

WHITE STAR MINE (Gold) Riddle Area

Owner: Arthur Wagner and associates.
Location: On Last Chance Creek in sec.19, T.33 S., R.4 W.
Miscellaneous: One lode mining claim of 20 acres held by location. Development consists of an open cut 36 feet long in greenstone.
Informant: J. E. Morrison 38.

WILLIS MINE (Gold) Riddle Area

Owner: Adeline Willis, 1984 NW Marshall, Portland, Oregon.
Location: One mile by road southeast of Glendale in NW¼ sec.9, T.33 S., R.6 W.
Area: Total area owned is all of secs.8 and 9, 1288 acres, timber land.
Geology: Country rock is rhyolite, in places considerably altered. The possibility of disseminated gold values was thought to be indicated by iron stain and occasional sparsely distributed Pyrite. A tunnel trending N.86° E. for a distance of 200 feet, was sampled from portal to face. Twelve samples were taken. Four gave a return of 35 cents to the ton and eight returned a trace.
Miscellaneous Information: Elevation 1500 feet; abundant timber; one-half mile to electric power line; no equipment. Water from the tunnel is being used by the town of Glendale.
Informant: J. E. Morrison 38.

TILLER-DREW AREA

As defined in this report, the area is bounded on the north by the north line of T.29, on the east by Willamette Meridian, on the south by the Jackson County line, and the divide between the Umpqua and Cow Creek drainage, and on the west by the west line of R.4 W. The area is included in the drainage of the South Umpqua River.

Transportation is afforded by roads leading from the Pacific Highway (U.S.99) at Canyonville and Myrtle Creek. The principal artery is State Highway 227. It connects Canyonville on the Pacific Highway with Trail on the Crater Lake Highway (State Highway 62). State Highway 227 follows the South Umpqua River east to Tiller and then turns south through Drew to end at Trail on the Rogue River. A considerable part of the area is accessible only by trails or at best by forest roads which receive little maintenance work. The nearest railroad outlets are at Myrtle Creek and Riddle - stations on the main line of the Southern Pacific.

Geology:

The eastern part of the area is made up of Cascade lavas. In the central part there are north and south trending exposures of intrusives, of which diorite is the most important quantitatively. In the western part of the district, Dothan and Galice formations trend northeast and southwest and alternate with bands of greenstones as described under the Riddle district.

Economic metals are gold, silver, copper and quicksilver. Noteworthy amounts of copper sulphides have been found. Cinnabar deposits are of probable importance, but their commercial possibilities have yet to be demonstrated.

BEN HUR PROPERTY (Gold) Tiller-Drew Area

Owners: C. C. Hill, Paul Knopf, and Jack Galke, Days Creek, Oregon.
Location: On Wood Creek 3.3 miles north of Days Creek in sec.35, T.29 S., R.4 W.
Area: 40 acres of patented land.
Miscellaneous Information: A shaft reported to be 75 feet deep has been sunk on a vein near the bed of Wood Creek. The shaft was full of water and no information is available concerning the size of the vein or value of the ore. The property is reported to be leased to the Gold Nugget Mining Corp., the officers of which are W. A. Godwin, president, and O.K.Chenoweth, secretary, Days Creek, Oregon.
Informant: J. E. Morrison 39.

BUENA VISTA MINE (Quicksilver) Tiller-Drew Area

(Umpqua Mining Co., Tiller Development Co.)
Owners: Tiller Development Co., Geo. E. Atkinson, pres., Gresham,Oregon; secretary L. B. Bramhall, Reedville, Oregon; Chester E. McCarty, Yeon Bldg., Portland, Oregon, is attorney for the Company.
Location: SW¼ sec.27, NE¼ sec.33, NW¼ sec.34, T.29 S., R.2 W., on Deadman Creek. The mine is reached from Tiller, and up the South Umpqua road 0.6 mile; then up Salt Creek by the Deadman Road, 8½ miles of Forest Service road. The road is narrow, rough, and has steep grades. It is impassible in winter.
Area: 14 claims.

History: It is reported that the property is in receivership, but that an arrangement has been made so that the mine may be worked. In August 1940 the property was inactive. Total production has been a few flasks.

Wells and Waters 34 describe the deposit as follows:

"On the main level porphyritic andesite occurs as a narrow strip about 17 feet wide, bounded on the south by volcanic breccia and on the north by a fault that brings it into juxtaposition with conglomerate. The porphyritic andesite here appears to be a fault block dropped into its present position. Volcanic breccia is also present in the sublevel, but only andesite is exposed on the top level. The fault, which has gouge about 1 foot thick, is normal and pre-mineral, but some post-mineral movement has taken place."

"Ore occurs in a shear zone in the porphyritic andesite, which strikes N.81° E., and is either vertical or dips at high angles toward the south. The ore occupies many closely spaced veinlets that are roughly parallel, though converting and branching in places, and also isolated short-gash veinlets. The veinlets range in width from a quarter of an inch, the usual width, to 6 inches and contain cinnabar, calcite, marcasite, and a little pyrite. Some radial fibrous chalcedony has also been seen. Some veinlets are composed entirely of one mineral, either cinnabar, calcite, or marcasite, but most of them contain two or more minerals and commonly show banding and crustification. Some of the larger veinlets consist of small angular fragments of andesite cemented by cinnabar, calcite, and a little marcasite. . . Scattered specks of cinnabar occur in the wall rock. The tenor of the ore diminished gradually from the vein into the wall rock, and therefore the boundaries of the ore body are indefinite and must be determined by assay. At present the stoping width averages about 5 feet. The reported results obtained from retorting the ore in 1929 and 1930, together with amounts of cinnabar that are visible, indicate that parts of the lode as much as 5 feet wide may average from 1 to 2 percent of quicksilver. There is no indication that the end of the ore has been reached, and mining at greater depth as well as to the west along the fault should develop more ore."

Since the Wells and Waters report, some 400 tons of ore were stoped on the upper level and run through the furnace.

Equipment: Mine and mill equipment includes a Sullivan air compressor and tool sharpener; Atlas Imperial 80 hp. Diesel driving a 50,000 watt, 125 volt DC generator; blacksmith shop, drill sharpener, air hammer drills, mess hall, bunkhouse, bathhouse, etc., for a 20-man camp. Cars, track, etc.
Mill equipment includes a 50-ton ore bin; a revolving grizzly having 1 inch spaces; an Acme Road Machinery crusher, 9-3/4x14, run by a 20 hp. motor; a 30-ton fine-ore bin that discharges to a Gould Furnace, 30 inches x 42 feet, operated by a 5 hp. motor. Waste goes to the dump via conveyor. Gases from the dust collector go to a baffle box, then to iron pipe condensers, 12 inches in diameter and 20 feet long, then to another baffle box, and finally to tile pipe condenser and stacks.
Informant: Treasher
Reference: Wells and Waters 34.
Schuette 38:124.

CHIEFTAIN MINE (Gold, copper, zinc) Tiller-Drew Area

Location: On South Myrtle Creek in sec.20, T.29 S., R.3 W.W.M., 12 miles by gravel road from Myrtle Creek.

Wells 31-32:57-61 gives the following description:

Metagabbro: Except a small body of dacite, the only rock exposed in the area is metagabbro. As described by Diller, this rock throughout the greater part of its mass has a granitoid texture. Its original pyroxene has been changed into hornblende or chlorite; less commonly the original lime-soda feldspar has been changed to an aggregate of quartz, muscovite, and epidote or kaolin. Although in much of the rock these changes are more or less complete, there are large masses that have especially fine-grained and somewhat diabasic textures in which pyroxene and feldspar remain practically unaltered. The relative proportion of feldspar and pyroxene is in general nearly the same, the feldspar being somewhat more abundant than pyroxene, but in a few places the rock is made up almost exclusively of either feldspar or pyroxene. Quartz is a rather abundant primary constituent in a few places.

"The rock in the immediate vicinity of the mines is coarse-grained, and its feldspar and black minerals are present in about equal amounts. Under the microscope the feldspar, which is bytownite, is seen to be but slightly altered, though the pyroxene or hornblende has been largely altered to chlorite.

"Diller believes that the metagabbro is intrusive into the Myrtle formation and hence must be younger than that portion of the Cretaceous.

"The only structural features observed in the metagabbro are the east-west fractures, which are followed by the veins, and faults of small displacement that range in strike from northeast to northwest and have offset the veins. Both the fractures and faults are characterized by steep dips. Several of the veins in greenstone to the south - for instance, those of the Greenback, Daisy, and Corporal G. Mines - strike approximately east and have in some places been offset by faults that strike from northeast to northwest.

Dacite: Dacite crops out about 3 miles a little west of north of the Chieftain mine. It is fine grained and contains phenocrysts of quartz. The groundmass has been completely altered to quartz and sericite. According to Diller, two varieties of dacite occur near the town of Myrtle Creek. One is decidedly porphyritic, with well-developed crystals of quartz and feldspar, and the other is nonporphyritic and closely resembles quartzite. The second variety is found, under the microscope, to consist of quartz and feldspar, largely plagioclase, with numerous shreds of hornblende. The groundmass of the first variety is similar but much finer grained. Diller states that the age of these rocks can not be determined but that some masses of them are apparently younger than the metagabbro and serpentine."

"According to Edward Law, the present manager, the Little Chieftain deposit was discovered about 1898 and developed by Armitage & White, who shipped some good ore. They sold it to Hamilton & Cramer, who did further development work and put it in a stamp mill some time between 1903 and 1905. The production to the end of 1905 includes about 1,000 tons of ore ranging in value from $55 to $175 a ton, which was shipped to the Tacoma smelter. Mr. Law obtained the property in 1928 and, after some development work, shipped 20 tons of ore running $110 a ton in gold and silver. Since March 5, 1930, the property has been operated by a company called the Chieftain Mines (Inc.)".

"The Chieftain mine is on the west bank of Letitia Creek in the NW¼ sec.20, T.29 S., R.3 W. The lower adit is a few feet above the creek, at an altitude of about 1,100 feet. The accessible workings include a lower adit 330 feet long, an intermediate or "mill" adit 555 feet long, and an upper adit 80 feet long. The lower and mill adits are connected by a raise along a stope. There are other workings, which are now caved, including an old drift on the lower level, which extended beyond a fault mentioned below.

"The mine is on a quartz vein of variable width, which strikes S.80° W. and dips 65°-75° N. This vein has been traced by discontinuous outcrops and surface float for a distance of 1¼ miles. The most easterly outcrop is at a short adit a few hundred feet east of the Chieftain mine; the most westerly outcrop is marked by two shafts on the Hall homestead.

"The lower and mill adits of the Chieftain mine explore the vein for a length of about 640 feet and to a maximum depth of 170 feet. So far as explored the vein consists of lenses and discontinuous stringers of quartz. These lie in a shear zone bounded by slickensided walls that are from less than a foot to about 4 feet apart. Locally the walls are lined with a thin layer of gouge. In some places the zone is composed entirely of quartz; in others it is mostly altered rock. The wall rock is cut by many veinlets of quartz and contains a little pyrite near the vein. In general, however, it is free from sulphides. Horses of rock included in the vein are largely altered to sericite. The vein itself has been strongly sheared, as is shown by the strain shadows and many microscopic fractures in the vein quartz as well as by the ease with which it shatters.

"Irregular grains, patches, and streaks of sulphides in places form as much as 10 percent of the vein. Coarsely crystalline pyrite is the predominant sulphide. Chalcopyrite and sphalerite occur in subsidiary amounts. The pyrite is mostly bright, though in part dull and dirty, probably owing to granulation. Chalcopyrite forms small patches near the pyrite but is rarely associated directly with it. Sphalerite is likewise commonly associated with the chalcopyrite.

"Under the microscope the sphalerite is seen to contain blebs and veinlets of chalcopyrite. Sylvanite and petzite (tellurides of gold and silver) occur as small irregular patches or threads in both the chalcopyrite and sphalerite and here and there by themselves in the quartz. Neither was found, however, in the pyrite. Petzite contains a smaller amount of tellurium than sylvanite, and the silver content of both is variable; in the specimens from the Chieftain mine it is low, probably less than 25 percent. No free gold was seen. During the period of mineralization the deposition of quartz was continuous. Pyrite is the oldest sulphide. Sphalerite was deposited next and was succeeded by chalcopyrite. Sphalerite was deposited next and was succeeded by chalcopyrite. Sylvanite and petzite were deposited last. The tellurides are almost exclusively associated with chalcopyrite and sphalerite, and the abundance of these sulphides, which are readily seen, is therefore some indication of the value of the ore.

"The vein is cut 300 feet from the portal of the main level by a fault zone that strikes due north and dips at a high angle to the west. It has produced a horizontal displacement of 80 feet distributed over a series of slips. Elsewhere some horizontal faults have displaced the vein a few feet.

"On the upper level, as well as in an old glory hole that extended down to it, the vein is a typical vuggy iron-stained gossan, and some of the ore in its oxidized portion was probably free milling. On the mill level the vein has been completely oxidized to the east of the fault. West of the fault it shows only slight oxidation and on the lower level none.

"The character of the vein and the minerals described indicate that the deposit falls into the mesothermal type of Lindgren. Though the sulphide minerals that carry the gold are abundant in spots they are not concentrated in definite shoots but are distributed irregularly throughout the vein. Much of the quartz now showing carries considerable sulphide, and the vein on the main level beyond the fault is well mineralized. From these facts it is reasonable to assume that the ore continues in depth and that within the limits imposed by the size and tenor of the vein a considerable tonnage can be mined."

CONTINENTAL MINE (Gold) Tiller-Drew Area

Wells 31-32:57-61 describes the property as follows:

"The Continental deposit was discovered in 1897 or 1898 by a man named Chancy, who sold it to Kruse & Stewart about 1903. They operated it for about six years. In 1919 the mine was purchased by W. C. Bates, the present owner. In 1931 the mine was under bond and lease to Larsen & Elliot. The production is not definitely known. Evidence given in a law suit claims that ore worth $168,000 has been mined".

"The Continental mine is in the NW¼ sec.20, T.29 S., R.3 W. Willamette Meridian, on a very small stream that flows into South Myrtle Creek. It is located on the same vein as the Chieftain mine but about 1,500 feet to the west and a few hundred feet higher. The dumps are large and indicate that considerable work has been done. Some of the old workings are caved or filled, but about 1,000 feet of tunnel besides two raises and some of the stopes are still accessible.

"The vein has been explored along the strike for 500 feet and for a vertical distance of 250 feet. To the west the workings stop at the property line. The vein in general strikes east and dips 60°-75° N. In width it ranges from less than a foot to about 4 feet. There has been very little displacement of the vein along faults that strike northeast and are vertical or nearly so. The character of the vein and the kind of mineralization are the same as in the Chieftain mine.

"Two shafts have been sunk on this vein west of the Continental mine, on the Hall homestead, but both were caved when visited. Some vuggy iron-stained pieces of quartz were found around the collars of the shafts. East of the Chieftain mine there is a short adit on what is probably the eastern continuation of this vein. The quartz showed only a few scattered specks of pyrite.

"Mining in the past has been limited to taking out the vein material that yielded a profit. As the sulphide minerals are irregularly distributed the stopes were irregular in outline. The whole width of the vein was mined".

Reference: Wells 31-32:57-61.

COPPER BUTTE CLAIM (Copper) Tiller-Drew Area

Owner: Edward M. Renfro, 572 W.11th St., Eugene, Oregon.
Location: Six miles SW of Diamond Peak in sec.9, T.32 S., R.2 W. The property adjoins the Rowley mine on the south.
Miscellaneous Information: The ground was located by Renfro in 1937. Reportedly the Rowley vein extends into the Copper Butte Claim. There is no information available concerning work done or values obtained.
Informant: J. E. Morrison 38.

DAYS CREEK CHROMITE Tiller-Drew Area

Allen 38:51 states:

"Located in the center of sec.22, T.30 S., R.4 W., on the Umpqua River. A chrome-bearing zone lies within 50 feet of the eastern contact of a band of green, non-porphyritic, highly sheared and altered serpentine which trends somewhat east of north. The main outcrop of ore consists of a kidney striking E-W and dipping 70° to the south. It is 2 feet wide, at least 8 feet long and of uncertain depth, these dimensions not being completely exposed by the diggings. Thirty feet below this cut to the S. 35° E., chromite is exposed in another cut, about 200 to 300 pounds having been removed. The cut is caved, and at present no ore shows in place.

"The ore in both cuts appears low-grade, but a sample assayed 45.84 percent chromic oxide. It includes considerable rock material and is much sheared and broken.

"The outcrop lies about 200 yards north of (and 300 feet above) the Umpqua River road, which is a good secondary highway, at a point about 13 miles from the railroad at Riddle, Oregon."

GOLD CUT MINE (Gold) Tiller-Drew Area

(also known as Pennel Mine)
Owners: Pennel Brothers, Tiller, Oregon.
Location: One mile east of Tiller on the ridge north of Elk Creek in NE¼ sec.27, T.30 S., R.2 W.
Area: 160 acres patented land.
History: The first work was done in 1917 with additional work reported in 1932 and 1934.
Geology: A north-south fracture is intersected by two east-west fractures. A little ore is shown at these intersections and consists of quartz replacing quartz-diorite wall rock. Maximum surface of vein is 12 inches in width. A small amount of pyrite was seen. Samples were taken across 12 to 16 inches of vein giving results from trace to .08 oz. gold and traces of silver. It is reported that some ore showing free gold has been milled.
Development: Two opencuts about 15 feet apart vertically have dimensions as follows: Upper 60 ft.x 20 ft.; lower 60 ft. x 15 ft.
Equipment: One Gibson prospecting mill, one 2 hp. Fairbanks Morse engine, Buick engine and small tools.
Miscellaneous Information: Elevation 1200 ft. Plenty of timber; maximum snowfall 3 feet; no record of production.
Informant: J. E. Morrison 38.

GOPHER MINE (Quicksilver) Tiller-Drew Area

Owner: Guy Pennell, Tiller, Oregon.

Location: 1½ miles northwest of Boulder Creek bridge in sec.12, T.29 S., R.1 W., and 12 miles northeast of Tiller. The claim is located ½ mile west of Boulder Creek and on the north side of the third creek counting from the bridge.

Area: 20 acres, located in 1936.

Geology: Country rock is rhyolite, and it is reported that cinnabar can be panned over a distance of 1,000 feet. Four samples taken - two from the discovery tunnel, and two from an opencut about 600 feet northeast of the discovery tunnel, all ran a trace.

Miscellaneous Information: Elevation of the property about 2,000 feet; maximum snowfall 3 feet; plenty of timber and water. It would be necessary to build 1½ miles of road to obtain truck transportation.

Informant: J. E. Morrison 38.

MAUD S. MINE (Quicksilver) Tiller-Drew Area

Wells and Waters 34:45 give the following description:

"The six claims of the Maud S. mine were staked in 1926 by Ralph Young, H. H. Pennd, J. Leach, and Mrs. J. Darling. A few flasks of quicksilver have been produced. The workings are situated 1,400 feet S.26° E. of the Buena Vista mine and several hundred feet higher up the side of the gulch. The mine has 600 feet of workings distributed between 3 adits and 2 raises, one raise connecting the lower level with the intermediate level and the other connecting the intermediate with the upper level.

"The adits have been driven along a fault that strikes N.25° W. and dips 70° SW. They are all in sheared and altered porphyritic andesite cut by veinlets of calcite. A vein 3 to 4 feet wide of cellular rock incrusted and stained by hydrated oxides of iron and containing cinnabar and a little unoxidized marcasite has been followed by the upper adit. According to Mr. Leak, the vein material assayed about 2½ percent of quicksilver. In the intermediate adit, 29 feet below the upper adit, the vein material has pinched to a width of a few inches and is not oxidized. The pinching of the ore is probably due to the presence of a large amount of gouge in the fault zone, for although some calcite and marcasite have been deposited in the gouge the conditions are not favorable for mineralization. The fact that oxidation has not reached the intermediate adit should be emphasized. The rock exposed in the lower adit is cut by many anastamosing veinlets of calcite that range from a quarter of an inch to 2 inches in width. A little cinnabar and marcasite are associated with the calcite in the veinlets, and these minerals are also found disseminated through the rock. Part of the rock in the lower adit may assay 3 or 4 pounds of quicksilver to the ton, but not more."

Reference: Wells and Waters 34:45.

MOTHER LODE GROUP (Quicksilver) Tiller-Drew Area

Owner: Lewis Thomason, Drew, Oregon.

Location: On the south side of Cow Creek, in the southwest quarter of sec.16, and NW¼ of sec.21, T.32 S., R.2 W. The property may be reached by either of two routes: (1) by way of Tiller Trail Highway, turning west at the summit guard station on Three Horn Mountain road for a distance of six miles to the property; (2) by the way of Drew-Cow Creek road to the Thomason Group, from which a trail ½ mile long leads to the Mother Lode Group.

Area: Five full sized lode claims held by location.

Schuette 38:124-125 states:

"The Mother Lode Mine on Cow Creek consists of the Red Cloud, the Thomasen Prospect located in 1931, and the Mother Lode. These three claims (or claim groups) were acquired by the Research Mining Co. Development work was carried on in 1932 and 1933 and 30 flasks of quicksilver were produced with a 3-pipe retort. In 1934 the property was idle. In 1935 the property was bought by the late Dr. Russell Keizer and a few flasks were produced from his operation.

"There is an open cut on the outcrop. Below this is a 70-foot adit showing cinnabar in the last 30 feet. 50 feet below this adit is the lowest adit some 160 feet long and showing cinnabar in the last 60 feet. There is an intermediate adit the last 20 feet of which show ore and from the end of which a raise runs to the upper adit. A raise run up 54 feet from the lowest adit, missed the upper adit as it was on a parallel vein 12 feet from the ore in the upper adit.

"The ore between the upper and lower adits varies from 0 to 3 feet in width. It can be sorted to a 30 lb. per ton furnace product. A small 3-pipe retort capable of treating 600 lbs. of ore per day is on the property. The mining was done mostly by hand drilling although a compressor was used for a short time. The workings are closely timbered."

The ore occurs between the footwall and hanging wall of a shear zone about 15 feet wide in an acidic eruptive rock. Small veinlets are shot through both walls, with the hanging wall probably of higher grade and having a width of 2 feet. Cinnabar may be traced for over 3,000 feet along the shear zone, which strikes N.30° to 40° W. and dips steeply to the northeast. A grab sample from the ore bin which was filled returned 6 pounds of mercury to the ton. A sample across 18 inches of width from the No.2 level, returned 2.4 pounds to the ton. On the north end of the stope on the hanging wall side, a sample across a width of 40 inches gave 2 pounds per ton. It was reported that ore has been mined which by sorting has averaged better than six pounds per ton.

Miscellaneous information: Workings are at an elevation of 3000 feet; topography is mountainous; water and fuel are available on the property; rock is relatively easy to drill and break.

Informant: J. E. Morrison 38.
Reference: Schuette 38:124.

NIVINSON PROSPECT (Quicksilver) Tiller-Drew Area
(also known as Red Cloud Annex)
Owners: Frank E. Nivinson, Days Creek, Oregon, and Dr. A. J. Faucett, Glendale, Oregon.
Location: 12 miles south of Drew via the U.S.Forest Service Drew-Cow Creek road on Cow Creek in SW$\frac{1}{4}$ sec.16, T.32 S., R.2 W. The property is about $\frac{1}{2}$ mile north of the Mother Lode Mine, about $\frac{1}{2}$ mile northwest of the Red Cloud Mine, and about $\frac{1}{2}$ mile west of the Thomason group.
Area: 8 full claims and one fraction.

Geology and Development: Wells and Waters 34:47 state:

"The adits of Henry Nivinson are on the south slope of Cow Creek Gulch, several hundred feet northeast of the Red Cloud workings. Two of the adits are at the same altitude and within 15 feet of each other; the third is 200 feet farther up the slope. The adits are 30, 40, and 48 feet long. They are all in mica schist and follow for parts of their courses fractures that strike N.27° E. A few small stringers of calcite were seen, but no indications of cinnabar. Farther up the ridge a few shallow pits were examined, but none of these was sufficiently deep to pass below the weathered zone."

Miscellaneous Information: Elevation about 3000 feet; maximum snowfall about 6 feet, mountainous topography; no record of production; no equipment.

Reference: Wells and Waters 34:47.
Schuette 38:125.
Informant: J. E. Morrison 39.

PENNELL AND FARMER PROSPECT (Copper) Tiller-Drew Area

Shenon 33a:35 states:

"The prospect of Pennell and Farmer is on the South Umpqua River about 1 mile above Tiller. When seen by Mr. Pardee in July, 1930, a shaft equipped with up-to-date hoisting machinery was being sunk on the north bank of the river, preparatory to exploring the deposit with crosscuts in depth. The country rock consists largely of dark-green hornblende and quartz and shows a decided schistose structure that trends northeastward. Small pink garnets are sparingly scattered through the rock, and locally much of the hornblende is altered to chlorite. Here and there for a short distance outcrops exposed along the stream at low water contain grains and streaks of chalcopyrite sparingly distributed along the schistosity. Except that in places the exposures of mineralized rock are a few feet wide, the extent of the deposit is not shown."

Reference: Shenon 33a:35.

POLLANZ PROSPECT (Quicksilver) Tiller-Drew Area

Wells and Waters 34:45 give the following description:

"J. S. Pollanz staked the Hope, Faune, and Glory claims in sec.35, T.29 S., R.2 W., in 1927. These claims have been prospected by means of two adits, one 140 feet long in the Hope claim and one 80 feet long in the Glory claim. Both adits trend a few degrees east of north. The 140-foot adit, which is well down the side of Deadman Gulch, is in porphyritic andesite. No cinnabar was seen, but the rock was cut by a few veinlets of calcite and a little gray chert. The 80-foot adit is several hundred feet higher on the side of the gulch. It is in altered andesite, which is stained by oxides of iron produced by weathering. A few stringers of calcite and a very little cinnabar associated with the calcite were seen".

Reference: Wells and Waters 34:45.

RED CLOUD GROUP (Quicksilver) Tiller-Drew Area
Owner: R. W. Thomason, Drew, Oregon.
Area: Seven lode claims (unpatented)

Location: About 11 miles south of Drew by the way of the Drew-Cow Creek Forest Service road, which branches from the Tiller-Trail Highway south of Drew. The property is on the south side of Cow Creek mainly in sec.16, T.32 S., R.2 W.

History, Geology, and Development: Wilkinson 40:5 gives the following description: "In 1906 when the prospect was worked as a gold property, a tunnel, now caved, about 30 feet above Cow Creek, was driven for a distance of 150 feet. The property was first explored for cinnabar in 1930 when a tunnel several hundred feet above Cow Creek, having a trend of S.26° E. was driven a distance of 50 feet. Under lease in 1936-37, this lower adit was driven for a distance of 125 feet, and by 1940, it together with crosscuts had been extended until there is at present some 400 feet of tunneling on the main level. All other tunnels were caved and inaccessible, although the mining program called for opening the upper level.

"The main level follows a fault which has a strike of S.25° E., dip almost vertical. Samples of gouge from the face of the main tunnel contained paint-thin streaks of cinnabar, and much better ore was reported as occurring in a raise. Good samples of cinnabar associated with calcite were shown the writer, but these were not seen in place. All of the tunnels were being driven into the May Creek Schist formation which outcrops extensively throughout the area.

"The present operators have installed a jaw-crusher, bunkers, rotary furnace, and condenser. The plant is powered by electricity generated by diesel power. Some attempt to recover mercury had been made with little or no success, and as Mr. J. L. Pierson, mine superintendent, pointed out, a mine development program is essential to the successful operation of the recovery plant.

"It is reported that sixty flasks of mercury were produced in 1932."

Wells and Waters 34:47 described the geology as follows: "The May Creek formation, which is here a quartz-hornblende schist, crops out throughout this part of Cow Creek Gulch, though half a mile to the east the top of the ridge consists of volcanic flows.

"The present workings on the Red Cloud claim consist of two adits several hundred feet above the level of Cow Creek on the south slope. The lower adit is 50 feet long and trends S.26° E.; then it forks; one fork, 10 feet long, trends S.57° E.; the other 15 feet long trends south. The rock is fractured and weathered, but no fault gouge is exposed nor was any evidence of calcite or other mineralization seen. An old adit 50 feet above the creek was caved and inaccessible".

Reference: Wilkinson, 40:5.
Wells and Waters 34:47.
Schuette 38:124.

ROWLEY GROUP (Copper) Tiller-Drew Area
(Umpqua Copper Company)

Parks and Swartley 16:224-225 give the following description:

"Property consists of 14 claims known as the "Rowley Group" in sec.4, T.32 S., R.2 W., 20 miles northwest of Trail, in southern Douglas County, and 30 miles in an airline north of Medford.

"The ore bodies are found in a zone where shearing and compression have produced schist many hundreds of feet wide. Small sulphide lens-shaped masses of chalcopyrite and pyrite are found rather widely but irregularly distributed throughout the schist. These occurrences of sulphide which range in size from wheat grains to lenses an inch or more in thickness, together with a small amount of quartz associated with them are squeezed and drawn out in the planes or laminations of the schist, showing that they were formed either previous to, or during the movement which produced the schist. In the better looking areas which are 100 feet or more wide, they are found a few inches to a foot apart, with nearly barren material between. Under these conditions the principal problem in the development of the property will be to determine the volume of this schist which is sufficiently mineralized to make low-grade copper ore bodies.

"It seems probable that the property could be prospected to advantage by sinking a large number of drill holes over the more promising areas.

"Considerable development work by tunnels and open cuts has been done. In some of these cuts and tunnels which are usually driven nearly at right angles to the general strike of the schist, samples have been taken which give some promise of rather large low-grade copper deposits.

"Near the footwall side of this wide schist zone is found a massive sulphide vein which is traced by iron-stained capping for several hundred feet, and opened by 2 short tunnels near the bed of the creek. This vein is parallel to the schist and consists of nearly pure pyrite as much as 15 feet wide which is said to carry sufficient values in copper and gold to make it a low-grade ore."

Reference: Parks and Swartley 16:224-225 quoted.

SOUTH UMPQUA MINING CO. (Copper, quicksilver) Tiller-Drew Area
(Banfield Mine)

Owner: Oregon corporation; Dr.J. Allen Gilbert, president, Portland, Oregon; W. S. Long, secretary-treasurer, 3618 NE Couch St., Portland, Oregon.

Location and Area: Property consists of 9 claims, located in southern Douglas County, about 35 miles southeast of Riddle and 4 miles south of Drew postoffice, at the head of Drew Creek, one of the branches of the south fork of the Umpqua River, in sec.34, T.31 S., R.2 W. There is a good wagon road to the mine up the South Umpqua by way of Drew. The elevation is 2400 feet.

History: H. Banfield located the ground in 1900. Up to the time of his death in 1920, he had completed about 3000 feet of development work and built several camp buildings. In 1928, the property was leased and a small concentrating mill built. Gravity concentration methods employed were inefficient and the enterprise was unsuccessful. In 1931, the property was deed to the South Umpqua Mining Co.

Development: Occurrences of both copper ore and cinnabar are reported. The greatest amount of work has been done in developing copper ore. Five adits with total lineal underground development of over 3500 feet have been driven at different elevations in the ore zone, and these are reported to have partially developed two ore shoots although neither widths nor lengths have been defined. In 1935 some systematic sampling was done with results reported as follows:

The arithmetical average of 30 samples taken in the different tunnels and including both ore and waste was: copper 6.35 percent, gold 0.06 ounces to the ton and silver 1.38 ounches to the ton.

The average of samples in ore, weighed as to measured distances of samples was: copper 10.65 percent, gold 0.07 ounces and silver 1.7 ounces to the ton.

Cinnabar is reported as occurring both in portions of the underground workings and over an extensive area to the south at a higher elevation. Definite assay results are not available. An engineer's report states that cinnabar is visible in parts of the copper ore body, and that tunnels farther south show disseminated ore.

PARKS & SHARTLEY 16:24

Shenon 34:43 gives the following information:

"The property has had a great deal of development work done, several tunnels having been driven aggregating several thousand feet. It is on a schist belt several hundred feet wide. The general direction of shearing movement was north-south and dipping steeply to the east.

"The minerals are chalcopyrite and pyrite irregularly distributed through the schist in grains and lens-shaped masses, varying from pea size to an inch or more in thickness, showing by their shape and occurrence that they were formed either previous to or during the movement which produced the schist.

"No definite information concerning the average copper content in the workings is available. The occurrence is such as to suggest the advisability of systematically drilling the schist to determine the extent of low-grade ore.

"The Banfield mine is about 5 miles southwest of Drew, at an altitude of 2,400 feet. It is said to have been located as the Rainbow Lode, but it is now generally known by the name of H. Banfield, a former owner, who developed the deposit during a period of 20 years or more after 1900. A production of 52 tons of ore containing 10,059 pounds of copper and 19 ounces of silver was reported in 1928. In July 1929 a small crew was employed in repairing a concentrating mill near the mine. According to J. T. Pardee, who visited the mine at that time, the deposit is opened by several adits at different levels, and the underground workings are rather extensive. The country rock is chiefly greenstone that belongs to the older or pre-Tertiary rock group of southwestern Oregon. The greenstone is intruded by a body of porphyry of undetermined extent. In a zone that trends north and is 20 or 30 feet wide the greenstone and porphyry are bleached nearly white by hydrothermal alteration. Within this zone chalcopyrite and pyrite are irregularly distributed as stringers, grains, and bunches. The sulphides are accompanied by abundant magnetite and, locally, bunches of quartz having a coarse texture like pegmatite. Microscopic examination of a specimen of sulphide ore by M. N. Short shows it to consist chiefly of chalcopyrite studded with small crystals of magnetite. Some pyrite also is present. These minerals are cut by veinlets of carbonate and quartz".

Reference: Shenon 34:43.

THOMASON GROUP (Quicksilver) Tiller-Drew Area

Owner: Louis Thomason, Drew, Oregon.

Location: 11 miles south of Drew on the Drew-Cow Creek road in the SE¼ sec.16, T.32 S., R.2 W., at an elevation of 2800 feet.

Area: 2 lode claims (40 acres) held by location.

Miscellaneous Information: One 16-foot shaft in a poor state of repair. Mr. Thomason has tested several acres of ground with a posthole digger and reports favorable results. It is not known whether the cinnabar occurs in place or if placer material has washed down from some nearby source.

Informant: J. E. Morrison 38.

UMPQUA MINING COMPANY (Quicksilver) Tiller-Drew Area

(See Buena Vista Mine)

O. G. Graham, Portland, President; W. S. Copeland, Secretary, 5714 Williams Ave., Portland, Oregon.

UNION LEADER MINING COMPANY Tiller-Drew Area

"This company owns 97.74 acres of mining lands with improvements 12 miles east of Glendale at the head of Cow Creek in the SE¼ sec.36, T.32 S., R.5 W."

Reference: Parks and Swartley 16:226 quoted.

ZINC MINE Tiller-Drew Area

Callaghan and Buddington 38:130 give the following description:

"An isolated prospect on the South Umpqua River between Straight and Boulder Creek, in sec.23, T.29 S., R.1 W., and 13.3 miles by road east of the bridge at Tiller, in Douglas County, is known locally as the Zinc mine. Drifts penetrate both banks of the river slightly above the stream. The country rock is volcanic breccia that has been cut by two dikes of angite diorite, each about 150 feet wide and 200 feet apart. They lie on both sides of the vein on the north bank of the river and strike about N.20° W., though the vein, judged from an altered zone in the road, strikes N.60° W.

"The vein matter on the dump is chiefly altered volcanic breccia containing disseminated pyrite and composed largely of ankerite and clay minerals. Sphalerite occurs as irregular lenses associated with pyrite and galena. Some sphalerite contains blebs of galena and chalcopyrite visible only with the aid of the microscope. Calcite and marcasite are associated in vugs. Some of the calcite is black because of finely divided pyrite. No coarse quartz was observed, and there appears to have been little, if any, silification. The precious-metal content is not known, but it is expected that the amount of any ore developed will be small."

Reference: Callaghan and Buddington 38:

In August 1940 work was being done at this property by a group called the Plat-Norkea, reported as a partnership. Orville E. Walling, Box 485, Retail, Washington, and Tiller, Oregon, was in charge of operations. A treatment plant was being constructed which reportedly would beneficiate the ore by an electro-chemical process.

UMPQUA AREA

The Umpqua Area includes those parts of Douglas County not within the three previously described areas.

CASTEEL MINES COMPANY (Placer) Umpqua Area

Parks and Swartley 16:52 state:

"This company owns 160 acres of placer ground in secs.14, 15 and 22, T.28 S., R.4 W., 12 miles NE of Myrtle Creek. The company has worked these claims for the last 4 years and has taken out enough gold to pay all expenses, which included such work as ditches and flood dams. The mine is equipped with 2 large giants and 1200 feet of good pipe and all necessary tools for mining. Two men are employed at the mine the year around. Shortage of water is the only drawback. The company plans to build a large ditch 15 miles long, which will take in some 10 or 12 small creeks, and with plenty of rain or snow will be able then to run 7 or 8 months every year. Large bones and tusks of animals and many shells have been washed from the gravels. The mine has always paid well and some large gold nuggets have been taken out in the last 2 years which ranged from $3 to $25 each.

"The above information is furnished by J. F. McCormick, a stockholder."

Reference: Parks and Swartley, 16:52.

LAST CHANCE SULPHUR MINE Umpqua Area

Owners: There are 18 claims according to Mr. W. L. Huckabay. The owners are as follows:

Last Chance No. 1 - Frank Snyder, Hood River, Oregon.
" 2 - W. L. Huckabay, " "
" 3 - Mrs. M. L. Snyder,"
" 4 - Carlton Brown, Fortuna, Calif.
" 5 - Albert Huckabay, Assessor's Office,Portland,Ore.
" 6 - Tom Campbell, Hood River, Oregon
" 7 - Mary Campbell, "
" 8 - Robert Lenard, "
" 9 - Mrs. M. M. Evans, Trail, Oregon
" 10 - Owner unknown.
" 11 - Bill Zimmerley, Trail, Oregon
" 12 - Mrs.Denny Zimmerley, remarried, address unknown
" 13 - Owner unknown
" 14 - "
" 15 - R. C. Clark, Weaverville, Calif.
" 16 - D. L. Zimmerley, Trail, Oregon
" 17 - M. M. Evans, Trail, Oregon
" 18 - Merle Evans, Trail, Oregon

Location: One mile northeast of Weaver Mountain on the headwaters of Castle Rock Creek at an elevation of 5,000 feet in secs. 2, 3, 10, and 11, T.29 S., R.3 E. Most of the work has been done on the Last Chance Nos.1 and 2 claims which are located in sec.3 about 600 feet north of the common corner of the sections above named. These claims are about 4 miles by trail from the Diamond Lake Highway via Foster Creek.

Area: Eighteen full quartz claims held by location. None of these claims has been surveyed, and there is no accurate map.
History: Last Chance Nos.1 and 2 were located in 1904, and relocated in 1932 by the present owners. The other claims have been located since 1932.

Geology: The country rock is rhyolite. Elemental sulphur occurs as small lenses and masses in a well-defined fault zone filled with clay gouge and fault breccia. The zone, having a maximum width of 12 feet, strikes northerly and southerly and dips 45 degrees west. It can be traced on the surface for a distance of over half a mile. Sulphur is exposed both in two shallow opencuts about 100 feet apart in the fault zone, and also on the outcrop at more widely separated points, giving an indicated length to the deposit of about 200 feet. Deposition appears to have been along a fairly well defined plane in the clay about 3 feet from the hanging wall, forming narrow lens-shaped masses, varying in width from a fraction of an inch to 10 inches. A maximum width of 18 inches was reported.

A sample from each opencut, covering a width of 10 inches at each place, was taken. From the north opencut, the sample yielded 94.9% sulphur, and from the south opencut 94.9% sulphur.

Other similar deposits are reported to occur in the vicinity; one is said to be one-half mile to the west, and another about one-quarter mile south of the exposures described above.

Development: A small amount of work consisting of two short tunnels, both caved, and two opencuts, has been done. Untimbered openings in such material soon cave.

Miscellaneous Information: There is no equipment on the property. Timber and water are available. It is estimated that a road to give an outlet to the Diamond Lake Highway would cost about $2500. Such a road would not be open during winter months because of snow, which reaches a maximum of 15 feet. Nearest railroad connections would be (1) Yamsay Siding, 38 miles northeast, on the Cascade Line of the S.P.R.R., and (2) Medford, a distance of 65 miles.

Informant: Morrison 38.

OREGON PORTLAND CEMENT CO. Umpqua Area

Owner: Recently sold by O.P.C.Co., new owner's name unknown.
Location: $SE\frac{1}{4}$ sec.20, T.28 S., R.5 W.
History: Property abandoned in 1935 by O.P.C.Co. as quarrying costs were too high.
Geology: The limestone lens in the old glory hole was about 15' wide near the surface. It is bounded on the SE side by banded cherts and gray shales with narrow zones of sheeted chlorite (?) material. Some distance below the surface, a fault cuts off the steeply dipping lens, and here the limestone is 35' wide. An underground room was developed in this portion and the rock drawn via tunnel. The underground workings of the other stopes are caved and inaccessible.
The O.P.C.Co. explored the deposit by drilling and found that quarrying costs did not justify continuing the operation. Undoubtedly, more limestone is in place but faulting and included masses of country

rock would make quarrying relatively expensive.

Informant: Treasher, 40.
Reference: Hodge, 38 (Section III, Northwest Limestones, vol.1, part 1, p.274).

UMPQUA COAL CO. Umpqua Area

Owner: Oregon corporation; B. W. Maddox, president and secretary, 207 W. Jackson St., Roseburg, Oregon.
Location: In sec.16 and 28, T.23 S., R.8 W., about 17 miles west of Drain.
Area: About 800 acres.

Dr. Francis T. Jones, Forest Grove, Oregon, reports that the deposit consists of a flat-lying bed which outcrops at several places on the periphery of a hill. A tunnel now caved was driven an unreported distance into the bed many years ago. The coal is said to be a good grade of sub-bituminous, similar in quality to Coos Bay coal.

SUPPLEMENT TO BULLETIN 14-C, VOL. 1.

Additional Mining Properties in Curry and Douglas Counties.

After the bulletin went to press, knowledge of 34 mining properties in Curry and Douglas Counties came to the Department. Little information is on record at the present time concerning these properties. They are listed below:

Mine	Owner	Location	Area
Diamond Butte Placer	C.E.Illedge Ward Ingham, Glendale	T.32 S., R.7 W.	Riddle
Evans & Long Placer	Jim Evans and Long, Brockway	T.29 S., R.7 W.	Riddle
Grayback Mt.Mine	O.V.& Grace Logston & Bessie & Frank Cain, Riddle	T.32 S., R.6 W.	Riddle
Gold Bluff Mine	Mrs. Edna Brown Roseburg	T.31 S., R.5 W	Riddle
Gold Flat Mine	Ward Ingham, Glendale	T.32 S., R.7 W.	Riddle
Hackler Height Mine, Placer	Ernest D.Riddle, Riddle	T.30 S., R.6 W.	Riddle
Hart's Prospect	Benjamin & Annette Smith	Unknown	Riddle
Hummingbird Placer	C.P.Engelund, Dothan	T.32 S., R.7 W. above Cow Cr.	Riddle
Last Chance Mine	C.E.& Maggie Logston, Riddle	T.32 S., R.6 W. hd. Peavine Cr.	Riddle
Lubbe Bros.Placer	Fred R.& Wm.J.Lubbe, Azalea	T.32 S., R.4 W. on Starveout Cr.	Riddle
Oro Grand Mine	J. G. Rodman	T.29 S., R.7 W.	Riddle
Oregon Whitehorse Placer	Frank Williams, Glendale George S.Newman, Anchor	T.32 S., R.4 W. Azalea	Riddle
Ratcliff & Randell	Geo.Ratcliff & Martha Randall, Brockway	T.29 S., R.7 W.	Riddle
Saunders Placer	D.M.Thompson, Brockway	Bushnell Cr.	Riddle
Shaw & Degner Placer	John Shaw & R.Degner, Brockway	T.29 S., R.7 W. on Byrom Cr.	Riddle
Sweet Briar	James McAdams et al, Langlois	T.31 S., R.5 W. E.fork Ash Cr.	Riddle
Tennessee Gulch Placer	Geo. & Gilbert Durham, Bd.of Tr.Bdg., Portland	T.32 S., R.5 W. $5\frac{1}{2}$ mi. Azalea	Riddle

Mine	Owner	Location	Area
Tuller Placer Claim	Russell E.Sewall, 1125 Yeon Bldg.,Ptld.	T.32 S., R.7 W.	Riddle
Victory Mine	Walker & Purvine Box 143, Glendale	T.32 S., R.7 W. 8½ mi. W. Glendale	Riddle
Reynolds & Bell Placer Claim	W.G.Harding, Newberg	T.29 S., R.7 W. Bushnell Cr.	Riddle
Ash Creek Placers	E.L.Pfaff, Riddle	T.30 S., R.5 W.	Riddle
Cloudy Day Group (gold)	C.R.Cleveland Azalea	T.32 S., R.4 W. hd. Starveout Cr.	Riddle
Curtis Mine	L.A. & W.L.Curtis Azalea, Oregon	T.33 S., R. 4 W.	Riddle
Diamond Bard	G.S.Newman, Anchor F.V.Newman,Seattle	T.32 S., R. 2 W.	Riddle
Butcher Hill (quartz)	Thad Green, Port Orford	T.32 S., R.13 W. S.fk. Sixes River	Sixes
Rusty Gulch	Private Report		Sixes
Black Rock	W.W.Babbidge,105 Pacif. Bldg.,Portland	T.30 S., R.2 W.	Tiller-Drew
Coffee Cr. Placer	Joe Sulsbury et al, Route 1, Centralia		Tiller-Drew
Hall Mine	J.R.Hall, M.F.Hall, Myrtle Creek		Tiller-Drew
Monte Carlo	Jno.Howell,Dave Christ-pan & Everett Laird, Calhoun	On Stout Cr.	Tiller-Drew
Riddle Limestone			
Honey Dome Mining Claims		T.29 S., R.2 W.	Tiller-Drew
White Elephant Group, lode & placer	Caroline Wallace Agness, Ore.	SW¼,NW¼ sec.4, E.center sec.5, T.34 S., R.12 W.	Lobster Creek